

FROM THE CENTRALLY PLANNED ECONOMY TO CAPITALIST
GLOBALISATION: HOW ECONOMISTS UNDERESTIMATED THE GROWTH
OF THE WORLD MARKET

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DECLARATION

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William Jefferies

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DEDICATION.

To my brother Rob.

TABLE OF CONTENTS

COPYRIGHT PAGE.	ii
DECLARATION.	iii
ACKNOWLEDGEMENT.	iv
DEDICATION.	v
TABLE OF CONTENTS.	viii
LIST OF TABLES.	ix
LIST OF FIGURES.	x
GLOSSARY	xi
ABSTRACT	1
CHAPTER 1: Introduction.	3
1.1 Opening	3
1.2 Chapter 2	4
1.3 Chapter 3	4
1.4 Chapter 4	10
1.5 Chapter 5	12
1.6 Chapter 6	13
1.7 Chapter 7	17
CHAPTER 2: Marxist Method.	18
2.1 Marx's materialism and the dialectical method	18
2.2 Abstraction and the Labour Theory of Value	24
2.3 The nature of value	31
2.4 Transformation problem	37
2.5 National accounting and statistics	61
CHAPTER 3: The Measurement of Soviet Economic Growth.	66
3.1 Five year plans	67
3.2 Concrete and abstract labour	71

3.3	The <i>Balance</i> of 1923/4	76
3.4	The Soviet value debate	79
3.5	The <i>Materialy</i>	82
3.6	Colin Clark's Critique of Russian Statistics	86
3.7	Leontief's Russian National Income and Defense Expenditures	92
3.8	Julius Wylér's National Income of Soviet Russia	94
3.9	Alexander Gerschenkron	96
3.1	Naum Jasny	100
3.11	Kaplan, Hodgman and Shimkin	105
3.12	Abram Bergson	107
3.13	G. Warren Nutter	119
3.14	Conclusion	122
CHAPTER 4: From Capitalism and Back Again.		125
4.1	The CMEA, MPS and CIA	125
4.2	The USSR from stagnation to collapse	128
4.3	The Transition in Central and Eastern Europe	132
4.4	World Bank Guide to the Historically Planned Economies (HPEs)	135
4.5	Productive and unproductive labour and the market boundary	141
4.6	The World Bank and Goskomstat	152
4.7	IMF National Accounts in the Transition Countries	155
4.8	China to the plan and back again	161
4.9	Western estimates	166
4.10	China measures of transition	167
4.11	Conclusion	176
CHAPTER 5: Empirical Evidence.		179
5.1	National Income	179
5.2	Official statistics	183
5.3	The Transition in CEE and CIS	185
5.4	The Transition in China	186
5.5	Electricity	189
5.6	Aluminium	194
5.7	Hydraulic Cement	197
5.8	Steel	200
5.9	Automobiles	203
5.1	Gross Domestic Product (GDP) – Purchasing Power Parity (PPP)	205
5.11	China and Vietnam	207
5.12	CEE and CIS	209
5.13	Conclusion	215

CHAPTER 6: After the fall.	218
6.1 Bergson and the CIA reassessed	218
6.2 State capitalism	227
6.3 Marxism and globalisation	250
CHAPTER 7: Conclusion	282
REFERENCES.	299

LIST OF TABLES.

Table 3.1	Real Income per head of population at 1934 Sterling Prices	90
Table 3.2	Production of the most important commodities per capita of the population in the USSR and USA	94
Table 3.3	National income or product of the Soviet Union, 1928-40 at market prices in terms of U.S. Prices in 1940	96
Table 3.4	Investments in new Machinery, USSR, 1928-55, Alternative weights (1937 = 100)	114
Table 3.5	Gross National Product by Use, USSR, 1928-55, in 1937 Rouble Prices and Factor Cost (1937=100)	115
Table 3.6	GNP in 1937 prices	116
Table 4.1	Russian Federation: Shares in Manufacturing Ownership, Workforce and Output, 1992, 1995 and 1998, in percentages	132
Table 4.2	“Real” GDP growth in Central and Eastern Europe (% change)	133
Table 4.3	EBRD Transition Indicators for Russia and Poland selected years	136
Table 5.1	Private sector proportion of GDP % in CEE and CIS	186
Table 5.2	The proportion of Chinese output at market prices by sector	187
Table 5.3	CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned electricity production 1990-2010	192
Table 5.4	World Electricity Production 1990-2010	193
Table 5.5	Total, capitalist and centrally planned electricity production decade growth	194
Table 5.6	CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned aluminium production 1990-2010	195
Table 5.7	World Aluminium Production 1990-2010	196
Table 5.8	Total, capitalist and centrally planned aluminium production decade growth	197
Table 5.9	CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned hydraulic cement production 1990-2010	198
Table 5.10	World hydraulic cement production 1989-2010	199
Table 5.11	Total, capitalist and centrally planned hydraulic cement production decade growth	200
Table 5.12	CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned steel production 1990-2010	201
Table 5.13	World steel production 1989-2010	202
Table 5.14	World steel production decade growth	203
Table 5.15	CIS, CEE, Chinese total, capitalist and centrally planned steel production 1991-2010	203
Table 5.16	World automobile production 1991-2010	204
Table 5.17	World automobile production decade growth	205
Table 5.18	China and Vietnam during the transition; total, centrally planned and capitalist output 1978-2001	208
Table 5.19	The CEE and CIS during the transition, total, centrally planned and capitalist production 1989-2010	210
Table 5.20	World capitalist transition 1978-2010	214

Table 5.21	World employment 1978-2010	215
Table 6.1	USSR and G7, 1980s, proportionate break down of exports and imports percentage	244
Table 6.2	Manufactured goods tariffs, effectively applied rate, simple average of simple averages	256
Table 6.3	G7 percent of employment in industry and services	260
Table 6.4	German per capita GDP, Unemployment and Manufacturing Unit Labour Costs 1991-1998	263

LIST OF FIGURES.

Figure 5.1	China and Vietnam transition to capitalism	209
Figure 5.2	Capitalist transition CEE & CIS	211
Figure 5.3	Capitalist transition in the CEE, CIS and China and Vietnam	212
Figure 6.1	World trade US current dollars and prices millions	257
Figure 6.2	CPE and transition economies imports and exports % world 1948-2011	258
Figure 6.3	Transition economies FDI Inward and Outward flows % world 1990-2011	259
Figure 6.4	US rate of profit 1929-2012	267

GLOSSARY.

AFC - Adjusted Factor Cost
BP - British Petroleum
CCA - Capital Consumption Allowance
CCP - Chinese Communist Party
CEE - Central and Eastern Europe
CES - Conference of European Statisticians
CIA - Central Intelligence Agency
CIS - Commonwealth of Independent States
CMEA - Comecon (the Council for Mutual Economic Assistance)
CPE - Centrally Planned Economy
CPSU - Communist Party Soviet Union
EBRD - European Bank of Reconstruction and Development
FDI – Foreign Direct Investment
FSU - Former Soviet Union
G7 - Group of Seven; the U.S., Japan, France, Germany, Italy, U.K. and Canada
GDP - Gross Domestic Product
GGDC - Groningen Growth and Development Centre
GK - Geary Khamis
GNP - Gross National Product
HPE - Historical Planned Economies
IBRD - International Bank for Reconstruction and Development/World Bank
IMF - International Monetary Fund
IVA - Inventory Valuation Adjustment
JEC - Joint Economic Council
MELT - Monetary Equivalent of Labour Time
MIC - Military Industrial Complex
MPS - Material Product System
NBER - National Bureau of Economic Research
NDP - Net Domestic Product
NEP - New Economic Policy
NMP - Net Material Product

NNP - Net National Product
OCC - Organic Composition of Capital
OECD - Organisation of Economic Co-Operation and Development
OICA - International Organization of Motor Vehicle Manufacturers
OSS - Office of Strategic Services
PPP - Purchasing Power Parity
Project RAND - US Air Force Project Research and Development
RoP - Rate of Profit
SEZ - Special Economic Zone
SNA - System of National Accounts
SNIP - Abram Bergson's *The Real National Income of Soviet Russia Since 1928*
SSB - Chinese State Statistical Bureau
TMT - Thousand Metric Tons
TSSI - Temporal Single System Interpretation
TWH - Terawatt-hours
UN - United Nations
UNCTAD - United Nations Conference Trade and Development
USGS - United States Geological Survey
USSR - United Soviet Socialist Republics
WSA - World Steel Association
WTO - World Trade Organisation

ABSTRACT

The expansion of the world market in the 1990s was significantly accelerated by the transition of formerly centrally planned economies of the USSR, Central and Eastern Europe (CEE), China and Vietnam into capitalist ones. Prior to the introduction of the market in the Commonwealth of Independent States (CIS) and CEE during the late 1980s and in China and Vietnam from 1978, there was no genuine market production in them, by definition. This transition transformed these economies from top to bottom and subordinated them to market prices. In the CIS and CEE the transition to capitalism was profoundly destructive with huge output falls exceeding even the destruction wrought following the Nazi invasion of the Soviet Union in 1941. The collapse of centrally planned production was measured as a very large fall in national income by all of the official statistical agencies. In China and Vietnam the transition saw a general increase in output, as a consequence of the growth of the export oriented Special Economic Zones (SEZs) and expansion of agricultural production and the service sector. In neither case did official statisticians measure the distinctive growth of market production separate from the decline of centrally planned production. Rather official estimates of national income treated the central planned economy as if it were a market one. It was asserted that a non-capitalist economy could produce market value, including rents, profits and interest even without the exchange of commodities or landlords, capitalists and bankers. National income was assumed even in a centrally planned economy in which it did not actually exist.

This thesis traces the early efforts of Soviet statisticians to develop measures of the economy through the application of Marx's *Capital*. It shows how these efforts were transferred to the USA principally by the work of two Russian émigré economists Simon Kuznets and Wassily Leontief who established the US System of National Accounts (SNA) there. Under the direction of Abram Bergson, their work was then developed by the US Air Force Project Research and Development (Project RAND), who measured the centrally planned economy of the USSR as if it were a

capitalist economy and then extended to include the CEE, China and Vietnam after the transition of their economies to planning.

The transition of these centrally planned economies to market ones means that, if national income is a measure of economic production within the market boundary, the growth of production within the market boundary must be an expansion of national income. The use of these imputed measurements for non-existent national income in the centrally planned economies, explains why in the CEE and CIS when real market production and real national income were created during the transition to capitalism, an increase in national income was measured as a reduction of it. The expansion of market production became a contraction. The decline in centrally planned production and the imputed national income that measured it was misrepresented as a collapse of real national income rather than the creation of a real national income out of the central plan. It explains how these statisticians underestimated the already strong growth of capitalist production in China and Vietnam.

Through a disaggregation of various key physical indicators; steel, electricity, aluminium, hydraulic cement, and automobiles and official national income estimates, alternative measures of the growth of real national income during the transition period are developed, through the separation of centrally planned output from market output. This disaggregation demonstrates that the expansion of the market into the former centrally planned economies was indeed a growth of market production and was capable of being measured by national income.

Finally this thesis considers the implications of these new higher estimates of national income during the transition on the three areas of debate; firstly, the dispute within the neo-classical theorists around the applicability or otherwise of national income measures to a non-market economy, secondly, on the Marxist theory of State Capitalism and thirdly and finally on the various contemporary theories of globalisation predicated on a notion of the stagnation of capitalism. It presents an alternative conception based on Ernest Mandel's idea of long waves.

CHAPTER 1

INTRODUCTION

1.1 Opening

The collapse of the Berlin wall in 1989 signalled the end of the Cold War and the defeat of “Communism”. By the mid-1990s capitalist globalisation embraced the world. The transition of non-capitalist central planning to market capitalism threw a searching light on statisticians responsible for the measurement of economic output. If national income is a measure of economic production within the market boundary, then the creation of market economies out of the wreckage of the central plan should have seen an increase in capitalist national income. Something is, after all, more than nothing. But every statistical survey showed the opposite. The expansion of production within the market boundary was measured as a reduction of it.

This thesis explains this contradiction. It undertakes a critical history and reassessment of measures of Soviet national income from their origins in the USSR in the 1920s, to the USA in the 1930s and post-war reapplication back to the Soviet Union and other centrally planned economies. It shows that measures of Soviet national income abandoned the key material location of national income in the measurement of real value production in an actual market economy. Instead statisticians replaced the objective fact of market prices, with various alternative measures of their own creation. The demonstration of how an essentially subjective “National Income” was imputed to the centrally planned economies, in the absence of genuine national income prepares the ground for a reassessment of the growth of the world market with the transition of the centrally planned economies to capitalism.

This reassessment in its turn provides the empirical foundation for an evaluation of alternative theories of the central plan, including the post-crash criticism of the application of neo-classical measures from within that school, the Marxist theory of state capitalism and its implications for different theories of globalisation. Chapter 1 summarises this thesis through an outline of the contents of each chapter.

1.2 Chapter 2

Chapter 2 explains the interpretation of classical Marxism applied throughout this thesis. It traces the development of the materialist conception of history as developed by Marx and Engels through a synthesis of contemporary materialist and dialectical thought. It applies an interpretation of this conception as it was developed during the Second International, particularly by Plekhanov and subsequently by Rosdolsky after the Second World War. It considers the nature of abstraction and contemporary controversies over the notion of concrete and abstract labour in a capitalist market economy. It discusses how these issues have framed the so-called transformation question of values into prices of production. It examines how far, if indeed at all, the current debate has risen above a narrow mathematical and textual “solution” to this problem. It shows how this debate also frames the application of national income measurements to the centrally planned economy. Finally it discusses the problems with quantitative statistical analyses dependent on secondary statistics, as is the case with this study. It asserts that this is a strength rather than a weakness, as it is the interpretation of the statistics rather than the statistics themselves, which is fundamentally under consideration here.

1.3 Chapter 3

Chapter 3 traces the development of national income measurements from their origin in the Soviet Union in the early 1920s. This posed a novel problem from the inception of the Soviet regime in 1917. How to measure the value of output of an economy in transition from capitalism to planning? At root all estimates of national income aggregate the total value of production actually exchanged at market prices. Value is not a measure of the physical quantity of use values created or services produced, but of their exchange value, i.e. how much they are sold for on a market. But how is it possible to measure the value of production in an economy in which nothing is sold; where there is no market price; where the objective foundation of national income statistics is absent?

In 1923/4 Soviet planners developed the *Balance* to measure the output of the transitional market to the central plan economy, of the New Economic Policy (NEP) (Spulber 1965). This was based on an application of Marx's schemas of reproduction from *Capital II*. This was the first ever attempt to systematically measure national income in any economy (Kennessy 1994). Soviet economists were aware that Marx's theories and categories were an historical analysis of capitalism, predicated on the production of commodities for sale on a market. But given that all Soviet industries at the time were required to sell their production for profit and small peasant farmers marketed their surplus output, Soviet economists felt the application of Marx's categories could still provide a guide to the balance of the economy, albeit within certain clearly defined limits.

The young Wassily Leontief (Spulber 1965) pointed out other weaknesses to the *Balance*. In contradistinction to Marx's method the *Balance* only measured material production. That is the output of commodities with a physical existence. It did not measure the value of "unproductive" sectors, where production is bought but not sold, such as health care or the military and it did not include services, where production is consumed as it is produced, like opera, meals in restaurants or haircuts. Nonetheless, the *Balance* anticipated later Western national income measures and input-output tables. That is not surprising. The Western measures were developed by Leontief alongside another Soviet exile Simon Kuznets. Before the 1917 revolution Kuznets supported the Jewish Marxist Bund in the Ukraine and studied the works of Plekhanov, the founder of Russian Marxism. Kuznets briefly worked in the Ukrainian state statistics department after the defeat of the Whites before fleeing to the USA around 1921 (Kapuria-Foreman, Pearlman 1995). This theoretical legacy shaped his subsequent work, "It was the process of this loss of faith in the tenets of Plekhanov Menshevikism which coloured all of his later work" (ibid p1527). The influence on Kuznets of this early Marxist education on the US system of national accounts (SNA) developed by him in the early 1930s are clear to anyone acquainted with the various works.

After the introduction of the centrally planned economy (CPE) in 1928 the relative historical basis for the *Balance* was abandoned by the new Stalinist orthodoxy. Based on an unacknowledged debt to the “Mechanist” school of early Soviet political economy, the Stalinists now asserted that the law of value continued to operate in the centrally planned economy albeit in a modified form (Lapidus & Ostrovityanov 1929).

Stalinist theoreticians never could reconcile the operation of the theory with the absence of its precondition – objective abstract labour measured through the act of exchange. The 1930 *Materialy* accepted that the centrally planned economy produced use values, not value. It was no longer predicated on abstract labour time measured through exchange (Pervukhin 1985). It nonetheless sought to measure value production where no value was produced. It did so by assigning a “price” to the physical aggregate of labour time expended. This had some parallels to the labour theory of value that determined the price of production in a capitalist economy, but critically it did not measure socially necessary labour time, but concrete labour time. Inefficient production was “paid”, through an accounting mechanism, at a higher price than efficient production. Production units had a positive incentive to hoard labour and raw materials to ensure that they met planned targets. The objective basis of these national income statistics was no longer the fact of sale, but the subjective creation of the planning agencies. This was no longer national income as defined by Marx or described in *Capital*. But the official Soviet statistics of physical quantities of output and the amounts of labour required to produce them provided the objective foundation for nearly all subsequent estimates of Soviet national income, whether from the East or West.

The need for objective, independent or more accurately, Western estimates of Soviet output became acute during the Second World War. In 1939 Colin Clark - with the first ever application of purchasing power parity (PPP) - attempted to provide estimates of Soviet output independent from the official propaganda. Clark showed that when measured in Western prices, the growth in Soviet output was much lower than the official figures. During the war the demand for independent

information was a key intelligence requirement of the US military and diplomatic authorities. They needed to assess the military capacity of the Soviet economic base, its ability to withstand the Nazi invasion, its likely strength after the war, and the objective basis for any claims for reparations. Leontief drew up the first official estimate of Soviet output in 1943 under the aegis of the Office of Strategic Services (OSS), the wartime forerunner to the Central Intelligence Agency (CIA). Its Soviet Department was headed by the young Abram Bergson, who as a student of Leontief and Kuznets had written an early study of the Soviet wage system in 1937. The Soviet Department of the OSS was transformed into the United States Air Force Project Research and Development (RAND Project) after the war (Engerman 2009) as Bergson oversaw the extension the US system of national accounts to the USSR.

Bergson's project was not uncontested. Julius Wyler (1946), in collaboration with Paul Studenski, developed an estimate of Soviet output at US prices. Naum Jasny (1960), another Russian US based Marxist exile, sought to correct "distorted" Soviet planned prices. Jasny undertook a detailed examination of Soviet price statistics to show how the introduction of new machines distorted growth figures. These machines did not exist in the 1926 base year used in Soviet national accounts. Their price – an administrative price based on a subjective "value" - was estimated on their initial installation price attributed by the apparatus to aggregates of concrete labour time. This "price" - in fact a unit of account used to measure the physical quantity of labour required for production - was higher than the later "price", as efficiencies raised productivity with the expansion of the scale of production. The issue of how to account for the "hidden inflation" of innovation became a consistent theme of Western debates in the years to come. Alexander Gerschenkron (1951) an opponent of Jasny and colleague of Bergson at RAND, similarly noted how industrialisation affected the measure of national income. As pre-industrialisation base year prices were high their use would show a larger increase in output than lower post-industrialisation given year prices. This became known as the Gerschenkron effect and "correcting" for it, or more accurately using the lower given year prices, was the major means through which Western experts produced lower estimates of Soviet output than the official figures.

Western experts debated the accuracy of Soviet official statistics in general and the effect of central planning on prices. They concluded, albeit with different emphases, that Soviet statistics could be used to develop independent estimates (Grossman 1960). While different layers of the apparatus had material interests in distorting statistics in their own interests, the same pressures that provided managers with incentives to lie, limited the scale of their lies. Managers would lie to meet plan targets to secure bonus payments, but as the plan targets for the next period were based on the previous period, these lies tended to shift production between periods rather than raise its absolute level. Figures moved in consistent patterns and there was a correlation between outputs and inputs. The chimerical search for the “real” figures was never abandoned. But no such figures existed. Soviet prices were not market prices and without the objective act of sale never could be. Captured plan documents supported the view that there was no alternative set of figures used separate from the published ones. Hidebound by their adherence to a marginal utility theory that did not apply to an economy without consumer choice, none of the Western experts noticed that concrete labour times are not socially necessary labour times. Indeed, none of the Marxist experts did either. Stalin’s purge of the best of Marxist theorists in the 1930s meant that no alternative theory of the Soviet economy that accounted for this was ever created. Trotsky (1936), the former head of the planning authority in the 1920s, came closest of the Marxists, but his contribution, while acute, did not provide a systematic economic analysis of Soviet national income estimates.

There were essentially two methods or combination of methods developed. One set of experts priced physical quantities of Soviet output at Western prices; usually in US dollars but occasionally UK pounds. They then guesstimated appropriate amounts of depreciation and of the value of services, often based on a head count of the number of workers employed in a given activity. The other set of experts sought to revalue Soviet output to remove the price “distortions” of the central plan. These distortions, it was believed, rose from two sources. Jasny and Gerschenkron had highlighted the inability of the apparatus to account for the introduction of new machines but as important was the absence of rent, interest and

technical depreciation due to obsolescence, from the Soviet Material Product System (MPS). The issue of coverage, the MPS never measured the output of the service sector or government, was resolved by using comparable Western data.

Abram Bergson (1953) developed the definitive version of Soviet National Income. Bergson was aware that neo-classical marginalist theory was predicated on consumer sovereignty and therefore did not apply to an economy without markets, as the purchase of things was the means through which consumers expressed their preferences (Bergson 1964). But bemoaning the absence of markets in the centrally planned economy, Bergson argued that some theory – even if inapplicable - was better than no theory. Bergson’s 1930s study of Soviet wages argued that as there were wage differentials based on skills and output, a form of capitalist wage market existed (Bergson 1944). Bergson swapped consumer preference for planners’ preference. Planners were subject to the laws of neo-classical economics Bergson asserted, even if the prices signals necessary to influence their behaviour did not exist and could not be known.

Bergson and a large team funded by RAND and the CIA developed the most widely used “building block” method for estimating Soviet national income (Marer 1985). Bergson applied an adjusted factor cost (AFC) that re-priced Soviet output by redistributing official estimates of Soviet “value” and physical production, according to the categories of the market economy. It included estimates for interest, rent and moral depreciation, even though these were never charged in the central plan. It explicitly created a counter-factual estimate of what the value of Soviet output would have been if it were produced by the market economy that did not exist. These estimates were not real. But Bergson asserted that this counter-factual non-existent “reality” was more real than real. In fabricating an economy in the books, Bergson believed he described the “real” Soviet economy better than the real Soviet economy. Paradoxically, precisely because Bergson’s estimates were a reworking of official data, they were only marginally different from the figures of the Soviet authorities themselves. G. Warren Nutter (1962) produced an alternative estimate of Soviet industrial production at the behest of the Eisenhower administration but Nutter’s

insistence that it was not possible to produce a real estimate of Soviet national income and his position outside of the RAND Sovietologists, meant his criticisms of the entire project were sidelined.

1.4 Chapter 4

Chapter 4 examines how the Bergson AFC was applied across the CPEs including in Central and Eastern Europe (CEE) and China from the late 1950s on. It assesses the attempts to measure the Chinese centrally planned economy and then considers how statisticians measured the transition to capitalism and growth of real market production.

After the late 1950s the spirit of enquiry, which was so obvious in the initial often bitter debate, evaporated. Bergson's theory became an almost unquestioned orthodoxy. This method, backed by the might of the CIA and official agencies like the World Bank, was then applied across to all of the new centrally planned economies that arose after Second World War to the CEE, China, Cuba and Vietnam. The field stagnated until the unanticipated collapse of the centrally planned economies in the late 1980s.

The collapse of "Communism" re-opened elements of a debate around Bergson's method. Western statisticians faced a fundamental problem. By valuing centrally planned production as market production Bergson's method obliterated the distinction between central planning and capitalist commodity production. When real market production was created during the transition, Bergson's method was unable to measure the creation of real national income, as according to his counterfactual accounts, national income existed in the books, before it existed in reality.

Neo-classical economists were also confronted by the results of the big bang privatisation of the centrally planned economies of CEE and CIS. They had not predicted the collapse of production that resulted from the introduction of market prices. According to their orthodoxy freeing the economy to allow the operation of

market forces should have led to a rapid growth in output as inefficient sectors were priced out of operation to be replaced by efficient market producers. Enabling consumers to express their preferences would increase total utility. Everyone would be better off and happy. Instead output collapsed. Income inequality soared as elements of the apparatus and Western sponsored capitalists seized huge quantities of assets for very low or zero prices. Economists resolved this problem with a two-pronged strategy. They ignored it or they explained it away. The transition from one mode of production (central planning) to another (capitalism) was viewed as a statistical problem by the accountants of the International Monetary Fund (IMF), Organisation of Economic Co-Operation and Development (OECD) and World Bank. The issue was not the creation of a new market system of production, but of the transition of the accounting systems from the old MPS of the central plan to the SNA of the market economy. While celebrating the destruction wrought by the market and the creation of a capitalist economy in reality, they revised down the original size of the Soviet economy, to reduce the absolute fall in production and derived alternative estimates of the change in physical production to reduce the size of the relative fall. These alternatives disputed the quality of centrally planned production, noted the resilience of electricity output, the under reporting of new market production and changes in trade subsidies. Indeed Anders Aslund, a neo-conservative adviser to Yeltsin during the first phase of privatisation, concluded the output collapse was a “myth” (Aslund 2001).

These re-estimates were no more objective than the original ones. Neither of the alternative versions of “reality” could be tested against actual market prices, as real market prices did not exist before the market existed. The relatively lower fall of electricity production during the early phase of transition concealed the collapse of production of the high value sectors in a market economy, like machine tools, where output fell by 80%. In a market economy such a collapse in production would have affected prices due to the operation of supply and demand. This is precisely what could not have taken place during the initial years of the transition. Genuine market prices only began to determine production decisions after the 1998 East-Asian crash. The decline of physical output measured during the transition to capitalism certainly

occurred. The total quantity of use values produced by the central plan slumped. But whatever the scale of the decline of the physical production of use values, production within the market boundary increased. As national income is a measure of production within the market boundary, then national income - real value production realised in real market exchange - increased inversely to the fall in the total output of use values.

Simon Kuznets had overseen the application of Bergson's methods to China during the mid-1960s, but until the late 1970s Western estimates of Chinese national income had suffered due to the paucity of official statistics available there. This was partially addressed after 1978 as China improved its statistical reporting alongside the implementation of a programme of market reforms. This market reform programme was initially aimed at subsistence farmers who were permitted to market their surpluses. These reforms were then rapidly extended through the 1980s to the so-called Special Economic Zones (SEZs) which supplied cheap labour to foreign multi-nationals, culminating with the subordination of the state industrial sector to market prices in the late 1980s. The rapid growth of the market sector seemed to provide Western analysts with a straightforward application of their theory. In this instance the introduction of the market did lead to a rapid increase in output. By the end of the first decade of the Twenty First Century, China was the second largest capitalist economy in the world. But even here, by aggregating the output of capitalist and non-capitalist sectors, Western statisticians underestimated the growth of China's distinctively capitalist production and real national income.

1.5 Chapter 5

Chapter 5 presents an alternative method for measuring the growth of market production and therefore real national income during the transition period. By disaggregating the output of the centrally planned and market economies it is possible to estimate the growth of distinctively market production and real national income during the transition to capitalism. The European Bank for Reconstruction and Development (EBRD) published estimates of the proportion of total output produced for the market during the early transition period in the CEE and CIS. In China, official statistics reported by the OECD show the growth of market

production in the producer, service, and agricultural sectors. By deflating aggregate figures by the proportion of market production, a much closer approximation to the real growth of national income in the transition economies can be estimated. This can be illustrated through the proportion of physical outputs produced for the market and through national income estimates. This study uses the production of electricity, a vital indicator of production across the economy, aluminum, a basic manufactured material requiring extensive infrastructure, hydraulic cement, a key input in construction, steel, a key input in construction and manufacturing and automobiles, an advanced manufacturing product requiring high levels of technological development, to indicate the growth in the proportion of world capitalist production produced in the transition economies. It proves two things. Firstly, that capitalist production and therefore, value production, increased significantly even in the CIS and CEE. Secondly, that the growth of output in the transition economies has been offset by the decline in industrial output of the older Western G7. It deflates GDP (PPP), measured using the Geary Khamis purchasing power parity method, that was applied by the Groningen Growth and Development Centre (GGDC), to show how the growth of physical capitalist production is mirrored in national income statistics.

1.6 Chapter 6

Chapter 6 assesses the impact of the reassessment of the growth of world national income during the transition period on three illustrative debates; the discussion of neo-classical theorists around the use of the adjusted factor cost (AFC), the “state capitalist” theory of the nature of the USSR and globalization with a particular focus on the theory of “long waves”.

Stephen Rosefielde was a former Bergsonian who after the collapse of central planning, questioned key aspects of Bergson’s AFC. He pointed out that this AFC was an ideal quantum with no existence in the planned economy. How could planners respond to the AFC if it did not exist? How could “planners’ preference”, the claimed alternative to market price, shape planning decisions when it was an unknown unknowable. Rosefielde provided mathematical proof, if that was necessary, that it could not. He added that as Soviet output could not be sold during

the transition at any price, it must have been useless. If it was useless, so it must be valueless. If it was valueless then measures of Soviet national income – a measure of value – must have been overestimated. The entire notion that the central plan developed the economy, even during the peak periods of advance such as the mid-1930s, was false. Conversely, Mark Harrison asserted that the Soviet planners did indeed develop the productive resources, that the growth in output was real. As it was real, so it was useful, if it was useful so it had a value. Each side shows the weakness of the other. The Soviet economy was a planned not a market economy. It produced nothing for sale and so nothing was sold. As price is a measure of sale, if nothing was sold, so nothing had a price. If nothing had a price, then prices did not exist, if prices did not exist, then they cannot be a measure. The production of the central plan was real, but of use values, not exchange values. The marginalist elision of use value and exchange value ends up chasing its own tail.

The Marxist theory of state capitalism is investigated through the variant of the theory developed by the International Socialist tradition. The thesis shows why it fails to adequately describe the nature of the USSR or of the transition from central planning to capitalism. Cliff's (1988) original 1948 work was internally contradictory and empirically unfounded. It was based on a Hilferding's (1947) polemic against state capitalism and a series of works by Bukharin (1982). Cliff defined capitalism as a system of generalised commodity production subject to the law of value. Cliff then explained that the central plan was not a system of commodity production and that even though military competition with capitalist states influenced the nature of output, how use values were produced and their type; it did not subject the central plan to the law of value inside the USSR. He nevertheless concluded that the USSR, or Russia as he called it, was capitalist. At a basic level of definitions this makes no sense. This rank confusion, unable even to distinguish between the inside and the outside of a thing, defined the state capitalist tradition from thereon in. Theorists contradicted themselves and each other, so that during the transition period, some theorists attributed the collapse of the USSR to the prior operation of the law of value while some other theorists attributed the collapse

of the USSR to the re-introduction of the law of value. All claimed to adhere to the same theory.

Finally this section considers how the distorted empirical picture of globalisation created by Western statisticians influenced theories of political economy. The rate of profit, the key driver in a capitalist economy, depends on the proportion between living labour and dead labour. This is the organic composition of capital. A high proportion of living labour to dead labour, assuming an average rate of exploitation, produces a high rate of profit and vice versa. Through the course of several cycles of the accumulation process, the proportion of dead labour relative to living labour tends to increase, as it does so the organic composition of capital rises resulting a tendential fall in the rate of profit. This inflation leads to an increase in the price of both constant and variable capital and therefore in the price of the total capital to be invested in reproduction. The combination of this increase in the price of capital combined with a fall in the mass of profits precipitates a rapid and destructive fall in the rate of profit. This occurred in the 1970s but was temporarily resolved with the advent of globalisation in the 1990s.

Profit rates can be restored and the conditions for a new long cycle established, either through the destruction of capital accumulated during economic crises or wars or through the expansion of the proportion of living labour relative to accumulated capital by the extension of the world market. Globalisation fulfilled both conditions. The transition economies had little or no capital accumulated, they were not societies predicated on capital accumulation, but had a large highly skilled workforce with very low wages. The growth of China meant that the one-off increase in the world labour force from capitalist restoration was supplemented by a rapid increase in urbanisation as small farmers became wage labourers. This enabled Western capitalists to consolidate the defeat of their domestic labour movements, which was launched in the 1970s/80s neo-liberal offensive allowing the physical relocation of manufacturing production to the transition economies and particularly China. This lowered the world organic composition of capital and restored profit rates. These high profit rates were concentrated in the multi-national corporations

and made them less dependent on the banking system for the financing of their expanded reproduction. The banks loss of their major big business borrowers, forced them to concentrate on the retail market, mortgages, loans and credit cards. The glut of finance capital and low interest rates encouraged investment bank speculation resulting in the credit crunch of 2007/8.

But theorists of political economy, particularly from the Marxist tradition, including Robert Brenner (2009), Alex Callinicos (2009), Andrew Kliman (2012), Alan Freeman (2003), David McNally (2011) and David Harvey (2010), have used the national income statistics developed by Western agencies to argue that far from globalisation being a period of the rapid expansion of the productive forces it is one of “absolute” or at least relative stagnation. This thesis proves them wrong. Once the collapse of central planning is disaggregated from the growth of capitalist production, this empirical picture is clearly false. This study contrasts the approaches Sam Gindin and Leo Panitch (2012) and Guglielmo Carchedi (2012) and the wider response of Marxist political economists to the recent credit crunch. It uses the higher growth rates proven by the disaggregated national income figures to support the argument that globalisation constitutes a new upward long wave of capitalist development.

1.7 Chapter 7

Chapter 7 provides the conclusion to the entire thesis. It reiterates the distinctive contributions to knowledge made and points to further possible avenues of research. The contributions are at several levels, they address contemporary discussions in Marxist theory, such as a novel if not entirely new method of addressing the debate around the transformation problem, provides a rigorous answer to the concept of state capitalism and reasserts the empirical foundation of the long wave theory. In the debate around the application of value measures to non-market economies, it shows that without the empirical fact of market exchange, then such applications have some comparative worth, but are not, and can never be, an actual measure of the real “value” or national income produced in economies which did not produce value or national income. It resolves the issue around the truth or otherwise

of Soviet statistics, by pointing out that they were both true and not true. True, more or less, as a measure of physical output, but not true as a measure of market output without a market. It provides a history of the progress of these measures and assesses their worth against the empirical data. Finally it develops a new method of measuring national income during the transition period, by disaggregating the output of the central plan from the market.

CHAPTER 2

MARXIST METHOD

There is no consensus amongst Marxists or Marxians around Marx's method in general (Moseley 1993) or more specifically in *Capital*. Marx never wrote the conspectus to outline his dialectical and materialist method (Plekhanov 1976). Had he done so there is no reason to believe that Marxists or Marxians would be any the clearer. The chaos and confusion over Marx's method is a product of the historical period in which we live. The destruction of the old world certainties, due to the collapse of the USSR, the triumph of capitalist globalisation and the marginalisation and the decline of working class struggle are the material context that underpins the decline, chaos and confusion of contemporary Marxism. A Marxist could expect nothing else. The ideas of any age reflect the social situation from which they emerge. This outline will consider the nature of the materialist dialectic and Marx's method in *Capital*, through an examination of some contemporary debates. This thesis is based on the classical Marxist tradition established and developed by Marx, Engels, Georgi Plekhanov (the major Marxist philosopher of the Second International) and more recently Roman Rosdolsky's (1977) *Making of Marx's Capital*.

2.1 Marx's materialism and the dialectical method

Marx's method developed in a particular historical period and bears all the hallmarks of that period (Riazanov 1973). It synthesised classical German philosophy and French materialism, British classical political economy and French socialism (Lenin 1977). There can be no absolute truth of Marx's method any more than there can be an absolute truth of any other real thing. The following exposition develops the version of that method that has been applied through the course of this thesis. Marx described his use of the dialectical method as "in its foundations, not only different from the Hegelian, but the exact opposite of it", his mode of expression played with the Hegelian form or "coquetted" with it, but his abstractions were based on real life (Mattick Jr 1993). They were not an *a priori* construction

derived from a separate “Idea” or God (Marx, 1982, *Capital I*, p102-3). Marx was a materialist. His method of enquiry demanded first of all “the appropriation of all the material in detail, to analyze its different forms of development and to track down their inner connection” (p102). What he took from Hegel was both a method of enquiry and of presentation as Engels put it, “Marx was and is the only one who could undertake the work of extracting from the Hegelian logic the nucleus containing Hegel's real discoveries in this field, and of establishing the dialectical method, divested of its idealist wrappings, in the simple form in which it becomes the only correct mode of conceptual evolution” (Engels, 1977, *Postscript Critique*, p224/5). Dialectics recognises only relative, that is specific and concrete truths (Engels, *Ludwig Feuerbach*, 1978). As “every actual thing involves a coexistence of opposed elements... to comprehend an object is equivalent to being conscious of it as a concrete unity of opposed determinations” (Hegel 1975, p78).

The constantly changing nature of the world means the purpose of the dialectic “is to study things in their own being and movement and thus to demonstrate the finitude of the partial categories of understanding” (Hegel 1975, p117). The static antimony of absolute being and nothing are replaced by becoming, “Becoming is the first concrete thought, and therefore the first notion; whereas Being and Nought are empty abstractions” so that “becoming is the first adequate vehicle of truth” (Hegel 1975, p132). This implies a potential contradiction indeed opposition between the appearance and the essence of thing, as Hegel remarked in the *Science of Logic*, “The truth of being is essence” (Banaji 1979, p37). Every real thing is a unity of opposites, in contradictory movement between one pole of the existence and the other, from life to death and vice versa, as the accumulation of quantitative changes results in a qualitative change, “the quantitative features of existence may be altered, without affecting quality...this increase and diminution...has its limit, by exceeding which the quality suffers change” (Hegel 1975, p159). This series of quantitative and qualitative changes is ceaseless, with the appearance of the lower form, absorbed within and simultaneously negated by the higher, until the negation is itself negated and so on ad infinitum (Engels, *Dialectics of Nature*, 1978b) and sudden “The features of this conversion are those of a leap, a break with

gradualness” (Plekhanov 1976a, p127). The accumulation of quantitative change results in qualitative transformation, but always requires an additional impetus, so to raise the temperature of 1ml of water from 98° to 99° requires 1 calorie, but to raise it from 99° to 100° requires 44 calories.

Quality further describes a situation when a thing shares an essential property or characteristic with another thing, while different quantities of that thing can be measured quantitatively. Dialectical logic incorporates Aristotle’s syllogism but enables it to escape from the dead end of static absolute categories and their abstract juxtaposition. Truth is no abstract absolute but relative, established through the necessarily imperfect correspondence of the idea with the actually existing thing, known through experience, “Those sciences, which thus got the name of philosophy, we call empirical sciences, for the reasons that they take their departure from experience” (Hegel 1975, p10).

The relation of thinking and being divided philosophy into opposed camps of idealism and materialism (Engels 1978a, *Ludwig Feuerbach*, p22). Those who regarded ideas, the spirit or God as primary were idealists, those who regarded nature, matter or profane reality as primary were materialists. Nature contained all knowledge that humans could know, outside of nature nothing does or could exist, no matter how limited our experience of it is “we must rest content with the faint glimpses of the truth that reached us through the medium of our external senses” (Baron d’Holbach *Systeme de la Nature* 1781, cited in (Plekhanov 1976b, p392)). “However superficial the knowledge our senses provide us with, it is the only kind of knowledge that we can have” (Plekhanov 1976c, p411-412). All consistent philosophers who argue for the primacy of the idea (God) or of matter (nature) are monists, whether they be objective idealists like Hegel or subjective idealists like Berkeley (2009). Monists oppose eclectics or dualists, like Kant (2003), who argue that both ideas and matter can be predominant simultaneously (Plekhanov 1972). All thought is abstract, it is not the thing that it represents, but the degree to which the thought corresponds to the thing makes it concrete or true, “The search after concrete truth is a distinctive feature of dialectical thinking” (Plekhanov 1976, p357). The

proof of the thought is demonstrated by practice. The proof of the pudding is not in the contemplation of the correct idea of “pudding” but in the eating, Plekhanov concluded that “The theory of experience, which takes Nature as its point of departure, enables us to avoid both the inconsistencies of Kantianism and the absurdities of subjective idealism” (Plekhanov 1976c, p411-412). Marxists like Guglielmo Carchedi (2012) and Paul Paolucci (2009) claim that Engels was wrong to apply materialist dialectics to nature (Engels, *Dialectics of Nature*, 1978b). They say that Marxism is a separate social theory that has application only to human society. Certainly the truth is concrete. Human laws apply to human society. Capitalist laws apply to capitalist society. The nature of the world is shaped by and shapes the interaction of human beings with it. But Carchedi and Paolucci have failed to understand the significance of nature for materialism. For materialists the natural world is synonymous to and coincident with real, actually existing objective reality. Humans are part of that natural world and natural laws suitably modified must therefore apply to humans. Human beings are nature conscious of itself, not identical to nature, but a part of and inseparable from it,

“We know only a single science, the science of history. One can look at history from two sides and divide it into the history of nature and the history of men. The two sides are, however, inseparable; the history of nature and the history of men are dependent on each other so long as men exist” (Marx & Engels, 1978, *German Ideology*, p34).

To assert that natural laws are inapplicable to human society is a contradiction in terms and wrong in fact. Humans are subject to chemical, physical and biological laws. The enlightenment materialists explained that the consciousness of human beings was similarly a product of their material environment. The existence of people determined their consciousness. What they could not explain were the laws that determined that material environment (Plekhanov 1972).

The solution to this problem was provided by the materialist conception of history independently developed by Marx and Engels (Marx, 1977, *Critique*, p22).

The laws that determine the nature of society are rooted in the development of the productive resources. These determine the methods through which people produce and reproduce society. These social relations of production are the product of necessity and are entered into unconsciously, they in turn produce the people that produce them. They determine the existence and therefore, consciousness of people. This historical science did not limit itself to society's economic anatomy, it dealt with the totality of phenomena directly or indirectly conditioned by the social economy, including the imagination (Plekhanov 1976b, p232). To the extent that all humans are subject to laws that are the unintended result of necessity, these laws can be studied objectively and can be described as "scientific". Freedom is the recognition of necessity.

This was the science of history, of the real social relationships that govern the production and reproduction of human life (Marx & Engels, 1978, *German Ideology*). All animals are a product of their environment and adapt to it through natural selection. Human beings, uniquely, produce the environment that produces them through their conscious labour,

"Labour is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature. He confronts the materials of nature as a force of nature. He sets in motion the natural forces which belong to his own body, his arms, legs, head and hands, in order to appropriate the materials of nature in a form adapted to his own needs. Through this movement he acts upon external nature and changes it, and in this way he simultaneously changes his own nature" (Marx, 1982, *Capital I*, p283).

This was particularly evident from the sixteenth century as the rise of capitalism destroyed the material basis for the old feudal way and overthrew the rule of the church, landlords and monarchs in a series of wars and bourgeois revolutions. As the economic foundation of society changed so did the nature of the civil society that rested upon it. Hegel understood that the development of society was an

unintended consequence of individual human beings acting in their own material interests. He argued that men “are out to ensure that their interests are met, but, thanks to that, something else is realised, something that is latent in them, but is not consciously realised and formed no part of their intention” (cited in Plekhanov, 1976a, p127). The aggregate of those separate interests and the intentions they produced was a result that no one had intended. The laws that produced this unintended result were the laws that explained the nature of society. Idealism could never satisfactorily explain why, if the idea created the world did the world change and with it people’s ideas? The answer to this question resolved the problem of the relationship between thinking and being and so led Engels to describe the materialist conception of history as the end of classical German philosophy (Engels 1978a, *Ludwig Feuerbach*). According to Marx,

“In the social relations of their existence, man inevitably enter into definite relations, which are independent of their will, namely, relations of production appropriate to a given stage in the development of their material forces of production. The totality of these relations of production constitutes the economic structure of society, the real foundation, on which arises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness” (Marx, *Critique*, 1977, p20/21).

That was not to reduce social development to economics. Other material factors and their interplay played their part, but economics were in the last analysis primary. Plekhanov considered that the question of the development of the economy was for Marx, in the first instance, foremost solved by reference to the nature of the geographic environment, but the influence of the natural world declined alongside the development of the productive resources. As soon as they had arisen, the social relations themselves exercised a marked influence on the development of the productive forces, “thus that which is initially an effect becomes in its turn a cause;

between the development of the productive forces and the social structure there arises an interaction which assumes the most varied forms in various epochs” (Plekhanov 1976b, p145).

2.2 Abstraction and the Labour Theory of Value

The materialist conception of history was predicated on an examination of the real social relationships that shaped the economic foundation of society and the ideas that stemmed from it,

“The premises from which we began were not arbitrary ones, not dogmas, but real premises, abstractions made from them exist only in the imagination. They were the real individuals, their activity and the material conditions under which they live, both those which they find already existing and those produced by their activity. These premises can thus be verified in a purely empirical way” (Marx & Engels, 1978, *German Ideology*, p36).

All thought is an abstract representation of a concrete reality which does not exist – except as thought. Thought is true to reality and remains connected to it to the extent that it corresponds to the reality it comprehends. Thought cannot be true in the abstract, but a thought can be true, that is concrete, to the extent that it corresponds with the reality it describes. The test of the correctness of a method of analysis is not then its adherence to a subjectively defined method, but its ability to comprehend reality concretely, that is, as it actually is.

Georg Lukacs asserted that orthodox Marxism consists of “the scientific conviction that dialectical materialism is the road to truth” (Lukacs 1975, p1). This definition is basically accepted by Bertell Ollman (Ollman 2003, p59) and John Rees (Rees 1998). It is essentially unscientific. The world exists separately from the methods used to analyse it, including from Marxist methods. The quality of Marxist theory is not judged by its fidelity to the theory, but by results, the correspondence of this method with the real life of actual people. All methods that approximate reality

are concrete or “true” to the extent that they do so. Marx’s application of dialectics to the material world was successful to the degree that it enabled the explanation of the actual social relationships that shaped people’s lives, and therefore, the laws that determined the nature of society,

“Where speculation ends – in real life – there real, positive science begins: the representation of the practical activity, of the practical process of development of men. Empty talk about consciousness ceases, and real knowledge has to take its place. When reality is depicted, philosophy as an independent branch of knowledge loses its medium of existence. At the best its place can only be taken by a summing-up of the most general results, abstractions which arise from the observation of the historical development of men. Viewed apart from real history, these abstractions have in themselves no value whatsoever” (Marx & Engels, 1978, *German Ideology*, p43).

To separate Marx’s method from the reality that it was developed to investigate, is then paradoxically, to depart from the essence of that same method, to transform it from a method of analysis into an “independent philosophy” separate from it. It transforms Marxism into a species of Kantian Pure Reason, with Marx playing the role of the absolute Idea or more prosaically God. It separates the theory from the world that it is tested against. It replaces an objective standard with a subjective one,

“The question of whether objective truth can be attributed to human thinking is not a question of theory but is a practical question. In practice man must prove the truth, that is, the reality and power, the this sidedness of his thinking. The dispute over the reality or non-reality of thinking which is isolated from practice is a purely scholastic question (Marx, 1978, *Theses on Feuerbach*, p65).

The point of the new materialist philosophy of Marx and Engels was to change the world, the proof of it was their ability to do so. Marx discussed the

method of political economy in the Introduction to *Grundrisse*, his notebooks on capital that were reprinted in part as the *Contribution to the Critique of Political Economy* (1977). Engels (1977) noted in his review of that work, “The working out of the method which underlies Marx's critique of political economy is, we think, a result hardly less significant than the basic materialist conception” (p225). Marx pointed out that in considering a given country from the point of view of its political economy, it seemed correct to begin with the concrete and real - with population. On examination however, it became clear that this was an abstraction itself that consisted of classes, wage labour, capital, and division of labour and so on. It was necessary to move from the imagined whole to the more fundamental, simpler components. Once these were discovered the picture of the population ascends from,

“The simple relations, such as labour, division of labour, need, exchange value, to the level of state, exchange between nations and the world market. The latter is obviously the scientifically correct method. The concrete is concrete because it is the concentration of many determinations, hence the unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and hence also the point of departure for observation and conception” (Marx, 2005, *Grundrisse*, p100/101).

David Harvey (2010) in his *Companion to Marx's Capital* claims that Marx's understanding that the value of a commodity rested in the expenditure of “identical human labour power” was an “a priori assertion” (p19). Harvey confuses what appears as a point of departure with a result. All economies based on class society share certain natural features, the need to produce and consume, the objectification of past labour in means of production and the extraction of surplus labour to provide for investment and saving. What is different about a capitalist economy is that labour takes the value form and surplus labour that of surplus value. After abstracting from all of the individual, concrete, physical qualities of the commodity, what is left is their social, general abstract qualities, that of being the product of labour. Marx's materialist conception of history separates the simple and fundamental components

of material reality, of the social relations that determine the nature of society, in thought. It does so in order to analyse their essential nature and relationship one to the other. The concrete whole is understood as the product of its diverse components. Lenin summarised the path of cognition;

“Thought proceeding from the concrete to the abstract— provided it is *correct* (NB) (and Kant, like all philosophers, speaks of correct thought)— does not get away *from* the truth but comes closer to it. The abstraction of *matter*, of a *law* of nature, the abstraction of *value*, etc., in short *all* scientific (correct, serious, not absurd) abstractions reflect nature more deeply, truly and *completely*. From living perception to abstract thought, *and from this to practice*,—such is the dialectical path of cognition of *truth*, of cognition of objective reality” (emphasis in the original) (Lenin 1976, p171).

Marx’s abstractions were necessarily historical, as in concrete and real, but they were not a strictly chronological history,

“History moves often in leaps and bounds and in a zigzag line... The logical method of approach was therefore the only suitable one. This, however, is indeed nothing but the historical method, only stripped of the historical form and diverting chance occurrences. The point where this history begins must also be the starting point of the train of thought, and its further progress will be simply the reflection, in abstract and theoretically consistent form, of the historical course. Though the reflection is corrected, it is corrected in accordance with laws provided by the actual historical course, since each factor can be examined at the stage of development where it reaches its full maturity, its classical form (Engels, *Critique*, 1977, p225).

Insofar as history moves from the simpler to the more complex relationship, then the logical progression accords with history itself, but it was corrected in accordance with the essential nature of the laws of the mode of production,

“It would be unfeasible and wrong to let the economic categories follow one another in the same sequence as that in which they are historically decisive. Their sequence is determined, rather by the relation to one another in modern bourgeois society, which is precisely the opposite of that which seems to be their natural order or which corresponds to historical development” (Engels, *Critique*, 1977, p107).

Marx’s analysis of capitalism proceeded from “the simplest social form in which the product of labour presents itself in contemporary society, and this is the ‘commodity’” (Marx, *The Value Form*, 1881), “This method begins with the first and simplest relation which is historically, actually available” (Engels 1977). Engels explains that, “Marx takes simple commodity production as his historical presupposition, only later proceeding from this basis, to come on to capital” (Marx, 1981, *Capital III*, p103). Marx noted that “the mistake generally is to proceed from value as the highest category instead of from the concrete, the commodity” (Rosdolsky 1977, p116). The nature of capitalism is to subordinate all areas of economic and social life to the market, that is, commodity production. But to understand the nature of that subordination Marx showed how the development of commodity production from its simplest form naturally and inevitably led to capitalism.

Jarius Banaji (1979) claims that the existence of capital is presupposed throughout Marx’s book *Capital* (p29). Banaji counter poses this view to the “logical historical” view of Marx’s method in *Capital* developed by Ronald Meek (Meek 1956) and Maurice Dobb (Dobb 1972). That was, it was claimed in its turn, derived from Friedrich Engels’ (1977) 1859 review of the *Contribution to a Critique of Political Economy*. Engels’ interpretation was developed as a postscript to the *Critique* where Marx acknowledged Engels as a co-founder of the materialist interpretation of history. Meek posited the existence of an abstract economic system of simple commodity production or circulation as a necessary “myth” for Marx’s explanation of the development of commodity production. Banaji points out that no “abstract pre-capitalist society” ever existed, but no such supposition is necessary in

order to sustain Engels' interpretation. The precondition for commodity production is the creation of a surplus. Once surplus exists an exchange of products can take place. This did not happen initially within the confines of natural communities themselves, "[B]ut on their margins, on their borders, the few points where they come into contact with other communities" (Rosdolsky 1977, p116). As trade increased so a division of labour developed and as a result handicrafts and small farmers sold their produce to an internal market. Over time a "natural" price was established that corresponded to the socially necessary labour time required for production. There was no mode of production of simple commodity production, rather simple commodity production existed and developed in other modes of production, such as Roman slavery or the feudal system. Marx (2005, *Grundrisse*) explained that,

"It must be kept in mind that new forces of production and relations of production do not develop out of nothing, nor drop from the sky, nor from the womb of the self-positing Idea; but from within and in antithesis to the existing development of production and the inherited, traditional relations of property. While in the completed bourgeois system every economic relation presupposes every other in its bourgeois economic form, and everything posited is thus also a presupposition, this is the case with every organic system. This organic system itself, as a totality, has its presuppositions, and its development to its totality consists precisely in subordinating all elements of society to itself, or in creating out of this the organs which it still lacks. This historically is how it becomes a totality. The process of becoming this totality forms a moment of its process, of its development" (p278).

Rosdolsky noted that, "In other words the capitalist mode of production presupposes a series of historical changes in which, first of all, the various forms in which producers were bound to the means of production were destroyed (Rosdolsky 1977, p274). Marx observed that "This point definitely shows how the dialectical form of presentation is only correct when it knows its own limits (Marx 2005, *Grundrisse*, p945/6), Rosdolsky added, "But these limits are determined by the actual course of historical development" (Rosdolsky 1977, p190). Marx observed

that the essence of the capital relationship, money invested to produce more money M-M', arose first in merchant and userer's capital, "The way in which money transforms itself into capital often shows itself quite tangibly in history; e.g. when the merchant induces a number of weavers and spinners, who until then wove and spun as a rural secondary occupation, to work for him, making their secondary into their chief occupation" (Rosdolsky 1977, p277). Rosdolsky added,

"That this was Marx's method from the outset can be seen best of all in the numerous passages in the *Rough Draft*, in the *Contribution* and in *Capital* which provide - parallel to the logical derivation of value and money - a historical derivation of these same concepts, in which Marx confronts the results of his abstract analysis with actual historical development (Rosdolsky 1977, p115).

Banaji's problem is that simple commodity circulation is not a form of capitalist production. If *Capital* presupposed the existence of capital, it would be unable to explain the origin of capital within simple commodity circulation, C-M-C only anticipates the circuit of capital accumulation but it should not be confused with it. Instead Marx had "to trace the development of the expression of value contained in the value-relation of commodities from its simplest, almost imperceptible outline to the dazzling money form. When this has been done the mystery of money will immediately disappear" (Marx 1982, *Capital I*, p139).

Banaji's criticism was repeated by Diane Elson (1979) and developed by Chris Arthur (2004). Arthur particularly objects to Engels use of the term "simple commodity production". Arthur shows that Engels introduced this category in the editing process of *Capital* after Marx had died. But as circulation rests on production, Engels category merely emphasises the beginning rather than the end of the same circuit C-M-C. As such it was an improvement on Marx's term, but not in contradiction to it. The transformation of simple commodity production into capitalism is a worked example of how Marx abstracts from the real development of actual society,

“The example of labour shows strikingly how even the most abstract categories, despite their validity – precisely because of their abstractness – for all epochs are nevertheless, in the specific character of this abstraction, themselves likewise a product of historic relations and possess their full validity only for and within these relations” (Marx 2005, *Grundrisse*, p105).

The development of capitalism was both a historical development – it actually happened in history – and a logical one – in that Marx’s analysis conformed to the essential nature of the capitalist mode of production. The commodity contains in embryo all the contradictions of the capitalist mode of production, but embryos have to be born and then grow into mature adults and in the same way simple commodity circulation/production had to be born and grow into a capitalist system of generalised commodity production, in which market production and exchange dominates the entire economy. The development of the categories in Marx’s *Capital* from the simple to the complex form to this extent traces the actual path of historical development. Simple commodity circulation or production becomes capitalist production, as it actually did in history.

2.3 The nature of value

Labour only takes the form of abstract labour and the products of labour the form of values, to the extent that the production process assumes the social form of commodity production that is production based on exchange. In commodity production, socially equalised labour assumes the form of abstract labour, this is the basis, content or substance of value (Rubin 1990). Value is the form of labour in an economy based on generalised commodity production that is a capitalist market economy. At a certain stage of the development of the productive forces the products of their labour appear in the form of commodities. Commodity A is exchanged for a certain quantity of commodity B, a certain quantity of commodity C and so on. It has a certain exchange value. But commodities are products of labour; their mutual relations in the process of exchange merely express the mutual relations between working people that is commodity producers in the process of production. The value of a given commodity expresses only the relation of its producers’ labour

towards the general process of production. Value appears to be a property of the article itself, the thing that had been produced, but this was an inevitable illusion in an economy predicated on commodity exchange and it conceals the real social relation of production (Plekhanov 1976, p259).

Marx began his analysis of value from its simplest form, through the relation of two different commodities one to the other. The simplest form however, contained “The secret of the entire value form” (Marx, 1867, *The Value Form*). All commodities have two essential properties, their use, concrete, individual or physical form and their general, social, abstract form, exchange value, price or value. The physical properties of things are not directly commensurable so what determines the proportions in which quantities of different use values exchange is the labour time required to produce them. A commodity “is a value only to the extent that it is the expression, in the form of a thing, of the human labour power expended in its production and thus insofar as it is a jelly of abstract human labour – abstract labour” (Marx 1867, *The Value Form*). This labour must exist as concrete labour, as concrete labour is the only form in which labour exists, but in commodity exchange that concrete labour is compared with social labour, that is the labour required to produce all other commodities. It is reduced to a general, social or “abstract” standard, “the labour which constitutes the substance of value is not only uniform, simple, average labour; it is the labour of a private individual represented in a definite product” (Marx 1982, *Capital I*, p121), (Rosdolsky, 1977, p135), but while all abstract labour is concrete, not all concrete labour is abstract, “The definite concrete useful labour, which produces the body of the commodity which is the equivalent must therefore, in the expression of value, always necessarily count as a definite form of realisation or form of appearance, i.e. of abstract human labour” (Marx 1867, *The Value Form*). This is one of the four peculiarities of the value form Marx described first, use values become the form of appearance of their opposite value; second, concrete labour appears as its opposite abstract human labour; third, private labour appears as its opposite social labour; fourth, the fetishism of the commodity form, where things express social relationships, is more striking in the equivalent form, where given

quantities of physical commodities express values, than the relative form where the value of one commodity is expressed in another commodity.

Murray Smith (1994) broadly summarised many of the key propositions of Marx's value theory (p119) in what he called the "fundamentalist" approach. Smith insisted, against Marx as he acknowledged, that labour was not "physically incorporated" into commodities and that therefore, commodities do not "physically embody" value (p119). This is a key mistake that separates value from the real world of actual production. Capitalist production is the production of useful things. These things are the consequence of the transformation of various actual inputs into various actual outputs. "A use-value, or useful article, has value only because abstract human labour is objectified or materialized in it" (Marx, 1982, *Capital I*, p129), but only that proportion of actual labour that is socially necessary adds value. If labour is not physically incorporated into these things, that is, if it makes no physical difference to these inputs how is anything produced? Certainly all products stand in relation to the total abstract socially necessary labour time of society, this is how the actual labour incorporated in them is measured, but if these products are not real, that is, if they have not had labour actually incorporated in them, then they do not exist and so cannot be compared with the mass of products of all other labour.

Diane Elson's (1979) analysis of what she calls Marx's "value theory of labour", provided many of the ideas that were to develop into Hegelian Marxism (Arthur 2004). Elson criticised views of Marx's value theory that see it as a proof of exploitation. She claimed that this view "dehistoricises" value by making value synonymous with labour time (p116). She objected to the idea that Marx's value theory is one of prices, "my challenge will be directed to the very notion that Marx's theory of value poses value as the origin or cause of anything" (p121). In so doing, she separated Marx's value theory from any possible empirical expression of it. As all knowledge derives from experience, then implicitly, for Elson, there can be no knowledge of value. Elson pointed out that the "object of Marx's theory was labour" Marx explained why labour takes the form it does under capitalism (p123), but Elson

counter posed this, obviously correct point, to a theory of price and the magnitude of value, which she claimed were “not the object” of Marx’s theory.

