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Digitalization for Public Expenditure Accountability and Transparency (d4PEAT)

A re-engineered framework for Public Finance Management in India

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Abstract

Reforms in public expenditure management in India, especially in accounting and administrative processes, have lagged behind the reforms in public revenue management. Lack of uniform accounting codes, limited data standards, and standalone systems across different tiers of governments have led to issues related to data comparability, data aggregability, and misclassification of data. In addition, lack of a single source of truth and inadequate end-to-end digital data capture limits the efficiency, tractability, and accountability of public funds. Limited just-in-time fund-flows, where fund disbursals and actual expenditures are not in tandem, further increases the uncertainty in government transactions. This study identifies the touchpoints where mainstreaming digitalization could address these fundamental challenges of public expenditure management through an actionable roadmap in the form of d4PEAT framework. A composite score under d4PEAT framework for each level of government is calculated, which can be used to rank their performances and assess the progress made in mainstreaming digitalization of public expenditure management. The framework charts a process for debate, suggest areas where policy reforms can be initiated in India, leading to enhancing accountability and transparency in public spending.

Keywords: Public expenditure management, d4PEAT framework, Digitalization, Fund-flow architecture, Accountability, Transparency

JEL Codes: H11, H83, P43, Z18

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1. Introduction

The quantum of public expenditure in India has increased substantially over the years. The total expenditure incurred by the government, at both the Central and State government levels, stood at Rs 65 lakh crores in 2020-21, which is almost one-third of the Gross Domestic Product (GDP) and close to Rs 47,000 per capita in current rupees. In real terms, just over the last decade, the per capita public total expenditure has increased by 66%, from Rs 19,360 in 2011-12 to Rs 32,100 in 2020-21. In the Union Budget 2022-23 of Government of India, Rs 16.24 lakh crore, or 41% of the Central Government spending was allocated to Central Sector (CS) schemes and Centrally Sponsored Schemes (CSS) for beneficiary-oriented or asset-based programs.

The increase in the pace of public expenditure in India in the recent years has been accompanied by an increase in the pace of digitalization of transactions in the public sector too, notably the Public Financial Management System (PFMS) for the Centre, the Integrated Financial Management System (IFMS) for the states, the Government e-Marketplace (GeM) for procurement, direct benefit transfers (DBTs), and several other state government digital initiatives that target beneficiary identification or processes in asset creation. However, for the most part, digital innovations are also standalone systems, with the form and structure of keeping accounts in the government remaining more or less unchanged over the decades.

Bringing in accountability of public expenditure is important for an effective public financial management of the country. Better management of public resources would de facto increase the resource envelope and the fiscal space of a country. However, we see that apart from the recommendations of two expert committees of the Administrative Reforms Commission (ARC) in 1966, that introduced the six-tier accounting classification, not much reform has been undertaken in the public finance management sphere.

Data, for the most part, are maintained manually and subsequently keyed into computers – they are not organically generated. For schemes that run across multiple government departments, the data generated are often kept in standalone systems, which rarely speak to each other. Different tiers of government maintain expenditure under different accounting codes and data standards that are not comparable or inter-operable (CAG 2020). In other words, accounting of expenditure by different departments at different levels of the government follow different accounting codes. This makes data collation difficult.

With this background, at the outset, this paper explores some reform processes required for real-time tracking of government expenditure and for increasing public sector spending efficiencies. Specifically, taking India as a case study, the paper aims at proposing an actionable road map through devising a framework called Digitalization for Public Expenditure Accountability and Transparency, or *d4*PEAT.

The *d4*PEAT framework is built by situating digitalization as the underlying foundation. It identifies the various processes and systems of public expenditure management, that are otherwise standalone, which can be re-wired through digitalisation. With that objective in mind, a re-engineered

framework with 14 pillars and 135 indicators is introduced, that addresses four broad themes involved in public expenditure management: integrity of the accounting framework, efficiency of processes, payments architecture, and institutional transparency. The indicators are real-time indicators, grounded in digitalisation, that can re-wire these different processes together.

Similar frameworks found in the literature track the post-facto achievements of public expenditure rather than focusing on the real-time tracking of public spending and efficiency. For instance, both the Public Expenditure and Financial Accountability (PEFA) framework (The World Bank Group 2020), as well as the OECD's Budget Transparency Toolkit (OECD 2002) are diagnostic assessments based on ex-post indicators. These ex-post indicators deal with budget credibility, comprehensive of information in the budget documents, predictability and control in budget execution, quality and timeliness of audit process, and reconciliation of accounts among others (The World Bank Group 2020).

The application of PEFA framework in the Indian context is sparse. To the best of our finding, (Jena 2010) is the only paper that did a comprehensive assessment of PEFA at the Central government level. At the subnational level, a similar analysis was conducted by the Government of Himachal Pradesh (Financial Management Unit South Asia Region 2009).[1] The report assigned scores to 28 indicators based on available government documentation and through in-depth discussions with ten government officials and distinguished members of academia.

Given that the focus of the PEFA framework is on ex-post indicators, answering some simple questions in public financial management still remains a challenge. For example, under the current accounting framework, is it not possible to aggregate public expenditure pan-India to determine how much money is spent on building a particular asset, or to obtain a beneficiary list with all the benefits an individual is entitled to under different schemes. It is also not possible to track the fund-flow under different schemes till the last rupee spent in India.

Our proposed *d4*PEAT framework looks deeper into these questions. It takes an in-depth and real-time look into the internal wiring of different systems and processes involved in the public management expenditure by addressing the fundamental issues impacting data aggregation, comparability, and interoperability.

The *d4*PEAT framework complements the existing approaches to public financial management systems that focus on budget credibility and fiscal transparency. It further pushes the frontier by looking at *a-priori* data standards and real-time indicators. The framework is built on the concept of business process re-engineering needed at various levels of the government and ensures that the different standalone processes work together.

By situating digitalization as a foundation, *d4*PEAT identifies and lists the various factors that enable an entity to mainstream the process of digitalization. It assesses the readiness of a ministry, department or other entities expending public money for public finance reforms. The framework has benefited from deep interactions with policymakers from the Union and state governments, district

and block officials, and Gram Panchayat (GP) members. It is designed to help translate the government's digital public expenditure mandate into an actionable roadmap.

2. Methods: State visits and in-depth interviews

In a federal State like India, it is a challenge to aggregate and track public expenditure by purpose or activity. In order to better understand all these inherent challenges, this study uses a combination of both primary data and secondary data. The primary data was collected from our field visits to four states in India, viz., Karnataka (Southern region), Gujarat (Western Region), Odisha (Eastern Region), and Uttar Pradesh (Northern region), along with covering the Government of India officials in New Delhi.

In-depth interviews with over 90 knowledgeable and committed professionals were conducted in the four designated states during the two months of March and April 2022. Separate questionnaires were prepared for the Government of India and state officials, state line departments, and officials at the district, block, and Gram Panchayat (GP) levels. Several academic researchers in the field of public finance were also interviewed in the process.

Through these interviews, we sought feedback on different ways to improve public expenditure management. Examples of questions we asked to the professionals include: specific measures to improve the tractability of funds flowing from centre to the lowest implementing agencies; the differences in accounting frameworks across governments; the challenges for putting in place machine-to-machine payment tracking systems; measures to build a non-repudiable online registry for assets and citizens for decision making; the need for standardization of data, among others. We categorized the responses received under different subsections below in the Result section [3.1.1 to 3.1.6].

The secondary desk research was primarily conducted using published papers, the State Finances Audit Reports of 29 states prepared by the Comptroller and Auditor General of India (C&AG), the State Budget manuals, Finance and Appropriation documents of the state governments, Study of State Finances published by the Reserve Bank of India, available sanction orders of various Union Government schemes, Public Financial Management System (PFMS) reports, and web portals of government ministries.

3. Results

3.1 Need for a re-engineered framework

Our result section is broadly divided into two parts: First, from our state visits and in-depth discussions, we argued that the issues pertaining to public expenditure management include misallocation and misclassification of data, difficulty in aggregating data, lack of data standards, difficulty in tracking fund-flows, delays in payments and government transactions, challenges in

comparing data, the issue of data integrity, the lack of end-to-end encryption, and the lack of a single source of truth. In order to better understand these challenges and identify the commonalities, we have classified the issues related to public expenditure management into six buckets, explained in subsections 3.1.1 to 3.1.6. These challenges provide the basis of future reforms in the public financial space.

Second, we concluded that reforms in public expenditure management with mainstreaming the digitalization process entail significant process re-engineering. Wide-ranging digital innovations are needed to rewire the internal configurations of public financial management systems, the nuts and bolts, that increase the comparability, reliability, and tracking of public funds. An actionable road map along this line has been detailed in our proposed, the Digitalization for Public Expenditure Accountability and Transparency (*d4PEAT*) framework (explained in Section 3.2).

3.1.1 Challenges with data reliability

The first major issue stems from the prevalence of an accounting framework that allows for misallocations and misclassification of funds. Issues related to data reliability emerge from three main reasons:

a. Different accounting frameworks: The federal structure of India follows a three-tier government system: the Union government, state governments, and local governments. All these layers have varied structures of accounting. The Government of India's accounting classification follows a six-tier accounting structure, which differs from state governments' accounting codes starting from the fourth tier. Similarly, local government's accounting system differs from both state and Union governments', as shown in Table 1.[2]

Table 1 illustrates the various coding patterns of some selected States.[3] First, the six-tiers, up to the 15-digit accounting classification of the GoI is shown. It is seen that the GoI and the State governments' accounting codes till the third tier, i.e up to nine digits, are uniform. However, the accounting classification starts to differ from the fourth tier onwards, that is, the Minor Head level.

For example, Karnataka has a 'Group Head' which is unique only to that State. The 'Standard Object Head' is unique only to Madhya Pradesh. The 'Sub-Sub Head' as an additional tier of accounting exists only in Assam. The scheme code (Sub-Head) for the States of Odisha and Madhya Pradesh has four digits, whereas it is alpha-numeric for Tamil Nadu and one-digit for Gujarat and Karnataka. The Detailed and Object Heads are also accounted for differently for different states.

The Local government, specifically the Panchayati Raj Institutions (PRIs) follow a three-tier accounting system as opposed to the six-tier one followed at the GoI level. A Sub-Head (adding to one more tier) is sometimes incorporated wherever a scheme exists. The varying heads of accounts across different levels of government pose a difficulty in the collation of data, leading to issues of comparability and aggregability.

Table 1: Accounting Frameworks across Various Tiers of Government

Tiers	Major Head	Sub-Major Head	Minor Head	Sub-Head	Detailed Head	Object Head
GOI	XXXX	XX	XXX	XX	XX	XX

States	Major Head description	Major Head	Sub-Major Head	Minor Head	Group Head	Sub-Head	Standard Object Head	Sub-Sub Head	Detailed Head	Sub Detailed Head	Object Head
Odisha	Housing	2505	60	800	..	3122	..	..	41078	..	0
Assam	Treasury & Accounts Admin	2054	0	97	..	430	..	145	1	1	..
Gujarat	Housing	2216	3	102	..	1	..	..	0	..	3131
Karnataka	Housing	2216	3	104	2	1	..	..	..	..	100
Madhya Pradesh	General Education	2202	2	109	..	2267	34	..	1	..	..
Uttar Pradesh	General Education	2202	1	111	..	1	..	..	2	..	43
Tamil Nadu	Education	2202	1	101	..	JB	..	..	1	..	1

Tiers	Major Head	Minor Head	Sub-Head	Object Head
Local Government	XXXX	XXX	XX	XX

Source: Authors' compilation from field visits and treasury codes of different States.

b. Challenges in data aggregation: Lack of data alignment across different government levels prevents aggregation of data. Close to one fourth of the state governments' expenditures in India is recorded as "Miscellaneous", making the entire chain of transactions difficult to both trace as well as aggregate.

c. Unreliable granular level of information: There is limited data entry at source and manual record-keeping makes data unreliable. The entry of data into computers at a later stage make this data significantly error-prone.

3.1.2 Fund-flow tracking issues

The second challenge arises from the difficulty in tracking public funds along the entire chain of transactions. This is mainly due to the following reasons:

a. Inadequate mapping and reporting formats of spending entities: All the entities expending public money are not mapped with the treasury, and their accounting codes and reporting formats also differ, resulting in loss of tracking down to the last rupee.

b. Lack of end-to-end data capture: All the processes involved in public expenditure management, starting from budgeting, to sanctions, raising invoices, to approvals and payments are not organically linked. This is because many a times, data is not entered at source digitally, but rather kept in manual registers and entered subsequently. This limits the auto-flow or machine-to-machine flow of information across different software.

c. Challenges in spending accountability: The utilization of public funds is not backed by real-time Utilization certificate.[4] The State Finances Audit Reports of the C&AG for various states point out

that as of March 2020, the cumulative amount of Utilization Certificates aggregating to Rs 5,33,317 crore remained outstanding in 28 major states of India (Iyer and Roy Chowdhury 2022).

3.1.3 Lack of data standards

Data standards establish principles and protocols across different categories of data to remove definitional ambiguities and discretionary classifications. It enables sharing of data through Application Programming Interfaces (APIs) to ensure comparability and interoperability of public expenditure data. Different data standards across different levels of government make it difficult to capture, record, publish and analyze public expenditures.

3.1.4 Delays in payment and transactions

The fourth key issue arises due to lack of just-in-time funding, which lends itself to fund-floats in the system, as well as uncertainty and delays in payments, making it difficult to transact with government (Mathew and Sharma 2020). In a digitalized just-in-time system, money would be disbursed only against actual expenditure on a real-time basis, which address the issues of parking of funds or fund floating at different levels of government.

A move towards a 'smart payments' architecture with predefined conditions for fund-flow and releases with programmed auto-triggers would ensure that funds flow when actual expenditures are incurred. The perusal of State Finances Audit Reports of C&AG for 24 states shows that in 2019-20, Rs 63,731 crores of unspent balances were lying idle in the personal deposit/personal ledger accounts (PD/PLA) (CAG various years). Viewed in perspective, this amounts to about 19% of the sanctioned CSS schemes in the Union Budget 2019-20.

3.1.5 Issues with data integrity

With different data bases operating in silos and with no easy data exchange or interoperability between these databases, this leads to the fifth significant issue in public expenditure management of data integrity. Lack of data integrity emerge from the two following reasons

a. Lack of a single source of truth: The absence of a common data registry for activities, assets, or individuals is a barrier to effective financial governance. The usability of data collected by different entities across all the tiers of government remains limited.

b. Databases are most often standalone systems, with limited interoperability among and across different software and databases. Inter-operability of data is possible when information flows digitally across systems such that attributes of one database are auto-populated in the other databases.

