



Unskewing the Data Value Chain

A Policy Research Project
for Equitable Platform Economies

Unskewing the Data Value Chain
– A Policy Research Project for Equitable Platform Economies
Background Paper

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Project Snapshot

Problem statement

- A data-propelled tendency for economic concentration has fueled the rise of Big Tech companies. Their entrenched control over data value chains creates economic inequality on a global-to-local scale that policy efforts are yet to address adequately and appropriately.

Research objective

- To assess current policy gaps and explore innovative policy directions towards a systemic policy overhaul centering the idea of data value chains, thus addressing:
 - Big Tech's stranglehold over data resources,
 - Data infrastructure governance for equitable and inclusive economic development.

Research questions

- How are policy regimes addressing and restraining Big Tech data power?
- How are current policy directions and emerging institutional mechanisms able to tackle questions of market fairness and economic equity in the digital economy? What kind of data stewardship models can facilitate equitable distribution of gains from data value chains?
- How do global policy regimes on data and AI impact national development priorities and pathways? What building blocks are needed for a global-to-local governance regime for equitable data value chains?

1. Background

IT for Change is embarking on a year long research study to assess current policy gaps and explore new policy directions on data value chains that can promote equitable and inclusive economic development.

Development outcomes in the digital era are closely tied to the ability of countries to harness the data value chain and ensure fair and just digital economies (Gurumurthy et. al., 2019). However, as things stand, the digital economy is anything but equitable.

The proposed research, therefore, seeks to investigate policy frameworks and evolve scholarly reflections on future directions for the governance of data value chains, with a focus on:

- regulatory measures to restrain the data power of Big Tech,
- digital and data infrastructure policies to promote an inclusive digital economy,
- implications of international data and AI regimes for national development priorities and pathways.

2. Rationale and context

In July 2020, the US government summoned the largest technology corporations in the country and in the world – Google, Facebook, Amazon, Microsoft and Apple – for a six hour virtual hearing. “The emperors of the online economy”, as they were referred to by one member of the US Congress Antitrust Subcommittee, were questioned on their anti-competitive practices, disproportionate control over data resources, and the powerful position they occupy in the world’s economic system, along with the threats they pose to democracy.¹

The rising market power of Big Tech companies and their destabilizing effects on our economic systems have given rise to widespread concern about finding appropriate governance frameworks to rein them in. The term ‘Big Tech’ signifies the inordinate power that accrues to a corporation through an ever-expanding web of stakes built on the network effect and the associated capture of data value chains. Big Tech is used in common parlance to refer to a handful of digital companies that wield such power. It may also be seen as a stand-in for the phenomenon of corporate capture of data value. The open network of the internet has transmuted into a privatized and concentrated economic structure, predicated on hoarding more and more data and using digital intelligence as a factor of production.

Data value chains are the assemblage of intelligence infrastructure layers – consisting of the base data layer, cloud computing layer, the intelligence layer, and the consumer-facing intelligence services layer (Singh, 2020) – that drive a fundamental transformation of the real economy. In a digitalizing economy, not only is there a shift to digitally-delivered services, but also to new modes of data-enabled value generation in core sectors such as agriculture and manufacturing (UNCTAD, 2019). As all economic and social phenomena become datafied in due course, they become a part of the digital economy/society.

More recently, policy circles across the world actively acknowledges that data and data-enabled intelligence are the building blocks of the emerging economic order. It is also evident that data capture by Big Tech has resulted in a highly skewed and inequitable global economy, calling for

¹ Bond, S. (2020, July 29). *Congress holds Big Tech antitrust hearing*. NPR. <https://www.npr.org/2020/07/29/896840093/congress-holds-big-tech-antitrust-hearing>

urgent policy intervention. The EU is attempting to make important connections to the data layer in traditional policy areas, addressing monopoly control over data resources as an antitrust issue² and finding appropriate digital services taxation routes.³ It is also building cloud infrastructure⁴ and promoting data sharing (EU data strategy, 2020).⁵ Thus, in addition to traditional policy areas, new interventions to create enabling intelligence infrastructures are becoming a vital policy priority to break the stranglehold of Big Tech companies over data value chains.