Elson objected to the notion that the labour theory of value determined the distribution of production or that exchange values in equilibrium are equal to the socially necessary labour time embodied in commodities (p126). If value has no effect on the existence of the capitalist mode of production, it does not exist in any meaningful, that is, material sense. Elson said there was no social pressure on simple commodity producers “to compare the different rewards of an hour of labour in different branches of production” (p126), as they could not go bust, and did not seek to accumulate capital, as capitalists did. But simple commodity producers had other very material social pressures, their very life and that of their family was at stake. If they produced above the average socially necessary labour time, they received less money and so fewer use values compared with the average. Elson said that “the quantity of socially necessary labour time does not determine the magnitude of value in a logical or mathematical sense of an independent variable determining a dependent variable” (p133). Therefore “it is not possible to calculate values directly in terms of labour time, quite independently of price, calculated in terms of money” (p135). For “we cannot, in the actual labour time we can observe, separate the abstract from the concrete aspect. The only way that labour time can be posed as the medium of measurement is by making the arbitrary assumption that there is no qualitative difference between different kinds of labour...” (p138). This established a number of false counter positions, the measurement of value does not require the observation of separate quantities of concrete and abstract labour time. The objective fact of sale, the actual exchange of real commodities at actual prices, determines the amount of abstract labour a capitalist receives for the output they send to market. There is no need to make any assumptions about the equality of labour, as labour is equalised, that is reduced to a common measure through the act of exchange. All value actually exchanged on a capitalist market is by definition socially necessary.

For Elson, knowledge of the world is not absolute. It is not Cartesian knowledge, rather capital is a “one sided abstraction, a category of analysis” it is not

an “entity” (p144). Elson rejected the search for absolutes as a form of idealism, and considered that the categories developed by Marx, to describe the actual social relationships of real people, are simply abstractions not the representation of real things in thought. But capital is a social relationship in which real people, capitalists, employed real people, workers, to produce real things, commodities, sold on real markets, for real money. Capitalists extract a surplus value or profit from those workers, in the process of production itself. This surplus value is a real quantity of value, larger than the value of the wages they pay the workers they employ. All abstractions are one sided simplifications, no abstraction is the real thing that it is abstracted from, but provided they capture the essence of the thing, they are capable of being made concrete. Marx’s abstractions were relatively, not absolutely, true, applicable to a given actual, historical capitalist society. Marx demonstrated that the capitalist/worker relationship is inherently exploitative based on the laws of equivalent exchange that underpin the capitalist system itself. Capitalists pay the workers the value of their labour power, but extract more value from them than this pay.

Elson expressed the themes of the other contributions in the collection of pieces she edited and anticipated the abandonment of materialism by the Hegelian Marxists over the next three decades. Geoffrey Kay considered that Marx’s idea of abstract labour is,

“Not dialectical, for the abstraction it constructs is a purely mental category that has no existence in its own right. By analogy: to recognise cats, and cats as mammals – specific forms of genus – may represent a step forward in the biological sciences insofar as we no longer see each species as totally separate and distinct; on the other hand, nobody has ever seen and examined a mammal as such. It is a purely classificatory category and as such has no existence. In the same way, if we constitute abstract labour as the common property of concrete labour – the expenditure of muscles, brains etc. – we are inventing a mental abstraction and not discovering the real abstraction that Marx was after” (Kay 1979, p55).

Kay's opposition of the specific form of the thing from the description of it is a mistake. The specific form "cat" is an abstraction from the actual cat, just as much as the specific form "mammal" is an abstraction from the actual mammal. The specific form of labour under capitalism, the value form, is a specific form of actual labour. Kay treated the distinction between utility and labour as one that rested at the level of logical argument, as a categorical rather than an empirical one, but "if concrete labour is not and cannot be the form of existence of abstract labour what then, is its form?" asked Kay, he answered that it is "...money that is the existence of abstract labour" (p58), but money is not the existence of abstract labour, but its form of appearance,

"Because all commodities, as values, are objectified human labour, and therefore in themselves commensurable, their values can be communally measured in one and the same specific commodity, and this commodity can be converted into the common measure of their values that is into money. Money as a measure of value is the necessary form of appearance of the measure of value which is imminent in commodities, namely labour time" (Marx 1982, *Capital I*, p188).

Abstract labour exists before it is measured in money. It is incorporated into the commodity during production and realised in exchange. Its existence rests on the assumption of generalised commodity production, a system in which use values are produced for sale. If you want to use something in a market economy then you must buy it or to put it another way, pay someone to produce it. How much do you pay them? The socially necessary cost of production, the average amount of labour time that all other producers will demand to produce the same commodity, abstract labour is the form that concrete labour assumes on being exchanged. Marx noted that,

"If we say that, as values, commodities are simply congealed quantities of human labour, our analysis reduces them it is true, to the level of abstract value, but does not give them a form of value distinct from their natural forms" (Marx 1982, p141).

Patrick Murray (1993) developed Kay's insistence on the abstract nature of value to its logical conclusion and argued that "The labour that produces value is alienated labour. Fitting the pattern of alienation, the logic of value is inherently religious" (p53). Indeed, "What our explanation of Marx's theory of value has taught us is that as a category of value, capital is itself necessarily nonapparent, nonobservable, and it must appear as something other than itself" (p58). But all things are defined by something else. The use of a chair is nonapparent and nonobservable unless someone sits on it. Nonetheless, the chair has a use and can be known by it. Geert Reuten (1993) argued that if the value of socially necessary labour cannot be observed by looking at a commodity then "...what does it mean to say that labor time is 'embodied' in a commodity? Or that labor is the 'substance' of value? Clearly labor time is not some stuff that we find in the commodity... Thus embodiment and substance seem to be metaphors" (p106). But the sound of a drum cannot be heard unless it is drummed, just as the value of a commodity cannot be observed unless it is exchanged, the potential for sound and value are embodied in them. Reuten concluded that value is metaphorical and indeed metaphysical, and as such we are best off without it, "Within such an approach it seems possible to dispense with the metaphor and the related concept of value without, however, cutting loose from the theorization of production metaphors" (p111). This is the logical conclusion of Elson's initial separation of the category of value from its empirical expression in the capitalist economy. Arthur (2004) reflects this abandonment of the material nature of labour in a real economy and begins his analysis of the value form by abstracting value from labour that is from its essence, the thing it actually is, to its appearance, the thing that it only may be.

2.4 Transformation problem

Elson's collection of essays was partly written in response to a renewed interest in the so-called transformation problem in the 1970s. In *Capital III* (1981) Marx showed how exchange values are transformed into prices of production, the cost of production plus the average rate of profit, through the movement of capital in search of higher profits. Marx had previously noted in *Capital I*, (1982) that,

“The possibility of quantitative incongruity between price and magnitude of value...is therefore inherent in the price form itself. This not a defect, but, on the contrary, it makes this form the adequate form for a mode of production whose laws can only assert themselves as blindly operating averages between constant irregularities” (p196/7).

In *Capital III* it transpired this possibility underpinned Marx’s reconciliation of values with market prices. If values equal prices, then firms with below average organic composition of capital will receive a higher rate of profit than firms with an above average organic composition of capital, as their employees will create more surplus value relative to the total cost of investment. The determination of capitalists to maximise profits, will mean that capital will move out of those sectors with a lower rate of profit, towards those sectors with a higher rate of profit. The competitive process means that capitals with a higher organic composition will then go bust, all things being equal, production in these sectors will fall and prices will rise. Capital will move into areas with a lower organic composition and higher rates of profit, all things being equal, output will increase and prices will fall. Eventually an average rate of profit will be established, as firms with a higher organic composition receive a portion of the surplus value produced in those sectors with a lower composition.

Marx noted that at the level of individual commodities and firms, prices would depart from values, but at the aggregate level, three identities would hold, the aggregate total price equals total value, total surplus value equals total profit and that the average price rate of profit equals the average value rate of profit.

Marx’s tabular illustration in *Capital III Chapter 9*, of the transformation of values into prices, assume simple reproduction, constant values and prices and equal rates of profit between different capitals at the end of the process. It was an arithmetic representation of the redistribution of profits between capitals of equal size but different compositions. Marx considers five capitals of different compositions. The movement of capital in search of the highest rate of profit is

demonstrated through a movement of capital away from capitals IV and V with a higher than average OCC to capitals I, II and III with a lower than average OCC. The transformation of values into prices of production presupposes the prior movement of capital between spheres of production and therefore, the circulation of commodities as products of capital. This movement posits an intermediate stage where values had not yet been converted into prices of production, as they had not yet entered reproduction. In this intermediate stage production would have expanded in I, II and III and contracted in IV and V. Output would have risen in capitals with a below average organic composition of capital (OCC) and fallen in capitals with an above average OCC. This result has two immediate but indeterminable effects, firstly capitals are no longer of an equal size and secondly (more importantly) the quantity of surplus value has increased. The very process of transformation of values into prices of production changes the relative proportions through the expansion of production in capitals with a lower organic composition than average. This increases the mass of value and surplus value increases the rate of profit. Accordingly, in the real world, as a result of the transformation of value into prices of production, capitals are now of different size and the rate of profit is different. This variation of production would have increased the amount of surplus value produced and therefore, the rate of profit, making it impossible for Marx to demonstrate arithmetically, the transfer of surplus value necessary to yield an average rate of profit.

This is exactly the result Marx sought to avoid in his example of the transformation of values into prices of production. Marx's example demonstrated the simple redistribution of profits in order to achieve the average rate of profit. The failures of the model are not a product of logic but of maths, just as 100 cannot be perfectly divided by 3, even though, in the real world, a pizza can be sliced into 3 pieces of equal size. This was an exercise in comparative statics. A necessarily limited example circumscribed by the mathematical form, that retained the relationship between the mass of value and the total prices of production as well as that between the mass of surplus value and the mass of profits.

Marx, *Capital III, Chapter 10*, shows that he was well aware of the complexity of the transformation of values into prices of production. In theory Marx assumed that the laws of the capitalist mode of production develop in their pure form. In reality, “this is only an approximation” (p275). The creation of prices of production was a historical process and implied a development of the credit system as well as the separation of ownership and control of capital. This enabled and encouraged the spontaneous movement of capital from one sphere to another, from mature industries to emerging industries, from one national market to another. Marx’s critics have miscast an arithmetical illustration as a mathematical proof as the very movement of capital alters the economic gravity of the market through which it travels. At the level of values, socially necessary labour times constantly change, both in the course of a production period, between production and sale and between sale and productive consumption again. At the level of prices of production, anticipated profits never equal actual profits. At the level of total prices, inflation obscures real value added. Capitalism thus constantly and ceaselessly oscillates between these limits.

Changes in the socially necessary labour time, during the production process itself and between cycles, mean that the quantity of original value added must diverge from the current total of value, as “Value is originally determined by the original costs of production...But once produced, the price of the produce is determined by the costs which are necessary to reproduce it” ((Marx to Engels, letter 14 September, 1851) cited Rosdolsky 1977, p318). Previous labour is devalued by a reduction in the current socially necessary labour time or vice versa, so that it is only through the transfer of value between capital and periods that Marx’s three aggregates hold. Marx as with Ricardo “abstracts from what he considers to be accidental. In order to present the real process, in which both what he regards as accidental movement, but which is constant and real, and its law the average relation, appear as equally fundamental” (Marx 2005, *Grundrisse*, p803). This is the same procedure as adopted in the system of national accounts “We limit national income to results of productive activity broadly defined; and exclude exogenous, accidental changes on both the demand and supply sides, changes that nevertheless affect the

value of wealth at the disposal of the inhabitants of the country” (Kuznets 1941, p14). Marx, 1968, *Marx To Ludwig Kugelmann In Hanover*, noted that it is inevitable that,

“The actual, everyday exchange relations and the value magnitudes *cannot be directly identical*. The point of bourgeois society is precisely that, *a priori*, no conscious social regulation of production takes place. What is reasonable and necessary by nature asserts itself only as a blindly operating average” (emphasis in the original).

The divergence of prices and values reflects a real incongruity in the nature of the capitalist production. Marx explained,

“The vulgar economist thinks he has made a great discovery when, faced with the disclosure of the intrinsic interconnection, he insists that things look different in appearance. In fact, he prides himself in his clinging to appearances and believing them to be the ultimate. Why then have science at all?”

Engels in the *Preface to Marx*, 1981, *Capital III* referred to a common misunderstanding, whereby it was assumed that Marx “wishes to define, where he only investigates” and that the reader is generally entitled to “expect fixed, cut-to-measure, once and for all applicable definitions in Marx’s works”, when no such definitions exist. Engels observed that,

“It is self-evident that where things and their interrelations are conceived, not as fixed, but as changing, their mental images, the ideas, are likewise subject to change and transformation; and they are not encapsulated in rigid definitions but are developed in their historical or logical process of formation” (p103).

This reflected the real transformation from values to prices in the real capitalist economy. This is not one of smooth transition, but a discontinuous, crisis wracked process in which equal profit rates are never achieved. It is the disequilibrium between profit rates that provides a key motor to the capital accumulation process. The more this process is repeated, with the now transformed outputs becoming the new inputs, the closer reality comes to the “correct” solution, but it never reaches it, except momentarily and by chance. Engels discussed the various effects of changes in prices upon these totals and after demonstrating that equal profit rates are never achieved except accidentally and only then as an average concludes;

“From this indeed it follows from the very first that the total profit and the total surplus value can only approximately coincide. But when you further take into consideration the fact that neither the total surplus value nor the total capital are constant magnitudes, but variable ones which alter from day to day, then any coincidence between rate of profit and the sum of surplus value other than that of an approximating series, and any coincidence between total price and total value other than one which is constantly striving towards unity and perpetually moving away from it again, appears a sheer impossibility. In other words, the unity of concept and appearance manifests itself as essentially an infinite process, and that is what it is, in this case as in all others” (Engels 1895).

It is the unequal exchange of commodities, the very incongruity between compositions of capital that gives the capitalist system its dynamism. As the search of capital for maximum profit rates seeks to overcome the unequal distribution of surplus value and produces an equal rate of profit, through the averaging out of the rate of profit, values and market prices. Marx observed that,

“If the prices of commodities in one sphere are below or above their price of production...an equalization takes place by the expansion or contraction of production, i.e. an increase or decrease in the quantity of

commodities that these industrial capitals put on the market, mediated by the immigration or emigration of capital with respect to these particular spheres of production. It is the equalization brought about in this way where the average market prices of commodities are reduced to their prices of production, that corrects divergences between the particular rates of profit and the general or average profit rate” (Marx, 1981, *Capital III*, p489)

Bohm Bawerk provided the first substantive attempt to prove the failure of Marx’s “system” in the 1890s. Writing from the point of view of Austrian marginalism, Bohm Bawerk’s critique focused on the reconciliation of simple and complex labour. He noted the contradiction between the assumption that values equalled prices in Volume I and the transformed prices of Volume III, but this was not the heart of his argument (Hilferding & Bawerk 1975). Rather its significance was demonstrated more clearly by Von Bortkiewicz (1907), later Leontief’s doctoral supervisor, at the turn of the twentieth century. Von Bortkiewicz showed that when the prices of the inputs in Marx’s table were transformed then the aggregate totals of values differed from those of prices and so the conditions for simple reproduction failed, assuming no change in the price of the use values necessary to reproduce the system. If output prices are transformed then logically input prices must be too, in which case the original calculation of output prices is wrong and have to be recalculated. That means the revised input prices have to be recalculated and so on. This inevitable result of the nature of the transformation itself appears to be an inconsistency in Marx’s analysis.

Marx “made the mistake of carrying over certain magnitudes without alteration from the table of values into that of prices. In transforming values into prices, it is inadmissible to exclude from the recalculation the constant and variable capital invested in the various spheres of production” (Bortkiewicz, 1907 p9). Von Bortkiewicz duly transformed the price of inputs and demonstrated that in the price calculation profit was proportional to total capital whereas in the value calculation profit was proportional to total variable capital alone, consequently there was a difference between total value and total price. Von Bortkiewicz then directly

addressed Marx's defence of this procedure. Von Bortkiewicz considered that total value would only equal total price if the organic composition of production of the unit of measurement, in this case gold, "bore a certain relation—which need not be discussed here—to the organic composition of all other capital" (p11). As this was arbitrary and only accidentally true, there was no reason to assume that total values would equal total prices. In any respect, as any change in the price of gold affects all other commodities simultaneously and, all other things being equal, therefore leaves their mutual relations unaltered, a change in the price of the unit of measurement makes no difference to the transformation question. According to Von Bortkiewicz, Marx,

“[H]olds the nature of the object to which his theoretical construction refers, responsible for the inner contradictions afflicting this construction. The laws of economics, including the law of the equal rate of profit, do not, indeed, ever find a pure concrete expression. In actual fact, divergences from the norm occur under the influence of various factors which, in formulating these laws, theory must needs disregard. In this particular instance, however, we find divergences which are inherent to the theoretical model itself, and which have thus nothing to do with any disturbing factors” (p13).

Occam's razor demanded that if there was no mathematical method of reconciling the more abstract value level with prices of production, so values must be abandoned. If the validity of Marx's theory rested on the correctness of its algebra, then Marx's labour theory of value was dead.

The significance of Von Bortkiewicz's demonstration was not really appreciated at the time. Or perhaps it was, for Von Bortkiewicz's solution was only rediscovered decades later in Paul Sweezy's 1948 *The Theory of Capitalist Development* (1970). Sweezy again pointed to Marx's "error" (p115) in failing to transform inputs and outputs. In a system where price calculation was universal, the inputs should have been transformed too. Sweezy applied Von Bortkiewicz's method and transformed the inputs, while accepting that total prices would diverge from total

values. Sweezy considered that “no significant issues are involved in the divergence of total value from total price. It is simply a question of the unit of account” (p123). If value had not been transformed, or if units of labour time were used, then the totals would have been the same. As values were transformed into gold or money, then the totals diverged. Indeed, but that was the whole point. Sweezy considered that it would be possible to drop the value calculation altogether, but only at the cost of obscuring the nature of value as a product of human labour and of surplus value as a deduction of total social labour (p129).

Rosdolsky briefly responded to Von Bortkiewicz in his *Making of Marx's Capital* (1977),

“Bortkiewicz’s supporters proposed the thesis that ‘Marx’s method of transformation would lead to a violation of the equilibrium of simple reproduction’, and is therefore ‘logically unsatisfactory’. However, this objection would only be valid if Marx were in fact a ‘Harmonist’, i.e. if his schemes of reproduction were to be interpreted in the way adopted by Tugan Baranovsky. (It is self-evident that the transition from commodity values to ‘prices of production’ would necessarily be accompanied by disturbances in the ‘equilibrium of simple reproduction’; but since when has it been the task of Marxists to prove that it is theoretically possible for the capitalist economy to proceed without disturbances?)” (p411)

Rosdolsky continued,

“Von Bortkiewicz’s supporters overlook the fact that Marx’s ‘prices of production’ are not in fact ‘prices’ at all, but simply values modified by the intervention of the average rate of profit, and so the ‘price calculation’ suggested by Bortkiewicz cannot make the slightest contribution towards solving the question of the actual ‘transformation of values into prices’” (p411).

Rosodolsky makes two important points firstly that capitalism is fraught with contradictions. These contradictions have a material existence in the nature of the mode of production. If the absence of a mathematically perfect reconciliation between values and prices of production exists in the real world, so what if this is a real contradiction that actually exists? Secondly, that values modified by the movement of surplus value to equalise the rate of profit are not actual prices, but an illustration of how the movement of capital affects prices.

True there is no arguing with Von Bortkiewicz's algebra, as algebra, but there is arguing with the use of algebra as an expression of human society itself. Absolute being equals nothing. Real things are imperfect and knowledge of them only relative. They can only be imperfectly represented by maths - even if the maths is absolutely true - that is internally consistent, logical and correct. Not only are the disturbances in Marx's model real contradictions of capitalist reality, the original numbers, whether representing values or prices of production are themselves only imperfect representations of the social relations of society, of the behaviour of real people in the real world. The answer to the transformation problem is not that there is no problem, but that it cannot be solved mathematically. Mathematical representations of real things are imperfect even if the mathematics themselves are perfect.

Value is a form of exchange value, a relationship between human beings. It determines the proportions in which use values exchange. Exchange cannot take place with inanimate objects, which neither require nor are able to demand payment for their services. Owners of inanimate objects may require payment for their use, but this payment is equal to how much it would cost the user to buy this object from someone, a real person who could or actually does produce it. If the owner wishes to sell their object for a price higher than it can be produced by someone else, elsewhere, then the buyer will purchase the alternative cheaper replacement. To put it another way, the object's price will be the socially necessary labour time required for its production. Inanimate objects cannot create "value", as value is a social relationship between people not things. This is obscured by exchange in a market, where the producer does not know the purchaser or the purchaser the producer, and

where the producer does not own their product, which is alienated from them at the point of production by the capitalist owner of the means of production. The relationship between people appears to be a relationship between things.

Mathematicians such as Francis Seton (1956/7) reiterated Bortkiewicz's objections. Seton's work demonstrated "all major assumptions and analytic conditions of the problem. Subsequent quantitative solutions are mainly a development of Seton in various forms" (Likitkijksomboon 1995, p75). The entire subsequent discussion of the transformation problem hinges on the failure of its contributors to note that the original abstractions, the very basis from which the various mathematical calculations are taken, are themselves only imperfect representations of the social relations of real people. There is no definitive mathematical solution by definition.

During the 1960s and 1970s the controversy over the transformation problem was reignited around the work of Piero Sraffa (1972). Sraffa was the editor of Ricardo's collected works and correspondence, and his 1960 book *The Production of Commodities by Means of Commodities* tried to demonstrate how values could be derived from the physical qualities of commodities. Sraffa's adherents formed the so called, but in fact misnamed "neo-Ricardian" school, misnamed of course, as Ricardo adhered to a labour theory of value, the very thing that the new school set out to refute. Sraffa investigated why commodities, different use values, exchanged in the quantities they did. Sraffa considered an example in which a quantity of iron, represented means of production or "tools", and wheat, represented means of consumption, wages and means of production or "seed". These were exchanged in definite proportions. Once these proportions were known it was possible to define these quantities as the "price" of iron and wheat, so much iron is equivalent to so much wheat and vice versa. Indeed Marx had demonstrated a similar sort of schema at the beginning of *Capital I*. But the representation of different tools through a single physical weight of iron illustrated Sraffa's problem. A one kilo iron plough is only accidentally equivalent to a one kilo bag of nails or a one kilo iron hoe. As soon as they cease to be a lump of iron their values are incommensurate. There is no

relationship between a greater physical weight and a higher price - a lighter plough may be a more valuable one. Once a given set of exchanges is established it may be possible to develop a physical schema that explains their proportions – but why was that physical relationship established at all? Not due to any inherent quality in the physical nature of different use values. As Kuznets explained, the physical characteristics of goods could not determine their value in the national accounts;

“If the various items included could be measured in terms of some physical property by precise instruments, and if we could agree that the estimates reflect consistently (across time and space) the economic significance of the items, valuation would be easy. But neither if is valid. It is in fact impossible to measure the physical properties of the full contents of national income, for the simple reason that some parts have no recognisable physical identity...Moreover, no imaginable physical property of goods could be accepted as in any way reflecting consistently their economic significance, i.e., their importance in terms of costs and returns” (1975, p128).

If goods cannot be compared through their physical qualities then they have to share some other quality in common, this was the socially necessary labour time or quantity of abstract labour required to produce them, measured through the act of exchange. This is the value measured in the SNA. Kuznets abjured from pointing out the role of labour in underpinning value added even while his discussion closely followed Marx’s explanation of the distinction between use and exchange values in the opening section of *Capital* (Marx 1982, *Capital I*). In contrast, the centrally planned economy was based on the production of physical goods, but as a result, the planned economy had no money that acted as a universal equivalent and so no market costs, returns or subsidies in the sense understood by the SNA.

Sraffa regarded the physical surplus in value terms as “profit”. After considering simple reproduction, Sraffa assumed that the combination of wheat and the iron produced 25% more physical output than the quantity of their inputs. Sraffa added coal to his example. The contribution of labour was reduced to the quantity of

physical products that make up the wage. But a combination of wheat and iron and coal cannot produce more wheat, iron or coal (p7). The increase in output was the product of magic. This was unavoidable as the increase in physical outputs must be proportionate to the increase in physical inputs, or there is no commensurability and so no physical rate of profit and the previous pattern of exchange will be unable to measure the current one. The proportionate increase in the physical quantity of output established a “rate of profit” of 25%. In a capitalist system a physical surplus of 25% is not necessarily a rate of profit of 25%, as the price of the output may have changed in the time between production and sale. In the real world, the relationship between the physical form of production and its value is not fixed. Sraffa acknowledged this, and said that if an invention reduces the physical quantity of each of the means of production of a basic commodity by half, then this reduces the respective price ratios by half (p8). But a reduction in half of the physical quantities required to produce a given output will not necessarily reduce its price by half, as the fall in use will influence a fall in demand and so price. A reduction in the value of inputs will usually reduce the cost of outputs, but only indirectly and not always.

Sraffa recognised the need to express values according to a constant standard. Sraffa created a composite or “standard commodity” from the proportions that wheat and iron exchanged at. From this standard commodity Sraffa derived a set of equations that represented the production of various commodities in his “standard system” (p23/24). What determined this standard? The fact that both sets of commodities were already represented in the standard price,

“The possibility of speaking of a ratio between two collections of miscellaneous commodities without the need of reducing them to the common measure of price arises of course from the circumstance that both collections are made up in the same proportions—from their being in fact quantities of the same composite commodity” (p23).

The composite standard commodity represented the existing structure of exchange in a different form. As any change in the proportion of physical output to

physical input would change the exchange relationships that form the standard product, outputs must expand in proportion to inputs, the “resulting quantities of the various commodities will bear the same proportions to one another on the right-hand side of the equations (as products) as they do on the aggregate of the left hand sides (as means of production)” (p27), so that “the percentage by which the output of a commodity exceeds the quantity of it entering the aggregate means of production is equal for all commodities” this was the “Standard ratio” (p27). All outputs must be produced in the same physical proportion as inputs. The rate of profit in the standard system “thus appears as a ratio between quantities of commodities irrespective of their prices” (p27), the physical relationship is the value one, inevitably as their “price” is simply a composite of their physical ratios. The difference between the standard commodity and the physical exchange relationships is the difference between an aubergine and an eggplant. They are different words for the same thing. For Sraffa, the problem of constructing a standard commodity amounted to the search for a set of suitable multipliers for the difference between outputs and inputs.

Sraffa’s approach “was one of taking a snapshot of a productive system at a point in time” (Wilkinson 2012, p1497). Sraffa described his method as one of taking a ‘still photograph’ of an economic system. It is essentially static (Wilkinson 2012, p1498). The problem is that the physical and value proportions at which commodities exchange is not static. Outputs do not expand in proportion to inputs. Those outputs may have an entirely different form to the inputs that made them up. Given that the physical properties of commodities are incommensurate, what determines the physical proportions at which commodities exchange? Not the standard commodity, as that is only a representation of the existing physical exchange relationships, of a given moment of exchange. As soon as the next exchange takes place it no longer exists, if indeed it ever exists, considering the simultaneous and synchronous nature of exchange in a capitalist economy. A set of physical outputs, with a particular value, can express the structure of capitalist production at any set time, but the next moment it cannot, as the invariable standard of value is not invariable. Joan Robinson, a key protagonist in the Cambridge value debate, explained, “The definition of the standard commodity takes up a great part of Sraffa's argument but

personally I have never found it worth the candle. [...] This is not the unit of value like a unit of length or of weight that Ricardo was looking for” (Robinson 1985, p163).

Sraffa concluded that the physical exchange relationships can be matched to the quantity of simple labour used in production and from there to national income (p37). Following Adam Smith, the price of a good was the amount of labour it commanded in the market, but unlike Smith, this amount of labour was simply a physical quantity of goods that formed the wage of labour, labour had no definite quality separate from the physical things that produced it. But Sraffa’s standard commodity and standard system had failed to explain how the physical nature of use values determined their exchange proportions.

Sraffa’s (1972) critique was only indirectly one of Marx. Its primary target was the assumptions of neo-classical economics. Sraffa criticised the neo-classical notion that under conditions of free competition all capitals earn an equal rate of interest or profit. Sraffa showed that marginalist assumptions are inconsistent on their own terms. As wages rise and profits fall, a certain relatively labour-intensive technique, A, which is at first in use may be replaced by a more capital-intensive one, B; but at a still higher wage-level (with a correspondingly lower profit-rate) A may once again come into favour as the lower-cost technique and be substituted for B (Dobb 1973), these reversals in the direction of the movement of relative prices, “cannot be reconciled with any notion of capital as a measurable quantity independent of distribution and prices” (p37). Paul Samuleson’s defence of neo-classical economics, from the Harvard Cambridge side of the debate, comprehensively failed to prove the legitimacy of marginalist assumptions.

Sraffa’s theory was applied to Marx by Ian Steedman from Manchester University. Steedman reiterated the transformation problem identified by Von Bortkiewicz and Seton, but rejected Sweezy’s defence of Marx. Mongovani (2012) summarised their shared critique. First it was said that Marx’s price equations in Marx, 1981, *Capital III*, p154–72, neglected to weight the inputs of each production

process by their prices of production. Second, that the profit rate Marx uses to calculate prices is defined as a ratio of quantities of labour time, but since prices of production deviate from labour-values, the rate of profit will not coincide with the ratio of aggregate surplus-value to the aggregate quantity of labour embodied in constant and variable capital. Hence, Marx's price calculation, which is based upon the latter ratio, was incorrect. Finally, Marx asserted that (i) the aggregate amount of surplus-value generated by production will equal the mass of profits; and (ii) the quantity-weighted sum of prices will equal the quantity-weighted sum of labor-values. Yet, it was observed, except in the special circumstances in which relative prices are proportional to labour-values, these invariance postulates cannot both hold simultaneously. These criticisms amounted to the complaint, previously addressed by Engels (1895), that these identities were not static absolutes, but a moving social average, a relative truth rather than an absolute one.

Nonetheless Steedman (1977) sought to derive profit rates from the physical characteristics of the components of the production process. Steedman imagined an economy with a means of production, iron, a means of consumption corn, and a universal equivalent, gold. The price of the physical quantities was derived from the socially necessary labour time required for their production. These prices were then used to derive values and surplus values from the physical conditions of production (p48), except of course, the physical components of production had already been derived from socially necessary labour times. As value is fungible in a capitalist economy it can exist in diverse forms including physical forms, indeed it must do so. To derive values from prices, when prices have already been derived from values, that is socially necessary labour time required for their production, proves nothing. Steedman summed up his critique with the recognition that "this result does not, in itself, constitute an explanation of the existence of profit" but considered that neither did Marx's labour theory of value as,

"The amounts of labour time required for the production of commodities are only determined once the choice of production methods is known. But that choice is made in maximising the rate of profit. The determination of the profit rate (and prices of production) is thus logically

prior to the determination of the values of commodities. Clearly, then, values cannot determine the rate of profit (or the prices of production)” (p204).

If values, prices and profits are indeed determined before the act of sale, as labour time is only converted into value through the act of exchange, then value cannot be determined and neither can prices or profits. But if values, prices and profits are a subjective rather than an objective creation, then an objective value theory must be replaced by subjective one. Nothing can be determined before it is determined.

Steedman demonstrated, following Bortkiewicz and Seton, that on the basis of the assumptions of simple commodity production, there was no mathematical solution to the transformation problem of values into prices that maintained Marx’s three aggregates. If values cannot be perfectly transformed into prices of production - mathematically then value has no role in the formation of prices and so value is irrelevant for price determination and so value must be done away with. Instead prices of production, cost plus the average rate of profit should replace values. But prices of production are themselves an imperfect. How is it possible to know the rate of profit before sale? Marx had noted that,

“The particular profit rates in the various spheres of production are themselves more or less uncertain; but insofar as they show themselves, it is not their uniformity that is apparent but rather their variation. The general rate of profit simply appears as the minimum limit of profit, not as an empirical and directly visible form of the actual profit rate” (Marx, 1981, *Capital III*, p490),

As this is impossible, except as an average, so prices of production too must be done away with in favour of prices only. But prices too are imperfect, they must be adjusted for inflation to reveal "real" value added. So they too must be done away with. If such a perfect mathematical solution is required for the existence of Marx’s political economy then Steedman disproved Marx and indeed all economic theory too.

The test of Marx's value theory, like any other theory, is in its correspondence with the empirical reality. The mathematical expression of that theory rests upon static absolutes that only imperfectly capture the relative, average, constantly changing nature of the reality they attempt to express. There is no arguing with the algebra, as algebra, but there is arguing with the algebra as a necessarily imperfect expression of social reality. Even if the maths is right, it is wrong. The proof of Marx's value theory rests on the operation of the economic laws that are subordinate to it and predicated upon its existence, the laws that Marx explained at such length throughout the course of *Capital*.

Steve Fleetwood (2001), writing from the Critical Realist tradition, makes a similar point in his article "What Kind of Theory is Marx's Labour Theory of Value? A Critical Realist Inquiry", Fleetwood criticises the 'epistemic fallacy' that maths can represent the truth of reality. Although he then over-generalises and rejects any possibility of representing the labour theory of value through quantitative measures or of proving the relevance of the theory through deduction, when once the relative rather than absolute nature of truth is understood, both methods are clearly applicable to an analysis of the capitalist mode of production.

Nevertheless, the notion that Marx had "forgotten" (Fine 1989) to transform the price of inputs in his example of the creation of prices of production, and that his value theory was incoherent, inconsistent and unproven, dominated the discussion of Marxist political economy over the next three decades. The attempts to solve the unsolvable were a dead end. There could be no definitive solution to a problem that could not be solved.

Even so essentially three alternative solutions developed, firstly, a mathematical one, that accepted that prices could diverge from values, albeit only in the short term, and with the surplus of one period, matched by the deficit of another, secondly, an literary one, that "re-interpreted" Marx to deny there was a problem at all, or thirdly some combination of maths and re-interpretation.

Anwar Shaikh presented an alternative solution that posited that the mass of profit could temporarily diverge from surplus value, in a so-called “simultaneous dual system” (Shaikh 1984), (Shaikh 1982), (Shaikh 1984). Shaikh showed that, assuming a tendency towards equilibrium and the equalisation of profit rates, through a process of iteration the aggregate of value and prices of production will converge. Marx’s prices of production are used as inputs and outputs at the same time to obtain a new average rate of profit and price of production. This is repeated until the prices of production of inputs and outputs are the same. Divergences between values and prices of production cancel each other out in every sector apart from the production of luxury goods. Even here however, capitalists pay the higher prices for their luxuries when they purchase them back, so what they gain with one hand they lose with the other, so that the notion that surplus value was created in exchange was an illusion. Therefore, the total of value does essentially equal price as do profits equal surplus value, albeit over several cycles. The reason for starting with values is that they form a centre of gravity for market prices.

This has the most cogency of any of the solutions. Prices can and must diverge from values, as the current socially necessary labour time changes both through the production period and between one period and the next. What is more capitalists can charge depreciation at different rates to suit their own interests; short term fluctuations in supply and demand and the anarchy of production mean that there is a gap between the operation of price signals and the response of the market to them; while rents and interest are charged at different rates according to different market conditions; losses may be incurred due to unsold output and so on.

Anwar Shaikh and E. Ahmet Tonak (1994) supplemented Shaikh’s theoretical analysis with an empirical study that used Leontief’s input-output tables to calculate imputed embodied labour coefficients and prices of production for real world economies. This showed a close correlation between embodied labour coefficients, prices of production and market prices. Duncan Foley was concerned that if “the correlations between embodied labor coefficients, and market prices had turned out to be much lower, or to fall over time, or to be low in certain capitalist

economies. Are we to conclude that the labor theory of value does not hold, or is weakening over time, or holds only in some capitalist economies?” (Foley 1998, p20). This essentially unscientific criticism was the motivation for the development of the “New Solution”.

The “New Solution” or more accurately “New Interpretation,” denies that there is a transformation problem to solve. It was discovered in the early 1980s by Gerard Duménil (1983) and Duncan Foley (1998). Marx noted in his treatment of the transformation problem in *Capital III* that, “We had originally assumed that the cost-price of a commodity equalled the *value* of commodities consumed in its production” (emphasis in the original) (Marx 1981, *Capital III*, p164). Engels, *Capital’s* editor, in the preface to *Capital II*, explained that in *Capital III* Marx would demonstrate the relationship between the rate of surplus value and the rate of profit in mathematical equations. Every single example, even of monetary transactions in *Capital I*, is predicated on the identity between values and prices. Yet Foley (1998) says that the first three chapters of *Capital I* “can be read as analyzing the aggregate flows of value in an economy with fully developed capitalist social relations, competition, and arbitrary ratios of invested capital to labor across sectors” (p10). Given that this reading was one unknown to the author and editor and was unnoticed for over a century, the question is how?

According to Foley “This reading has the advantage...of avoiding the need to establish the general validity of the results...” (p11). That might be its advantage, but convenience does not prove correctness. Foley’s motivation for this reading is his acceptance of the essence of Von Bortkiewicz’s argument. As prices cannot be mathematically reconciled with values according to Von Bortkiewicz, so a reading of *Capital* is developed where there are no values. If there are no values, then there is no transformation problem to solve. Foley develops a “Monetary Equivalent of Labour Time” (MELT) that divides (suitably modified) national income by the amount of labour hours expended in the same period, to produce a monetary value for each unit of labour time, this “way of looking at the labor theory of value dispenses with the need for a separate accounting system based on embodied labor

coefficients” (p20). This is necessarily so, as by using figures based on national income, values have already been transformed into market prices. As at the level of aggregates we know that values equal prices, so this already transformed MELT can also represent “value” or socially necessary labour time, even though value is not necessary for it or to it. The transformation problem is sidestepped, simply by avoiding values altogether.

Dumenil and Foley considered that wages should not be valued according to the cost of production of the use values that made up the wage, but that “‘the value of labour-power’ should be measured as the ratio of the money wage to the monetary expression of labour time, not as the labor embodied in the commodities workers consume” (p22), or more specifically the value of labour power should be measured in already transformed market prices expressed in the MELT. Fred Moseley (2000) in a friendly critique considered that this should be extended to include constant capital. In effect this transformed all values into market prices, as the MELT divided market prices by the aggregate of labour hours to ascertain the value or price of each labour hour. As transformed prices of production are mathematically consistent with Marx’s three aggregates so the transformation problem simply “vanishes” (p22). The MELT solves the transformation problem by interpreting it away it is “a set of definitions rather than an empirical analysis” (p28).

Its use of national income measurements, the prices that underpin the MELT, would only be appropriate if all value realised in a given economy was produced there, so that divergences between price and value balanced in aggregate. This is absolutely not the case. The phenomenon of unequal exchange, in which multi-national corporations buy cheap and sell steep, or purchase commodities below their value and sell them above it, in large part explains the profits of multi-national technology companies like Apple, Dell or Hewlett Packard or shopping giants like Wal-Mart. This distinction, between value produced and value realised in a domestic economy, is very important and underpins the critique of Shaikh, Tonak (1994) and Itoh (2005) that the New Solution measures value in terms of labour commanded, *à la* Adam Smith, rather than labour embodied *à la* Ricardo and Marx.

A collection of essays by Alan Freeman and Ernest Mandel (Mandel, Freeman et al 1984) presented several different and incompatible solutions to the transformation problem, that continue to be debated to this day. Freeman's own solution, subsequently championed with minor amendments by Andrew Kliman (Kliman 2006) and Guglielmo Carchedi (Carchedi 1991), is the Temporal Single System Interpretation (TSSI). It is temporal as inputs "add to the labour time contained in the products only as much labour time as they themselves contained before the production process" (Carchedi 2012, p107). And it is a single system as it recognises no divergences between values and prices. It is effectively a development of the "New Interpretation" as it too applies the MELT by using already transformed prices of production to form its monetary equivalents of labour time.

Andrew Kliman (2006) recently reiterated its essential precepts. Kliman claims that his solution rescues Marx from "the myth of inconsistency". Kliman criticises what he calls the "simultaneists", who value the price of inputs and outputs simultaneously. He equates simultaneity with "physicalism", the idea that value of output can be derived from its physical characteristics and with the proposition that output is valued at its "replacement cost" instead of its historic or purchase price. He makes this last argument on the grounds that "Simultaneist authors typically defend the computations... by arguing that the inputs have simply been valued at their replacement cost, the amount of value that would be needed to replace them at year's end" (p86). Kliman is correct to point out that the subjective valuation or price has to become an objective fact through the act of sale. Simultaneists may be "physicalists" inasmuch as they seek to derive value from the physical characteristics of output, but Kliman implies that any recognition of the physical nature of value is a form of "simultaneism". If it were then capitalism would not exist.

Kliman claims that the current cost of fixed capital stock is used in order to show that profit rates are rising, as the value of the fixed capital stock is lower at the current cost than it was at the historic cost. As capitalist production is a cycle, capitalists must depreciate their fixed capital stock at its current price, where this is higher than its historic price, or they will not be able to replace the cost of fixed

capital when they need to do so. The use of historic prices is not used in the national accounts for exactly this reason. It underestimates depreciation, fixed costs and overestimates profits. But this has another paradoxical effect. The real value of current replacement costs, purchase price less depreciation, are lower than historic costs, the original purchase price. Yet, in the national accounts, due to the effect of inflation, the current cost is higher than the historic cost. This is a monetary phenomenon that means that rates of profit calculated at the historic cost are higher than those calculated at the current cost. The use of the historic price for the fixed capital stock both overestimates real national income, as it underestimates depreciation, and overestimates rates of profit. As rates of profit only exist in current money and the value of the fixed capital stock is only its current value, then rates of profit, can only be calculated currently, that is with real money and real values of fixed capital stock now.

Kliman demonstrates his argument against “simultaneity” and “physicalists” through a model of a single commodity one use value “corn economy”, where corn is the input and output. From the physical quantities of corn Kliman, following Sraffa, develops what he calls a “physical rate of profit” (p85). This is based on the excess of the physical quantity of corn produced relative to corn inputted. This abstraction has no foundation in capitalist commodity production. A commodity, that is a single use value, cannot be valued by itself, but only relatively, in exchange for quantities of other use values different from itself. Alan Freeman, a close collaborator of Kliman’s, in his discussion of the national accounts in value terms noted that, “We can start from the principle of value analysis, which is that price, ultimately a form of value: one commodity measured in terms of another” (Freeman 1991, p87). Yet Kliman seamlessly discusses changes to the value of the physical quantities of corn produced in an economy that can have no value by definition. If only corn is produced then corn is exchanged for - only corn. If we assume the exchange of equivalents, farmers would exchange one quantity of corn, for the same, equivalent quantity of corn, but why would a farmer sell corn to buy corn? Kliman complains that if current prices are used then a putative rise in productivity and fall in price of the individual use value, would mean that “Even in physical terms, they are unable to

accumulate. Moreover, they have not yet paid, and cannot pay, the interest that they owe the bankers” (p87). But there is no “price” without sales and no bankers without money. For money is after all a different commodity from corn, gold a universal equivalent against which all other commodities exchange. Kliman explains that presumptions for his theory rest on exactly the same neo-harmonist foundation of Bortkiewicz critique of Marx;

“Simple reproduction and uniform profitability do require that supplies equal demands, but they can be equal even if the input and output prices of Period 1 are unequal. Since the outputs of one period are the inputs of the next, what is needed in order for supplies to equal demands is that the output prices of Period 1 equal the input prices of Period 2. But they are always equal; the end of one period is the start of the next, so the output prices of one period necessarily equal the input prices of the next period” (p151).

Output prices would only be the same as input prices if Say’s law, that demand of products is equal to the sum of all products, exists. Alan Freeman (1996) notes that without this simplifying assumption, that input prices equal output prices,

“[T]here would be n equations connecting $2n$ unknown prices and n unknown profit rates. Of these, n are removed by fixing output prices to be identical to input prices. A further $n-1$ are removed by the equal profit rate assumption, and the system is then determinate to within a ratio, the famous numéraire. No constant prices, no solution” (p19).

But Say’s law does not exist, there are no constant prices and so no solution or more accurately, mathematical solution. The dual nature of a commodity with use value separate from exchange value or price means that the output price can be separate from and different to, the input price, indeed it must be. The output price of period 1 may get hoarded in a warehouse before it becomes the input price of period 2, the value produced in one period may not be realised in sale and so on. The TSSI in this respect directly contradicts the objective basis of commodity production and

sale. Capitalists cannot tell, at the point of production, whether the price they have paid for the various inputs they have invested in will be returned to them at the point of sale, Marx explained that,

“[I]nputs entered the labour process with a definite value, they may come out of it with a value that is larger or smaller because the labour time society needs for their production has undergone a general change” (cited in Carchedi 2012, p108).

The TSSI falls on the same grounds as Steedman. It is only the act of sale that objectively determines how much of socially necessary labour time incorporated in commodities is realised, not the subjective desire of capitalists to realise predicted profit rates. Kliman asks “Does the sum of value transferred from an input to a newly produced commodity depend upon the input’s price when it enters production, as the TSSI holds, or upon the cost of replacing the input when the new commodity is completed, as the replacement-cost interpretation holds?” (p97). It is neither. The sum of value added, the socially necessary labour time incorporated in the product, is determined at the point of sale. There is no objective mechanism to ensure that commodities are sold at the values of their assorted inputs. If a consumer can buy the same commodity produced for less, the current rather than the historic socially necessary labour time, there is nothing to stop them doing so. The capitalist may like to sell their output above its value but competition means that they cannot do so.

2.5 National accounting and statistics

Alan Freeman followed Anwar Shaikh and Emet Tonak (Shaikh & Tonak 1996) in the use of the national accounts to measure the rate of profit for the productive sector only (Freeman 1991). This is at odds with Marx’s own method which recognises that as all value originates in the productive sector it is necessary to aggregate all exchanges inside the market boundary, to establish national income. Shaikh, Tonak and Freeman criticised Soviet economists for including only material output in their measures of material product, but they failed to point out, that the aggregates used in the material product system (MPS) were of concrete not abstract

socially necessary labour, as the exchange of commodities, the pre-requisite for the existence of value did not exist in the centrally planned economies. Nonetheless, the attempt to derive value measures from the national accounts confirms that these accounts can be used to develop estimates of value production in a market economy, expressed in actual measurements of real national income.

Marx shows how the form of value under capitalism, exchange value, is synonymous with and limited to market production and exchange. Consequently, where the market does not exist, such as in the centrally planned economy of the USSR, neither does the pre-condition for the existence of value or national income. It is not necessary to accept Marx's method to agree that if national income measures economic output within the market boundary, then it does not measure economic output outside the market boundary, such as the output of a centrally planned economy. This is a simple matter of logical consistency.

But Marx's theory of value does provide an important point of reference for the subsequent analysis. It assists a critique of the application of national income to the centrally planned economies and of their transition to capitalism. It demonstrates how, in the centrally planned economy (CPE), which operated without commodity production or exchange, quite different economic laws from the capitalist law of value, determined what was produced and how and explained the eventual stagnation, decline and collapse of the CPE.

The objective of this study is to understand the growth of national income within the transition economies. This permits an assessment of the model of national income and the theory from which it was derived (Tuma 2004). It undertakes a systematic re-assessment of the original national income estimates produced at the time (Gardner 2006, p135). It uses two distinct sources of material. Primary sources include original manuscripts, contemporary records, or documents not derived from any other sources (Lombard 2010). In this study they are mainly the original studies of Western economists, to establish as directly as possible how various theoreticians understood national income as applied to a market economy and to a centrally

planned one; to consider how they reconciled the differences between the two economic systems, if at all; and how this affected their analysis and measurements. It follows the arguments from their inception and as they developed and were applied in different national contexts, for example in the Soviet Union and CEE and in China. It also uses secondary data analysis of longitudinal linear data (Prytherch, Harrod 1990, p494) to develop alternative estimates of the growth of distinctively capitalist production during the transition period from central planning to the market. Longitudinal linear data is a sample of units of analysis, in which at least some of the units are measured more than once, having been collected by international research organisations. Data is generated from panel studies or pooled time series and cross sectional data, in which each unit of analysis is followed up at either equal or unequal intervals. They may be viewed as a sample of short time series, with the number of units equal to the number of time series (Guo & Hipp 2004).

A key theme of this study considers how Western economists viewed the reliability of official data produced in the centrally planned economies, and it is essential that this data is considered in the context in which it was created, who created it and why, to inform the assessment of its historical importance and to enable its reapplication to the new research questions produced by this study (Anderson 2004).

Longitudinal studies suffer from problems of attrition and the reliability and validity of measurement. The data may be outdated or have historical bias or in this instance, particularly methodological bias, where value measurements are attributed to centrally planned economies without actual value. To use this data correctly, the operational definition needed to be similar and congruence needed to exist between the conceptual definitions and the quantitative databases noting their completeness, accuracy and how they dealt with missing data. Potential problems with this data arise precisely from its secondary nature - it is not collected for the definite study in which it is used. In this instance however, this is not only unavoidable, but absolutely necessary. The re-examination of the measurements of the transition period presented in this study precisely relies on the use of the same, or as similar as possible, data

sets as those used by the original estimators. This thesis argues that it was the economic interpretation applied to the data which were at fault, not the data itself. The strength of this thesis rests on its ability to re-interpret the *same* datasets as were originally used in order to show how distinctive estimates of the decline of centrally planned production and growth of market production can be made. The review of the existing data enables an empirical test of the theoretical assumptions and provides elements of the answer to new research questions (Coyer & Gallo 2005).

After the fall of the USSR and the opening of the Goskmostat archives to Western economists, there were attempts to re-estimate Soviet output. Again official statistics were used and the re-estimates, while generally lower, closely followed the original estimates (Kuboniwa 1997). Different problems followed in the immediate transition period, under the central plan production units reported their output to the planning authorities, with the destruction of the plan there was no clear reporting path. The situation was complicated by the multiplication of small output units, particularly due to the de-collectivisation of agriculture in China and the self-interest of producers (Holz 2004). Changes in the tax structure meant that the producers had incentives not to report output, interest or profits to avoid taxes. The legal framework to impel them to do so was not yet established, while the switch from quantitative measures of physical output to value measures based on exchange, caused confusion. The transition to a survey system of data collection typical of the SNA took time to establish. Reporting authorities struggled to cope with the pace of transition and there were mistakes in the presentation and aggregation of data. In the CEE and CIS this was exacerbated as it took several years for market prices to act as real determinants of income and output (Bloem, Cotterell 1996).

This study does not seek to discover more or better statistics for the Soviet economy. Rather, through a reassessment of the very same empirical material it applies a new method of estimating the growth of national income during the transition period. It disaggregates the output of the central plan and capitalist modes of production. Paradoxically, it uses physical units to demonstrate this change, as these indicators stand independent of changes in exchange rates and prices. The

estimates for aluminium are compiled from a variety of domestic and international public sources based on information available to the United States Geological Survey (USGS 2012). Hydraulic cement is similarly compiled from domestic and international public sources available to the USGS. Electricity figures are drawn from the British Petroleum (BP) *Statistical Review of World Energy* collated from government sources and published data (BP 2012). Steel figures derive from the World Steel Association compilation of reports from national steel associations where possible (World Steel Association 2012). The source for automobile figures is the International Organization of Motor Vehicle Manufacturers (OICA 2012) comprising 37 national trade associations, including all major automobile manufacturing countries, making up most of the worldwide motor vehicle industry. The GDP PPP statistics originate from the Groningen Growth and Development Centre (GGDC 2012), based on national sources, that do not measure only capitalist output, but rather measure all output as if it were capitalist. The use of imputed value measures for non-capitalist production is particularly significant during the transition period. The key problem with the independent estimates of centrally planned output was not essentially the quality of data at the disposal of statistics agencies, but the failure of statistical authorities to measure actual output within the actual market boundary.

This study limits its measurement of national income to that of the distinctively capitalist economy alone. Central planning was not a distorted or less developed form of capitalism. It was not capitalism. Comparative measures can be used to estimate the possible size of the centrally planned economy in comparison with the capitalist one, but as much to highlight the differences rather than the similarities between the different stages of economic development of society. Different economic systems require different systems of measurement.

CHAPTER 3.

THE MEASUREMENT OF SOVIET ECONOMIC GROWTH

This chapter discusses alternative measurements of the Soviet centrally planned economy by Soviet and Western economists from the early 1920s. The 1917 overthrow of capitalism in the USSR meant that the economic base of Soviet society underwent a series of revolutionary transformations, from civil war and “War Communism” 1918 to 1921, to a transitional – from capitalism to a centrally planned economy - form of state capitalism under the New Economic Policy (NEP) 1921 to 1928, to command central planning from 1928 on. Soviet theoreticians from the early 1920s debated both the nature of the current economy and its future development. Through an application of the Marx’s schemes of reproduction outlined in *Capital II* they developed new methods for measuring economic output that shaped subsequent Western measures of national income. The consensus of orthodox Marxists was that the category of value was specific to and dependent upon the existence of the commodity production, i.e. objects produced solely for sale on a market.

The overthrow of orthodox Marxism by Stalin in the late 1920s meant that this opinion was revised. The new apparatus defined value as a quantitative measure of concrete labour time irrespective of commodity production. This definition formed the basis for all Soviet estimates of national output from then on.

The new Stalinist method coincided with and provided the empirical basis for, Western attempts to develop “independent” estimates of Soviet national output. These began in the 1930s but were transformed through the need for the US army and security services to ascertain the economic and therefore military power of the USSR during the Second World War. Western statisticians, most notably led by the United States Air Force Project Research and Development (Project RAND) under the direction of Abram Bergson, sought to reconcile the output of the central plan with the categories of neo-classical economics. Alongside a discussion around the general validity of Soviet statistics, the debate established basically two counter

posed methods for measuring Soviet output. Firstly, physical quantities of output were valued at Western, usually United States prices, to estimate what Soviet output would have been valued at if it were produced in the capitalist West; the path taken by Clark, Wyler, Gerschenkron, Nutter and Shimkin. Secondly and alternatively, Soviet “value” measurements were deflated to produce what were believed to be more accurate measures of Soviet output as if it were a capitalist market economy; the path taken by Jasny, Hodgman and Bergson.

3.1 The Five Year Plans

The 1921 to 1928 New Economic Policy (NEP) used market measures to revive an economy destroyed by civil war. It combined a state capitalist nationalised, industrial sector in which until 1927 enterprises were required to make profits, with a rural free market economy (Baykov 1970, p426). But NEP was a system fraught with contradictions. The very market measures that had revived the economy revived the capitalist classes that had been overthrown in the 1917 revolution.

This threatened the rule of the Soviet apparatus, so NEP was abandoned in 1927/8 and from Bukharin’s “socialism at a snail’s pace” (Cohen 1980), a programme of forced collectivisation and autarchic planning was introduced. In just four years the Soviet economy was transformed into a system of ultra-centralist top down planning (Harrison 1994).

The market and market prices was abolished. The foundation upon which the Western System of National Accounts (SNA) was built was done away with. Instead a bureaucratic apparatus determined all decisions of production and consumption for society as a whole, using a plan based on physical inputs and outputs (Nove 1977). Initially Gosplan, the planning ministry, prepared “control figures”. These formed tentative aggregate targets for a limited number of strategic outputs and inputs. Projected supplies of these inputs were supposed to correspond to nominal output targets. Agencies exercising operational control – the ministries, “glavnoe

upravlenie” or glavki or “enterprises” then elaborated the control figures into more detailed targets during negotiations with subordinate agencies.

After approval by the party and government the plan was submitted to the ministries as an operational directive. More detailed programmes were then worked out for subordinate agencies (Bergson 1964, p135-137). R.W. Davies (1958) noted that,

“In such an economy the processes by which resources are allocated must evidently be different in kind from those of competitive economies. If there are to be prices, they cannot be market-determined, and must be fixed by the government or the planning authority; hence neither the level of investment nor its allocation between different uses can be determined through a self-adjusting price mechanism” (p140).

Davies was a graduate student of Alexander Baykov. Baykov’s early 1947 (1970) study of Soviet industrialisation *The Development of the Soviet Economic System*, supported Stalin’s policies and described the purges of 1937/8 as having a “beneficial influence on the development of industry” (p281). Davies in his turn went onto collaborate with Mark Harrison (Davies, Wheatcroft & Harrison 1994). And so the Stalinist method which permitted the application of value measures to a centrally planned economy, was reproduced through the years.

Each production unit or enterprise sought to minimise its targets, the quantity of output required of it and to maximise its inputs, the amount of physical resources available to it. The hoarding of labour, machinery and raw materials was a constant feature of the plan. Managers used informal trade networks to supplement allocated inputs, albeit at state prices and through the state bank to meet plan targets (Berliner 1957). Naum Jasny (1951a), a Menshevik exile writing after the war commented,

“That the ultimate receivers pay the fixed price for the goods received by them is merely secondary. It does not impart to the transactions the character of a market” (p10).

The nature of the central plan had important implications for the quality of statistical information available to Western analysts. The hierarchical centre required accurate information to plan the economy. At the same time subordinates, from ministries to enterprise heads and workers on piece rates, were rewarded according to that same data. They received bonuses for meeting targets and suffered punishment for their failure to do so. The regime exaggerated its achievements to reinforce its legitimacy. There was no such thing as independent information. By 1960 there were an estimated two and a half million persons directly employed in keeping and processing records. Even so the data was selective, ambiguous and overstated. Slow growth industries and the fast growth military sector were both under-represented. Categories were blurred. Primary sources did not contain adequate definitions of industries in terms of administrative and territorial coverage, product coverage and stage of fabrication at which output was being measured. There was a general overstatement of absolute levels of output, but within limits defined by the material interests of the various participants (Grossman 1960).

R.W. Davies et al (1991) published a summary of the official statistics in 1991 as the Soviet archive opened after Glasnost. Davies observed that Soviet statistics omitted data that presented unfavourable developments, used current prices without acknowledging the effect of inflation/deflation, modified definitions to “improve” performance and reduced the range of material through the 1930s, but he concluded, “in spite of all these deficiencies, nearly all Western economists and economic historians agree that on many matters Soviet statistics can be rendered reliable if they are carefully scrutinized and adjusted” (p2). The system of top-down command planning remained essentially unaltered, despite the various reform initiatives until 1985 when Gorbachev became the General Secretary of the Communist Party of the Soviet Union (CPSU). He oversaw the abolition of the central plan by the end of the 1980s (Gregory 2004, p245).

Plan prices were passive inasmuch as they were used at all. The value of the stock of means of production and housing was based on its physical characteristics (Moorsteen 1962), (Kaplan, 1963). Depreciation of the means of production was measured on the basis of wear and tear rather than obsolescence (Jasny 1951a, p89). A controlled “market” had a limited role in the distribution of consumer goods in periods when direct rationing did not operate, but changes in demand did not affect the quantity, quality or type of consumer goods supplied or their price. They did not increase or diminish the size of the employed work force. There was no profit, no interest and no rent. An accounting form of profit did appear during the 1960s, as the apparatus sought to use quasi-market measures to stimulate the plan. They hoped that by enabling enterprises to retain a portion of the social surplus, they could increase incentives to raise productivity. This initiative conflicted with the taut planning of the centre, increased disproportionalities and added to the plan crisis. Even so this was not profit as understood in the capitalist West. It was not a surplus value realised upon sale. In the capitalist West national income is based on an actual record of sales at actual prices in the here and now, in contrast Soviet “national income” measurements were produced *post factum* (Davies 1985 p44). Physical deliveries were not matched with their financial equivalent (Gregory 2004, p241). They reflected but did not affect planning decisions. Private ownership of the means of production and capital accumulation were outlawed, peasant farming based on individual plots abolished, and working class consumption subordinated to investment. Abram Bergson the director of the Soviet section of the United States wartime Office of Strategic Services (OSS) explained;

“The characteristics which have led the writer to call the present investigation a study in socialist economics are several: first, the ownership and administration of the bulk of the community’s industrial resources by the government; second, the direction and integration of this sector, though it is true with varying effectiveness, by a system of planning; and finally, the differential wage system....the last characteristic, it will appear, distinguishes the Soviet economy from the ideal, communism, rather than from competing systems” (Bergson 1944, p6).

This system of bureaucratic central planning raised the question of whether “value” was produced in this non-market economy. Marx’s categories applied to a historically specific and limited form of economy, a capitalist one based on generalised commodity production;

“The product of labour is an object of utility in all states of society; but it is only a historically specific epoch of development which presents the labour expended in the production of a useful article as an objective property of that article: i.e., as its value. It is only then that the product of labour becomes transformed into a commodity” (Marx, 1982, *Capital I*, p153).

Marx’s categories were historical; they were developed from and were specific to the capitalist mode of production. Ronald Meek (1956) concluded that, “Marx consistently denied the law of value would operate after the end of commodity production” (p259). The centrality of commodity exchange for value measures was supported by Ludwig Von Mises, the key proponent of Austrian marginalism. Von Mises considered that as socialist production was never exchanged it was impossible to establish its price or value (Mises 1975). This point, at first sight a semantic argument of little importance, goes to the heart of the dispute around the relevance of national income measures to the centrally planned economy.

3.2 Concrete and abstract labour

In a capitalist economy it is not the total number of hours worked that determines the value of production but the total of the socially necessary hours worked. Two identical commodities, which have taken unequal amounts of individual labour will embody a larger or smaller share of the labour of society or labour in general. The proportion of this general labour competition establishes for any individual commodity is its socially necessary labour time. Competition is nothing more than the process whereby individual labour times are merged into one, the average for that commodity. All things being equal, only this single average price, when multiplied by the quantity of commodities sold can equal the total labour time taken to produce these various commodity producers, “Individual labour

contains general human labour only in so far as it is socially necessary” (Engels 1975, p372). If value is measured by the concrete quantity of physical labour expended then less efficient labour will have a higher value than more efficient labour, “...if the value of a commodity is determined by the quantity of labour spent on it, the more idle and unskilful the labourer, the more valuable would his commodity be”. In a capitalist system, market competition ensures that, “It is the quantity of labour required for its production, not the realized form of that labour, by which the amount of the value of a commodity is determined” (Marx, 1982, *Capital I*, p677).

