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One Big Store: Source Diversity and Value Capture of Digital Games in National App Store Instances

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Have the uneven global flows of capital in the cultural industries changed because of access to distribution platforms like the Apple iOS App Store? Based on a financial analysis of a dataset containing three years of game app revenues (2015–2017), this article asks two questions. First, were game developers and publishers able to generate revenue in their domestic markets in the App Store? Second, to what extent are game app developers from the Global South, historically at the periphery of the global game industry, able to capture value in Global North instances of the App Store? This article advances discussions on the political economy of platform-dependent cultural production by placing this case within broader conversations on cultural imperialism and demonstrating that local app store instances are part of "one big store"; a U.S.-dominated and oriented space of distribution and consumption that effectively captures revenue in regional marketplaces.

Keywords: platform studies, app stores, platformization, cultural imperialism, political economy of communication, game studies

Well before the widespread diffusion of information communication technologies, the issue of cultural diversity in a highly unequal world of cultural flows gave rise to the concept of "cultural imperialism" (Schiller, 1991). Corporate oligopolies in the production of TV, films, and print media have played a role in the lopsided distribution of information and culture across global regions (Mirrlees, 2013). The more recent adoption of digital distribution platforms, social and mobile media, and streaming portals has ostensibly changed the political-economic calculus of such critical conversations. Music streaming services, app stores, subscription video-on-demand portals, and other digital distribution channels have profoundly lowered the

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barrier to market entry for cultural producers. In theory, this would allow many content producers to bypass large publishing companies, brick-and-mortar retailers, and other legacy gatekeepers and intermediaries. Moreover, such new relationships with platforms and portals can become transnational as they provide cultural producers with access beyond their domestic markets (Craig & Cunningham, 2019; Lobato, 2019).

This article counters the assumption that lower barriers to cultural production mark a fundamental break with the globally unequal flow of culture. While many gatekeepers—from telecom providers to news organizations—have lost their dominant position in local media economies, we see the emergence of new incumbencies that reflect decade-old institutional power imbalances. We argue that many of the new imbalances in the platform economy map onto existing global, cultural flows from the North to the Global South.[2] Likewise, while capital is increasingly invested in the Global South, value is strategically captured and flows to the North.

To add empirical depth to our argument, we focus on Apple's iOS App Store (hereafter: the App Store), which has become a key distribution platform for game apps and constitutes a market that over the course of 2022 alone is estimated to have facilitated around $400 billion in revenue, paying out $320 billion to developers (Leswing, 2023). We focus on the flows of revenue in three of what we will theorize and analyze as "regional app instances," which, taken together, make up one big store (i.e., a global market run and operated, in our case, by a U.S.-based incumbent). We expected countries in the North to remain dominant in their ability to effectively distribute content in their own markets and beyond and, subsequently, to capture value associated with such dominance.

Cultural Production of Global Game Apps

Given the wide variety of app genres, many of which are less relevant to the question of cultural imperialism, this article focuses on game apps. Not only have mobile games such as *PUBG Mobile* (Tencent Games, 2017), *Honor of Kings* (Tencent Games, 2015), and *Roblox* (Roblox Corporation, 2012) been among the biggest revenue drivers in the App Store, but also the game industry serves as a generative case study to understand worldwide trends in cultural production. For one, game developers and publishers have been some of the earliest adopters of digital distribution technologies, starting with massive multiplayer online games, followed by Internet-enabled dedicated consoles, and most recently app-based distribution channels (Dyer-Witheford & de Peuter, 2009). Historically, as game industry scholar Aphra Kerr (2017) has demonstrated, the game industry may have been "born global," yet, it has simultaneously remained highly regionalized. As such, the flow of capital and culture has had a consistent imperialist streak, with game production primarily emanating from the United States, Europe, and Asia Pacific (Nieborg, Young, & Joseph, 2020). The biggest change to this dynamic has been the growth of the Asian games industry outside of Japan (in South Korea and China), which our analysis will address directly.

[2] Neither of these concepts hew to the hemispheric North or South. The Global South instead identifies a series of postcolonial states that have participated in several different conferences and organizations like the United Nations Conference on Trade and Development, the Non-Aligned Movement, or the Group of 77 (Lees, 2021).

Tablets, smartphones, and app stores have unmistakably reconfigured the political economy of digital play into an ecosystem no longer dominated by PCs and dedicated consoles, such as Sony's PlayStation or Microsoft's Xbox. Mobile platforms, together with accessible and affordable game production tools, have significantly lowered the costs to *create* games (Foxman, 2019). Next to democratizing game app production, app distribution has seen fewer restrictions as well.