2.1 How Big Tech's networked web of stakes skews the digital economy

The capture of data and digital intelligence and its recursive deployment by Big Tech to optimize market exchange and capitalize innovation results in a highly skewed global digital economy. Value in the digital economy is cornered by a few superstar firms and, mainly, two countries – the US and China. Big Tech's unassailable market power is manifest in different forms of data-based control, posing significant challenges to regulatory and policy intervention:

a. Business stakes across various verticals and different segments of the same vertical. The 'Amazonification' of the world is one illustration of this phenomenon. The e-commerce company, which started out as an online seller for books, is today the world's marketplace for everything. Over the past two decades, following a strategy of data value capture and consolidation, the company has direct operations in, or has acquired wholly or partially, digital businesses in retail, media streaming, health etc. More recently, it has ventured into offline services by acquiring the grocery chain Whole Foods and the movie theatre company AMC, weaving these chain businesses into its digital enterprise. At the finance layer, Amazon has been moving swiftly to integrate several functions including customer and merchant payment infrastructure through its digital wallet Amazon Pay, as well as lending and credit components. It has also invested in fintech companies and startups.⁶

b. Monopoly control of the intelligence infrastructure of various business sectors. Amazon Web Services (AWS) – the cloud storage and cloud computing services business layer of Amazon – controls 40 percent of the world's cloud computing market, hosting the backend not only for major tech companies like Pinterest, but also small and medium businesses, startups and state and public institutions and agencies including notably, the Pentagon. Amazon's control over the data value chain means that even Netflix, its competitor in streaming services, relies on AWS for cloud services.

Alibaba's cloud operations have grown by leaps and bounds in the past few years to include a mind boggling range of analytics products in sectors such as urban planning, agriculture, health, aviation, and finance. Alibaba has used the innovation premium deriving from its vast data empire not only to build ET Brain – its sophisticated Artificial Intelligence (AI) platform – but also to adaptively cater to newer and newer sectors. Its strategic partnership with energy and oil corporation Sinopec is a case in point (Shen, 2019).

2 Szczepeński, M. (2019). EU competition policy – Key to a fair single market. European Parliamentary Research Service PE 642.209. [https://www.europarl.europa.eu/RegData/etudes/IDAN/2019/642209/EPRS_IDA\(2019\)642209_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2019/642209/EPRS_IDA(2019)642209_EN.pdf)

3 Lomas, N. (2020, June 18). *EU digs in on digital tax plan, after US quits talks*. TechCrunch. <https://techcrunch.com/2020/06/18/eu-digs-in-on-digital-tax-plan-after-us-quits-talks/>

4 GAIA-X: A federated data infrastructure for Europe. (n.d.). GAIA-X. <https://www.data-infrastructure.eu/GAIA-X/Navigation/EN/Home/home.html>

5 European Commission (2020, July 27). *A European strategy for data*. <https://ec.europa.eu/digital-single-market/en/policies/building-european-data-economy>

6 Research Reports. (n.d.). *Everything you need to know about what Amazon is doing in financial services*. CBInsights. <https://www.cbinsights.com/research/report/amazon-across-financial-services-fintech/>

c. Strategic elimination of competition to deepen end-to-end control of the data value chain.

Big Tech is able to use intelligence as a way to throttle competition and empty the playing field altogether. Swiggy, a wannabe-Big Tech, is backed by substantive funding from Softbank and is India's largest food delivery platform. It has been able to harness data from users and partner restaurants on orders, consumer preferences, menu items etc., to develop its own line of cloud kitchens, which, in many cases, outprice and outcompete the very restaurants from whose data Swiggy was able to build its intelligence infrastructure in the first place.⁷

Leaked emails from Facebook in 2019 have also shown how it extracted user data to broker advantageous relationships with major advertisers such as its contemporary Amazon, while cutting off user data access (that it monetized regularly) to a rival messaging app MessageMe, and denying application programming interface (API) access on its site to Instagram's rival Pinterest.⁸

d. Transnational/global consolidation of economic interests through a data-finance nexus.