Whereas in the system of central planning Jasny (1951a) noted that “Disregard of cost and all kinds of waste are among the principal weaknesses of the Soviet system” (p9). As a result;

“There is no such close correlation in the Soviet economy between production costs and selling prices (the latter being understood as minus turnover taxes resting on the finished goods; turnover taxes on raw materials are part of the costs) as is observed in a private economy. Such a normal procedure as adding an appropriate profit to the production costs and accepting the total as the approximate selling price is inapplicable to the Soviet economy (p84).

Workers could be cajoled into work through a combination of direct repression and piece rates, but if production units were allocated a larger quantity of inputs to produce a smaller quantity of outputs they received a higher payment. They were rewarded for their inefficiency.

In a capitalist mode of production concrete labour times incorporate both necessary labour time, the amount of labour required to reproduce the labourer, and surplus labour time, the amount of labour above that minimum. The act of exchange expresses their sum and provides the objective basis for the measurement of national income. In the centrally planned economies no such mechanism existed. The apparatus did not separate necessary from surplus labour, such transparency would have rendered their position at the head of a socialist and even communist “state”

impossible. The financial aggregates of the central plan obscured the real relations of production. Planned prices were arbitrary and subjective. Enterprises received different quantities of inputs – and therefore – different quantities of their nominal rouble unit of account – to produce different quantities of outputs, “valued” at different amounts. These amounts did not correspond even approximately to the surplus product. Some of the surplus labour time was incorporated in the various taxes and margins, but it was impossible to cost these labour times, even in the aggregate, accurately.

Concrete labour times under capitalism are transformed into socially necessary labour through the market mechanism. They represent the value of labour newly added to production, not in the USSR. Where much labour was socially unnecessary, a significant proportion of new labour was used to remedy defects in inputs, was duplicated, remedial, overlapping or hoarded. If transposed to a market economy this wasted labour did not add to total output. Thus the aggregation of concrete labour hours in order to convert them to western market values overstated “national income” in the USSR.

Forced labour robbed the worker of the self-discipline needed to harmonise labour times in the absence of competition. There could be no universal standard of labour to replace money as the universal equivalent. In a capitalist system money forces labour times towards the average and eliminate the inefficient as enterprises make losses and go bust. In the USSR there was no such mechanism, “Technically the procedure is that the losses of individual enterprises are offset by profits, if any, of the same “glavnoe upravlenie” (glavki) or trust (immediate subdivisions of the commissariats)” (Jasny 1951a, p84). This increased the total aggregated concrete labour time in a way that was incompatible with a market economy. Capitalist accountancy and the Western system of national accounts could not be applied to it.

Richard Moorsteen (1962) a collaborator of Bergson and part of the United States Air Force Project Rand discussed whether Soviet machinery prices were “meaningful” in the sense of accurate indicators of factor costs or market prices

(p8). Moorsteen claimed there was “no definitive solution” to this question, although he considered that as Soviet prices did not include charges for rent, entrepreneurial profit or interest it was “impossible to value the marginal product of any factor correctly”. Impossible seems fairly definitive. But Moorsteen continued as the price books compiled by planners showed some consistency and inasmuch as industrialisation reduced the administrative “price” for assorted outputs, there was some comparison between the movement of market prices and administrative ones. He concluded that although it was impossible for Soviet prices to be meaningful, this did “not refute the hypothesis that Soviet machinery prices are ‘meaningful’”. Even though these points were “inadequate to confirm” they were “meaningful” (p13). It was impossible for planned prices to be meaningful, but this impossibility did not refute the notion that they might be meaningful. Mark Harrison (1996) a contemporary defender of Bergson argues that despite their deficiencies, Soviet data of production, prices, outlays and employment, were not arbitrary fabrications,

“...they are meaningful (although the meaning was rarely to be found on the surface), are capable of interpretation, and if interpreted correctly, provide a sufficient foundation for statistical aggregation and economic evaluation. Soviet GDP can be measured” (p170).

Moorsteen and Harrison miss the point. Soviet aggregates were meaningful, they represented a real thing, the physical quantity of concrete labour time required to produce a given output, but they were not meaningful as market prices, as the foundation for measures of national income.

Alec Nove (1955) considered that Soviet prices reflected “Soviet realities” and that, “the Soviet price system was not an arbitrary creation of the government” (p257). Soviet planners used prices, the accounting totals attributed to production units, as a measuring rod. Enterprises had to meet costs, the accounting total of physical quantities of inputs allocated to them, from income. These accounting prices were interrelated and so assisted the production of the required assortment of goods. Where policy required they could be adjusted for the use of relatively scarce and

costly productive resources. Consumer goods were under-priced relative to effective demand to ensure the disposal of goods. While agricultural prices needed to provide adequate incentives for the farmers (p257). Nove considered that the limitation of Soviet national income measures to material goods was in the tradition of Adam Smith, but Nove failed to differentiate between the subjective value estimates of the planners and the objective value facts of the market.

Paul Studenski (1958) who alongside Julius Wyler developed some of the earliest Western estimates of Soviet national income, noted that after 1931 Soviet,

“...estimates in constant prices lost their contact with reality. The estimates became completely divorced from all current financial transactions of society, all of which are expressed in current prices. They could no longer be related to the national budget, the unified financial economic plan, and the five year plan, or any parts thereof....National income estimates became a mere index of the growth of material production and a very imperfect and abstract index at that” (p352).

Studenski's emphasis on the significance of current prices repeated a point made by Leontief (1943). But the real issue with Soviet prices was more fundamental, without exchange, prices were never reduced to an objective abstract standard. They were accounting totals only. The aggregation of physical labour hours was not an alternative way of measuring the value production of the centrally planned economy; it was a different way of measuring a different economy. It meant that in Soviet accounting measures of the efficiency of output did not determine production decisions (Campbell 1960). Soviet economists were aware of this but ignored its significance (Lapidus & Ostrovityanov 1929). The central plan lacked both the democracy of the producers and the act of exchange. Trotsky the 1925 head of the state electro-technical board remarked that;

“If there existed the universal mind described in the scientific fantasy of Laplace – a mind which might simultaneously register all the processes of

nature and society, measure the dynamic of their movement and forecast the results of their interactions – then, of course, such a mind could *a priori* draw up a faultless and exhaustive economic plan, beginning with the number of hectares of wheat and ending with the buttons on a waistcoat. True, it often appears to the bureaucracy that it possesses just such a mind: and that is why it so easily emancipates itself from control by the market and by soviet democracy. The reality is that the bureaucracy is cruelly mistaken in its appraisal of its own spiritual resources” (Day 1988, p29).

On the one hand, false accounting obscured the parasitic social role of the apparatus; on the other it was the inevitable response of every layer of society to the tyranny of Stalinist centralisation. To the extent that planned prices did accurately represent the production of real things they were no truer from the point of view of a capitalist market economy. Soviet planned prices were not meaningful even if they were meaningful. Nevertheless, it was these prices and the physical quantities of production that underpinned them, that formed the basis for the subsequent attempts to develop a Western “real” national income for the USSR.

3.3 The *Balance* of 1923/4

In 1923/4 P.I. Popov and L.N. Litoshenko produced the first balance of a national economy published anywhere (Spulber 1964). Its first part of 350 pages described its methodology and analysis, its second part of 275 pages presented its statistical materials. Zoltan Kennessy (1994) in his overview of the history of national accounts notes that the “early efforts regarding the establishment of national economic balance of Russia in 1923/4 should be recognised” (p11). The *Balance* was based on a development of Marx’s *Capital II* schemes of reproduction. G.A. Fel’dman, a contemporary of Popov, who worked on the *Balance* considered that Marx’s work was, “applicable to any social formation since it represents in its most abstract form, the process of production and exchange apart from its historical specificity”, provided it was understood that this application differed according to the “historical content” of the categories. Marx's categories corresponded “to the requirements of analysis of market relations”. They had to be modified for use in a

planned economy in order to disclose the connections between income, consumption, accumulation, capital formation, the effectiveness of capital utilization and productivity. These were the connections between “the economic categories which determined the possibility of realizing the basic conditions of our development” (G.A. Fel'dman cited in Spulber 1965, p4). Popov observed that while Marx's schemes of reproduction were developed to analyse a capitalist economy, to the extent that capitalism was a form of social economy they could have a wider application, there were questions as to whether they applied to an economy, “constructed on socialist foundations, but there is no question at all that his schemes do apply to an analysis of the productive relations of Soviet society, which is a transitional form as society moves from a capitalist to a socialist economy” (cited Spulber 1965, p13). L.N. Litoshenko, the co-author of the *Balance*, observed that the physical balance did not enable the comparison of one branch to another, it could not measure how changes in price affected demand and supply, for this a common value measure based on market exchange, was “indispensable” (cited Spulber 1965, p45/46). V.G. Groman pointed out that the *Balance* needed to consider the social form of production, whether it be socialist, state capitalist, private capitalist, small scale commodity or semi natural (cited Spulber 1965, p97).

The young Wassily Leontief (1964) provided a useful summary and critique of the *Balance*. Leontief noted that on the income side the balance presented the value of the separate large-scale branches of the economy – industry, agriculture and construction according to their functional relationship to the process of production: 1) individual consumption 2) raw and other materials; 3) fuels; and 4) tools of production. Values were broken down into their component parts, local production prices, transportation expenditures and trade mark ups. The income side showed how values were distributed and used. It generally followed the expenditure side (p88/89).

Leontief pointed out the *Balance* only accounted for “objectivised” material goods. As such it produced an unnecessarily narrow picture of the total income of the economy as it excluded services like state expenditure or passenger transport. Although it revealed the internal organic structure of the economy, following Marx,

Leontief explained that national income was a measure of the total product that resulted from the process of production. This issue of coverage was taken up thirty years later by Western economists developing their own independent estimates of Soviet national income.

National income was the sum of newly created values and of the value of the goods expended and worn out in its creation. The distinction between new value and old value was that new value – the net product – could appear no more than once in the process of production whereas cost expenditures, could repeatedly pass from one stage of production to another. Costs amounted to less than the sum of the individual total products. The net product of several branches of production was always equal to the sum of the individual net products. Every statistical sum should show that the relationship among the values of its component parts corresponded to the actual relationships of individual data (p91). Leontief concluded that, “Such a method provides a possibility of comparing the economic weight of all the areas of production with one another, leaving aside their technical peculiarities”. Leontief was explicit that “the total amount of goods can be computed only with reference to a commodity economy” (p92).

Leontief left the USSR in 1925 and undertook a doctorate in Germany “Die Wirtschaft als Kreislauf”, “The Economy as a Circular Flow” under the direction of Werner Sombart, a noted economic historian and former correspondent of Engels, and Ladislaus Von Bortkiewicz. Sombart viewed Marx’s value categories as a logical device without a real existence in the capitalist economy (Murray 1993). This may in part explain Leontief’s later willingness to apply these measures to the central plan. By 1931 Leontief was exiled in the USA as a research associate for the National Bureau of Economic Research (NBER). There he applied the input-output and national income methodology developed during the Soviet *Balance* debate to the United States economy at the very same time that Kuznets had been commissioned to produce the US system of national accounts.

Now nominally an adherent of Marshall's neo-classical theory, Leontief (1951) made no mention of Marx's schemes of reproduction at all in his theory, instead he referenced Marx's inspiration, François Quesnay's *Tableau Economique*. But the nominal adherence to Marshall made no difference to the theory at all. All the essentials of Leontief's work remained the same, value was added in production, marginal productivity theory was rejected, property income, interest, rent and profits formed surplus value, the separation between use value or "product" and exchange value or "value" remained, a rise in productivity reduced the price of output, and so on, only Leontief's debt to Marx was hidden (Clark 1984).

3.4 The Soviet Value debate

The 1920s Soviet value debate overlapped with the more strategic discussion around the rate of investment in the industrial sector. Bukharin (Cohen 1980) and Preobrazhensky (1980), from the Right and Left wings of the industrialization debate within the CPSU shared the same methodological approach to the use of Marx's concepts of political economy. Bukharin and Preobrazhensky contended that all Marx's categories of political economy were deduced from value and only meaningful in a commodity capitalist economy (Kaufman 1953, p251/252). Under the central plan to the extent that the actual social relations specific to a capitalist mode of production such as money, prices, wages, interest, rent and profits disappeared in reality, so too did the categories that described them (Spulber 1964, p29/30). In their place direct material accounting analysed the direct material allocation and production of inputs and outputs, Preobrazhensky (1965) explained;

“Here the category of price is purely formal in character, it is merely the title to receive from the common fund of the state economy a certain sum of means for further production and for a certain level of expanded reproduction” (p164).

In the early 1920's I.I. Stepanov-Skvortsov and A.A. Bogdanov led the “Mechanist” school to challenge this orthodoxy. Stepanov asserted that Marx's political economy abstracted from both “laws specific to each particular stage in the

development of production and exchange” and developed a number of “general laws concerning production and exchange in general”. A.A. Bogdanov asserted that it was nonsense to claim that under socialism “commodities, prices, wages, etc., exist and do not exist”. Value categories existed under socialism and would exist under communism. Planning must be based on the “knowledge of the value of the product” of accumulation and of consumption. For the Mechanists the essence of abstract labour was psycho-physiological. It was a natural category independent of the social forms of the productive system. Value as produced by abstract labour continued to exist in a socialist society, as did the law of value albeit in a modified form (Spulber 1964, p31).

Bukharin, Preobrazensky and Obolenskii-Ossinskii argued, against Stepanov, that with the development of planning in the Soviet Union “the vestiges of commodity-producing economy were in process of disappearance” (Spulber 1964, p32). To the extent that it was replaced by planned production so value would disappear too, Preobrazensky (1965) summarised this view in 1925;

“For surplus value to exist it is necessary that value in general should exist, that is, that the product of man’s labour should be a commodity. And this means that we are here concerned with a historical category characteristic only of commodity production” (p183).

During 1926 to 1927 the discussion resurfaced around the “Idealist” group that adhered to the ideas developed by I.I. Rubin in his 1923 *Essays on Value* (1990). Rubin asserted that the “abstract form of labour” is characteristic of and specific to the capitalist division of labour. The capitalist market created a division of labour in accordance with the law of value. This determined that the productive resources of society were distributed according to a capitalist accumulation process driven by profit. For Rubin abstract labour was a historical category specific to capitalist social relations. In the planned economy labour was not alienated but directly social, concrete not abstract, Marx’s categories of political economy disappeared in theory as to the extent that they disappeared in real life (Kaufman 1953).

In 1930 the Central Committee of the CPSU rejected Rubin's "Idealist" view as part of a general purge of Marxist economic opinion. Rubin was arrested and denounced as a member of a "Menshevik conspiracy". He was condemned as a "wrecker" and "enemy of the people" (Jasny 1972) (Kaufman 1953, p256). While the Mechanists were criticised too, the Central Committee adopted the essence of their view in what became the new orthodoxy of the Stalinist Marxism (Kaufman 1953). Bukharin, Stalin's chief theoretician until the adoption of central planning in 1928, wrote that "Stalin is an unprincipled intriguer who subordinates everything to the preservation of his power. He changes theory to suit the needs of the moment" (Day 1982, p298). The new orthodoxy was expressed by Lapidus and Ostrovitianov (1929);

"The law of value still regulates productive relations to a certain extent; and therefore we cannot reckon the goods produced in terms of labour hours, but are compelled to adhere to value calculations, although behind the value form there is hidden planned regulation" (p473/4).

In 1930 L. M. Gatovsky summed up the new Stalinist consensus that market, price and money expressions remain valid in a centrally planned economy (Kaufman 1953, p265). According to the Stalinists, "Cost accounting, is based on the conscious use of the law of value" (Meek 1956, p272). As "The law of value acts in socialism, but acts in a transformed manner" (Miller 1953, p423). In 1951 Stalin (1972) considered whether the law of value existed and operated under the socialist system. He answered "Yes, it does exist and does operate. Wherever commodities and commodity production exist, there the law of value must also exist". Seemingly unaware that commodity production had been abolished by the central plan he introduced, Stalin continued, although the law of value existed and operated it did not regulate, "In brief, there can be no doubt that under our present socialist conditions of production, the law of value cannot be a 'regulator of the proportions' of labour distributed among the various branches of production". The law of value that regulated the distribution of production existed, but not as a regulator of production. This gobbledegook went alongside the denunciation of traditional accounting methods, which were denounced as "bourgeois" or "Trotskyist".

Accounting became a form of data keeping. Profit ceased to be a major success criterion and the survival of an enterprise no longer depended on its solvency (Bailey 1990). Alexander Gerschenkron (1953), a strong but shrewd opponent of Marxism commented;

“It is my belief that the so-called “Marxian ideology” plays a very insignificant part, if any, as a determinant of Soviet decisions in the field of economic policy. The function of Marxian ideology in Soviet Russia has been essentially one of vindication of policies that have been adopted on the basis of quite different considerations” (p26).

3.5 The *Materialy*

The *Materialy* was an internal planning document produced under the direction of N. Osinskii in 1931. It measured the material production produced under the early central plan between 1928 and 1930 (Davies 1994, p28). It sought to establish the balance of the national economy during the first five year plan. It expounded the newly established Stalinist understanding of “value” in a planned economy.

Marx noted in his *Critique of the Gotha Programme* that the abolition of exchange in a socialised economy meant that labour was no longer indirectly social. It was no longer mediated through the sale of commodities on a market, but was directly social. In a socialist economy actual costs of production, the actual amount of labour time required to produce a given output, could be directly established through the direct democracy of the association of producers. But the terror of the USSR’s secret police state was anything but democratic.

Without market exchange or socialist democracy, the apparatus had no mechanism for measuring the real social cost of production. The *Materialy*, expressed the contradictions of this neither one thing or another economy. It explains the confused attempt of the central planners to demonstrate the correspondence of the

physical output of the plan with a notional “national income”. The planners were clear that, “The crucial distinguishing feature of our expanded reproduction in comparison with capitalist reproduction is that it is not the reproduction of capital but the reproduction of use-values” (Pervukhin 1985, p121). The planners abstracted from the social preconditions for the existence of the value form, to assert that while surplus value did not exist in a planned economy, value production did;

“The value of a social product (a commodity) in capitalist society consists of the following three fundamental parts: 1. The embodied value of means of production consumed in production (“C”), 2. The value of labour power (“V”) and 3. Surplus value (“M”). The last two elements (V+M) are the value newly created in the given cycle or the given year, and at the level of society as a whole they equal national income. Consequently, if we eliminate the surplus value form (which does not exist in socialist society) national income may be taken to be the sum of labour expended by society in production in the given year” (Pervukhin 1985, p106).

If there is no exchange value, then there is no value. If there is no value then there is no surplus value. Even so the *Materialy* measured Soviet “national income” by separating the contribution of living labour to annual physical production. Soviet “national income” represented the “value” of the total labour expended in the given year and expressed in a form of subjective accounting unit or as its authors would have it, in monetary terms. It was “...analogous to a commodity producing society, which expresses production and national income through money in value terms”, inasmuch as it counted the “value” of the physical quantity of use values produced in a year that could be ascribed to living labour (Pervukhin 1985, p107). This “value” was no value at all, but a subjective and arbitrary fabrication of the planning agencies. In 1933 Trotsky commented;

“Cast iron can be measured in tons; electricity, in kilowatts; cloth, in meters. But it is impossible to create a universal plan without reducing all its branches to one and the same value denominator. If the denominator is itself fictitious,

if it is the product of bureaucratic discretion, then it eliminates the possibility of testing and correcting the plan in the process of its implementation. Fixed prices that are not controlled by a stable currency open up unlimited room for bureaucratic subjectivism in the area of planning” (Day 1982, p300).

Capitalist prices are not determined post-factum, after the sale of the product, but in the here-and-now at the point of sale. Market prices oscillate around average socially necessary labour times, as capital seeks to maximise profit rates. In a capitalist economy the labour of the individual only becomes part of the labour of society on exchange. The profit motive is driven by unequal exchange, the divergence of prices from values, through the act of sale in a market. The profit motive and exchange cannot be separated. In those industries with higher than average levels of productivity, the weighted average of labour time exceeds the average and vice versa. Under normal market conditions, this weighted average informs the market price.

Competition reduces many prices to a single market price. That price when multiplied by the volume of sales of this similar product, allows for the payment of the total labour time expended in that industry. More productive firms will be able to sell their commodities at a price above their value. This does not alter the total profits produced, but redistributes them. The extra profit of the more productive firms comes straight out of the pocket of their less efficient rivals, as increases in productivity are immediately rewarded by higher profits. Money acts as the means of exchange, the universal equivalent and means of redistribution.

This movement of capital establishes, or tends to establish, the socially necessary labour time incorporated in the product at the moment of exchange, modified by the redistribution of capital to maximise profit rates. Prices are active. They change according to supply and demand and determine the distribution and redistribution of the productive resources. Bureaucratic subjective centrally planned prices are something else altogether, neither a regulator of, or regulated by the market.

After the Second World War Soviet and Polish economists reprised the value debate, they conceded a “guarded acceptance” of the existence of the law of value in a planned economy. The assorted economists could not demonstrate how concrete labour could be transformed into abstract social labour without exchange. Strumilin, a leading participant in the debate, tried to produce a “work time calculus” but “it was only by shrewdly dodging the intractable task of reducing concrete labor to abstract labor, and socially necessary expenditures to individual work-time expenditures, that he is able to make any headway in offering a solution to the pricing problem based on Marxian value concept” (Zauberman 1960, p24).

The financial statistics produced by the Soviet authorities were not based on objective costs. Soviet accountants could count the number of labour hours expended and divide this by the quantity of goods produced. They could establish an average physical correlation between them, but this had no financial consequences for the aggregate plan targets, or the individual enterprise. Even if they decided that a unit of labour was worth a given amount it had no material impact on what was produced, consumed or invested. It was an accounting numeraire, used to reimburse the enterprise wage fund. This was not a value relationship. It meant that the use of Soviet financial statistics, even if modified, could not establish the true “value” of Soviet output, as this output had no genuine market value, as there was no genuine market.

From the early 1930s Western statisticians sought to develop independent estimates of Soviet growth. S.N. Prokopovich (1931), a Russian former Legal Marxist, then exiled in the USA, developed the first Western estimate of Soviet national income. He examined Soviet growth in the post-revolutionary period up to 1930, including the first two plan years. Prokopovich commented on the narrow basis of Soviet national income measurements, limited to material products only. He thought that Soviet value measures did not accurately reflect the growth of physical production, not for any reason of principle, but due to a failure to account for the deterioration in quality of production during the Soviet period. He attributed the growth of output in the first two plan years, to a forced reduction in consumption to

fund investment in fixed and circulating capital. He very shrewdly noted that without competition between capitals there was no internal mechanism in the central plan to raise productivity. But his study was too early to consider the real impact of central planning. Prokopovich did not remark at all on the change from market to plan prices.

In 1939 Colin Clark, a Cambridge statistician who pioneered the use of Gross National Product (GNP) as the measure of national income (Stone 1985), produced an initial estimate of Soviet output in UK prices.

3.6 Colin Clark's *Critique of Russian Statistics*

Clark's (1939) *A Critique of Russian Statistics* attempted to apply the new national income measurements to the centrally planned economy of the USSR. It sought to "...collate and test Russian statistics, by tests of internal consistency and by comparison with statistics of the external world" (p1). Clark employed the method of aggregation to determine the actual quantities of goods and services produced in Russia at certain recent dates, "expressed at the market values of these goods and services prevailing in Great Britain during a base year (1934)". Clark was the "first extensive western user of a statistical p.p.p." (purchasing power parity) (Wiles 1964). The *Critique of Russian Statistics* preceded Wiles' cited example of Clark's use of PPPs by a year.

Clark explained that the procedure was necessary as "prices in Russia do not necessarily bear any determinate relation either to the cost of production of goods, or to the consumers' demand for them, being fixed by the planning authorities in accordance with their own decisions (p1). In the West national income and economic activity was limited to marketed output, "Every pursuit whose products are either sold on the market or are largely directed toward it is treated as economic; no others are, although their yield in the way of satisfying wants may be substantial" (Kuznets 1975, p124). In the USSR where nothing was produced for sale on a market, measurements of national income based on market prices should not have applied;

“In a planned economy like the Soviet Union, the phrase National Income does not necessarily mean the same thing as it does elsewhere. In the Soviet Union certain goods and services are supplied at arbitrarily low prices, others at arbitrarily high prices, and to add together the values of outputs of all goods and services at these arbitrarily determined prices would not give us anything like a measurement of national income” (p3).

The very notion of Soviet national income based on non-existent market prices was a contradiction in terms. To establish what he considered to be a “satisfactory measurement of the Russian national income” (p3), necessitated reckoning the quantities of goods and services produced, either at the prices which prevailed before the planning regime started, or at the prices prevailing in some other country. This required the establishment of a common coverage of economic measures. Soviet measures of material product included transport, wholesale and retail distribution and postal services, but;

“...exclude the rents of dwellings...services performed by public authorities (which we have now included, in line with the definition of national income now used in other countries) and also other personal services, for which some allowance must be made, such as professional and medical services, domestic service, catering, barbering, cab-driving etc.” (p5).

Clark estimated the value of such services from the proportion which they are found to bear to the national income in other capitalist countries with a similar development of the productive resources. There is no particular reason why a centrally planned economy, in which consumers preferences were established without reference to the consumers themselves, should share a similar distribution of output between production and services as a capitalist economy. Nonetheless, Clark was working with limited information and attempted to establish a thoughtful guesstimate.

Clark needed to establish a price-index number to correct for the differences in prices, but the existence of the turnover tax levied on consumer goods meant that,

“[T]he price at which goods and services are sold will be very different from the incomes of their producers” (p7). Clark rejected one possible solution, the removal of turnover taxes from the calculation noting that “We can hardly adopt the clumsy expedient of constructing price-index numbers in which all goods are reckoned at their untaxed prices” (p7).

This “clumsy expedient” was to provide the later basis of Bergson’s Adjusted Factor Cost (AFC). Instead Clark aggregated physical units of output, to establish the real value of roubles versus British pounds Stirling. He started with food “because food production can be expressed in terms of a comparatively limited number of physical units” (p7). Clark’s index was composed of twelve physical quantity series: cotton cloth, woollen cloth, trucks, passenger cars, locomotives, freight cars, aluminium, copper, lead, paper, cement and gold for the period from 1928 to 1937. Clark made no allowance for changes in the composition of output of trucks, locomotives and freight cars by size and type (Hodgman 1954, p98). The quality of output affected costs of production and value and this made international comparisons of different physical products more difficult.

Clark noted that establishing the purchasing power of the rouble over other goods and services “is a far harder problem” (Clark 1939, p7), not least as planned prices meant that roubles had different values depending on what they were purchasing. Even in 1928, the final year of the New Economic Policy (NEP), the different purchasing powers of the rouble were very marked. For food 6.5 roubles purchased the equivalent of £1 of 1934 purchasing power, for other consumption goods and services 18.5 roubles to £1, for investment goods, 24 roubles to £1,

“These discrepancies are of course the result of deliberate policy, and the principal instrument by which they are created is the turnover tax. In the 1934 budget, revenue from turnover tax and profits of State enterprises amounted to the enormous total of 43 milliards. Turnover tax and levies on profits fell comparatively lightly (again a matter of policy) on the heavy industries, and

for this reason we can regard their ratio to purchasing power parity (29 roubles to £1) as fairly indicative of true costs of production in Russia” (p39).

These figures reflected the high costs of production in newly established industrial plants and the deliberate policy of the USSR government. It used the internal terms of trade to tax rural incomes to fund industrialisation. Clark’s figures demonstrated how the collapse of agriculture in the period of forced collectivisation from 1928 to 1931 offset the growth in industrial production. The forced savings required for the rapid increase in investment directly resulted in a collapse of food consumption, “the value of food consumption per head of the population was 18 per cent lower in 1934 than it had been six years earlier” (p22).

In capitalist economies the price of the fixed capital stock is determined by the rate of interest, multiplied by service life, less the cost of upkeep. This price fluctuates around the current replacement cost of the fixed capital. The principal element determining service life is expected obsolescence, which is the average period before technological progress renders the continued use of the machine more expensive than its replacement. A high rate of interest and low rate of obsolescence create a high value and vice versa.

In centrally planned economies investment in means of production took the form of an interest free grant from the central authorities. Machines were allocated in physical quantities. The Soviet fixed capital stock was a quantity of means of production that increased the physical amount of use values each unit of labour could produce. It did not provide revenue streams as in the West. It was not capital. There was no rate of interest and machinery was not rendered obsolescent by technological advance. In a capitalist economy technological advance means that machinery is often scrapped long before its potential useful life. Not so in a centrally planned economy, where the original “value” of the machine was a purely nominal unit of account. This amount was depreciated according to the reduction of the machines usefulness due to wear and tear, but repairs restored the nominal value of the machine (Campbell 1960). Clark considered that if the lower, Soviet depreciation

rate, was applied it would have systematically underestimated depreciation and so overstated output in comparison with similar Western investments. The problem of measuring value of the fixed capital stock and appropriate rate of depreciation was a recurring theme of Western alternative measures of the central plan. Clark bypassed it by adopting Western rates.

According to Clark Soviet national income increased during the decade from 1928 to 1938 by 54% rather than by the official figure of 320%. Clark's estimates of real income per capita showed that by 1934 the USSR produced less per capita than before the First World War.

Table 3.1. Real Income per head of population at 1934 Sterling Prices

	Aggregate Income, £m	Per Head, £
1913	2803	20.1
1928	2840	18.8
1934	3299	19.6

(Clark 1939, p41)

Clark concluded that;

“Thus the net return after the tremendous effort of the First Five-Year Plan seems therefore to have been an increase of 4 per cent in net income per head, which is now 2.5 per cent lower than it was in 1913. As will be shown below, there was a serious decline in agricultural productivity which offset the industrial gains” (p41).

It was only after the Soviet authorities retreated from the worst excesses of collectivisation in the mid-1930s and the newly proletarianised peasantry had become at least a little more attuned to the factory that the volume of industrial production started to grow rapidly. Between 1934 and 1937 it increased by “about 67

per cent” (p65), as “Average income per head of the working population taken as a whole has risen by as much as 42% between 1934 and 1937” (p69).

Clark’s rejection of official Soviet financial statistics and prices reflected a difference within Western statisticians as to how to establish the nominal “real” output of the centrally planned economy. Clark’s ground breaking use of purchasing price parity to overcome the distinction between non-capitalist Soviet prices and capitalist market ones pointed to one solution to the problem. It abstracted from the social relations of the central plan and measured physical output in the prices of a comparable Western economy. His differentiation between rouble values in different sectors addressed the significance of the turnover tax and provided at least a tentative answer to the issue of coverage with alternative estimates of the quantity of services in the planned economy were not included in the Soviet NMP. Naum Jasny gave a critical but essentially positive appraisal of Clark’s work;

“Clark applied the prices which he chose to data in physical terms, which themselves were very incomplete and in part arbitrarily estimated...the industrial goods considered by Clark were only a small part of the total industrial output. The increase in total industrial output of 209 per cent during 1928-38 implied in Clark’s estimate nevertheless agrees well with the present writer’s estimates. It seems however, that with an increase in industrial output of this size, national income could not possibly have risen by only 26.1 per cent during these years (Jasny 1951a, p144).

Jasny concluded, “Clark’s methods of estimating are perhaps somewhat courageous...and can stand improvement” (Jasny 1951b, p8), but Jasny thought that official statistics expressed in values “he could only regard as a pack of lies..... after years of study the writer came to accept Clark’s general position, if not his decimal points” (Jasny 1951b, p9). The validity of Soviet statistics in general and the “value” of measurements used to estimate official Soviet national income was a key point of contention between the rival Western statisticians.

3.7 Leontief's Russian National Income and Defense Expenditures

During the Second World War, Western estimates of Soviet national income were transformed when the work of isolated individual economists was superseded by a systematic research programme. The major impetus was provided by the United States Office of Strategic Services (OSS). Wassily Leontief and Simon Kuznets oversaw the appointment of Abram Bergson to the head of Soviet research. The US intelligence establishment wanted to establish whether the Soviet Union would survive the Nazi invasion in 1941, the potential effectiveness of military aid, the extent of war damage and how this might influence Soviet reparation demands, the speed at which the USSR would recover after the war and its military capacity during and after the war. Kuznets (1963) explained that they were guided by two essential purposes;

“The first may be defined as political, in that the interest stems from the possible impacts of differences in rate and structure of economic growth on the relations and balances among nations in a changing world setting. The tendency would then be to compare the economic growth of the USSR with that of other major countries on the world scene...the second may be defined as analytical, in that the interest in the comparison lies in testing some hypotheses concerning common and divergent characteristics of economic growth and of the factors behind them; and the content of these hypotheses would decide the choice of countries, aspects, and periods for comparison” (p372).

They needed accurate figures to justify military expenditure and they wanted to demonstrate the superiority of the free market system over planning. This meant that Western estimates were by no means the objective summaries of detached observers, on the one hand they sought to downplay Soviet achievements so as to justify the superiority of the free market and on the other hand they sought to exaggerate them to justify the size of the US armed forces. In 1947 the OSS group established the United States Air Force Project Research and Development (Project RAND) led by Bergson (Samuelson 2004). It was the work of this organisation

eventually subsumed within the CIA that was to form the hegemonic consensus for Western estimates of Soviet national income.

Wassily Leontief (1943) produced the OSS' first estimate of Soviet national income in a Research and Analysis paper in September 1943. In this short paper Leontief developed several themes that recurred in Western estimates over the next decades. Leontief used a Simon Kuznets definition of national income that did not mention the market boundary, buying and selling or economic and non-economic production. This was critically ambiguous when national income measurements were applied to the Soviet centrally planned economy (p1). Leontief abandoned his earlier 1924 insistence that national income measures were predicated upon commodity production, but in other respects his assessment repeated his earlier critique of the *Balance*. He pointed out that the Soviet definition of national income only included the net output of the "commodity producing" or more accurately the tangible consumable goods produced by industry, agriculture, construction, transportation and trade. A commodity in this definition was any material use value.

The exclusion of the service sector and the use of constant 1926/27 prices made current comparisons with military expenditures impossible and added to the problem of international comparison. Leontief's initial estimate of Soviet national income was extrapolated from the proportion of wages in total money income. On the assumption that this proportion was relatively stable, at 1940 67.2% of money income, if wages were 161 billion roubles then GNP was 285 billion roubles. After adding investment and services and deducing direct taxes, government borrowing, savings and subsistence farming the final figure was 338 billion roubles.

Direct translation of rouble amounts into dollars was impossible at the official exchange rate. As the rouble was undervalued its use would result in "a major overstatement of the Russian position" (p9). This was confirmed by a physical comparison of key sectors of Soviet output with the USA.

Table 3.2. Production of the most important commodities per capita of the population in the USSR and USA

Commodity	USSR in 1942	USA in 1937	USA output as % of USSR
Coal kg	1190	3429	288
Oil kg	269	1356	504
Pig Iron kg	122	292	239
Steel kg	156	397	255
Cotton textiles in m ²	20	61	301
Leather shoes pairs	1.4	2.6	182

(Leontief 1943, p10)

As output in the USSR had collapsed after the Nazi invasion, while US output had expanded, Leontief thought this comparison overstated the strength of the USSR relative to the USA. Leontief drew no firm conclusions about the relative size of the Soviet economy compared with that of the USA but considered that the USA must be more than 2.47 times that of the USSR.

3.8 Julius Wyler's The National Income of Soviet Russia

Julius Wyler (1946) considered that it was necessary to “draw away the ‘veil of money’” from estimates of Soviet output. The use of multiple Soviet prices, constant rather than current prices and the over pricing new output not produced in the base year 1926/7, meant that Soviet financial statistics could not be relied upon. Instead Wyler developed estimates of Soviet output based on the physical quantity and quality of goods and services measured in US prices (p508). Wyler built on the work of Prokopovich, Clark and Leontief by measuring national income in current roubles and then converting the results into dollars in 1940 US \$. This produced national income estimates for the years 1928, 1934, 1937 (p504).

Wyler's study was aware of but did not touch on the wider context of the “collective Soviet economy”, from the social interpretation of this system, the source

of value, the interplay of controlled prices and wages, to the more technical questions of the statistical translation of these peculiar features into capitalist terms, except insofar as they directly impacted upon the data (p504). Wyler claimed that Marx's *Critique of the Gotha Programme* "demonstrated that surplus value is not abolished in the socialist society. But instead of being appropriated by the capitalist exploiters, it is relinquished to the state on behalf of the working class" (p505). Actually Marx said almost the exact opposite, "Within the cooperative society based on common ownership of the means of production the producers do not exchange their products; similarly, the labour spent on the products no longer appears as the *value* of these products" (emphasis in the original) (Marx, 1976, *CGP*, p345). Paul Studenski (1958), the later author of a classic history of national accounts, who cooperated with Wyler at this time claimed that "Since governmental services are not marketable, Marx did not consider them a part of production" (p184). This was not true either. Marx's definition of a commodity was economic, not ideological, for Marx a commodity was a useful thing that was sold. Things that were bought but not sold, exchanged against revenue but not capital do not produce surplus value, but they are nevertheless a part of economic production. The misunderstanding of Marx's views by Soviet and Western theorists was a running theme over the next decades.

According to Wyler, Russian national income was the equivalent of net national product at market prices but not at factor costs. In the USSR differential prices meant that the same expenditure in the various sectors did not equal the same volume of goods. This perfectly illustrated the problem. Factor costs in a market economy are based on the market price for land, labour and capital, i.e. rent, wages and interest. In the central plan, without rent, wages or interest and with multiple prices for the same good, there was no reason why the two sides of the national accounts should balance. Wyler resolved this problem by substituting the American for the Russian price of the various output and services of a similar kind and quality.

Table 3.3. National income or product of the Soviet Union, 1928-40 at market prices in terms of U.S. Prices in 1940

	1928	1934	1937	1940
In billions of dollars	20.2	26.2	37.8	45.1
Index 1928=100	100	130	187	223
In dollars per capita	136	164	229	258
Population (in millions)	148.6	159.6	165.1	175

(Wyler 1946, p511)

Wyler concluded that in 1940 Soviet national income at market prices ranked second to that of the United States but per capita income of 258 dollars was only 38 per cent of the American per capita average of 685 dollars (p511). What was particularly striking was the drop in consumer expenditures from nearly 80% of the total national product in 1928 to 44% in 1940. Only between 1934 and 1937 did consumer expenditures per capita actually rise (p512).

3.9 Alexander Gerschenkron

Alexander Gerschenkron was part of the Project RAND team working alongside Abram Bergson. In a wide ranging debate about the validity of official Soviet statistics, Gerschenkron (1947) noted that there was “considerable evidence to suggest...Russian indices of the physical volume of industrial output – the main gauge for measuring the rate of economic development have ‘an upward bias’” (p217). Gerschenkron assumed that Russian statistical data was “free from deliberate distortions. Serious students of the Russian economy agree that the Russian practice is to withhold certain statistical information rather than to falsify it” (p217).

Gerschenkron considered that by far the most important reason for thinking that Soviet prices were inflated was the impact of the introduction of new technology, particularly in the fast growing machinery and electrical sectors on the “so called constant prices of year 1926-27” (p219). The rapid transformation of the

Soviet economy rendered the 1926/27 base period pattern obsolete. These “unchanged” prices were originally intended to provide a mechanism for the hierarchical regulation of self-interested enterprises under public ownership (Harrison 1998). As the range of the commodities produced by industry widened, the selection of the appropriate price weights for new products presented a difficult statistical problem. New “commodities” were valued at the price current in the period when they were first produced on a large scale (p219/220). This was the so-called Gerschenkron effect;

“In a country in the first stages of industrialization the spread between prices of industrial goods of a low degree of fabrication and prices of highly fabricated goods is relatively larger, than in a well-developed industrial country. This is often reflected in the structure of protective tariffs. As the country progressed on the road of industrialization, the spread tends to become narrower. At the same time, the share of relatively fabricated goods in total output increases. If prices of the first year of the period are used as weights, the increase in output over the whole period appears greater than it would if prices of the last year of the period are employed. It is quite likely, therefore, that if, e.g., prices of 1938 had been used in Russia, the index for the period 1928-38 would have shown a smaller rise than is the case on the basis of 1926-27 prices” (p221).

As the first year of production was relatively inefficient and therefore the cost of production relatively high, subsequent increases in output raised the index more than would be the case if prices of a later year of large scale production were used. Re-computing the index in prices of later years removed the specific inflationary bias caused by introduction of new commodities at prices higher than the general level of 1926-27. It eliminated the hybrid character of the index (p221). This re-computation formed a key part of both Jasny and Bergson’s later recalculation of the growth of Soviet national income. Gerschenkron suggested that a possible method for checking the “suspected error” in the indices of aggregate output was through comparison with figures on the output of basic industrial products and freights transportation, all expressed in physical units (p221), (Davies 1994, p32).

This problem of index year relativity was expressed in the use of two alternative indexes, the Laspeyres and Paasche. The Laspeyres index number measures the change in output from the level and pattern of consumption of the base year. The Paasche index number measures the change in cost of living from the level and pattern of consumption of the given year (Chapman 1963, p29). Growth transforms the relative prices or value added per unit of product. The faster the rate of growth, the greater the structural shifts in the economy, the sharper the change in value relationships and the more pronounced the difference between measures weighted at the beginning or the end of the period. As rising productivity causes unit prices to fall, weighting by “post-industrialisation” prices will yield lower rates of growth than weighting by “pre-industrialisation” prices (Grossman 1953, p3). Alec Nove (1957) pointed out that since no set of price relationships are more “true” in any absolute sense than another, no statistician can legitimately describe the Soviet series as “wrong” merely because of the peculiarities of the 1926/7 price structure. Nove argued that the pre-industrialization weights could be a more accurate basis on which to assess the sacrifices made during the first period of central planning, as the fall in the price of industrial goods relative to primary produce was a consequence of industrialization (p118). For Jasny (1951a), the use of base year weights by Soviet statisticians was ideological, keen to demonstrate the growth of the economy under planning they used this effect to exaggerate the growth of output;

“The more the pre-plan price pattern changed, the less favourable the new price pattern became for demonstrating achievement. Thus it happened that, although the economic pattern of the country had fundamentally changed and the 1926-27 price pattern had been outmoded for a long time, the Soviets stuck to the prices of that year for use in the most important economic indexes” (p5).

Alexander Gerschenkron’s (1951) own estimates of Soviet output were based on a dollar index of Soviet Machinery output, which compared physical quantities of Soviet machinery with American equivalents, between 1927/28 and 1937. Gerschenkron acknowledged the essential choice in developing these comparisons was between the use of Soviet or non-Soviet data as weights in the index. Jasny and

Donald Hodgman (1954), Gerschenkron's doctoral student, had already demonstrated how current rouble prices could be deflated to account for the change in industrial structure and inflation. The advantage of this method was that it possibly allowed a closer representation of the actual structure of Soviet output or their "scarcity relations".

Its disadvantage derived from "the difficulty in appraising correctly the degree of meaning and consistency inherent in any set of Soviet values". This was after all non-market planned prices. Gerschenkron praised Hodgman (1954) for avoiding the use of weights pertaining to a non-Soviet economy in developing his national income estimates that of course, formed the very basis for Gerschenkron's own work.

Gerschenkron (1951) followed Colin Clark and Julius Wyler and re-priced physical units of Soviet output at US dollar prices. This sidestepped the issue of the pricing of new Soviet machinery output that accounted for 72.8% of machinery output in 1933. Soviet data on quantities of machinery was gathered for as many items as possible, 128 were eventually found.

These were then compared with American equivalents. Soviet output multiplied by US prices yielded the dollar values. The gross value of these 128 Soviet machinery items increased from 1927/8 base year 100 to 525 by 1937, or from 1927/8 \$203million to 1937 \$1065 million (p26). Official Soviet indices were around three times higher by 1937. Gerschenkron's index implied average growth from 1929/30 to 1937 of 13.9% compared to the official 32.4%.

Gerschenkron's use of US prices for Soviet output established a clear point of comparison between the two economic systems. He did not try and create an ideal capitalist market within the USSR. He was relatively clear about the limits of his method, but this was more by intuition than any clear theoretical distinction about the nature of value in the two rival systems. In fact none of the participants in the debate pointed to the real distinction between the objective and subjective nature of value in

a market and a centrally planned economy. This included the Marxists Paul Baran and Maurice Dobb (1948). While Dobb explained that the capitalist factors of production did not exist in the USSR, he used a measure of national income based on the very same non-existent income flows (Dobb 1966). Dobb's contribution essentially consisted of an uncritical defence of whatever statistics were produced by the Soviet authorities (Dobb 1948), (Jasny 1950).

3.10 Naum Jasny

In three books published in 1951 and 1952, *The Soviet Economy During the Plan Era* (1951b), *The Soviet Price System* (1951a) and *Soviet Prices of Producers' Goods* (1952), later summarised in his book *Soviet Industrialization 1928-1952* (1960), Naum Jasny sought to provide a systematic estimate of Soviet national income "to yield a reasonably trustworthy and reasonably comprehensive picture of the results of Soviet plans" (1951b, p3). Jasny's distrust of official Soviet data was a major point of difference between his analyses and those of the Bergson school. Jasny was at pains to explain that his motivation for an accurate assessment of Soviet growth was very personal;

"All too frequently it is assumed that those who do not accept Soviet statistics underestimate Soviet attainments, and, more recently, that they underestimate the Soviet threat. This may be true of some, but not of the present writer. He is afraid of the Bolsheviki. He considers them a menace not to be underrated as long as they are able to channel perhaps half of the national income into new investment in the armed forces, and especially atomic-bomb development, even though such channelling implies extremely low consumption levels for the population" (1951b, p6).

Jasny wanted to establish "the rate of exaggeration of the official national income estimates" (1951b, p12/13);

"As soon as price and cost indexes are applied to such data, one of the principal mainstays of Soviet propaganda disappears. But the price and cost

indexes are essential. Without them the data in current prices are almost useless. The reduced consumption levels can be easily ascertained also by analysis of consumption in physical terms” (1951b, p57).

Jasny needed to account for the effect of the rapid inflation, particularly in consumer goods, during the first decade of the plan. The inflation of consumer goods provided a mechanism through which planners could indirectly reduce consumption, to provide material inputs for investment in means of production. The 1928 plan allowed both nominally rising urban living standards and massively increased industrial development investment. This was impossible, a key debate during the 1920s was how to fund long term investments in hydroelectric schemes, electrification, steel works and the like, which required massive quantities of inputs but only delivered output after several years. This problem was not abolished simply by wishing it away. Rather the Stalinists drove down consumption to provide resources for investment in means of production.

Jasny estimated net national product according to the Soviet concept from the production end. This corresponded to national income at market cost (1951b, p12), (1951a, p132). The four principal items in net national product, net investment, military expenditures, private consumption, and expenditures on education and health services were established by an estimate of the gross outputs of agriculture, industry, construction, freight transportation, communications insofar as they served production and trade including catering economic sector. Outlays such as depreciation were then deducted and the balance added up. All other services were disregarded (1951b, p11).

Clark had already shown roubles had different values depending on which sector of the economy they were used to measure. Material inputs were priced differently according to whether they were allocated to consumption or investment. Jasny estimated that at wholesale prices the 1926-27 rouble was “worth 70 U.S. cents in terms of farm products, 50 cents in terms of consumers’ goods, 30 cents in terms of producers’ goods, some 25 cents in terms of industrial constructions, and so on”

(1951b, p26). Jasny showed that by 1937 the prices of all producers' goods measured on a tax free basis were about 75% above the 1926/27 level, while the prices of all consumers' goods had increased more than eightfold, and wages not quite fivefold (1951a, p37). Consumer goods paid huge taxes, typically from about 30% up to 88% of the price. A "turnover tax of 88 percent of the retail price would have raised that price by as much as 733 percent" (1951a, p74). This tax amounted to about 60% of the retail prices of consumer goods in 1937. In 1948 state subsidies to the national economy were equivalent to "...perhaps 70 billion roubles; on certain important goods, such as lumber and steel, the subsidies were at least equal to their prices" (1951b, p40).

Jasny repriced the principal budgetary items "...converting each item of expenditure to values at real 1926-27 prices" (1951b, p40). Separate conversion factors were worked out for the principal items of national income. In what was to be an important difference with Bergson, this procedure excluded the necessity of adjusting for either turnover taxes or subsidies. Jasny's price indexes aimed "to make estimates of national income in current prices useful by applying price indexes to the various items of which it is composed" (1951a, p148). Jasny criticised the alternative procedure to "adjust the data for the various factors which distort the picture" (1951a, p148). Like Gerschenkron Jasny noted that;

"The difficulties of statistical analysis arise in part from the fact that, because of great changes in the economic setup and important accompanying circumstances, even correct indexes of national income and production are poor yardsticks for measuring changes in the Soviet economy during the plan era" (1951b, p6).

Jasny repriced these goods to remove this effect "...new commodities and new models of old commodities brought into line by the writer with those of commodities and models which existed in 1926-27" (1951b, p10). Since the "unchangeable 1926-27 prices" were actually falling, as productivity lowered the cost of manufactured goods, outputs expressed in those prices regularly showed

much greater increases than the outputs in physical terms (1951b, p19). As a result “huge disparities” can be observed between increases in industrial output computed at “unchangeable 1926-27 prices” and increases in output of the principal raw materials measured in physical terms (1951a, p11), (Jasny 1951a, p108).

Jasny recalculated outputs with the result that the economic significance of the industrial output and especially of producers’ goods and construction relative to agricultural production in the beginning of the Plan era was “considerably lessened” (1951b, p26). Jasny’s index was based partly on output series weighted by his Soviet “real 1926/27 prices”, and partly on adjustments of various official Soviet aggregates. Hodgman, a proponent of Bergson’s use of current Soviet prices, thought it was doubtful if Jasny’s price indices covered a sufficiently varied and broad selection of products to be truly representative. Hodgman thought that by not separating subsidies and profits from the price indices Jasny’s estimates had a downward bias for the period between 1928 and 1937 (Hodgman 1954, p101-103).

In spite of the great rise of nominal wages the share of wages in the total production costs of industry declined “rapidly all through the peaceful years of the Plan era” (1951a, p22). Direct rationing from 1928 to 1937 was only briefly relaxed in the late 1930s, before being re-imposed after the Nazi invasion in 1941. After the end of the war, and once they were able to re-establish central control, Soviet planners preferred nominally low prices for consumer goods combined with nominally high wages. As demand did not affect either the price of goods or their supply, this was effectively a form of forced saving. It ensured that the entire available quantity of consumer goods was purchased, but meant that a proportion of wages could not be spent. This provided the illusion of prosperity while forcing workers to save their surplus roubles (Chapman 1963).

State enterprises competed for labour and this ensured that planned increases in nominal wages were fulfilled, but for a simultaneous increase in consumption to take place, then productivity growth would have needed to exceed the rate of increase in the urban population. Jasny credited Bergson for demonstrating that

Soviet data for the number of wage earners, the average wage and the total wage fund did not coincide (1951a, p26). The emphasis of Stalin's plan was an aggregate increase in output, not the efficient use of inputs to achieve it. Productivity growth targets were not generally met.

Nominal outlays on labour per given product rose, while living standards fell. Inflation was the inevitable result. This was compounded by the catastrophic fall in agricultural production in the early years of the plan. In this period low real wages corresponded to relatively very high prices of consumers' goods (1951a, p15-18). Jasny pointed out the misleading way in which the Russian series on crop production changed in 1934, from the actual yield (barn yield) to the gross yield including harvesting losses (biological yield) (1950, p94).

Jasny criticised Bergson for too uncritically accepting official Soviet figures. Bergson's study of Soviet wages differentials in the 1930s made no reference to the overall reduction in real wage levels in the first phase of the plan, even while it pointed out the stratification of Soviet society (Bergson 1944). But Bergson was able to demonstrate that Jasny's figures for Soviet consumption arrived at very similar measures of increase after 1933, such that by 1937 consumption had at least reached if not exceeded its 1928 per capita levels (Bergson 1953, p11).

Gerschenkron complained that Jasny should have informed the reader that "information on the change of methods is derived from Soviet sources" (Gerschenkron 1950, p250). In Jasny's opinion it was the differences in wage levels that meant it was impossible to say that, "The national income of the USSR is so many per cent of that of the United States" (Jasny 1951b, p13). Jasny explained;

"In calculating the real expenses on investment and "defense", the rouble expenditures shown by Soviet data either must be recalculated to entirely different prices (foreign, or Soviet pre-Plan prices), or they must at least be adjusted for turnover taxes and deficits or profits. In these adjustments not only the direct subsidies to given industries, but the indirect ones to industries

using subsidized investment goods, raw materials, and transportation facilities have to be considered” (1951a, p145).

Bergson showed that Jasny’s calculations for 1928 to 1937 were in fact at current prices, a form of Laspeyres not Paasche index. Jasny described his volume measures as “real” 1926/27 prices when they were actually current price weights (Harrison 1999). As a result Jasny’s estimates of Soviet national income were remarkably similar to Bergson’s (Davies, Wheatcroft, Harrison 1994, p35). Bergson thought that;

“Jasny sets himself the interesting task of calculating Soviet national income in terms of the same standard as is used in the official statistics, i.e., 1926-27 prices, but with a valid valuation of new commodities. I believe there is a good deal of foundation for the assumption implied throughout that the rouble price system was more meaningful on the eve of the five year plans than it was later ... I shall point out... however, some limitations in the dollar standard of Clark and Wyler that arise because of the differences between Soviet and American preferences and technology. Considering the vast economic transformation in the USSR under the five year plans, the reader will readily see that the procedure used by Dr. Jasny must encounter entirely comparable difficulties (Bergson 1953, p6).

3.11 Kaplan, Hodgman and Shimkin

Norman Kaplan (1952) led a team of RAND economists to develop an input-output table from a captured 1941 Soviet plan (Turgeon 1952). Kaplan used planned not actual economic data. Kaplan’s table was limited by the absence of the defence industry and the restriction of plan coverage to the production of material outputs. This forced him to guesstimate the output of many sectors. Foreign trade was not included and there was no reconciliation between the production and expenditure sides. Mark Harrison (1996) later attempted to complete the table with actual data from the newly opened Soviet archive. Harrison applied Bergson’s methods from the SNIP; he re-priced, rebalanced and estimated missing elements to complete Kaplan’s

work, but could not avoid bold suppositions to render Kaplan's tentative results less tentative.

Hodgman considered that Bergson had proved that Soviet and capitalist wages were conceptually similar (Bergson 1944). Hodgman (1954) developed estimates for Soviet industrial production that used salaries and pay rolls, including pay roll taxes to represent value added in a given industry (p20). Hodgman's weights used 1934 Soviet wage-bill data adjusted to include payroll taxes of various types. Differences in wage levels represented differences in value added. He applied factor costs to value Soviet output. Hodgman's estimates covered large scale industry in 1928 expanding to total industry by around 1933 and thereafter. The limited sample of data available fell off during and after the war. In 1937, 137 products were covered; in 1940, 22 and in 1950, 18.

Dimitri Shimkin (1953) undertook a comprehensive and detailed assessment of the USSR's production of six key mineral and metal groups. These had the advantage of being relatively homogenous. They were traded openly on world markets at known prices. They provided a relatively unambiguous quantitative measure for international comparisons. Official Soviet statistics of imports and exports could be tested against Western sources. The distribution of mineral deposits, smelters, refineries and mills had a significant influence on economic and military power.

The efficiency of the USSR's planned production could be directly compared with the West in terms of the consumption of inputs and its reprocessing of waste outputs. The growth of the economy of the USSR could be compared with that of the USA during its period of industrialisation from the 1890s as reflected in its use of minerals. The Shimkin index uses a modified version of Hodgman's weights and included estimates for military production. Shimkin found that the relative economic growth in the USSR was nearly twice as fast as in the USA during the USA's fastest period of growth from 1902 to 1917. For the entire period in the USSR from 1926 to 1950 and from 1902 to 1947 it was three times faster even including the Second

World War (1953, p312). The limited character of this study was both its strength and weakness, it allowed ready comparisons with obvious weaknesses to be made but did not provide a comprehensive statement of value comparisons between the two economies.

3.12 Abram Bergson

Abram Bergson became the “authoritative” figure in the field of Western estimates of Soviet national income (Powell 1966). While Jasny’s work was acknowledged as that of a “pioneer”, it was dismissed as too personal (Davies 1994, p35). It was claimed that Jasny’s price index data were derived from data of “uncertain meaning” and computed without reference to “any specified system of weighting”, his index was “virtually impossible to interpret” (Moorsteen 1962, p2). In contrast Bergson and his team at the Project RAND were admired for their “careful accuracy”, “detail” and citations from Soviet sources (Davies 1994, p35). Bergson’s methods used official Soviet statistics, but changed the base year and developed an Adjusted Factor Cost (AFC), which redistributed official Soviet estimates of value among the factors of production according to neo-classical marginal value theory (Bergson 1953), (Bergson 1954), (Bergson 1961). They were generalised across the “Communist” centrally planned economies (CPEs) and became the standard procedure for the measurement of the “real” output of these economies (Gregory 1981). In 1985 The World Bank’s Paul Marer (1985) explained that Bergson’s AFC,

“...appears to be a practically feasible alternative to prevailing prices in CPEs. In brief, the adjustment involves eliminating the turnover tax, subsidies, and profits that are components of various aggregates when valued at prevailing prices and adding notional amounts for returns to fixed and working capital and land” (p172).

In 1961 Bergson (1961) published *The Real National Income of Soviet Russia Since 1928* (SNIP). This was the final product of his attempt during the Second

World War to measure the output of the USSR initially for a single year 1937. Bergson used inverted commas in referencing his “real” measures throughout the SNIP. From the outset Bergson’s project was more definitely ideological than either Clark or Jasny. Bergson wanted to establish whether “the economic principles taught in the West really are susceptible of general application?” (1964, vii).

Neo-classical economics taught that the only form of rational economic activity was market production. Non-capitalist centrally planned production and indeed socialism were necessarily irrational. But did their irrationality mean they were immeasurable? Stephen Rosefielde a later theorist from the Bergson school, labelled Bergson’s system the “theory-normed valuative method”. Rosefielde (1981) believed its strength derived from the fact that it was an *a priori* non-empirical, non-realist method. Its presumptions “cannot be falsified” (p21),

“Theory acts as the norm for assessing the meaning of observed economic behaviour. The truth of the theory is presupposed, not tested. As a consequence, the theory-normed valuative method is *not* an *empirical method* in the classical meaning of the concept. It is an interpretative technique, a hypotheticodeductive device for drawing inferences from a priori theory rather than a method empirically verifying causal relationships” (emphasis in the original) (p11).

It was neither a “positive nor as a realist methodology. Its filial connections lie elsewhere, with the Cartesian tradition, with a priori rationalism” (p11). This idealist hyperthetico-deductive method directly echoed that of Carl Menger, one of the founders of Austrian marginalism, who created an analytically or abstractly conceived world to describe the market economy (Clarke 1982, p198). The behaviour of Soviet planners did not correspond to the welfare standard of neo-classical economics, but for Bergson’s theory this was beside the point. The truth of his method was presupposed. It was not subject to empirical verification. It was not a realist method. Following the collapse of the USSR Rosefielde (2004) was to reconsider his support for Bergson (2004).

Bergson sought to reconcile the irrational behaviour of reality with the rational behaviour of the *a priori* abstraction, Bergson's "...principles represent an application to socialist resource use of a particular value theory. This is the marginal value theory accepted in the West" (Bergson 1964, p13). But marginal value theory is no objective theory at all. It defines value by the sum of value produced by the three factors of production, which is rather like defining *banana*, as the sum of bananas, it is a tautology that defines value by itself. What counts in a capitalist economy is effective demand, not demand. If the value of the money commodity was determined subjectively, like the subjective determination of every other commodity, then nothing would have a price. Every consumer's effective demand would be unlimited.

If value is determined by the quantity of money, then what is money a quantity of? Consumers must have money or some other commodity like their labour power to sell, with a real objective value, in order to assert their market preference. But what determines the value of money in a market economy? All market exchanges necessarily, as a pre-condition for it taking place, increases the sum total of "utility". A useless thing is exchanged for a useful thing. A non-use value for one person has been transformed into a use value for someone else.

But this increase in utility does not create "value", it is the exchange of equivalents, things are bought and sold for what they are worth. There is no net change in value, but a transfer from one person to another person - even if the total of utility necessarily increases. If one person cheats the other, then what is a gain for one is a loss for the other of the same amount but in the opposite direction. This is why Joseph Schumpeter could assert that according to neo-classical theory, which he ascribed to and agreed with, there was no net profit in the capitalist system (Schumpeter 2008). Instead the value of money is determined by the socially necessary labour time required to produce the commodity that acts as a universal equivalent for all other commodities – gold. As the function of gold in the exchange relationship is purely symbolic, it may be and usually is, replaced by a worthless symbolic proxy, like a bank note. Value is not created in exchange, but realised

there, as Simon Kuznets (1941) explained, the value of national income is “the *net* value of the goods produced by the given nation during a given time unit” (emphasis in the original) (p34), production creates value, not consumption, and consequently, the measure of national income excludes temporary windfalls caused by shifts in supply and demand.