3.1.6 Data transparency

The last key issue is the lack of data transparency leading to the difficulty in aggregation and comparability of data, spending decisions being less transparent and citizen participation more difficult. Lack of data transparency arises due to the following reasons

a. Inaccessibility of publicly available data: Transparency in public spending is better enabled by the availability of data in a machine-readable format in the public domain, especially for citizens who are the ultimate beneficiaries of public services.

b. Lack of coordination between departments to standardize data, set up data protocols, and clearly delineating ownership norms and responsibilities.

3.2 The Framework: Digitalization for Public Expenditure Accountability and Transparency (*d4*PEAT)

In order to translate the process re-engineering in public financial management (PFM) systems into an actionable roadmap, a set of indicators under the framework called the Digitalization for Public Expenditure Accountability and Transparency (*d4*PEAT) has been conceived. The *d4*PEAT framework strings together the role that technology and digitalization can play in improving public expenditure management systems and spending outcomes in India, across different levels of government. It would entail end-to-end digitalization and integration of all the processes, ranging from accounting to budgeting, to approvals, tendering, verification, and payments.

The *d4*PEAT framework stands on four themes, 14 pillars, and 135 indicators, and includes cutting-edge financial governance indicators using digital technologies in real-time, as shown in Figure 1. The four themes described in detail in the following sections are: (1) *Integrity of the Accounting Framework,* with three pillars and 30 indicators; (2) *Efficiency in Processes*, with five pillars and 31 indicators; (3) *Payment Architecture*, with four pillars and 37 indicators; and (4) *Institutional Transparency*, with two pillars and 37 indicators. The themes and the pillars under each subsequent theme are provided in the figure below; whereas the detailed indicators capturing these fundamental aspects for reforms are delineated in Appendix 1.

Figure 1: Digitalization for Public Expenditure Accountability and Transparency (*d4*PEAT)
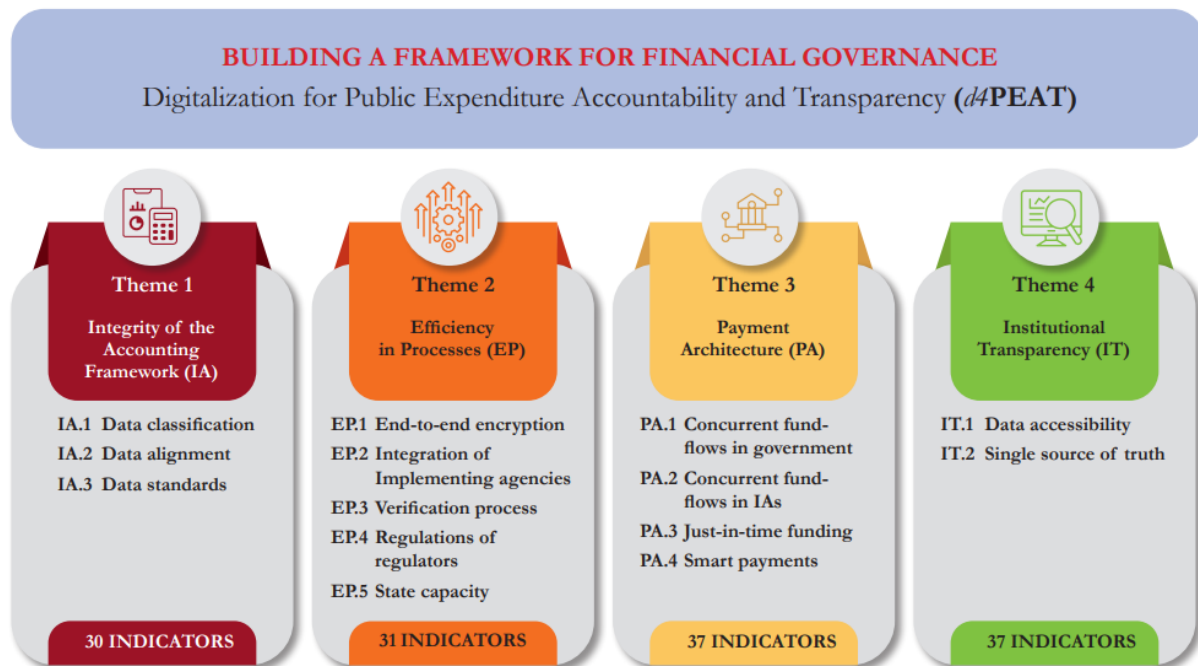
The *Integrity of the Accounting Framework* (IA) is the first theme of *d4*PEAT. This theme highlights the accounting challenges and outlines the need for a transparent accounting system. To that effect, it helps the States assess their existing accounting architecture and facilitates in identifying a roadmap towards data aggregation and comparability between different entities expending government funds.

Efficiency in Processes (EP) maps work-flows that are end-to-end encrypted, with verification processes, approvals, and regulations built into the system digitally. The theme focuses on mainstreaming the digitalization of these individual standalone processes. This transition to end-to-end work-flow reduces subjectivity that is often involved in policy-making. It ensures the online flow of information from one work-flow to another, thereby reducing the time needed in the processing of the files as well as increasing the transparency in the whole chain of transactions.

The *Payments Architecture* theme, in essence, captures the concurrent fund flows to the governments and the Implementing agencies. This theme also lays down indicators measuring the extent of just-in-time fund flows in the process of transaction through a smart payment architecture.

Finally, *Institutional Transparency* is measured by the extent of data availability such that the information is readily shareable across and within government departments and Implementing Agencies. Transparency is also analyzed by the degree of accessibility of data in the public domain in machine-readable formats.

3.2.1 Calculation of the Composite *d4*PEAT score

The use of digital initiatives to manage public finance widely varies across different tiers of government (Central, State, and local government), Ministries, and departments. *d4*PEAT framework can systematize digital innovations along the key digital touchpoints of various processes of PFM. The 135 indicators under the four themes of *d4*PEAT can be used to compute a Composite score, such that the performances of Central government, Central Ministries, State governments and the State Departments are assessed and ranked. Each tier of government, ministry, and department can self-assess their current pace of digitalization by arriving at a composite score based on the real-time indicators. This will also be indicative of the extent of digitalization needed going forward.

In arriving at a composite score, we first segregate the 135 indicators of the framework as 'Ranking' and 'Non-Ranking' indicators. There are also certain indicators that are 'Informational' in nature, and are not ranked. It is also to be acknowledged that not all the indicators are applicable for all levels of government. For instance, questions on State government accounting codes and their alignment with Central government's accounting codes are directed only to the State governments. Only Applicable indicators that are ranked are scored to attain the Composite *d4*PEAT score index.

The ranking indicators can either take the option of 'Yes' (assigned a value of 1) or 'No' (assigned a value of 0). For instance, if all the government departments dealing with a similar type of activity capture data in a unified format, they get a score of 1, else 0.

For some indicators 'Yes' might represents a worse performance. For instance, if States respond affirmatively to money being parked in the PD/PLA account, the 'Yes' is given a value 0 and 'No' a value of 1.

With this scoring pattern, pillar-wise scores for each pillar under different themes can be computed. Also, for each theme, 'Maximum possible' Theme score and 'Obtained score' by each level of government can be computed as in the Table 2 below.

All the pillars under a single theme have equal weights. Likewise, all the indicators under a particular pillar are weighted equally. The Composite (*d4*PEAT) Score at different government levels is the simple summation of the Obtained scores under the four themes.

Each government entity can self-assess their readiness or progress made on digitalization of the public financial management process through their Composite Obtained Scores. Obtained scores of the entities, when compared against the Maximum score, would also suggest and point to the areas of improvement.

Table 2: Theme-wise maximum scores under *d4*PEAT at each level of government

	Number of ranked indicators at all levels of Government	Maximum possible score of Central Government	Maximum possible score of Central Ministries	Maximum possible score of State Government	Maximum possible score of State Departments
Theme 1: Integrity of the Accounting Framework (IA)	27	13	16	27	18
Theme 2: Efficiency in Processes (EP)	30	14	27	14	29
Theme 3: Payment Architecture (PA)	33	19	21	33	31
Theme 4: Institutional Transparency (IT)	37	30	28	34	31
Composite *d4*PEAT score: Maximum possible	**127**	**76**	**92**	**107**	**109**
Composite *d4*PEAT score: Obtained	Based on actual responses given				

4. Conclusions

Moving from standalone systems to digitally end-to-end rewired processes, from unreliable data to a single source of truth, from uncertainty in fund-flow to just-in-time funding, are singular reforms needed in public expenditure management.

This is the first research paper that studied in-depth the various challenges in the current public expenditure framework in India. The primary objective of this study was to better understand the public financial management landscape and identify touchpoints where mainstreaming digitalization could improve the effectiveness and tractability of public expenditure. Towards this end, we also sought to develop an actionable roadmap in the form of the *d4*PEAT framework for addressing the fundamental issues of data aggregation, comparability, and interoperability.

The contribution of this study is that it goes beyond the ex-post indicators, as has been commonly done in the literature, by looking into a-priori data standards, as well as appropriate process re-engineering that is needed at various levels of government.

In India, different States have their individual approaches for maintaining the integrity and transparency of the accounting framework. Over the last decade, various States have introduced and implemented digital innovations that have best suited their financial architecture. The universality of *d4*PEAT lies in recognizing the diversity and approaches already in existence in different States. With every State being at different points in the digital reform space, *d4*PEAT does not advocate a unique roadmap as long as the four main reform ideas incorporating the challenges are integrated into digital innovations.

*d4*PEAT also has the advantage of being non-simultaneous in these four proposed reforms. Given the complexities and the challenges to roll-out all the necessary innovations in process re-engineering at the same time, a few key reforms that can be undertaken in the immediate term that have synergistic impact are below.

The first one is developing data standards, which would involve standardization of data formats and data fields across accounting level processes, across various types of transaction, and also at the recipient level. A Nodal unit – responsible to ensure that government departments dealing with a similar type of activity capture an equal number of data fields in a unified and machine-readable

format – needs to be set up at the Central and State government level. A detailed list suggesting specific indicators for data standardization is available in Theme 1 (Integrity of the Accounting Framework) under Pillar 3 (Data standards).

Another area that needs thrust is developing a single source of truth, in the form of a dynamic common digital beneficiary and vendor database. A single source of truth will serve as a unique source of information for key decision-making processes, such as determining beneficiary eligibility and assessing vendor quality or bid capacity. This dynamic digital social registry would enable data shareability and comparability within relevant departments through inter-operable information and APIs. Specific indicators that map to the creation of a single source of truth are detailed under Theme 4 (Institutional Transparency), particularly in Pillar IT.2A (for beneficiaries), Pillar IT.2B (for vendors), and IT.2D (Data synergies).

Finally, moving towards End-to-end data capture is our third key recommendation for the immediate term. Algorithmically-programmed systems would have to be put in place, such that all transactions starting from demand requests to raising invoices, approvals, and finally payments are made electronically, and no human interface is possible in this chain of transactions. Theme 2 (Efficiency in Processes), Pillar EP.1A (Process mapping), and Pillar EP.1 B (Point of Occurrence) suggests specific indicators putting in place end-to-end data capture.

References

CAG. 2020. "Concept Note on Electronic Financial Transactions and Data Standards." Comptroller and Auditor General of India. https://cag.gov.in/uploads/guidence_notes/guidanceNotesPracticeGuides-05f91825458fc50-52277021.pdf.

———. various years. "State Finances Audit Report." Financial Audit Report.

Financial Management Unit South Asia Region. 2009. "India–Himachal PradeshPublic Financial ManagementAccountability Assessment." Report No. 48635-IN. Washington, D.C.: The World Bank.

Iyer, Indira, and Soumi Roy Chowdhury. 2022. "Mainstreaming Digitalization Of Public Expenditure To Enhance Accountability And Transparency: Pushing The Frontiers Through Real-Time Innovations." Washington D.C.: George Washington University.

Jena, Pratap Ranjan. 2010. "India- Public Expenditure and Financial Accountability: Public Financial Management Performance Assessment Report." New Delhi: National Institute of Public Finance and Policy.

Mathew, Santhosh, and Devesh Sharma. 2020. "State Capacity by Design: Enabling Officials to Succeed." New Delhi: Bill and Melinda Gates Foundation.

OECD. 2002. "OECD Best Practices for Budget Transparency." France: OECD.

The World Bank Group. 2020. "The Global Report on Public Financial Management." Washington, D.C.: The World Bank. https://www.pefa.org/global-report-2022/en/report/global-pfm-performance/.

Notes

[1.] Himachal Pradesh is a northern state of India. The report was prepared in consultation with the state government of Himachal Pradesh.

[2.] The existing system of accounting expenditures in the Government of India (GoI), issued by the Department of Expenditure, Ministry of Finance, follows a six-tier hierarchical structure (CGA, 2021). The Major Head [first-tier of four digits] represents the major function of the government. The Sub-Major Head [second-tier of two digits] is a sub-function of the government, which is followed by the Minor Head [third-tier of three digits] that identifies a specific program. The scheme towards which the particular expenditure is accounted for comes in the Sub-Head level [fourth-tier of two digits]. Finally, the Detailed and Object Heads [the fifth and sixth tiers, respectively, both of two digits] represent the sub-scheme and economic nature of the expenditure, respectively. The first nine digits of the GoI accounting classifications are (mostly) uniform across all the State governments. However, the recording of expenses below the Minor Head starts to differ across states. The local government follows a three-tier structure, comprising of a nine-digit accounting system which is different from the Centre and the States. Details can be seen from the Report "List of Major and Minor Heads of Account of Union and States LMMH". Ministry of Finance, Government of India. https://cga.nic.in/Book/Published/7.aspx   and "Model Accounting System for Panchayats. Ministry of Panchayati Raj. https://www.panchayatportals.gov.in/documents/1744472/0/PDF.PDF

3.   There is no particular sequence or reasoning behind choosing these specific States. The States have been chosen purely from the perspective of illustrations.

4.   Utilization Certificates (UCs) remain the primary financial statements required to be submitted by the designated authorities against funds received by them from GoI or State governments. The UCs certify the use of funds by the recipients. Outstanding UCs implies that either public funds are utilized but there are no accounts backing this utilization in real-time, or that public funds are "parked" and either not utilized, or utilized for a purpose that it was not allocated for.

Appendix 1:

Composite score of d4PEAT framework using indicators specific to each level of government

If a question is pertinent at a particular government level, the highlighted cell will state "Applicable". The ranked questions can either be 'Yes' or 'No'. Only Ranked and Applicable indicators are used in calculating the Composite score. Indicators that are Ranked (+), a Yes value gets a score of 1 and a No gets a score of 0. For indicators that are Ranked (-), a Yes gets a score of 0 and No gets a score of 1.