Dominant Big Tech companies attempt to entrench their position as lead firms in global data value chains through acquisitions, mergers, and investments. In order to externalize research costs for cutting-edge innovation, they often fund small startups, only to eventually buy out the winners. In fact, the digital economy has been increasingly moving in the direction of a scoop-up by Big Tech through cross-holdings and investments in platform firms⁹ dominating the national/regional data value chain. In Southeast Asia, Alibaba has acquired stakes in major regional players such as Lazada and Tokopedia in Indonesia, and used subsidiary Ant Financial to invest in payments services such as M-Daq (Singapore), Mynt (Philippines), and Hello Pay (Malaysia).¹⁰ In fact, in 2017, Alibaba established its first Digital Free Trade Zone in Malaysia as a way of expanding cross border e-commerce in the region.¹¹

We also observe the proliferation of Big Tech into very critical development spheres, providing the essential intelligence infrastructures for governments through public-private partnerships. In the Covid context, governments in Australia and Canada have tied up with Amazon for contact tracing and for delivery of medical equipment.¹²

3. A critical stocktaking of governance issues related to data value chains

90 percent of the market capitalization of the world's 70 largest Big Tech companies accrues to the US and China. The EU's share is a paltry 4 percent and Africa and Latin America together account for 1 percent (UNCTAD, 2019). This extremely unequal economic geography, where global data value chains have been captured by Big Tech companies and two countries, is the result of a governance vacuum. With real economy value chains becoming intermeshed with data value chains, a laissez faire digital economy is only likely to perpetuate highly unequal development trajectories. The ability of states to harness intelligence infrastructures stands impeded today, mired in political economy contestations, as described below.

7 Kochhar, D. (July 2, 2019). *From Domino's to Swiggy-Zomato: The cloud kitchen mirage*. The Ken. <https://the-ken.com/story/cloud-kitchen-mirage/>

8 Holmes, A. (2019, November 7). *Leaked emails show how Facebook wielded its control over user data to hobble rivals like YouTube, Twitter, and Amazon*. Business Insider India. <https://www.businessinsider.in/politics/news/leaked-emails-show-how-facebook-wielded-its-control-over-user-data-to-hobble-rivals-like-youtube-twitter-and-amazon/articleshow/71945968.cms>

9 Yu, D. (2020, June 3). *Facebook, PayPal back Gojek to boost digital payments in Asia*. Tech in Asia. <https://www.Tech in Asia.com/gojek-bags-funds-facebook-paypal-google-tencent>

10 Millward, S. (2018, May18). *Alibaba's Southeast Asia empire*. Tech in Asia. <https://www.Tech in Asia.com/alibaba-empire-southeast-asia>

11 Frieschlad, N. (2020, July 1). *Indonesia's import shyness is Malaysia's gain in SE Asia's e-commerce race*. The Ken. <https://the-ken.com/sea/story/indonesias-import-shyness-is-malysias-gain-in-se-asias-e-commerce-race/?searchTerm=indonesia>

12 Klein, N. (2020, May 8). *Screen new deal*. The Intercept. <https://theintercept.com/2020/05/08/andrew-cuomo-eric-schmidt-coronavirus-tech-shock-doctrine/>

3.1 New challenges that data value chains pose to old competition law

Traditional competition law frameworks, with their focus on consumer protection rather than structural health of the marketplace, have failed to check the predatory pricing and horizontal and vertical integration practices of Big Tech corporations. More importantly, these frameworks have been several steps behind in recognizing the critical role data capture has played in fueling market domination by tech companies.

Notably, even after reviews, Facebook's acquisition of Instagram and WhatsApp were passed without red flags by the US Federal Trade Commission (FTC) in 2012 and 2014 respectively, despite the criticality of these buyouts in building Facebook's global network-data empire. Other acquisitions by Big Tech companies of startups and small companies, driven by the data proposition, also continued unchecked. Regulatory blind spots in legacy frameworks have not been able to take into account how digital intelligence is captured and accumulated, and have, thus, allowed for the cannibalization of data into the ecosystems of Big Tech, resulting in high data concentration and consequent monopolistic practices.

When anti-competitive practices of Big Tech come to light, as they did during the EU antitrust investigations of Google in 2018 and 2019, the tendency is to impose large fines as a form of resolution.¹³ But this is hardly a deterrent. Tech companies have typically shrugged off fines as the 'cost of doing business', and continued as before. Other proposals that have been floated to 'break up' Facebook and its ilk¹⁴ into smaller companies – drawing from the precedent of broadcast and telcos empires such as the NBC network in the 1940s and AT&T's Bell system in the 1980s – without accounting for the crucial issue that Big Tech's control of data value chains can do little to unseat their dominance.