The existence of a centrally planned economy, that functioned without markets and consumer preference in any form, and indeed without money as it existed in a market economy, posed a direct challenge to neo-classical theory. Bergson observed that, “...when the government is the master rather than the servant of economic law, the alternative to the labor theory may not be marginal analysis – it may only be no theory” (Bergson 1964, p13). This was a polemical jibe at Von Mises’ assertion that as centrally planned economies was irrational from the point of view of the market, so then were any measures of them that treated them as market economies. Bergson continued;

“In sum, if we apply abstract theoretic principles to the U.S.S.R., we should not be surprised if resource use often fails to conform to them. But this is still no argument for an alternative approach often employed in respect to the U.S.S.R.: to apply no principles, or at least none to speak of. After all, one needs some principles even to discover that none prevail. As to the particular principles applied here, I can say no more than has already been said already: Their use seems to facilitate the inquiry” (Bergson 1964, p13).

Bergson was determined to measure the USSR by neo-classical categories, as neo-classical theory was the only theory he had. Even though the pre-condition for the application of this theory, a market economy, did not exist in the USSR. Marginalist theory asserted that total output corresponded with the total of “welfare” expressed in “consumers utilities”, so Bergson replaced, “conventional consumers utilities” with “planners’ preferences” (Bergson 1961, p39).

In a capitalist economy national income data are compiled in terms of prevailing money values. This was, according to Bergson, entirely in order “where the concern is only to appraise “monetary” phenomena, i.e. money flows, finance, cost structure etc.”, in the USSR where there was no money in the capitalist sense, Bergson nevertheless followed “conventional procedure” and compiled his accounts in the prevailing money values of non-existent money. Bergson modified official “Soviet rouble prices” derived from official subjective “value estimates” but adjusted them by this factor cost, “to clarify the recurring question: ‘But what do the rouble figures mean?’” (Bergson 1953, p3).

An important part of Bergson’s argument was that the official data was reliable, albeit in need of interpretation. Bergson said that the “reliability of Soviet financial statistics in current roubles are on altogether a different plane from Soviet national income statistics in 1926-27 roubles” (1953, p6). This was in Bergson’s view a distinction of “paramount importance”. Bergson repeated Gerschenkron’s assertion that;

“Anyone dealing with Soviet statistics must begin by considering the possibility that the figures may represent sheer invention. If this were the case, no analysis would be possible...Soviet statistics are not freely invented; that as a rule they have meaning and significance... Mr Jasny's own extensive use of Soviet statistics shows that he shares this view” (Gerschenkron 1950, p250).

Bergson was supported by the discovery of an official Soviet 1941 planning document. This copy of the annual plan ran to 750 pages and was seized by US intelligence from German occupying forces in the USSR. It was intended for internal use only by planning authorities. Its figures agreed almost exactly with the published record. It confirmed that the Soviet authorities did not engage in “outright falsification” of their financial or other statistical records (Turgeon 1952). Later critics noted that the document was not conclusive, it was at the lowest level of security clearance and there may have been alternative sets of statistics for the higher ups in the party they claimed (Engerman 2009, p107). The critics missed the point.

The problem with Soviet statistics was not their falsification, but that even if they were true from the point of view of the central plan, they were false from the point of view of the market. Bergson's working assumption was that, "Soviet statistics are not generally falsified in the sense of being freely invented under a double bookkeeping system", he asserted that the "published Soviet data appear to be consistent both internally and with other available information". Where there were differences and inconsistencies these were attributable to methodological differences rather than "free invention" (1953, p7/8).

Bergson applied marginal value theory to estimate the incomes that should have accrued to the factors of production, land, labour and capital if the USSR had been a capitalist market economy. Marginal utility theory asserted that the three factors of production yield revenue according to their marginal rate of substitution. That is the cost of substituting one factor for the other in the last analysis. In a capitalist economy the failure to redistribute the factors of the production according to this marginal cost results in a loss expressed as an opportunity cost, a loss of revenue incurred by the owner of the factor of production. But the income of these factors of production is a product of a capitalist economy or more precisely private ownership of these factors. Ownership is a human relationship and the revenues derived from the factors of production are products of a human capitalist economy, based on production for exchange. In a centrally planned economy, without capitalists, landlords or bankers the value flows necessary for "property income" to equalise profits, to produce rents and interest did not exist, and neither did "opportunity costs" in the Western sense either.

Kuznets remarked that in the USSR "we could perhaps abandon the (national product) concept entirely, and shift to the notion of increase in national power as the only substance of final product" (Kuznets 1963, p371), but rejected the idea on the ground that economists did not know enough about national power. Bergson simply hypothecated their existence in the USSR. Based on the official Soviet financial statistics Bergson redistributed this non-existent "value" according to the headings of the US Department of Commerce System of National Accounts (SNA). Bergson

stated that his theory did not provide the basis for the precise measurement of “abstract ultimates” instead it was a method for “the organisation of broadly meaningful statistical inquiries” (Bergson 1961, p41). This formed the basis for his Adjusted Factor Cost (AFC) standard, which had the following features:

“i) All commodity prices resolve fully into charges for primary factors, particularly capital, land, and labor. ii) For capital, there is a net charge, corresponding to the average internal return on this factor in the economy generally, and an allowance for depreciation of a conventional sort. iii) The charge for land, ‘rent’, corresponds on the average to the differential return to superior land. iv) ‘Wages’ are at a uniform rate for any occupation and as between occupations differ on the average in accord with differences in productivity and disutility. v) Similar principles apply in the case of the relation of wages to farm labor income. vi) Commodity prices are uniform in any given market area” (Hoeffding 1954, p45), (Bergson 1953, p42/43).

It was beside the point that not a single one of these standards actually existed in the centrally planned economy. By redistributing official Soviet aggregate “values”, according to the categories of marginalism Bergson aimed make the figures “real”. This was the building block method adopted and applied in a series of studies by the RAND school, (Bergson 1953), (Bergson 1954), (Hoeffding 1954), (Bergson 1961), (Chapman 1963), (Powell 1966) and wider by the CIA. It provided a comprehensive analysis of Soviet national income including output, consumption and the capital stock. Bergson estimated “Soviet national income in terms of rouble prices, but attempted to correct the results for outstanding distortions” (1961, p5). Bergson’s measures of “real” national income were derived in two stages: national income was first computed in terms of rouble prices prevailing in different years to account for the Gerschenkron effect, including the adjustment of coverage to include all services. This total was then adjusted for the absence of property income through the AFC.

By far the most significant effect on measurements of industrial growth and national income was the change of index year. Bergson calculated “real” outlays on investments in fixed capital by aggregating measurements of investments in new machinery, capital repairs to machinery, construction and other investments in fixed capital (1961, p87), and presented series weighted at 1937, 1950 and “given year” i.e. constant 1928 roubles.

Table 3.4. Investments in new Machinery, USSR, 1928-55, Alternative weights (1937 = 100)

Year	In 1937 prices	In 1950 prices	In prices of “given year”
1928	18.4	27.1	9.1
1937	100	100	100
1940	101	95.8	101
1944	78.2	65.7	70
1950	220	214	214
1955	376	356	353

(Bergson 1961, p95)

“Real” national income, stated in 1937 roubles (the base year) rather than 1928 roubles, (the given year), markedly reduced the percentage growth in industrial output, simply because 1937 prices were lower than 1928 prices for industrial production. In contrast a change in base year from 1937 to 1950 had only a very limited effect, “By implication then change in structure was nothing less than radical from 1928 to 1937. Seemingly price changes were also distinctly correlated with production changes” (1961, p95), they were objective not subjective.

Bergson then applied the AFC at 1937 prices. This removed the turnover taxes and profit charges and added subsidies and depreciation charges (1961, p127). As a result of the revaluation, national income “grew more or declined less than it did previously” (1961, p134), but the redistribution of value according to marginal categories made almost no difference to the aggregate totals.

Table 3.5. Gross National Product by Use, USSR, 1928-55, in 1937 Rouble Prices and Factor Cost (1937=100)

GNP	1928	1937	1940	1944	1950	1955
1937 prices	64.8	100	118	108	146	217
1937 rouble factor cost	61.6	100	121	150	150	216

(Bergson 1961, p134)

Bergson conceded that;

“The effect is far less than that due to the change in base year from 1937 to 1928. The reasons for this difference I believe are twofold. First, when the base year is shifted from 1937 to 1928, the resultant reweighting appears to be more definitely correlated with the trends in different use categories than is the case where one shifts from 1937 prices to 1937 rouble factor cost” (1961, p135).

It was the revolution in productivity that altered the cost of production and so transformed the structure of the economy;

“...Secondly, the shift from 1937 prices to 1937 rouble factor cost involves significant change in price structure but by any standard the corresponding change entailed in the shift in base year from 1937 to 1928 is nothing less than revolutionary” (1961, p135).

Bergson’s adjustments made almost no difference to the value aggregates. This was inevitable as they were predicated on and used official Soviet data, for output, wages and fixed capital assets. The inadequacy of the Marginalist critique of Soviet prices was stark indeed. Unable to question the inherent falsity of concrete labour measures, it simply generalised the false prices, but changed the headings under which they appeared. Bergson noted that, “As computed in this study, outlays in terms of rouble factor cost come to much the same thing as direct and indirect wage costs, including farm and other labor incomes” (1961, p146). Paradoxically

Bergson's theory indirectly confirmed that labour was the source of property income, if not in the capitalist West, then at least in the hypothetical adjusted factor economy of the centrally planned East. Bergson developed hypothetical estimates for what interest, profits, rents and depreciation should have been if the non-capitalist centrally planned economy was the capitalist economy that it was not,

“I reclassify Soviet outlays in 1937 as previously computed in rouble factor cost. a) The profit recorded in Soviet accounts in 1937, b) A hypothetical charge of 25 billion roubles for agricultural rent, which amounts to about 40 per cent of total labor income in agriculture in 1937 c) A hypothetical interest charge of 10 percent per annum on Soviet fixed capital d) The net of the foregoing, that is, the excess of rent and interest over profits” (1961, p140).

Bergson's estimates for profit rates, assuming a rate of interest between 8%-20% formed the basis for later estimates of the value of Soviet fixed capital stock (Powell 1966). They included depreciation and the consumption of inputs predicated on the non-existent income streams that they hypothetically represented, “In all cases, the cited figures supposedly represent both direct and indirect incidence, that is, charges not only on final goods but on immediate articles used in production” (Bergson 1961, p140). Bergson's figures supposedly represented the non-existent reality. This non-existent ideal type was more real than reality or less irrational than the irrational. Strikingly the aggregate value totals were effectively unchanged.

Table 3.6. GNP in 1937 prices

GNP	1928	1937	1940	1944	1950	1955
1937 prices	64.8	100	118	108	146	217
1937 rouble factor cost	61.6	100	121	150	150	216
1937 rouble factor cost further adjusted:						
With profits deducted	60.7	100			150	215
With addition of agricultural rent at 40 per cent of	65.4	100			147	211
With addition of interest at 10 per cent of fixed	61.1	100			149	216

With profits deducted and rent and interest added	64	100			147	211
1937 ruble factor cost, with allowance for non-labour	64.3	100			148	213

(Bergson 1961, p134, p140)

Bergson conceded the approximation of the AFC to reality “could not be especially close; and it still remains to be seen to what extent the Adjusted Factor Cost Standard itself is realizable with available statistical data” (1953, p53). His “synthetic” factor incomes were “highly arbitrary”. It was perhaps desirable to think of them as not corresponding to relative marginal productivities “as they actually are but as they would be if one abstracts from any special efficiencies or inefficiencies of the social system considered” (Bergson, Kuznets 1963, p20). Abstracting from the reality of the centrally planned economy as it actually was, Bergson’s synthetic and highly arbitrary factors incomes had no objective existence in the real world. Jasny commented that;

“All in all, Bergson’s figures in “adjusted roubles” do not represent “real” costs. The arbitrariness of the Soviet price system is too great to hope to eliminate all effects of it. As stated, the percentage distributions of the national income by use and economic sector in different years, even in “real” costs, will remain not comparable because of interrupted changes in relationships between “real” costs in the various sectors of the national economy. Not until the estimates of national income are underpinned with price indexes will the results of such computations become a valuable part of the correct picture of the Soviet economy” (1951a, p153).

According to Alec Nove (1955) Bergson’s adjustment for turnover tax and subsidies was “extremely hazardous” as in the real Soviet accounts interest and rent payments were negligible, investment in state enterprises was not repayable, depreciation allowances were relatively low and the bulk of them were spent on repairs. Worse Bergson’s information on the turnover tax was out of date, partial and “highly misleading”. Nove gave the example of the Ministry of Armament Production, which made bicycles, civilian radio receivers and washing machines.

Even if it was known how much tax was paid by this ministry it was impossible to know how much of it related to armament production. If turnover tax and subsidies were accurately apportioned there was still the systematically unequal level of profits to be considered, and the transfer through the budget of profits in light industry to investment in heavy industry (p255). Nove concluded that,

“It seems very doubtful whether the concept of 'factor cost', at any rate as Bergson uses it, is of any great value in the study of the USSR, and it is certainly liable to be misleading if used in international comparisons” (p256).

P.J.D. Wiles (1962) provided the substantive critique of Bergson's system from within the neo-classical tradition. Wiles complained that Marx's economics ignored the “correct” Menger-Jevons marginal utility theory. Wiles thought that Marx's distinction between exchange value based on private ownership and supply in a centrally planned economy was “an irrelevant distinction, and obscures the fundamental identity of exchange in all societies, so far as it concerns resource allocation” (p54). Wiles (1961) viewed Marginal theory as a logical or more accurately ideological device “not at all relevant to the description of facts, but necessary for the development of welfare economics” (p4).

In contradistinction to Bergson, Wiles thought that although planners preferences were irrational retail prices could make “suitable measuring rods in general” (p229). But he insisted that “Factor costs on the other hand represent merely the marginal transformation ratios between products (not, to repeat, factors) for enterprises” (p229). This crystallised the debate for Bergson and his followers. Wiles argument meant that if planned prices departed from true measures of relative scarcity then Bergson's adjustments for that divergence did not yield weights appropriate for actual outputs. Irrational relative prices engender irrational relative outputs. Bergson's “real” and apparently “rational” national income was no more “real” or rational than the unreal national income of the irrational planners. Bergson's AFC only corrected weights, “for the relative outputs that would have been established in a free economy employing the current supply of land, labor, and

capital to its best advantage” not in the Soviet economy as it actually was (Becker 1969, p45/46).

In response Bergson abandoned the requirement that marginalist theory measured the price at which something was sold, all that was required for marginalist theory to apply to the central plan was that prices needed to correspond to marginal costs. Provided prices corresponded to marginal costs, “then there was no further requirement that the prices that correspond to marginal costs also correspond to marginal utilities or planners’ preferences” (Bergson, 1961, p116). But how could they, given that production decisions were made without reference to costs and when planners only knew costs after they had made their decisions? In practice Bergson had dropped both the welfare preferences and their equivalent planners’ preferences. This separated price from utility, which was the thing that was supposed to determine price in the first place. Becker in defence of Bergson commented that “The bill of goods produced in a Soviet type of economy, valued at adjusted factor costs, will probably diverge from the optimum, in the sense of failing to maximize an objective function. But such a finding would not invalidate the AFCS” (Becker 1969, p45/46). Rather it would simply highlight Bergson’s distinction between production possibility and feasibility and production potential and welfare. Even though Bergson’s AFC failed to meet the the standard set by his own theory, none of this mattered, as even when it failed, it succeeded. It was truly immune to verification.

3.13 G. Warren Nutter

In the late 1950s tension mounted between the military establishment which required high estimates of Soviet growth to support the arms build up and the wider interests of US capitalists who had to pay for it (Engerman 2009, p117). The Eisenhower administration were concerned about the costs of the arms race and worried that high Soviet growth rates raised questions about the moral superiority of the free enterprise system. The administration provided a research grant for the National Bureau of Economic Research (NBER) to develop an alternative estimate of Soviet output. The NBER hired G. Warren Nutter, Milton Friedman’s first graduate

student, to develop alternative estimates of Soviet national income. Nutter stood outside the community of Russian speaking Sovietologists that formed the consensus of Soviet national income estimates. He was sceptical about the application of Western national income measures to a non-market economy.

Nutter (1962) reviewed the quality of data, the use of index numbers and the method of various Western measures to develop alternative physical, value and time comparison estimates of Soviet industrial production. Nutter accepted that while Soviet statistics did not accord with Western standards of objectivity where a “statistic is reliable if it is an accurate magnitude of a definite thing”, nonetheless “The internal relations among the statistics demonstrate that they are based on reality, even though they diverge from it” (p11-45). Nutter reviewed the Gerschenkron effect and the wider use of index numbers in both Western and Soviet economies. He compared it to “measuring how the caterpillar grows when it turns into a moth”, no one figure provided a conclusive measurement of the growth of production in any economy, whether capitalist or otherwise.

Nutter compared the production of swords and plowshares in a two commodity economy. He concluded that it was relative opportunity costs that determined the proportions in which outputs were produced. Nutter took it for granted that in a highly developed market economy, market values, price, unit value added and so on approximated relevant costs but, “This cannot be taken for granted in the Soviet system” indeed “many Soviet relative prices have no relation whatever to opportunity costs” (p122). Opportunity cost is the measure of lost revenue based on sales. In an economy without sales and where costs differed across and within industries, this standard could not apply. In the USSR its use was further complicated as, “the deficiencies are even graver in the case of data on prices and costs, in particular because Soviet prices bear a more or less haphazard relation to the costs of production” (p112).

Nutter based his estimates of the growth of Soviet output on physical measures of particular industrial sectors and on changes to the size of the

manufacturing workforce. Wage break-downs were not available for individual sectors so labour was assumed to conform to a common standard. Effectively Nutter adopted a kind of labour theory of value but one which was predicated on changes to simple average concrete labour.

For industrial materials the output of each product was weighted by its unit value adjusted for a base year. Each unit value was calculated to exclude the cost of non-industrial intermediate materials, by the removal of a fraction of turnover taxes and profits equal to the ratio of the cost of materials to total “cost” the total of wages and cost of materials. The remaining turnover tax and profits, a fraction equal to the ratio of wages to total “costs” was treated as a return on capital and left within the adopted unit value.

Nutter noted that “this procedure is obviously arbitrary, but it seems less bad than the alternative available” (p122). Outputs of industrial groups were combined by value added based on 1928 prices for the weight base year, the last year when market prices existed in the USSR. Accounting for employment, the 1955 weight base year was selected using the official centrally planned prices. Nutter was sceptical about the effectiveness of this procedure. It was,

“...doubtful whether the use of employment as a weight factor for industrial groups improves the situation, not only because employment is merely an estimate of value added, but also because there is little reason to presume that labor is economically allocated among industries” (p123).

Prices were based on official Soviet handbooks. A moving weight index was constructed for finished civilian products (p199/200). Nutter concluded that the growth in output in the First Five Year Plan was achieved primarily by expanding employment (p199). Nutter developed a measure of productivity based on common units of physical output produced by a given amount of common labour inputs. The larger the growth in productivity the greater is the reduction in unit costs (p252). Nutter considered that aside from the defects in basic statistics it was difficult to

construct meaningful measurements of aggregate industrial production as Soviet prices generally did not accurately reflect relative costs of production. The industrial structure had shifted radically over a short period of time. It had increasingly favoured sectors where growth is most easily achieved. Growth rates had differed widely from sector to sector and had been interrupted at critical points by major disturbances. Quantitative growth had not been accompanied by the general improvement in the quality of production such as that found during the industrial development of most Western countries (p284).

More fundamentally Soviet production was not market production. Nutter wanted to “underline” that “the pattern of industrial growth observed in the Soviet Union would never be duplicated by a market economy. Sovereign consumers would not choose the paths of growth chosen by Soviet rulers” (p267). All of Nutter’s estimates of Soviet growth, of the increase in physical outputs, of the growth of labour productivity, of the relative size of the Soviet economy to the USA, were not comparisons of like with like. This raised “the awkward question of whether a highly generalized measure of growth has much meaning even as an indicator of expansion in productive capacity available” (p267). Nutter concluded it did not.

No common measure of economic production could be developed to compare the USA and USSR “If we bowed to the stern dictates of logic, we would be able to compare Soviet and U.S. industrial growth only if both economies served either consumer welfare or state power. But this is ruled out by the very difference in social order whose influence on growth we wish to assesses” (p267). This dilemma could “be mastered only by admitting it – by avoiding the delusion that there is some single-dimensioned, neutral measure of growth, equally meaningful for all types of economies” (p267).

Nutter’s estimates developed outside of the core group of Sovietologists were side-lined by the majority of neo-classical economists. They preferred Bergson’s reconciliation of the central plan with the categories of the market (Engerman 2009, p127). In any regard Nutter was not supported by the CIA’s vast resources.

3.14 Conclusion

The Soviet style five year plans began with the abolition of NEP in 1928. They transformed the USSR's economy into a non-capitalist bureaucratically centrally planned one in which inputs and outputs were determined by planners in physical terms. Money was not a universal equivalent and the rouble was a nominal unit of account. Market exchange, supply and demand and the capitalist law of value did not exist there. The new economy was not one in which Marx's value categories or the Western SNA could be applied, as the material basis for national income measurements, the objective fact of actual sales did not exist.

Nevertheless, in the USSR the defeat of the orthodox Marxists by the Stalinists in the 1920s meant that subjective non-market "value" measures were developed to measure the national income of the USSR in the 1930s. Soviet national income figures applied a subjective value to aggregates of concrete labour hours. As less efficient producers were subsidised by more efficient ones, there was no economic pressure to raise productivity.

In the West the debate around the accuracy of official Soviet statistics concluded that Soviet statistics were not freely invented. Soviet data for physical quantities of output was found to be more or less reliable. There was no double counting, and internal estimates corresponded with public published quantities. Soviet financial data corresponded with the physical data. This was necessarily so otherwise any form of central planning would have been impossible, the economy would have collapsed almost immediately. But this debate missed the point. Soviet prices were subordinate to the political priorities of the regime. They regulated the rate of surplus extraction, obscured the privileges of the apparatus and provided propaganda material by exaggerating economic achievements. But even if their nominal totals accurately matched the actual output of the economy, they were false from the point of view of the market. They were false as a measure of real national income and false as a basis for the development of alternative Western measures of real Soviet "national income".

Clark's use of international prices bypassed the issue of rouble prices as it transformed physical quantities into UK prices through an early use of PPP. But these international prices were predicated on the productivity and price structure of a different capitalist economy not the central plan of the USSR. Jasny used actual official financial data deflated by various price indexes, but only to obliterate the essential distinction between market and non-market production. Bergson reconciled Soviet prices with the categories of neo-classical economics but only through abstracting from the actual social system considered.

It was Bergson's idealist method, immune to empirical verification that formed the basis for subsequent Western estimates of the national income of the centrally planned economies. The criticism of Bergson's AFC by economists as varied as Clark, Jasny, Shimkin, Nove and Nutter was ignored and then forgotten. The overtly ideological purpose of Bergson's method, as well as his meticulous, if essentially uncritical attitude to the data, explains why it was the one ultimately adopted and generalised. The next section will review how this method was generalised by Bergson and the CIA across the centrally planned economies, how statisticians sought to reconcile it with the Soviet Material Product System (MPS) and how they measured the collapse of the central plan and the transition to capitalism in the 1990s.

CHAPTER 4:

From Capitalism and Back Again

This section will examine how Bergson's Adjusted Factor Cost (AFC) was applied to the centrally planned economies (CPE) of Central and Eastern Europe (CEE), China and the USSR after the war. It examines the stagnation of the USSR and CEE during the 1980s and their transition to capitalism in the 1990s. It considers how far the official statistics were able (or unable) to measure the growth of real capitalist production within the new market boundary of transitional economies. It considers how China established the central plan after Mao's accession to power in 1949 and the post-1978 market reform process back to capitalism in the 1990s.

It examines how Western statisticians sought to correct planned prices for "distortions" with the view of measuring the "real" output of the central plan. It considers to what extent, if any, these statisticians were able to measure the distinctive growth of real market production within China during the reform period. It shows that by failing to differentiate between use value and exchange value, between abstract and concrete labour time, between market production and centrally planned production, Western estimates of national income, systematically failed to establish the extent of the growth of distinctively capitalist production during the transition period. They therefore failed to estimate the growth of real, as distinct from imputed national income, in the newly restored capitalism of the transition economies.

4.1 The CMEA, MPS and CIA

Following the Second World War the centrally planned economy of the USSR was able to recover rapidly as resources were directed to replace the wholesale destruction of the Nazi invasion. The extension of central planning into the CEE allowed a limited division of labour to develop among the various states and alongside it, a form of non-money trade, or at least the swap of physical outputs,

within the Council for Mutual Economic Assistance (CMEA). Consumer living standards began to rise from the early 1950s onwards with growing wages and social consumption provided by enterprises and the state. In 1958 Czechoslovakia submitted two documents to the sixth session of the Conference of European Statisticians (CES). CES/83 described the methodology for the compilation of MPS “national income” while CES/84 presented the scope and structure of the system of balances of the national economy. These documents were the first official presentation of the Material Product System (MPS) to the United Nations (UN) from the member countries of the CMEA (Arvay 1994).

The MPS asserted that in the centrally planned economies, new value was created in the sphere of material production. Soviet accountants had a similar problem to their Western counterparts, how to measure the “value” of use values that were by their nature incommensurable. They solved it by the aggregation of concrete labour hours. They treated these aggregates as if they were equivalent to aggregates of socially necessary abstract labour measured in exchange. They invented “value” where none existed in reality.

Global Social Product (GSP) was the sum of these imputed values applied to all goods produced in the sphere of material production during the accounting year. Its global reach was limited to the measurement of the output of the centrally planned economies only. These measurements included products used for the production of other products and those used for final uses. National income was GSP less the intermediate consumption of goods and consumption of fixed assets used for the production of other goods or Net Material Product (NMP). National income was divided into two major categories personal consumption, including the depreciation of fixed assets in the service sector and accumulation. There were no substantial revisions until the MPS was abandoned in the early 1990s when capitalism was restored.

In the late 1950s and early 1960s the United Nations established a working group to formalise the statistical bridge between the MPS and SNA. In 1971 the UN

published a technical manual originally developed by the CMEA (CIA 1978). This formed the basis for subsequent UN efforts to reconcile the two systems (United Nations 1986). The enduring nature of the regime received a conservative reflection in the hegemony of Bergson's reconciliation of the MPS with the SNA. This seemed to provide a method of squaring non-capitalist and capitalist value measures. Western researchers remained suspicious of official planned figures but they no longer questioned the viability of developing estimates based on the official figures. Statisticians checked their "corrected" estimates for their internal consistency against physical output indicators, as if this was an adequate control for the essential distinction between market and non-market production.

Abraham Becker (1969) applied Bergson's AFC to an estimate of the USSR's national income for the period from 1958 to 1964. CIA Sovietologists produced regular reports for the Joint Economic Council (JEC) of the US Congress applying these methods (JEC 1982). A CIA team based in Washington DC did the same for China. In New York, Thad P Alton et al (1991) estimated national income for Bulgaria, Czechoslovakia, East Germany, Poland, Romania and Yugoslavia. Alton developed independent estimates of output growth for production and service sectors and then aggregated them into a national income index at factor costs consistent with Bergson's removal of "distorted" centrally planned prices. The AFC synthetic national accounts were contrasted with official value measures.

Western national income estimates were greater than official Soviet national income by the net value of productive depreciation and the net adjustment for the value added of services. Adjustments for non-productive depreciation and losses only rearranged the data (CIA 1978). Western national income increased the nominal value of centrally planned production, but produced lower growth rates as they were adjusted for the hidden inflation caused by the introduction of higher priced new goods not on official price lists. There was no real development in Western statistical methods towards the USSR from the early 1960s on. Bergson (1983) anticipated no substantive change in the USSR before the millennium.

4.2 The USSR from stagnation to collapse

From the mid-1960s productivity in the USSR, the amount of physical outputs per quantity of physical inputs, slowed even while rates of investment grew as a proportion of total output (Nove 1977). By the mid-1960s the central plan's tendency towards stagnation began to outweigh possibilities for its quantitative extension (Nove 1989). During the 1970s stagnation was offset by the development of the oil, gas and raw materials production. Between 1970 and 1980 the share of gas and oil in net exports doubled so that by the mid-1980s fuel accounted for more than half of the Soviet Union's exports (Clarke, Fairbrother 1993). Oil and gas prices were based on market rents, so issues of cost and quality did not prevent their sale on capitalist markets. The disruption of Middle Eastern oil supplies by the 1973 OPEC oil crisis, the Iranian revolution of 1979 and the 1980 Iran/Iraq war, meant that the USSR's net barter terms of trade improved by 5% per annum between 1976 to 1980 and 3% per annum from 1980 to 1985 (IMF, IBRD, OECD 1991, vol 1 p86,105).

By the mid-1980s these trends went into reverse. The easiest oil and gas fields, with the most accessible reserves and closest to existing transport infrastructure were being exhausted. High investment in less productive and more distant fields was required to maintain even existing levels of output. As supplies resumed from Iran and Iraq after 1985, oil and gas prices fell and this hit the value of the USSR's foreign exchange earnings.

The twin crises of stagnation and squeezed foreign earnings formed the background to the accession of Gorbachev as the General Secretary of the CPSU in 1985. Gorbachev introduced a programme of economic reform or "Perestroika" to address the low productivity and poor quality of manufacturing production. As with previous reform proposals Gorbachev's Perestroika consisted of a series of limited quasi-market measures to provide an external impulse to production units and the retooling of existing plant and machinery. This was to be combined with a political programme of "Glasnost", usually translated as "openness", which permitted a limited degree of criticism of the bureaucracy to bring popular pressure to bear on

enterprise managers and lower level apparatchiks. Gorbachev did not intend these measures to destroy the plan, but this was their inevitable result.

During the period from 1986 to 1990, gross fixed investment was set to grow at an annual rate of 4.9% up from 3.5% in the previous five year plan. The proportion of this investment set for modernization and retooling was set to rise to 50.5% from 38.5%. Following the example of the military sector, Gospriemka was established to provide external quality control of Soviet machine production. Workers would be motivated by opening managers to criticism, increasing base wages and improving housing. These incentives were combined with a crackdown on absenteeism and alcoholism (IMF, IBRD, OECD 1991).

The success of Glasnost undermined the very foundation of the central plan it was supposed to revive. In 1987 Gospriemka rejected some 15-18% of output. This particularly hit the machine building sector where 60% of output was subject to inspection compared to 20% elsewhere. The rejection of low quality production by the new inspectorate caused extensive disruption to production units further down the line who were dependent on the rejected inputs to meet their output targets. A surge in housing construction meant there were inadequate resources available for the re-tooling, as labour and construction materials were directed away from the machine sector. The proportion of incomplete investment projects rose. This in turn reduced wages as bonus targets were not met. The anti-alcohol campaign stimulated production of illicit alcohol and hit government revenues through falling turnover taxes. These internal problems were compounded by a fall in world oil prices and revenues.

In 1986 at the 17th Party Congress Gorbachev determined to create a system of “market socialism” over the next 18 months. The solution to the problems created by market reform was to accelerate the pace of market reforms. The Law on State Enterprises in July 1987 abolished mandatory output targets. It allowed enterprises to contract directly with their suppliers and customers. It gave them greater latitude to invest and accumulate capital. But by 1988 state orders still accounted for 80% of

output and ministries continued to confiscate surpluses to cross-subsidise loss making enterprises.

The relative openness of Glasnost and the fracturing of the confederated state encouraged nationalist rivalries, deepening the economic crisis. The rail network was particularly hit. The refusal of national governments to allow the free movement of rail traffic meant bottlenecks in the transport system which prevented the harvest from being gathered. During 1989, half the railways failed to meet transportation targets. Increased imports of food exacerbated the balance of payments short-fall.

The abolition of the monopoly of foreign trade in 1989 was the final nail in the coffin of the central plan. The state monopoly had prevented individual enterprises from trading directly with Western capitalist firms. It was a precondition for the existence of the central plan as it prevented market competition. From 1989 all state enterprises, joint ventures, production cooperatives and other entities which were judged by the Ministry of Foreign Economic Relations to be competent to trade internationally were enabled to do so. By the second half of 1990 20,000 enterprises had registered and around a third of that number had begun trading directly with the West.

A brief window of opportunity enabled a small number of enterprises to make significant profits as they bought at subsidised plan prices and sold at market rates. But the substitution of Western for Soviet inputs led to considerable waste and further dislocation. Downstream production units were unable to supply outputs which were now replaced by Western firms. Legal limits on investment and accumulation remained in place, so these profits could not be effectively reinvested in new lines of production. The policy of Glasnost stimulated national and political movements and in 1989 frictions in inter-republic trade grew as shortages of food, consumer goods and fuels spread. The Warsaw Bloc exploded.

Gorbachev's October 1990 report to the Supreme Soviet, *Basic Guidelines for the Stabilisation of the Economy and Passage to a Market Economy* resolved that

the USSR had “no alternative to switching to the market” (Spulber 2003, p276). There were three plans for this market transition, Ryzhkov, Shatalin, Yeltsin, and that of Gorbachev. They differed not over the goal but the pace of reform (Spulber 2003, p303). But once again events overtook gradualism.

In June 1991 Yeltsin the liberal outsider opposed by the Communist authorities won the Presidency of the Russian Federation. In July Yeltsin took office and in August conservative generals staged a coup. Gorbachev was arrested and martial law imposed. The failure of the coup after just two days spurred Yeltsin to act. In November the Communist Party was banned. In December the Soviet Union was abolished and the Commonwealth of Independent States (CIS) created. In January 1992 immediate price liberalization and wholesale privatisation or shock therapy was introduced.

Its architect was Yegor Gaidar the new Prime Minister of Russia. Shock therapy aimed to break the power of the military industrial planners. It destroyed the plan and according to Gaidar created a capitalism that was “repulsive, thievish and socially unjust” (Spulber 2003, p314). Hyperinflation wiped out savings and destroyed living standards limited by wage restraint policies. Real wages fell from 1991 100, 1992 67, 1995 46, 1998 44 (Spulber 2003, p296). The Russian population with incomes below minimum subsistence reached 35 million by 1998 (Spulber 2003, p313).

By 1998 investment had fallen to less than a quarter of its 1990 level. By 1999 less than 4% of machinery was under 5 years old with about two thirds having been installed before the beginning of Perestroika. Industrial production halved between 1990 and 1999, with the output of light industry falling by 85%, faster than it had following the Nazi invasion of 1941 (Clarke 2004, p194/6). The share of the state and municipal workforce decreased from 1992 68.9% to 1998 38.3%, while the private sector workforce increased from 1992 18.3% to 1998 41.8%. The balance was made up of mixed companies often with foreign participation. By 1999 the

private and mixed sectors accounted for 82% of ownership and 61% of output (Spulber 2003, p290). There was nothing stabilising about this stabilisation process.

Table 4.1. Russian Federation: Shares in Manufacturing Ownership, Workforce and Output, 1992, 1995 and 1998, in percentages

Shares	Ownership			Work force			Output		
	1992	1995	1998	1992	1995	1998	1992	1995	1998
State	45.5	4.9	3.1	81.3	15.9	13.6	84.4	9.7	9.9
Municipal	5.9	2.8	2	1.7	1.9	2	0.7	1.8	1.5
Public org	0.9	0.9	0.5	0.7	0.6	0.6	0.2	0.2	0.2
Private	47.4	72.3	88.1	15.4	37.4	67.4	14	18.9	27
Mixed	0.3	19.1	6.3	0.9	46.4	46.4	0.7	69.9	61.4
Total	100	100	100	100	100	100	100	100	100

(Spulber 2003, p344)

4.3 The Transition in Central and Eastern Europe

In 1989 Gorbachev renounced the so-called Brezhnev doctrine of military intervention into other “socialist countries” (Lane 1996). It signalled the rapid collapse of the CPE across Central and Eastern Europe. The Berlin wall fell on 9th November 1989. On 1st July 1990 the German Democratic Republic (GDR) agreed monetary union with West Germany. Unemployment soared to 10% by 1991 (Lavigne 1999). In July 1989 the G7 summit empowered the European Commission to assist the transition to capitalism, first in Poland and Hungary, to be followed in 1990 by Czechoslovakia, Bulgarian, Yugoslavia and later Romania. The CMEA was abolished under encouragement from the IMF.

In Poland Solidarity formed the government in 1990. In Hungary the communist party’s leading role was revoked the same year. East Germany was absorbed into West Germany. Ceausescu was overthrown in Romania. The break-up of Yugoslavia began. In Czechoslovakia the communists lost the elections.

Price liberalisation caused rapid falls in output, with the largest falls coinciding with the year in which price liberalization began; 1990 in Poland, 1991 in Czechoslovakia, 1992 in Russia, 1994 in the Ukraine. Hungary adopted a gradualist approach but experienced its biggest output fall in the year of CMEA breakdown, i.e. the year of trade liberalization at the level of the region. The liberalisation of prices was simultaneously the creation of a market economy, as Roland and Verdier (1999) pithily noted, “we assume that markets do not exist when prices are liberalized” (p2). According to the official national income estimates produced by the EBRD every one of the 18 countries in CEE and the ex-USSR experienced at least three consecutive years of declining GDP; Moldova, Russia, and Ukraine each experienced seven or more. In the Eastern European countries, GDP stood at 80% of its 1987 level in 1996; while in the republics of the former Soviet Union, it was only 60% (Dayton-Johnson 1999, p118).

Table 4.2. “Real” GDP growth in Central and Eastern Europe (% change)

	1989	1990	1991	1992	1993	1994
Poland	0.2	-11.6	-7.6	2.6	3.8	5
Hungary	0.7	-3.5	-11.9	-3	-0.9	2
Czech Republic	1.4	-0.4	-14.2	-6.4	-0.9	2.6
Slovakia	1.4	-0.4	-14.5	-7	-4.1	4.8
Russia			-13	-19	-12	-15
Ukraine	4	-3	-12	-17	-17	-23
Bulgaria	0.5	-9.1	-11.7	-7.3	-2.4	1.4
Romania	-5.8	-5.6	-12.9	-10	1.3	3.4

(EBRD 1995)

The “stabilisation” measures consisted of price liberalisation through the reduction of subsidies on consumer and producer prices; the deregulation of price fixing and liberalisation of domestic trade; balancing of the government budget through increased taxes and cuts in government spending; a restrictive high interest

rate monetary policy; an incomes policy to limit wage rises; foreign trade liberalisation through the abolition of the monopoly of foreign trade and tariffs; the internal convertibility of internal and external currencies; and the devaluation of the domestic currency. It was supplemented by the privatisation of state industry, reform of the banking system, introduction of welfare payments and limits on subsidies to designated sectors and industries. There were some differences with the pace of change, but these did not affect the result or scope of the measures, simply the timescale over which they took place. By 1995 even Hungary had initiated a big bang programme (Lavigne 1999, p114/5). By the end of 1991 all of the CPEs had adopted a price liberalization and privatisation or “stabilisation” programme to varying degrees. Manufactured exports to the USSR slumped when faced with Western competition. Yugoslavia broke up after the 1988 “stabilisation programme” which saw inflation reach 1989 1200%. Slovenia and Croatia declared themselves independent in 1991. In 1987 in Eastern Europe and the USSR 2.2 million people lived on less than US\$1 a day (in 1985 prices, using PPP exchange rates for each country). By 1993 the number of poor had risen to 14.5 million. Russian male life expectancy fell from 1989 64.4 years to 1994 57.3 years. Not for the first time capitalism came into the world dripping in blood (Marx 1982, p926).

In 1994 the European Bank of Reconstruction and Development (EBRD) developed a series of liberalisation measures as a benchmark against the capitalist reform process (EBRD 1998), including the extent of privatisation, price liberalisation, legal reform and foreign tariffs. The scale ranged from 1 signalling no reform to 4+ signalling a standard equivalent with a Western capitalist nation.

Table 4.3. EBRD Transition Indicators for Russia and Poland selected years

	1989	1990	1995	2000	2005	2010
Russia						
Large scale privatisation	1	1	2	3	3.7	3.7
Small scale privatisation	1	1	2.7	3.7	3.7	3.7
Government and enterprise restructuring	1	1	2	2	2.3	2.7
Price liberalisation	1	1	4	4.3	4.3	4.3
Trade and forex system	1	1	4	4.3	4.3	4.3
Poland						
Large scale privatisation	1	2	3	3.3	3.3	3.7
Small scale privatisation	2	3	4	4.3	4.3	4.3
Government and enterprise restructuring	1	2	3	3	3.7	3.7
Price liberalisation	2.3	3.7	4	4.3	4.3	4.3
Trade and forex system	1	3	4	4.3	4.3	4.3

(EBRD 2011)

The indicators demonstrate that by the mid-1990s all of these states had implemented a programme of capitalist restoration. By the late 1990s the transition economies were capitalist ones, although still shaped by their origin in the central plan and the experience of a phenomenally deep economic crisis. This was now a market economy that produced exchange values not merely things. If national income is a measure of output within the market boundary, then any increase in production within the new market will have increased national income not reduced it.

4.4 World Bank Guide to the Historically Planned Economies (HPEs)

In 1992 the World Bank published a statistical guide to the Historically Planned Economies (HPEs) (Marer et al 1992), it was historical in the sense that the centrally planned economies were history, of the past. It summed up the Western statistical consensus for the reconciliation of the MPS and SNA. It demonstrated how Western experts obliterated the distinctions between market and planned production. It noted that analysts and policy makers from market economies had often struggled

to make sense of the administered prices, the value of production and income in the context of a global economy where markets dominate,

“There are many statistical problems in comparing HPEs and market economies. A major one stems from the changing role of prices in the economy. In both HPEs and market economies, prices generally clear consumer markets and measure value. But in most HPEs, where until recently prices were administered, their purpose was to meet planned financial balance and to transfer income, and they did not usually reflect resource scarcity. The same is true for measures of value” (p3).

As a summary of prices in the HPEs this was essentially wrong. A market clears when supply equals demand. A competitive market constricts demand to those willing to pay and those willing to supply at a given price. If supply is too high then prices fall, demand increases and supply falls and vice versa. In the centrally planned economy, quantities of output were allocated without reference to price. Prices were fixed and did not respond to changes in demand or supply. In most sectors physical quantities of inputs were allocated to produce physical quantities of outputs. In the consumer goods sector, the apparatus used a quasi-market mechanism to distribute output, but the quantities of production were determined in advance, as was their price and the level of “wages” allocated to purchase them. Changes in demand made no difference to the price or supply of goods. The mechanism of supply and demand did not exist; there was no real market to clear. The measures of “value” were not an objective record of actual exchanges. The financial measurements were a reflection of them but played no part in determining production decisions. The so-called suppressed inflation expressed in the long queues typical of the USSR and CEE was a deliberate policy too. The queue was a replacement for the direct distribution of rationing and the gulag. The planned prices for consumer goods and the wages to pay for them were deliberately disproportionate.

This disproportion was no more a consequence of economic value than any other prices in the central plan, without the act of sale the subjective label of “price”

was predicated on the political objectives of the apparatus. Western statisticians had resolved the problem of measuring the central plan by abstracting from the essential difference between planned and market production. The unreal value measurements of the central plan were no more real than the unreal markets that they were supposed to measure.

Indeed as the report noted that, “HPEs have no economy wide ‘markets’ for most goods or services”, it nonetheless continued “...the equivalent of ‘market prices’ in the SNA is ‘established prices’ in the MPS, which include net indirect taxes by sector” (p14). This was a formal but not an actual equivalence. A correspondence of the accounting systems but not of the real world, prices administered through the state bank “create the conditions for ex-post control of plan realization by the state mono bank system” (p7/8), whereas prices in a capitalist system measure the actual proportions in which use values are exchanged on a market.

In the central plan “profits” were a planned or unplanned residual over revenue and costs. They included producer taxes and subsidies, such that profits and net taxes were inseparable (p8). They were not surplus value created in production and realised on sale. The apparatus extracted unpaid surplus labour from the working class, these savings funded their privileges and investment. But this exploitation was not market exploitation. In practice enterprise profits were a form of contingency fund allocated by central planners to enable enterprises to work around plan disproportions by the direct purchase of inputs from other production units to meet plan targets. They did not own them and could not accumulate them. Even these semi-official stock transfers were made at planned prices and subordinate to physical plan targets. In order to complete their physical output targets, enterprises added costs and were automatically reimbursed through price increases, subsidies, lower taxes on profits or write offs of credit. Enterprises were not permitted to go bust (p13). The absence of market prices affected what was produced, the range of options and the quality of production, such that;

“These qualitative differences complicate comparisons of quantities between planned and market economies. The implication is that if HPE prices do not reflect underlying costs and buyer preferences, and if quantities carry different qualitative meanings, value (their multiple) in an HPE is not strictly comparable with value in a market economy” (p11).

Indeed this was the implication if value was not strictly or indeed essentially comparable with a market economy, then the entire architecture of Western statistical analysis of the centrally planned economies fell. In affect Western statistical agencies both recognised and denied the distinction between plan and market prices simultaneously while accepting them both. The incompatibility of the statistical systems was a reflection of the different modes of production. The World Bank noted that, “In HPEs the resulting change of added value is not verified by competition because sales are insured by the sellers’ market” (p13). But verification by competition is verification through the act of sale. This was a seller’s market without sales.

The World Bank explained that further “distortions” in the MPS arose due to the underestimation of depreciation in the central plan. In the SNA assets are valued at their current or replacement cost, the most conservative, highest replacement cost of constant capital. In a capitalist system depreciation must be high enough to allow the replacement of assets used up through wear and tear or made obsolescent through technological progress in order that a continuous circuit of production may take place.

In the central plan assets were not rendered obsolete by technical progress. They were valued, in the sense of a nominal book “value”, at their historic or installation cost, less wear and tear. Inflation in the capitalist system means that current costs will generally exceed historic costs. In the capitalist system the use of historic costs to measure national income, would mean that depreciation would be underestimated and output over estimated, as depreciation is a deduction from gross

output. As the MPS used historic costs, so it was argued, the Net Material Product (NMP) (output less depreciation) was overestimated.

But this was only true if Western depreciation measurements were appropriate in the centrally planned economy. They were not appropriate, due to the absence of inflation and the nature of state owned nationalised property. Planned prices did not change for decades, so the distinction between current and historic prices did not apply. More importantly means of production were allocated interest free from central government to the given enterprise. The enterprise did not own these means of production. The quantity of the means of production in physical or value terms made no difference to the rate of return as the state already appropriated the entire physical surplus. The nominal book price of the means of production had no economic significance. Means of production were effectively fully depreciated upon installation, they used up a certain proportion of available material resources, which if invested in one thing could not be invested in another thing, but nothing was paid for them and so they cost nothing. The World Bank noted that the same “distortion” or more accurately different measurement arose in the treatment of inventories and concluded;

“Disregarding the differences in the treatment of depreciation and inventory replacement, the net increase of the stock of assets (plus the value of losses in the MPS) is equal to the value of capital formation in SNA” (p17).

Disregarding the differences between central planning and capitalism they were the same.

The World Bank repeated the nostrums of Western economics textbooks. They claimed that money in the HPEs as in “other” or more accurately, capitalist economies, was “a unit of account, a means of payment, and a store of value”. Money certainly was a unit of account, although a post-factum subjective one, but money acted neither as a universal means of payment nor as a store of value. Money was no universal equivalent and did not circulate across the economy. In the

consumer sector as has been already demonstrated, wages were deliberately out of kilter with the consumption fund.

Outside that sector money had even less of a role to play. Currency circulated between households and enterprises, between enterprises and the state bank, but not between the households and the state bank. The possession of money did not “automatically command control of resources in the economy’s real sector”. It was illegal for households or enterprises to accumulate capital. The “deposit money” or credit allocated to enterprises by the state bank was “not fungible under classical planning”.

Money had no independent existence. In a capitalist economy, money acts as a store of value where in the sphere of circulation it forms a hoard either to be lent out or thrown back into production. As such it is capable of purchasing any other commodity for the purposes either of productive or unproductive consumption. Not so in the centrally planned economies, where commodities and money did not share a common value that was transferable between one another. Enterprises did not own the deposit money they had on deposit. Rather it was allocated by planners for specific uses like development projects or to specific accounts like working capital, investment and social development, with transfers from one to another requiring authorization by the controlling bank that monitored plan fulfilment. Insofar as the money form existed it maintained the physical non-financial nature of the central plan (p23).

Neither was it a store of value. In a capitalist economy the private ownership of the means of production allows capitalists to earn a return based on the value of the capital they own. Capital generates returns in proportion to its amount. A large amount of capital entitles its owner to a large amount of surplus. It is predicated upon private property in the means of production.

In the national accounts the value of assets is priced at the current replacement cost of fixed capital. This is equal to the rate of interest (or return)

multiplied by its usable life, less maintenance costs. If the rate of return exceeds the current replacement cost another capitalist would buy the same machine cheaper and competition would whittle away the excess profit. This ability of capital to yield returns is the precondition for its role as a value store. Between 1990 and 1998 the privatisation of almost the entire Russian economy yielded just \$7.5bn (Maddison 2006, p157).

Trade relations between members of the CMEA repeated the central plans internal characteristics externally. The USSR charged relatively low prices for energy and raw material exports to the CEE and paid relatively high prices for manufactures imported from them as measured in Transferable Roubles (TRs). This was supposed to be based on a moving average of world market prices, but it was impossible to establish such a relationship empirically. According to the UN Economic Commission for Europe attempts to estimate a realistic rouble exchange rate against the dollar were “probably an inherently impossible task” (Marer et al 1992, p19). Biases were not systematic across types of output or through time, “Thus, official exchange rates have little economic meaning” (p20).

4.5 Productive and unproductive labour and the market boundary

According to the World Bank, “There is one fundamental difference between the SNA and the MPS. In the SNA, all sectors of the economy are considered productive; in the MPS only those that yield “material” goods” (Marer et al 1992, p66). It noted that the distinction between productive and unproductive labour originated with Adam Smith and was developed by Karl Marx. The World Bank considered this was an application of Marx’s theory of unproductive labour that meant that only material – that is physical – commodities were productive. They claimed that for Marx services, that is commodities that are consumed as they are produced, are unproductive. This view is common to Western statisticians. John W. Kendrick (1995) in the introduction to a series of essays on the 1993 UN SNA explained that;

“Smith excluded services from national income, since their labor does not ‘fix itself in vendible commodities that can be accumulated as capital for future periods’. Ricardo and J.S. Mill followed Smith’s definition. So did Karl Marx, since he could then more readily develop his theory of the materialization of surplus value into capital. Marx’s concept was subsequently implemented by the Soviet Union and other Communist nations in the material product system of national accounts...” (p7).

As a summary of the views of Smith and Marx’s it is almost completely incorrect. Marx (1978, *Theories of Surplus Value I*) noted that bourgeois economics think capitalist forms of production are absolute, eternal and natural and so consider that “all labour which produces anything at all, which has any kind of result, is by that very fact productive labour” (p49). But it is not. Productive labour is productive of surplus value and is predicated on the production and exchange of commodities, that is, on the existence of a market economy.

For Smith and Marx labour in a capitalist economy creates all value and surplus value. Profits, rents and interests are all forms of surplus value. Capital is a stock of past labour. The only labour that is productive is that which was exchanged against capital and not against revenue or labour that produces surplus value or profits for the capitalist. The difference between productive, unproductive and domestic labour is their social context. The capitalist social relation whether in production or circulation is defined by two exchanges, the opening purchase and the closing sale. In productive labour, labour power is purchased and set to work and its product is then sold, making up the two exchanges. In unproductive labour, labour power is purchased but its product is never sold, making only one exchange. Finally with domestic labour there is neither purchase nor sale, no exchange and therefore, only private labour.

If someone makes themselves a piece of toast (or pours themselves a glass of wine) at home, they produce a use value, but no exchange value or surplus value. That use value is not measured in national income. If they pay a servant to make

them a piece of toast (or to pour them a glass of wine) this output has a cost, but not a price, it is measured in national income but is not sold and so not productive of surplus value. If they buy a piece of toast (or a glass of wine) from a restaurant, this output has an exchange value and is measured by national income and it is productive of surplus value. According to Smith services are unproductive as they “generally perish in the very instant of their performance, and seldom leave any trace or value behind them” (Gough 1972). Marx did not share this view (Shaikh & Tonak 1996), Marx explained that;

“An actor for example, or even a clown... is a productive labourer if he works in the service of a capitalist (an entrepreneur) to whom he returns more labour than he receives in the form of wages; while a jobbing tailor who comes to the capitalist’s house and patches his trousers for him, is an unproductive labourer. The former’s labour is exchange with capital, the latter’s with revenue” (Marx 1978, *Theories of Surplus Value I*, p157).

Paul Studenski’s (1958) classic work on the history of national accounts accurately summarised the distinction between Smith and Marx and concluded that “Marx denied that the form of product – material or immaterial – has anything to do with the distinction between productive and unproductive labour” (p22). But Studenski described Marx’s view only to deny it in the next breathe. He continued “Marx chose, nonetheless, in all his subsequent writing to associate productive labor with the creation of material goods alone” (p22). This is not correct. Marx (1982) noted in *Capital I* that “If we may take an example from outside the sphere of production of material production, a schoolmaster is a productive labourer when, in addition to belabouring the heads of his pupils, he works himself into the ground to enrich the owner of the school” (p644). Marx’s emphasis on the production of material commodities reflected the relatively undeveloped nature of the service sector in the mid-nineteenth century.

The real distinction between the MPS measurement and GDP measurement was not the material or immaterial nature of the product, the issue of coverage, or the

rate of depreciation, but that the MPS did not measure a market economy. The central plan produced use value not value. Nothing produced in it, either material or a service, was ever exchanged against money. There were no independent capitals. There were no nationwide markets and nothing was sold.

In the centrally planned economy labour was not productive, in the sense defined by Adam Smith or Marx, as there was no exchange value and so no value at all. The limitation of the MPS to the measurement of the production of only “material” things reflected the prioritisation of the accumulation of means of production over consumption goods such as health, education, administration, business and personal services. Marx opposed the theory paradoxically attributed to him by both the neo-classical and Stalinist statisticians.

Studenski (1958) said that Marx defined the “new produced value” (value added), in a capitalist economy, in income terms, as the sum of wages, profits, and rent. In product terms it is the sum of consumer goods and net investment goods. While gross value added is the sum of wages, profits, rent and capital replacement. The income side of national income is measured by aggregating the incomes derived from production. The production side is the value of the new product plus the value of capital replacement. Gross value added equals the total product less material expenses and capital replacement.

Marx noted that replacement of capital is never a part of income (p23). The “value of the product” is equivalent to the “gross national product” (GNP) that includes the duplicated values of raw materials and supplies and the replacement of used up capital. While net value, what Marx called the “gross income of society”, consists of “wages, profit (including interest), and rent” or “net national income”. This is reflected in the SNA where the three forms of national income; production, income and demand are identical. Production is the sum of value added in different sectors (agriculture, industry and services) net of duplication; income is the sum of wages and surplus value or property income, rents and profits; demand is the sum of final expenditures by consumers, investors and government.

The SNA measures the entire economic activity of the market sector in a capitalist economy. It is predicated on the creation, transformation, exchange, transfer, exhaustion and amortization of value within the market boundary. The 1993 SNA defines the production boundary as “all production actually destined for the market, whether for sale or barter” (United Nations 1993, 1.20). This production boundary applies even if “the SNA does not present market transactions in a strict sense, but rather in a corrected or completed form” (Lutzel 1986, p203). The SNA does not differentiate between unproductive and productive labour and considers all labour within the market boundary to be productive. This accords with Marx as the income to pay for production that does not produce surplus value, must arise in the productive sector. The 1953 United Nations SNA (United Nations 1953), itself a development of the original 1947 report from Richard Stone (1947) states;

“Production is a basic concept which can be described as the provision of goods and services. Not all production however, in this broad sense is included in the concept of economic production which enters into national accounting. It is therefore, necessary to state as clearly as possible the line of distinction between production that is, and production that is not so included. This may be done conveniently by drawing a production boundary... In a monetary economy all goods and services are included in the concept of production if they are exchanged for money” (United Nations 1953, p4).

Kuznets (1941) (who supported the application of market measurements to the non-market central plan) nonetheless considered that the distinction between economic and noneconomic activities is the market,

“The diversity of physical shapes economic goods display and of wants they serve compels us to express them in terms of a common unit that will reveal their economic significance and allow them to be added and subtracted in various combinations. This measurable aspect, common to all economic goods and revealing their economic significance, we designate

‘economic value’. The yardstick of economic value is fashioned on the market place” (p21).

Market prices are a far from perfect measure “But they are the sole practicable basis if the estimator is to follow the consensus of social opinion” (p55). National income consists of one total, the net value of goods produced. Even if non-economic, non-market activity satisfy the wants of people this production is not included in measures of economic activity, “the yardstick (no matter how it may have to be adjusted) is the market price” (1975, p124). Transactions with compensation are acts of exchange, transactions without compensation are transfers, valued at the market price of the inputs required to produce them plus or minus profits or losses. Market producers do not care about the functional purpose of the purchase made from them. The general rule in the SNA approach is that “all transactions are recorded in market prices on an accrual basis” (World Bank, Goskomstat 1995, p9).

The MPS equivalent of “national income”, in the sense of a formal accounting identity, was gross output net of depreciation or Net Material Product (NMP) or Net National Product (NNP) in the SNA. This formal equivalence, achieved in the books but not the real world, reduced the distinction between the economic systems to a statistical issue to be solved through creative accounting. It abandoned the market boundary as an actually existing fact in determining the measurement of economic production. It treated the output of the central plan as market production - without actual markets. The HPE produced a formula to reconcile the two systems:-

$$\text{NMP} + \text{D (FA)} = \text{GMP}$$

$$\text{GMP} + \text{GV} - \text{NMI} + \text{Diffs} = \text{GDP}$$

They took NMP then added the total value of depreciation of all fixed assets to material production (D (FA)) to arrive at GMP. Then they added the gross value

added of non-material services (GV) and deducted the non-material inputs used for material production (NMI) and then adjusted for certain minor differences between the SNA and the MPS (such as travel costs and welfare costs) (Diffs) to arrive at GDP (Marer et al 1992, p70). Non-material inputs were services not otherwise included in the calculation of net material product. Effectively national income was equal to gross material production plus gross non-material production or that is, national income = “gross production”. Marer claimed that notwithstanding the “arbitrary” nature of depreciation in planned economies their estimates of centrally planned national income were nonetheless, if not true, then at least “truer” (p71). By abstracting from the actual social system, statisticians had established a measurement that was, if not true, then at least truer, than truth.

This formula was an explicit restatement of Bergson’s AFC or “building block” method. It glossed over or ignored the absence of market exchange and actual objective prices. It gave an unwarranted objective significance to the aggregates of concrete labour time that formed the basis for the subjective, *post-factum* “value” attributed to planned production by the apparatus. Turnover taxes, subsidies and arbitrary profit mark-ups were “corrected” by “adding subsidies, subtracting turnover taxes, and imposing an economy wide uniform rate of return on fixed and working capital”.

Estimates of these quantities were based on sample data in physical units, adjusted when possible for changes in product mix and quality. For value added applied to non-material services in real terms, it was assumed that growth was determined by changes in the number of employees, without accounting for increases in productivity, since the majority of these services were not marketed (p75). Indeed not only were these services not marketed, neither was any of the output of the central plan.

To estimate, or adjust, the value of production on a factor cost basis, the aggregate value of national income was divided into returns to labour and to non-labour factors of production – fixed and working capital and agricultural land. The

returns to labour were roughly equal to the sum of wages, salaries, payments in kind, farm income in kind, and social security contributions paid by employees and employers. In calculating factor costs for the USSR (that is the non-existent expenditures on interest and rent to non-existent capitalists and landlords) two basic methods were used. Firstly, the difference between global national income and total return to labour were distributed proportionately according to the stock of fixed and working capital used in each production sector. The valuation of this stock was based on the very same artificial, arbitrary and supposed rate of return imposed to estimate the non-existent profits of the non-existent capitalists. No separate return was attributed to agricultural land. Secondly, in calculating factor costs for other European HPES, the non-labour portion of GNP was distributed according to the total stock of capital, including agricultural land (p78). These estimates for national production were then translated into international prices either through comparison with the exchange rates of another country or Purchasing Power Parity (PPP).

The World Bank, IMF, OECD, the newly reformed Goskomstat now the CIS Statistical Authority, applied this World Bank methodology in a series of reports, which attempted to measure the national income of the Russian economy during the transition to capitalism in the early 1990s. In their view the key problem with reconciling the Material Product System (MPS) or Net Material Product (NMP) system with the System of National Accounts (SNA) was that of coverage. The MPS ignored “non-material services”. There were further concerns about how to properly measure income, inputs and outputs in market values, how to make historical MPS data comparable with the SNA and how the statistical authorities themselves should operate (Saunders, Wu 2009, p414). There was no issue of principle in the replacement of planned “prices” with market ones. The collapse of production in the CEE and the CIS was synonymous with a collapse of national income.