In less than a decade, the app stores owned and operated by Tencent, Apple, Samsung, and Google have allowed app developers to access new markets, and, in the process, mobile games have become the largest segment in the global game industry (Kerr, 2017). Similarly, marketing and monetization have changed radically by distribution platforms, especially as free-to-play is now the dominant revenue model in the industry. In addition to in-game microtransactions, such as loot boxes or battle passes (Joseph, 2021), games are advertised on other social media platforms and within games alongside ads for other products and services (Nieborg, 2015). Subscription services, such as Apple Arcade, also continue to hint at new, platform-dependent revenue systems that mark a break with historic trends.

Finally, compared with language-based cultural commodities, such as movies, television, and music, digital games can become culturally agnostic, "global" cultural products (Kirkpatrick, 2021). Particularly, popular puzzle games, such as *Candy Crush Saga* (King, 2012), and strategy games, such as *Clash of Clans* (Supercell, 2012), require little culturally specific knowledge to play and are easily translated into local languages, avoiding some of the cultural hegemony of the English language (Demont-Heinrich, 2019). Therefore, the relationship between game apps and app stores is a prime object to study the political economy of digital platforms as facilitators *or* inhibitors of different kinds of cultural diversity in local and global markets.

To further investigate cultural diversity, we address two research questions. First, we ask if game developers and publishers can generate revenue in their domestic markets. This question speaks to the issue of "source diversity" (Napoli, 1999) and surveys three Global North national app store instances: the United States, Canada, and the Netherlands. Financial transaction data on these instances were furnished by the now-defunct market research agency SuperData Research Inc. Next to the authors' decade-long familiarity with these three countries and their game industries, the United States represents the largest producer and consumer of game apps globally, and Canada and the Netherlands serve as comparators for broader trends in other wealthy Western app markets. In our analysis, one factor—ownership— complicated the question of which organizations can be counted as a domestic developer. If a game studio is located in Canada but owned by a U.S.-based game publisher, should the revenue generated be considered Canadian? To address this issue, we distinguish between *value creation* and *value capture*. The former is counted as revenue directly generated via the app store, while the latter concept speaks to the ability of a studio's owner—often a multinational game publisher—to derive value from the labor process itself and to capture surplus value through rents and taxes (Johns, 2006). In the context of this article, a studio is deemed Canadian-owned if the developer or parent corporation is also owned and/or incorporated in Canada.

We included value capture as a metric because we are not only interested in the ability of game developers to create games and distribute them beyond their domestic borders but also in their ability to capture revenue in the global supply chain. The ability of U.S., European, or more recently, China-based

developers and publishers to capture value beyond their borders would point to renewed instances of cultural imperialism, which prompts our second question: To what extent are game app developers from the Global South, historically at the periphery of the global game industry, able to capture value in the U.S., Canadian, or Dutch App Stores? If they are, this would serve as a powerful indicator that app stores may indeed have a mitigating effect on the broader trend of cultural imperialism.

These two questions direct us toward an accounting of how global markets are sliced and governed through regional instances of the Apple App Store. We know that regional app store instances often promote local content. But does this *matter*? Are these national stores fully distinct zones of distribution and consumption, or, as we gesture at in the article's title, are they ultimately different parts that together make up "one big store," which is dominated by incumbent U.S.-based game publishers and conglomerates? In answering these two questions, this article aims to provide further insight into what has been theorized as the political economy of platform-dependent cultural production (Poell, Nieborg, & Duffy, 2022), which is set to exacerbate the concentration of capital among a select group of platform companies and superstar "complementors" (i.e., game studios and publishers). In addition, this article aims to contribute to questions about global media diversity. Thus far, similar studies have predominantly focused on audio-visual content (Albornoz & Leiva, 2019; Larroa, 2019), particularly streaming-video-on-demand portal Netflix (Lobato, 2019). Our article differs from these efforts because of its focus on game apps and the use of a dataset of App Store transaction data, which we outline below.

National App Instances and Infrastructures

One of the main indices of platform dominance is their economic footprint, which can be measured in terms of their growth in revenue, profits, or market capitalization (Moore & Tambini, 2018), or the ability of platform companies to forge institutional connections with a myriad of third parties (Blanke & Pybus, 2020). We take a different institutional perspective by focusing on how the national instances of app stores relate to local cultures of production. Several studies have considered the economics of digital distribution platforms, each painting a picture of vast asymmetries among so-called complementors (e.g., streamers, creators, developers, etc.) in the distribution of downloads, views, revenue, or profit. Individual studies of YouTube (Rieder, Coromina, & Matamoros-Fernández, 2020), app stores (Bresnahan, Davis, & Yin, 2015; Nieborg et al., 2020), and music streaming (Aguiar & Waldfogel, 2018) all point to a marked increase in supply but highly concentrated demand. Largely missing from these studies is a regional focus. The relationship between the local patterns of consumption or the ability of multinational publishers to capture value is therefore less clear.