More recently, there is a growing recognition of how data enclosure and monopolization by large technology corporations have distorted markets (Khan, 2017). Competition regulators in the US, EU, India, and South Africa are beginning to recognize the issue of data as seminal to the issue of competition and healthy markets. For instance, in 2019, the FTC and the Department of Justice (DOJ) launched a broad antitrust investigation into a decade of acquisitions undertaken by Amazon, Apple, Facebook, Alphabet, and Microsoft, specifically seeking to review small buyouts and acquisitions in order to understand how data from smaller startups became folded into the larger ecosystems of these platform companies.¹⁵ The 2020 report of the Competition Commission of India (CCI) on e-commerce has also identified data asymmetry in the platform marketplace as a key reason for platforms' skewed economic relationships with small businesses and sellers, observing that access to both price and consumer data has enabled platforms to acquire a strategic stronghold on the retail market.¹⁶

However, while much has been said and made of the many antitrust hearings and probes that have been set up in the past two years, including the recent US Congressional hearings in July 2020, structural solutions that can tackle the role of the data axis in propping up tech monopolies are still few and far between. High-profile tech mergers and buyouts attract regulator scrutiny, but continue

13 European Commission. (2019). *Antitrust: Commission fines Google €1.49 billion for abusive practices in online advertising*. European Commission. https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1770

14 Hughes, C. (2019, May 9). *It's time to break up Facebook*. New York Times. <https://www.nytimes.com/2019/05/09/opinion/sunday/chris-hughes-facebook-zuckerberg.html>

15 Edelman, G. (2020, February 12). *Why the FTC wants to revisit hundreds of deals by Big Tech*. Wired. <https://www.wired.com/story/ftc-special-order-review-big-tech-killer-acquisitions/>

16 Competition Commission of India (2020). *Market Study on E-Commerce in India*. Competition Commission of India. https://www.cci.gov.in/sites/default/files/whats_newdocument/Market-study-on-e-Commerce-in-India.pdf

to be cleared. In June 2020, the CCI approved Facebook's acquisition of 9.99 percent stake in Jio Platforms, which houses the country's largest telecommunications giant.¹⁷ The deal will not only strengthen the social media company's presence in its largest market, but also lay the foundations for extending 'social commerce' to small businesses through WhatsApp.

The recognition of data concentration as a factor in the anti-competitive nature of Big Tech is yet to fully translate into progressive policy actions that can correct market consolidation. Therefore, important questions arise for policy:

- How can Big Tech's monopoly control over data be addressed through competition law remedies?¹⁸
- What criteria need to be developed in competition law to assess value and control of data in mergers/acquisitions?
- What kind of platform design principles are necessary to prevent abuse of market power?

3.2 Absence of a global governance framework for data flows

Data is the most vital economic resource of our times, but ironically, there is no appropriate global governance framework to regulate data flows across jurisdictions. This lacuna is aggravated by the intersection of the issue of cross-border data flows with trade and human rights concerns.

Furthermore, in the past few years, a number of attempts to build global/regional initiatives, via blocs such as the G20, Organisation for Economic Co-operation and Development (OECD), EU, etc., for leveraging data as an economic resource have also crystallized into a largely non-critical push for free data flows through regional data markets and seamless digital ecosystems – a move that will likely benefit the strongest players in these power blocs and not necessarily create uniform or equitable gains for the region as a whole.

In global and regional trade deals, the US continues to advocate for free, unrestricted data flows to preserve the market power of its tech giants. However, with over 34 countries putting in place some sort of localization measures based on strategic considerations, there is now a tug of war in the digital trade policy arena.¹⁹ The Chinese state and its digital corporations have an uneasy alliance. In the initial years, the great firewall of China that prevented outward flows of data and restricted the entry of foreign digital corporations into the Chinese market enabled the development of domestic digital Big Tech (Kelsey, 2020; Singh, 2020). China continues to zealously protect its data sovereignty and develop a home-grown intelligence infrastructure, with Chinese Big Tech steadily extending their data dominion in Asian and African markets.²⁰