	Theme 1: Integrity of the Accounting Framework (IA)	Ranked (+, -) Non Ranked (Informational)	GoI (Applicable, Yes=1, No=0)	Central Ministries (Applicable, Yes=1, No=0)	State Government (Applicable, Yes=1, No=0)	State Departments (Applicable, Yes=1, No=0)
IA.1	Data classification					
	GOI 6 tier / 15-digit accounting					
1	The GoI accounting codes has 6 tiers/15 digits. How many tiers/digits are there in your State accounting codes?	Informational			Applicable	
2	Do the Central and State shares of funding for a scheme have separate identifying/accounting codes?	Ranked(+)			Applicable	
3	Are all the Central and State schemes always classified at the Sub-Head level by these identifying codes?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
4	Do the Detailed Heads of Account have a unique identifying code that is non-zero for each category of expenditure?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
5	Are the Detailed Heads of the State IFMS mapped in the Central PFMS?	Ranked(+)			Applicable	Applicable
6	Are the Object Heads of the State IFMS mapped in the Central PFMS?	Ranked(+)			Applicable	Applicable
7	Are Object Heads of State IFMS maintained at the: District level, Block level, GP level, Corporations, using government money?	Ranked(+)			Applicable	
8	For schemes that converge, do you have an accounting framework that consolidates all the expenditure under the different schemes available?	Ranked(+)		Applicable	Applicable	Applicable
9	For schemes that converge, is there a unique accounting ID for each source of funds building the same asset?	Ranked(+)		Applicable	Applicable	Applicable
10	If yes, do you maintain electronically linked consolidated total expenditure, department-wise, for each asset built under different schemes?	Ranked(+)		Applicable	Applicable	Applicable

11	If different components of the same scheme are housed in different departments at the Centre and State levels, are all these electronically mapped through a common code?	Ranked(+)		Applicable	Applicable	Applicable
12	Do different government entities creating similar assets identify the same by specified assigned asset codes?	Ranked(+)		Applicable	Applicable	Applicable
13	If yes, are separate asset codes assigned to classify revenue and capital expenditure of schemes?	Ranked(+)		Applicable	Applicable	Applicable
	'Data classification' score: Maximum possible	12	2	8	12	10
	' Data classication' score: Obtained	12	0	0	0	0
IA.2	**Data alignment**					
1	Is the State IFMS mapped with the Central PFMS?	Ranked(+)			Applicable	
2	If yes, how many digits of the State accounting code are mapped with the 15 digit Central PFMS code?	Informational			Applicable	
3	Are the Ministries/Line Departments electronically linked scheme-wise to the treasury code?	Ranked(+)	Applicable		Applicable	
4	Are the districts, blocks and the GP expenditure codes electronically linked scheme-wise to the treasury code?	Ranked(+)			Applicable	
5	Do IAs using government money have expenditure codes electronically linked scheme-wise to the treasury code ?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
6	Has the concordance table between the IAs and GoI/State accounting system been made?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
7	Are there State level schemes that are similar to CSS providing the same benefit (for e.g., house) ?	Informational			Applicable	Applicable
8	If Yes, has the concordance table for the State and Central Governments been made for both the CSS and State schemes?	Ranked(+)	Applicable		Applicable	
9	Has the concordance table between the Panchayat accounting system and State accounting system been made?	Ranked(+)			Applicable	
	'Data alignment' score : Maximum possible	7	4	2	7	2
	'Data alignment' score : Obtained	7	0	0	0	0
IA.3	**Data standards**					
	Definition: Data standards are rules for standardization of data elements in terms of both their format and their precise meanings.					
1	Is there any Nodal unit for developing data standards at the Central/State government level?	Ranked(+)	Applicable		Applicable	
2	Do all the government departments dealing with a similar type of activity capture an equal number of data fields? (For example,	Ranked(+)	Applicable	Applicable	Applicable	Applicable

	date, specifications for road, nutritional standards, vendor information, etc.)					
3	Do all IAs using government funds and dealing with similar activities capture an equal number of data fields?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
4	Do all the departments capture the data fields in a unified format (for example, mm/dd/yyyy for the date)?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
5	Are all the data fields that have been captured available in a machine-readable digital format?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
6	Is a digital data dictionary (description of data elements with its codes) maintained and used by each government department?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
7	Is there a meta-data catalogue consolidating the data dictionary of all the government departments?	Ranked(+)	Applicable		Applicable	
8	Do all the IAs using government funds report transactions using the same meta-data dictionary used/prescribed in the government?	Ranked(+)		Applicable		Applicable
	'Data standards' score : Maximum possible	8	7	6	7	6
	'Data standards' score: Obtained	8	0	0	0	0
	Theme 1 Score: Maximum possible	27	13	16	26	18
	Theme 1 Score: Obtained	27	0	0	0	0

	Theme 2: Efficiency in Processes (EP)	Ranked (+, -) Non Ranked (Informational)	GoI (Applicable, Yes=1, No=0)	Central Ministries (Applicable, Yes=1, No=0)	State Government (Applicable, Yes=1, No=0)	State Departments (Applicable, Yes=1, No=0)
EP.1	**End-to-end encryption**					
EP.1A	*Process mapping*					
1	Are all the budgetary processes (planning, allocations, approvals, tendering/ procurement, and billing) directly made on a digital portal?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
2	Are all the budgetary processes (planning, allocations, approvals, tendering/ procurement, and billing) conducted on one single portal?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
3	If no, do the key parameters from the different portals above auto-populate into each other's portal?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
4	Have any auto-triggers been put in place to deal with any discrepancies? For example: An auto-trigger built in if the bill amount raised is greater than the sanctioned amount or if the BOQ is different from the Measurement Book, etc.	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
EP.1B	*Entry at source (Point of occurrence)*					
5	Are the Detailed and Object Head level expenditures entered manually in registers and subsequently fed into the computers?	**Ranked(-)**		**Applicable**		**Applicable**
6	Are demand requests raised electronically by the vendors?	**Ranked(+)**		**Applicable**		**Applicable**
7	Are demand requests raised by the vendors at the primary unit of activity?	**Ranked(+)**		**Applicable**		**Applicable**
8	Do the vendors themselves upload the invoices online in a prescribed format (for example: Updating a BOQ, BM15, etc.)?	**Ranked(+)**		**Applicable**		**Applicable**
9	Have algorithmically programmed systems of approvals been put in place within the hierarchy?	**Ranked(+)**		**Applicable**		**Applicable**
10	Are payments to vendors automatically initiated after all the pre-prescribed approvals are digitally signed?	**Ranked(+)**		**Applicable**		**Applicable**
	End-to-end encryption' score: Maximum possible	**10**	**4**	**10**	**4**	**10**
	'End-to-end encryption' score: Obtained	**10**	**0**	**0**	**0**	**0**
EP.2	**Integration of Implementing Agencies in financial transactions**					

1	What percentage of the contracts follow the e-tendering process?	**Informational**		**Applicable**		**Applicable**
2	Can the participating vendors view and raise objections online on any information submitted by the competing bidders?	**Ranked(+)**		**Applicable**		**Applicable**
3	If yes, is the identity of the vendor raising the objections online kept confidential?	**Ranked(+)**		**Applicable**		**Applicable**
4	Is there a tender committee that looks into the objections raised by vendors and records the recommendations online?	**Ranked(+)**		**Applicable**		**Applicable**
5	Is there a separate tender disposal committee that oversees the recommendations of the tender committee and records the final decisions online?	**Ranked(+)**		**Applicable**		**Applicable**
	'Integration of IAs' score: Maximum possible	**4**	**0**	**4**	**0**	**4**
	'Integration of IAs' score: Obtained	**4**		**0**	**0**	**0**
EP.3	**Verification process**					
1	Are Measurement Books maintained manually or entered online directly?	**Ranked(+)**		**Applicable**		**Applicable**
2	If maintained online, is the Bill of Quantities (BOQ)/Terms of Contract automatically updated into an e-bill management system?	**Ranked(+)**		**Applicable**		**Applicable**
3	Are any independent third-party verifications of the project done at the pre-defined stages?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
4	Are there different Third-Party Investigators (GoI, State government, Own departments/Other departments, private agencies) at every stage of the project?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
5	Are the Third-Party Investigators randomly assigned at every stage of the project?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
	'Verification process' score: Maximum possible	**5**	**3**	**5**	**3**	**5**
	'Verification process' score: Obtained	**5**	**0**	**0**	**0**	**0**
EP.4	**Regulations of regulators**					
1	Are the trust scores of vendors maintained based on third-party verifications and sample audits?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
2	Is the process of assigning third parties double-blind in the sense that the list of third parties and projects is anonymized and the assignments are made randomly?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
3	Are risk assessment systems put in place to randomly audit third parties?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
4	Is a process put in place for risk mitigation using sample audits of third parties?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**

	'Regulations of regulators' score: Maximum possible	4	4	4	4	4
	'Regulations of regulators' score : Obtained	4	0	0	0	0
EP.5	**State capacity**					
1	Is there a nodal department at the Central/State level that can spearhead IT innovations and linkages across all Ministries/Departments in the hierarchy?	**Ranked(+)**	**Applicable**		**Applicable**	
2	Are job aids (checklists) available for every point in the chain of digital transactions (for example: checklists for entry at source, approvals, verifications, and payments)?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
3	Do the blocks have the capacity to computerize records originating from the GP level? (Capacity is defined as the availability to deliver accurately and on time with the required number of data operators and trained manpower.)	**Ranked(+)**				**Applicable**
4	Do the data entry operators at the block level receive training on PFMS systems on a regular basis?	**Ranked(+)**		**Applicable**		**Applicable**
5	Is high speed internet connectivity available at all times at the GP level?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
6	Do the PEOs have the capacity to make data entries in the digital format at the GP level? (Capacity defined as availability of specialized manpower and computers)	**Ranked(+)**				**Applicable**
7	Do the data entry operators at the GP level receive training on PFMS systems on a regular basis?	**Ranked(+)**		**Applicable**		**Applicable**
	'State capacity' score: Maximum possible	7	3	4	3	6
	'State capacity' score : Obtained	7	0	0	0	0
	Theme 2 Score: Maximum possible	30	14	27	14	29
	Theme 2 Score: Obtained	30	0	0	0	0

	Theme 3: Payment Architecture (PA)	Ranked (+, -) Non Ranked (Informational)	GoI (Applicable, Yes=1, No=0)	Central Ministries (Applicable, Yes=1, No=0)	State Government (Applicable, Yes=1, No=0)	State Departments (Applicable, Yes=1, No=0)
	Implementing Agencies (IAs) are defined as Statutory bodies, Corporations, Trusts, Registered Societies, Autonomous Bodies, State Govt. Institutions, Local Bodies etc. spending government money directly.					
PA.1	**Concurrent fund-flows in government**					
1	Are PD/PLA accounts maintained for Central government schemes?	**Ranked(-)**			Applicable	Applicable
2	In the last financial year, what percentage of the Grants-in-aid for all CSS schemes were in the PD/PLA accounts?	**Informational**			Applicable	
3	Are PD/PLA accounts maintained for State government schemes?	**Ranked(-)**			Applicable	Applicable
4	In the last FY, what percentage of the total allocation under State government schemes were in the PD/PLA accounts?	**Informational**			Applicable	
5	Are different bank accounts maintained at different levels (district/block/GPs) for each CSS government schemes?	**Ranked(+)**			Applicable	Applicable
6	Are these different bank accounts maintained at different levels for CSS schemes zero balance or child accounts?	**Ranked(+)**	-	-	Applicable	Applicable
7	Have the Single Nodal Accounts been implemented for all CSS schemes at the State level?	**Ranked(+)**			Applicable	
8	Have the Single Nodal Accounts been electronically integrated with the State Treasury?	**Ranked(+)**			Applicable	
9	Are there any PD/PLA accounts for CSS schemes still open after SNA?	**Ranked(+)**			Applicable	Applicable
10	Are the bank accounts maintained at different levels (district/block/GPs) of each State government schemes zero-balance or child accounts?	**Ranked(+)**			Applicable	Applicable
	'Concurrent fund-flows in government' score: Maximum possible	**8**	**0**	**0**	**8**	**6**
	'Concurrent fund-flows in government' score: Obtained	**8**	**0**	**0**	**0**	**0**
PA.2	**Concurrent fund-flows in IAs**					
1	Do IAs using government funds also have separate accounts for each Central scheme?	**Ranked(+)**	Applicable	Applicable	Applicable	Applicable
2	Are there several IAs implementing a single Central scheme?	**Informational**	Applicable	Applicable	Applicable	Applicable
3	If yes, have all the IAs for a single scheme registered their bank accounts in the PFMS?	**Ranked(+)**	Applicable	Applicable	Applicable	Applicable
4	Do all the bank accounts of IAs for Central schemes have zero-balance/child accounts?	**Ranked(+)**	Applicable	Applicable	Applicable	Applicable

#	Question					
5	Do IAs using government funds also have separate accounts for each State scheme?	Ranked(+)			Applicable	Applicable
6	Are there several IAs implementing a single State scheme?	Informational			Applicable	Applicable
7	If yes, have all the IAs implementing a single scheme registered their bank accounts in the IFMS?	Ranked(+)			Applicable	Applicable
8	Do all the bank accounts of IAs for state schemes have zero-balance/child accounts?	Ranked(+)			Applicable	Applicable
	'Concurrent fund-flows in IAs' score : Maximum possible	**6**	**3**	**3**	**6**	**6**
	'Concurrent fund-flows in IAs' score : Obtained	**6**	**0**	**0**	**0**	**0**
PA.3	**Just-in-time funding**					
1	Have time limits been prescribed for vendors to raise their invoices in a digital format?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
2	Have time limits been prescribed for verification of the invoices raised by the vendors?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
3	Have algorithmically programmed time limits been put in place for approvals within the hierarchy?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
4	Do government departments/other government bodies/IAs have defined drawing limits for the expenditure incurred?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
5	Do government departments/other government bodies/IAs receive approved pre-expenditure funds?	Ranked(-)	Applicable	Applicable	Applicable	Applicable
6	Have automatic triggers been put in place for fund transfers after a pre-prescribed spend is reached?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
7	Have algorithmically programmed time limits been put in place for the release of payments after approvals?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
8	Does the fund flow to the government departments/ other government bodies/IAs at pre-prescribed intervals without UCs?	Ranked(-)	Applicable	Applicable	Applicable	Applicable
9	Does the fund flow to the government departments/ other government bodies/IAs only in real time (just after the expenditure is incurred) when the invoice is raised?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
10	Pre-prescribed lumpsum benefits are given in advance for some schemes like housing. For other schemes, are lump-sum benefits released in phases to beneficiaries at pre-prescribed intervals?	Ranked(-)		Applicable	Applicable	Applicable
11	Are lump-sum benefits released in phases to beneficiaries only in real time?	Ranked(+)		Applicable	Applicable	Applicable
12	Are all your social welfare schemes, including both Central and State schemes, under the Direct Benefits Transfer (DBT) system?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
	'Just-in-time funding' score: Maximum possible	**12**	**10**	**12**	**12**	**12**
	'Just-in-time funding' score : Obtained	**12**	**0**	**0**	**0**	**0**