The OECD in partnership with the CIS Statistical Committee developed production, distribution, use of income and capital accounts for the USSR for the last three years of the centrally planned economy 1988, 1989, 1990. They redefined the categories of the MPS as if they were the categories of an SNA market economy

(OECD 1993). Youri Ivanov of the Soviet and then CIS Statistical Commission considered that;

“In both systems major aggregates are valued at market current and constant prices, in both systems capital formation is measured on both a gross and a net basis, i.e. before and after deduction of consumption of fixed assets and there are some similarities in accounting procedures adopted to value non-market output (1987, p3).

While Ivanov understood, “The decision (to introduce the SNA) was clearly linked to economic reforms aimed at the transformation of an administrative economy into a market one and the gradual integration of the country into the world economy system” (Ivanov, Rjabushkin, Homenko 1993, p280), he simply assumed that planned production was market production where this was required for ease of measurement.

Ivanov’s later comparison of the MPS and SNA noted that in the MPS, “Economic production is restricted to the production of material goods and material services” whereas in the SNA, “Economic production is defined to include all activities for producing goods and services, except for domestic services that are produced by households for their own use” (2009, p483). Ivanov abstracted from the market boundary so that the objective nature of real sales on an actual market were indistinguishable from the subjective nature of unreal sales in the non-market central plan. This is reflected in the 1993 joint OECD and CIS Statistical Committee definition of centrally planned productive activity as “one which gives rise the production of goods and services” (OECD 1993, p9). Sales were assumed whether they occurred or not. The estimates included both material production such as industry, agriculture, forestry, construction, transportation of goods and so on and non-material services such as health care, social security, education and passenger transport.

Value flows, the accounting equivalent of physical production, were imputed at “prices actually used in transactions” when these “transactions” were in fact deliveries, not sales, of physical quantities of pre-allocated inputs and outputs. The prices of direct material inputs into production were the planned prices used in the compilation of MPS estimates. Indirect costs were estimated by specific coefficients for each industry. There was no statistical information available about the purchases of non-materials services, so they were estimated “arbitrarily” after consultation with experts in industrial statistics and accountants (p27).

All items of goods and services including intermediate consumption were valued at “purchasers’ prices”. Non-marketed goods and services, a misnomer given the absence of markets, were valued by using the “market price of similar goods and services that are marketed where these are available and where not they are valued at the sum of costs of production” (p12). Depreciation allowances “were made on the basis of the historical value of fixed assets and the rates of depreciation fixed by government regulation” (p37). The annual total of depreciation included allowances for the replacement and major repairs of fixed assets.

The OECD created the categories of a market economy to measure the centrally planned production of the USSR, before a market existed there. The falsity of this method was clear even before these estimates were published. The collapse of the plan after the big bang showed the true effect of transition.

Vincent Koen (1994) for the IMF anticipated the subsequent development of Western statistical analysis of Russia’s transition. Koen’s intention was to explain away the collapse in production caused by price liberalisation. Koen pointed out that in a period of rapid price change current price indices suffer from base year effects. In Russia the urban consumer price index increased 26 fold from 1991 to 1992, while the producer price index rose 61.9 times. As a result, the nominal value added would be very different in the base or given year. Koen’s calculations show that by December 1993 industrial production had fallen to just over half of its 1989 level. He pointed out that official statistics that show a 18.5% fall in 1992 GDP, would have

been lower if 1992 prices had been used, due to a higher weight for energy production. Similarly price changes affected estimates of wages, international national income and profits.

Gavrilenkov and Koen (1994) developed an alternative real GDP series from the demand side. They claimed official GDP estimates based on the production side exaggerated the fall in GDP. They used revised retail data and alternative estimates of fixed investments, inventory accumulation and government consumption to estimate the scale of the fall from the demand side. They pointed out that private sector activity was probably not adequately captured in official data, they claimed that investment fell more than consumer production and that “consumer goods that are no longer produced were not desired by consumers” (p111). Price liberalisation reduced search costs and queuing. Goods were unaffordable so there was no point queuing for them and with lower production there was a reduction of waste. Koen and Gavrilenkov showed that the military output of the military industrial complex (MIC) had slumped faster than the consumer output of the MIC. Although notwithstanding this, its consumer output still fell by a cumulative 73%.

They pointed out that base effects or the use of world market prices both altered the scale of the slump substantially and that electricity consumption had not fallen to the same degree as GDP. They searched for any and every method to reduce the scale of the output collapse. This was a nakedly ideological survey but even so it accepted that “It cannot be ruled out *a priori* that the cumulative fall in production was even larger than the one experienced in the United States during the Great Depression of 1929-33, and larger than any downturn registered in Russia during the previous 70 years” including during the German invasion of 1941 (p1). Their estimates reduced the rate of decline of real GDP from about a half to about a third or by 4-7% a year from 1990 to 1994. For all of their attempts to downplay the effects of price liberalisation on output collapse, they failed to differentiate between the creation of real GDP within the real market boundary and the collapse of the central plan. Their alternative series anticipated the report of the World Bank and Goskomstat in 1995 that re-examined official estimates to reduce the estimated fall

in GDP almost exactly in line with Koen and Gavrilencov's estimates (OECD 1997, p30).

4.6 The World Bank and Goskomstat

The World Bank and Goskomstat reported on these issues in (1995). They reiterated the differences between the MPS and SNA in terms of the coverage of services and lack of depreciation. They pointed out that under the MPS system the production of material resources was not comparable with the volume and structure of financial resources. The lack of reliable market prices directly shaped how they developed their estimates of Russian national income. The transitional nature of the economy meant that prices were not responsive to supply and demand. Capitalists and workers still did not receive wages, profits or interest proportionate to the output they produced.

As a result they concluded that "The principal method for computing GDP indicators in Russia today is the production approach" (p11). While enterprises dramatically increased prices with the abolition of controls in 1992 the new higher prices were still not true market prices. Enterprises used barter to maintain production. They did not take proper account of the value of inputs from stocks. Wages were unpaid. The tax system was only in its infancy. There was a wide gap between the physical and financial measurement of enterprise activity due to delays in payment and high inflation. This was exacerbated by a lack of information as the surveys that formed the basis for information collection in the SNA were not in place, even while the reporting system of the central plan collapsed and was further fragmented by the creation of nation states out of the former USSR. Together all this meant that "a coherent system of price indexes to be used to deflate national accounts is the matter of the future" (p52).

The quality of national income estimates in current prices depends on the accuracy of the physical indices of output and price indices. Prior to 1994 there were no reliable or actual price indices. The World Bank and Goskomstat used physical

output indices to develop their national income estimates, using the output data for comparable prices reported by enterprises. These prices were still modified by the subjective measurements developed in the MPS/NMP. The World Bank applied different measurements to various sectors of the economy in an attempt to circumvent the problem of inaccurate or incomplete price information.

In the construction sector output was valued on the accrual basis but at mixed prices, partly current market prices, and partly costs plus profit margin. In agriculture it was mostly market prices. Non-market services or more accurately, services that would not have been provided by the market in the West, such as general government, non-market health care, education, science and non-market institutions were valued at cost. Fixed capital consumption was not based on actual data. The output of housing was valued on a cash basis although it was not clear whether prices were market ones or presumably whether this was indeed actual cash, actual payments, actually paid. Intermediate consumption was valued at purchase prices, but the data was unreliable and inconsistent, it was not clear where prices came from (p61/62).

Value added in constant prices (that is in the prices of the previous year) were not calculated by the double deflation method (the difference between gross output and intermediate consumption) instead value added was estimated by applying volume production indexes weighted by previous year values of value added, to previous year's value added. Direct estimates were made from physical indicators of production and employment for each economic activity, "due to the unavailability of a comprehensive range of appropriate price indicators for deflating the gross output and intermediate consumption" (p89).

The unreliability of market prices in this early period of price liberalization was not essentially a problem of statistics. Rather it was an indicator of the growth of market production and exchange within the planned economy. The reason that the "value" of physical output at planned prices did not coincide with incomes or input-output tables was that there was still no genuine market in the transitional economies.

At the beginning of the transition, the share of national income derived from private sector activities ranged from less than 1 per cent in Czechoslovakia and Russia to almost 20% in Poland, compared with about 80% in the United States (Tanzi 1999).

The World Bank/Goskomstat used the physical non-market indicators that measured the central plan. They constructed a 1990 index of GDP at “market prices” for the central plan, before there were any market prices, and from 1991 to 1994, before there were real market prices (p90). These revised estimates for GDP at constant prices from 1991 to 1994 used either physical volume indicators for production or employment data for each economic activity to extrapolate the base year (p92). According to these estimates of the World Bank and Goskmostat, GDP in constant prices declined by about 35% between 1990 and 1994, less than the former estimate of about 47%. The difference was attributed to under reporting in the initial estimates.

The World Bank and Goskmostat’s estimates measured the decline of the central plan as the decline of market production in a period when market production was rapidly increasing. The use of physical and employment measures, separate from the price mechanism, obscured the growth of the market boundary and with it value production as a proportion of total output. National income increased even as the physical output of the central plan slumped.

Kasper Bartholdy (1997) pointed out that the report did not attempt to balance the accounts. He recommended that the discrepancy between production and consumption “should be made transparent” but did not explain how it could be overcome (p140). Bartholdy’s criticism missed the essential point. There were good reasons why the accounts did not balance during the early period of transition. They were an uncomfortable juxtaposition of two different economies. Imputed measures of the rapidly declining output of the centrally planned sector and real value created within the rapidly expanding market boundary.

4.7 IMF National Accounts in the Transition Countries

The problem of how to measure the value of the output of the transitional economies was directly addressed by the IMF (Bloem, Cotterell, Gigantes 1996), (Bloem, Cotterell, Gigantes 1998). If the OECD had simply assumed market production where there was none, while the World Bank had estimated national income on the basis of physical outputs and employment, by 1996 most of the economy was subordinated to production for the market (EBRD 1998). But there remained transitional sectors in which it was still unclear whether much government production was market or non-market. There were issues around the valuation of stocks, the coverage of the service sector and problems with source data. While social relations inside many enterprises remained largely unchanged from the central planning era, enterprises were now subject to the external operation of the market (Clarke 2007). Value production was no longer a notional construct. This was a real capitalist economy albeit one shaped by its origin in central planning.

The IMF noted that ministries often continued to organise the production of goods and services which were now sold on the market. There were doubts over the legal status of these institutions and how that legal status would affect the classification of their production in the national accounts. Even if enterprises were legally independent many of them remained strongly intertwined with the ministries from which they had originated before privatisation. Their fixed capital was financed from ministerial budgets; the prices they charged were often decided by the ministries; ministries compensated them for losses and appropriated surpluses. This impacted on calculations of value added as non-market production in the SNA was valued as the sum of costs at market prices. The SNA required that, to be considered a separate institutional unit, it should be, “capable, in its own right, of owning assets incurring liabilities and engaging in economic activities and in transaction with other entities” (paragraph 4.3). There should be a complete set of accounts. Where units did not have separate legal status – as in the centrally planned economy of the USSR – “strictly speaking the autonomy implied by the first criterion does not exist” (Bloem, Cotterell, Gigantes 1996, p7).

The transformation of government owned production units into independent capitalist enterprises was a real transition for the real economy. In the transitional economy of the CIS and CEE the lack of clarity around whether enterprises met the essential requirements for classification as independent enterprises reflected the actual transition to the market. The IMF noted that applying the criterion for the independence of enterprises “may imply that producing units without an independent legal status” are not independent. As indeed they were not.

The privatisation of these enterprises and their subordination to the market was a key indicator of the growth of market production. The IMF decided to resolve the real ambiguity of the transition, not by interpreting this criterion “more liberally”, but by blurring the SNA’s definition of a market producer. This obscured the real growth of market production, even though they recognised that it remained important to “avoid inclusion” of government sector units that were not oriented to the market (Bloem, Cotterell, Gigantes 1996, p7).

The IMF pointed out that in the OECD/CIS National Accounts for the Former Soviet Union (1993), housing services and public utilities were considered to be market services. In contrast in the World Bank/Goskomstat Russian Federation: Report on the National Accounts (1995) 80% of the total of housing services and 45% of utilities were considered non-market. This statistical contradiction reflected the nature of the two documents. The OECD/CIS national income estimates measured the final years of the centrally planned economy before a real market existed. The World Bank/Goskomstat estimated national income at the outset of market creation, whereas the IMF could reflect on a process largely complete.

The IMF emphasised that the SNA is quite clear about the distinction between market and non-market output “Market output is output that is sold at prices that are economically significant or otherwise disposed of in the market...” (Bloem, Cotterell, Gigantes 1996, p8). This repeated the market boundary condition for the SNA that was so conspicuously missing from the OECD/CIS document. They cited the classic example of market production by a government unit, the Forestry Ministry

that sells some timber, which illustrated the point well. Before 1992 essentially nothing was sold in the USSR. The Forestry Ministry delivered timber according to physical targets not financial ones. Where capitalist governments set producer prices below production costs, the SNA requires that these payments should be classified as subsidies. This too assumes the existence of market producers, market prices and costs, “As regards the recipient, a current transfer made by government cannot be a subsidy unless it is paid to a market producer unit i.e. to a unit producing goods or market services” (Roman 1985, p42).

Different outputs and inputs are incommensurate as use values. Whether a car is worth more than the labour, rubber, steel and glass that produced it, depends on its price relative to the price of the inputs that created it, and indeed whether under-priced or mis-priced, or even sold at all. This requires an objective measure of value measured through exchange. As Leontief (1951) noted in his discussion of the US economy between 1919 and 1939;

“...the basic properties of an economic system are uniquely determined by the (relative) *value* figures of all different kinds of outputs and inputs. Two systems with identical value patterns will have also the same price and output reactions. Even if the prices and quantities taken separately were quite different...For the subsequent empirical analysis, this invariance is of cardinal importance. It makes it possible to determine the most significant properties of the actual economic system on the basis of its value pattern alone” (emphasis in the original) (p65).

In a capitalist economy the physical production and exchange of things matters only insofar as it enables the production, circulation and exchange of value. In the centrally planned economy the physical production and distribution of things took place without value at all, “Physical planning refers to the fact that the main attention of planners was concentrated on physical flows (tons of this, cubic metres of that) and not on financial and monetary aspects of economic life” (Estrin, Kolodko, Uvalic 2007, p21). The price policy of the Soviet Union implied a system

of implicit subsidies and taxes (Bloem, Cotterell, Gigantes 1996, p14) but not explicit ones.

The IMF treated the subjective list prices of the central planners as if they were genuine market prices. Enterprises could “work round” list prices where they did not cover “costs” of production or if they needed “higher values” for their products (p14). The physical completion of output targets was all that mattered in the plan, not their *post factum* reflection in the financial accounts. The transition to capitalism and the introduction of price liberalization meant that list prices were raised in some months “of the order of 300 to 400 percent” (p14). Mark ups were now at the discretion of the enterprises and were raised on average 70% above costs, up from a pre-transition range of 15-20%. This development was not simply a quantitative one. Bergson had pointed out the qualitatively different nature of this planned profit. The distinction between concrete and social labour is fundamental. In the centrally planned economy enterprises wanted to reduce the proportion of output relative to input – the opposite situation that applied in a capitalist economy, where inputs have a money price. Centrally planned enterprises sought to maximise the quantity of physical inputs allocated to them and to minimise the quantity of physical outputs demanded of them. Insofar as this was reflected in the state finance system, this meant that efforts to raise productivity would reduce the planned “profitability” of the enterprise in the next cycle, by reducing the amount of inputs received relative to outputs supplied.

Pre-transition mark ups were fixed in either physical quantities or measured using a subjective valuation based on concrete labour hours. Post liberalisation list prices still did not immediately change to reflect market conditions. The state authorities continued to set prices in a number of countries for items such as housing utilities and food staples. Delays in payment and the effect of rapid inflation on the value of stocks of inventories meant list prices were unreliable. This led to further mark ups of around 20% in Russia and the Ukraine. According to the SNA these mark ups should have been viewed as interest payments, but as they had no relationship to the production process they did not alter aggregate GDP totals as

overpayments in one sector were compensated for by losses in another. The IMF concluded that;

“In a sense, in some transition countries the relevant market price is the list price adjusted for inflation over the period over which payment is delayed. But it is by no means clear that this period is known in advance, or even discussed in advance between seller and purchaser. Indeed, the period seems to be dictated more by the circumstances of the purchaser than by an action of the producer. In that sense, it is not clear that there is agreement on price, whereas agreement on price is the foundation of all market behaviour in market economies” (p18).

The economy was not yet a fully capitalist market one. Prices were not yet active indicators that determined the production and distribution of output. They were only becoming so. Before 1990 stocks of raw materials had no value. After 1991 rapid inflation affected the values of stocks and this could have overstated the amount of value added in production by measuring holding gains as value added. This reflected a real change. Stocks had no money price under the central plan, even if they cost the workers that produced them much sweat and labour. By failing to value the stocks at nothing – their actual price in 1990 – the statisticians did indeed understate the growth of capitalist production. The transition to a market economy meant that these stocks now determined in part the value composition of capital. Objective market prices replaced the physical basis of central planning. Where there was no information on costs of production the IMF recommended that stocks be valued at current prices.

The IMF noted that the lack of coverage of the informal economy, the formal unrecorded economy, the hidden economy and the illegal economy meant that the production of the market economy was probably underestimated in the chaotic first phase of transition from 1992 to 1997. This was worsened by the lack of good information. Reporting systems were not in place. Enterprises did not want their activities to be reported and the survey data typical of a market economy did not

exist under the central plan. As normal checks based on changes in physical quantities were not reliable, estimates of national income in this period were particularly error prone. But the main error resulted from the confusion of market and non-market production. In the end the issue was not about whether the IMF's estimates were accurate or not, they were as accurate as could be given the chaos of the economy, the inadequacies of the data and the ideological biases of their own reporters. The problem was that they failed to measure the actual growth of real commodity production inside the market boundary of national income accounting.

The various estimates of post-Soviet national income in the 1990s all reflected the collapse of the central plan and the growth of commodity production. As Vincent Koen and Michael Marrese of the IMF (1995) put it,

“The public perception of Russia's economic transition is that the old system has been successfully destroyed but that it has not yet been replaced by a sustainable democracy and an effective market economy” (p1).

Marrese and Koen considered progress towards a market economy genuine, but failed to differentiate between the decline of the central plan and the growth of the market, applying an aggregated national income measurement that obscured the change. The IMF registered the transformed status of government enterprises into real capitalist firms and the subordination of prices to supply and demand. But all of the different estimates measured non-capitalist planned production as if it took place within the market boundary. They failed to track the real growth of capitalist national income within the transitional economies, which increased even as the output of the centrally planned sector slumped. The restoration of capitalism in the CEE and CIS was markedly different to that of China. China experienced no big bang or IMF inspired stabilisation programme. Rather its long road to capitalism began in the late 1970s.

4.8 China to the plan and back again

The accession of Mao's Chinese Communist Party (CCP) to power in 1949 was rapidly followed from 1953 by the transition to central planning modelled on the USSR. China established the MPS during the First Five Year Plan (1953 to 1957), Skousen and Liang-Yang (1988) summarised the nature of the economic system in a review of Chinese accounting measures,

“Under the centrally planned economy, the government administered the national economy as if it was a single, huge, industrial corporation which did not let operating divisions sell products or develop production plans. Production and cost targets were set through state agencies. Although profit was one of the targets, it was only in name since all prices were set by the state” (p202).

This was a period of economic recovery after the Japanese invasion and civil war. The transition to a system of bureaucratic central planning was very successful during this early period. Arthur Ashbrook, a CIA analyst writing for the Joint Economic Committee, gave the regime “full marks” for its achievements (Ashbrook 1967).

It was followed by the Great Leap Forward (GLF) (1958 to 1965). This was an attempt to raise productivity and output to that of the UK within fifteen years, by the forced collectivisation of the peasantry. The apparatus thought that by driving the peasants from the land into small scale rural industry they could transform the industrial base of the economy. They could not. The GLF failed disastrously and sparked a serious famine. Millions of farmers died as the material basis for collective agriculture did not exist.

This crisis was exacerbated by the Sino-Soviet split in December 1961, which meant 300 major infrastructural and industrial projects, dependent on both USSR's design expertise and machine tools, were not completed. The GLF was followed by

the Cultural Revolution (1966 to 1976) when the state statistics section was abolished. Limited statistical work recommenced in 1974 but its progress was uncertain until after Mao Zedong's death in 1976.

At its third plenum in 1978 the CCP identified the use of market forces as the key to "a historic shift to socialist modernisation" (Hart-Landsberg, Burkett 2005, p40). At the start of the economic reform State Owned Enterprises (SOEs) delivered 78% of industrial output, employed 76% of all industrial workers and absorbed 84% of investment in industrial fixed assets (Brandt, Rawski, Sutton 2008, p571). From then on central planning shaped the overall structure of the economy, but a system of dual prices partitioned inputs and outputs into plan and market segments. Plan quotas were fixed and transacted at official prices while surplus output was sold at flexible prices that reflected supply and demand. The share of producer goods transacted at market prices rose from 1978 0% 1985 13% 1991 46% 1995 78% (Brandt, Rawski, Sutton 2008, p572). In October 1979 the State Council adopted the "Decision on Strengthening Statistical Work and Improving Statistical Organizations" that reinstated national statistics (World Bank 1992, p3/4).

In 1979 Deng Xiaoping the Chinese leader, launched the "Open Door" to foreign multi-national corporations to attract foreign direct investment (FDI) from multi-national companies. Special Economic Zones (SEZs) that gave these firms special, although initially limited rights, to exploit labour and repatriate profits, were launched along the Southern coast. Agricultural reform reduced restrictions on private markets and increased the size of privately worked plots on the rural communes. The state raised the prices of compulsory grain purchases by 20% and offered a 50% premium for grain purchases above the quota. By 1983 the decollectivisation of the commune system of agriculture meant that 98% of peasant households produced for the market. Land remained nationalised but it was placed at the use of the peasant households who farmed it.

The creation of Town and Village Enterprises (TVEs) that fell "outside many of the regulations designed to protect the rights and conditions of urban workers"

(Hart-Landsberg, Burkett 2005, p44) allowed local government bodies to take control of state assets. In 1983 state owned enterprises (SOEs) were ordered to hire new workers on a contractual basis, limiting their job security. By 1984 the private sector employed 3 million workers. A further 6 million workers were put on contracts which reduced their security of employment. By April 1987 these workers accounted for 7.51 million or 8% of the industrial work force. By 1993 there were 25 million TVEs employing 123 million workers. These market reforms produced large increases in output. Per capita incomes, based on PPP measures that aggregated centrally planned and market production, doubled between 1978 and 1984.

The transformation of production through the introduction of market forces was reflected in the use of Western accounting methods as “The Chinese could not model these accounting techniques on the Soviet system, since profit centres were more applicable to Western management accounting methods” (Skousen and Ji-Liang Yang 1988, p203). As the economic reforms progressed so Western, or more accurately capitalist, accounting practices were generalised across the economy. In 1984 at its 12th Congress the CCP adopted the idea of “planned commodity production”. SOEs now financed their operations through the retention of earnings and bank loans from the state system. Prices were permitted to move in wider bands (Naughton 1999). Workers’ rights to security of contract were limited to regular state employees who now constituted around 40% of the work force. The addition of the Pearl River, Min River and Yangtze River deltas to the SEZs opened the whole southern coast to foreign investment. To encourage foreign companies, taxes were lowered, they were given more freedom to hire and fire workers and the ability to acquire foreign exchange.

From 1980 to 1989 China’s “real” GDP (PPP), aggregated according to Western estimates, grew at 9.7% per annum. But towards the end of the 1980s the rate of agricultural income growth slowed, as the effect of the initial reforms wore off. Significant inflation, alongside the growth of budget deficits started to hit working class living standards. A sharp rise in unemployment and the erosion of job security led to significant working class unrest. These were contributory factors

within the 1989 Tiananmen Square democracy movement. The perceived threat to CCP rule meant, the movement was brutally repressed, in so doing removing the last vestiges of resistance to wholesale privatisation of state industry.

In early 1992 Deng Xiaoping during a visit to Shenzhen announced that “as long as it makes money it is good for China” (Hart-Landsberg, Burkett 2005, p51). At the 14th Party Congress in October 1992 the CCP resolved to establish a “socialist market economy with Chinese characteristics” (Hart-Landsberg, Burkett 2005, p51). A large scale policy of privatisation was introduced in all but the 1,000 largest state enterprises. The private sector was awarded preferable tax provisions which taxed the SOEs harder than private firms. The shortfall of tax revenues provided further impetus to the privatisation process and from 1996 it was extended to TVEs. By the end of the 1990s SOEs employed just 12% of total employment accounting for 38% of national income. The influx of multi-national corporations into the SEZs meant that by 2003 these firms accounted for 57% of total exports. By the mid-1990s these reforms had created a truly capitalist economy. The overwhelming majority of exchanges took place at market prices. Hart-Landsberg and Berkett concluded that;

“Once the path of pro-market reforms was embarked upon, each subsequent step in the reform process was largely driven by tensions and contradictions generated by the reforms themselves....that has created an economy that has little to do with socialism” (2005, p61).

The dominance of market prices, the transition to commodity production and exchange, is demonstrated by the proportion of total output undertaken at market prices. In 1978 100% of producer goods, 100% of retail sales and 93% of farm commodities were valued at state “prices”. By 2003 87% of producer goods, 96% of retail sales and 97% of farm commodities were valued at market prices.

The transition to capitalism produced some similar features to those of the CEE and CIS. Unemployment among state owned manufacturing workers grew

rapidly alongside income inequality. From 1996 to 2001 36 million SOE and 17 million TVE workers were laid off (UNCTAD 2005). The Gini co-efficient, a standard inequality measure, rose from 1980 0.33 to 2000 0.46. But the low level of development of the Chinese economy with a predominantly agricultural population and the rapid growth of the export oriented sector based in the SEZs meant that the growth of these two sectors more than compensated for the decline of the privatised industries.

As the rate of productivity growth outstripped the rate of decline of consumption, workers' wages rose even while the proportion of wages in national income fell. The number of consumer goods per 100 households rose, TVs from 1984 4/100 to 2003 94/100, washing machines from 1/100 to 59/100, fridges from 0/100 to 46/100 (OECD 2005). By the end of the 1990s, China's average level of daily per capita calorie intake fell only 10 per cent short of the level of developed countries.

Vietnam's path from central planning to capitalism was similar to that of China. Vietnam's first movements away from a planned economy came in 1979 in agriculture and 1981 in industry. Beginning in 1981, SOEs were allowed to sell outside the plan, and to keep a share of profits. Reforms in the SOE were deepened through the 1980s. The 1988 land law allowed for the household use of land for agricultural production. It led to the rapid dismantling of collectives between 1989 and 1993. In 1990 the law on private enterprises and the law on companies were passed, establishing legalized ownership forms, proprietorships, limited liability companies and joint stock companies. Employment in the private sector grew from 3.8 million 1998 to 10.2 million 1992 and 12.6 million in 1995. The number of private firms grew by 40% a year between 1992 and 1996. By 2003 the domestic private sector accounted for 23% of industrial output in Vietnam (Woodruff 2004).

4.9 Western estimates

In 1958 W. W. Hollister developed the first published Western estimates of China's national income. Hollister used a final expenditures method, but was based on a narrow range of data. Hollister assumed stable input-output relationships, based on official Chinese wage and price indices and his estimates were close to official rates of growth (Hollister 1958). In 1961 Alexander Eckstein, with the support of Simon Kuznets and Abram Bergson, published national income estimates for 1952, the final pre-plan year. Ta-Chung Liu and Kung-China Yeh (1965) were part of the US Air Force Project RAND. They worked with Simon Kuznets on the first proper Western attempt to reconstruct the output of China's centrally planned economy, to correct for "obvious biases" by conforming to Bergson's standard definitions according to the categories of the SNA (p125).

They addressed typical issues of coverage, depreciation and the treatment of taxes and subsidies. They noted that Communist policy in 1955 was "designed to wipe out whatever free market activity was left in rural areas" (p14), and that by the end of the First Five Year Plan in 1958, private enterprise's share of industry and retail trade had declined to zero (p15). Although market prices no longer existed, the authors nonetheless explained that centrally planned national income was measured at market prices, rather than factor income. They concluded that the,

"Communist concept of national income appears to be essentially the same as that of net domestic product at market prices as defined in the U.S. Department of Commerce, except for the narrower scope of economic activities covered in the Communist definition" (p215).

This definition of market activity was no longer one based on actual market activity, but of imputed non-activity. While Liu and Yeh questioned the reliability of the data for the period from 1952 to 1956 they nonetheless considered it reliable enough to form the basis of their work (Liu 1967) (Liu, Yeh 1973). They estimated the gross value of output in four sectors and then extrapolated input-output

coefficients from 1961 to 1970, based on the 1952 to 1957 figures to arrive at their measurement of Chinese national income (Liu, Yeh 1973, p217).

Kuznets next supervised Dwight H. Perkins 1975 estimate of China's GDP for the period up to 1971. Perkins discussed China's growth under the central plan in terms of the modern era. He took Western estimates of industrial production as the lower end and China's estimates as the upper end. Perkins noted that beginning in the 1950s China's growth was sustained but uneven. He estimated that national income had tripled between 1952 and 1971 and per capita national income had doubled.

Kravis (1981) undertook a PPP estimate of China's national income based on a limited comparison of Chinese and US goods and services. Kravis' estimates used official Chinese prices to establish Chinese per capita GDP. They formed the basis for the Penn World Table estimates developed by Robert Summers and Alan W. Heston in 1988 and 1991 (Lardy 1994, p15). Kravis did not directly address the issue of planned prices and market prices, but compared his acknowledged rough estimate in terms of measuring other poor capitalist developing nations like South Korea.

Jeffrey R. Taylor (1991) used PPPs to estimate Chinese GDP. He ignored the question of the market boundary but following convention converted the official figures. Taylor converted the 1981 input-output table into US dollars and subtracted these from gross value added. These were used to derive double deflated estimates of value added in residual dollars. These dollar estimates were then aggregated into primary, secondary, and tertiary sectors to obtain a total dollar GDP estimate for the 1981 benchmark year. GDP for earlier and later years was then calculated using constant price output indices for the components of GDP.

4.10 China measures of transition

The relatively smooth nature of China's transition to capitalism contrasted with the post-liberalization collapse in the USSR and CEE. But for all their differences the transition of China's statistical system from the material product

system (MPS) to the capitalist System of National Accounts (SNA) both anticipated and mirrored the experience of the USSR. As in the USSR China's MPS reported physical output and those services that made a direct contribution to the production of that physical output. Depreciation was treated as an intermediate input category. Physical outputs were valued according to a list of constant prices based on a standard set of 2000 products published by the State Statistical Bureau (SSB).

There were five sets of prices between 1949 and 1990. Thomas Rawski, a Harvard sinologist, summarised the consensus opinion in 1976 that "most foreign specialists now agree that statistical information published in Chinese sources provides a generally accurate and reliable foundation on which to base further investigations" (Holz 2004, p381). By the mid-1980s, as the proportion of output produced by the market sector increased, China introduced a hybrid system with the aim of introducing the "SNA with Chinese characteristics". The hybrid system was based on the reporting mechanisms of the MPS but increased coverage to include the output of the "non-material" service sectors such as health care, education, passenger transport, government administration and residential housing and depreciation estimates to form its official GDP measures (World Bank 1992, pv).

In 1994 Alfred Keidel attempted to remove central plan price "distortions" based on the work of the World Bank's statistical mission to China in 1990 (World Bank 1994). Keidel estimated an unofficial 32% increase in Yuan national accounts, 14% for statistical shortcomings and 18% for China's non-market price system (pv). Keidel adjusted existing Chinese "prices" to establish a more equal rate of return across different sectors. Keidel's method was paradoxically similar to the transfer of value between capitals of different organic compositions demonstrated by Marx in *Capital III*, except this was not the work of the market, but of a reimagining of Chinese output as if were that of the market. Keidel accepted that "In general there is no 'correct' or 'accurate' choice for what China's profitability patterns might look like" (p23). After all there was no real rate of profit in the Chinese economy. Keidel's reworked prices diverged from the original list prices and made the application of PPPs based on original prices more difficult. Keidel pointed out the

problem of establishing direct comparisons between physical outputs was affected by China's plan output which was measured through quantitative targets with less emphasis on quality. As higher quality is more expensive in a market economy this affected direct comparisons of physical commodities (p36).

The World Bank reported on the transition of China's statistical system from the MPS and SNA (World Bank 1992). They showed how Western statisticians sought to reconcile the decline in planned production with the growth of the market. In their view the most serious distortions in China's price reporting system resulted from the disproportionate quantity of both subsidized low price transactions and of high price transactions on periodic markets outside the subsidized plan system. They noted that while the SNA was predicated on the existence of market prices, the central plan "distorted" the measurement of economic activity as it undervalued many goods. The nature of transactions was that they were not market transactions;

"The fundamental difficulty with relying so heavily on MPS valuation principles is that although they refer to actual *transactions*, many transactions in China are not *market* transactions. That is to say, goods and money change hands in many transactions, but the amounts involved are determined by bureaucratic regulations, and prices implied by the transactions frequently have little bearing on the social usefulness of the goods and services involved" (emphasis in the original) (p12).

"The social usefulness of goods" was World Bank code for market price. In the classical central plan money did not change hands even when output did. The financial measures of production were nominal units of account that were registered with the state bank. State prices even dominated the shadow planned area, where production units used informal but tolerated channels to barter inputs to complete their planned targets, as the World Bank report itself recognised "Not all prices in China are used for transactions" (p52). Different sets of prices existed for the same product in different "markets" decreed by "political/administrative fiat, rather than being determined by economic forces" (p15). Official constant prices were

accounting prices used to calculate and report the “value” of output according to various price manuals (Ruoan, Kai 1995, p14). If there was a zero price or where deliveries were based on the allocation of inputs and outputs under the central plan this “value” was strictly notional and derived after the event.

This non-market production by definition lay outside of the market boundary measured by the SNA. Strictly speaking it should not be included in the measurement of national income. But rather than measure the actual growth of real capitalism in China, the World Bank created a version of capitalism in the accounts. They increased the valuation of the rented housing sector, reinterpreted government subsidies as government purchases and converted output valued at government list prices into “values based on more meaningful market oriented transactions” to represent the “true extent of economic activity” (World Bank 1992, p13).

The distinction between non-market and market production was obliterated. The World Bank stated that, “It is important to stress that reworking China’s GDP by subsector as described below is not recalculating China’s GDP according to some ideal price system” (but this was exactly what they did) as they continued, “However, some elements of the present valuation system reflect conceptual biases and distortions which must be adjusted in estimating GDP” (p86).

The abolition of mandatory purchasing quotas for most goods in the mid-1980s and the strict limit on the physical quantity of centrally planned production meant that as the economy grew the proportion of output subject to supply and demand rapidly increased (Naughton 2007, p93). By the early 1990s negotiated prices were no longer just a “non-plan” category. Planned production was subject to the operation of the market, according to whether they were “state-set” or “state-guided” prices. State-set prices were fixed at one value. They were not really prices at all but the traditional units of account. State-guided prices were set by local state enterprises and government departments within certain range and were subject to supply and demand. In their turn non-plan prices had three subcategories; consultative, negotiated and periodic market prices. In general these were decided by

the parties to the transaction, but were subject to government guidelines and monitoring. The official segmentation of many markets allowed the use of a product's planned or list price in some transactions and the negotiated price in others (World Bank 1992, p50).

The Chinese State Statistical Bureau (SSB) and Institute of Economic Research at Hitotsubashi University (1997) issued national income estimates for the period from 1952 to 1995. These estimates considered that;

“The totality of spheres of material production and non-material services essentially conforms to the coverage of economic activities in SNA. The major difference between the two systems is that the separation of non-material services from material production constitutes the basis of economic analyses in MPS methodology” (SSBC, Hitotsubashi 1997, 1.2).

Following the methodology of the World Bank's Guide to the data of the Centrally Planned economies (Marer et al 1992) the study considered all planned production as market production, whether it was or not.

Ren Rouen applied two methods to estimate China's national income developed by the UN International Comparison Project (ICP). Firstly, Rouen built calculations from the expenditure side and secondly, from the output side he applied the International Comparison of Output and Productivity (ICOP) project of Groningen University, developed under the supervision of Angus Maddison (Rouen 1997). The advantage of both these methods over the exchange rates used by the World Bank, was that they measured the “actual” growth of the economy, or more accurately changes in the quantity of physical output measured as if it were capitalist production. During the 1980s the fall in the Yuan's exchange rate offset the growth in the economy. The disadvantage was that it made it impossible to distinguish between non-planned and planned production that is, the amount of actual economic production within the market boundary. Rouen compared the various alternative estimates of China's output made by Western theorists, adjusted where necessary

into current prices for the purposes of comparison. No great discrepancies appeared between them. This was unsurprising as all of them adopted the same theoretical method that regarded centrally planned as if it were market production.

Harry Wu and Angus Maddison separately and together published a series of papers which attempted to provide a definitive alternative estimate of China's national income to the official statistical series. Both Maddison and Wu (1993) recognised that during the plan period;

“One cannot talk meaningfully about prices that reflect consumer preferences or factor costs for either consumer or producer goods in China because there was (and still is to a certain extent) no market through which such consumer preferences or factor costs could influence the prices of these commodities” (p70).

Angus Maddison according to his own account applied Abram Bergson's methods to the period of China's centrally planned economy to estimate the real level of China's growth (Maddison & Wu 2008, p14). Actually Maddison's estimates owed less to Bergson than to Colin Clark's PPP. The use of PPPs facilitated Maddison in abstracting from China's centrally planned economy, by measuring China's planned output in the prices of comparative capitalist nations. This was Bergson's original objection to using the prices of a capitalist state to measure the output of the USSR. Wu (2000) reconstructed China's GDP from 1952 to 1977 based on the official output estimates from 1978 to 1990, by establishing a relationship between GDP and MPS at a sectoral level (p477).

Maddison's final paper with Wu (2008) superseded earlier estimates. It used physical estimates of agricultural output and a volume index for industrial production based on physical quantities and official price series. It included estimates of non-material services; banking, insurance, housing services, administration of real estate, social services, health, education entertainment, personal services R&D activities the armed forces, police, government and party organisations that used employment

growth as a proxy for real value added. Maddison assumed that there was no productivity growth in services, in contrast to the official figures which “show improbably high rates of growth of labour productivity (5.1 per cent a year for 1978-2003)” (p23). This was predicated on the generalisation that there is typically little growth in service sector productivity. Whether such an assumption holds in the period of the transition from central planning to capitalism is a moot point. The service sector was completely transformed in this period from the old iron rice bowl, in which enterprises provided services directly to their staff, to an ad hoc informal sector or nothing at all.

The Maddison-Wu estimates were very similar to China’s official figures for the period of the central plan but diverged slightly during the 1990s. Maddison confirmed official estimates of agricultural production and a reworked set of official statistics to estimate industrial production. The OECD had previously commented on Maddison’s earlier estimates that, “A reasonable assessment might be that the official growth estimates represent an upper bound and the Maddison estimates represent a lower bound, with the true growth rates lying somewhere between the two” (OECD 2000, p17). This was itself a controversial assessment and one that was disputed by Maddison and, from the opposite side, Carsten Holz (Holz 2006), (Maddison 2006). Holz broadly speaking defended the official estimates where Maddison criticised them. Given the subjective comparative nature of this dispute there could be no definitive answer.

Wu (2011) sought to close, if not settle, the debate by a “data fundamentalist” approach. Wu did not question the correctness of neo-classical orthodoxy but rather explained the contradictory results of various studies by the problems of Chinese statistics, inconsistent definitions and classifications, methodological problems and data fabrication (p4). Wu complained that consumer services like passenger transport were excluded from the MPS because “they are considered ‘unproductive’ in the Marxian orthodoxy” (p8). Wu noted that neo-classical studies had concluded that official Chinese national income estimates typically underestimated the size of the

economy, due to coverage, but overestimated growth, due to base year effects, as in the USSR.

Wu estimated Chinese capital stock, he noted that Maddison had previously used a hypothetical capital/output ratio based on the lower bound of the international standard and some pre-war estimates by Yeh (Maddison 1998), Wu replaced it with information from the 1951 National Asset Census. Neither estimate can really resolve the problem. Mao's Chinese Communist Party expropriated the capitalists without compensation. If the value of the capital stock is measured by its purchase price on transfer or by a multiple of the revenues it generates, then the value of the capital stock was nil. It cost the state nothing and means of production accumulated under the plan earned no revenue. Wu pointed out that the value of gross fixed capital formation in the SNA is the amount "when the ownership of the fixed assets is transferred to the institution unit that intends to use them in production" (United Nations 1993, p223). As nothing was paid, so the fixed capital stock was worthless. The return on capital, capital share and wage share of the centrally planned economy are all subjective inventions of the plan apparatus.

Wu analysed the Total Factor Productivity (TFP) of China's economy during the centrally planned and capitalist market period. TFP seeks to explain the contribution of technical progress or productivity to the growth of value separate from other inputs. It measures the transfer of values between capitals of different compositions. Wu cited Felipe who explained that the TFP is predicated on free competition and profit maximisation (Felipe 1997). Felipe's paper does not address the operation of the centrally planned economies at all. In a centrally planned economy with neither competition nor profits TFP cannot by definition apply. Rather Felipe's paper was concerned with the growth of East Asian "tiger" economies.

Paul Krugman similarly explained the stagnation of the USSR by a rising capital output ratio (Krugman 1994). According to Krugman the USSR demonstrated the law of diminishing returns. For every additional unit of capital invested the marginal increase in value added slowed. This law was proved by the fall off in the

rate of increase in sales for every unit of additional investment. In the USSR there were no sales capable of influencing supply and demand and so no real markets. The capital labour ratio did not exist either. Its existence was according to Krugman “imputed” by economists.

But an imputed law is no law at all. William Easterly and Stanley Fischer attributed the stagnation of the USSR to a decline in TFP (Easterly, Fischer 1994) but what applies to the capital/labour ratio applies just as well to total factor productivity. If there are no sales, how can TFP, a measure of sales, stagnate? Wu conceded that, “Nevertheless it is perfectly reasonable to argue that the neoclassical framework used in this study is questionable or unacceptable in terms of the discovery of the truth” (Wu 2011, p47). But he offered no alternative framework to explain the truth which neo-classical economics could not explain.

Thomas Rawski (2009) resolved this problem by removing any distinction between planned and market prices altogether. He explained that;

“To obtain a long term measure of Chinese growth that avoids the biases inherent in domestic prices during the plan era, we combine official time series for real value added in the primary, secondary and tertiary sectors with nominal sectoral output for 2000 to form a new series of aggregate output valued in 2000 prices for the entire period 1952-2005” (p835).

Rawski abstracted from the Maoist overthrow of capitalism and expropriation of the capitalists and landlords in 1953 to develop his estimates of the fixed capitalist stock in 1952. Rawski dismissed a 1952 incomplete estimate of the value of the fixed capital stock. Instead he assumed that the capital output ratio was either 1:1 or 2:1 relative to GDP, this had little effect on the growth rate of the capital stock in the 1978 post-reform period, but it did influence growth rates for the 1950s (p835/836). Mao paid nothing for the fixed capital stock, it was expropriated without compensation on the accession of the Chinese Communist Party to power. Debates around its price miss the point.

Western statisticians treated the reconciliation of MPS and SNA as a statistical anomaly to be corrected ideally. These statisticians considered that Chinese state list prices were a convenient measure for changes of the “value” of gross output measures over time. Whereas net values were considered to be more problematic as input prices could not be identified and it was not clear on what basis new products were valued. As with estimates of the USSR and CEE, they worked around these problems through a comparison of changes in physical quantities of output with similar price series in capitalist economies. Western statisticians extended the coverage of their national income estimates to the service sector and reduced the “price” of industrial production and increased the “price” of agricultural output and collective working class consumption such as housing (Wu 2000, p422-427). Standard SNA procedure eliminated changes in the price level to show changes in volume, but these adjustments were based on the objective fact of market sale. When applied to the MPS these procedures created a commodity economy in the books where none existed in the world.

4.11 Conclusion

Maddison and Wu, like Holz, Kravis, Keidel and Liu abstracted China’s output from the plan. They abstracted exchange value from exchange. They abstracted the SNA (a measure of the commodity economy) from the commodity economy it measured. As a comparative exercise the various other attempts to measure “real” - meaning unreal - Chinese national income during the plan period add something to the picture of the development of the Chinese economy. Provided that it is clear that all of the alternative totals are counterfactual in the sense of fictional, subjective not objective, indeed not real but “real”. For the Western statisticians the switch from the MPS to the SNA was exactly that, the superseding of one, basically inadequate, system of measurement for another much better one. This was not the creation of a value where previously there had been none, but in the case of the material production sectors at least “primarily a task of asking production units to manipulate accounting items in new ways” (Holz 2004, p387).

During the 1990s the rapid growth of non-plan production outside of the traditional reporting system, the redefinition of economic categories and data falsification among low ranking officials all affected the quality of official Chinese data (Holz 2004, p392) and meant that the quality of statistics declined. The reporting system of the central planning apparatus was not replaced in time by a comprehensive survey system typical of SNA. Paradoxically at the very moment when market prices replaced list prices the concern of statisticians about the falsification of data with China's centrally planned economy came true. As the data began to measure real GDP its accuracy declined, it was no longer false, even if it was now falsified.

According to Angus Maddison (1998), Bergson's AFC aimed to "... create a counterfactual estimate of what Soviet prices would have been if the economy were run on capitalist lines, removing the "distortions" created by the command economy, and getting a better picture of the real cost of production" (p312). As we have seen it claimed quite a lot more than that. Bergson's followers thought that by revaluing planned prices according to the rules of the SNA they could actually measure the "real" value of the centrally planned economy, when actually they had only created a fictional version of it in the accounts. In the Soviet Union, CEE and China, they blurred over the distinction between central planning and capitalism.

Their attempts to measure non-capitalist production as capitalist production meant that they failed to measure the growth of economic production within the market boundary during the transition to capitalism. They did not do the very thing the SNA is designed for. In the CIS and CEE they measured the collapse of the plan as a collapse of capitalism, when it was the creation of capitalism out of the plan. They measured the slump in use values measured by the MPS, as a slump of values measured by the SNA. Their figures measured the growth of market production as a decline of it. They turned the world on its head.

All of the disputes between the various theorists around the correct weighting scheme, the comparison of physical outputs, the measurement of quality, the

evaluation of the service sector, the appropriate level of depreciation, that try to value the central plan as if it were capitalist are essentially irresolvable. Unlike real market economies there was no objective standard, a market price, against which to assess these claims. They all missed the essential point - the only way real national income could be measured was by measuring the actual growth of real commodity production.

In China the development of capitalist production began in 1978 and was completed by the mid-1990s. In the USSR/CEE it began after 1989 and was completed by the late 1990s. The next chapter will attempt to develop some estimates of the actual growth of commodity production in the CIS/CEE and China, to show how the transition to capitalism increased the size of market production and therefore of national income.

CHAPTER 5:

Empirical evidence.

This section summarises how national income is a measurement of economic production in a market economy. It disaggregates the decline in centrally planned production from the growth of capitalist production during the transition period. It shows why it is necessary to distinguish a market economy from a non-market one in order to measure the growth of the former and the decline of the latter during the period of transition. It discusses the use of different market boundary deflators to estimate the growth of output within the market boundary for the CEE and CIS big-bang transition and for China and Vietnam's gradual introduction of market prices. It considers how the use of physical and value measurements can indicate the extent of this transition. It selects physical measurements that represent key sectors of a modern industrial economy such as, electricity, aluminium, hydraulic cement, steel and automobiles. It discusses the use of PPP GDP value measurements. It deflates physical and value output totals by the market boundary deflators to assess the growth of distinctively market production during the transition period. It provides the empirical foundation for a reassessment of the Western estimates of GDP growth during the transition period, and the analyses of globalisation that rest on them.

5.1 National Income

National income measures the value of the final production of goods and services within the market boundary. The output, income and expenditure approaches to national income are alternative versions of the same value measurement. The output approach establishes the total value of final production. GDP (gross domestic product) at market price equals the value of output in an economy in a particular year less intermediate consumption. The income approach equates the total output of a nation to the total income. It consists of wages and property income or the compensation of employees plus net interest plus rental and royalty income plus profits. The expenditure approach measures the total value of all goods as equal to the total amount of money spent on goods; $GDP = C+I+G+(X-M)$.

Where **C** = household consumption expenditures / personal consumption expenditures, **I** = Gross domestic investment, **G** = government consumption less taxes and gross investment expenditures, **X** = gross exports of goods and services, **M** = gross imports of goods and services. Although both transfer pricing and the unofficial nature of black market transactions can lead to an underestimation of national income.

Andre Vanoli (2005) discussed the measurement of value in the various systems of national accounts established since the Second World War. He considered that “market exchange is the touchstone of evaluation in monetary terms: goods or services against money” (p147). Statisticians have imputed values to owner occupied dwellings and agricultural own account consumption where no exchange takes place, but “Exchanges are fundamental, because they allow delineation of social monetary values”, as “It is only by referring to market values, or more generally to the value of actual monetary transactions, that it is possible to strive to assign a monetary value to non-market non-monetary flows” (p151). The existence of these imputed values does not mean that “an exchange or a payment is imputed” only that a “value” is. To impute an exchange to an imputed value “will only blur the scheme of analysis”. Actually to impute a value to an imputed exchange has the same effect.

It blurs the market boundary and implies that value can be created from thin air. Vanoli could not resolve what this “value” was that was being measured. He considered that the 1993 SNA clarified the issue by defining economic flows as having the effect of “creating, transforming, exchanging, transferring or extinguishing economic value (1993, SNA 2.24)” (p151). This defined value as a form of value, it was not a definition but a tautology. This problem struck at the heart of marginal value theory predicted on a subjective value definition based on utility not exchange.

Alfred Marshall and Arthur Pigou both realised that while prices may – or may not - reflect marginal utility there was no monetary measurement of the average utility of products. The total of utility had no price or value, as every individual

assessment of utility is subjective, personal and limited to the individual. Consequently, the sum of these subjective assessments cannot be aggregated and measured as an objective total. If the sum of total utility cannot be measured objectively, then utility cannot be the basis of monetary measures which are an objective measure by definition. Need does not create value, production and exchange does. While Vanoli appreciates that value is predicated on market exchange, the neo-classical confusion of utility with exchange, of use value with exchange value, means that value as a measure of abstract labour time cannot be defined within the national accounts. Marx (1981) explained in *Capital Volume III*, published by Engels in 1894, that;

“The gross income is the portion of value and the part of the gross product measured by this, which remains over after deducting the portion of value, and the part of the total production measured by it, which the constant capital advanced and consumed in production replaces. Gross income, therefore, is equal to wages (or the part of the product destined to become the workers’ income again) + profit + rent. Net income, on the other hand, is the surplus-value, and hence the surplus-product that remains after wages are deducted, and so it expresses in fact the surplus-value that capital realises and has to share with the landowners, and the surplus-product measured by this” (p979).

According to Studenski (1958) “National income is an expression, in monetary terms of the current achievements of the national economy” (p163). It is strictly separated from non-economic production that “does not possess economic value” such production has a use value but not a market price, it is consumed but neither bought nor sold. The distinction between economic and non-economic production is not defined by the usefulness of the output but by its social relationship to capital. This means that the output of subsistence farmers, who produce and consume foods stuffs and domestically produced handicrafts, is not within the market boundary and the notional “value” of this output should not be measured in national income. Marginal theory that attributes exchange value to use value cannot explain the logical significance of the market boundary, which rests on the distinction between use and exchange value. A distinction that it claims does not exist.

Studenski noted that if the output of subsistence farmers were to be included in measures of national income then according to this standard household production should be too and that;

“Logical consistency would demand reaching out even further to include similar free services rendered outside the family, e.g. neighbourly advice and co-operation versus paid professional services...But such a supercomprehensive concept of national income, taking all these human actions into account, would embrace the entire content of human life and would, for all practical purposes, rob the national income concept of any meaning and render it useless as an expression of economic production” (p178).

When applied to the capitalist economies the logical application of neo-classical economics was illogical. How much more so for the non-market central plan? Paradoxically such a supercomprehensive concept of national income was developed by Studenski himself. He estimated the output of the Soviet Union and claimed the distinction between measures of planned and capitalist economies was “not very great” (p353). In practice national income statisticians ignore the logic of their illogical system and proceed perfectly logically so that the output of goods and services is evaluated first “at the market prices or costs of the goods and services sold” (p169).

Logically and in reality the output of centrally planned economies (CPE) was outside the market boundary and logically and in reality it produced no national income. The central plan produced physical output, use value not exchange value nor *value*. The entire attempt to measure the output of a non-market economy by imputing market values to it was illogical and unreal, a contradiction in terms.

To measure the growth of national income during the transition period it is necessary to separate market from non-market production. This is the actual amount of real commodity production, the proportion of total output inside the market

boundary that is produced and sold. The transition to the market in the CEE and CIS led to the collapse of the plan. The output of use values slumped. This slump was real. However, this was not a fall in capitalist output. It was not a fall in market production, but a fall in centrally planned production. It was a collapse in use values not exchange values. It precipitated the creation of national income, which is production within the market boundary, where previously there had been none. The growth of the market was synonymous with the collapse of the plan, while the total quantity of output of physical production slumped during the transition to capitalism, the value of production within the market boundary simultaneously increased. National income rose even as output fell.

5.2 Official statistics

The Soviet critique of Western official statistics considered them unreliable as the need for business secrecy and the ideological priorities of government agencies effectively prevented the accurate measurement of the capitalist economy. The Western critique of Soviet official statistics considered them unreliable as subordinate agencies concealed the true levels of production from their superiors and the ideological priorities of government agencies effectively prevented the accurate measurement of the centrally planned economy. Retrospective analyses of Soviet output with unlimited access to former Soviet archives such as those of Masaaki Kuboniwa (1997) of the Hitotsubashi University re-estimated Soviet output from official labour force statistics. The trends and levels moved in a systematic pattern that differed from the original only due to a change in the underlying assumptions. The overall accuracy of the (suitably modified) figures was vindicated.

This study deliberately uses the official estimates of physical output and national income developed by Western agencies in order to demonstrate that it is not the data itself that was at fault, but the way in which it was mis-used by Western, Soviet and CIS agencies. It insists that the key methodological mistake was a failure to distinguish between the output of the centrally planned economy and the output of the capitalist market economy. It was this failure that underpinned the systematic

underestimation of the growth of world capitalism and of national income with capitalist transition in the 1990s.

5.3 The Transition in CEE and CIS

This study will use different deflators to distinguish between capitalist market and centrally planned production. In the CEE and CIS the big-bang privatisation of the early 1990s meant that market prices were not reliable indicators of market output until the late 1990s. Western agencies used national income estimates from the production side. Changes in employment were used as a proxy for output change. Prices while liberalised only became real market prices after a number of years. The EBRD developed an estimate for private production as a proportion of national income. The "private sector shares" of national income represented rough EBRD estimates, based on available statistics from both official (government) sources and unofficial sources. The underlying concept of private sector value added included income generated by the activity of private registered companies, as well as by private entities engaged in informal, in the sense of unofficial activity, where reliable information on that informal activity was available. They provide a good proxy for the growth of market production inside the CEE and CIS. For the purposes of this study it is therefore, adequate to estimate the growth of market production.

Where there is missing data between two known points the mean average annual trend point is used. Where there is one country known, but another unknown, the closest equivalent is used. Lithuania substitutes for Latvia, and Latvia for Lithuania, the Czech Republic for Slovakia. These are in any event small nations with little impact on the aggregate. The change to the wider institutional framework through the liberalisation of prices, the introduction of private property law, the wider growth of market relations etc. is reflected in the assumption that after 2001 centrally planned production no longer existed. State output was by then subordinated to market prices as in the West. A more finished analysis could synthesise the growth of private production with changes to the wider institutional

framework and in particular the extent to which liberalised prices became market prices.

Table 5.1. Private sector proportion of GDP % in CEE and CIS

Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Albania							60	75	75	75	75	75
Armenia	8.1	11.7	24.2	36.7			45	50	55	60	60	60
Azerbaijan							25	25	40	45	45	45
Belarus	5.1	5.5	6.8	8.1			15	15	20	20	20	20
Bosnia and Herzegovina										35	35	35
Bulgaria	0	0	16.6	25.3	35.9	40.2	45	45	50	50	60	70
Croatia							45	50	55	55	60	60
Czech republic	11.2	12.3	17.3	27.7	45.1	56.3	70	75	75	75	80	80
Estonia	0	0	17.7	45	50.6	58	65	70	70	70	75	75
FYR Macedonia							40	50	50	55	55	55
Georgia	17.6	28.1	27.3	49	56.9	60	30	50	55	60	60	60
Hungary	14.9		33	44	52		60	70	75	80	80	80
Kazakhstan	15	7.2	12.2			20.2	25	40	55	55	55	60
Kyrgyzstan					56.4	58	40	50	60	60	60	60
Latvia							60	60	60	60	65	65
Lithuania	10.4	11.6	16	37	57	62.3	55	65	70	70	70	70
Moldova							30	40	45	45	45	50
Poland	28.6	31.4	45.3	48.2	53.5	56	60	60	65	65	65	70
Romania	12.8	16.4	23.6	26.4	32	35	40	60	60	60	60	60
Russia	5.3	6	10.1	14	21	25	40	60	70	70	70	70
Slovakia				22	24.6	43.8	60	70	75	75	75	75
Slovenia	8.1	11.4	15.7	19.5			45	45	50	55	55	55
Tajikistan							15	20	20	30	30	40
Turkmenistan							15	20	25	25	25	25
Ukraine		7.6	7.8	5.6	7.5		35	40	50	55	55	60
Uzbekistan				38.8	46.7	54.2	30	40	45	45	45	45

(The CIS was formed from the USSR in 1991.)

Source: (EBRD 2001), (EBRD 2000), (EBRD 1999), (EBRD 1998), (EBRD 1997), (EBRD 1996), (EBRD 1995)

Table 5.1 demonstrates that in CEE the process of capitalist restoration was already underway by 1989. Poland and Czechoslovakia had high proportions of private sector production that grew to dominate the economy by the very early 1990s. In the CIS the process was slower and more uneven. By the year 2000, the majority of production was located in the private sector with Russia, Ukraine and the Baltic states. The process was generally slower in central Asia, Uzbekistan, Tajikistan and Turkmenistan and parts of Europe, notably Belarus. Although Kazakhstan and Kyrgyzstan privatised rapidly. In the former Yugoslavia the process was very uneven due to the impact of the civil war. East Germany is missing from this table as its entire economy was incorporated into West Germany in 1989.

5.4 The Transition in China

In China pro-market price reforms began in 1978. Over the next three decades this process created a market economy, but with the control of the Chinese Communist Party (CCP) intact. The largest 1000 state enterprises remained nationalised. The proportion of centrally planned output was fixed and surplus above this minimum target was sold at market prices. Total production as measured by Western statisticians combines non-market planned production - imputed market production - and actual market production. The proportion of each sector at market prices is disaggregated by multiplying the proportion of total output in that sector by the proportion of market prices in that sector. The total for the entire economy is a simple addition of these three totals. This provides the total output real national income deflator that shows the proportion of total output produced at market prices. This shows the actual increase of national income within total production. Where official state figures were unavailable then the mean average between two known dates was used to develop an estimate of annual change.

Table 5.2. The proportion of Chinese output at market prices by sector

Year	% producer goods at market prices	% producer goods in total output	% market price producer goods in total output	% retail sales at market prices	% retail sales in total output	% market price retail sales in total output	% farm commodities at market prices	% farm commodities in total output	% market price farm commodities in total output	% total output at market prices
1978	0%	29%	0%	3%	29%	1%	6%	42%	3%	3%
1985	13%	30%	4%	34%	36%	12%	40%	34%	14%	30%
1989	35%	32%	11%	58%	38%	22%	52%	32%	17%	50%
1990	40%	33%	13%	64%	39%	25%	55%	31%	17%	55%
1991	46%	34%	16%	69%	39%	27%	58%	28%	16%	59%
1992	54%	36%	19%	74%	39%	29%	63%	26%	16%	65%
1993	62%	38%	24%	79%	38%	30%	68%	24%	16%	70%
1994	70%	40%	28%	84%	38%	32%	73%	22%	16%	76%
1995	78%	42%	33%	89%	37%	33%	79%	20%	16%	81%
1996	80%	43%	34%	92%	38%	35%	79%	17%	13%	83%
1997	82%	43%	35%	94%	38%	36%	79%	17%	13%	84%
1998	84%	44%	37%	97%	39%	38%	79%	16%	13%	87%
1999	86%	44%	38%	99%	39%	39%	79%	15%	12%	88%
2000	88%	44%	39%	99%	39%	39%	79%	15%	12%	89%

(Naughton 2007, p155) (OECD 2005) (Official figures in dark, author estimates in light)

Table 5.2 demonstrates that the proportion of output at market prices increased very rapidly during the early 1980s, from effectively no market production in 1978 it rose to 30% of total output by 1985. Retail sales, that resulted in actual sales on a market, and agricultural production were liberalised faster than the industrial sector, by 1991 the economy was already a predominantly capitalist one. The dismantling of the iron rice bowl, the provision of social services by industrial plants, meant that the proportion of market prices in the producer sector had increased to 78% by 1995, while total market output rose to 81%. Total output grew rapidly but the capitalist sector grew even more rapidly. By 1989, 89% of total output was at market prices, a proportion higher than in the USA. By tracing the growth of the market sector separately from the aggregate of total economic activity,

the real expansion of market production and national income is revealed. China is taken as a proxy for Vietnam, a much smaller albeit fast growing economy, that followed a similar path to capitalist restoration (Hayton 2010).