The EU has, meanwhile, adopted a privacy-centric approach to the governance of cross-border data flows through the 'adequacy clause' in its trade agreements. The EU's emerging policy vision for data and technological sovereignty, articulated through its Digital and Data Strategies, is aimed at creating a seamless and frictionless single market for data in the region through the creation of common data spaces in strategic sectors. Initiatives such as GAIA-X, a unified ecosystem of cloud and data services, aim to establish an interoperable data exchange for European businesses in

17 ET Bureau. *CCI okays Facebook's investment of Rs 43,574 crore in Jio Platforms*. Economic Times.

<https://economictimes.indiatimes.com/tech/internet/cci-okays-facebooks-investment-in-jio-platforms/articleshow/76561345.cms>

18 Germany's proposed digital antitrust law recognizes refusal to supply 'access to data' as a form of market power abuse and aims at enabling competitors to have a level playing field. See Schoening, F. & Ritz, C. (2019, October 31). *Germany's proposed digital antitrust law: An ambitious project to regulate digital markets*. Hogan Lovells. <https://www.hlregulation.com/2019/10/31/germanys-proposed-digital-antitrust-law-an-ambitious-project-to-regulate-digital-markets/>

19 Ikigai Law. (2020, June 20). *The data localization debate in international trade law*. Ikigai Law. <https://www.ikigailaw.com/the-data-localization-debate-in-international-trade-law/>

20 Lee, T. (2019, April 2). *Ant Financial-backed VC firm raises \$100m to fund startups from Southeast Asia, India*. Tech in Asia. <https://www.TechinAsia.com/ant-financialbacked-vc-firm-raises-100m-fund-startups-southeast-asia-india>; Shen, X. (2019, January 28). *Xiaomi is going to expand in Africa*. Tech in Asia. <https://www.TechinAsia.com/xiaomi-expand-africa>

various sectors and provide data services in AI, Internet of Things (IoT), and Big Data analytics. In a landmark court decision, the EU also struck down the US-EU privacy shield, thereby barring American corporations from transmitting data outside of EU. These overtures are aimed at preventing the region from being overrun by US and Chinese companies, and underscore an urgency to build the competitiveness of European firms in global data markets.

However, in bilateral and plurilateral trade deals, the EU has endorsed liberalized cross-border data flows to be able to extract data from other regions. A few developing countries (like India and South Africa) have pushed back against the hyperliberalization of data flows, aspiring to assert jurisdictional sovereignty over data resources. For instance, in the June 2019 G20 summit, India, Indonesia, Vietnam, Brazil, and South Africa opted out of the Osaka track, a framework to promote cross-border data flows within the G20 bloc. Likening data to a “new form of wealth”, India asserted the critical role of data for its national economic development.²¹

The emerging debate on cross-border data flows points to the need for a deeper inquiry into appropriate arrangements for global to national governance frameworks to harness data value chains. Pertinent to the debate are some key questions:

- How should data resources (personal and non-personal) be stewarded to check the power of Big Tech and promote the interests of smaller actors in data value chains?
- What insights may be drawn from ideas of a common property resource regime for data governance models?
- How can a people-centered sovereignty approach to data governance be harmonized in a global-to-local governance regime for data?

3.3 A stalemate in Big Tech taxation

Cross-border digital services increasingly constitute a major share of transnational data value chains. Hence, existing international taxation frameworks that are based on physical presence are ineffective in curbing the profit-shifting practices of Big Tech corporations to evade tax liability. The US has scuttled intergovernmental efforts to evolve digital services taxation regimes and threatened retaliatory sanctions against countries who propose digital services taxation measures.²² Amidst this failure to generate an international consensus on corporate taxation rules for Big Tech companies, there have been suggestions that the burden for revenue mobilization should be shifted to indirect taxes such as value added tax (VAT) on goods and services sold in the digital marketplace. But practical challenges related to mobilizing VAT from remote sellers still remain (IMF Policy Paper, 2019).