PA.4	Smart payments					
1	Has the system of First In First Out (FIFO) been put in place for each invoice raised?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
2	Has the system of First In First Out (FIFO) been put in place for verification of the invoice?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
3	Has the system of First In First Out (FIFO) been put in place for each approval?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
4	Have pre-defined conditions been programmed into the payments system that enable automatic payments after these pre-defined conditions have been met?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
5	Has a randomized double-blind audit system been put in place for every step of the smart payment process?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
6	Are detailed record of expenditures for each vendor or beneficiary available in real time?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
7	Is it possible to get complete financial statements in real time to enable auto-generation of UCs?	Ranked(+)			Applicable	Applicable
	'Smart payments' score: Maximum possible	7	6	6	7	7
	'Smart payments' score: Obtained	7	0	0	0	0
	Theme 3 Score: Maximum possible	33	19	21	33	31
	Theme 3 score : Obtained	33	0	0	0	0

	Theme 4: Institutional Transparency (IT)	Ranked (+, -) Non Ranked (Informational)	GoI (Applicable, Yes=1, No=0)	Central Ministries (Applicable, Yes=1, No=0)	State Government (Applicable, Yes=1, No=0)	State Departments (Applicable, Yes=1, No=0)
IT.1	**Data accessibility**					
1	Is there a data governance working committee that identifies the key data parameters to be collected for each scheme?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
2	Does the data governance working committee classify the key data parameters that can be shared in the public domain and/or across departments using APIs?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
3	For data deemed to be non-confidential, is it accessible publicly in machine-readable formats?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
4	Have internal cross validation mechanisms been put in place to ensure that the data available in the public domain is complete and accurate?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
5	Are there mechanisms in place where citizens can act as watchdogs for data integrity?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**
6	Are the details on expenditure under the Object Head (sixth tier in GoI accounting/ last tier in State government accounting) available in the public domain?	**Ranked(+)**	**Applicable**		**Applicable**	
7	For schemes that converge under different accounting codes, is the data available in a consolidated form and published online?	**Ranked(+)**	**Applicable**		**Applicable**	
8	Are concordance tables made for State and Central schemes, IAs, and other entities available in the public domain?	**Ranked(+)**	**Applicable**		**Applicable**	
9	If Central schemes have different names at the State level, is this information available in the public domain?	**Ranked(+)**			**Applicable**	
	'Data accessibility' score: Maximum possible	**9**	**8**	**5**	**9**	**5**
	'Data accessibility' score: Obtained	**9**	**0**	**0**	**0**	**0**
IT.2	**Single source of truth**					
IT.2A	***Selection of beneficiaries***					
1	Is there a common digital beneficiary database to assess the beneficiary eligibility under different schemes?	**Ranked(+)**	**Applicable**	**Applicable**	**Applicable**	**Applicable**

2	If yes, is the information in the common digital database obtained from administrative government databases?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
3	If no government sources exists, is the data collected at the primary unit by local officials like Panchayat Executive Officers (PEOs)/Gram Rozgar Sevaks (GRS)?	Ranked(+)			Applicable	Applicable
4	Are sample audits conducted for all beneficiary databases collected at the local levels?	Ranked(+)			Applicable	Applicable
5	Do all beneficiaries have a unique single digital ID based on some key parameters?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
6	Are all beneficiary IDs seeded with Aadhaar?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
7	Is there a mechanism that can list all the benefits that a beneficiary gets under multiple schemes using a unique single digital ID?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
8	Do you have a system of social audits to verify beneficiary databases?	Ranked(+)			Applicable	Applicable
9	Is there a pre-prescribed frequency for the verification process of data collected at different levels of governments?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
IT.2B	*Selection of vendors*					
1	Is there any common digital data registry for vendors that auto-populates with all sanctions and approvals of government funds?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
2	Is there a common digital vendor database to assess vendor quality and bid capacity?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
3	Do all suppliers have a unique ID based on some key parameters?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
4	If yes, does the online digital database dynamically update the vendor status in terms of the quantum of work in progress and the new contracts awarded?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
IT.2C	*Use of data*					
1	Have adequate data security measures been put in place for the use of all digital databases?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
2	Have data ownership norms and responsibilities been clearly defined?	Ranked(+)	Applicable		Applicable	
3	Is there a framework governing the ethical use of data?	Ranked(+)	Applicable		Applicable	
4	Is there a system in place to ensure that the data is traceable to its primary source whenever it is used by another entity?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
IT.2D	*Data synergies*					
1	Is there any dedicated unit for consolidating data in each Ministry/Department at the Central/State government levels?	Ranked(+)	Applicable	Applicable	Applicable	Applicable

#	Question					
2	Do you have an online integrated beneficiary registry that consolidates and displays all the benefits received by a single beneficiary?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
3	Do you have an online unified portal with geotagged assets for work-in-progress and completed works?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
4	If the same scheme is spread over multiple Ministries/Departments, do they share their data electronically with each other?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
5	Are the key parameters of all schemes electronically available to all the participating Ministries/Departments?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
6	Can the data available in one scheme be used to autopopulate the pre-conditions of other schemes?	Ranked(+)		Applicable		Applicable
7	Does each Ministry/Department have a digital registry of data collected from the primary unit of activity?	Ranked(+)		Applicable		Applicable
8	If yes, are these registers dynamic and maintained online?	Ranked(+)		Applicable		Applicable
9	Do digital databases maintained at different Ministries/Departments levels talk to each other through interoperable information and APIs?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
10	Do all these digital databases have a common ID that can enable them to be merged?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
11	Can data registries be accessed online through an API by both the Central Ministries and the State government Departments?	Ranked(+)	Applicable	Applicable	Applicable	Applicable
	'Single source of truth' score: Maximum possible	28	22	23	25	26
	'Single source of truth' score: Obtained	28	0	0	0	0
	Theme 4 Score: Maximum possible	37	30	28	34	31
	Theme 4 Score: Obtained	37	0	0	0	0

Indian Tax System: Compliance by Design

M Govinda Rao[*]

Abstract

Taxes matter. They are required to finance social goods which the markets fail to provide. Since taxes are compulsory payments, it is important to evolve the design and implementation features to ensure effective compliance with the tax to ensure both horizontal and vertical equity. Tax compliance is a multiplicative function of the rate of tax, probability of detection, and penalty rate. The best practice approach to tax policy and reform is to evolve the system with a broad base, and low and less differentiated rates. Such a simple system with reasonable rates minimises the three costs associated with taxes namely, the collection cost to the government, compliance cost to the taxpayer, and distortion cost to the economy. Avoiding multiple objectives makes the tax system simple and broad-based and requires low tax rates to collect a given amount of revenue. A strong technology platform for administering the tax increases the probability of detection and enhances voluntary compliance. The paper discusses the important aspects of tax compliance in terms of design and the importance of technology in the administration of taxes in India.

Keywords: Tax compliance, Tax administration, Tax rates

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1. Introduction

Taxes matter. They are required to ensure the security and safety of people, and to provide basic public services that the markets fail to provide (or provide adequately). The markets fail to provide public goods because they are 'non-rival' in consumption and 'non-excludable'. Due to these characteristics, people will not reveal their true preferences and therefore, prices cannot be charged for them; in large communities, they cannot be financed from voluntary contributions either. These must necessarily be financed from compulsory payments.

There are other services that the markets can provide, but not adequately, as the social benefits in respect of them are larger than private benefits. These are so meritorious that everyone should have access to minimum standards of such services; therefore, the governments should either directly provide them or subsidize their provision.

The objective of any tax system is to mobilize resources needed to finance public and merit goods to create such generalized externalities. However, the levy of taxes entails disincentives, making it important that the taxes should be designed and implemented with minimum adverse effects. In other words, while the tax system erodes private incomes, it is necessary to design taxes to create the ecosystem required to carry on private businesses and thus, complement the markets.

2. Tax Compliance by Design

The best practice approach to tax design and reform attempts to maximize revenues while minimizing the three costs associated with it, namely: the cost of collection, the compliance cost, and the cost in terms of economic distortions.

- The cost of collection is the administrative cost of actually collecting taxes; the simpler the tax system, the lower this cost.

- Compliance cost is the cost of paying taxes, and this too is lower when the tax system is simple and transparent. The higher the compliance cost, the greater the incentive to avoid and evade the tax.

- Taxes alter the relative prices of commodities and services in the economy and cause unintended consequences on resource allocation. The distortions are high when the structure is complicated and the marginal tax rates are high.

Thus, the best practice approach to tax design and reform is to broaden the base, have low and less differentiated rates, and evolve a simple and transparent tax system.

It is important to design the structure and operational details of the tax system so that voluntary compliance with the tax is encouraged and the incentive to wilfully avoid and evade is minimized. Besides simplicity, transparency, and reasonableness of the tax rates and effective administrative and enforcement systems, voluntary tax is encouraged when there is a strong linkage between the payment of the tax and the benefits from public services.

When the benefits of public services and effective governance are visible, people do not grudge about paying taxes. That is the reason why at local levels, it is possible to link revenue and expenditure decisions, and people are more compliant with taxes. Of course, in the Indian context, there is hardly any decentralization, and this has resulted in the vicious cycle in which poor quality of public services and low levels of tax collections reinforce each other. In other words, when people see that paying taxes improves their access to public services, and that tax revenue is not wasted, voluntary compliance will be higher.

Tax compliance is a multiplicative function of the rate of tax, probability of detection, and penalty rate.

2.1 Tax Rates

Tax compliance is low when the tax rates are high because, at high rates, the reward to avoid and evade the tax is high. In fact, in 1973–74, there were 11 income tax rate brackets in personal income tax with the basic rates monotonically rising from 10% to 85% and with a surcharge of 15% added, the marginal tax rate on those individuals with income above Rs. 20 lakh was 97.5%. On top of that, there was a wealth tax, which caused the tax payments to be more than the income earned for high net-worth individuals, leaving no incentive to earn the income, and if they did, they had no motivation to pay the tax.

At this rate, evasion and avoidance became rampant, and less than one % of the population paid the tax; the revenue from individual income tax was just about 0.8 % of GDP. Under such a tax system, tax evasion was not even considered wrong or immoral! Considerable simplification of the tax structure was done in 1986-87 by reducing the number of brackets from 11 to 4 and reducing the marginal rate to 50%.

However, it was the Committee chaired by Raja Chelliah that made significant recommendations for the simplification and rationalization of the rates. These were implemented in 1992 by rationalizing the rate brackets, and reducing the marginal rate to 40%. Later, in the 1996-97 budget when Mr. Chidambaram was the Finance Minister, further simplification of the tax structure and rationalization of the tax rates was implemented by limiting the rate categories to three (besides exemptions), and reducing the highest marginal rate to 30%. This significantly increased tax compliance and revenue productivity. Subsequent years have seen cesses being levied on the high-income categories for financing special programmes on activities like education and healthcare.

From the viewpoint of revenue collections, as Arthur Laffer has shown, after an inflection point, increases in the tax rates can result in reduced revenue collections. At high rates of tax, the reward for evasion is high and tax compliance low, besides its adverse effects on the incentives to work, save, and invest. After the inflection point, cutting the tax rate would actually increase revenue collections. Not surprisingly, the revenue productivity of income taxes increased in India after 1996-97.

To collect a given amount of tax, levying the tax at low rates is possible only when the tax base is broader. Therefore, one way of lowering the rates is to expand the base. This requires minimizing exemptions and avoiding various types of incentives and concessions in the tax structure. Taking multiple objectives in designing the tax results in eroding the tax base, complicates the tax system, and opens avenues for evasion and avoidance of the tax. Complexity in the tax system increases compliance costs and creates unintended resource allocation distortions.

In India the assignment of taxes on agricultural incomes and wealth to the States, and non-agricultural taxes on income and wealth to the Union government in the Constitution has created a serious anomaly, and has opened up an easy avenue to misclassify and evade the tax, thereby denting compliance. It is not surprising that many high net-worth non-agricultural income earners also own big farms and farmhouses, which facilitates the misclassification of incomes.

In this connection, the recent reforms implemented by the government of India are noteworthy. In 2019-20, in the case of corporate income tax, for domestic companies, the government reduced the rate of tax to 22% if they forgo various exemptions and concessions. When the surcharge of 10% and cess of 4% is included, the aggregate tax rate works out to 25.17%, as against 34.2% with tax preferences. The minimum alternative tax (MAT) rate was also reduced to 15% (which works out to 17.16% with surcharge and cess). New companies are to be taxed at 15%.

In the case of personal income tax too, the option was given to forgo the tax preferences and pay the tax at lower rates. The tax exemptions on savings, insurance premiums, and the deductions allowed for home loans are not allowed if the new tax regime is opted. Altogether, the number of tax brackets in the new tax regime has been increased from 3 to 7, with multiple slabs covering levels of incomes up to Rs. 15 lakh.

While it is advisable to broaden the base and lower the rates, it is also important to reduce the number of tax brackets to keep the rate structure simple. When there are large differences in the rates between the brackets, there will be attempts to juggle incomes to pay the tax at lower rates. Besides, giving options to choose from two different structures – one with a narrow base and high rates and another with a broader base and lower rates – does not help in simplifying the tax system, and will not help in improving compliance.

The government will do well to redesign the system with fewer brackets and lower rates with no exemptions, in the case of both corporation and personal income tax. The draft direct taxes code in 2009 tried to attempt such a system; however, when the draft was put out for discussion to the stakeholders, everyone wanted the incentives and deductions to be phased out in sectors other than their own, and finally the reform did not go through. The new government which came to power in 2014 simply dropped the idea. The initiative to phase out exemptions and deductions and lower the rates by the present Finance Minister is a good idea, but the Minister will do well to drop the options in the next budget and limit the tax brackets to three.