To operationalize our understanding of regional source and content diversity across domestic app stores, we propose the concept of *national app instances*. Here we build on the notion of "platform instances," which Nieborg and Helmond (2019) in their analysis of Facebook have theorized as "stand-alone derivatives that each provide a distinct 'view' of the platform as a whole and offer different functionalities tailored to distinct user groups" (p. 199). One of the main differences in our analysis is that we focus on the flow of transactional data, instead of the flow of behavioral data in the case of Facebook. That is, national app store instances exist primarily to process payments in regional currencies and present a highly curated selection of instance-specific content. For example, the Dutch iOS App Store services only those consumers

who have tied their Apple account to a payment method and address based in the Netherlands. This also means that those users see content that is supposedly tailored more to Dutch tastes and interests. Because of the decision to provide distinct national instances, one might expect the Dutch App Store to have more of a domestic flavor both in app supply and demand. Our analysis, however, shows that this assumption has little empirical grounding.

Next to offering a political-economic perspective on the app economy, our study contributes to a small but growing body of literature on apps and app stores (Dieter et al., 2019). Building on the work of van Dijck, Nieborg, and Poell (2019), we understand mobile app stores and the instances that they give way to as infrastructural platform services. In other words, app stores have become key infrastructural nodes in the broader platform ecosystems owned and operated by multinational platform companies.[3] Ultimately, a specific focus on app production, distribution, and consumption is warranted as apps have become of deep political, economic, and cultural importance to our everyday lives (Goggin, 2021; Morris & Murray, 2018), and thus we should investigate their role in ongoing regional cultural and economic inequalities.

Cultural Imperialism and Diversity

The question of national app instances, access to global markets, and the control app store operators have over these markets concerns space, geography, and diversity. All have been theorized as a function of capitalist "spatialization," where capital uses technology to overcome time-space constraints, resulting in its institutional expansion across markets (Mosco, 2009). While imperialism is first theorized as an *economic* phenomenon, the issue of capital's spatialization raises concerns around cultural or media imperialism, or the unequal exchange of culture and the hegemonic culture reproduced by it (Mirrlees, 2013). Proponents of these broader sets of theories on economic imperialism have argued that media and communications corporations have played a key role in upholding a global system in which corporate monopolies based in the United States, Europe, and Japan (i.e., the Global North) both play an ideological and an extractive role that allows them to dominate global cultural markets (Boyd-Barrett, 2019). In the 1970s, the influential UNESCO report *Television Traffic: A One-Way Street* (Nordenstreng & Varis, 1974) empirically unpacked this "West-to-the-rest" pattern by demonstrating that "developing countries are at the mercy of information export by the industrialized Western countries, the great powers in particular" (Nordenstreng & Varis, 1974, p. 44). Later, studies by Katz and Wedell (1977) argued that third-world nations relied on a "homogenized brand of popular culture either copied or borrowed from broadcasting in the West" (p. vii). Yet, as global media markets changed, later scholarship was particularly critical of the ongoing applicability of cultural imperialism as a concept because of the rise of a more globalized and "hybrid" culture industry (Kraidy, 2002). Such criticisms, however, downplayed the political-economic dimensions of ongoing inequalities in value capture, regardless of the content.

[3] Since the platform companies we study are based in the United States, our analysis has a decidedly U.S.-centric lens. We are cognizant of work that discusses platform power, apps, and app stores in China, Japan, and South Korea (e.g., Steinberg, 2019). A comparative perspective, however, falls outside of the scope of this article.

The subsequent global diffusion of information and communication technology and the Internet radically changed global communication markets and, equally important, how value was captured in domestic markets. However, it has yet to be seen whether the Internet has fundamentally changed the direction of cultural imperialism. Platform companies did disrupt certain existing markets previously dominated by legacy multinational media and telecommunication companies, but the general flow of capital from the Global South to the North remains the same. For this reason, Dal Yong Jin (2015) argues that while a select group of emerging nations (i.e., China, India, and South Korea) have begun to leverage the Internet's affordances to build their own digital industrial capacities, thus far they have not been able to structurally challenge global U.S. cultural and economic dominance.

For Jin, this constitutes a new stage of imperialism that has grown beyond the control of culture or information—an appendage of financial and industrial capital—to one where platforms have become a central force that reinforces global imperial dynamics, which subsequently shapes global politics in new ways. Platform executives may position their platforms discursively as culturally agnostic, yet Jin (2015) argues that "platform developers clearly impose their symbolic hegemony on to most developing countries that buy and use platforms and therefore, provide their labor to benefit platform investors and countries owning these platforms" (p. 39). Jin's (2015) research shows that ultimately, this spatialized "symbolic" hegemony, shaped by the economic and infrastructural power that platforms have accrued because of imperialist dynamics, have led to pressures, both financial and ideological, on cultural production.

Platform imperialism, then, becomes the structuring political, economic, and technological context in which new questions of source diversity are raised. The notion of diversity—in its many forms—has long been discussed by scholars because it tells us who creates content, who consumes it, and who profits from it. The emphasis placed on diversity is also a function of the normative political theories—be they socialist, feminist, antiracist, or liberal (McChesney, 2008; Riordan, 2002; Saha, 2017).