Legacy taxation regimes, such as the moratorium on customs duties on electronic transmissions agreed upon by countries in 1998 at the World Trade Organization (WTO), also impede countries from effectively taxing the revenues earned by transnational Big Tech companies from digitizable products.²³ At the time the moratorium was agreed upon, the digital economy was in its infancy,

21 Scroll Staff. (2019, June 29). *G20 summit: India does not sign Osaka declaration on cross-border data flow*. Scroll. <https://scroll.in/latest/928811/g20-summit-india-does-not-sign-osaka-declaration-on-cross-border-data-flow>

22 In June 2020, the US exited the OECD process on digital taxation much to the chagrin of the EU, see: Fleming, S., Brunsten, J., Giles, C. & Politi, J. (2020, June 17). *US upends global digital tax plans after pulling out of talks with Europe*. Financial Times. <https://www.ft.com/content/1ac26225-c5dc-48fa-84bd-b61e1f4a3d94>; The office of the United States Trade Representative (USTR) has also initiated investigations into policies and proposals digital service taxes adopted or under consideration by 10 nations – Office of the United States Trade Representative. (2020, June 2). *USTR initiates Section 301 investigations of digital services taxes*. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2020/june/ustr-initiates-section-301-investigations-digital-services-taxes>

23 Digitizable products are those products which are traded both in the physical form as well as 'online' i.e., downloaded from the internet, e.g., music, e-books, software etc, see: UNCTAD (2019). *Digital Economy Report*. UNCTAD/DER/2019. Geneva. https://unctad.org/en/PublicationsLibrary/der2019_en.pdf

with just five broad categories of digitizable products traded online: sound recordings, audiovisual works, video games, computer software, and literary works. However, over the years, as additive manufacturing possibilities offered by 3D printing and the exponential growth of digitally delivered services have expanded, the range of digitizable products, the continuation of the moratorium has meant enormous loss of valuable fiscal revenues, with some estimates placing the potential loss incurred by developing countries, who are net importers of digitizable products, at USD 10 billion.²⁴

A deeper exploration of possible national taxation regimes, especially to prevent base erosion and profit shifting by Big Tech companies, is in order. Policy research needs to focus on the following tracks:

- How can countries design direct and indirect tax measures for the digital economy?
- What criteria are necessary to define 'significant economic presence' of Big Tech with regard to taxation?
- Given the crisis of multilateralism, what strategies may be useful to break the stalemate on a global Big Tech taxation regime?

3.4 The challenge of intelligence infrastructure development

Most developing countries and least developed countries face a double whammy in the digital economy. National data systems in many of these contexts have been weak. Also, reduced to being the source of Big Tech's data extraction machinations, developing countries find themselves either inefficiently integrated into or excluded from the global digital economy. Most of these countries remain locked into low-value segments of transnational data value chains, deprived of the material means and the capabilities to leverage intelligence capital.

However, building endogenous digital infrastructural capabilities is a complex, resource intensive endeavor that countries may not be able to achieve within the constraints of domestic fiscal resources and research and development facilities. At the same time, foregoing investment in building intelligence infrastructure is not an option in the digital age; development choices are predicated on this.

The market access route to technology transfer that has been the mantra of the digital economy for the past two decades has failed to enable Global South countries to evolve their connectivity, cloud, and data infrastructure (Azpamo, 2018). All it has succeeded in doing is opening up new data markets in the Global South to dominant technology companies (Taylor & Broeders, 2015). In this regard, the nexus between capital markets and local innovation pathways demands deeper scrutiny. Large firms make extractive foreign direct investments with the objective of capturing data and intellectual property (IP) assets from a given region. Even when said firms locate facilities and research hubs in this region, the intent is "to absorb knowledge rather than to introduce it into the hub" (Ciurack, 2018). Israel, which has developed Tel-Aviv into a regional digital power over the years, has attracted over 300 tech companies based in the Silicon Valley and other regions to invest and set up offices in the country. Today, the hub is witnessing a Big Tech takeover of sorts, with talent poaching, wage inflation, and diminishing prospects for startups.²⁵

Countries in the Global North including the US, UK, France, and Germany have begun to guard against such extractive investments from China through new rules to protect their strategic IP, data,

24 Banga, R. (2020, July 16). *Should digitally delivered products be exempted from customs duties?*. UNCTAD. <https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2430>

25 Kalman, M. (2019, January 8). *Israel's "startup nation" is under threat from the tech giants that nurtured it*. MIT Technology Review. <https://www.technologyreview.com/2019/01/08/66207/israels-startup-nation-is-under-threat-from-the-tech-giants-that-nurtured-it/>

and AI assets. Countries in the Global South lack the bargaining power to exercise such an option given their fiscal challenges and the role of foreign investment in domestic development.