The value-added tax (VAT) on goods and services or the Goods and Services Tax (GST) is an important example of improving compliance by designing the tax system with self-policing principles. The taxpayer is forced to declare his turnover to avail of the input tax credit and in the process voluntarily comply with the tax. Not surprisingly, in many countries, the VAT has turned out to be a "money machine", and this has led to as many as 166 countries of 193 countries with UN membership opting to adopt one form of VAT or another. However, there are some important prerequisites for ensuring voluntary compliance and reaping potential revenue productivity.

2.2 Structure and Objective of Taxes

First, the structure of the tax should be simple. Having a large exemption list and multiplicity of rates makes the tax base narrow, and creates scope for tax evasion through the misclassification of goods and services in favour of lower-tax rate items. In fact, 81 % of the countries that have embraced VAT since 2000 have opted to adopt a single rate of tax. This not only removes the incentive to misclassify but also reduces complications. When GST is levied at multiple rates, if the tax rates on inputs are higher than that of the outputs, resulting in what is termed as the "inverted duty structure" thereby creating complications and payment of refunds. .

The objective of equity is served better by keeping the threshold high, so that the focus is on the 'whales' rather than the 'minnows' (Keen, 2013). In any case, the tax policy has proved to be ineffective in reducing income inequality (Rao, 2015/16). If the focus on equity is on reducing poverty rather than reducing inequalities, the policy has to shift to the expenditure side of the budget, rather than trying to create a differentiated tax structure with high marginal rates.

Reducing the incomes of the rich does not increase the incomes of the poor. The objective of equity is better served through the expenditure side of the budget by allocating resources towards programmes to empower the people and alleviate poverty. Second, it is important to keep the tax rates low. At low rates of tax, the incentive for evasion is less, and compliance is better.

In India, having multiple rates of GST, and levying the highest rate at 28%, creates an incentive to create a 'grey market' for such goods, by keeping the entire chain of transactions out of the tax purview. Besides, even if the item in question is bought predominantly by high-income earners, it can have significant forward linkage – a large downstream labour-intensive service industry. Therefore, it is necessary to estimate the total economic impact of high rates, using a general-equilibrium model, before designing the rates in a multiple-rate system.

In India, this is particularly true of taxes on motor cars and building materials such as cement, steel, and paints. which are taxed at 28%. India's GST structure is very complicated, robbing its inherent advantages of self-policing and compliance. Besides four major rate categories, there are special rates on precious metals, and a cess levied on demerit goods to compensate the States for any loss of revenue suffered by them by making the transition to GST. The loss is computed by applying the growth rate of 14% on the base of the revenues from the state and local taxes subsumed in the GST in 2015-16. The GST does not include excise and sales taxes on petroleum products and electricity. The revenue from these items constitutes as much as 40% of consumption taxes in the country; to that extent, the problem of cascading continues.

An important pre-requisite for enhancing compliance with the tax is the adoption of a standard numbering system. The probability of detection improves with standard numbering and is traceable in an interlinked numbering system. In the Indian context, the linking of GST registration number with the income tax permanent account number (PAN) helps to match the payment of income tax with the GST turnover and helps in the better compliance of the tax. When the GST turnover is reported, it is possible to establish a relationship with the declared incomes to identify the

doubtful cases. As the probability of detecting increases, voluntary compliance with both taxes increase.

2.3 Robust Technology Platform

The most important factor in determining tax compliance is the application of a reliable and robust technology platform for tax administration. Clear evidence of this in India is found in the administration of both income tax and GST. In the case of the former, the report of the Comptroller and Auditor General (CAG) in 2002 revealed that a large proportion of those who are required to deduct the tax at source did not pay the tax and file the return. It led to the introduction of Tax Identification Number (TIN) to track the deduction and match it with the actual payment in the banks. The result was a huge improvement in compliance with both individual and corporate income taxes, resulting in an increase in the tax from about 3% of GDP in 2003-04 to 6% of GDP in 2007-08.

An equally important instance of the importance of the application of technology in tax administration is seen in the implementation of GST. It is critical to scrutinize and settle the input tax credit claimed by the exporters expeditiously and correctly. Furthermore, as GST is a destination-based tax, technology is critical to track and ascertain the final destination of the goods and services when the tax is levied on inter-state transactions, to then allocate revenue to the relevant state(s) through a clearing house mechanism. Therefore, firming up the technology platform is critical to compliance with GST.

In India, although the GST came into existence on July 1, 2017, the inability to settle the technology platform resulted in poor compliance with the tax in the first four years. Although the GST was designed to be revenue-neutral, it was expected to generate a significant increase in revenue productivity over the medium and long term, through improved compliance with the tax. However, the experience in the first four years was not encouraging. The revenue productivity of the tax suffered greatly, resulting in a significant deceleration in the growth of revenue from GST.

The compliance audit on the technology platform done by the CAG in 2019 pointed out some important shortcomings. It observed the postponement of the originally envisaged GST returns (GSTR- 1,2,3) due to technical glitches, and the inability to undertake the originally envisaged universal verification of invoices to match input tax credit (ITC) from the simplified returns (GSTR -3B) as principal reasons for evasion of the tax. The CAG's report concluded, "...*On the whole, the envisaged GST tax compliance system is non-functional*" (p. 22).

Further, the settlement of IGST to the States also could not be done properly. The system failed to generate the required modules such as appeals and refunds from the returns. The failure of the technology platform to verify invoices for ITC has led to false claims and refunds using fake invoices. Similarly, the inability to validate the registrations has led to the creation of several shell companies to issue fake invoices, which eventually disappear, leading to poor compliance with the tax.

The fact that the annual return filing date was repeatedly postponed for almost two and a half years, due to technical glitches, did not permit the detection of wrong ITC claims. In the absence of

a clear paper trail, the assessment was based entirely on trust, and with the low probability of detection of evasion, it provided opportunities for unscrupulous businessmen to evade the tax. In fact, the annual return filing for 2018-19 was repeatedly postponed till December 2020. Similarly, the inability to validate and debar the ineligible taxpayers from availing composition levies led to the misuse of the option.

Based on the information made available from the All India Enforcement Drive by the CBIC through the Directorate of Revenue Intelligence and other CBIC formations from November 2020, it was reported that more than 5700 cases involving an amount of Rs. 40000 Crore were detected in the fiscal year 2021.[1] Indian GST with a complex structure with the simultaneous levy of Central and State level destination-based tax, wide-ranging exemptions, and multiple rates requires a robust technology platform, and the failure to erect that had adverse effects on the compliance of the tax. With the stabilization of the technology platform, we have seen significant improvement in compliance and revenue productivity.

3. Conclusion

Tax compliance matters. Compliance by design is possible only when the tax structure is kept simple and reasonable. It is equally important to ensure ease of paying the tax, effective administration, use of technology in administration and enforcement, and friendly and effective taxpayer service. The objective of tax policy is to raise revenues, and designing the tax to pursue too many objectives does not help them to achieve them, while defeating the main objective of raising revenue.

GST has self-enforcing features and, if properly designed, it could turn out to be a "money Machine". However, a strong and effective technology platform is an important prerequisite for the success of GST, particularly in countries levying subnational GST. The role of tax reform should be to design the tax system to promote voluntary compliance.

References:

India (2019), Report No. 11 of 2019: Compliance Audit - Department of Revenue: Goods and Services Tax, Comptroller and Auditor General, Government of India.

Keen, Michael, (2013), "Targeting, Cascading and Indirect Tax Design", IMF Staff Paper: 13/57; Washington D.C: International Monetary Fund

Rao, Govinda M (2015/16). "Tyranny of Status Quo: The Challenges of Reforming the Indian Tax System", India Policy Forum, Vol. 12. NCAER pp. 47-192.

Rao, Govinda M (2023), Evolving Issues and Future Directions in GST Reform in India, Working Paper 221/2022. Madras School of Economics, Chennai: India.

Notes

[1] See: GST evasion of ₹40,000 crore detected from fake invoicing, fraud claims
https://economictimes.indiatimes.com/news/economy/finance/gst-evasion-of-40000-crore-detected-from-fake-invoicing-itc-laims/articleshow/88603551.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Drafting a pro-antitrust and data protection regulatory framework

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Abstract

The Digital Personal Data Protection (DPDP) Act 2023 has significant implications for antitrust issues in digital markets. A consensus has emerged among competition regulators across jurisdictions that in markets underpinned by data-driven business models, antitrust concerns intersect with data protection regulatory issues. With the recent enactment of the law, the landscape in India is now ripe to ensure that the two regulatory tools of data protection and competition work in tandem. The paper provides an overview of why a new approach to antitrust law is required in the realm of data-driven digital platforms, and delves into the evolving antitrust cases in India with respect to digital platforms to lay out the jurisprudence on data-related anti-competitive practices. The main objective of this paper is to map the Digital Personal Data Protection Act in the context of India's jurisprudence to theoretically illustrate how regulation of personal data could impact antitrust enforcement. Finally, the paper outlines how the CCI needs to assess digital antitrust cases and how the personal data legislation will need to evolve to achieve the twin goals of data protection and fair competition.

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1. Introduction

The defining feature of market economies in the 21st century is the global dominance of technology firms and digital platforms. The market value of Google, Apple, and Amazon is more than a trillion dollars each – sizeable enough to warrant the attention of consumers, competitors, and regulators. These firms have brought numerous benefits to consumers and businesses alike by enabling instant communication, selling products and merchandise online, and providing useful information at the click of a button. However, they have also raised major antitrust concerns through distorting markets, foreclosing competition through skilful acquisition of start-ups, and imposing hidden data (non-price) costs on consumers (Khan, 2017).

These antitrust abuses primarily stem from the role data plays in these companies' business models. The platforms in digital markets are stickier than firms in a non-digital sector for a number of reasons, a phenomenon exacerbated by the role of data (Jenny, 2021). There is a tendency towards these markets becoming monopolistic due to specific characteristics: One, these digital platforms have increasing returns to scale (DeLong and Froomkin, 2000; Varian *et al.*, 2004), that is, a high amount of fixed investment but marginal costs that keep decreasing as the user base rises. Two, network effects, together with increasing returns to scale, ensure that the structure of the market will always be dominated by a few firms. Finally, the tendency towards monopolisation of the market is exacerbated by 'data network effects',[1] given the sheer volume, variety and velocity of the data collected by the dominant technology platform (Turck, 2016). This data collection enables them to produce more innovative products, resulting in a positive feedback loop where more users join the platform, contributing to more data and thereby, more personable products. The lack of access to such a network, and thereby data, erects powerful market barriers for new start-ups in this space. This 'winner-take-all' phenomenon means that regulators will have to scrutinise the conduct of winners more closely for anti-competitive conduct.

However, competition regulators can no longer look at their traditional toolkit to regulate these complex firms. This is primarily due to the way data, regulated by data protection laws, and market competition considerations intersect in these markets. Such firms can use data to foreclose competition in myriad ways. Market regulators have traditionally focused on price to capture anti-competitive conduct. Digital platforms can manipulate competition in subtle ways not captured by price but by data. For example, Amazon, through access to third-party seller data on its e-marketplace and information regarding what users buy, can potentially use that data to build and promote its own brand, to the detriment of others. These data-driven practices can impact both competition as well as data protection of users simultaneously.[2]

Thus, many of these new challenges of regulating Big Tech firms lie at the intersection of two regulatory spheres – competition regulation and data protection. Data protection and competition in the digital marketplace can intersect through various avenues, producing divergent outcomes. Abusive practices by dominant digital platforms can stem from excessive data collection from users, as well as coercing players to share third-party data by leveraging one's position in the market.

Perversely, a data protection law that restricts the sharing of third-party data in order to protect users, can also be used by a dominant player to cement its market position. The Apple iOS 14 update3 in 2020 stands out as a primary example of this case. The update by Apple ensured that third-party apps in the Apple ecosystem could not collect data without explicit consent, while not applying the same filter to its own apps on this ecosystem. This policy enabled Apple to further entrench its dominance in the Apple ecosystem in the name of protecting user consent and privacy.

The landscape in India is now ripe to ensure that the two regulatory tools of data protection and competition work in tandem. This is primarily because the country has a new data protection law and a new digital competition act is set to be legislated soon. On the data protection front, India enacted the Digital Personal Data Protection Act[4] (DPDP) in August of this year, with the drafting of the law having been in the works for the last four years. On the digital competition front too, Parliament is looking to legislate a new Digital Competition Act, with specific clauses exclusively addressing digital markets (Srivats, 2023). While amendments to the Competition Act were proposed last year, a committee was set by the Ministry of Corporate Affairs to draft the new bill in February 2023. The CCI too is becoming more cognisant of data-related abuse of dominance practices. In October 2022, it fined Alphabet for abusive practices stemming from data-related market issues (Mint, 2022).

As India refines its regulatory landscape, particularly through the DPDP Act, this paper outlines the many strands of the law that will have to be refined to strengthen not just the regulation of data protection concerns, but also the spill over effects on competition policy. The divergent outcomes between the DPDP law and competition regulation can be kept to a minimum if the law amends multiple clauses in order to enhance both competition and data protection outcomes. This calls for a more coordinated between what seems to be two apparently divergent regulatory goals of antitrust and data protection.

To broadly summarise some of our recommendations in this paper, we outline a few takeaways. One, a legal right to data portability could enhance user control over data as well as provide an avenue to reduce market entry barriers. The data protection law should actively seek to forbid bundled consent, as this can take the form of a data-related abuse of dominance that harms both competition and data protection. There are numerous clauses that introduce regulatory uncertainty, such as those on the transfer of personal data to other countries and defining significant data fiduciaries for whom additional obligations will apply. This uncertainty will only serve the ends of dominant enterprises that have the capacity and capital to exploit loopholes in the law.

The paper is structured in the following manner. Section II provides an overview of why a new approach to antitrust law is required in the realm of data-driven digital platforms and how regulators across the world are making strides to upgrade their toolkits. Section III delves into the evolving jurisprudence on antitrust cases with respect to digital platforms in India to lay out how the jurisprudence is evolving with respect to data-related anti-competitive issues. Section IV maps the DPDP Act in the context of India's jurisprudence to theoretically illustrate how regulation of personal data could impact antitrust enforcement. Section V will outline broad recommendations on

how the CCI needs to assess digital antitrust cases and the issues that may arise, and how the personal data legislation will need to evolve to achieve the twin goals of data protection and fair competition.