Diversity can either be an end goal or a key step as part of a larger political program. For example, in the 1990s, the U.S. Federal Communications Commission (FCC) made regulatory interventions in *source* diversity around ownership and workforce in the pursuit of creating diverse *content*. All of this was structured by the FCC jurisdiction to help build a more diverse "marketplace of ideas" (Napoli, 1999, p. 8). Building on the broader canon on representation in British Cultural Studies, Saha's (2017) research on diversity in the cultural industries stresses the ambivalence of such policies, which in the West tend to have "race-making effects" (p. 85). Saha (2017) also notes that the search for cultural diversity has led to the marketization of cultural industries that were once the purview of nonmarket state actors, showing the conflation of *diversity* with *open markets*. Platform markets like the app store clearly feed directly into this conflation.

Other strands of scholarship on the question of platforms and cultural diversity reveal the unique challenges faced by cultural producers (Helberger, Karppinen, & D'Acunto, 2018). Here we find a strong emphasis on the unequal distribution of power among institutional actors and how these inequalities continue to shape the production of content (Albornoz & Leiva, 2019). One of the main takeaways is that platforms derive much of their market power from their ability to shape the *exposure* to content rather than limiting its supply (Gillespie, 2018). The diversity of platform-dependent cultural content is at the mercy of

algorithms that are increasingly shaped by user interaction and feedback, of which platforms remain in full control over. Regardless of the specific cultural industry segment, the cultural industries remain subject to economic concentration and centralized infrastructural control, which disempower content creators big and small (Poell et al., 2022).

The spatialization of the digital game industry also shapes source diversity. Game development has never been located in just one country, but rather across three main regions: North America, Western Europe, and Japan (Keogh, 2023; Kerr, 2017). At the same time, the most coveted consumers have always been English-speaking players, with the largest addressable audience residing in the United States. Research has shown, in turn, that developers from places like Chile or Poland have intentionally designed their games to cater to, and reflect the tastes of, U.S. or Western European consumers (Baeza-González, 2021; Vanderhoef, 2021). For much of the 20th and 21st centuries, European game development has been dominated by Western European countries, primarily the United Kingdom and France (Nieborg & de Kloet, 2016).

For example, the UK games industry owes much of its growth to the early adoption of personal microcomputers like the Commodore 64 or the Sinclair ZX Spectrum (Kirkpatrick, 2021). This early mover advantage, in turn, developed into a small but coherent group of developer communities, who were able to capitalize on a language shared with the biggest market at the time: the United States. The other major economic powerhouse has always been Japan, which owed its ascendency to the postwar Japanese boom in consumer electronics (Aoyama & Izushi, 2003).[4] At the same time, these game industry origin stories primarily focus on the game development as a for-profit endeavor, rather than a creative, hobbyist craft (Young, 2023). As Keogh (2023) argues persuasively, local digital game development communities are also "a broader field of informal, creative, affective, and social activity through which formal videogame production sometimes emerges to be understood as an industry" (p. 38). In sum, scholars agree that game development has been centered primarily by companies based in the United States, Western Europe, and Japan, but the creation of digital games in a nonprofit context is quite dispersed.

Methodology

To better understand the interaction between national app stores vis-à-vis national cultures of production, we qualitatively coded a longitudinal financial dataset for app-level geographical diversity of production and ownership. Political-economic investigations interrogating cultural production and capital accumulation rarely articulate or justify their research methods (Corrigan, 2018). To address this limitation, we demonstrate how analysis of financial transactions can be used to investigate issues related to cultural imperialism, source diversity, and value capture. Our dataset was furnished by the former New York City–based market research company, SuperData Research, and it includes transactional daily title-level direct revenue, such as the sale of premium games and in-app purchases, from 2015 to 2017 in the U.S.,

[4] Recent data show that ownership of game publishers in the Asia-Pacific region, and thus value capture, has shifted toward China-based platform companies (Nieborg et al., 2020). Still, Asian game development is overwhelmingly concentrated in Japan.

Canadian, and Dutch iOS App Stores (Young, Nieborg, & Joseph, 2023).[5] We focus on these three specific national App Stores because of the familiarity of research team's game industry with those regions and the limitation to access more regional data from SuperData Research.[6] Our dataset is also limited to a three-year period ending in 2017 because SuperData Research was acquired in 2018 by Nielsen Holdings, which abruptly ended our collaborative research project to access more annual data (Dealessandri, 2021).