The digital economy also impacts the policy choices that developing countries have under current global trade rules. Under the Agreement on Trade Related Intellectual Property Rights, these countries could impose technology transfer obligations on foreign companies entering their domestic market, but this option is increasingly becoming untenable. The US is now pushing for a prohibition of source code transfer in trade forums so that the hold of its Big Tech corporations over data value chains remains unshaken.²⁶

It has been widely recognized that the achievement of development goals is predicated on intelligence infrastructure (UNCTAD, 2019; Gurumurthy et. al., 2019). Innovation depends not only on data pools, but also open standards and IP regimes that can provide impetus to small and medium businesses. In the context of developing countries, the uphill task of playing catch-up raises important questions:

- What national digital public goods frameworks are needed to give impetus to digital industrialization?
- How have international development financing and market-based technology transfer regimes shaped trajectories of digital (data, cloud, and AI) infrastructure development? How has this impacted equity and inclusion?
- How can public intelligence infrastructure democratize innovation?

4. Towards a research agenda on data value chains

A data-propelled tendency for economic concentration and the policy deficits that have fueled the rise of Big Tech companies have brought to the fore a critical realization – market power is coterminous with data power and the entrenched control of Big Tech over the data value chains is at the heart of the problem of economic inequality.

The multiple loci of policy efforts to better regulate Big Tech and the gaps and silences that have been observed here, along with the persistent and often successful counter measures of technology corporations, tell us that there are many challenges to decentralizing data value chains and realizing an equitable digital economy. Some positive efforts have undoubtedly been made, but a lot remains to be done. Policy must, therefore, work to target and regulate the data layers that emerge at every regulatory juncture.

The policy contestations around data also reflect, more than ever, the need for global data norms to decisively take on the systemic issues that have allowed Big Tech to flourish, including the seminal question of how the data that large corporations own should be governed.

In this context, IT for Change's project, Unskewing the Data Value Chain, aims to examine policies for the platform model and analyze how data value chains can be directed towards a fair and just economy.

²⁶ A clause prohibiting source code transfer in trade agreements would mean developing countries cannot demand access to data/algorithms from Big Tech companies entering their market, thus limiting any possibility of effective technology transfer

4.1 Research questions

With a view to understanding the interplay of policy regimes and the trajectory of the digital economy, and recommend policy directions for inclusive and equitable data value chains, the proposed research will address the following questions:

1. How are policy regimes addressing and restraining Big Tech's data power?
2. How are current policy directions and emerging institutional mechanisms able to tackle questions of market fairness and economic equity in the digital economy? What kind of data stewardship models can facilitate equitable distribution of gains from data value chains?
3. How do global policy regimes on data and AI impact national development priorities and pathways? What building blocks are needed for a global-to-local governance regime for equitable data value chains?

Through primary research studies that include empirical study and policy review and analysis, this research project will outline evidence-based policy recommendations for data governance in its role to further economic and development justice.

4.2 Methodological approaches

Researchers are encouraged to use a combination of methodologies. Some indicative methodological directions that can be used in various combinations include:

- Policy review of data policies and data and AI roadmaps for national digital industrialization.
- Comparative analysis of sub-national/multi-country/regional policy landscapes.
- Quantitative analysis and visualizations with network analysis of ownership, acquisitions, etc., with implications for policy.
- Qualitative analysis based on key informant interviews, convening roundtables with policy experts etc.
- Sector agnostic approaches that focus on conceptual directions for policy.
- Sector specific inquiries/case studies to explore one or more policy intersections (including competition, taxation, digital infrastructure, data flows/trade). Some noteworthy sectors that can be analyzed for hyperlocal to regional trends include:
 - E-commerce (e-grocery, rise of super apps, 'social' e-commerce)
 - Fintech and embedded finance (payment architectures and digital wallets, credit scoring, embedded finance in verticals)
 - Pharma and health in the post-Covid context (e-pharmacy services, telemedicine applications, AI in medical research, sexual and reproductive health applications)
 - Edutech (online learning applications, educational content development, AI in evaluation and testing, public-private partnerships)
 - Food delivery (rise of cloud kitchens, pivots to hyperlocal delivery, connections to expanding payment market, etc.).