2. Overview of the new approach to data-driven digital platforms

A consensus is emerging among competition regulators across jurisdictions that in markets underpinned by data-driven business models, antitrust concerns intersect with data protection regulatory issues. The role data plays in the revenue models of technology firms contributes to various market competition-related concerns. The anti-competitive practices of a digital platform arise in complex situations that demand that regulators assess and scrutinise these firms in a different fashion from firms in conventional markets (Wu, T., 2018). The laissez-faire approach of past decades is giving way to a more interventionist approach,[5] which is being globally adopted by regulators. The USA, Australia, and South Korea are considering new legislation to reign in potentially exploitative practices by digital platforms. The European Union is at the forefront, having already issued a draft policy termed the Digital Markets Act (DMA), which came into force in the autumn of 2022. India too is fast catching up with the proposed new Digital Competition Act. Broadly for the purpose of this paper, the definition of anti-competitive and abuse of dominance practices under antitrust law would be the ability of a firm to operate independently of prevailing competitive forces to foreclose market access and raise entry barriers (Competition Act, 2002).

Digital platforms often operate in multi-sided markets. Google Search has users on one side of the platform, while its advertising business depends on these users and their data to drive personalised, targeted advertising. Data collected from these users allows for personalised products which in turn attracts more users to the platform (the search engine). Competition is affected in mainly three ways on such platforms. First, compared to traditional firms, these platforms enable 'data network effects' due to the sheer volume, velocity, and variety of data they are able to collect. They use this data to offer personalised products. As these platforms offer data-driven personalised products, more users are attracted to this platform, offering up more data. This could potentially lead to market concentration (Turck, 2016). Firms are also incentivised to collect data through invasive practices, undermining the principles of data protection (Kemp, 2020). The European Union, as far back as 2019, through the Bundeskartellamt, Germany's competition regulator, Facebook ruling gave a preview on how to tackle this concern. The competition regulator, in a famous ruling,[6] prohibited Facebook from collecting data from third-party websites as well as from Facebook-owned WhatsApp and Instagram accounts, without explicit user consent. The ruling deemed that Facebook was abusing its dominant position in the market by mandating that users share data of all Facebook-owned accounts and on third-party websites.

Second, this concentration of data on a single platform could also lead to significant entry barriers for new entrants. New entrants may require access to vast amounts of this data to effectively develop a better product and therefore compete with incumbents, which could prove difficult. The European

Competition Commissioner, Margrethe Vestager, in 2019 signalled that ultimately, "Access to data has to be redesigned so that newcomers can compete with big tech giants" (Prager, 2019).

Third, assessing consumer welfare forms the cornerstone of competition law in many countries (Hovenkamp, 2020). In traditional markets, regulators typically intervene when there is an adverse impact on consumer welfare, usually measured through price, which is an objective parameter While qualitative metrics to understand the erosion of consumer welfare have always been in play, data and erosion of privacy are yet to be considered actively under consumer welfare. This is compounded by the fact that measuring effects on consumer welfare through price becomes tricky in multi-sided positive-price digital platforms as well as zero-price platforms. In multi-sided positive price markets such as Spotify, which operate through a user-subscription model, both sides of the platform (the advertisers as well as users) will have to account for indirect network and competition effects.

For zero-price platforms such as Facebook and Google Search, data should replace price as the parameter to judge anti-competitive conduct. While these platforms might be 'free' on the face of it, most zero-price platforms use data collected from users to exert power on the adjacent positive price advertising market. In ecosystems such as the Google Play store and Apple's App Store, data collected from third-party apps can be used to further entrench their central position as well as dictate terms – not just to third-party apps but across the whole complementary ecosystem of mobile phone handsets, television, music and reading devices.

Fourth, dominant digital platforms can aggregate data across datasets to build detailed user profiles that give them insights unavailable to their competitors. This allows them to entrench their positions not just in relevant markets, but also in adjacent markets (Stucke and Grunes, 2016) and across the whole ecosystem of complementary products (Jacobides *et al.*, 2019). For example, Alphabet with its Google Play app occupies a dominant position within the app store ecosystem and can use its central position to dictate terms when it comes to in-app purchases. Similarly, through the dominance of the Android operating system, it is also able to dictate terms to mobile phone manufacturers on pre-installing products tied to Android (such as Google Search, Gmail etc). The European Union is once again at the forefront, with the DMA. The Act is primarily targeted at regulating such 'gatekeeper' platforms that hold undue power in their digital ecosystem to ensure that they do not indulge in anti-competitive practices (Jacobides et al. 2019).

Fifth, mergers and acquisitions can help dominant platforms cement their market position and prevent future competition. The merging of complementary datasets that occurs after an acquisition or a merger can also help a dominant platform cement its position. The mergers could also enable more detailed profiling of users, undermining privacy further While competition regulators are yet to block any mergers on the grounds that the merger could be detrimental to consumer welfare due to deterioration of privacy, the European Commission took the first step in this direction. In the WhatsApp/Facebook merger and the Microsoft/LinkedIn merger, the EC acknowledged that privacy protection needs to be an important parameter in the assessment of digital market mergers (Giannino,

2017). Further, this aspect needs to be further investigated if privacy is a parameter on which these firms were competing.

Sixth, the application of the data protection law by a data protection regulator (such as the envisaged data protection board) across sectors will lead to potential conflicts with another cross-sectoral regulator, the Competition Commission of India (CCI). This could lead to regulatory uncertainty, forum shopping and counterproductive outcomes. While this cannot be completely eliminated, effective regulatory coordination can minimise these conflicts or at least provide an avenue to deliberate these challenges. To expand on one example of a conflict, a data protection regulator could potentially restrict firms from collecting third-party information without user consent. While useful for privacy, this could serve to entrench the dominance of parties that collect first-party information and erect barriers for future potential competitors.

3. CCI's approach to antitrust cases in India

This section details how cases against digital platforms have been looked at by the CCI and how its approach is evolving from a more laissez-faire approach to pursuing data-related antitrust abuses more robustly. By mapping important cases against WhatsApp and the recent Android antitrust fines in 2022, the paper charts out how it is finessing its approach to tackle different issues of defining the relevant market to data-related market power and abuses stemming from the same.

3.1Defining relevant market and assessing market power:

The first step in competition policy assessments of abusive anti-competitive practices is defining the relevant market. The Competition Act 2002, in section 2(r) defines the relevant market as either the 'relevant geographic market' in which the conditions of competition for selling and buying goods or services are 'distinctly homogeneous' or as the 'relevant product market' comprising of products which are interchangeable or substitutable in their various characteristics by the consumer. The relevant market could also be a combination of both the relevant product market and geographic market. Defining the contours of the relevant market is an important factor in determining the market power a platform may hold. With respect to defining the relevant market, there are two crucial aspects here where the Commission's viewpoints are evolving. The first is that the CCI initially did not view online marketplaces or platforms as a separate market from offline platforms and the second, it was yet to consider markets such as the Google Play Store or Amazon, as a separate relevant market and as an ecosystem in itself.

On the first issue, prior to 2017, the CCI had taken a more traditional approach towards defining the relevant market with respect to digital platforms, as it combined both offline and online platforms as a single market. In cases involving e-commerce platforms such as Snapdeal in 2014[7], the Commission primarily assessed the substitutability of products across both online and offline stores to define the relevant market. An online market and an offline retail store were not considered

different markets, as the Commission reasoned that a particular product on the online platform would easily be priced against the same at an offline retail store, by a user before making a decision to purchase (Dir, S., Kulshrestha, A., & Agrawal, A 2022). This line of reasoning tended to dismiss the dominance of an online platform in such a broadly defined relevant market.

However, by 2018, in *All India Online Vendors Association (AIOVA) vs Flipkart* case,[8] the CCI's approach towards defining digital markets had reasonably evolved as it considered Flipkart as a separate online platform. The CCI classified Flipkart's market as "services provided by online marketplaces for selling of goods in India" rather than the broad definition that Flipkart was attempting for of "pan-India market for retail or B2C, including online and offline channels of distribution". In this case, Flipkart was being accused of using its dominant position within the marketplace it runs, to favour its own private labels rather than those of competitive sellers on the same platform. However, this case was dismissed at the threshold level itself, as the CCI ruled that in the presence of a competitor Amazon, Flipkart could not be considered as a dominant platform. The Competition Law Committee Report of 2019 further cemented the direction that the CCI would eventually take. While the Competition Law Committee Report 2019 did not explicitly suggest any changes to how the relevant market needs to be defined in law to capture the differentiating effects of digital platforms, the CCI has operationally noted that it would begin to consider offline and online as separate relevant markets (Abhishek, 2022).

On the second issue of acknowledging app stores and other online marketplaces as the relevant market given that they are fashioned as ecosystems within themselves, both the CCI as well as other competition regulators have been slow to assess them as such. In the US, a similar antitrust battle occurred between Apple and Epic Games in 2022. Apple was accused of abusing its dominant position in the app store market, by forcing Epic Games (a video game publisher) to play by its app store policies. Epic Games has introduced a third-party payment method against Apple's app store policy of allowing only in-app payments (that involved paying Apple a 30% cut on subscription charges) and was duly ejected from the app store. Epic Games primarily lost the case as it was unable to prove that the Apple app store was a monopoly and a relevant ecosystem by itself, in the presence of the Google Play Store (Tech Desk, 2022).

Another prominent example of a data related ecosystem abuse that has largely gone unnoticed has been the Apple iOS 14 update.[9] The Apple iOS 14 update prohibited non-Apple apps from using a default opt-in for users to allow them to track data while not applying the same to its own apps. Apple apps had a default sign-in for users allowing Apple to collect data easily. While Apple advertised this update as a privacy-preserving policy, in effect it made it harder for third-party apps to compete on an equal footing, within this ecosystem. This approach did not capture the data network effects and the ecosystem dominance that gave these online platforms their market power.

This broad relevant market definition and lack of accounting for data-related market power, led to the CCI to dismiss assertions of these platforms abusing their dominant position. Both the CCI and the US courts have failed to account for the theory of ecosystem dominance (Jacobides and Lianos,

2021), where (here Flipkart and Apple) may not be dominant in the broader digital market but can the relevant market be defined as the ecosystem itself. Digital ecosystems are those that are broadly the central online marketplace for a network of complementary products and services (for example, application stores, operating systems, online e-commerce marketplaces) that can effectively lock in customers and raise switching costs, through leveraging the power in the complementary products (Jacobides and Loanos, 2021). The field of competition or the relevant market to be defined is not just a single product or service, but a whole host of complementary products (for example, app stores and apps provided by developers) that can be defined as the ecosystem. Here, the ecosystem owners can use their dominance and centrality to the system to game buyers and sellers on the platform, use their data to indulge to enter a complementary market, and indulge in abusive practices.

With respect to assessing market power, two main cases stand out in India. These dealt with instant messaging platforms and online marketplaces in the pre-competition law committee report era. This was the *Vinod Kumar Gupta vs WhatsApp[10]* in 2016 and the AIOVA vs Flipkart in 2018. In both cases, the CCI failed to account data related network effects and switching costs to assess market power. In general, switching costs refer to those costs incurred by users when switching from one product or service to another similar substitutable platform.

In the WhatsApp case, owing to WhatsApp's nature of being free and the switching costs remaining minimal, the CCI dismissed the prima facie claim of abuse of dominance. An important consideration missing in the order was that of network effects, a situation that adds high switching costs to competing messaging platforms. This was an advantage enjoyed by WhatsApp where network effects raise the barriers to entry, when rivals even if they produced a better product may not be able to entice users, as they may stick to the incumbent product purely for the network effects. These issues are compounded by the fact that rivals would be likely to find it hard to produce a better product given their lack of access to data from users. However, the CCI did not account for these data network effects and concluded that "there are no significant costs preventing the users to switch from one consumer communication app to another."[11]

In *All India Online Vendors Association v Flipkart (2018)*, the CCI, however, did acknowledge the role of network effects in online marketplace platforms. The order acknowledged that "the advantage gained by incumbents due to network effects may be difficult to breach." A large miss in the order was the CCI failing to consider the ways in which a digital platform with greater access to data than a seller can leverage its position to promote its own products and private brands in its own ecosystem.

As early as 2021, the CCI had launched investigations against Apple in India as well for similar policies as those employed by Google on its app store, where the lack of third-party payment options was being scrutinised as a potential abuse of dominance. While Apple's overall market share in the smartphone market in India stood only at 4.5 percent, this investigation indicates that the CCI is slowly leaning towards viewing ecosystems as the relevant market approach (Das, S., & Ahaskar, A, 2023).

Over the years, the CCI has kept in step with how it wants to define digital markets but has yet to explicitly view ecosystems such as iStores, Amazon marketplace as the relevant market by itself. Moreover, post the Competition Law Committee Report of 2019, and the current committee that has been constituted to draft the Digital Competition Act and make necessary changes to the act, the current issues of relevant market and market power stemming from data are being considered actively.

3.2 Assessing abuse of dominance:

Traditionally, to establish 'abuse of dominance', the CCI needs to prove that a dominant firm has limited competition within its relevant market and harmed consumer welfare, which is usually captured through price. The standard test for assessing abuse of dominance has been the Small but Significant Non-Transitory Increase in Price ('SSNIP') test that measures the ability of a dominant player to increase prices without losing revenues. Given the complicated nature of digital platforms, especially zero-price platforms, the need for qualitative approaches is required. In digital platforms, consumer welfare harm cannot be completely captured through the element of price. In these markets, data can serve as the non-price metric, where greater the data collection, lower the privacy protection for consumers. There are different types of data-related abuses the paper accounts for: the first is data replacing price as the metric to assess competition and there is excessive data collection, akin to firms having the ability to charge excessive prices, in the face of a lack of effective competition.

The second is, data as a qualitative non-price metric of competition where a unilateral reduction in privacy by a dominant firm could be viewed as an abuse of dominance practice. The third aspect is when data is used for self-preferencing, such as when Amazon lists its own products in preference results over other third-party products on its platform. Finally, the fourth is related to access to data collected on these platforms -- from Flipkart to the app stores -- where the data of third-party sellers is used to better the platform's own products.

On the first issue, the CCI's view has charted a long path. The CCI initially in 2016, dismissed allegations against WhatsApp, a dominant platform on the issue of excessive data collection. However, in January 2021, it took a more refined approach when the CCI invoked its powers under section 19(1), to launch a suo moto investigation against WhatsApp and Facebook. This was following WhatsApp's 2021 privacy policy update that mandated that users would have to share data with Facebook. The CCI, in contrast to the view it took in 2016, noted that the switching costs were indeed high, and the wording of the policy was quite opaque, thereby it was unclear of the data costs on the consumer. The CCI took the view that WhatsApp's take it or leave it policy made consent controversial as "users were not provided an appropriate granular choice to object or opt-out of specific data sharing terms". In a significant first step, the CCI noted that "the reduction in consumer data protection and loss of control over personalised data can be taken as a reduction in quality under the antitrust law." (Mishra, 2022). This is an important precedent revealing an active regulatory action for how data protection and competition intersect.