From this dataset, we culled a smaller snapshot, aggregating the top-100 games for each of the three years, which, according to our calculations, represent approximately 85% of all revenue on the three national App Stores. We then used these three annual top-100 lists as a measure to assess the ability of app developers to create and capture value in their own national App Store. To reiterate, we operationalize value creation as revenue generated within one studio, thereby ignoring any potential outsourcing. Value capture, on the other hand, comprises a studio's ownership status, and, if relevant, any licensed intellectual property (IP). For example, a studio in Toronto can *create* value in Canada by developing and publishing a game in said location. That same studio can use U.S.-owned IP or be owned by a U.S. conglomerate, which then means that some, if not all, value is *captured* by a U.S. company. On an abstract level, this means that we distinguish between locally generated revenue, used to pay for the means of cultural production (i.e., labor), versus foreign profits, the surplus value flowing to those who control the means of production.

To explore this issue, we qualitatively coded our three top lists in each national App Store for app-level geographical diversity and ownership based on the following criteria: (1) the "listed developer" or publisher in the national App Store, its country of origin, and its number of released app titles; (2) the "actual developer," its country and city of origin, company size, and date founded; (3) the parent-organization of the actual developer, its country of origin and whether it is a privately held or publicly traded company; and (4) the game title's release date and revenue model (i.e., premium or freemium). We included the actual developer category as there tends to be a discrepancy between studios as they appear in the App Store listing (i.e., on a game's profile) and the studio that veritably developed said title.

Throughout the coding of our dataset, we followed Corrigan's (2018) suggestion to "burrow down" into our empirical material (p. 2757). To verify the information offered in the four categories outlined above, company information was gleaned from national app store pages, developer and publisher websites, social media, news sources, and government company registries. Unique Identifiers in the form of an exclusive numerical string for each title allowed us to verify accuracy from year to year and track developer, publisher, and IP acquisitions, which reveal important economic and financial shifts across the platform economy of digital content. Put differently, by using Unique Identifiers, we leveraged a level of data and financial transparency that is native to app stores (Dieter et al., 2019; Grenz &

[5] The full dataset can be found here: https://doi.org/10.5683/SP3/TGZRDQ. The complete dataset was a free donation by the company and came with zero strings attached. We remain forever grateful to former SuperData Research CEO Dr. Joost van Dreunen for his generosity and support.

[6] The authors would also like to flag that data from Global South app stores would certainly round out a future research program in this topic area. Given the monetary value of the provided dataset, it seems unlikely to us to come into possession of a broader or updated dataset any time soon.

Kirschner, 2018). Moreover, Unique Identifiers are the same across all three national app stores, which not only meant we were able to accurately compare them, but it also demonstrates how they essentially function as one big store housing national instances.

Source Diversity: Domestic App Revenue and Value Capture

By quite literally following the money over a three-year period, we can track an individual game app developer's product, app ownership, and, ultimately, market dominance of sets of app developers. Next, we analyze the Dutch, Canadian, and U.S. app stores.

The Dutch App Store

Surveying the Dutch App Store in 2015 we found two Dutch apps in the top 100. The highest-ranked Dutch game was *Online Soccer Manager* (*Train en Coach Je Favoriete Voetbal Team*; Gamebasics, 2012) came in 15th place and totaled $977,264 in revenue. This app is made by Gamebasics, based in Zoetermeer. The next title is *WordOn HD* (Huckleberry Studios, 2012; in 46th place, developed and published by Huckleberry Studios in Zaandam) earning $267,637. For context, the highest earner in the Dutch App Store in 2015 was *Clash of Clans* (Supercell, 2012) with $8,633,018. Thus, out of a total of $73 million only $1.2 million, a mere 2% of revenue, is associated with the Dutch game industry. Notably, most of this revenue stayed, presumably, in the Netherlands as the two top earners are not foreign owned.

In 2016, apps made in the Netherlands fared worse. Two games remained in the top 100. First, coming in at 21st place was *Online Soccer Manager* (Gamebasics, 2012), earning $793,049. *WordOn HD* (Huckleberry Studios, 2012), comes in at the 75th place, earning $153,091. While the total store revenue increased that year by 15% to $83.4 million, domestic revenue was less than $1 million. In 2017, this pattern of overall app store growth and domestic revenue decline continued. Only *Online Soccer Manager* (Huckleberry Studios, 2012) remained in the Dutch iOS app store's top 100, coming in at the 23rd place with $728,709. This lower revenue number once again contrasts with the growing overall revenues in the app store's top 100 where it grew to $94.1 million. Reviewing three years of top-line app revenue, we can already safely conclude that the ability of Dutch apps to capture domestic revenue, and thus value, is decidedly low.