The growth of capitalist production can be estimated by both physical and value quantities. In a market economy physical quantities of use values represent actual amounts of value. While there is not a direct correlation between physical and value aggregates, the direction of change of the economy can be established by the amount of physical output produced by it. In 1936 Trotsky (1936) used them to describe the growth of industrial production in the USSR;

“If in view of the instability of the rouble as a unit of measurement, we lay aside money estimates, we arrive at another unit which is absolutely unquestionable. In December 1913, the Don basin produced 2,275,000 tons of coal; in December 1935, 7,125,000 tons. During the last three years the production of iron has doubled. The production of steel and of the rolling mills has increased almost 2½ times. The output of oil, coal and iron has increased from 3 to 3½ times the pre-war figure. In 1920, when the first plan of electrification was drawn up, there were 10 district power stations in the country with a total power production of 253,000 kilowatts. In 1935, there were already 95 of these stations with a total power of 4,345,000 kilowatts. In 1925, the Soviet Union stood 11th in the production of electro-energy; in 1935, it was second only to Germany and the United States. In the production of coal, the Soviet Union has moved forward from 10th to 4th place. In steel, from 6th to 3rd place. In the production of tractors, to the 1st place in the world. This also is true of the production of sugar” (p6/7).

Physical outputs further provide the basis of Purchasing Power Parity (PPP) GDP measures. This study will use estimates of aluminium, electricity, steel, concrete, automobiles and PPP GDP deflated by the growth of market production to estimate the growth of “real” GDP separate from the total output of the transition

economies. For a point of comparison it will contrast the G7 core Western industrialised economies of USA, German, UK, France, Italy, Canada and Japan.

5.5 Electricity

Stern and Davies in a study of the privatisation of the electricity industry noted the crucial role of electricity in Soviet economic thinking. It was an index of modernisation, equated with the creation of a modern industrial economy. Just as it had been a measure of the transition of the market to the plan, so now it was a measure of the reverse. Stern and Davies (1998) assessed the extent of market reform in electricity production against several key criteria, whether the main consumer groups pay the full economic cost of the production, distribution and supply of the electricity they consume, whether electricity companies were commercially viable and whether firms were able to finance investment without subsidy or other state assistance.

By the mid-1990s, budget subsidy in the Czech Republic, Hungary, Poland and Slovakia and Slovenia had declined from 10% to 3% of national income similar to West Europe. This confirmed that the privatisation of the electricity sector had followed a similar path to that of private sector production as a whole. Prior to 1989 prices bore no obvious relationship to the cost of production. Consumers were charged low prices for essential goods. After the big bang electricity companies were required to cover their current costs in accounting terms and to earn a positive operating profit. Depreciation rates remained very low as the required rate of return and depreciation were calculated on the basis of historic book values not current replacement cost as in the West. This reflected the fact that before 1989 the capital stock had no value. If firms charged depreciation at current rates they “would earn sizeable revenues but without the dividend or debt payment obligations of an OECD utility...this would leave the companies with potentially very large amounts of retained earnings” (Stern & Davies 1998, p444). The low organic composition of capital in the newly created fixed capital stock would result in high rates of profit.

Dobozi and Pohl (1995) argued that changes in electricity consumption provided a more accurate proxy for changes in real national income than official national income estimates. The collection of electricity consumption data did not rely on output surveys or census and the ratio of electricity consumption to national income is constant or in decline. They concluded (based on changes to electricity consumption) that real national income fell by 21% between 1989 and 1994. Whether or not this was indeed a more accurate assessment of the change in the notional value of centrally planned output, depends on the extent to which electricity does indeed provide a reliable indicator of changes in production. Most electricity is used for domestic consumption or transport and only a minority goes to industrial output. During an industrial crisis electricity used in consumption and transport will not collapse to the same degree as that of industrial production. More to the point their method aggregated the electricity production of the central plan and the market sectors. That is production inside and outside the market boundary. As such it could not by definition be a more accurate measure of the growth of output within the market boundary when it did not measure it.

In Table 5.3 and other tables to follow, “Total” production is the combined centrally planned and capitalist output. “Capitalist” production is the total of market production deflated as described above. “CPE” production is the non-market centrally planned production. Table 5.3 contrasts the growth of capitalist electricity production in the CIS and CEE and China and Vietnam. All the physical estimates of Chinese and Vietnamese physical production deflate the total by the proportion of market production in producer prices.

Table 5.3. CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned electricity production 1990-2010

Year	CIS & CEE total	CIS & CEE capitalist	CIS & CEE CPE	China & Vietnam total	China & Vietnam capitalist	China & Vietnam CPE	Transition total	Transition capitalist	Transition CPE
1990	1987	172	1866	630	290	340	2617	461	1816
1991	1937	271	1666	687	316	371	2624	587	2037
1992	1820	310	1509	764	412	351	2583	723	1860
1993	1735	416	1319	822	510	312	2557	926	1632
1994	1608	473	1135	940	658	282	2548	1131	1418
1995	1597	773	823	1021	797	225	2618	1570	1048
1996	1572	855	718	1098	879	220	2671	1733	937
1997	1542	962	580	1124	921	202	2666	1883	783
1998	1527	962	565	1185	996	190	2712	1958	754
1999	1538	987	551	1221	1050	171	2759	2037	722
2000	1589	1036	553	1382	1216	166	2971	2252	719
2001	1621	1621	0	1511	1511	0	3133	3133	0
2005	1746	1746	0	2554	2554	0	4300	4300	0
2010	1850	1850	0	4307	4307	0	6157	6157	0

Source: (BP 2012) Terawatt-hours (twh)

Total electricity production in the CIS and CEE fell from 1987 terawatt hours (twh) to 1621 (twh) between 1987 and 2001 or by 18%. By 2010 it had recovered to 1850 (twh) still 6% below its 1990 level. This fall obscures the growth of distinctively market production. The output of the market sector grew rapidly as prices were liberalised. Between 1990 and 2001 it increased from 172 (twh) to 1621 (twh) or by 1029%. Centrally planned electricity production fell from 1820 (twh) in 1990 to 0 (twh) in 2001. The stagnation in total output confused the growth of the market with the collapse of the plan.

In 1990 46% of Chinese producer goods were already sold at market prices. The total output of these economies was just 31% of the combined total of the CIS and CEE, but market production was actually larger at 290 (twh) in 1990 compared with 197 (twh) in the CIS and CEE. By 2010 China's total - now capitalist electricity

production - had far surpassed the CIS and CEE at 4307 (twh) an increase of 583% in total output from 1990. The growth in total production still obscured the growth of capitalist production which grew by 1386% in the period.

The entry of the CEE, CIS and China and Vietnam into the world market had a significant impact on world capitalist electricity production. In 1990 the capitalist electricity production of the transition economies amounted to just 5% of world capitalist production. What remained of centrally planned production still amounted to 22% of the capitalist total. By 2000 the proportions were almost entirely reversed, centrally planned production amounted to just 5% of world capitalist production, while transition capitalist production had risen to 20% of world capitalist electricity production. Over the next decade, transition capitalist electricity production rapidly increased to 29% of world capitalist output by 2010. The growth of the transition economies was mirrored in the proportionate decline in electricity production within the G7 from 62% of world capitalist electricity production in 1990 to 50% in 2000 and 37% in 2010.

Table 5.4. World Electricity Production 1990-2010

Year	Total World	Transition capitalist	CPE	World capitalist	CPE % world capitalist	Transition cap % world capitalist	G7	G7 % world capitalist
1990	11861	461	1816	9701	22%	4%	6011	62%
1991	12108	587	2037	10049	21%	5%	6136	61%
1992	12223	723	1860	10376	18%	6%	6174	60%
1993	12484	926	1632	10869	15%	7%	6310	58%
1994	12813	1131	1418	11413	12%	9%	6462	57%
1995	13256	1570	1048	12228	8%	12%	6644	54%
1996	13685	1733	937	12771	7%	13%	6825	53%
1997	13977	1883	783	13191	6%	13%	6901	52%
1998	14350	1958	754	13625	5%	14%	7062	52%
1999	14731	2037	722	14038	5%	14%	7198	51%
2000	15394	2252	719	14703	5%	15%	7407	50%
2001	15640	3133	0	15640	0%	20%	7345	47%
2005	18339	4300	0	18339	0%	23%	7924	43%
2010	21325	6157	0	21325	0%	29%	7975	37%

Source: (BP 2012) Terawatt-hours (twh)

Table 5.5 shows the effect of aggregating capitalist and non-capitalist production. From 1990 to 1999 total world electricity output grew by 24%, but world capitalist production increased by 44%. At the same time centrally planned output fell by 68% and ceased entirely after 2001. Total world electricity production increased by 45% between 1999 and 2010 but in the same period, world capitalist production increased by 52%.

Table 5.5. Total, capitalist and centrally planned electricity production decade growth

	Total production	World capitalist production	CPE
1990-1999	24%	45%	-68%
1999-2010	45%	52%	-100%

Source: (BP 2012)

5.6 Aluminium

Aluminium use is widespread in modern industry as a lighter and more flexible alternative to steel. Its production requires modern infrastructure and uses massive quantities of electricity in the Hall-Heroult process. The transition to capitalism in the aluminium sector was less traumatic than within the economy as a whole.

Table 5.6. CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned aluminium production 1990-2010

Year	CIS & CEE total	CIS & CEE capitalist	CIS and CEE CPE	China total	China capitalist	China CPE	Transition total	Transition capitalist	Transition CPE
1989	4146	270	3876	750	345	405	4896	615	4281
1990	4234	319	3915	850	391	459	5084	710	4374
1991	3873	461	3412	963	442.98	520	4836	904	3932
1992	3635	558	3077	1100	594	506	4735	1152	3583
1993	3551	732	2819	1220	756	464	4771	1488	3287
1994	3367	821	2546	1450	1015	435	4817	1836	2981
1995	3417	1740	1678	1680	1310	370	5097	3050	2048
1996	3565	2029	1536	1770	1416	354	5335	3445	1890
1997	3659	2396	1263	1960	1607	359	5619	4003	1616
1998	3857	2592	1265	2340	1966	374	6197	4558	1639
1999	4092	2746	1346	2530	2176	354	6622	4929	1700
2000	4331	2919	1412	2800	2464	336	7131	5383	1748
2001	4378	4378	0	3250	3250	0	7628	7628	0
2005	5041	5041	0	7800	7800	0	12841	12841	0
2010	4746	4746	0	12900	12900	0	17646	17646	0
2011	5069	5069	0	16200	16200	0	21269	21269	0

(USGS 1989-2011) Thousand metric tons (tmt)

CIS and CEE aluminium production fell from 4146 (tmt) in 1989 to 3417 (tmt) in 1995 or by 18%. It recovered to 4378 (tmt) by 2001 and then to 5069 (tmt) in 2010. Capitalist output increased much faster, from 270 (tmt) in 1989 to 4378 (tmt) in 2001 and then 5069 (tmt) in 2010 or by 1777%.

In 1990 total Chinese production of 750 (tmt) was 20% of the CIS and CEE total of 3692 (tmt). Chinese total production rose rapidly during the 1990s. It was 1680 (tmt) in 1995 or 49% of the CIS and CEE total of 3417 (tmt). By 2000 China had reached 2800 (tmt) 64% of the CIS and CEE total of 4331 (tmt), but by 2010 it was 16200 (tmt) compared to 5069 (tmt) or 320% larger. China's capitalist aluminium production rose 4596% from 1990 to 2010.

Total world production is a category that aggregates the aluminium output of the central plan and capitalism. Total world production rose from 19010 (tmt) in 1989 to 40800 (tmt) in 2010, an increase of 114%. The agglomeration of the output of these two distinct modes of production hides the relative increase in capitalist production that rose from 14729 (tmt) in 1989 to 40800 (tmt) in 2001 or by 177%. In 1989, centrally planned output was 26% of world capitalist production. By 2001 the now capitalist production of the transition economies was 31% of world capitalist production before reaching 52% by 2010. The G7 traced the opposite path falling 19% as a proportion of total world production between 1989 and 2010. As a proportion of world capitalist production it declined even faster from 49% in 1989 to 14% in 2010.

Table 5.7. World Aluminium Production 1990-2010

Year	Total	Transition capitalist	CPE	World capitalist	Transition cap % world cap	CPE % world cap	G7	G7 % world capitalist
1989	19010	615	3854	14729	4%	26%	7231	49%
1990	19299	710	3990	14925	5%	27%	7244	48%
1991	19535	904	3585	15603	6%	23%	7449	48%
1992	19467	1152	3583	15884	7%	23%	7459	47%
1993	19800	1488	3283	16517	9%	20%	7394	45%
1994	19200	1836	2981	16219	11%	18%	6883	42%
1995	19700	3050	2047	17653	17%	12%	6921	39%
1996	20700	3445	1890	18810	18%	10%	7242	39%
1997	21600	4003	1616	19984	20%	8%	7354	37%
1998	22600	4557	1640	20960	22%	8%	7584	36%
1999	23600	4921	1701	21899	22%	8%	7728	35%
2000	24400	5383	2257	22143	24%	10%	7627	34%
2001	24300	7628	0	24300	31%	0	6869	28%
2005	31900	12841	0	31900	40%	0	7035	22%
2010	40800	21269	0	40800	52%	0	5799	14%

(USGS 1989-2011) Thousand Metric Ton (TMT)

Table 5.8 shows that world aluminium production grew by 24% between 1980 and 1989 and by 24% between 1989 and 1999, the relative stability of the total

change conceals the growth of capitalist production. The 1980s increase was in large part due to the growth of centrally planned production which rose 48% between 1980 and 1989, in a period in which capitalist market production only rose 18%. During the 1990s the centrally planned output fell by 61% while capitalist production increased by 49%. Between 1999 and 2010 total output rose by 73% but capitalist production increased by 86%.

Table 5.8. World Total, capitalist and centrally planned aluminium production decade growth

	Total	CPE	Capitalist
1980-1989	24%	48%	18%
1989-1999	24%	-61%	49%
1999-2010	73%	-100%	86%

(USGS 1989-2011)

5.7 Hydraulic Cement

Hydraulic cement is a key material for both residential and infrastructural construction. Relatively cheap to produce but expensive to transport its output is closely related to the physical quantity of construction in a given national economy. It provides a very clear idea indicator of the distinction between total output and capitalist output. Construction in the CIS and CEE collapsed during the transition to capitalism. Table 5.9 shows that total CEE and CIS cement production was 90185 (tmt) in 2001 a fall of 54% compared to 197884 (tmt) in 1989. By 2010 it had recovered to 129651 (tmt) still 34% below its 1989 level.

If total production, the aggregation of centrally planned and market output, is elided with production within the market boundary, then the introduction of the market led to a fall of market production. As national income measures economic activity within the market boundary, the growth of output within the market boundary led to a fall of it. This absurd assumption forms the empirical basis for the official fall in national income measures during the transition to capitalism.

Production within the market boundary increased from 17223 (tmt) in 1989 to 55353 (tmt) in 2001 or by 221% by 2011 it had reached 129651 (tmt) a rise of 653%. In China and Vietnam total production increased by 223% between 1989 and 2001 before rising by 821% in 2010. Even this very sharp increase conceals the rise in capitalist production, which rose twenty-fold between 1989 and 2010 or by 1903%.

Table 5.9. CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned hydraulic cement production 1990-2010

Year	CIS & CEE total	CIS & CEE capitalist	CIS & CEE CPE	China & Vietnam total	China & Vietnam capitalist	China & Vietnam CPE	Transition total	Transition capitalist	Transition CPE
1989	197884	17223	173451	209500	96370	120340	422384	127243	295141
1990	183260	16033	160627	205500	94530	117570	398490	118943	279547
1991	163389	22348	134921	255610	117821	143909	421999	141396	280603
1992	141151	28323	114728	359000	194260	162840	498251	221676	276575
1993	116721	29823	88158	372080	231026	139794	488501	263148	225353
1994	97898	31235	68073	425880	298116	126354	523678	332324	191354
1995	92599	43355	50388	481110	375266	104700	573609	422036	151573
1996	82352	43079	40413	496890	397512	98238	579157	444382	134775
1997	82839	47956	35963	498600	408852	88668	581348	460608	120740
1998	83915	50053	35420	545738	458420	85760	629453	511971	117482
1999	86991	53435	35024	583489	501801	80220	670138	558603	111535
2000	88549	55353	35058	610298	536796	71640	698499	595395	103104
2001	90185	90185	0	676414	676414	0	766299	766299	0
2005	121584	121584	0	1099658	1099658	0	1220792	1220792	0
2010	129651	129651	0	1930000	1930000	0	2058794	2058794	0

(USGS 1989-2011) Thousand metric tons (TMT)

Over the same period the transition capitalist economies came to dominate world capitalist hydraulic cement production. By 1989 almost exclusively due to China's early transition to the market, capitalist transition hydraulic cement production already amounted to 13% of world capitalist output. By 2010 this had risen to 62%. Meanwhile the G7 fell from 30% of world capitalist production in 1989 to 12% in 2005 and then to just 7% in 2010.

Table 5.10. World hydraulic cement production 1989-2010

Year	World Total	Transition capitalist	CPE	World capitalist	Transition capitalist % world cap	CPE % world capitalist	G7	G7 % world capitalist
1989	1235693	127243	295141	929402	14%	32%	282859	30%
1990	1160000	118943	279547	881803	13%	32%	286300	32%
1991	1180000	141396	280603	901170	16%	31%	279696	31%
1992	1240000	221676	276575	962432	23%	29%	276429	29%
1993	1290905	263148	225353	1062953	25%	21%	278936	26%
1994	1373013	332324	191354	1178586	28%	16%	293333	25%
1995	1443328	422036	151573	1291583	33%	12%	281926	22%
1996	1488262	444382	134775	1353445	33%	10%	288056	21%
1997	1515442	460608	120740	1394661	33%	9%	291347	21%
1998	1540000	511971	117482	1422438	36%	8%	283005	20%
1999	1600000	558603	111535	1488329	38%	7%	286658	19%
2000	1650000	595395	103104	1546756	38%	7%	289460	19%
2001	1730000	766299	0	1730000	44%	0%	282472	16%
2005	2350000	1220792	0	2350000	52%	0%	288497	12%
2010	3310000	2058794	0	3310000	62%	32%	223227	7%

(USGS 1989-2011) Thousand metric tons (TMT)

The amalgamation of centrally planned and capitalist production during the transition period provides a very misleading picture of the growth of the world market production of hydraulic cement. Table 5.11 shows that total hydraulic cement output grew 26% in the period from 1980 to 1989 and 30% in the period from 1989 to 1999. It would appear that the creation of a global market made almost no difference to capitalist production during the 1990s. Total output increased 106.9% from 1999 to 2010, but this aggregation conceals the growth of specifically capitalist market production. That expanded by 52% between 1980 to 1989 by 60% from 1989 and 1999 and by 122% from 1999 and 2010.

Table 5.11. World Total, capitalist and centrally planned hydraulic cement production decade growth

	Total	CPE	Capitalist
1980-1989	26%	-16%	52%
1989-1999	30%	-64%	60%
1999-2010	107%	-100%	122%

(USGS 1989-2011)

5.8 Steel

Steel is a fundamental material in modern industrial production and a proxy for industrial production itself. The total output of steel in the CEE and CIS fell by 39.9% between 1989 and 2001. By 2011 it was still 36% below its 1989 level. Nonetheless CIS and CEE capitalist steel production increased by 970% between 1989 and 2001 and by 1033% in the next ten years. The amalgamation of centrally planned and capitalist production transforms this eleven fold rise into a 40% fall. While China and Vietnam both saw total steel production expand very rapidly, total Chinese and Vietnamese output increased by 1008% between 1989 and 2001, this eleven fold rise still underestimated the increase in distinctly capitalist production of 2628%, a 27 fold rise.

Table 5.12. CIS, CEE, Chinese and Vietnamese total, capitalist and centrally planned steel production 1990-2010

Year	CIS & CEE total	CIS & CEE capitalist	CIS and CEE CPE	China & Vietnam total	China & Vietnam capitalist	China & Vietnam CPE	Transition total	Transition capitalist	Transition CPE
1989	215732	12124	203608	61672	25286	36386	277404	37409	239995
1990	201458	18285	183173	66451	30567	35884	267909	48852	219057
1991	169306	23074	146232	71183	32744	38439	240489	55819	184670
1992	383341	23579	359763	81154	43823	37331	464495	67402	397093
1993	128358	29418	98940	89809	55682	34127	218167	85100	133067
1994	110026	34797	75229	92914	65040	27874	202940	99837	103103
1995	113090	57206	55884	95631	74592	21039	208721	131798	76923
1996	110631	60974	49657	101548	81238	20310	212179	142212	69967
1997	114521	72914	41607	109225	89565	19661	223746	162479	61267
1998	107968	68244	39724	114894	96511	18383	222862	164755	58107
1999	114119	73688	40431	123568	106268	17300	237687	179957	57730
2000	127879	79321	48558	127542	109686	17856	255421	189007	66414
2001	129731	129731	0	151225	151225	0	280956	280956	0
2005	145838	145838	0	356680	356680	0	502518	502518	0
2010	132754	132754	0	641714	641714	0	774468	774468	0
2011	137450	137450	0	687579	687579	0	825029	825029	0

(WSA 1989-2011) Thousand metric tons (tmt)

Total world steel output rose by 82% between 1989 and 2011 while world capitalist steel production rose by 171%. As transition capitalist steel production increased so the output of the G7 declined. In 1989 the G7 produced 61% of world capitalist steel, falling to 38% by 2001, before falling further to 22% by 2010. Over the entire period G7 steel output fell by 4%, from 332457 (tmt) to 308146 (tmt). At the same time the transition capitalist economies grew from 7% of world capitalist steel in 1989 to 31% in 2001 and 53% in 2010. Total transition capitalist output grew twenty fold by 1934%. In six years China added steel capacity equivalent to the entire G7.

Table 5.13. World steel production 1989-2010

Year	Total	Capitalist world	Transition capitalist	CPE	CPE % capitalist world	Transition capitalist % world capitalist	G7	G7 % capitalist
1989	785968	526021	37409	239995	46%	7%	322457	61%
1990	770458	542949	48852	219057	40%	9%	319555	59%
1991	733592	539806	55819	184670	34%	10%	311241	58%
1992	719680	593445	67402	397093	67%	11%	301980	54%
1993	727547	593445	85100	133067	22%	14%	308395	52%
1994	725107	619840	99837	103103	17%	16%	313861	51%
1995	752271	673758	131798	76923	11%	20%	326433	48%
1996	750090	680627	142212	69967	10%	21%	314676	46%
1997	798954	735226	162479	61267	8%	22%	333775	45%
1998	777328	719427	164755	58107	8%	23%	320925	45%
1999	785968	730157	179957	57730	8%	25%	315970	43%
2000	847670	788602	189007	66414	8%	24%	339891	43%
2001	850345	850345	280956	0	0%	33%	319682	38%
2005	1146686	1146686	502518	0	0%	44%	339158	30%
2010	1428711	1428711	774468	0	0%	54%	308146	22%

(WSA 1989-2011) Thousand metric tons (tmt)

Steel particularly demonstrates why it is so misleading to amalgamate the output of the central plan and the capitalist market. The conflation of total and market steel production implies that the growth of market production in the 1990s actually led to a slowdown in market steel production. Table 5.14 shows that total steel output grew by 10% between 1980 and 1989 before stagnating between 1989 and 1999 output grew just 0.3%. It increased by 81% between 1999 and 2010. But the decline on the 1990s was not as a result of the stagnation of capitalist production, but due to the collapse of the central plan. Capitalist production grew by 13% between 1980 and 1989, and then 39% between 1989 and 1999, before accelerating again by 96% between 1999 and 2010.

Table 5.14. World steel production decade growth

	Total	CPE	Capitalist	G7	Transition capitalist
1980-1989	10%	4%	13%	-4%	4931%
1989-1999	0%	-78%	39%	-2%	381%
1999-2010	81%	-100%	96%	-3%	323%

(WSA 1989-2011)

5.9 Automobiles

The poor quality of Eastern European and Soviet automobiles was a standing joke from the 1930s onwards when Soviet tractor factories began the production of large numbers of badly made and already obsolete American models. In 1991 centrally planned production of passenger cars and commercial vehicles were only 6% of the capitalist total.

Table 5.15. CIS, CEE, Chinese total, capitalist and centrally planned Automobile production 1991 and 2010

Year	CIS & CEE total	CIS & CEE capitalist	CIS & CEE CPE	China total	China capitalist	China CPE	Transition total	Transition capitalist	Transition CPE
1991	2,880	422	2,458	709	326	383	3,589	748	2,841
1994	1,999	725	1,274	1353	947	406	3,352	1,672	1,680
1995	2,047	1,162	885	1435	1119	316	3,482	2,281	1,201
1996	2,065	1,298	767	1466	1173	293	3,531	2,471	1,060
1997	2,153	1,477	676	1578	1294	284	3,731	2,771	960
1998	2,514	1,712	802	1628	1368	260	4,142	3,080	1,062
1999	2,769	1,941	828	1805	1552	253	4,574	3,493	1,081
2000	2,596	1,823	773	2009	1768	241	4,605	3,591	1,014
2001	2,468	2,468	0	2332	2332	0	4,800	4,800	0
2005	3,172	3,172	0	5668	5668	0	8,840	8,840	0
2010	4,518	4,518	0	18265	18265	0	22,783	22,783	0

(OICA 1990-2010) Thousands of vehicles (thv)

Unlike the output of basic infrastructure that requires high quantities of steel, concrete and electricity the introduction of capitalism in the CEE and CIS enabled capitalists to use existing infrastructure to transplant new plant and equipment for more sophisticated manufacturing. After an initial collapse in total production by 31% between 1990 and 1994, CIS and CEE auto output rose to 4518 (thv) in 2010, which was an increase of 56% over the plan period. This increase was far smaller than the rise in China's production. China's total auto output jumped by 2476.2% between 1991 and 2010 but China's capitalist production increased 56 fold or 5500.4% between 1991 and 2010.

The shift in world automobile production is pronounced. It demonstrates that the transition economies are displacing the West in advanced manufacturing sectors, even while much of this production is still dominated by global multinational corporations. Transition capitalist auto production rose from 2% of world capitalist production in 1991 to 9% in 2001 and 30% in 2010.

Table 5.16. World automobile production 1991-2010

Year	Total world	World capitalist	CPE	CPE % world capitalist	Transition capitalist	Transition capitalist % world capitalist	G7	G7 % world capitalist
1991	47,262	44,493	2,769	6%	748	2%	35,902	81%
1994	49,658	48,036	1,622	3%	1,672	4%	36,257	76%
1995	50,046	48,901	1,145	2%	2,282	5%	36,173	74%
1996	51,496	50,475	1,021	2%	2,470	5%	36,476	72%
1997	53,474	52,566	908	2%	2,771	5%	37,034	71%
1998	52,093	51,082	1,011	2%	3,080	6%	36,581	72%
1999	54,948	53,910	1,038	2%	3,493	7%	38,382	71%
2000	58,946	57,961	985	2%	3,591	6%	37,986	66%
2001	56,325	56,325	0	0%	4,800	9%	36,319	65%
2005	66,085	66,085	0	0%	8,840	13%	37,583	57%
2010	76,148	76,148	0	0%	22,783	30%	29,791	39%

(OICA 1990-2010) Thousands of vehicles (thv)

Table 5.17 shows that the growth of total capitalist production at 24.7% is still larger than the growth of total production of 30% between 1991 and 2001. The relatively small quantity of automobiles in centrally planned production in 1991 means that the disaggregation of centrally planned and capitalist production is not as marked as in other sectors.

Table 5.17. World automobile production decade growth

	Total	Capitalist	CPE	G7	Transition capitalist
1991-2000	24.7%	30%	-64%	6%	380%
2000-2010	29.2%	31%	-100%	-22%	534%

(OICA 1990-2010)

5.10 Gross Domestic Product (GDP) – Purchasing Power Parity (PPP)

The use of physical indicators provides strong evidence for the importance of the distinction between total, centrally planned and capitalist (GDP) production. Physical indicators enable the comparison of national economies and allow the practical demonstration of the growth of capitalist production during the transition period. The aggregation of centrally planned and capitalist production systematically underestimates the growth of output within the market boundary.

These measures underpin the widely used Purchasing Power Parity (PPP) estimate of national income. PPP provides an alternative measurement standard to exchange rate based conversion factors such as the World Bank “Atlas” method. “Atlas” uses a conversion factor which is the average of the exchange rate for that year and the exchange rates for the two preceding years, after adjusting them for differences in relative inflation between the country in question and the United States. In 1992 The World Bank pointed out that there was “no fully satisfactory way to compare per capita income of the Former Soviet Union (FSU) with that of most other economies”. The “root cause” was that the FSU had a non-market and exceptionally isolated economy”. This was exacerbated by the collapse of information reporting systems. It concluded that the “seemingly simple case for

using official exchange rates proves untenable because, like other planned prices, such rates prove to be artificial and misleading” (World Bank 1992b, pi). The World Bank proposed a PPP bridge from the planned to the market economies. This enabled the measurement of the FSU but obliterated the distinction between the collapsing central plan and the growing market. Koen and Meyerman (1994) for the IMF noted that,

“The adoption of a unified exchange regime in July 1992 was a major step in opening Russia to the world economy and moving toward a market system. Notwithstanding political turmoil, collapsing output, very high inflation, large scale dollarization and occasional rumors about an imminent return to a system of multiple exchange rates, this decision has not been reversed” (p10).

This led to very large fluctuations in the exchange rate as a market in foreign exchange was created from almost nothing. Based on real exchange rates in 1992 the Russian economy was smaller than Denmark’s, while fluctuations in the interbank rate meant that “the size of Russia’s economy in US dollars more than doubled from the first to the second quarter of 1992” (p10). This effectively prevented the use of exchange rates to produce comparative national income estimates during the transition period.

PPP is defined as the number of currency units required to purchase an amount of goods and services in the subject country, equivalent to what can be bought with one unit of the object base country currency. This is usually the U.S. dollar. PPPs address the problem of comparing different national economies, with different price structures, wages and productivity. This study will use the GDP estimates developed by the Conference Board of the Groningen Growth and Development Centre (University of Groningen, The Netherlands). The Conference Board’s Geary Khamis (GK) GDP estimates adjust values to reflect the productive capacity of different economies (Conference Board 2012). Geary Khamis PPPs give a greater weight to the more developed economies.

They use detailed categories of outputs matched for quality and specified price information for representative items intended for consumption, investment and government services. The goods should be equivalent, of physically identical, quality, use, taste and standard – irrespective of variations in the mode of production. Coverage of national and international measures should be made to a common standard.

PPP estimates are sensitive to the sample of products, prices, regions and periods. The country reversal test means that in a given bilateral comparison, it should not matter which country is used as the base country. The product of the price and quantity ratios should equal the expenditure ratio. For the test to be met, both the price and quantity indexes must be computed independently.

By applying the market boundary deflators developed earlier it is possible to determine the actual value of market production in them and by so doing to separate non-market centrally planned production from capitalist market production during the transition period. This will then allow an estimate of the real value of the transition to capitalism to be estimated.

5.11 China and Vietnam

In 1978 China introduced market measures that had transformed the economy into a capitalist one by the early 1990s. The GK PPPs used by the GGDC conflate the output of the central plan with that inside the market boundary. At the outset of the transition the overwhelming bulk of production took place within the centrally planned sector. By 2001 all production was subordinate to market prices. In the figures for national income presented in Table 5.18 and all subsequent tables, the “Transition total” is the aggregate of the imputed national income applied to the output of the centrally planned economy and the actual national income within the real market boundary of the capitalist economy, the “CPE” is imputed national income only and “Capitalist transition” is actual economic production within the real market boundary. As the transition from central planning to capitalism takes place,

the imputed values are replaced by real ones. It is assumed that after 2001 all output is subordinated to the capitalist market even if it does not take place at market prices.

Table 5.18. China and Vietnam during the transition; total, centrally planned and capitalist output 1978-2001

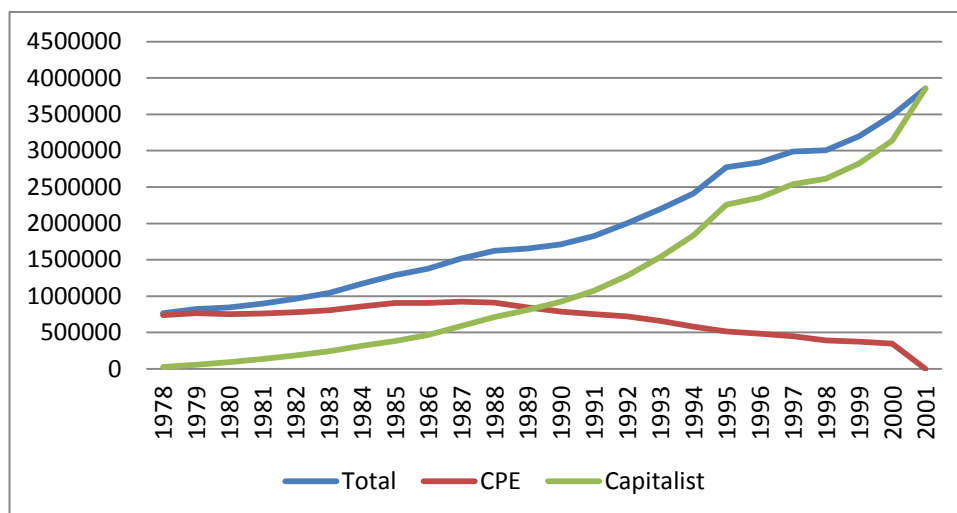
Year	Total	CPE	Capitalist
1978	765376	739353	26023
1984	1172536	855951	316585
1989	1653718	843396	810322
1990	1712820	787897	924923
1991	1825141	751958	1073183
1992	2001868	720672	1281195
1993	2194362	658309	1536053
1994	2413016	579124	1833892
1995	2772557	512923	2259634
1996	2837100	482307	2354793
1997	2989790	448469	2541322
1998	3005042	390656	2614387
1999	3200069	374408	2825661
2000	3486171	348617	3137554
2001	3853199	0	3853199
2005	6027030	0	6027030
2010	10183399	0	10183399

(GGDC 2012) GDP in millions of 1990 US\$ (converted at Geary Khamis PPPs)

The effect of the adjustment between total and market production is to increase the growth rate of capitalist production by the original imputed value of the total of centrally planned production in 1978. This imputed value was transformed into or replaced with real capitalist production during the restoration process. This is demonstrated in Figure 5.1 which traces the movement of total (combined market and CPE production), capitalist and centrally planned output. CPE output fell from nearly 100% of production in 1978 to nothing in 2001. Meanwhile capitalist

production increased as a proportion of total output until all output was subordinate to the market in 2001. At this point total output equalled market output.

Figure 5.1. China and Vietnam transition to capitalism



(GGDC 2012) GDP in millions of 1990 US\$ (converted at Geary Khamis PPPs)

China and Vietnam were undeveloped economies in 1978 but the disaggregation still adds 20% to the growth of real national income between 1978 and 2001.

5.12 CEE and CIS

The effect of this differentiation is even more significant in the CEE and CIS. Their economies were more developed in 1989 and the effect of the big bang transition was more traumatic. Janos Kornai (2006) claims that the superiority of capitalism is demonstrated by comparing growth rates for the transition economies with those of Western Europe for the years 1995 and 2003 that is after the “transformational recession” that destroyed a third of the economy. There is no doubt that by excluding capitalist crises growth rates will increase. Whether such a method proves anything about the superiority of capitalism or otherwise is moot. Kornai’s

real mistake is more fundamental. He confuses a collapse of the plan with the creation of the market, a decline of use values with the creation of exchange values.

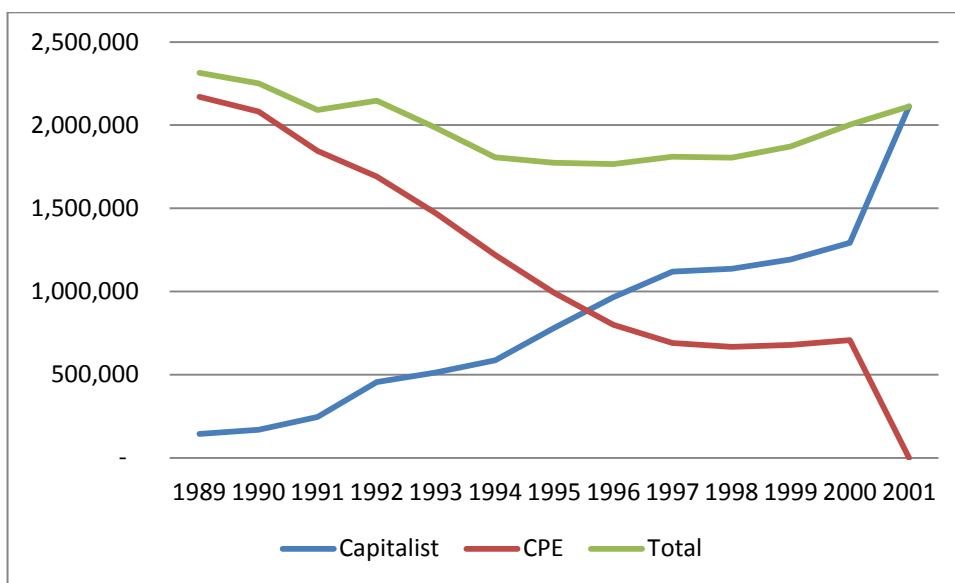
Table 5.19. The CEE and CIS during the transition, total, centrally planned and capitalist production 1989-2010

Year	Total	CPE	Capitalist
1989	2313850	2169710	144140
1990	2250508	2082435	168073
1991	2091179	1845810	245368
1992	2146467	1690713	455753
1993	1982668	1469736	512933
1994	1806026	1219235	586791
1995	1773634	992449	781184
1996	1766336	800017	966319
1997	1811148	690959	1120189
1998	1803852	667274	1136579
1999	1871436	679035	1192401
2000	2002065	708555	1293510
2001	2111998	0	2111998
2005	2524359	0	2524359
2010	3252669	0	3252669

(GGDC 2012) GDP in millions of 1990 US\$ (converted at Geary Khamis PPPs)

According to the official Western estimates the total national income of the transition economies fell by approximately 23% of GDP between 1989 and 1996. In fact output within the market boundary and therefore national income increased by 570%.

Figure 5.2. Capitalist transition CEE & CIS



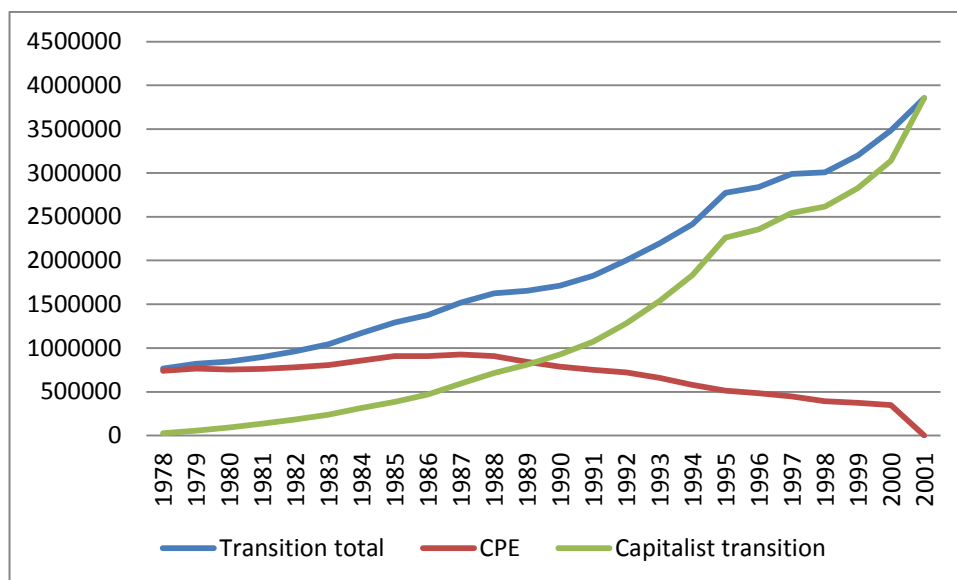
(GGDC 2012) GDP in millions of 1990 US\$ (converted at Geary Khamis PPPs)

In 1989 at the outset of the restoration process, the nominal total national income attributed to the transition economies imputed “value” to the output of the central plan. But nothing can exist before it exists and neither did capitalist production. The creation of market production requires the creation of a market. The collapse of the central plan in the CEE and CIS was real. But it was a collapse of the physical output of the centrally planned economy, not the collapse of value production, but its genesis. Western statisticians underestimate the growth of capitalist production in the CEE and CIS, by \$2,111,998 million in 1990 US\$ (converted at Geary Khamis PPPs)

Figure 5.3 shows the combined effect of the transition in the CEE, CIS, China and Vietnam. Capitalist production in China and Vietnam grew through the course of the 1980s as the proportion of output at market prices expanded. Following the big bang in the CIS and CEE after 1991 the growth of transition economy national income accelerated until the central plan was entirely negated by 2001. From that

time all economic production was within a real market boundary. It is real rather than imputed national income and real value production too.

Figure 5.3. Capitalist transition in the CEE, CIS and China and Vietnam



(GGDC 2012) GDP in millions of 1990 US\$ (converted at Geary Khamis PPPs)

In 1992 the total imputed value of the still basically centrally planned economies was 17% of the world capitalist total. By 2001 when the transition process was completed the total still amounted to 17% albeit of what was now a larger world economy. This was real national income created in a real market economy. Between 1989 and 2001 this expansion of real capitalist value production raises nominal growth by half to 64% compared to 44% for the aggregated output of both centrally planned production and capitalist production.

What enabled this one-off addition to have such a qualitative impact was not simply the one off transformation of centrally planned production into capitalist production; it was the availability of educated but cheap labour and masses of very cheap or free means of production and infrastructure that had no value. It had been constructed without payment during the central plan period. These economies had a

very low organic composition of capital and consequently, once the circuit of capital accumulation process had begun to operate by the late 1990s, very high rates of profit. During the first decade of the Twenty-First Century, these economies took off. The national income of the transition economies as a proportion of the G7 rose from 10% in 1991 to 36% in 2001 and 76% in 2010.

Table 5.20. World capitalist transition 1978-2010

	Capitalist world economy	Transition capitalist	Transition capitalist % world capitalist	G7	G7 % world capitalist	Transition capitalist % of G7
1978	15180771	26023	0%	8988470	59%	0%
1984	17978359	316585	2%	10361297	58%	3%
1989	22129022	954462	4%	12539019	57%	8%
1990	22942130	1092996	5%	12844077	56%	9%
1991	23592861	1318551	6%	12973151	55%	10%
1992	24651285	1736949	7%	13244411	54%	13%
1993	25494791	2048986	8%	13423941	53%	15%
1994	26740572	2420683	9%	13842205	52%	18%
1995	28153140	3040819	11%	14171665	50%	22%
1996	29384653	3321112	11%	14555118	50%	23%
1997	30703763	3661510	12%	15027098	49%	24%
1998	30018400	3750966	13%	15429080	51%	24%
1999	31167487	4018062	13%	15938345	51%	25%
2000	32741742	4431063	14%	16528165	51%	27%
2001	34784288	5965196	17%	16733768	48%	36%
2002	36007527	6531796	18%	16953922	47%	39%
2003	37695795	7316895	19%	17264936	46%	42%
2004	39700129	7986986	20%	17754826	45%	45%
2005	41676065	8708522	21%	18157424	44%	48%
2006	44040756	9681605	22%	18623797	42%	52%
2007	46639453	10867770	23%	19024093	41%	57%
2008	48161221	11761504	24%	18969008	39%	62%
2009	48300661	12368806	26%	18197707	38%	68%
2010	50976329	13436068	26%	18735787	37%	72%
2011	53172579	14494526	27%	19000590	36%	76%

(GGDC 2012) Total GDP, in millions of 1990 US\$ (converted at Geary Khamis PPPs)

In 1991 the transition economies already included 22.5% of the world employed population compared to 12.3% in the G7. By 2010 this was 33.7% and 8.8% respectively.

Table 5.21. World employment 1978-2010

Year	Capitalist world	Transition capitalist	Transition capitalist % world capitalist	G7	G7 % world capitalist
1978	1038113	16549	2%	197439	19%
1984	1313752	155250	12%	211198	16%
1989	1786859	340728	19%	228744	13%
1990	1831526	381536	21%	231751	13%
1991	1889757	424523	23%	232817	12%
1992	1989659	481358	24%	234301	12%
1993	2052821	533171	26%	235066	12%
1994	2124419	589496	28%	239694	11%
1995	2187146	652277	30%	242569	11%
1996	2232691	688041	31%	245551	11%
1997	2279111	723360	32%	249264	11%
1998	2326036	747297	32%	251646	11%
1999	2369476	764010	32%	253854	11%
2000	2422450	786511	33%	255659	11%
2001	2538908	935036	37%	255673	10%
2005	2707142	961538	36%	258644	10%
2010	2905803	987338	34%	257621	9%
2011	2945357	991265	34%	258753	9%

(GGDC 2012) Employment (in thousands of persons)

5.13 Conclusion

Globalisation aptly describes the creation of a global world market in the 1990s. The transition of the central plan to capitalism extended the rule of capital across the whole world for the first time since the Bolshevik revolution of 1917. This was perhaps the greatest single and exceptional one off increase in the size of world capitalism in history. By the year 2001, when the process of capitalist restoration was complete, the transition economies accounted for 37% of world capitalist employment, 31% of aluminium, 44% of hydraulic cement, 24% of steel, 16% of electricity, 8.5% of cars and passenger vehicles and 17% of GDP (GK PPP). Far from the 1990s being a decade of capitalist stagnation world capitalist aluminium

production increased 60.3%, hydraulic cement 96%, steel 56%, electricity 61%, automobiles 27% and GDP (GK PPP) 52%. These trends accelerated markedly up to 2010.

This expansion of world capitalism with the transition of the centrally planned economies to capitalism was concealed by the national income measurements of the Western statistical agencies. They had transformed national income from a measure of real market exchanges within a real market boundary into a statistical construct outside of the real world. Through an imaginary imputed market they created exchange value in a centrally planned economy without exchange. They measured national income in an economy without national income. When capitalist transition created a real market economy, they could not measure the growth of the market, as for them, it already existed in the books.

By separating the output of the central plan from that of the capitalist market, it is possible to demonstrate the qualitative impact of this capitalist transition on the world capitalist economy. It solves the riddle of how to measure the increase in national income during the transition period. It is the measurement of the growth of production in the expanding capitalist market. It is a real phenomenon rather than an imputed one.

The next chapter will assess the post-big-bang debate around the CIA's estimates of centrally planned national income. It shows how both sides in the debate repeated the mistakes of the conventional wisdom, but exaggerated them depending on the stance adopted by their alternative views. On one side of the fence some theorists argued that as there was no exchange value so there was no use value. On the other side different theorists claimed that as there was use value so there was exchange value. Neither side measured the actual growth of the market in the transition from the centrally planned economy to capitalism.

It considers whether the Marxist “state capitalist” analysis of the centrally planned economies successfully explains either the nature of these states or their transition to capitalism.

It considers the implications of the more accurate national income measurements of the transition for theories of globalisation that are largely derived from official statistics and advocates a long wave analysis to explain the recent period of globalisation.

CHAPTER 6.

AFTER THE FALL

The final part of this thesis addresses the repercussions of the transition of the centrally planned economies to capitalism and the underestimate of the growth of national income in them made by official statistical agencies, from three distinct angles. First it looks at the post collapse debate among the Western statisticians and considers to what extent if at all, they were able to address the problems with their Soviet national income estimates. It particularly contrasts those who realised the limitations of the theory post collapse and those that sought to defend it. Second it examines the Marxist theory of state capitalism as elaborated by the Cliff/International Socialist School. It examines the theory from its origins in the late 1940s, looks how it was developed over the subsequent decades and the degree to which it was able to account for the transition from central planning to capitalism during the 1990s. Finally it considers how the underestimation of capitalist growth affected Marxist theories of globalisation with particular emphasis on the so-called stagnation theorists. It considers the broader question of long waves or long cycles of capitalist development as elaborated by Ernest Mandel and situates globalisation within that framework.

6.1 Bergson and the CIA reassessed

The failure of Western experts to predict the post-1991 collapse of the CIS reopened the question of the meaningfulness of their estimates of Soviet national income. How could their imputed prices be “real” when output collapsed with the introduction of real market prices? There were essentially two sides to the debate, those who attempted to explain away the collapse in output and those who defended the conventional wisdom despite its failure to anticipate the crash.

Those who were most critical of the Bergson synthesis sought to deny the reality of Soviet output. They elaborated the argument of Lev Nazarov (1988), a Soviet exile who developed a critique of the CIA’s national income estimates during

the 1970s and 1980s. Nazarov argued that the CIA was gullible. It set too much store by official statistics. It did not use its network of spies efficiently. It underestimated the USSR's military expenditure and failed to adequately account for differences in quality between the market and centrally planned production.

After the fall, Nazarov's complaints were echoed by Nicholas Eberstadt (1995). Eberstadt recognised that it may not be possible to measure a command socialist economy in a market framework, but offered no alternative framework with which to measure it. Eberstadt argued that the CIA's assessment was insufficiently critical and that it accepted official Soviet data too readily. Anders Aslund (1995), a neo-liberal adviser to Yeltsin's administration, argued that the collapse of the central plan demonstrated that Soviet national income was much smaller than originally understood, it was not really a collapse at all but was a "myth" (2001). Aslund had several interrelated points. He asserted that the output of the central plan was over reported by as much as 5%. He pointed out that if the first year of collapse was moved from the peak output year, then the collapse would be smaller. He followed Ronald McKinnon and argued that much of the Soviet economy was value destroying not value creating (McKinnon 1991). He considered the example of fresh fish. He pointed out that fresh fish were nicer than Soviet canned fish. He did not consider whether rotten fish are nicer than canned fish. He believed that unofficial output was underestimated, while trade subsidies to partners in the CMEA were eliminated during the transition, "The wrong things were traded for the wrong reasons between the wrong people in the wrong places at the wrong prices" (Aslund 2001, p8).

Certainly the end of Russia's trade subsidies to the CMEA may have increased the output of the CIS compared with the former USSR, but it reduced the output of those partners by the same amount. "Subsidies" were not subsidies in any Western sense. The net flow of outputs was from the USSR to its CEE partners. But there was no monetary exchange and the value of those outputs fluctuated according to the political, not economic priorities, of the Soviet Union. Either way it was a zero sum game. As the "subsidies" from the CIS to the CEE declined, so did the benefits

from them, in the opposite direction but to the same amount. This transfer of resources was not actually foreign trade at all, as understood in a market economy, no payments took place between and within the CMEA. Transferable Roubles were not transferable or Roubles (Lavigne 1999).

Aslund repeated the point of Johnson et al (1997) that as the decline in electricity consumption was not as great as the measured fall in output so the collapse in output was not as large. Aslund concluded with a definite indefinite that “because of all the methodological problems it is not possible to have precise knowledge of the actual development of output during the transition ” (Aslund 2001, p1).

Massaki Kuboniwa (1997) of Hitotubashi University used previously unavailable official output and employment data to re-estimate Russian output from 1961 to 1990. Her estimates reduced Soviet output growth by a quarter, it grew three not fourfold. Kuboniwa followed a similar method to the World Bank and Goskomstat (1995). Kuboniwa’s intention, and the result of her re-estimates, was to reduce both the original size of Soviet centrally planned output and its decline following price liberalisation. Kuboniwa based her assertion on the observation that electricity output “only” fell by 25% between 1990 and 1994 while official industrial output estimates fell 50%. If there was a constant relationship between electricity consumption and value output, then the fall in industrial output was overestimated. But there was no such constant relationship, not least as the majority of electricity production is consumed in the household and transport sectors. The physical decline in industrial output was far greater than the physical decline in electricity production. The physical production of metal cutting machines fell between 1989 and 1996 by 83%, lorries by 80%, refrigerators by 70% (OECD 1997, p32). In 1990 29.4% of machines were under 4 years old, the proportion had fallen to 10.9% by 1995. The average age of machinery increased from 10.8 years to 14.1 years (Gavrilenkov 1997). The installation of means of production effectively halted. In a capitalist economy sectors of production with a higher technical and organic composition of capital sell their output above its value, as capital seeks out the highest rate of profit.

In the national accounts the production appears to add more value than sectors with a lower organic composition of capital, as the equalisation of profit rates means it claims a higher proportion of social labour time, it incorporates a higher quantity of past labour in the form of depreciation and it uses larger quantities of raw materials. The collapse of exactly these high volume and highly priced sectors implies the fall in nominal imputed national income may have been larger, not smaller, than official estimates. Generally speaking, in a capitalist economy as the supply of a commodity declines, so its price rises. This is exactly the opposite of what happened in the USSR during the early transition period.

There was no genuine market production in 1990 as there were no genuine markets. As national income is a measure of production within the market boundary, there was by definition, no national income in 1990. There was a fall in output which was probably far larger than that estimated by Kuboniwa, but this was the destruction of the central plan and the creation of capitalism; it was not the destruction of national income, it was the creation of national income where previously there had been none.

Kuboniwa and Gavrilencov (1997) produced an analysis of the attempt to create a “real capitalist system” in Russia (pv). This presented a more refined version of their earlier analysis. They emphasised that the informal sector was probably under-reported during the transition period. The fall in household consumption was not as large as the fall in production. They disaggregated the use of electricity by physical sector, on the assumption that input coefficients and the consumption coefficient of electricity were stable. This reduced the decline in industrial activity from the official 50% to 28.5% between 1991 and 1994 (p140). This of course assumed a stable price structure alongside a stable industrial coefficient, the condition which was precisely absent in the early 1990s.

Ultimately this argument cannot be settled definitively. There is no objective standard against which it can be measured. No quantities of real things sold for real market prices. What was missing was precisely the fact of sale, of real market prices

valuing real quantities of output. Kuboniwa's and Gavrilencov's guesstimates showed originality and were thought provoking. But they missed the essential point. Value production did not exist in a centrally planned economy. The price of something is only established by the amount of one thing being exchanged for another thing. In a capitalist economy this is the socially necessary labour time required for its production modified by the movement of capital to equalise profit rates. It is predicated on the act of sale. Without buying or selling there can be no price based on value. The collapse of the central plan was the collapse of use values not of exchange values and it led to the creation of exchange value where previously there had been none.

Steven Rosefielde was to revisit many of the assumptions that underlay Bergson's Adjusted Factor Cost (AFC). Rosefielde and Pfouts (1995) provided mathematical proof that output in the USSR could not coincide with the neo-classical production function because in the absence of the free movement of capital, prices could not redistribute value according to opportunity costs; "If production is not responsive to prices, then no mechanism exists to reliably connect prices, official, adjusted, or otherwise, with the marginal rate of transformation (p381). As enterprise managers did not know the adjusted factor prices to which they were supposed to respond, they could not determine the allocation of resources in response to price signals that did not exist.

Rosefielde and Pfouts effectively demonstrated that a centrally planned economy was not subordinate to the laws of the market. They confirmed that both Bergson and the CIA's alternative estimates of Soviet output were "virtually the same" as the official statistics (p387). After 1991 the exposure of centrally planned production to the world market demonstrated that its output was both too expensive and of too low a quality to be sold - it could not be "given away". The CIA's 1989 estimate that Soviet GNP was 67% of the USA's was, Rosefielde (1996) claimed "calculated at imputed quality-adjusted dollar production cost on the erroneous assumption that everything manufactured or manufacturable could be sold in the West at these cost prices" (p979).

If in the real world this output could not be sold, then the “dollar cost price estimates of aggregate growth in controlled economies greatly overstate value growth”. This reassessment of Soviet output could be applied right back to 1928, so that although the physical quantity of output grew in the first two five year plans the “value of these gains was slight”. The putative worthlessness of Russia’s manufactured export production had “profound” implications for the valuation of “Stalin’s capital stock”. As neo-classical theory insists that the value of assets is equal to the present discounted value of their future earnings, “the value of the capital stock is correspondingly small” as they had little international value (p979). Rosefielde was inconsistent even here. The Soviet capital stock was not capital at all as the means of production was supplied to enterprises interest free. If their value was the discounted total of their future earnings, they had to be worthless on delivery as there were no earnings in the USSR. This capital was not capital at all.

Abraham Becker (1994) a leading CIA Sovietologist argued that there was little evidence that CIA estimates had been seriously mistaken, Abram Bergson (1997) himself re-iterated the fundamentals of the CIA’s analysis. But Mark Harrison provided the most consistent defence of Bergson and the CIA. Harrison asserted that as Soviet output was not useless and so it was not valueless, he concluded that, “...it is perfectly plain that Soviet consumer production was not valueless, just as the collapse of consumer supply since 1991 has been a real collapse, not just the elimination of valueless or value-subtracting activity” (Harrison 1996, p3). Harrison effectively inverted Rosefielde’s method, but to no greater effect. The collapse of Soviet consumer production was a real collapse, but of use values not exchange values.

Rosefielde (2003) considered that the root of the problem with Bergson’s estimates stemmed from their use of planned prices “suspicion has fallen properly on the system's Achilles heel – price formation” (p474). The issue was not one of exchange value versus use value, but of the inability of planners to adequately account for the introduction of new goods at higher prices. This was a repetition of the point that Gerschenkron and Jasny had demonstrated decades earlier. Rosefielde

explained that this was in its turn a consequence of Soviet statisticians' adherence to Marx's labour theory of value;

“Like many of his contemporaries, Marx believed that value was intrinsic, and inhered in the quantity of labour. The prices of goods and services accordingly could be computed by aggregating direct and indirect (capital services) labour time, allowing for skill differentials if desired. Philosophical qualms aside, this labour theory of value made no allowance for some types of product and service improvements. If better designs vastly enhanced quality (utility) without altering labour input, original and improved product prices must be the same, even though superior items were clearly preferable” (p474).

As a summary of Marx's views this was almost completely wrong. Marx was writing about a system of generalised commodity production and exchange – a capitalist system not a centrally planned one, hence the title of his work – *Capital*. In a capitalist system the quantity of labour time did not determine value, but the quantity of socially necessary labour time established by exchange or sale. The labour theory of value was predicated on rising productivity and improvements in products and services. Competitive pressure forced capitalists to continually raise productivity in order to lower their cost of production below that of their rivals in order to garner a profit above the average rate.

In a bureaucratically centrally planned economy none of this applied. For Rosefielde (2003) CIA estimates that adjusted official industrial volume figures by physical output indices were no real improvement as “The agency's physical series indicate that spurious innovation is concentrated in machine building, while civilian consumer goods are implausibly distortion free” (p475). Harrison pointed out that here at least Rosefielde was mistaken (Harrison 2003). But this does not alter Rosefielde's essential point that Sovietologists were victims of “the delusion that fiat ruble factor cost prices, or mechanical adjustments thereof, permitted them to reliably gauge Soviet economic growth and development”. Soviet economic statistics could not “be made meaningful by adjusted factor costing” (p478).

Harrison viewed Rosefielde's critique as a reflection of his ideological commitment to the "Washington Consensus", the term coined by John Williamson for the market reform package promoted by the IMF, World Bank and US State Department. Harrison (2003) argued that there was Soviet growth under the central plan and that the Bergson and CIA national income estimates measured something real. Part of the problem was a loose and inappropriate use of categories. In Harrison's article "The Soviet Market for Weapons" he explains that "In writing about the internal market for weapons we do not mean that there was a market relationship between the Army and Industry Units" (Harrison & Markevich 2008, p157). This was a quasi market not an actual market.

The Western estimates of Soviet national income did measure something real, the growth of the output of use values in the central plan, but this measure did not give those use values real "value" in the real world. Rosefielde may have been motivated by an ideological commitment to the free market, but his point about the absence of market exchange and value production in the USSR was well made. Without production within a market boundary, there could be no corresponding measure of production within a market boundary and therefore no national income measurement either by adjusted factor cost or otherwise;

"The bottom line after half a century of analysis therefore is that both Bergson's 1953 and 1963 axioms were wrong. Soviet economic performance cannot be...transformed to a Western accounting basis, revalued at adjusted ruble factor cost and discounted by replacing value sub-series with indices of physical growth at each analyst's discretion... Bergson's axiology could always generate 'reasonable' results by bending rules while disregarding reality, but it could not scientifically determined Soviet performance or potential..." (Rosefielde 2004, p464/5).