On the second issue of privacy as a metric to judge competition, the turning point came post a few important market study reports. Prior to the Competition Law Committee Report of 2019, the CCI had not actively intervened in these digital markets. In 2020, the CCI acknowledged privacy as a non-price metric of competition in a market study report on the telecom sector (Competition Commission of India, 2021).[12] Moreover, through the recent Android case in 2022 and the subsequent re-opening of investigations against WhatsApp, it is clear that the CCI has now started accounting for data-related abuse of dominance practices.

On the issue of self-preferencing, the first significant time that the CCI had intervened in a data-related abuse of dominance practice was the *Matrimony.com vs Google case,*[13] in 2018 where the search giant was fined on two accounts. The first was on using its market dominance to favour its own services such as Google Flights with respect to search rankings and results and the second was for the display of universal search results in fixed positions that were not relevant to the search (Sinha and Srinivasan, 2021). And finally, on access to data, the CCI actively intervened in these markets for the first time last year.

In October 2022 in a major regulatory intervention, the CCI fined Google significantly on two separate counts for abusing its dominant position in the market. The Director General (DG) investigated Google for abuse of dominance[14] in these markets: Licensable mobile OS for smart mobile devices in India, App stores for Android OS in India and Apps facilitating payments through UPI. Particularly, the dimension of 'access to data' in relation to the playstore was scrutinised further to assess Google's dominance. The order concluded that access to data was an important dimension and investigated primarily whether Google had access to data of its downstream players to improve its own services resulting in an undue competitive advantage over other players in the ecosystem without access to this data for their own improvisation and innovation.

Google was found guilty of gatekeeping a high volume of "granular data of the app users including complete personal as well as financial transaction information". This data was not shared with app developers fully, and by controlling the data Google was concluded to be in a position of dominance. Google mandated the use of the Google Play Billing System (GPBS) for all developers, through which it acquired the data and dictated contractual terms to app developers putting them at a disadvantage. The order also helps to clarify how third parties are perceived by CCI. Google claimed that app developers are third parties and users would not expect or consent to their private data being shared by app developers on the platform. CCI ruled out this assertion. It clarified that users had carried out the transaction with app developers, through the GPBS making them direct parties to the transaction. To remedy this breach CCI instructed Google to set out a "clear and transparent policy on data that is collected on its platform and also the potential and actual sharing of such data with app developers, or other entities, including related entities. Subject to adequate safeguards, CCI mandated Google to share the data generated by it through its apps with other app developers to reverse, putting its competitors at a disadvantage.

3.3 Mergers and Acquisitions

For digital platforms, the CCI has not intervened to prevent any mergers and acquisitions based on data considerations. Mergers and acquisitions are primarily dealt with under Section 5 of the Competition Act, where deals above a certain revenue and asset threshold are scrutinised for potential anti-competition effects. Many digital start-ups that could serve as long-term competitors fall below these regulatory thresholds as they often are asset-light and prioritise revenues for the long term. In 2019, the Competition Law Review Committee called for a review of the transaction value thresholds and the proposed amendments to the Competition Act have introduced a concept of scrutinising transactions based on 'deal value' rather than on assets and turnover.

4. Mapping of the data protection law

This section maps the overlaps that stem from the Digital Personal Data Protection Act 2023 and competition jurisprudence to lay out the points of convergence as well as divergence in pursuing the twin objectives of protecting data as well as maintaining competition in the market. The Digital Personal Data Protection Act 2023 (DPDP) is the fifth and final iteration of the privacy law that India has been attempting to legislate since 2018. The law was passed in August of 2023, and the DPDP Act has many clauses with implications for antitrust issues. We map clause-wise the data-related antitrust consequences that stem from this current version of the law. The broad analysis has been bucketed under 4 brackets depending on whether the consequence for either data protection or competition has been either beneficial or it will have adverse effects. The analysis of the DPDP Act and its competition effects is not just limited to what the proposed legislation contains but also what has been omitted. The caveat here is that we map the theoretical implications of the clauses and not how they would potentially play out in this current market.

I Negative Data Protection-- Negative Competition

There are specific clauses in the DPDP Act that lead to a negative outcome on both data protection as well as antitrust in the market. The first issue is the lack of specificity regarding taking consent from the user on third-party data sharing by the primary platform that collects data. Here, section 6 of the DPDP Act details the notice that a data principal must receive and consent to for the purpose of collection and processing of personal data. While the law mandates that the notice provided must include details in clear language on the personal data that is sought to be collected and the purpose of processing, it does not explicitly mandate any details on data sharing with third parties. The details of data sharing will only be made available when requested by a data principal. The lack of oversight on third-party data sharing is a clear negative for the data rights of a user as data can be shared without explicit consent. Moreover, this could detrimentally impact competition in the market - as the primary platform that collects data from the user holds control over which third parties they can share this user

data with. The incentive for this platform would be to share data with those parties that can help target their users better through advertising or to better customise their products - potentially further entrenching their power in the market and raising market entry costs. The lack of access to such data could prove to be an important barrier to entry that could prevent a rival from offering a better product.

The second issue is the broad cover provided to the state. In particular, section 7. (c)&(d) provides cover for the state or 'any instrumentality of the State' (MeitY, 2023); where any data collected from a user for issuing a licence to any service provided by the state, consent need not be actively taken from the user. This does not bode well for data protection as the rights-based approach to privacy is diluted in these situations. Competition in the market could suffer as well, due to the fact that state agencies from public sector banks to regulators such as RBI and SEBI could fall under the definition of the instrumentality of the state. This clause could give state-owned agencies an undue advantage compared to their private sector peers, especially in sectors where the state-owned agency is the dominant monopoly.

The third pertains to the vast ambiguity around the transfer of personal data to other countries. Section 16.1 pertains to the transfer of personal data which the Central Government will notify based on factors not specified in this version, on the basis of which data fiduciaries *cannot* transfer personal data to the prescribed countries. This in essence would be a negative list. This clause as it stands now provides a generous amount of discretion to the executive, in selecting countries to which personal data *cannot* be transferred. Selective and arbitrary restrictions on the transfer of personal data can inhibit entering new markets, and innovation on new products --- making effective competition in the market more difficult. The bigger technology firms that already possess market power could influence which countries are on the 'green list', making navigating this regulation easier for them compared to smaller firms. In the absence of clear metrics, the ambit of discretionary power could prove detrimental to both data protection as well as competition. Laying down general objective principles that allow for easy classification of countries 'as safe to either transfer data to' or 'as unsafe and requires additional protocols', would reduce the wide ambit given to the Central Government in this section.

The fourth issue that has negative implications for both market competition and data protection would be the clauses pertaining to withdrawing consent. The law provides an ambit for consent to be withdrawn under section 6.4 where 'Data Principal shall have the right to withdraw her consent at any time, with the ease of doing so being comparable to the ease with which such consent was given.' However, in the next clause (section 6.5), the law makes it clear that the burden of withdrawing consent falls on the data principal and not on the data fiduciary. Since the consequences of withdrawing consent fall on the data fiduciary, it is a loophole that firms can exploit to their advantage. While this clause reduces the scope for processing of data once consent is withdrawn, it does not completely eliminate the issue. The law also clearly states that withdrawal of consent will not affect the processing of data previously shared. In the WhatsApp privacy policy update case, defendants could potentially argue using that users consented to third-party data sharing at the time

of signing up for WhatsApp's services for the first time and hence continue to process information previously shared.

Finally, the last and main issue is the lack of a right to data portability. European jurisdictions have defined this right where data portability as enshrined under Article 20 in GDPR to mean that users or data principals have a right to access data they may have parted with on a platform in 'a structured, commonly used and machine-readable format'[15], so data can easily be shared or transferred to another data fiduciary of the user's choosing (GDPR-info, n.d.).

Data portability in general, can lead to positive ramifications for competition. The right to data portability allows users to have more agency with regard to their data, allowing them the right to port their data to another platform from which they may wish to avail service. The availability of data portability could reduce user lock-in[16], as users may be reluctant to move to a new digital platform service if they are unable to transfer all their user history on the previous platform (OECD, 2021). A user of the Google search engine may be reluctant to move to another search engine if he is unable to port his search history (Regan-Stansfield, J., & Duckworth, M, n.d.).[17] If switching proves costly, user lock-in may proportionately increase (Vanberg, Ünver, 2017 & Shapiro & Varian, 1999). Reducing switching costs could incentivise competitors and new entrants and lower barriers to entry, proving beneficial for competition in the market.

However, this relationship is nearly not as straightforward in all contexts and there are instances when data portability can effectively reduce competition in the market as well. Data portability may not serve to reduce entry barriers for new entrants. Data portability mandated for all companies may adversely affect new entrants rather than the incumbent. The compliance burden of portability could be higher on a new smaller firm rather than the dominant firm, leading to an increase in entry barriers.

II Positive Data Protection and Negative Competition

In a few instances, positive data protection aspects can lead to negative competition outcomes., section 10.1 empowers the state to deem any data fiduciary as a significant one based on a host of factors such as volume and sensitivity of personal data processed, risk of harm to the data principle as well as to electoral democracy and security of the state. A data fiduciary deemed significant will have to abide by additional provisions such as the appointment of a data protection officer and an independent data auditor to conduct periodic audits and data protection impact assessments. These compliance requirements, if implemented well by the significant data fiduciary, can translate to better data protection.

However, this clause lacks detail and clarity due to the subjectivity of the factors and is not being properly defined. This provides ample leeway to the state to notify any data fiduciary as significant at any given point in time. This could lead to bad competition outcomes for these reasons: Firstly, uniform compliance burdens across a range of firms (big or small) can disproportionately favour dominant firms and raise entry costs for start-ups. Additionally, the uncertainty of when a firm can be deemed 'significant' could add another layer of uncertainty to operating costs for the new entrants.

Other jurisdictions, especially the European Union have legislated to at least reduce the uncertainty of these regulations. For example, the DMA focuses on additional regulations for significant data fiduciaries of importance termed as 'gatekeeper platforms'. However, the criteria for designating a platform as a gatekeeper is according to well-defined quantitative and quantitative metrics. The quantitative metrics used are annual turnover, number of users, etc to qualitative criteria such as being an 'important gateway for business users to reach end users'.[18] The use of well-defined criteria reduces the arbitrariness of decision-making by the state and provides the pathway for a more stable regulatory environment.

III Negative Data Protection- Positive Competition

There are certain sections in the DPDP that as stated are weak on the protections provided but could possibly have a positive impact on market competition. This particularly relates to the clause on certain legitimate uses --- Section 7 of the Act focuses on processing of personal data points to situations where the user's consent for providing personal data will be presumed. This section encompasses a broad caveat of situations where data can be processed and consent will not be actively sought. In a market, where there is a clear dominant firm -- this clause provides leeway for the dominant firm to collect more data than rivals using its network power effects and the lack of an effective competitor can help the dominant player further entrench its power. This is however a complex situation. Given that this clause lowers the bar for data collection without consent, it can prove to be pro-competitive, as access to user data is made easier for all firms across the board. On the other hand, given the broad leeway to collect data without explicit consent, data protection is definitely lowered for all users.

IV Positive Data Protection and Positive Competition

The DPDP by way of protecting data also results in positive externalities for competition in the market. Section 11 of the DPDP Act grants certain rights to the data principal on processing. While the rights covered may not be as comprehensive as those covered under GDPR law, this section lays out rights such as the right of a consumer to receive a summary of the data that has been processed by the data fiduciary, a confirmation that the data fiduciary is processing or has processed the data collected, the nature of the processing activities undertaken and the identities or parties with which the data has been shared. Here, the mandated level of data protection that all firms need to abide by could potentially result in firms competing to offer privacy-enhancing products to users (Esayas, 2018).

5. Policy recommendations

The CCI in recent months has made great strides towards reigning in anti-competitive practices through its interventions in digital markets. From its rulings on Alphabet and its Android operating system in October 2022 to proposing to set up an in-house Digital Markets Unit (DMU)[19] to

understand and tackle the complex challenges emerging in these unique markets, the CCI is evolving its approach in the right direction. The distinct economics of data-driven platforms has made a case for a more nuanced take on how best abuse of dominance exercises stemming from the role of data and its privacy should be tackled. However, given the numerous implications of the Digital Personal Data Protection Act, which was recently tabled, the paper proposes a few recommendations (or amendments) that will ensure the clashes between data protection and competition are kept to the minimum.

1. The CCI needs to incorporate data protection as a qualitative measure into the consumer welfare standard. While price has served as the primary quantitative barometer to measure consumer welfare loss, other qualitative measures have served as metrics to take into account. The zero-price nature of new technology platforms such as WhatsApp and Facebook necessitates a more nuanced qualitative approach. The Commission has taken note of this and in the CCI's *Market Study on the Telecom Sector in India*[20] acknowledged that data privacy can take the form of non-price competition (Competition Commission of India, 2021). As discussed in section 3 on the different types of data-related abuses, this would pave the way for excessive collection of data, data collected through bundled consent, lack of data portability measures and other privacy-lowering measures to serve as anti-competitive practices by dominant platforms in their relevant markets. Prior to this CCI observation on privacy, other jurisdictions too have adopted this view. The Japanese competition regulator, the Japan Fair Trade Commission has acknowledged privacy as a dimension of product quality. Prior to this, in the Microsoft-Linkedin acquisition in 2016, the European Commission made a statement stating that in the future privacy would be an important parameter and assessed if a high degree of data concentration in a single firm post the acquisition could harm competition on privacy in the market.

2. Despite the nuances around data portability, the DPDP Act needs to incorporate a provision for the right to data portability as this would be crucial, as discussed in section 4. This would essentially hand over more control to the user on the data that has been shared with a particular digital platform, ensure user consent, and help dictate who they wish to share their data and ultimately, help reduce lock-in effects and switching costs. Introducing data portability will prove to be a positive winning proposition for enhancing both competition as well as data protection.

3. There are significant clauses in the DPDP law that introduce regulatory ambiguity for firms while marginally enhancing data protection. The bill needs to introduce objectivity in decision-making on primarily two clauses. The first is section 10 where the bill introduces a differentiated tier of regulation by classifying certain fiduciaries as significant and imposes additional data protection compliances. The second is the section on transfer of personal data outside of India, with the central government given a wide ambit on which countries can be on an admissible list based on factors that

will be decided by the state. In both these cases, the wide arbitrary power given to the state to decide based on subjective factors, makes way for regulatory uncertainty. In both these instances, GDPR and its corresponding sections would be a better model to look towards. The GDPR law lays down concrete quantitative and qualitative metrics to classify firms as 'gatekeepers' as well as general objective principles on which countries' personal EU data can be transferred to without the explicit permission of the state. Here, it is the model of having a differentiated and a well-calibrated approach towards regulating entities of varying classifications that regulation in India could emulate, fitting it to our context rather than the specific criteria themselves.