The Canadian App Store

What becomes immediately apparent when reviewing Canadian revenue figures is a striking resemblance with the Dutch Store. In 2015, we found three Canadian-developed apps in the top 100: The first, coming in at 11th place, is *The Simpsons! Tapped Out* (EA Mobile, 2012; developed by then EA subsidiary Bight Games in Charlottetown, Prince Edward Island), pulling in $2.93 million. The next game, at 20th place, is *Kim Kardashian's Hollywood* (Glu Mobile, 2014; developed by then Glu Mobile subsidiary Blammo Games based in Toronto), pulling in $1.45 million. Finally, *Jurassic World! The Game* (Ludia, 2015) came in at 22nd place, earning $1.24 million. Canadian games thus earned a total of $5.62 million out of a total revenue of $140.7 million. Notably, only one game, *Jurassic World! The Game* (Ludia, 2015), was

developed by a Canadian-owned firm. Even then, we have to assume that a considerable amount of value was captured by the United States because it was based on a popular U.S.-owned IP.

Unlike the Netherlands, Canadian-developed games did increase in 2016. The newcomer, the Vancouver-based and owned LDRLY's cannabis growing simulator *Bud Farm Grass Roots* (LDRLY, 2010) entered the market in 91st place and earned a modest $178,346. That said, domestic revenue declined, despite overall app store market growth from $140 million to $156 million. In 2016, *The Simpsons! Tapped Out* (EA Mobile, 2012) fell from 11th place to 31st place and only earned $887,635. *Kim Kardashian's Hollywood* (Glu Mobile, 2014) fell to 59th place, from 20th place ($382,872). *Jurassic World! The Game* (Ludia, 2015) fell to the 66th place from 22nd place ($333,244). Despite the fall in overall revenue what both the Dutch and Canadian revenue patterns show is the power of incumbency. An individual title's revenue may decline year over year, but once a game enters the top 100, it tends to take a while before it eventually drops out.

In 2017, the downward domestic revenue creation crawl continued. Again, we find only three Canadian-developed games in the market, two of which have lost revenue and market share: *The Simpsons! Tapped Out* (EA Mobile, 2012; 72nd place, $354,230) and *Kim Kardashian's Hollywood* (Glu Mobile, 2014; 95th place, $221,781). *Bud Farm Grass Roots* (LDRLY, 2010) has been replaced in the top 100 with another cannabis farming simulator: *Trailer Park Boys Greasy Money* (East Side Games, 2017) (77th place, $324,519), developed by LDRLY's sister studio in Vancouver, East Side Games. While the Canadian iOS app marketplace grew to $166 million, overall Canadian revenue dropped from $5.62 million in 2015 to less than $1 million in 2017. Moreover, revenue captured by Canadian owners totaled a measly $325,000.

The U.S. App Store

The U.S. App Store historically pulls in the largest amount of revenue. In 2015, the top 100 apps came in at $2.6 billion. The presence of U.S.-developed apps in 2015 in its domestic app store is also overwhelming (52 out of a 100), but somewhat surprisingly, we see a similar downward trend with domestic source dominance. The 52 apps generate a total revenue of $1 billion. In 2016, top 100 revenue grew to a total of $3.5 billion, but we see fewer U.S.-developed apps: 41. At the same time, overall revenue grows and continues to be captured by these remaining apps, with a total of $1.7 billion. In 2017, the game app market grew to $3.8 billion with a total of 39 apps developed in the United States, earning a now smaller total of $1.5 billion. Relative to the Dutch and Canadian App Stores, U.S.–developed apps perform well in its domestic App Store, and this translates into an ability to capture value through U.S.–ownership of said firms. Put differently, corporate actors in the U.S. app industry tend to disproportionately own foreign developers. In 2015, the total number of U.S.-owned apps was 53 (generating $1.2 billion), but the number dropped to 50 in 2016 (generating $2.1 billion) and then to 48 by 2017 (generating $1.9 billion).

Performance of Global South Apps in the U.S. App Store

When we expand the area analysis for source diversity from the center of the global game production system (Europe, United States, Australia, New Zealand, Japan, and Canada) to include both its peripheries and its incumbent challengers, we see minor quantitative changes but no fundamental

qualitative differences. As a heuristic, we took the so-called "Brandt-line" (Figure 1), introduced in the 1980 report *North-South: A Programme for Survival* (1980) published by the Independent Commission of International Development Issues, chaired by former West German chancellor Willy Brandt. According to this report's original findings, the world was divided along an economic line separating the United States, Australia, Canada, Europe, and the USSR, from the rest of the planet. Recent research has shown that "the hierarchy of incomes in the international system has endured, change within international income rankings largely took place within the South itself…" (Lees, 2021, p. 87). The United Nations Conference on Trade and Development continues to divide the world along the same lines of "developed" and "developing," with a few changes that exclude Israel and the Republic of Korea (UNCTADstat, 2021).[7] To see if this divide persists in the U.S. App Store, and thus in digital platform-dependent markets, we considered the availability and ownership of Global South apps.