During the transition period Western statisticians were faced with two distinctly different problems. Firstly, the measurement of Soviet imputed national income, which by 1992 was an entirely historical problem and secondly, the

measurement of the national income of the transitional CIS economy. To resolve this problem, they needed to separate out the rapidly declining centrally planned economy from the new market production. How to distinguish between the two (in a dynamic and fast moving situation) was a practical problem, which they did not concern themselves with, as they set out to measure central planned production as if it were already capitalist market production. They confused the two different systems and as a result, were unable to measure either accurately.

Bergson and Rosefielde agreed that use value determined exchange value and was synonymous with it. Bergson (and Becker, Harrison) noted the obvious; that the central plan from the mid-1930s massively expanded the quantity of use values of physical product, of output. Bergson concluded that if the amount of use values had grown then by manipulating official Soviet statistics to cure them of their “distortions”, this physical product could be valued as if it were commodity production. Rosefielde simply inverted this logic. Rosefielde (and Eberstadt, Aslund) agreed that use value determined exchange value. Rosefielde also noted the obvious, that this output could not be sold on the open market as there were no markets for it to be sold in. He then concluded that as the product could not be sold, so it could not be useful either.

Both sides demonstrated how marginalist theory, that conflates use and exchange value, is unable to adequately account for a centrally planned economy, in which things are produced but not values. They differed only to the degree that they emphasised that confusion. Either they denied that the USSR produced anything useful and its output was therefore valueless, or they pointed out that the USSR did produce useful things and therefore its output was valuable. In fact the central plan produced use values, but never exchange values.

The transition of the centrally planned economies into capitalist market ones during the 1990s vindicated Marx’s argument that different methods or modes of production produce distinct forms of society. The growth of world value production measured in national income demonstrates the expansion of the market across the

entire globe. The application of value measures to the centrally planned economies obscured this expansion as it imputed market production and exchange to planned economies in which this did not take place.

6.2 State Capitalism

One school of Marxism (the adherents of the Marxist state capitalist tradition) argue that the centrally planned economies were actually capitalist all along. In 1990 Derek Howl (1990), writing in one of the most widely read advocates of state capitalism the *International Socialist Journal* said that state capitalist theory, “remains superior to its rivals because it does not require us to believe that a second change in the mode of production in the East – back to capitalism – is taking place by means of reforms” (p110). State capitalist theorists claimed that destruction of the central plan and subordination of these economies to the capitalist law of value was a move sideways from one type of capitalism to another (Harman 1990).

While there have been numerous Marxist theories that define the centrally planned economies as state capitalist ones there is little agreement between them (Linden 2009). They agree about the term state capitalism but disagree about: - the definition of capitalism; the definition of state capitalism; the operation of the law of value in the capitalist economy and indeed in the state capitalist economy; the role of military competition; the nature of accumulation; the existence of value production; the nature of surplus appropriation; the class nature of the bureaucracy and so on. For the purposes of this thesis it is not necessary to positively determine the nature of the economy of the USSR according to Marxist categories - a highly contentious area of debate in itself (Lane 1996) - but only to negatively do so. It is enough to show that a bureaucratic apparatus planned production according to its own dictates. That commodity production and exchange did not form the economic basis of these centrally planned economies. That they were not value producing, not capitalist and incompatible with national income measures predicated on the existence of a market boundary. Rather than consider all the variants of the theory this piece will address the version of state capitalist theory established by Tony Cliff and later applied in the

International Socialist Journal and associated publications. This was one of the most influential versions of state capitalist theory, its adherents expressed most of the ideas common to other state capitalist theoreticians and it continues to be advocated today (Callinicos 2009), (Hardy 2009), (Dale 2011).

Originally written in 1948 Cliff's *State Capitalism in Russia* attempted to explain the survival and expansion of the USSR during and after the Second World War (Cliff 1948/1988). According to Cliff the Marxist theory of the state precluded the overthrow of capitalism by any other method than the self-activity of the workers through a classical revolution. As capitalism in Central and Eastern Europe (CEE) was transformed into central planning without such a revolution, through the agency of the Soviet Armed Forces, Cliff concluded that the overthrow of capitalism could not have occurred;

“When I came to the theory of state capitalism, I didn't come to it by a long analysis of the law of value in Russia, the economic statistics in Russia. Nothing of the sort. I came to it by the simple statement that if the emancipation of the working class is the act of the working class, then you cannot have a workers' state without the workers having power to dictate what happens in society. So I had to choose between what Trotsky said – the heart of Trotsky is the self-activity of the workers – or the form of property. I decided to push away the form of property as determining the question” (Linden 2009, p119).

Cliff's theory of state capitalism noted that central planning did not equate to socialism, but attempted to reconcile the fact that a different mode of production (central planning) had been imposed without a revolution, with a certain *a priori* conception of Marxist theory that argued this was impossible. There were four parts to Cliff's work. Firstly Cliff outlined the “social relations” in the USSR (misleadingly called Russia by Cliff). Secondly, Cliff examined whether the bureaucracy was a class according to Marxist categories; the functioning of the bureaucratic central plan; and how the plan is modified by external military

competition with the West. Thirdly, Cliff considered the nature of crisis in the bureaucratic central planned economy. Fourthly and finally (in an appendix) Cliff undertook an analysis of Trotsky's theory of the degenerated workers state (1936).

Cliff's (1988) analysis of the social relations of production in the USSR separated the social relations from their property form. Cliff wanted to show that, while private ownership in the means of production was illegal in the USSR, the social relations that underlay the legal forms remained those of a capitalist economy. This was necessary as Marx had said that the base determines the superstructure, that the economic foundation of society determines the legal forms that rest upon it. Given the non-capitalist legal forms of the USSR (indeed the anti-capitalist ones) how could the USSR be a capitalist economy? Cliff noted that, "Under capitalism the consumption of the masses is subordinated to accumulation" (p46). As consumption was subordinated to the accumulation of the means of production by the bureaucracy in the central plan the apparatus became the "personification of capital, for whom the accumulation of capital is the be all and end all" (p186). As the superstructure was the personification of capital, so must the base be. Cliff inverted the relationship between base and superstructure described by Marx. Bukharin originally made this argument in a 1929 polemic against the Left Opposition *Organized Economic Disorder*. Bukharin (1929) said,

"The war-capitalist economy entails 'production for the sake of production', which to some extent means production at the expense of consumption". In contrast a socialist economy entails 'production for the sake of consumption'" (P332).

Bukharin wanted to promote the consumption of rich peasants to encourage them to undertake capital accumulation. This was his policy of socialism at a snail's pace. The apparatus imposition of a central plan in 1928 expropriated the capitalist traders "NEP men" and rich "Kulak" peasants and drove down working class living standards, to provide the resources for investment in the means of production. Bukharin condemned Stalin's forced collectivisation as a Left Oppositionist policy

by conflating central planning with the war capitalist economy. Cliff stretched the analogy to claim that by expropriating the capitalists Stalin actually created capitalism. Cliff turned reality on its head. The five year plans destroyed a form of state capitalism, they did not create it. Cliff noted that in the planned economy firms cannot go bankrupt and that the bureaucracy, not capitalist markets, determined the distribution of social product;

“The Stalinist industrialisation drive is planned, if by planning we understand central direction. Under private capitalism the economy operates blindly, so that at any given moment it represents the sum total of many private and autonomous decisions. In Russia, however, the government decides almost everything” (p95).

Wide differences in productivity and production costs between steel plants “... could not exist under conditions of capitalism based on private property” (p97). So Cliff concluded that, “instead of speaking about a Soviet planned economy, it would be much more exact to speak of a bureaucratically directed economy” (p103). If this bureaucratically directed economy was not subordinate to the law of value, the creation of a division of labour according to the dictates of market prices, then there was no capitalist economy and no capitalist state.

Cliff drew an analogy between the “historical tasks” of the capitalists and the role of the bureaucracy in developing the productive resources. Through a gradual process of transition, indirectly but not immediately, the bureaucracy transformed itself into the “ruling class” (p165). Cliff cited Bukharin’s theory of imperialism which argued that economic competition within capitalist states had been replaced by military competition abroad (Bukharin 1915). Bukharin’s 1920 *Economics of the Transition Period* (Day 1981) went even further and stated that,

“In sum the reorganization of finance-capitalist relations of production has followed a path towards universal state-capitalist organization, involving the elimination of the commodity market, the conversion of money into a unit

of account, the organization of production on a state-wide scale, and the subordination of the entire “national-economic” mechanism to the goals of international competition; in other words, mainly to war” (p36).

The parallels with Cliff’s theory, not to say, their identity on all essentials is obvious. The problem was that Bukharin’s claim that the war economy had superseded commodity production in the major Western powers was not true. None other than Lenin (1919) criticised Bukharin on just this point,

“Pure imperialism, without the fundamental basis of capitalism, has never existed, does not exist anywhere, and never will exist. This was an incorrect generalisation of everything that was said of the syndicates, cartels, trusts and finance capitalism, when finance capitalism was depicted as though it had none of the foundations of the old capitalism under it”.

It was not true that the law of value had ceased to operate in the war economies of the capitalist West. It was not true that the actual absence of the law of value inside the Soviet Union transformed it into a capitalist war economy.

The other major influence on Cliff was Rudolph Hilferding (1981), in turn Bukharin’s inspiration, who was the pre-war theoretician of monopoly capitalism and author of *Finance Capital*. Cliff discussed how Hilferding’s theory of imperialism asserted that the price mechanism was “partially negated” under monopoly conditions. Cliff pointed out that Hilferding’s analysis in *Finance Capital* demonstrated that the, “Partial negation of the law does not, however, free the economy from this law. On the contrary, the economy as a whole is subordinated to it even more” (p173) unless of course, the economy was no longer a capitalist economy but a system of central planning. Hilferding writing in 1940 (1947) said;

“The concept of "state capitalism" can scarcely pass the test of serious economic analysis. Once the state becomes the exclusive owner of all means

of production, the functioning of a capitalist economy is rendered impossible by destruction of the mechanism which keeps the life-blood of such a system circulating. A capitalist economy is a market economy. Prices, which result from competition among capitalist owners (it is this competition that "in the last instance" gives rise to the law of value), determine what and how much is produced, what fraction of the profit is accumulated, and in what particular branches of production this accumulation occurs".

A capitalist economy is a market economy by definition; it is the production and sale of commodities that produces the value or more accurately exchange value. A capitalist economy based on generalised commodity production uniquely transforms concrete labour into abstract exchange value. It is thus governed by the law of value modified by the circulation of commodities as products of capital. It is the competition of rival capitalists to sell their output on the market in search of the highest rate of profit, that is the driving force of the capitalist mode of production, as Marx (1981) noted in *Grundrisse*, "Capital exists and can only exist as many capitals, and its self-determination therefore appears as their reciprocal interaction with one another" (p414).

Hilferding explained that a centrally planned state economy eliminated the autonomy of capitalist economic laws. The state planning commission and not market prices determined what was produced and how. Even while prices and wages still existed formally, they no longer determined the process of production "a complete transformation of function has occurred". Hilferding's analysis (published in 1947 the year before Cliff's own work) appears to have provided Cliff's inspiration. But while Hilferding showed that the existence of the central plan meant that market capitalism was impossible, Cliff turned Hilferding's arguments on their head. Hilferding (1947) criticised the identity of the accumulation of means of production with the accumulation of capital;

"Marx refers to the accumulation of capital, of an ever-increasing amount of the means of production which produce profit and the appropriation of which supplies the driving force to capitalist production. In other words, he refers to

the accumulation of value which creates surplus value; i.e., a specifically capitalist process of expanding economic activity”.

The accumulation of the means of production is not the accumulation of capital. Capital is not a thing, a physical quantity of means of production or raw materials, but a social relationship. Capitalists exploit workers through their private ownership and control of the means of production, but it is capitalists who exploit workers not their machines. The bureaucracy (through its monopoly control of the means of production) may have extracted surplus from the workers, in a process akin to the exploitation of the working class under capitalism, but the mechanism of surplus extraction was not predicated on generalised commodity production. This was not the production of value – measured through exchange which was absent and this surplus was not therefore, surplus value. There was no capitalist exploitation but the appropriation of surplus indirectly through taxation. Cliff was aware of the significance of this issue, “According to Marx and Engels the fundamental law of capitalism, as distinct from all other economic systems, the law from which all the other laws of capitalism derive, is the law of value” (p201). Cliff explained that;

“Value is defined as the characteristic common to all commodities on the basis of which they are exchanged. Only as commodities do products have exchange value; exchange value being an expression of the social relations between producers of commodities, that is, of the social character of the labour of every producer” (p206).

The law of value determined the exchange relation between different commodities, the quantities in which they were produced and the division of labour between enterprises (p207). Cliff then re-iterated the essentials of Hilferding’s analysis of the bureaucratic central plan. Cliff maintained Hilferding’s distinction between the form and content of wages and prices in the central plan and capitalism. Cliff referenced the same quote from Marx on accumulation. Cliff demonstrated that the operation of the bureaucratic central plan has no similarity whatsoever to that of the law of value under capitalism, as “Both individual enterprises and the economy as a whole are subordinated to the planned regulation of production” (p215).

Following Hilferding, Cliff pointed out that "...price ceases to have this unique significance of being the expression of the social character of labour, or regulator of production" (p215). This meant that, "While in the traditionally capitalist countries competition between different factory owners causes them to accumulate and increase the organic composition of capital, in Russia this factor does not exist as all the factories are owned by one authority" (p216). Prices did not determine exchange relations or the division of labour. True to Hilferding again Cliff repeated that the sale of labour power in the central plan was essentially different from market capitalism, as "If there is only one employer, a 'change of masters' is impossible, and the 'periodic sale of himself' becomes a mere formality" (p219). Cliff then concluded that;

"Hence if one examines the relations within the Russian economy, abstracting them from their relations with the world economy, one is bound to conclude that the source of the law of value, as the motor and regulator of production, is not to be found in it" (p221).

Like Hilferding Cliff proved that the law of value did not determine the internal functioning of the centrally planned economy when abstracting it from its relationship with the world economy. But actually Cliff's analysis went further. Abstraction means separating the thing from the influence of the other thing. In this case it meant separating the functioning of the central plan from the influence of economic and military competition with Western capitalist nations. Cliff's analysis did not do that. It did not abstract the central plan from its relationship to the external world.

Cliff's description of the central plan showed how it functioned as a consequence of military and economic competition with the West. It was the Stalinists' fear of internal and external capitalist restoration that forced them to undertake the five year plans from 1928 on. Cliff's analysis demonstrated that whatever the form of external competition, the basic planned, non-capitalist nature of the Soviet economy remained intact. Later state capitalist theoreticians attempted to

resolve this basic contradiction, but failed to overcome the fundamental fact that Cliff's analysis of state planning refuted the very thing that he needed to prove.

This was confirmed when Cliff extended his analysis of the Soviet Union to include economic and military competition with the West. Cliff said that, "The rate of exploitation, that is, the ratio between surplus value and wages (s/v) does not depend on the arbitrary will of the Stalinist government, but is dictated by world capitalism" (p221). This of course assumes value production predicated on market exchange, the very thing that Cliff had previously demonstrated did not exist within the USSR, existed there. Nevertheless, Cliff asked what would happen;

"If Russia tried to flood the world market with her products, or if other countries flooded the Russian market with theirs the Russian bureaucracy would be forced to cut the costs of production by reducing wages relatively to the productivity of labour or absolutely (increasing s/v), improving technique (increasing c/v), or increasing production of producer goods relative to consumer goods. The same tendencies would manifest themselves if world competition took the form of military pressure instead of normal, commercial competition" (p222).

The USSR did not flood the capitalist world with its products as it did not produce products for sale on a market. Rather the monopoly of foreign trade prevented its domestic industry from competing on foreign markets and protected them from market competition. Cliff elided military that is non-capitalist, non-economic competition, with capitalist economic competition. Opposing generals do not try and sell their equipment to their military rivals they try to blow them up with it. The cost of production is immaterial for the generals, although not for the capitalists. In a capitalist economy, military spending is a tax on profits, even if levied on wages it increases the cost of labour power. While certain technologies like Teflon, have been discovered in the military industrial sector, it is a very expensive method of research and development. No capitalist economy would choose to burden itself with an expensive military if it could avoid it. The USSR, if it were capitalist,

would not have chosen to produce such a hypertrophy of its military sector. Military competition is not economic competition indeed Cliff recognised this fact;

“Hence the commercial struggle has so far been of less importance than the military. Because international competition takes mainly a military form, the law of value expresses itself in its opposite, viz, a striving after use values” (p222).

If M-C-M', money invested in commodities, labour power, raw materials and fixed capital, to produce more money, the circuit of capital accumulation, is expressed in its opposite, commodity-money-commodity (C-M-C) then this is not capitalist production, as capitalist production is the production of surplus value by definition. Even this juxtaposition overstates the parallels of the central plan with commodity production as there was no money in the circuit at all. Inputs were allocated by the bureaucratic apparatus to production units in order to produce a given quantity of physical outputs. This was not even a barter relationship in which given quantities of physical inputs were exchanged for a given quantity of outputs. Less efficient production units received higher allocations of physical inputs to produce lower quantities of physical outputs.

If the effect of military competition was to make the USSR compete on the basis of use values – that is on the basis of non-capitalist production – then even accounting for the effect of military competition the USSR is not a capitalist economy. Cliff elaborated this point;

“Russia’s competition with the rest of the world is expressed by the elevation of use values into an end, serving the ultimate end of victory in the competition. Use values, while being an end, still remain a means” (p223).

If use values are the end and use values are the means, then this is not the production of exchange values for sale on a market and is necessarily non-capitalist. In fact the production of use values as the primary goal of production distinguishes all previous economies from capitalist ones based on the generalised production for

exchange. Cliff nonetheless concluded that, “The law of value is thus seen to be the arbiter of the Russian economic structure as soon as it is seen in the concrete historical situation today – the anarchic world market” (p224).

A perverse summary of an argument that had demonstrated the very opposite - that the USSR was a centrally planned and not a capitalist economy with an economy subordinated to bureaucratic direction and not the capitalist law of value.

Cliff confirmed this through his analyses of the crises of the state capitalist economy. If the law of value functioned inside the USSR, then the nature of crises would have been essentially the same as crises in capitalist market economies. Cliff showed that crises of the central plan were quite different, “It is obvious that some of the causes of crises of over production in traditional capitalism would not exist in a system of state capitalism” (p234). Cliff continued;

“Moreover, as the state would own all the industries, there would not be a cumulative process of decline in prices and a decline of the rate of profit spreading from one industry to another, but the effect of a partial over-production would be spread directly over the whole economy. When the next cycle of production began, the production of certain goods would be decreased and equilibrium restored” (p234).

There could be no crisis of over accumulation manifested in a falling rate of profit in a non-capitalist centrally planned economy. This may have been a “war economy” producing guns, military equipment, and stores “use values inimical to the interests of the people” (p244), but this was not a capitalist economy. The mode of production, the method of production, the social relations of the central plan, were not transformed into capitalist ones simply as a consequence of what was produced, “Russia” did not become a capitalist state simply by making guns.

Cliff confused the subject and the object. The thing itself with everything outside it. A dog does not become a muddy pond simply by rolling in it. A non-

capitalist economy does not become a capitalist one simply through its relations to the external world. Cliff's argument amounted to the notion that external non-capitalist military competition with capitalist states transformed the output of the plan and the form of planning to render it capitalist, even while such competition did not transform the essentially non-capitalist nature of the plan. In plain English, it did not make sense. It needed to prove that the non-capitalist planned nature of the economy was transformed through military competition into a capitalist economy. In fact it proved that the economy was not transformed by military competition.

Tony Cliff's original text was reprinted with minor amendments in numerous editions after 1948. Marcel van der Linden says that, "Cliff's theory, which had shown little in the way of new developments during the period 1956-68, generally stayed at the level of repetition" (Linden 2009, p180). In fact the theory was little developed even after then. Chris Harman, a close collaborator of Cliff, claimed that the theory was "more fully developed" (Harman 1988), by Mike Kidron in *Western Capitalism Since the War* (1970) and *Capitalism and Theory*(1974) and by Nigel Harris (1983), in *Of Bread and Guns*. But Kidron's *Western Capitalism Since the War* makes no mention "of the west's contribution to sustaining the conservative, class ridden state-capitalisms of the 'the east'..." (Kidron 1970), while in *Capitalism and Theory* the analysis of state capitalism filled three pages, in which Kidron conceded that "Russia" was not subject to the tyranny of profit, has no internal competition, no operation of the law of value and no bourgeoisie. Harris *Of Bread and Guns* devoted an entire chapter to "A Socialist Alternative?" in which Harris analysed the problems of economies "...called by the United Nations 'Centrally Planned Economies'" (p169).

During the 1980s a dispute developed over the existence of a labour market inside the CPEs. Peter Binns and Mike Haynes (1980) in an analysis of new class theories of the centrally planned economies argued that the features typical of a centrally planned economy, the absence of commodity production, market exchange and a labour market were now typical of capitalist economies in general, "state

capitalism is not an analysis of eastern Europe but an analysis of capitalism in general” (p19). They claimed that;

“At the root of the problem is the identification which is made between capitalism and commodity production. Having shown that commodity production does not exist within the Soviet economy considered purely on its own, they then conclude that it is not capitalism...In other words capitalist production is seen as a species of commodity production” (p25).

Indeed this was the root of the problem. The Soviet Union could not be described as a capitalist economy for the simple reason that the Soviet economy was based on central planning not market exchange. Binns and Haynes re-defined capitalism from a social relationship between people into a type of thing, “Separate the commodity “capital” from other equivalent commodities. Capital is not a social relationship but a type of commodity” (p26). Like Bergson and the marginalists Binns and Haynes separated the physical form of capital, the use value of the means of production, from the social relationship of capitalist to worker.

Nonetheless, even though commodity exchange and value production did not exist in the USSR, Binns and Haynes attributed the stagnation of the Soviet economy to the “falling rate of profit” (p38), a law that only operates in an economy based on commodity exchange and value production. They argued that there was no labour market in the USSR. They maintained Cliff’s distinction between the form and essence of wage labour in the central plan, but argued that this was not essential to the existence of capitalism.

In the centrally planned economy the bureaucracy used its control of the means of production to extract surplus from the working class. The labour power of the working class produced a greater physical quantity of output than the physical quantity of inputs. But this had no value. It was never sold. Concrete labour was never transformed into abstract labour. Generalised market exchange, the foundation of the capitalist economy did not exist. How then was concrete labour transformed

into abstract labour without market exchange? According to Binns and Haynes by the confrontation of the products of labour with Russia's competitors;

“For valorisation to take place in USSR Ltd., it has to be the case therefore that Russian products of labour are piled up against those of its competitors. Without this its labour would remain concrete and specific, not abstract and general” (p48).

For Binns and Haynes the form of competition was not economic but military, it was the subordination of the economy to the military sector “that enforces the rule of the category of surplus-value throughout the system” (p48). But the subjective comparison of the products of labour by bureaucrats is not equivalent to their objective comparison of commodities through exchange. No commodity goes to the market without the price a capitalist expects to receive, but this subjective comparison is transformed into an objective fact only through the act of sale itself. As Peter Green (1978), a contemporary of Binns and Haynes, noted in his examination of value under capitalism, “Only in the course of sale does this value appear, and take on an independent existence...the labour which is related to all other labour through exchange, is abstract labour (p64).

Binns and Haynes through their willingness to face up to the essential incompatibility of the label “state capitalist” with the existence of capitalism as a mode of production based on commodity production stimulated a discussion which demonstrated the essential choice faced by all state capitalist theorists. It was either necessary to re-define capitalism as not being a system predicated on the production and exchange of commodities or to re-define the central plan as being a system that produced and exchanged commodities. Most theorists did a bit of both.

Duncan Hallas, a leading figure within the Cliff school, took the other path from Binns and Haynes. Hallas insisted that a pre-requisite for the definition of Russia as a state capitalist society was that capitalism in the form of generalised commodity exchange existed within it. Hallas (1980) pointed out that;

“If labour power is not a commodity in the USSR, then there is no proletariat. Moreover, if labour power is not a commodity then there can be no wage labour/capital relationship and therefore no capitalism either. Therefore there can be no capitalism in any shape or form” (p130).

Hallas claimed that the majority of the actual producers in the USSR were free wage earners or proletarians and asserted that their wages were paid in real money that was a genuine means of exchange, as these workers were able to spend their money on commodities, on goods produced for sale and “not administratively allocated as rations, ‘army issue’ or otherwise” (p131).

Certainly there was a type of wage market in the USSR and workers did earn a type of wage. But this was no labour market in any real sense. As all enterprises were owned by the state, the competition between employers was strictly nominal. Demand affected neither the price of consumption goods, the quantities in which they were produced or the amount of labour power supplied. This was determined by planners separate from the market. There was no unemployment to enforce labour discipline and no reserve army of the unemployed. Enterprises did not hire and fire to raise productivity to boost profits. Quite the opposite. Enterprises hoarded labour to ensure that they could meet physical targets at critical dates in the plan calendar. As there was no unemployment, there was no social security system either. Welfare benefits did not exist. The social wage often supplied directly by enterprises amounted to around 30% of consumption. It was directly linked to “paid” employment. Consumer choice was notional.

In 1970 consumption accounted for around 57% of total output (Hart 1976, p277), of which household consumption was around 48% and communal consumption around 9%. These totals do not differentiate between the consumption of members of the working class and members of the bureaucracy. Around 49% of this consumption consisted of food, alcohol and tobacco. A further 30% went on housing, transport, trade union membership, communal services and health. While 21% went on soft goods, like soap and clothes (p640). All of which were sold at

controlled prices, in particular pre-designated quantities. There was no generalised commodity production, no real money and no accumulation of capital and hence no capitalism by Hallas' definition.

Alex Callinicos (1981) in response to Binns and Haynes, noted that if wage labour did not exist in the USSR people might conclude "...that Russia is therefore not capitalist. This is an unpalatable conclusion, and so I shall try to show that wage labour does exist in the USSR" (p111). Callinicos pointed out that a worker could change jobs, and that labour turnover among young workers in particular was quite high and that production units could differentiate pay levels. From this he concluded that a labour market existed in the central plan. As wage labour was "essential to capitalism" and as wage labour "exists in the USSR" so it was implied, the USSR was capitalist (p115).

While there was a turnover of staff in each production unit and the central authorities allowed managers a degree of formal and informal bonuses to motivate their employees, workers could not increase the total consumption fund by changing their job. The central bureaucracy ensured that the nominal total of wages was relatively high compared with the total of consumption goods. This ensured that all goods were consumed and workers had to involuntarily save a proportion of their wages in what amounted to an indirect wage cut. Even by 1988 after several years of market reform the state still employed 99.5% of total workers, so the change in employer was strictly formal.

Derek Howl (1990) attempted to square the circle in his article "The law of value and the USSR". Howl explained that for Marx it was the process of exchange in the market that turned goods into commodities. The prices at which commodities exchange are based on the labour time socially necessary for their production and that it was this law of value that revealed the 'innermost secret' of capitalism. However, this law of value, that Marx described in a capitalist economy, simply did not exist in the USSR;

“For 60 years market mechanisms have not operated inside the USSR...The allocation of workers to work, the ratio by which goods exchange, the profit to be made – none of these are governed by market signals. Instead they are the results of decisions by bureaucrats” (p90).

Howl seems not to have noticed that his later claim that, “If labour is to be real wage labour there must be a labour market inside Russia” (p102), was directly contradicted by this point.

How, Howl asked, could “the USSR be capitalist?” Howl defined capitalism by the law of value then redefined it a couple of paragraphs later. From a law that determined the proportions in which commodities exchanged, Howl now defined the law of value as the allocation of labour according to the operation of an “external coercive competitive pressure to accumulate” (p97). The law of value, which revealed the innermost secret of capitalism was not so innermost at all, there was no reason Howl discovered, why the law of value should “not take a variety of forms” (p97). To ask the question whether there was commodity production in the USSR was to pose it “in an artificial and static way” (p97). Certainly there was no commodity production in the USSR, but military competition forced the bureaucracy to compare the cost of producing goods in the USSR with the costs of production elsewhere, this subjective comparison “relates concrete labour to abstract labour on a world scale” (p97).

But a subjective comparison is qualitatively distinct from an objective one. To dream of scoring the winner in the FA Cup Final is not the same thing as doing so. All market pricing mechanisms are made subjectively by capitalists and market traders in advance of sale, but what is decisive is the objective price received on exchange. Capitalists might price their commodities at one level but find the price crashes when the market opens. The objective test is whether levels of valorisation match or surpass the break-even calculations underpinning the price, whether the price they receive in the objective act of exchange equals their subjective valuation. This did not happen in the USSR. Nothing was sold and subjective “valuations”

could never become objective. Soviet bureaucrats subjectively valued their output after it was produced. The bureaucracy responded to military pressures and allocated resources to arms production, but this did not modify plan prices which were determined *post-factum* and not directly related to the cost of production in any regard.

Howl's redefinition of the nature of capitalism echoed Kidron (1974), Harman (1969), Binns and Haynes (1980), all of whom had tried to re-define capitalism separate from commodity production and exchange. But there was no empirical foundation to Howl's claim either. Military competition did not force the bureaucracy to revolutionise production in order to reduce costs. In 1988 between 30% and 40% of Soviet machinery had been in operation for 15 to 20 years or more (Spulber 2003, p274). There was no technical depreciation of the fixed capital stock. In 1970 Soviet exports accounted for 4.0% of world trade, in 1980 3.8%, and in 1989 2.6%, even while the bureaucracy expanded exports of oil and gas. Soviet shares of manufacturing exports (the largest category of world trade) rose from 1980 0.4% to just 1988 0.6% (p244).

Table 6.1. USSR and G7, 1980s, proportionate break down of exports and imports percentage

	Exports		Imports	
	G7	USSR	G7	USSR
Machinery and equipment	81	16	67	41
Fuels	3	47	12	4
Raw materials	4	7	7	28
Foodstuffs	8	3	7	16
Other unspecified	4	20	2	11

(Spulber 2003, p246)

The majority of the USSR's exports were in fuels and raw materials, commodities which were not exchanged at their cost of production, but included rents. Between a half and two thirds of Soviet exports of machinery and equipment

were directed to other centrally planned or less developed countries (p233), where they were tied to aid packages and military support. Even the small proportion of machinery and equipment sold to the West was subsidised below the cost of production to earn hard currency to pay for imports of more advanced machinery and equipment.

In terms of the size of population and of the non-agricultural workforce the USSR and USA were comparable. But while the USSR increased the number of industrial workers faster than the USA this did not compensate for their low quality, low technological level and low productivity. Indeed, the USSR;

“...had to rely mostly on aged, obsolete, and backward plants and equipment... Yet, in only one respect did the Soviet Union reach its primary goal: Disregarding all costs, it built for its army a heavy industry and nuclear foundation comparable to that of the United States” (Spulber 2003, p231/2).

Military competition did not force the USSR to revolutionise its productive base or lower its costs of production, the military sector suffered the same problems of inefficiency, hoarding, waste and low quality output, that afflicted the rest of the economy (Harrison, 2008). The inefficiency of central planning meant that the USSR could only sustain the size of its military machine through a wholly disproportionate allocation of material resources to it.

Howl pointed out that the rate of profit did not operate in the USSR as capital did not flow between sectors in search of higher profits, or to put it another way, as capital could not be transferred according to the profit motive the law of value did not exist within it. This was no capitalist economy; there was no commodity exchange, value production or profits in the central plan.

Howl claimed that “Under state capitalism, and generally under modern capitalism, the operation of the law of value is mediated through the attempt to plan” (p98). The parallels between this version of Marxist economics and what became the

Stalinist orthodoxy of the 1930s are obvious. As Jasny noted back in the 1950s according to the view of the Stalinist planners, the “Socialist State” affected a planned departure of prices from value, which represented “the law of value in transformed form ...discovered by the coryphaeus of science, comrade Stalin” (1951a, p7). Even so Howl’s timing could not have been worse. This was the year before central planning was abolished in the USSR. Howl’s theoretical objection to the creation of a new mode of production was refuted too, as over the next decade the restoration of capitalism was exactly what occurred in the USSR, Central and Eastern Europe and China.

The fall of the Iron Curtain and the transition of the centrally planned economies to capitalism, through a disorderly collapse in Central and Eastern Europe and the USSR and by the incremental counter-reform in China and Vietnam meant that the definition of these economies is now a historical debate. But even two decades later state capitalist theoreticians re-iterate its essential features. Alex Callinicos (2009) argued that the entire period of Soviet history after 1917 was essentially an extension of the German First World War economy (p25). Jane Hardy (2009) argued that after the Second World War the centrally planned economy was created by the demands of the “military” (p15). Although this was evidently a non-capitalist economy as Hardy later explained that the market reforms of the 1990s reintroduced the “law of value” into it (p37). In contrast Gareth Dale (2011) edited a series of articles *First the Transition then the Crash* that sought to prove that the law of value already existed in the centrally planned economies,

“...the Soviet-type economies were constructed from a recognisably capitalist set of constituent parts: the separation of the means of production from the producers, wage labour and the coercion to work, money and the drive to accumulate capital – an imperative that was decreed by both geopolitical and geo-economic competition” (p2).

An examination of those essays finds little more evidence than the argument itself. The centrally planned economies were not based on the production of

commodities for sale on a market. They were not capitalist. An alternative argument features the gradual process of reform through which capitalist restoration took place. Mike Haynes said that;

“...if capitalism was something that was created anew in Russia in the 1990s, then it must have involved the development of new class groups based on new relations of production – perhaps by a process of primitive capital accumulation or what has been called accumulation by dispossession” (Dale 2011, p60).

This sounds like an accurate description of the process of big bang privatisation. New class groups were established on the basis of new relations of production, initially through the wholesale dispossession of the state by a clique of oligarchs, the formal subsumption of labour to capital, then through the creation of new capitalist businesses and the actual subsumption (Clarke 2007). Even more paradoxically, Haynes (2002) had previously argued that such a gradual transition to capitalism described how Stalin and the bureaucracy had captured power in the USSR (p43-106).

Harman’s own contribution largely consisted of a polemic running over several decades with rival theoretician Ernest Mandel (1991). Harman repeated the essentials of Cliff’s analysis, but attempted to attribute the crisis of the centrally planned economies from the 1980s onwards, to a rising organic composition of capital and falling rate of profit in them (Harman 1977), (Harman 2007). Harman’s last book *Zombie Capitalism* (2009) summarised this view. Harman reiterated Marx’s definition of capitalist production, as the generalised production and exchange of commodities (p21). Harman noted that commodity production did not exist in the USSR, but that rather the bureaucracy produced “use values” (p176). Hence, Marx’s definition of capitalism as generalised commodity production, repeated by Harman, did not apply to the USSR. Nonetheless even though the USSR was not capitalist according to Marx and Harman’s shared definition of it, the USSR was capitalist as, “what mattered to the ruling bureaucracy was how these use values

measured up to the similar conglomerations of use values produced inside the great corporations of the West” (p176). So now it is not the mode of production that determined the nature of the economy but the subjective comparison of centrally planned production with capitalism. The echoes of Bergson’s attempts to create a counterfactual capitalist economy in the USSR are obvious. Harman said that,

“The state monopoly capitalist arms economy was not able to do away with the cyclical pattern of capitalist accumulation. Specifically, it could not stop competitive pressures causing capitalists to tend to expand production during upturns in the economy on a scale which exceeded the available resources” (p176).

Planned prices were passive, they did not respond to changes in supply and demand, not only were managers not able to reallocate resources according to price movements, they did not even know what the price movements were. Prices were fixed according to a manual supplied by central planners. The rhythm of production, including the storming of targets at the end of plan periods, was set by the plan. The use of the profit motive on a cost plus basis meant any increase in productivity reduced the labour time fixed in each product. It reduced its share of the labour time of society, and any forced element of surplus labour. Increases in productivity were met by a reduction in the mass of profits, itself an expression in the reduction of actual prices. As the margin is calculated on this cost base, a rise in productivity will lead to a fall in the mass of profits generated by the enterprise. As any cost reduction reduces the quantities of physical inputs available to the particular enterprise it makes meeting planned targets more difficult, and so makes earning bonuses less likely. Consequently, enterprises in a centrally planned economy have a positive disincentive to increase productivity. Harman’s claim that, “in Marx’s terms, production within the USSR was subject to the law of value operating on the global scale” (p176) is wrong. Once exchange is abolished the profit motive or its equivalent cannot work. State capitalism is impossible, for without exchange, no unequal exchange, without unequal exchange, no dynamic profit motive, no profit motive, no capitalism. Why should arms competition, even if it did influence the

direction of the planned economy, cause it to follow the capitalist business cycle which was a product of economic not military competition?

While the business cycle was abolished in the centrally planned economies crises were not. They arose due to the inherent contradictions of bureaucratic planning. Chronic stagnation was the inevitable consequence of the inherent failure of the apparatus to revolutionise productivity. Harman accepted that “the Soviet Union had undergone six decades of accumulation without restructuring through crises and bankruptcies” (p211) or more accurately, it had precisely done away with the cyclical pattern of capitalist accumulation characterised by a sequence of crises and bankruptcies.

Harman failed to resolve the contradictions evident in Cliff’s original 1948 theory. He first defined capitalism as generalised commodity production. He then recognised that the USSR did not produce commodities but continued to define the USSR as capitalist. Harman’s attempt to explain the crisis of the centrally planned economy according to the categories of commodity production was a failure. The business cycle cannot operate in an economy without the exchange of commodity and without supply and demand, as Kidron (1974) and Cliff (1948/88) had demonstrated years before.

Bill Dunn, an Australian Marxist, developed a point previously made by Jefferies (2010) that outlined the correct solution to the measurement of national income in the transition economies. Dunn was prevented from breaking from the conventional wisdom by his adherence to state capitalism. Dunn noted that,

“Formally, the state (and, if less plausibly, the people) owned the means of production, there was no free market and ultimately only one employer. There was therefore no commodity production, no wage labor, and, according to conventional readings, no value....The false dualism between value and no-value producing, capitalist and non-capitalist labor, seems particularly stark in considering post-communist transformations. The opening

of the economies of the former Soviet Union and Eastern Europe, particularly through “shock therapy,” often led to mass destructions of wealth. Even mainstream accounts acknowledge falls in real GDP from which it often took years to emerge. Yet Marxists would presumably agree that these openly capitalist successor regimes have value. Unless it also existed previously, the collapse of communism must be reckoned to have created value on a massive scale, not destroyed it” (Dunn 2011, p497).

This was no false dualism. Dunn’s attempt to extend the notion of value beyond exchange production aptly illustrated how the formal adherence of state capitalists to a nominally orthodox reading of Marx’s categories, conflicted with their attempt to re-designate the centrally planned economies as capitalist ones, when none of the economic pre-requisites of capitalism existed. Marx’s categories were historical ones. They were derived from history itself. Cliff applied an *a priori* theory, determined that there was a conflict between the idea and reality, and redefined reality to fit the idea, the inversion of Marx’s method. Marcel van der Linden in his review of Western Marxist analyses of the USSR said that, “Ultimately we are forced to the conclusion that not a single theory of state capitalism succeeded in being both orthodox-Marxist as well as consistent with the facts” (Linden 2009 p313). Actually Marxist orthodoxy is not the issue here. Capitalism as an economic system of commodity production and exchange exists irrespective of Marxist theory. Centrally planned production was antithetical to it, indeed predicated on its absence. Capitalism did not exist in the centrally planned economies of the USSR, CEE and China. Once commodity production was introduced it rapidly destroyed central planning.

6.3 Marxism and globalisation

Marxist theories of globalisation uncritically accepted the measurements of transition developed by Western statistical agencies and the stagnation of capitalism they described. There was a dispute as to whether this was relative or absolute stagnation, but there was no dispute about the fact of stagnation itself. These official

national income series measured the centrally planned economies as a form of capitalism, even if a counterfactual imputed one. The acceptance of these measurements represents a break with the classical Marxist tradition that roots value and national income within commodity production and exchange. When the national income estimates are corrected, so that they measure the actual market production in a real market boundary, then the true growth of the world market with the restoration of capitalism in the formerly planned economies is revealed, and the alleged stagnation of capitalism is proved wrong.

Alan Freeman in a review of official IMF data from the late 1990s concluded that globalisation was a period of “absolute stagnation” (Freeman & Kagarlitsky 2004, p49). Based on Angus Maddison’s data James Crotty (2000) argued that growth in the neo-liberal period between 1990 and 1999 slowed to 2.3% that was “by far the slowest growth decade of the post-war era” (p362), why he asked “do the structures and practices of neo-liberalism generate such slow global growth?” Andrew Kliman (2012) reviewed data from the World Bank and from Angus Maddison and concluded that after 1973 the world’s real GDP per capita growth rate fell by one half (p51). Robert Brenner (2009), in a new introduction to his *Economics of Global Turbulence*, thought that, “The crisis currently unfolding in the world economy is, without close comparison, the most devastating since the Great Depression, and could conceivably come to approach it in severity” (p1). Brenner then provided a very clear summary of the various themes that have shaped the Marxist analysis of the recent crisis,

“The fundamental source of today’s crisis is the steadily declining vitality of the advanced capitalist economies over three decades, business-cycle by business-cycle, right into the present. The long term weakening of capital accumulation and of aggregate demand has been rooted in a profound system-wide decline and failure to recover of the rate of return on capital, resulting largely—though not only--from a persistent tendency to over-capacity, i.e. oversupply, in global manufacturing industries” (p1).

Based on a series of world GDP growth derived from the World Trade Organisation Brenner showed that the period from 1991 to 2000 was the slowest period of world GDP growth for any decade since 1950 (p7). Alex Callinicos (2010) in his *Bonfire of Illusions* repeated the essentials of Brenner's analysis and summarised the situation like this, "What started as the subprime crisis and then became the credit crunch has morphed into something that extends well beyond the financial markets, as it has generated a world economic slump" (p50). Callinicos uses Maddison's figures for global GDP to estimate average annual compound growth of 4.9% between 1950 to 1973 in contrast to 3.17% from 1973 to 2003 (p51). While Andrew Glynn (2006) used Maddison's figures to comment on the collapse of Russian output in the 1990s and rise of China (p88). David Harvey (2010) in the *Enigma of Capital* notes how financial crises have grown in scale and frequency after 1973. Harvey cites a series of national income estimates from Angus Maddison to assert that average annual growth rates have fallen to 2.05% from 1990 to 2003 (p25). Harvey does so in order to prove that capitalism will not be able to grow at the required 3% rate necessary to satisfy its potential accumulation (p216). David McNally has a more nuanced view of the crisis. In his view the period of neo-liberalism from the early 1980s onwards had enabled capitalism to escape from a brief crisis phase from 1973 to 1982. McNally again uses Maddison to analyse annual average compound rates of growth between 1870 and 2001 and concludes that period from 1973 to 2001 with a rate of 3.05% was the second fastest phase of capitalist development since 1870 (p38). Nonetheless McNally views the post 2008 crisis as a period of global slump for world capitalism. Sam Gindin and Leo Panitch (2012) agree, they repeat McNally's point again using Maddison's figures for GDP per capita growth rates, but subdivide the period from 1973 to 1998 into two phases with growth of 1.4% from 1973 to 1982 and of 2.5% from 1983 to 1998 (p186). Their figures raise the average by starting the series one year after a major recession and ending it one year before the next one.

Maddison's national income does not measure the world capitalist economy, but rather the world economy as if it were capitalist. By disaggregating market from non-market production, it has been proven that the growth of actual capitalist

production during the 1990s was much faster than the official series. The restoration of capitalism in the centrally planned economies increased the size of the world market by around a quarter up to 2010.

Output	Transition capitalist as a % of world capitalist year 2000	Transition capitalist as a % of world capitalist year 2010	Increase in world capitalist production 1990-1999 %	Increase in world capitalist production 1999-2010 %
Electricity	16	29	45	52
Aluminium	24	52	49	86
Hydraulic cement	39	65	60	122
Steel	24	53	39	53
Automobiles	6	30	16	39
GDP PPP GK	12	26	42	61

(BP 2012), (USGS 2012), (World Steel Association 2012), (OICA 2012), (GGDC 2012)

By 2010 the transition economies produced most of the world's aluminium, hydraulic cement and steel. This very rapid expansion of world capitalist production and the relative diminution of the economic power of the older G7 nations enabled capitalism to escape the stagnation of the 1970s/80s. Globalisation, the creation of a single market encompassing the globe was a new super cycle or long wave of capitalist development. David Houston (1992) reviewed the structural changes to the US economy during the 1980s and concluded that a new structural system of accumulation had indeed been established. Ismael Hossein-Zadeh and Anthony Gabb (2003) accurately described the long wave in the context of the restructuring of the US economy up to the end of the hi-tech bubble, but failed to assess the wider global context, based on the creation of a real world market with the collapse of the CPEs.

The economic historians Chris Freeman and Francisco Louca provided a better description of globalisation based on an appreciation of the impact of information and communications technology (ICT) on capitalist production. They

described globalisation as the “Fifth Kondratieff” applying a version of Kondratieff’s concept of long cycles (Freeman & Louca 2002). The failure of Marxist political economy to account for the growth of distinctively capitalist production meant that they had wholly inaccurate assessments of the recent credit crunch recession from 2008 to 2010.

Two recent theories of globalisation and the credit crunch, Leo Panitch and Sam Gindin (2012) *The Making of Global Capitalism; The Political Economy of the American Empire* and Guglielmo Carchedi (2012) *Behind the Crisis; Marx’s Dialectics of Value and Knowledge*, provide good examples of the different sides of the debate. Gindin and Panitch, long time editors of the Social Register, generally consider that globalisation has been a period of recovery for the United States economy in particular, and the world economy in general. In contrast Carchedi an extreme advocate of the stagnation thesis, considers that “The system lacks an inherent (tendency towards) growth and equilibrium” (p100). Panitch and Gindin’s book is a history of US capital and the US state in particular. It argues that the spread of capitalism around the world was a project of the American state. Carchedi’s book is more abstract. It is essentially a methodological treatise, with just one chapter that uses empirical data.

Panitch and Gindin argue that globalisation and nationalism are not counter posed. They claim it is “wrong to assume an irresolvable contradiction between international space of accumulation and national space of states” (p5). Indeed, but the contradiction between accumulation and the geo-political framework of nation states does not have to be absolute in order to explain how objective economic laws are shaped at any given historical moment. Gindin and Panitch do not see the “the export of capital itself as imperialist”. In their view the pre-first World War theorists of imperialism “failed to disentangle imperialism from the concept of capitalism” (p5). Panitch and Gindin claim that American capitalists defended the interests of capitalism in general “their policies became more oriented to offering equal treatment to all capitalists independent of their nationality” (p10). This equality before the law meant that “the interpenetration of capitals did largely efface the

interest and capacity of each 'national bourgeoisie' to act as the kind of coherent force that might have supported challenges to the informal American Empire". The US created openings for capital in general "not just US capital" (p11), but without an economic or legal definition of American Empire where is the Empire?

Gindin and Panitch claim that in globalisation the US had successfully created a world after its own image (p215). But the creation of globalisation was not basically a result of US policy. The US state may have been responsible for the neo-liberal onslaught on its domestic working class, but it was not responsible for the transition of the central planned economies to capitalism. Even if the scale of the crisis was exacerbated by the Star Wars programme, the collapse of the USSR and CEE was fundamentally a result of the inherent stagnation of the bureaucratic central plan. Once the quantitative gains available due to the extension of the scope of the plan were exhausted, the plan stagnated, due to the inability of the bureaucracy to raise the quality of production. In China the extremely backward nature of the economy meant that market measures introduced after 1978 rapidly took on a dynamic of their own. They provided the personal incentives to subsistence farmers not available in the collective farms. As the marketable surplus increased, so a migrant workforce was released from the land to be employed in the growing export oriented sector in the Special Economic Zones (SEZ).

The destruction of the Soviet Union and CEE not only opened the formerly centrally planned economies to capitalist accumulation, but it removed the only rival military and economic power to the USA, thus limiting the negotiating strength of emerging nations like Brazil and India. Without the USSR, these dependent capitalist nations no longer had a material counter balance to US hegemony. Trade barriers that had protected domestic manufacturing virtually disappeared.

This reduced the cost of transport and enabled the vertical and horizontal integration of manufacturing irrespective of national borders. This was the prerequisite for globalisation, the opening of the entire globe to the capitalist market. In the transition economies, the fall in tariffs occurred before 1991 with the abolition of

the monopoly of foreign trade in the late 1980s. The most dramatic falls in tariff levels were in the emerging markets of Brazil and India. But the decline occurred everywhere, including in the developed capitalist powers of Japan, the EU and USA. Importantly there has been no increase in tariff rates after the recent economic crisis. Tariffs have continued their downward trend. This implies that serious as the recession was for the West, it is not yet the end of globalisation, but rather an acceleration of the ongoing shift of the world economy away from the major Western industrialised nations.

Table 6.2. Manufactured goods tariffs, effectively applied rate, simple average of simple averages.

	1991	2001	2011
Argentina	14.8	13.49	9.98
Australia	13.87	5.78	3.05
Brazil	28.75	15.15	14.08
Canada	10.65	5.1	3.16
China	40.8	15.28	7.86
India	79.92	30.7	8.62
Japan	2.77	2.4	2.06
Poland	11.44	2.4	..
Russia	9.51	10.89	7.48
USA	5.59	3.68	2.87
Viet Nam	13.69	18.98	6.91
EU	4.31	3.21	1.37

(UNCTAD 2012)

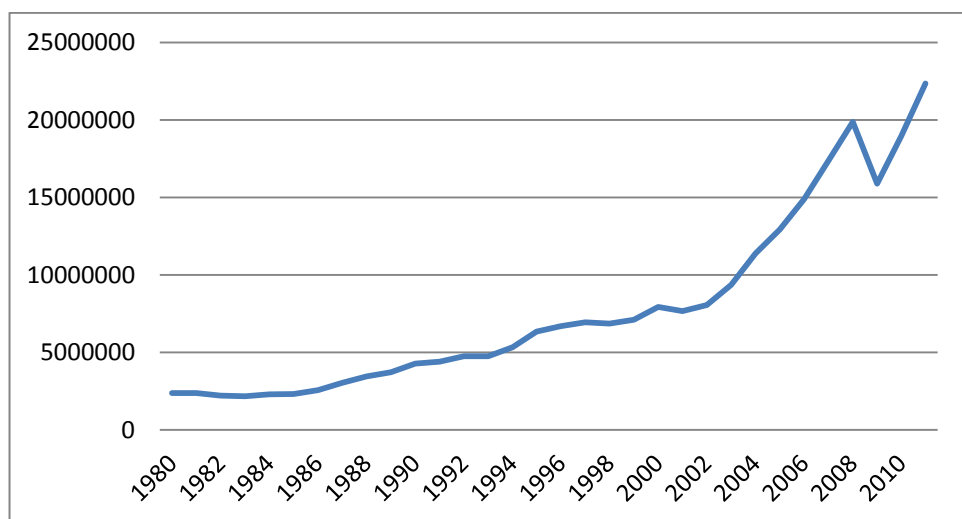
Where data for the year was unavailable the closest available year was selected marked in red.

Panitch and Gindin consider that “Globalisation was in fact intimately connected with legislative and administrative changes to deepen and extend market competition, including extensive treaties and coordination among states to this end”

(p224). Indeed it was, but the treaties were a result of the integration of these states into the capitalist world economy, a reflection not the cause of this material change.

The removal of trade barriers in its turn raised productivity and lowered the circulation time of capital which in turn raised profit rates. It was a pre-condition for the ICT revolution which saw the general application of a series of mainly electronic technological discoveries, the internet, graphical user interface and personal computer, made during the long downswing of the 1970s/80s, which required a global market for their production and sale.

Figure 6.1. World trade US current dollars and prices millions

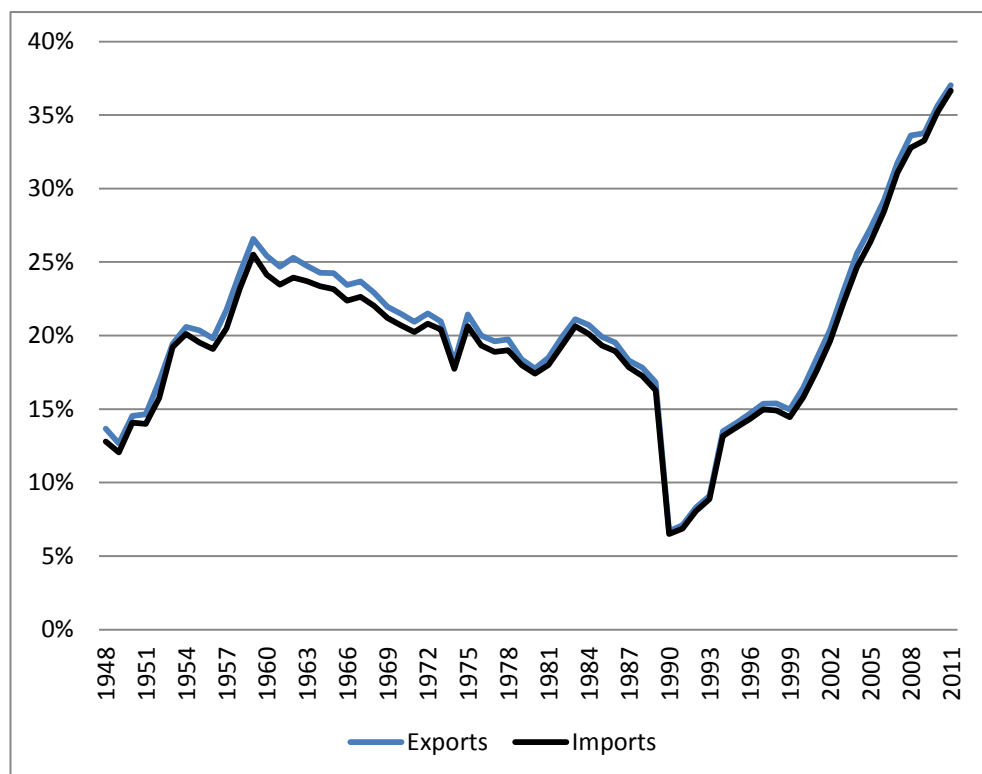


(UNCTAD 2012)

World trade increased absolutely by around fivefold between 1991 and 2011 and as a proportion of national income from around 18% in 1991 to 32% in 2011 or by around two thirds. The nominal dollar totals of trade are affected by the phenomenon of transfer pricing, in which multi-national corporations ship components, actually or virtually, around the world for tax purposes and by changes in raw materials prices in general and in particular oil. But the freedom of major corporations to shift value between their subsidiaries is itself a feature of the abolition or significant reduction of tariffs during the period of globalisation. It remains

indicative of general trends which demonstrate very strong trade growth from the early 1990s as the transition economies began capitalist trade and as a global market enabled firms to exploit comparative advantages to the full. Trade recovered very strongly even after the recent recession. The increase in trade to and from the now capitalist transition economies outstripped the general growth in total trade as central planning was replaced by commodity production.

Figure 6.2. CPE and transition economies imports and exports % world 1948-2011



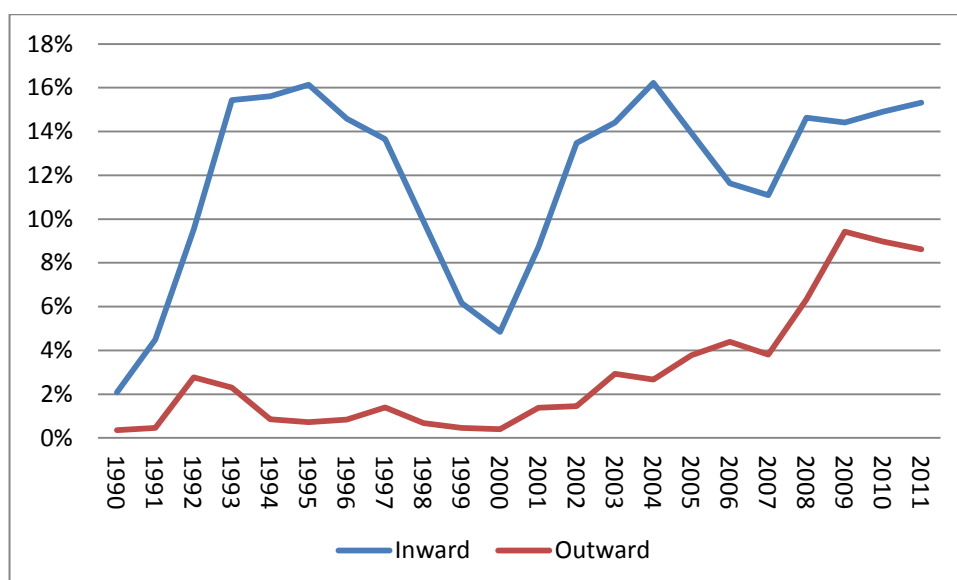
(WTO 2012)

Before 1991 these figures combine the internal “trade” of the CMEA and external trade with the capitalist nations. The CMEA “trade” was not sold at market prices indeed it was not sold at all, but bartered on an ad hoc basis. It was not part of world capitalist trade. This “trade” collapsed with the fall of the CMEA and collapse of the central plan in the CIS and CEE. From the early 1990s genuinely capitalist

trade emerged and grew from around 6.5% of the world total in 1991 to 37% in 2011. This increase in capitalist trade mirrors the rise in the proportion of key physical commodities and world GDP produced by the transition economies.

Foreign Direct Investment (FDI) soared. The total amount of FDI rose by 635% between 1990 and 2011. The proportion of total FDI directed into the transition economies increased even faster than the total, from almost nothing in 1991 to around 15% of the world total by the mid-1990s.

Figure 6.3. Transition economies FDI Inward and Outward flows % world 1990-2011



(UNCTAD 2012)

There was a marked fall after the East Asia financial crisis of 1997 which was reversed thereafter and not even interrupted by the hi-tech recession of 2001 growing back to the 15% level. Outward FDI, investments from the transition countries and in particular China and Russia, began to rise sharply from the mid-2000s, as Russia sought to export its oil and raw material surplus and China sought to invest its huge balance of payments surplus by securing raw materials and technology abroad.

Panitch and Gindin’s history of the neo-liberal period concentrates on the financial reforms that de-regulated US banking during the 1980s. Although they consider that an emphasis on deregulation is “misleading” (p178) as US finance remained some of the most regulated in the US economy. Instead they emphasise the role of the US state as lender of last resort, bailing out crisis ridden or failing banks. The authors explain the recovery of the US economy with rising profits, investment and productivity from the early 1980s, due to the transformational effect of four factors (p187-192), all of which influence the rate of profit. The rise of financial profits as a proportion of total profits, the decline (or more accurately the restructuring) they insist, of old core industries like shoes, textiles, food and beverages, as well as automobiles and steel. The shift to hi-tech global manufacturing, with rising productivity offsetting the reduction in manufacturing as a proportion of total output and finally the growth of professional and business services, related to the growth of finance. The significance of this shift towards the transition economies both as centres of manufacture and markets is reflected in the rapid decline of manufacturing industry in the West, as factory jobs were replaced by services.

Table 6.3. G7 percent of employment in industry and services

	Year	1971	1981	1991	2001	2011
France	Industry	39.3	35.5	29.2	24.6	20.9
	Services	44.7	54.2	64.2	70.9	76.1
Canada	Industry	29.4	26.9	22	21.7	19.1
	Services	63.1	68.3	73.7	75.5	78.8
Germany	Industry	48.7	42.2	39.8	32.3	27
	Services	44.3	52.8	56.1	65.1	71.4
Italy	Industry	38.8	36.5	31.4	30.4	27.3
	Services	40.9	50.2	60.1	65	69
Japan	Industry	35.7	35.1	34.2	30.1	24.9
	Services	48.6	55.2	59.4	65.2	71.3
UK	Industry	42	34.3	31.3	22.3	17.7
	Services	54.8	63	66.4	76.6	81.1
USA	Industry	31.7	28.9	23.4	21.3	17.3
	Services	64	65.2	73.8	77	81.1

(Bureau Labor Statistics 2012)

This has an important consequence for the statistics of Western economies. Services tend to have a lower technical and value composition of capital than manufacturing. The technical composition of capital is the physical configuration of buildings, machines and labour required to produce a given output, while its value composition is the price of that technical composition in value terms. Once a barber's shop has fitted out the décor and paid for the chairs, there are almost no raw materials costs. A restaurant will pay something for food, but this is still a relatively small part of overall costs compared to staffing. Once a call centre is operational its overwhelming cost is the labour of the operatives who staff the phones and maintain the technical capacity of the computer systems and so on. Services like railways with a high organic composition of capital are the exception.

Whereas even a small manufacturer has machines that are constantly being depreciated and raw materials are a key cost of production relative to labour. Labour productivity is the physical amount of use values produced by a given period of time, but this too has a reflection in value terms. In a capitalist economy sectors with a lower organic composition of capital transfer value to sectors with a high organic composition as capital moves in search of a higher rate of profit. As a result every unit of labour in a high organic composition sector will "add" more value than sectors with a low composition, as that labour includes part of the value transferred to it from a lower organic composition sector. As services make up a larger proportion of the economy, so the rate of productivity growth, whether measured by the quantity of output, labour productivity or total factor productivity, will fall.