4.3 Suggested research themes

Some indicative themes and directions for research have been proposed below.

Directions for potential research
A. Competition law frameworks
<p>Key Questions</p> <ol style="list-style-type: none"> 1. How can Big Tech's monopoly control over data be addressed through competition law remedies? 2. What criteria need to be developed in competition law to assess value and control of data in mergers/acquisitions? 3. What kind of platform design principles are necessary to prevent abuse of market power?
<p>Indicative Themes</p> <ul style="list-style-type: none"> • Identifying gaps and deficits in current competition law/policies • Case studies and evaluative research on <ul style="list-style-type: none"> ◦ new and innovative competition law approaches to address data advantage (breaking up data monopolies, valuation of data advantage in mergers/acquisitions, data sharing directives) ◦ legal approaches to regulating a data value chain in a particular sector (digital commerce marketplaces, digital health services, fintech, food delivery) ◦ policy contestations in competition law reform ◦ noteworthy cases of merger decisions and regulatory actions ◦ cloud neutrality and platform neutrality (interoperability and data portability) • Analysis of political economy challenges <ul style="list-style-type: none"> ◦ role of trade agreements in antitrust conduct and preventing competition regulators from framing remedies. • Developing recommendations for competition regulators
B. Global-to-local governance framework for data flows
<p>Key Questions</p> <ol style="list-style-type: none"> 1. How should data resources (personal and non-personal) be stewarded to check the power of Big Tech and promote the interests of smaller actors in data value chains? 2. What insights may be drawn from ideas of a common property resource regime for data governance models? 3. How can a people-centered sovereignty approach to data governance be harmonized in a global-to-local governance regime for data?
<p>Indicative Themes</p> <ul style="list-style-type: none"> • Conceptual exploration of a possible international agreement on governing data flows in the digital economy • Evaluative studies of: <ul style="list-style-type: none"> ◦ personal and non-personal data governance ◦ data stewardship models, including commons-based/ fiduciary/trusteeship/ community data²⁷/ platform cooperativist approaches ◦ data localization and its effectiveness to check Big Tech's data power • State of play assessment of regional/single market governance of data flows • Political economy analysis of digital trade agreements and debates on cross-border data flows (processes such as plurilateral initiatives on e-commerce)

²⁷ For example, India's expert committee on non-personal data has recommended that it be classified into public, private, and 'community' data and obligations and mechanisms for data sharing be decided on the basis of this classification. Ministry of Electronics and Information Technology. (2020). *Report by the Committee of Experts on Non-Personal Data Governance Framework*. Author. <https://ourgovdotin.files.wordpress.com/2020/07/kris-gopalakrishnan-committee-report-on-non-personal-data-governance-framework.pdf>

C. Big Tech Taxation
<p>Key Questions</p> <ol style="list-style-type: none"> 1. How can countries design direct and indirect tax measures that are effective for the digital economy? 2. What criteria are necessary to define 'significant economic presence' of Big Tech with regard to taxation? 3. Given the crisis of multilateralism, what strategies may be useful to break the stalemate on a global Big Tech taxation regime?
<p>Indicative Themes</p> <ul style="list-style-type: none"> • Evaluating digital service taxation regimes through country case studies • Looking at taxation regimes and revenue models for content and streaming services • Comparative analysis of digital services taxation proposals • Progressive taxation regime for data value chains • Political economy analysis of the stalemate on digital taxation
D. National intelligence infrastructure development
<p>Key Questions</p> <ol style="list-style-type: none"> 1. What national digital public goods frameworks are needed to give impetus to digital industrialization? 2. How have international development financing and market-based technology transfer regimes shaped trajectories of digital (data, cloud, and AI) infrastructure development? How has this impacted equity and inclusion? 3. How can public intelligence infrastructure democratize innovation?
<p>Indicative Themes</p> <ul style="list-style-type: none"> • Overview of standards development and access-and-use regimes for public/national open data infrastructures • Analysis of national AI roadmaps for domestic infrastructure development • Evaluation of investment regimes for domestic digital infrastructure development • Modeling for alternative finance regimes, including in public cloud infrastructure development • Case studies of digital/data public goods initiatives (in health, agriculture, mobility, and transportation)

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