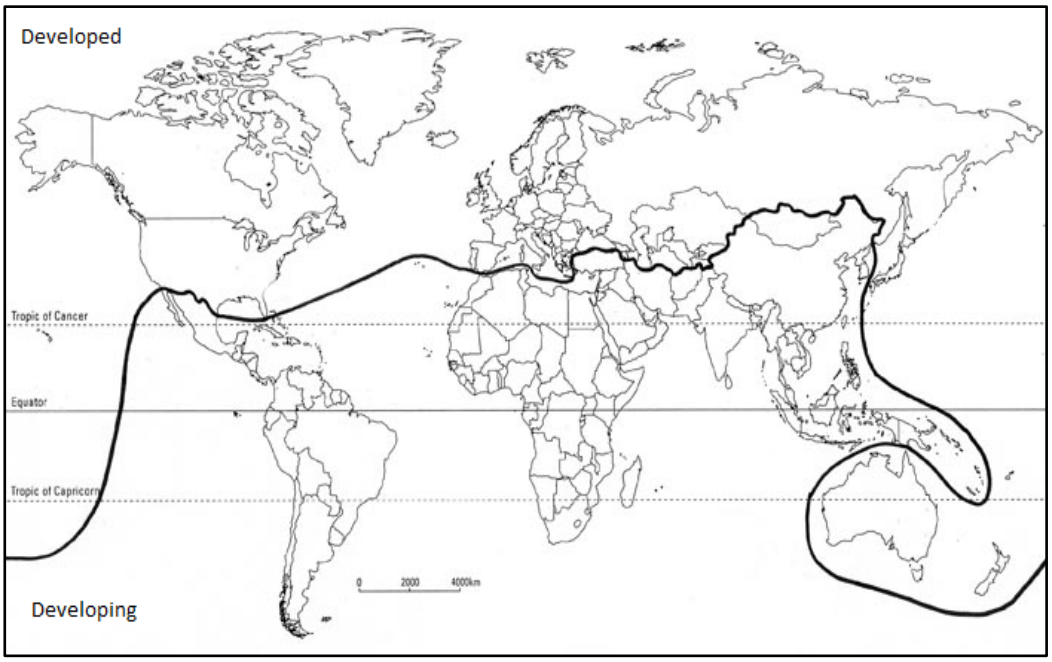

Figure 1. The Brandt line.

In 2015, in the top 100 apps in the U.S. App Store, there were seven apps developed in three Global South countries: China (of which most were developed in the Hong Kong SAR) (4), Argentina (2), and Singapore (1). By 2016, Argentina dropped out of the top 100, while Turkey joined with one (1) app. China went from two (2) apps to six (6), and Singapore jumped to two (2) apps. In 2017, this trend did not change much: China (7), Singapore (1), and Turkey (2). Key here is that the number of Global South apps

[7] It is worth noting that the concepts of "developed" and "developing" economies are not uncontested and have colonial and imperialist implications. The World Bank has also ceased to use the term (Khokhar & Serajuddin, 2015).

in the U.S. App Store grew only slightly over these three years, from seven apps in 2015 to 10 in 2017. Without consideration of the content or target audience of these apps, this should give boosters of platform-dependent cultural production pause about its inherent global diversity or even just South-North global *cultural* flows.

When we analyze *ownership* and *capital flow* trends, the picture is slightly different but still demonstrates value capture from the South to the North. In 2015, only three countries had Global South-owned game studios in the U.S. App Store top 100: China (5), Argentina (2), and Singapore (1). Over the course of 2016, we witnessed a dramatic shift: China's ownership stake began to grow significantly to a whopping 18 apps. Singapore grows to two, and Turkey entered the ownership race with one app. In 2017, in terms of ownership, only three Global South countries remain: China (19), Singapore (1), and Turkey (2). China's growth in the U.S. App Store instance—and other national app instances for that matter—is almost entirely because of the entrance of Chinese media conglomerate Tencent and a consortium of Chinese holding companies (Solomon, 2016). Tencent's rise should be seen against the background of a long-term growth plan of the company as it aims to create and own a range of intellectual properties as well as its own app store and other infrastructural services (Jia, Nieborg, & Poell, 2022). One of the key corporate strategies deployed by Tencent in the game industry has been financialization, i.e., the use of finance capital to acquire a variety of established game studios from across the planet adding them to its broader IP portfolio, and above all, capturing non-Chinese generated revenue. For example, Tencent acquired a controlling stake in Riot Studios, a minority stake in Ubisoft's holding company, and a majority stake in Supercell. In 2015, Tencent was not in the top 10 of app publishers in the U.S. app store. In 2016, it becomes the second, and in 2017 the conglomerate rose to become the number one game app publisher.

It is tempting to see China's rise as a rupture in the trend of concentrated source and content diversity. Yet, we caution against this conclusion. In the end, the one exception to the general dynamic associated with economic inequalities along the Brandt line is only China. In terms of inequalities in global capital *and* cultural flows, most of the game content still originates in the United States and, to use the language of the Brandt report, the "developed" North. By 2017, 39 of the top 100 apps in the U.S. App Store were made in the United States. Second place goes to the United Kingdom with nine apps. China, the best-performing Global South developer, is in fifth place with only five top-performing apps in the U.S. App Store. Our data show very similar patterns of U.S. dominance in the Dutch and Canadian App Stores. What this suggests is that while the Global South is still underperforming, economic and cultural dominance in the video game industry continues to be shared by North America, East Asia (South Korea and Japan), and Europe.