The destruction of domestic Western manufacturing and their replacement by imports, lowered the domestic Western organic composition of capital and raised profits, but lowered the growth of total factor productivity and productivity in general. It appears that this shift causes a further stagnation of the economy, when it is actually a sign of a more thorough domestic restructuring of capital only made possible by globalisation.

This had a further positive knock-on effect for the capitalists by consolidating the defeats of the workers inflicted by the Thatcher and Reagan neo-liberal offensive. After the defeat of these workers, their manufacturing plants were closed and they were physically dispersed, making it far more difficult for workers to organise without the industrial core of the domestic working class, thereby weakening trade union organisation, working class parties and general militancy. This in turn helped drive down wages and undermined the ability of labour organisations to oppose speed-ups and productivity drives. Trade union density, the proportion of workers covered by collective bargaining declined precipitously, as did the number of strike days lost. This added to the ideological disarray caused by the defeat of “really existing socialism” in the USSR and CEE. It now seemed that there was no alternative to capitalism for the mass of the population. All these effects combined to raise the rate of profit in the major Western economies.

The integration of East Germany into a united Germany in 1991 meant a one off increase in West German GDP of around 16% which was not included in figures for German GDP growth due to the same statistical glitch that caused the underestimation of the transition in general. After large subsidies to cushion the collapse of the plan, the new United Germany is now reaping the fruits of what it sowed then. The influx of skilled East German workers drove down wage costs and allowed Germany manufacturing to take advantage of cheap centrally planned infrastructure all of which drove down costs. The United German government established the Treuhand to oversee the privatisation of East German state assets. It assumed ownership of 95% of East German enterprises which then were given away (Dornbusch & Wolf 1994). There were significant subventions from the German government totalling around €2,000bn by 2007 or around €100bn a year (Boyes 2007), but this relatively small amount – US post credit crunch bank loans amounted to \$21 trillion – bought an entire nation and transformed the German economy.

Table 6.4. German per capita GDP, Unemployment and Manufacturing Unit Labour Costs 1991-1998

Year	Per capita GDP (East/West in %)	Unemployment rates		Manufacturing unit labour costs (East/West %)
		East	West	
1991	31.3	10.3	6.3	159.7
1992	38.9	14.8	6.6	139.6
1993	47.7	15.8	8.2	124.4
1994	52.3	16	9.2	120.6
1995	55	14.9	9.3	120.6
1996	56.8	16.7	10.1	115.9
1997	56.9	19.5	11	111.4
1998	56.1	19.5	10.5	108.8

Council Economic advisors (1999) Statistisches Bundesamt Annual Statistical yearbook 1999 Wiesbaden and Borzig, B and G. Noack (1999) p203 cited (Funke & Rand 2002, p203)

The close links of East Germany to Poland and other transition economies allowed further movement of cheap skilled labour. Throughout the first decade of the Twenty-First Century Germany unit labour costs fell, in contrast to the rise in labour costs throughout Southern Europe despite the inflow of cheap money from the EU there. The current crisis is largely a product of Germany's political determination to drive down wage costs and government spending throughout the southern periphery of the EU. Outside of East Germany the transition cost even less. Entire countries and all their assets, including 50 years worth of infrastructure were privatised for next to nothing.

Carchedi claims that financial crises are caused by the "shrinking productive basis of the economy" (p149). He cites a chart that shows almost no change in the incremental US labour/fixed capital ratio between 1970 and 2002 (p154). Carchedi cites a paper by Gold and Fel'dman that claims that "some 31 million manufacturing

jobs were eliminated between 1995 and 2002 in the world's largest economies". Employment in manufacturing declined, he claims, while "global industrial production rose by more than 30%" (p155). Carchedi ignores the extension of the world market into the former centrally planned economies. By 2006 China, now the second largest capitalist economy in the world, employed 112 million industrial workers (Bannister 2009), as well as millions more in the former USSR and CEE. Carchedi claims that the "downward pressure on the average rate of profit" was exacerbated by the decrease in capacity utilisation in the USA which has fallen from 85% in 1970 to 78% in 2006.

The decline in the rate of capacity utilisation was another product of growth of services in the USA. As services are produced as they are consumed there are material limits to the extension of work time and therefore, of capacity utilisation. A barber's shop cannot open all night. A car factory can. The growth of the market enabled Western capitalists to complete the destruction of much of their domestic heavy industrial manufacturing.

Capitalism is measured in value terms, but it requires a mix of physical inputs in order to function. This constrained the ability of Western capitalists to devalue their domestic fixed capital stock while they were still dependent on the domestic output of sectors like, coal, steel, automobiles, aluminium and so on. They were forced to subsidise loss-making industries as there was no alternative source for their output. When production shifted to the East they could rid themselves of these sectors.

Carchedi reviews Marx's analysis of the tendency of the rate of profit to fall. Carchedi claims that assertions that rising productivity cannot offset the growth of the organic composition of capital are "contrary to Marx" (p87). Carchedi is wrong. Marx (1981, *Capital III*) noted that;

"...the commodity that emerges from one branch of industry as a product enters another branch as means of production. Its cheapness or

otherwise depends on the productivity of labour in the branch of production from which it emerges as a product, and is at the same time a condition not only for the cheapening of the commodities into the production of which it enters as a means of production, but also for the reduction in value of the constant capital whose element it now becomes, and therefore for an increase in the rate of profit” (p174).

Capitalists under the whip of competitive pressure continuously revolutionise production in order to reduce their costs and increase profits. In doing so they increase the proportion of dead labour (constant capital) to living labour and by investing in new machines squeeze out living labour, the very source of new value and of new profits. This produces a tendency for the rate of profit to fall. But the same factors that cause this fall also inhibit it. While it takes more constant capital to raise productivity, this productivity results in the cheapening of production and with it a cheapening of constant and variable capital. There is thus an elastic relationship between the technical and the organic composition of capital with the latter increasing more slowly than the former due to the cheapening effect of rising productivity. In turn rising productivity allows the capitalist to extend the unpaid part of the working day. Since 1973 US real wages have risen only marginally allowing a fourfold increase in productivity to pass over almost entirely to profits. Indeed if the combination of offsetting factors is powerful enough then profit rates may even rise for a period. By cheapening the means of production of labour and capital, increased productivity raises the absolute and relative rate of surplus value and can reduce the cost of machinery, buildings and raw materials. Yet according to Carchedi,

“...while the constant capital decreases due to the cheaper means of production, the labour power and thus the new (surplus) value created decrease as well, in such a measure that the decrease in the cost of the means of production cannot compensate the lower surplus value” (p96).

While the technical composition of capital reflects the organic composition of capital there is no reason why a fall in the value of constant capital, should require a

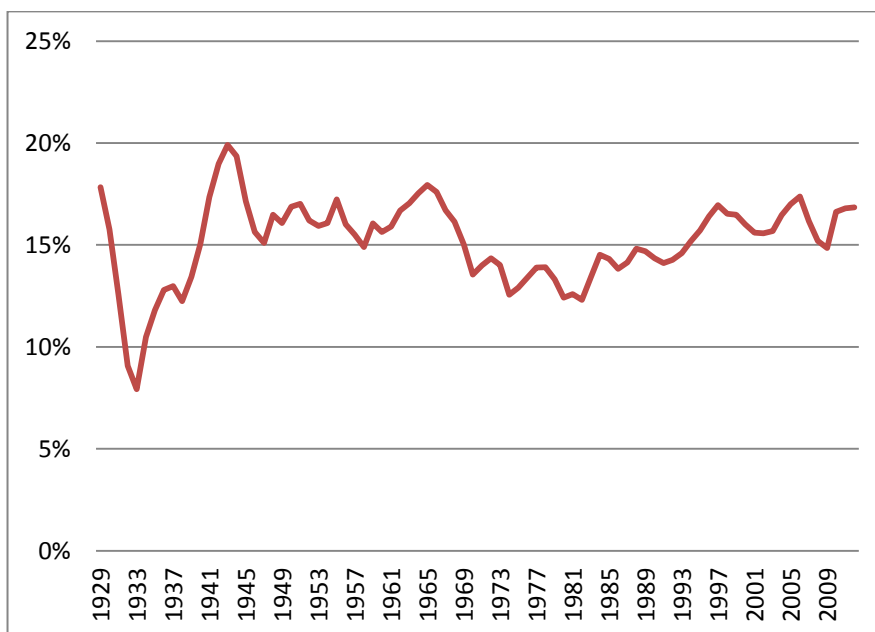
fall in the technical composition of capital too. Carchedi says that cost reducing technologies “cannot hold back the fall in the average rate of profit” as “the output of the labour shedding and productivity increasing technologies, rises, the output of the cost reducing technologies remains unchanged” (p98). But throughout the period of globalisation this has not been true. Manufacturing productivity has risen across the board. Carchedi claims that “it is impossible” for technological innovations to increase profit rates (p96). Carchedi claims that for Marx “technological innovations tend to decrease the average rate of profit because they tend to replace labourers with machines” (p145). This was not Marx’s view. The difference between the organic composition and value composition is the element of productivity. Take two industries A and B. Both experience the exact same change in the value composition of capital. However, in B there is a more significant fall in labour times due to a new different technological innovation. Accordingly the two organic composition of capital will differ while their value composition will not. Technical innovations may but will not necessarily replace labour with machines. It is clear that in the major Western economies, machines have been replaced by labour, as manufacturing with a relatively low labour intensity have been replaced by services with a relatively high one.

Carchedi’s absolute rejection of the impossibility of countervailing tendencies offsetting the fall in profit rates, as it transpires, is not that absolute. While his impossible, means maybe. Carchedi concedes that productivity increases can indeed “delay” the fall in the rate of profit (p97), but only “temporarily” (p98). But how long is the temporary delay? Carchedi claims that a rising organic composition of capital in the USA caused profit rates to fall and cites a paper by Alan Freeman (p139). Freeman’s analysis of falling profit rates does not explain the credit crunch of 2008. Freeman’s graph ends in 1999 and worse for Carchedi it shows US profit rates rising almost uninterruptedly between 1981 and 1999. Gindin and Panitch assert that just as over accumulation was not an explanation for the recent credit crunch, neither were falling profit rates. They point out that US profit rates have experienced a sustained upward trend over the last three decades. The most up to

date figures for the US rate of profit show that this upward trend has continued after the recession of 2008.

The rate of profit estimated in Figure 6.4 is only a proxy for the real rate of profit. In the real world, variable capital does not perfectly equal national income less profits as income can be transferred between periods, interest and rent charged before or after they are due, wages paid in advance through loans and so on. Similarly the mass of constant capital does not equal the fixed capital stock, depreciation may be shifted between periods and it includes inventories, raw materials and energy supplies, plus stocks of finished and unfinished goods. While adjustments are made to limit profits to those generated in production, in practice total profits are influenced by windfalls, transfer pricing and interest rates, as well as unequal exchange and the repatriation of profits made abroad to the USA. Nonetheless, as it can be assumed that these factors always influence the general profit rate, and as there is a very good correlation between this rate of profit and the business cycle, it is possible to assume that it is a reasonable proxy if only that.

Figure 6.4. US rate of profit 1929-2012



Source: (BEA 2012) BEA table 1.12 national income by type of income, table 1.1 current cost private non-residential fixed assets (author's calculations)*.

(The rate of profit is the total of surplus value (non-farm proprietors income, rent, net interest and corporate profits, after the inventory valuation adjustment (IVA) and Capital Consumption Allowance (CCA)) divided by national income less profits plus the current price fixed capital stock) or $(PI+R+CP)/((NI - (PI+R+CP)) + CPFCS)$.

* (2012 is estimated based on an assumed increase in the fixed capital stock of 6%).

During the Second World War the US rate of profit recovered from the 1930s Great Depression. It remained at high levels throughout the 1950s until it began to fall from the late 1960s onwards, falling to a nadir of just 12% in 1981, the deepest recession since the war. The onset of market liberalisation during the early 1980s saw a shallow recovery. But it was only with the collapse of the CPE in the early 1990s that it rose significantly. Deepankar Basu and Panayiotis T. Manolakos (2012) in a detailed empirical study of US profit rates between 1948 and 2007 concluded that "...the evidence in this section conforms to Mandel's (1980) and Shaikh's (1992) conjecture about 'long waves' in the general rate of profit". From the late 1990s the profit rate fell marginally, then rose again at the peak of the housing boom, before falling sharply after 2008. Since then it has risen strongly, given that this remains the early phase of the recovery it seems likely that it will soon surpass its previous recent peak.

The US rate of profit illustrates how the US capitalists were able to take advantage of globalisation, increasing profit rates by closing manufacturing with high organic compositions of capital, reducing the cost of reproduction of labour power by cutting wages through speed ups and the importation of cheap consumer goods from China. To this must be added unequal exchange, buying Chinese products cheaply and selling them for higher prices on the domestic market. As the transition economies have a lower organic composition of capital, much lower value of fixed capital stock and a cheaper work force, they will have a much higher rate of

profit than the USA, even if that profit is appropriated by foreign multi-national corporations. Half of Chinese exports are manufactured by foreign corporations. While the remaining half are often dependent on Western retail corporations for their foreign sales.

Carchedi criticises various explanations of the recent credit crunch not based on what he calls “Marx’s thesis” of the tendency of the rate of profit to fall (p156). But Marx did not have a thesis about the reasons for the credit crunch. Marx died long ago. Marx’s theory of the tendency of the rate of profit to fall is certainly applicable to this crisis but its application needs to be proved not assumed. Carchedi criticises any analyses of the credit crunch that considers it to be a result of policy mistakes and financial deregulation. Carchedi says that “since crises are a recurrent and constant given of capitalism, if crises were merely due to the policy makers mistakes, why would these mistakes be recurrent and constant?” (p132).

But it is not true that crises are constant and recurrent, crises are cyclical and periodic. A constant crisis is no crisis at all. Policy makers cannot prevent crises in general but it does not mean that their mistakes did not lead to or at least exacerbate this crisis. Policy is a catalyst, while it does not create the conditions for crisis, it can make them worse. Indeed they most certainly did. The packaging of good and bad debt in Mortgage Backed Securities (MBS) or Collateralised Debt Obligations (CDOs) meant that bankers did not know the value of the debt they owned or owed. This weakened the banking system, froze credit and dramatically deepened the crisis after the decision of the Federal Reserve to allow the collapse of Lehman’s in September 2008.

Carchedi dismisses explanations of the crisis based on under-consumptionism, the notion that there was a lack of aggregate demand from the working class. Carchedi points out that Marx had criticised the idea that crises were due to a lack of effective demand as they usually followed a period in which wages were rising. Indeed this was true this time too, the purchasing power of wages rose albeit only marginally in the West, even if the value of wages fell as a proportion of

national income. But a concentration on the consumption by the working masses ignores the increase in consumption by the rich. Carchedi makes the general point that falling wages increase the rate of surplus value and so increase profit rates. But this is not the strongest argument in favour of the significance of a lack of aggregate demand. US consumers took on debt to counter balance the fall in the real value of their wages, as stagnating real wages encouraged them to borrow to supplement their incomes. This may have accounted for the demand for loans, but it did not account for their supply.

Rising world profits had two contradictory effects. US retail banks had the funds to invest due to recycled profits from China and middle-eastern oil nations and multi-national corporations with bumper cash balances were able to fund investments independently of the banks. This meant that the banks needed new sources of revenue from the NINJAs (no income, no job, no assets). Carchedi accepts that this expansion of borrowing was an important source of new demand, but then rejects the idea that it was a cause of the crisis,

“Without the absorbing function of the US consumers based on debt, the rest of the world, as well as the US consumers, would have been faced with realisation difficulties long ago. But this does not mean that these difficulties, whether delayed by debt or not, are the source of crisis. Actually the above has shown that this is not the case” (p137).

Actually the above does not show that this is the case. Mortgage Equity Withdrawal (MEW) fluctuated between 4% and 9% of US disposable income from 2003 to 2007, before falling to between -2% and -6% from 2007 to 2012 (Calculated Risk 2012). MEW represents an advance on wages, its repayment a deduction from them. This significantly affects aggregate demand and exacerbates both the boom phase of the cycle and the subsequent recession. It certainly is an important factor in the origins of this crisis.

Globalisation in the sense of the destruction of all barriers to capital accumulation on a global scale is inherent in the dynamic of capital itself. But globalisation as an actual phase in capital accumulation only arose with the actual creation of a global market after the collapse of the centrally planned economies in the early 1990s. Whether or not it continues after the credit crunch of 2008 the idea that globalisation at least for its first two decades was part of an upward long cycle provides a better explanation of the recent credit crunch and its immediate aftermath. The same factors that created the crash also enabled Western governments to limit its scope and meant that emerging economies like Brazil, Russia, India and China (BRICs) (O'Neill 2003) have led the economic recovery outside of Western Europe. The emerging markets now account for 40% of world GDP in money terms and over 50% adjusted for PPP.

The one sided emphasis on the US power means that Gindin and Panitch fail to appreciate how America's relative economic position has been undermined by the very process of globalisation itself. Panitch and Gindin claim that the development of China was "still primarily directed to maintaining and expanding ultimate export markets to the US" (p276). Panitch and Gindin cite China's large proportion of exports to GDP, 43% in 2007 and its even larger trade to GDP ratio 68%. Their comparison of exports to GDP confuses sales with value added. Exports are measured by the total of sales, but national income is measured by the amount of new value added in the given economy. Much of China's exports are re-exports of semi-manufactured goods and as a proportion of value added exports make up a much lower amount than the total of sales or around 11% of GDP (Anderson 2008).

Panitch and Gindin consider that a revival of "progressive" economic nationalism is "ruled out" (p340). Indeed national rivalries are diminishing due to the integration of the world economy under globalisation. Panitch and Gindin claim that "illusions that other regions might be able to avoid the crisis were quickly dispelled" (p21) and certainly there was no absolute decoupling between China and the USA, but there was a relative one. There was a marked distinction between how far and how deeply different national economies were affected by the credit crunch. China

was hardly affected, while the USA was a lot. It is virtually inevitable that national economies will be affected over the next few years as the BRICs seek to translate their burgeoning economic power into political power. China and Russia are not basically dependent on the Americans for their growth and development. But the continued domination of world markets by Western multi-national corporations means that in order to gain a higher proportion of super-profits then China will attempt to develop its own major corporations to rival and eventually displace the West.

Their growth calls into question US hegemony and financial profits dependent on the supply of legal services, patents and royalties connected to the current legal structure of the world economy. The USA will be very vulnerable once China begins to assert its interests independently of US power, as it is already beginning to do in Africa and near Asia in its dispute with Japan over islands etc. In spite of high growth in the newly industrialising countries, Gindin and Panitch claim that US output as a proportion of world output remained stable from the early 1970s onwards. Actually it has fallen by half from around 35%, to 17.5% by 2011 with the rate of fall accelerating dramatically during the latter half of the first decade of the Twenty First Century. As a result Panitch and Gindin downplay the significance of the growth of China, viewing it essentially as an appendage of the American “Empire”. David Kotz (2009) wrote that, “The evidence suggests that we are seeing more than just a severe financial crisis and a severe recession. We are witnessing a crisis of the neoliberal form of capitalism. The ability of that form of capitalism to promote expansion of output and profits appears to have reached its end” (p315). The subsequent recovery of world capitalism proved this apocalyptic view wrong. By 2011 it was clear that the credit crunch crisis was no global slump. The world economy declined by 0.6% during 2009, but this decline is dwarfed by the growth of the world market during the transition of the central plan to capitalism. This increase, not measured by the official statistical agencies, was around 17% of world capitalist production in 2001 or 27% in 2011. This explains why these theorists could not account for the resilience of the world capitalist economy as a whole, and the ability of the former periphery to drag the former centre out of the hole it had dug itself. It

was an increase in capitalist production between 28 and 45 times larger than the fall in output registered during the “Great Recession”.

The early 1920s was a period of immensely fruitful and creative economic research in the early USSR as theorists debated how to develop the economy, the role of the state, central planning, the measurement of national income and the relationship between the business cycle and longer periods of capitalist development (Day 1981). This debate was led on opposite sides by Leon Trotsky and Nikolai Kondratieff. In 1921 Leon Trotsky noted the existence of long waves, cycles or curves of development in the world economy in a speech to the Third Congress of the Comintern (Day 1976). In 1922 Nikolai Kondratieff a Russia economist, statistician and student of Tugan Barankovsky, published an analysis of the world economy that demonstrated long cycles or waves of capitalist development over fifty or sixty years, based on movements in price data. These long cycles shaped the course of the more frequent seven to ten year business cycle (Kondratieff 1922/2004). Trotsky returned to the same theme of the relationship between the basic curve and the cycle at the Fourth Congress of the Comintern the year after.

In 1923 (1973) Trotsky’s article the “Curve of Capitalist Development” argued that Kondratieff had failed to adequately account for the relationship between the economy and the political conjuncture, national conflicts, social struggles, wars, revolutions and civil wars. Kondratieff’s theory was too mechanistic. It separated too finally the development of the economic base from that of the political superstructure in which it was situated. Trotsky’s critique reflected his theory of imperialism that emphasised how the productive resources had outgrown the geo-political colonial framework developed during the grab for Africa. New but late economic powers, notably Germany and the USA, were excluded from the colonies owned and controlled by France and the UK. The now declining powers were unwilling to surrender their control of the world market to their new rivals. Trotsky explained the origin of the First World War from this contradiction and the crisis of the world economy during the inter-war years (Day 1973).

In 1925 Kondratieff reiterated his position and expanded on the empirical evidence for his argument in “The Long Cycles of the Conjuncture”. Kondratieff’s theory came under intense scrutiny from Soviet statisticians most notably D.I. Oparin. Kondratieff derived the long cycle from a smoothed data series based on a small number of physical and price indicators, while the dates of his turning points, which saw groupings of inventions and wars and revolutions, were not based on smoothed data. Oparin concluded that “long waves can be observed only in the movement of prices and of the long term interest rates” (p211). Garvey’s (1943) later review of the discussion concluded that Kondratieff did not establish the empirical foundation of long waves from the data series he considered. The debate was cut short as Stalinist repression drove Trotsky into exile in 1929, while Kondratieff was sacked in 1928 then arrested in 1930. Both were later murdered by the Stalinists.

Maddison (1991) questioned the empirical basis of Kondratieff’s analysis but considered Kondratieff’s contribution to be “fundamental” (Maddison 1986, p73), even if he only considered Kondratieff had demonstrated long waves as a monetary phenomenon. Ernest Mandel developed an original analysis of long waves inspired by the work of Kondratieff and Trotsky (Louca 1999). Mandel (1972) outlined his position in a number of works from the early 1960s onwards, but most systematically in a chapter in *Late Capitalism* and in a longer piece on *Long Waves of Capitalist Development; A Marxist Interpretation* (1995). Mandel argued that long waves could be divided into two distinct phases, an upward phase characterised by high profit rates, technological innovation, strong industrial production, growing markets and rising living standards and a downward phase characterised by low profit rates, technological stagnation, low industrial production and falling living standards, with frequent and stormy crises and violent class struggle.

The outset of the upward phase is characterised by a low organic composition of capital, a product of the expansion of the world market as after 1850 or the destruction of capital after 1945, high profit rates; a hegemonic world power; the reduction of circulation times; and technological revolution. As the accumulation process passes through several cycles, the dynamism of technological development

wanes. The slower growth of productivity means that capitalists are unable to offset the growth of the technical size of the means of production through the cheapening of their investments. Wage rises can no longer be paid for by increased productivity, so the cost of the reproduction of labour power increases. This is exacerbated as full employment increases the organisation and confidence of the working class which in turn squeezes the rate of surplus value and profit rates. The upward phase of the long wave ends as a result of the endogenous development of the accumulation process itself. Over several business cycles, there is a decline in the ability of strong productivity growth to offset the increase in the organic composition of capital and lower the cost of reproduction of labour power. As the decline in productivity continues, increased investment precipitates an absolute fall in the rate of profit. That is the absolute increase in capital is met by an absolute fall in the mass of profits, creating a general systemic crisis. Concurrently the growth of new powers in the upward phase of the cycle challenges the status quo of the existing world order, thus threatening trade and the export of capital. The combination of these factors produces a downward long wave that lasts until the overall framework of the accumulation process is radically altered by some exogenous factor, such as war, revolution or civil war. These could be profound defeats for the labour movement that lower wages and restructure the work place, the opening of new markets for the export of capital, or the wholesale destruction of capital through war. Such a combination of circumstances arrived at the end of the Second World War.

Richard Day (1976) criticised Mandel's long waves as an awkward combination of Kondratieff's long cycles and Trotsky's curve of development. Principally on the grounds that for Trotsky there was no automatic periodicity of cycles, rather a discontinuous series of periods or epochs. It is moot whether Mandel's theory contains such an automatic mechanism. Certainly it does not for the transition from the downward phase to the upward phase. Maddison (1991) reworked Mandel's figures in an attempt to disprove the statistical basis for the theory. In Mandel's view Maddison aggregated the output of industrialised capitalist and non-industrialised nations (Mandel 1995, p4). Maddison applied the same very

misleading method of aggregation that produced such an inaccurate picture of transition in the 1990s.

Mandel died in 1995 before the effects of capitalist restoration were really evident. In any event Mandel did not have an adequate critique of Soviet national income statistics, as he accepted the application of capitalist value measures to the USSR (Mandel 1989). All of the issues around long waves cannot be resolved here, rather it will be demonstrated that whatever issues around its wider application remain, the theory can be demonstrated in both its quantitative and qualitative aspects for the period of globalisation. Mandel's last book published in 1995, the year of his death, anticipated the conditions necessary for the world economy to escape the long downturn of the 1970s and 1980s;

“But is it a possibility that the present ‘long depression’ will eventually give way to a ‘soft landing’ ...its basic precondition: a massive ‘system shock’ which combines a sharp rise in the rate of profit (inducted by an even steeper rise in the rate of surplus value) and a considerable broadening of the market. The latter could only occur, in the present world situation, through total integration of the former USSR and the People’s Republic of China into the capitalist world market” (p114).

Mandel echoed Trotsky’s view from 1928 in his book *The Third International After Lenin* (1972);

“...a new chapter of a *general* capitalist progress in the most powerful, ruling, and leading countries is not excluded. But for this, capitalism would first have to overcome enormous barriers of a class as well as of an inter-state character. It would have to strangle the proletarian revolution for a long time; it would have to enslave China completely, overthrow the Soviet republic, and so forth” (emphasis in the original) (p61/62).

By the late 1990s Mandel and Trotsky’s theoretical postulate had become reality. The USSR, CEE and China were integrated into the world economy. The

world population that could be exploited by capital doubled and the world capital to labour ratio fell (Freeman 2005). As the world organic composition of capital fell so the world rate of profit rose. Entire countries, their cities, Warsaw, Prague, Berlin, Moscow and Beijing and the entire attendant infrastructure were privatised for essentially no cost. The defeats of the trade union movement in the USA and UK during the 1980s drove down wages in the industrialised West and allowed extensive restructuring, raising productivity and driving up the intensity of exploitation. The now unchallenged hegemony of the USA meant that third world nations were open for business, with wholesale privatisation and the purchase of their nationalised industries at knock down prices followed. Terrence McDonough (2003) observed that “In this way, it can be argued that the extension of capitalist production relations to Eastern Europe and China was a decisive and qualitative step toward globalization in league with previously globalized commodity and money circuits” (p284). He went on,

“The opening up of Eastern Europe and China, the increasing mobility of capital, the transnationalization of the capitalist class, the establishment of global norms of profitability, and para-state structures like the World Trade Organization are certainly driven by globalization. Globalization is also intimately linked to the reinstatement of U.S. hegemony. A case can be made that globalization is the principal force behind a changing balance of class forces that has made possible the assault on unions, the introduction of lean production, the technology of flexible specialization, and the changing orientation of domestic state policy” (p285).

McDonough analysis was only limited by a curious counter position of neo-liberalism to globalisation. Neo-liberalism preceded globalisation – the creation of a global market – but globalisation incorporated and extended neo-liberalism across the globe. McDonough description of the various factors was quite accurate, even if his adherence to the Social Structure of Accumulation (SSA) school of analysis means he has an overly narrow emphasis on the institutional arrangements that sustain phases of accumulation. Globalisation is a period of capitalist accumulation

that precisely originated outside of the traditional heartlands of capitalist development through the integration of previously non-capitalist economies into the world market (Lippit 2010). Indeed, a recent collection of SSA theorists' writing around the recent credit crunch made no mention of the restoration of capitalism in the CPEs whatsoever (McDonough et al 2010).

The cycles of globalisation could therefore be summarised like this, the first cycle of globalisation can be dated from 1991 to 2001. It saw the collapse of the centrally planned economies and their transition to capitalism; the consolidation of the Thatcher/Reagan defeats of the labour movement; the resolution or abandonment of the third world national liberation movements like the ANC and PLO; the privatisation of nationalised industries, reduction in size of the welfare state; growth of foreign investment; destruction of heavy industrial capacity in the West and the onset of the ICT revolution, the consolidation of the upward trend in profit rates evident since the early 1980s. The glut of raw materials exports from the transition economies drove down the price of circulating constant capital. The Asian stock market crash of 1997 was the nadir of the restoration process. The dot-com boom from 1998 to 2001 meant the world was rapidly wired up on the back of speculative fever for the "new economy", this was combined with the wholesale transfer of manufacturing production to the East and the horizontal and vertical integration of production through computer technology. From the late 1990s profit rates began to fall. The dot com crash of 2001 was the inevitable result, but the devalued infrastructure it had paid for was now installed. The recession was short lived and limited to some of the Western nations.

The second cycle of globalisation from 2001 to 2010 saw a residential housing boom and bust in the West. Rising profits and cash surpluses in major multi-national corporations combined with recycled profits from the oil exporters and China drove down interest rates via the accumulation of huge quantities of US and UK foreign debt at very low rates of interest. This essentially free money provided the loans for the credit crunch boom. Rising manufacturing productivity lowered the

cost of reproduction of labour power and led to wages falling as a proportion of national income as capitalists eroded the terms and conditions of Western workers.

The transformation of manufacturing technique by the application of ICT, reduction of trade costs and lowering of tariff barriers enabled much more efficient just in time working in factories, reducing inventory, while rising productivity reduced the cost of new capital even while its technical scale increased. The bursting of the credit crunch bubble after 2008 caused a serious crisis across the world economy. The financial dislocation hit trade as shipping firms could not insure their loads. This in turn exacerbated the depth of the recession.

Between April 2008 and May 2009 world trade fell by 20% and world industrial production by 11% (Ebregt 2012). The US fixed capital stock was written down absolutely falling in value by -5% for only the second time since 1929. But the reflationary measures of China with a stimulus package worth around half of national income, and the decision of Western governments to guarantee their banks losses limited the crisis. By July of 2010 world trade and industrial production had retraced their entire fall. Over the next two years profits have similarly recovered. The USA lost more jobs, over 6 million, than in any recession since the Second World War, but through pay cuts and short time working capitalists off loaded the cost of the crisis onto the working class. Profits quickly recovered even while wages fell as a proportion of national income. Over the next three years the labour market slowly recovered, so that by mid-2013 unemployment had significantly fallen.

The recession had accelerated the on-going trend towards the transition economies, particularly China and the Russia, and large emerging nations like Brazil and India or the BRICs as they were otherwise known (O'Neill 2003). If the cause of the recession was the re-cycling of surplus profits to the West that drove down interest rates and enabled reckless bank loans to poor workers – the so called subprime borrowers – then the continued availability of that money has enabled Western governments to offset some of the worst elements of the crisis. Interest rates

remain low. Profit rates remain high. Firms have record levels of cash on their balance sheets.

The third phase of globalisation from 2010 onwards will see the strengthening of all of these trends, but at the same time cost of undermining the very basis of globalisation itself. In the now restored capitalism of China, nominal dollar national income grew from \$1317bn in 2001 to \$6692bn in 2011 a rise of 408%. Russia's nominal dollar national income grew faster, from \$306bn in 2001 to \$1885 by 2011 or by 515%. Brazil's national income rose from \$500bn in 1991 to \$2000bn in 2011 a rise of 300%. India from \$450bn in 1991 to \$1750bn in 2011 a rise of 385%. By the end years of the first decade of the Twenty First Century, these aptly named "emerging markets" accounted for more than 40% of world production at current prices and for more than half when adjusted for purchasing price parity (IMF 2012). The reorientation of the Chinese economy towards the domestic market is underway, even if exports remain very important to it. In 2006 Philip O'Hara considered that China was experiencing a long wave of development.

China now has 163 of the world's top 2000 corporations, the largest of these firms are limited to its domestic banks and raw materials firms. It remains excluded from the high-tech manufacturing corporations that still dominate each sector of production. If it is to complete the transition into a real rival to the Western powers, it will need to be able to create its own rivals to the existing Western multi-nationals. China's state sponsorship of these nascent firms implies that it may be able to do so, although this is not certain. If it can do so, then the development of China's own multinational corporations will begin to limit the ability of Western firms to extract surplus profits, as they lose monopoly control of key technologies. As China seeks to control ever larger areas of strategic raw materials it will impinge on Western oil and mining companies. The rate of technological advance will slow. As productivity slows, manufacturers will not be as able to offset the cost of investment through reductions in its unit cost, the cost of reproduction of labour power will increase and so the cost of wages will rise and eventually the rate of profit will fall. The

endogenous factors that Mandel identified will eventually mean that the upward long wave of globalisation comes to an end.

CHAPTER 7

Conclusion

This thesis was inspired by an investigation into the nature of globalisation. I wanted to apply Ernest Mandel's long wave theory (Mandel 1995), to explain how the combination of the neo-liberal counter reform programme initiated by Thatcher and Reagan and then consolidated by the restoration of capitalism in the USSR, CEE and China, had created a new period of capitalist development or upward long wave. I was confronted by an immediate problem however. The empirical basis of Mandel's theory, as represented in the national income statistics of Western statisticians, showed that the expansion of the world market into the transition economies had not increased capitalist production. Indeed, the official statistics showed world capitalist production stagnated in the 1990s, even when compared with the crisis years of the capitalist economy from 1973 onwards.

Mandel's (1972) idea of long waves explained how there were longer periods of capitalist development that shaped the periodic business cycle. They combined factors from the rate of technical advance, productivity growth, industrial growth and profitability as well as the geo-political framework for capital accumulation, to explain the longer phase of capitalist development. Angus Maddison criticised the empirical basis of Mandel's long wave theory (Maddison 2006). Maddison (1991) concluded that Mandel's claims for the changes in the rate of industrial production were unfounded. Mandel (1995) considered that Maddison had aggregated the output of industrial capitalist and non-industrial nations and so obscured the real trends in distinctly capitalist industry, when he developed his estimates of industrial output.

Mandel died before he was able to apply his long wave theory to the period of globalisation. He never saw the complete integration of the former centrally planned economies into the world capitalist economy and thought it unlikely that this would occur or create a new expansionary phase in capitalist development. One reason for Mandel's hesitation was that he too lacked a really rounded critique of Soviet national income statistics. Mandel accepted the application of value measurements

for centrally planned output. He considered that the existence of the categories of capitalist economy in the central plan represented in some form the remnants of capitalist social relations there (Mandel 1989). As I demonstrate later, the use of “value” measurements of Soviet statisticians was a result of the abandonment of the Marxist historical method when the first five year plan was implemented in 1928. In order to prove that globalisation was a new upward wave of capitalist development, I needed to empirically demonstrate what was intuitively obvious, that the expansion of the world market into the centrally planned economies resulted in an expansion of output inside the world market. I realised that it was necessary to disaggregate centrally planned production from market production to measure the real growth of actual national income during the transition of these economies to capitalism. This is a key original insight of mine and it provides the foundation of my alternative method for the measurement of real national income during the transition period.

Maddison had explained elsewhere (Maddison 2009) that the method he applied for the measurement of the output of the USSR and China originated from the work of Abram Bergson. From (Bergson 1961), I traced the history of Western estimates of Soviet centrally planned output from (Clark 1939), through to the last efforts of statisticians to measure the transition of the centrally planned economies to capitalism during the 1990s.

So this is an outsider’s account – outside of the consensus of neo-classical statisticians and outside of the consensus of Marxist theoreticians of globalisation. In a special issue of the *Review of Income and Wealth* a number of economists working on the application of national income measurements to the centrally planned economy concluded that the main issue that separated the measurement of the centrally planned from the market economy was that of coverage (Ivanov 2009). Ivanov repeated the by now well recognised point, that official Material Product System (MPS) measurements of the centrally planned economy did not measure the service sector and had underestimated depreciation. For the neo-classical statisticians there were no issues of principle separating the measurement of a centrally planned or a market economy. There was no fundamental distinction between use value and

exchange value. Indeed, they considered that the application of the US SNA to the centrally planned economies could produce more or less accurate measurements of centrally planned “national income” by removing the “distortions” in prices caused by the central planning apparatus (Rawski 2009).

It stands outside the Marxist orthodoxy too in that it opposes the description of capitalist globalisation as a period of stagnation in its original estimates of the empirical growth of national income during the transition period and in its criticism of the application of value measurements to an economy without (exchange) value. Marxist or Marxist-influenced economists such as Alec Nove (Nove 1955), Alan Freeman (Freeman 1991), Anwar Shaikh and E. Amet Tonak (Shaikh & Tonak 1996), criticised the self-imposed limitation of Soviet statistics to the measurement of physical commodities. This was viewed as a mistake similar to that of Adam Smith’s value theory (Smith 1998). The more fundamental issue of the non-existence of exchange value itself was not considered to be important. This contrasted with the classical Marxist tradition represented by Preobrazhensky (1965), Bukharin (1982), Trotsky (Day 1973) and Rubin (1990).

The advantage of standing aside from the conventional wisdom is the opportunity to question the fundamental basis of the entire statistical research programme into the centrally planned economies, as well as the subsequent use of their statistics by Marxists. The disadvantage is the possibility of missing out on key sources and influences, of misunderstanding or misrepresenting the ideas of its participants and of providing a one sided or indeed plain wrong characterisation of their research. To overcome this risk, I undertook a systematic review of the literature to cover as many of the original sources as possible. This included all the main participants in the debate and as many as possible of the subsidiary ones. All of the original Western debates around the measurement of the centrally planned economies were published in English, so this allowed me access to the ideas of their creators in their own words. In explaining their points of view I have used direct quotations wherever possible or strict paraphrases of the author’s arguments to allow the various alternative points of view to be represented in their own words as far as

possible. I trace the arguments from their initial presentation through the reply and counter-replies. My critique of the shared conventional wisdom attempts to refute its best arguments and most fundamental shared assumptions. While I seek to explain the various alternative solutions to the problem my essential concern is to show that this was a problem without a solution. The entire application of market measurements to a non-market economy was fundamentally flawed.

As I delved further back into the origins of Western estimates of Soviet national income I became aware of the origin of the modern Western System of National Accounts in the Soviet *Balance* of 1923 (Leontief 1964), as applied and developed in the USA by Soviet exiles Simon Kuznets (1975) and Wassily Leontief (1951). It was through Kuznets and Leontief that Marx's *Capital* provided the reference point, albeit unacknowledged, for the creation of the US SNA. The significance of the *Balance* and the later *Materialy* was recognised by Richard Stone (1985) the author of the initial report that led to the United Nations Report on Western national accounts (Stone 1947) and by later historians of national accounts like Paul Studenski (1958) and Zoltan Kennessy (1994). This led me to refresh my understanding of value measures and national income as they originated in Marx's *Capital* (1992) and developed by economists in the early Soviet Union.

Paul Studenski's history of national accounts confirmed that Marx had correctly identified the three methods of calculating national income, from the income side, as value added and demand side. In conjunction with Marx's analysis of the spheres of circulation outlined in *Capital II* (Marx, 1992, *Capital II*), this provided the inspiration for the Soviet *Balance* and Western input-output analysis. Kuznets and Leontief failed to point out that their work had originated in Marx, when they applied essentially the same value measures, via the SNA, to the USA in the 1930s (Clark 1984). That the Western SNA was rooted in Marx's value measures, albeit through the distorted prism of Kuznets and Leontief, strengthened my confidence in the essential argument of this thesis: that national income measurements measure an actual thing – exchange value – in a market economy where output is predicated on the production of commodities for sale. This accorded

with my interpretation of Marx's understanding of abstract labour, the form of general labour measured through the act of exchange in a capitalist economy. In the centrally planned economies the value of inputs and outputs were determined subjectively by a planning apparatus. The physical quantities of concrete labour that underpinned their valuations never became general abstract labour through the act of sale.

Under capitalism all abstract labour takes the form of concrete labour, but only that part of concrete labour that is socially necessary adds value. I criticise Marxist theorists like Diane Elson (1979), who separate Marx's theory of abstract labour and his theory of value from the other subordinate economic categories that demonstrate its existence, such as prices, the division of labour, the existence of exploitation of wage labour and in the development of capital accumulation from simple commodity production. I reject those Marxist theorists who consider that Marx's categories were one sided abstractions instead of descriptions of real social relationships (Murray 1993).

The contemporary Marxist debate around abstract labour led me to investigate value theory as a whole, including in its neo-classical or marginalist, Sraffian and Marxist forms. The incommensurability of physical outputs, of actual use values, means that their value, the proportion in which they are exchanged for one another, must consist of some other shared common property. Neo-classical tradition ignores this point and simply attributes value to use. It has no objective theory of value at all, but only a subjective one. Consumers simply pay what they think a commodity is "worth". That price is what the marginal or last consumer will pay on a market. Neo-classical subjective theory does not explain the origin of value or the rate of profit. It simply attributes factor incomes, the value accruing to the owners of land, means of production and labour to their natural properties. But a purely subjective theory of value means that no commodity has any value. For if money is valued subjectively, then the effective demand of any individual is unlimited. If the value of money is determined by its quantity, then what is the quantity of money a measure of? There must be some objective standard against

which the subjective valuations of the given use value can be measured. Neo-classical theory has no such objective standard and so no explanation of value at all. The logical extension of value to all production without regard to exchange, what Studenski called a “supercomprehensive” notion of value was itself illogical (p168). Sraffa (1972) addressed this incoherence in his book, *The Production of Commodities by Means of Commodities*. This demonstrated that even on its own assumptions neo-classical theory was mathematically impossible due to a switching and re-switching problem that arose through the movement of capital to establish an equal rate of profit. But Sraffa also sought to bypass the labour theory of value by creating a measure of physical surplus and a physical “rate of profit” based on a “standard commodity” that represented the physical correlation of means of production and labour at a given moment. This standard commodity could only exist if physical outputs increased in proportion to physical inputs and if the production process did not transform the physical form of outputs. Neither of these assumptions holds in the real world. Sraffa’s “rate of profit” was nothing of the kind, as profits are a value measurement not a physical one.

Paradoxically the contemporary Marxist opponents of Sraffa who use models based on imaginary economies producing one or two physical commodities are unable to convincingly refute Sraffa’s physical alternative to the labour theory of value. All abstractions are simplifications that exist only in the imagination, but insofar as abstractions represent the real world, that is, insofar as the idea corresponds with the thing, then they can be regarded as “concrete”. Marx’s historical abstractions are rooted in the empirical, actual, historical reality of the actual social relations that essentially determined the nature of people’s lives. The use of mystical, imaginary, metaphysical abstractions, that have no correspondence to the real world, demonstrates just how far contemporary Marxists have travelled from Marx.

Marx followed Ricardo in considering value in a market economy, to be the socially necessary labour time required for the production of the given use value. Exchange value was the form of value that concealed the essence of value,

constituting actual socially necessary labour of real people producing real things, to be sold on real markets. Kuznets and Leontief effectively retained Marx and Ricardo's view that value arose in production and was realised in exchange and Marx's distinction between property income (or surplus value) equal to the sum of rents and interest or profits and labour income, equal to the sum of wages (or variable capital), but separated the value form from socially necessary labour time. To this day the UN system of national accounts has no definition of value, other than as the sum of factor values (UN 2009), a tautology that defines the thing by the thing.

This distinction between concrete and abstract labour formed the basis of my critique of Soviet measurements of centrally planned "national income". All labour that produces a useful thing is concrete, but in a market economy, only that labour which is socially necessary adds exchange value or *value*. It is the objective act of exchange, which measures the amount of this abstract labour and of the value added to the thing during the production process. But without exchange, there is no exchange value, and so no transformation of concrete into abstract labour. As this was a totalitarian society, that excluded the producers from oversight of their product, there was no means for the working class as a whole, as in a genuinely socialist society, to measure the real cost of production and allocate the resources of society to meet generally agreed needs.

Instead, the apparatus aggregated concrete labour hours and then attached to them an arbitrary subjective "value", in contrast to the objective value of exchange in a market economy. Prices, profits and taxes, were a planned fiction used to conceal the appropriation and extraction of surplus from the working class. This was important for Western measurements as all of the reinterpretations of Soviet output undertaken abroad were based on these very same official statistics. I provide an original answer to the Western debate around the accuracy or otherwise of Soviet data. This exercised Western statisticians as without reliable statistics there was no empirical foundation for their alternative re-estimation of Soviet output. They were aware that statistics in the central plan were never independent of the material interest of their reporting party, but eventually concluded that as these figures moved

in a consistent pattern, they had an obvious relationship with each other, and as private and public statements of figures were the same, they could be used, as the empirical basis for Western re-estimates of Soviet national income. In fact this discussion missed the key point. These figures were indeed more or less reliable as measures of physical inputs and outputs, but these figures were not measurements of socially necessary labour time as in a market economy, but physical aggregates. They were qualitatively distinct from the value measures of a capitalist economy that had an objective existence in exchange. The official figures were both true and false. True – more or less – as representations of Soviet inputs and outputs, but false – absolutely – as measurements of the “value” of this output. No value existed in a centrally planned economy without exchange value.

My practical application of Marx’s value theory to differentiate between the output of the centrally planned economy and the capitalism is the first time this has been attempted since the original Soviet debate in the 1920s. The discussion of the early Soviet value debate, the initial development and application of national income measures to the economy of the 1921 to 1928 New Economy Policy (NEP), formed the prelude to my analysis of the measurement of the Five Year Plan itself. The limited English sources for this period meant that my analysis of this discussion required some reconstruction, although Nicolas Spulber had published a translation of parts of the *Balance* controversy (Spulber 1965), (Spulber 1964), his own commentary repeated the prejudices of the neo-classical orthodoxy, and his narrow point of view mean that he does not provide a really comprehensive set of materials. I had to supplement this from other sources, including Preobrazensky’s major work *The New Economics* (1965), Nicolai Bukharin’s writings (1982), I.I. Rubin’s *Essays on Marx’s Theory of Value* (1990) as well as Trotsky’s comments including those translated by Day (1973), Kaufman provided an overview of the debate (Kaufman 1953), and I also used a textbook that reflected the new Stalinist orthodoxy of the centrally planned period (Lapidus & Ostrovityanov 1929). Davies, Harrison and Wheatcroft (1985) published the *Materialy* from 1930/31 (Pervukhin 1985), and Alec Nove (1955), (1977) provided an overview of the developments of the Soviet economy including the Soviet and Western alternatives. But this was the only section

of this work, which suffered as a result of a lack of adequate first hand materials in English.

Nevertheless I was able to demonstrate the epistemological break implemented by the Stalinist apparatus in the early 1930s with their rejection of classical Marxist political economy. I show how that the abandonment of theory as developed by Marx coincided with the consolidation of the rule of the Stalinist apparatus in the late 1920s. The change of policy in Soviet economists was demonstrated very clearly in the *Materialy* of 1930/31 (Pervukhin 1985) which acknowledged that the central plan produced use value and not exchange value, but nonetheless valued the aggregate of physical, concrete labour hours as if they were the socially necessary labour that results from production for the market. My criticism of this point is distinctive, original and fundamental.

My history of the theory of Western measurements of Soviet national income is the first systematic study of this theory. Mark Harrison (1999) has written a short review of the divergent approaches of some Western theorists and many other interesting articles and pieces on this theme, including the reconstruction of early US input-output estimates for the centrally planned economy (Harrison 1996). But his defence of neo-classical Abram Bergson orthodoxy, as part of a defence of the achievements of bureaucratic central planning, meant that there are inevitable limitations to his critique. Stephen Rosefielde (1981) initially defended Abram Bergson, and then became the strong critic of Bergson's Adjusted Factor Cost (AFC) (2003). While Rosefielde had a different political stance, and objected to the very idea of a centrally planned economy, both Harrison and Rosefielde shared the same neo-classical method. This meant that while Rosefielde separated himself from the application of Abram Bergson's AFC, Rosefielde's alternative, that the USSR effectively produced nothing valuable and so nothing useful (1995), was very one sided and starkly demonstrated the limitations of the neo-classical method. Engerman's history of Western Sovietology (2009), included an insightful chapter on Western estimates of Soviet growth, but it did not question the essential limitations of neo-classical economics.

My work here is the first detailed history of Western attempts to reconstruct Soviet national income from their inception in the 1930s to the collapse of the centrally planned economies in the 1990s, and it is the first study of any kind from the point of view of Marxist political economy. My particular perspective applies a classical Marxist method, my version of Marx's materialist conception of history is derived from Marx, Engels, Plekhanov and Rosdolsky. Contemporary Marxists have abandoned much of the economic foundation of the classical Marxist tradition, generally regarding the idea of necessity, the key propositions of the materialist conception of history, that laws determine the economic foundation of society, the social relations of production and the ideas of people within them, as determinist and indeed "Stalinist" Banaji (2011). This part of a general retreat of Marxist theorists towards idealist dialectics Arthur (2004), idealist abstractions Carchedi (2012) and metaphysics Reuten (1993). I oppose this retreat, and hope to validate this opposition through the systematic nature of this history and its application in an original re-estimate of the growth of capitalist production and real national income in the transition economies.

I emphasise the limits that the original Western authors recognised for their own work, and contrast this with the later application of these measures, which concentrated on the statistical reconciliation of different central planning and market production. Western statisticians had a choice of two alternative methods for valuing the output of the central plan. They could firstly, either value physical quantities of production in the comparable prices that occur in what they considered to be a similar capitalist economy or secondly, they could adjust planned prices to the norms of the Western System of National Accounts (SNA). Colin Clark's Purchase Price Parity (PPP) chose the first method and was the original use of PPP, Alexander Gerschenkron's appreciation of the significance of index year relativity – the Gerschenkron effect, was an important component of later theories, but Gerschenkron's (1951) own analysis was essentially a more detailed application of PPP, whereas Dimitri Shimkin (1953) chose a limited number of homogenous physical, but strategically important, mineral products. G. Warren Nutter (1962) gave values to changes in quantities of physical labour, as did Donald Hodgman (1953).

Whereas Naum Jasny (1960) developed detailed price deflators to adjust Soviet planned prices. Abram Bergson's Adjusted Factor Cost (AFC) (1961), was the most systematic attempt to revalue Soviet output as if it were that of a capitalist economy. Bergson redistributed official Soviet data for physical and financial outputs, based on aggregates of concrete labour, to estimate notional profits or interest for the non-existent capitalists and notional rents for non-existent landlords. Bergson's re-estimates were hardly any different from original Soviet figures upon which they were based. Most of the change was a result of applying Gerschenkron's index effect, by re-valuing Soviet output at the given year rather than the base year. This statistical effect of this was moot. As Nove (1957) pointed out, it was an arbitrary choice in favour of the lower rather than the higher figure. Bergson's re-imagining of what the USSR would, or more accurately should have been, had it been the capitalist economy that it was not, provide the most clearly worked out example of the essentially idealist foundation of Western national income estimates of Soviet output.

Nonetheless, Bergson's AFC formed the basis for the CIA's building block method (Marer et al 1992) that was extended across the centrally planned economies in Central and Eastern Europe after the Second World War and later into China. I follow the generalisation of these measures across the centrally planned economies and the attempts of Western statisticians to use them to measure the transition of the planned economies back to capitalism. I show that Bergson's method not only fundamentally failed to re-estimate the "value" of Soviet national income separate from official measures, but it also failed to measure the growth of the real capitalist economy and of real national income during the transition to the market.

The attempts by Western agencies and their new partners in the CEE after 1991 treated the issue of how to measure the transition to capitalism as a statistical one. It emphasised the reconciliation of statistical systems, coverage, depreciation measures and data collection techniques, but considered that the forms of output of the centrally planned and the market economies were essentially the same (Ivanov 1993). Successive estimates by the OECD (1993), Goskmostat and the World Bank

(1992), Koen and Gavrilencov (1994) and the IMF (1996) treated centrally planned production as if it were already market production even when it was not. All of these studies aggregated the output of the two modes of production and so were unable to accurately measure either the decline of the centrally planned economy or the growth of the market economy.

Later estimates by Kuboniwa and Gavrilencov (1997), while demonstrating an innovative use of the measurement of physical statistics and in particular in changes in electricity output, failed to notice this obvious point. Indeed the attempts of these re-estimates to lower the nominal “value” of centrally planned output, while simultaneously seeking to reduce the decline of production after the big-bang privatisation of 1991, were generally unconvincing, not least as Anders Aslund (2001), a neo-conservative adviser to the Yeltsin administration, used them to conclude that the entire idea of a collapse in output was a “myth” (2001).

In China Western statisticians faced different problems, albeit on the same general theme. The lack of official Chinese statistics after the Great Leap Forward until the late 1970s meant that Western estimates were sketchy. While Chinese experts like Ren Ruoan (1997) and later Maddison and Xu (2008) preferred the use of PPPs to the AFC, they too failed to differentiate the output of the central plan from the capitalist market. The impact of this was not as apparent, given the general expansion of Chinese output during the reform period from 1978 onwards, but it too resulted in a general underestimation of the growth of real national income in China.

This detailed examination of Western measurements of centrally planned “national income” proved that these measurements never measured an actual thing, the real value of production inside a real market boundary, based on real sales of actual things. They were always imputed valuations of centrally planned output that inferred an exchange value to use values, predicated on an assumption that never occurred – that these use values were sold – as in a capitalist market economy. Consequently, as these imaginings and interferences had already created an ideal version of a market economy inside the central plan, when an actual market economy

was created there, they could not account for it. Literally, they counted the collapse of planned production as the collapse of value production, rather than the creation of value production out of planned production. They inverted the real expansion of market production and measured a decline where there should have been an increase.

As a result all of the official measurements of the transition period grossly underestimate the growth of real national income in the transition economies and so in the world market. I developed deflators based on official estimates of market production based on the European Bank of Reconstruction and Development (EBRD) (1999) estimates of private production in CEE and the CIS and in China and by proxy Vietnam, from the OECD (2005) estimates of market production as a proportion of total production. This enabled me to disaggregate the output of the central plan from that of the market, and so trace the decline of planned production and the expansion of market production, that is of real national income.

The chosen physical indicators represent key sectors of the modern industrial economy. They demonstrate the change in the physical output of electricity, aluminium, hydraulic cement, steel and automobiles produced by either the central plan or the market. The growth of the actual capitalist output of the transition economies in these sectors and as a proportion of world production, proves not only the qualitative increase in the capitalist productive resources during the period of globalisation, but also illustrates the shift of production from the Group of Seven (G7), the USA, Germany, UK, Italy, France, Canada and Japan to the transition economies over the last two decades.

Total capitalist production of these outputs has rapidly increased, but those originating in the transition economies have increased proportionately faster. By the year 2001 when the process of capitalist restoration was complete, the transition economies accounted for 37% of world capitalist employment, 31% of its aluminium, 44% of hydraulic cement, 24% of steel, 16% of electricity, 8.5% of cars and passenger vehicles and 17% of GDP (GK PPP). Far from the 1990s being a decade of capitalist stagnation, world capitalist aluminium production increased

60.3%, hydraulic cement 96%, steel 56%, electricity 61%, automobiles 27% and GDP (GK PPP) 52%. Following this one-off addition, growth in the world capitalist economy was to accelerate markedly over the next decade.

Globalisation aptly describes the creation of a global world market in the 1990s. The transition of the centrally planned economies to capitalism extended the rule of capital across the whole world for the first time since the Bolshevik revolution of 1917. This was an enormous one-off increase in the size of world market that was hidden by the aggregation of capitalist and centrally planned production. My table 5.7, World Aluminium Production from 1990 to 2010, shows that for the ten years from 1992 (the first full year of CIS) to 2001 (the first full year when the transition to capitalism was complete) that is to say the Nineties, world capitalist output increased by 53%, while the aggregated world output increased by 24%, as the decline of centrally planned production was not separated from the growth of capitalist production. While the G7 share of world output fell from 38% to 26%. My new disaggregated method for the measurement of the transition period could be refined to show in more detail the growth of national income in each country and year, but it would not change the aggregates. This increases by the total implied or inferred national income ascribed to the centrally planned economies by the Western statisticians. The total underestimation of the growth of the world market is by this very large quantity and therefore, highly significant.

Finally I review three different theories in the light of my investigation into the history of the theory. Firstly, I consider the debate from within the neo-classical tradition, particularly between Mark Harrison and Stephen Rosefield. I show that both sides of the debate were hindered by the equation made in marginal theory between use value and exchange value, although Stephen Rosefield was able to get closer to the truth through his understanding that the existence of value is predicated on market exchange. Secondly, I review the Marxist theory of state capitalism, as described by the *International Socialism* School of theorists, to assess its internal coherence, fidelity to Marxist theory and empirical foundation. I find that its theorists agree on little more than the name, it is neither internally consistent, consistent with

the Marxist theory it claims to propound, or in accordance with the empirical facts of the centrally planned economy. Thirdly, I return to the theme of long waves, where I began. I show that Mandel's theory of long waves, now with the solid empirical foundation that my re-estimation of the growth of national income for the transition period has provided, does provide a convincing explanation for the period of globalisation.

Critically this thesis proves that without market prices, the foundation for the System of National Accounts, there was no objective basis for the application of national income measurements to the non-capitalist centrally planned economy. It shows that all Western estimates of centrally planned "national income" either imputed a market where it did not exist, by correcting "distortions" in centrally planned prices, or measured centrally planned output in the prices of a comparable capitalist state. They either measured quantities of use values at prices that they "would" have cost in the USA or UK or the redistributed official aggregates of concrete labour hours, the subjective value estimates of the planning apparatus, according to the categories of the market economy. In neither case did these assorted re-estimates of centrally planned production, ever transform the actual nature of the centrally planned economy. Indeed the very fact that they were applied proves that the objective basis for national income measurements did not exist in the planned economies. They could never re-create the objective pre-requisites for the application of market measurements that were missing there. They were at best an ideal representation of might have been, but never an actual representation of what was.

This thesis proves that in order to measure the growth of national income in the transition from the centrally planned economy to capitalism it is necessary to disaggregate economic production inside and outside the market boundary. This enables both an accurate measurement of the growth of the capitalist economy and of the decline of the centrally planned one.

This thesis opens up various new areas of future potential research. The disaggregation of the output of the centrally planned economy from the capitalist

economy provides a method for the measurement of national income that could be refined for each of the transition economies. A closer examination of each of the different paths to capitalism could allow a more detailed and therefore, more accurate measurement of the rate of growth of real national income within each economy. These individual estimates could then be aggregated to provide a more exact measurement of the global growth of national income in the transition period. This could then be related to developments within the wider capitalist economy itself.

The idea that Germany has experienced a period of stagnation and decline over the last two decades ignores the massive one off growth of the capitalist economy in the newly united Germany, with the transition of central planning to capitalism in East Germany. This in its turn provides a considerable part of the explanation for the resilience of its economy during the period of the recent credit crunch. The increase in the size of world capitalist production after transition and the wider impact of this change remains under researched. Theories of globalisation that have asserted its stagnant crisis ridden nature have rested on the misleading measurements of capitalist growth provided by official agencies. The correction of these mis-estimates not only allows a reappraisal of the empirical foundation of these theories, but this will permit a better understanding of the contradictions in that process and the limits of it. It explains the recovery in profit rates evident across the various national economies, how the shift from manufacturing to services in the West was possible, why the transition economies had such high rates of profit and low organic compositions of capital themselves, and why China could undertake such massive sustained investments in its fixed capital stock, while still experiencing high profit rates, but it also points to the limits of this framework of capital accumulation and therefore, a better understanding of the contradictions that will bring globalisation to a close.

The main contribution of this thesis is to re-assert that distinctive modes of production require different systems of economic measurement. This means that the value measures which underpin the Western System of National Accounts are only real when applied to an economy that produces value or more precisely, when

applied to a market economy. It provides the first comprehensive history of the application of alternative Western economic measurements to the centrally planned economy. It situates the development of national income measurements, as they originated in the USSR in the 1920s, spread to the USA in the 1930s and were then reapplied to the USSR, after the Second World War. It shows the flaws of these methods, and examines how their originators understood those flaws and sought to overcome them. It proves that this was a problem without a solution, as for without market prices, the objective foundation of the SNA, there was no solution to the “value” produced by central planned economies which did not produce value.

The thesis develops an alternative method for measuring the growth of actual national income during the transition period, through the disaggregation of centrally planned and capitalist output. Through this method it proves that the transition of these economies to the market did indeed increase market production and therefore, national income. It shows that these new measurements of national income during the transition to capitalism profoundly alter the current understanding of the nature of globalisation. It overthrows the existing view, common among Marxist political economists, that the period of globalisation was one of general capitalist stagnation and decline.

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