Discussion and Conclusion

From 2015 to 2017, the trends in the three national App Store instances we analyzed were almost identical: total revenue grew, but smaller countries, even nominally wealthy ones, lost in market share and overall revenue. If we measure source diversity purely in terms of the number of countries participating in the app store economy, we can draw two conclusions. First, digital distribution does allow for Global South countries to participate in global markets, even in the United States, the biggest global market for apps. Second, the vast majority of apps developed in the Global South are from China, a unique case of rapid

industrial development that other countries have yet to replicate. The question of source diversity becomes more complicated when we consider the question of value capture and our measurements of ownership. The arrival of Tencent and other Chinese holding companies did change the overall dynamic in terms of value capture. Whether Chinese ownership will become entrenched, however, remains to be seen.

In purely economic terms, we have seen the clear potency of app incumbency: once an app rises to the top 100, it tends to stay there for a while, generating significant revenue in the process. Acquiring game studios who have portfolios of top 100 apps is the one, maybe the only, corporate strategy to marshal serious changes in source diversity and value capture. This study also confirms the previously theorized dynamic of "app imperialism" (Nieborg et al., 2020); while U.S. app developers and publishers may have lost market share, U.S. dominance in the Canadian and Dutch App Stores in terms of source diversity and value capture comes at the clear expense of competitors. We should note that an app does not necessarily need to enter into the top 100 to ensure a steady stream of revenue. Lower labor and other capital costs in the Global South can even lead to competitive advantages in the short term. But our data also shows that the hypercompetitive and highly stratified nature of the top 100 will lead to less well-capitalized studios and less advertised apps to quickly disappear from it. If this structure persists, South-South and South-North cultural and capital flows are likely to remain marginal. The inequalities of the COVID pandemic and the ensuing tightening of global monetary policy on global app development will also undoubtedly have had their effects on global cultural production, and future research should take this into consideration.

Taking a wider view, our results support our broader argument: research on apps and app stores, which regulate the distribution of cultural content and shape how millions of people interact with information and communication technologies, has deep implications to the wider macroeconomic study of information and, significantly, for the flow of capital across national borders. The nature of value capture in app stores by a handful of platforms with global operations means that these tech conglomerates continue to use their corporate power to contribute to material inequalities at a macro and micro scale.

We should note that even though our dataset has bounded the scope of our analysis and conclusions, there is ample room for further analysis and debate. While our study has focused on game apps, we call on future research to look at the role platforms are playing in other areas of cultural production in the reproduction of platform imperialism. The political economy of communication could do well with more attention toward value capture to get at the root of such world-spanning structural inequalities.

We are also aware that the concept of diversity is not an uncontested term. Diversity in and by itself does not necessarily constitute "democratic" content. Political economist Philippe Bouquillion (2019) notes that the popularity of the term of political circles at the highest realms of policy is likely because of it being "fuzzy" and thus a rhetorical strategy that will support "different and even contradictory strategies" in relation to it (p. 51). As such, diversity often becomes an institutional policy project that reproduces structural inequalities. That said, we concur with Saha (2017) that the struggle over this form of hegemonic diversity can "be read as a form of progress of sorts" and "represent a gain nonetheless" (p. 95). In this sense, one way to read our results is by taking a glass-half-full approach: Geographical sources of game apps seem much higher today compared with the game industry of 20 years ago, which had high economic and logistical barriers to market entry. One last caveat inherent to our approach on app revenue is that we

have purely focused on for-profit productions. It is worth noting that game development does not necessarily have to be geared toward generating economic value and that a very diverse set of countries across the globe has given way to thousands of games that create tremendous cultural value, which we have been unable to capture (Keogh, 2023; Young, 2023).

In conclusion, for us source diversity is only meaningful when it empowers marginalized and oppressed peoples, those who have been intentionally left out of the material benefits of industrial and postindustrial society. This is a global concern in the context of platform and app imperialism: Diversity becomes meaningful when people around the planet, especially those who were historically the victims, rather than the beneficiaries, of colonialism and imperialism, have a democratic stake in the production, distribution, and consumption of media. The App Store, as it stands, is "one big store" dominated by a group with select members. Our research shows that cultural industries in the Global South can participate in this one big store, but the amount extracted from their national App Store instances far surpasses gains. This does not mean that the Global South should cease to participate in these markets, but it does mean that structural and regulatory changes are necessary to rectify the ill effects of unequal exchange in the cultural industries. The starting point for building better app stores that enable such global cultural exchanges can be found by acknowledging the many inequalities that stifle meaningful diversity.

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