4. The CCI is yet to actively take into account data considerations to inform mergers and acquisitions in digital markets. Section 5 of the Competition Act deals with mergers and acquisitions where traditionally approval for these transactions needs to be sought above a certain threshold based on assets and turnover. The CCI Act before the proposed amendments were inadequate to deal with mergers in digital markets primarily because of two reasons. The asset and turnover threshold would not adequately capture mergers in digital markets (such as of WhatsApp/Facebook) as these platforms were yet to generate substantial revenue in India (Avinash Kotval, A., & Saraswat, I, 2022). the logic of digital markets, where network effects and user data make growing the consumer base the highest priority. But as India grows to be a significant market for Big Tech firms in the future, the CCI toolkit will have to scrutinise these mergers and acquisitions, especially those stemming from the need to access and combine greater volumes of data. The proposed amendments to the CCI Act by the Ministry of Corporate Affairs in 2023 focuses on a new 'Deal Value'[21] threshold for notification and approval. This hopes to capture data-related mergers and work as a useful proxy, but this approach needs refinement.

5. CCI needs to actively consider the issue of ecosystem dominance and define the relevant market taking into account the 'gatekeeper role' of the Play Store apps, and e-commerce marketplaces such as Amazon and Flipkart. Antitrust regulators around the world are unable to capture the exploitative anti-competitive practices of these firms, as regulators are unable to cross the threshold level of establishing these firms as dominant due to the classic relevant market definition. For example, the app developers such as Epic Games could not mount an effective antitrust argument against Apple and its subscription policy, as it was unable to prove Apple to be a monopolist in the market for play stores. However, increasingly the antitrust literature points to the notion that Apple is indeed a monopolist 'in the market for app distribution of iOS' where the iStore is considered as the whole relevant market. Ecosystems have been described as a community of firms producing goods collaboratively (Jacobides, 2021)[22]. In the ecosystem, a particular firm could gain dominance and be termed the gatekeeper - as it controls access for all other firms in the ecosystem to access the customer database. In the Apple ecosystem, apple through control of the operating software as well as the hardware, is essentially the gatekeeper of that ecosystem, controlling access of app developers to the

customer base (Jacobides, 2021). Here, Android's playstore does not serve as an effective competitor as it did not prevent Apple from asserting its market power in its own Apple ecosystem (Geradin & Katsifis, 2021).

6. Despite the best of efforts in drafting and implementing laws, the objectives of data protection and competition in the market will produce inevitable conflicts. However, the scope for synergies is also immense which calls for an institutional coordination mechanism between the regulators. In this case, it would be the Data Protection Board and the Competition Commission of India. This would entail formal and informal mechanisms that bring together the CCI and any data protection regulators created by legislation. This is important not just for more effective regulatory approaches, as we have outlined, but also to prevent forum shopping by firms. Other jurisdictions are heading down this path as well. The European Union's Digital Clearinghouse is a voluntary network of regulators, while the UK government is considering a Digital Markets Taskforce which will gather representatives from the Competition and Markets Authority, the Office of Communications (Ofcom), and the Information Commissioner's Office.

References

Abhishek, R (2022), 'How relevant is the CCI's latest definition of 'relevant markets'?,' https://timesofindia.indiatimes.com/blogs/voices/how-relevant-is-the-ccis-latest-definition-of-relevant-markets/

Avinash Kotval, A., & Saraswat, I (2022), 'Proposed merger control amendments: Questions and potential consequences,' https://indiacorplaw.in/2022/08/proposed-merger-control-amendments-questions-and-potential-consequences.html

Bundeskartellamt (2016), 'Competition Law and Data,' https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.pdf;jsessionid=50588C5CDD10808F9DEDE8B5B2654CA5

Bundeskartellamt (2019), 'Bundeskartellamt prohibits Facebook from combining user data from different sources'. https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07_02_2019_Facebook.html.

Business Standard (2022), 'SC clears decks for CCI probe into WhatsApp's 2021 privacy policy,' https://www.business-standard.com/article/companies/supreme-court-allows-cci-to-probe-into-whatsapp-s-2021-privacy-policy-122101401027_1.html

Chandra, P. G (2022), 'CCI to set up digital market unit to assess Big Tech behaviour,' Live Mint. https://www.livemint.com/news/india/cci-to-set-up-digital-market-unit-to-assess-big-tech-behaviour-11654956627031.html

Competition Commission of India (2021). 'CCI Workshop on Competition Issues in the Telecom Sector in India: Summary of Workshop Proceedings.' https://www.cci.gov.in/economics-research/market-studies/details/20/1

Competition Commission of India (2020). https://www.cci.gov.in/antitrust/orders/details/1072/0

Das, S., & Ahaskar, A (2023), 'Apple reports strong growth in India,' https://www.livemint.com/companies/news/apple-reports-strong-growth-in-india-11675450234448.html

DeLong, J. B. and A. M. Froomkin (2000), 'Speculative microeconomics for tomorrow's economy,' in B. Kahin and H. R. Varian (eds.), Internet publishing and beyond: The economics of digital information and intellectual property. The MIT Press: Cambridge, MA, pp. 6–44.

Diker Vanberg, A. & , Ünver, MB. (2017). 'The right to data portability in the GDPR and EU competition law: odd couple or dynamic duo?' European Journal of Law and Technology, Vol 8, No 1, 2017. https://www.ejlt.org/index.php/ejlt/article/download/546/726?inline=1#_ftnref28

Dir, S., Kulshrestha, A., & Agrawal, A (2022), 'Digital Markets Must be Defined Well for Competition Regulation,' S&R Associates. https://www.snrlaw.in/digital-markets-must-be-defined-well-for-competition-regulation/#foot-notes

Esayas, S. Y. (2018a), 'Competition in (Data) Privacy: 'Zero'-price markets, market power, and the role of competition law,' International Data Privacy Law, 8(3), 181–199.

GDPR-info (n.d.), 'Article 20 GDPR - Right to data portability,' GDPR-info. https://gdpr-info.eu/art-20-gdpr/

Geradin, D., & Katsifis, D (2021), 'The antitrust case against the Apple App Store,' *Journal of Competition Law & Economics*, *17*(3), 503–585. https://doi.org/10.2139/ssrn.3599858

Giannino, M (2017), 'Microsoft/LinkedIn: what the European Commission said on the competition review of digital market mergers'.

Hovenkamp, H (2020), 'Antitrust's borderline,' University of Pennsylvania, Institute for Law & Economic Research Paper No. 20–44. University of Pennsylvania Institute for Law & Economics: Philadelphia.

Jacobides, M. G (n.d.), 'Regulating Platforms & Ecosystems,' https://www.jacobides.com/regulating-platforms-and-ecosystems

Jacobides, M. G (2021), 'What Drives and Defines Digital Platform Power? A framework, with an illustration of App dynamics in the Apple Ecosystem,' https://events.concurrences.com/IMG/pdf/jacobides_platform_dominance.pdf

Jenny, F. (2021), 'Competition law enforcement and regulation for digital platforms and ecosystems: understanding the issues, facing the challenges and moving forward,' Working Paper (Under Review, ICC).

Kemp, K (2020), 'Concealed data practices and competition law: Why privacy matters,' European Competition Journal, 16(2–3), 628–672. doi:10.1080/17441056.2020.1839228. https://doi.org/10.1080/17441056.2020.1839228.

Khaitan & Co LLP (2023), 'Competition amendment bill, 2023: More than just a facelift of the 2022 bill - cartels, Monopolies - India,' https://www.mondaq.com/india/cartels-monopolies/1282640/competition-amendment-bill-2023-more-than-just-a-facelift-of-the-2022-bill#:~:text=On%208%20February%202023%2C%20the,%2C%202002%20(Competition%20Act)

Khan, L. M (2017), ' Amazon's antitrust paradox,' Yale Law J 126(3):745.

MeitY (2022), 'The Digital Personal Data Protection Bill.' https://www.meity.gov.in/writereaddata/files/The%20Digital%20Personal%20Data%20Potection%20Bill%2C%202022_0.pdf

Ministry of Corporate Affairs, Government of India (2019). 'Report Of Competition Law Review Committee.' https://www.ies.gov.in/pdfs/Report-Competition-CLRC.pdf

Mint (2022), 'CCI slaps ₹1,338 crore fine on Google for anti-competitive practices,' https://www.livemint.com/news/india/cci-slaps-rs-1-338-crore-fine-on-google-for-anti-competitive-practices-11666276658182.html.

Mishra, Bhavini (2022), 'SC clears desk for CCI probe into WhatsApp's 2021 privacy policy,' Business Standard. https://www.business-standard.com/article/companies/supreme-court-allows-cci-to-probe-into-whatsapp-s-2021-privacy-policy-122101401027_1.html

Muralidharan, S., Stawicki, A., Todorova, Z., & Tomanova, R (2018), 'India – Matrimony.com v. Google: A Cat on the Wall Approach to Intervening in the Expanding Digital Space,' https://competitionlawblog.kluwercompetitionlaw.com/2018/03/20/india-matrimony-com-v-google-cat-wall-approach-intervening-expanding-digital-space/

OECD (2021), 'Data Portability, interoperability and competition,' OECD. https://www.oecd.org/daf/competition/data-portability-interoperability-and-competition.htm

Prager, A (2019), 'Vestager calls for more access to data for smaller platforms,' https://www.euractiv.com/section/data-protection/news/vestager-calls-for-more-access-to-data-for-small-platforms/.

Regan-Stansfield, J., & Duckworth, M (n.d.), '*Data Portability – an effective competition tool?*,' Frontier Economics. https://www.frontier-economics.com/uk/en/news-and-articles/articles/article-i8606-data-portability-an-effective-competition-tool/

Shapiro, C., Varian, H.R., (1999). 'Information Rules, A strategic guide to the network economy,' Harvard Business School Press.

Shri Vinod Kumar Gupta v. WhatsApp, CCI Case No. 99 of 2016.

Sinha, V., & Srinivasan, S (2021), 'An integrated approach to competition regulation and data protection in India,' *CSI Transactions on ICT, 9*(3), 151–158. doi:10.1007/s40012-021-00334-7

Srinivasan, S., & Sinha, V. (2021). *IDFC* Institute's response to proposed amendments to the Consumer Protection (E-Commerce) Rules, 2020. IDFC Institute. https://idfcinstitute.org/site/assets/files/16707/1626968386.pdf

Srivastava, S (2022), 'IOS 14 privacy features and their impact on App Distribution,' https://appinventiv.com/blog/prepare-for-ios-14-privacy-changes/.

Srivats, K (2023), 'Digital Competition Law: MCA-appointed panel to start deliberations this week,' https://www.thehindubusinessline.com/info-tech/digital-competition-law-mca-appointed-panel-to-start-deliberations-this-week/article66638102.ece.

'The Competition Act 2002,' Ministry of Law and Justice, The Gazette of India Extraordinary, https://www.mca.gov.in/Ministry/actsbills/pdf/The_competition_Act_2002.pdf

The Digital Personal Data Protection Act, 2023. (2023). Bill No. 384, The Digital Personal Data Protection Bill, Vol. 1. https://www.meity.gov.in/writereaddata/files/Digital%20Personal%20Data%20Protection%20Act%202023.pdf

'The role of the Chief Competition Economist,' Competition Policy, European Commission, https://competition-policy.ec.europa.eu/chief-competition-economist_en

The World Bank, World Development Indicators (2012). GDP (current US$) - Indonesia, Netherlands [OECD National Accounts data files]https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=ID-NL

The World Bank, World Development Indicators (2022). https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=ID-NL

Tech Desk (2022), 'Apple vs epic games antitrust battle: A brief timeline,' https://indianexpress.com/article/technology/tech-news-technology/apple-vs-epic-games-antitrust-battle-a-brief-timeline-8270071/

Turck, M (2016), 'The power of data network effects,' http://mattturck.com/2016/01/04/the-power-of-datanetwork-effects.

Wu, T (2018), 'The curse of bigness: antitrust in the new gilded age,' Columbia Global Reports, 75. Columbia University: New York. Gual, J., Hellwig, M., Perrot, A., Polo, M., Rey, P., Schmidt , K., & Stenbacka, R (2005), 'An economic approach to Article 82,' https://ec.europa.eu/dgs/competition/economist/eagcp_july_21_05.pdf

Zhu, F., & -Sokol, D (2021), 'Harming Competition and Consumers Under the Guise of Protecting Privacy An Analysis of Apple's iOS 14 Policy Updates,' https://www.competitionpolicyinternational.com/harming-competition-and-consumers-under-the-guise-of-protecting-privacy-an-analysis-of-apples-ios-14-policy-updates/

Notes

[1] See [press release](#) by Bundeskartellamt (7 February 2019).

[2] There is extensive literature on how data collected by businesses has an impact on antitrust issues as well as privacy and data protection. Refer to an earlier work on this in Kira, Sinha and Srinivasan (2020)

[3] For more details on Apple's privacy features, refer to this [blog](#)

[4] Digital Data Protection Act, 2023

[5] See the Economic Advisory Group on Competition Policy's discussion [paper](#)

[6] For more details on the ruling, please see [Bundeskartellamt prohibits Facebook from combining user data from different sources](#)

[7] Ashish Ahuja v. Snapdeal, Case No. 17 of 2014

[8] AIOVA vs Flipkart, Case No. 20 of 2018

[9] For more details on the Apple iOS 14 update, read Competition Policy International article [here](#)

[10] Shri Vinod Kumar Gupta v. WhatsApp, CCI Case No. 99 of 2016.

[11] Shri Vinod Kumar Gupta v. WhatsApp, CCI Case No. 99 of 2016.

[12] Refer to CCI Telecom Market Study report (2021)

[13] Read more on Matrimony.com vs Google case [here](#) & Refer to CCI Telecom Market Study report (2021) & Ministry of Corporate Affairs, Report of the Competition Law Review Committee report

[14] Read more on antitrust order details [here](#)

[15] See the format [here](#)

[16] Refer to OECD (2021)

[17] Read Frontier Economics [here](#)

[18] Read more on 'gatekeeper platforms' [here](#)

[19] Read more on Digital Market Units [here](#)

[20] Refer to CCI Telecom Market Study report (2021)

[21] Read more about the proposed amendments to the CCI Act [here](#)

[22] Read more on drivers of digital platform power [here](#)

What exactly are the current norms for calculating the minimum wage in India?

Jehosh Paul[*]

Abstract

The calculation of minimum wages in India has evolved over the years, with various committees and legal frameworks guiding its determination. This paper examines the current norms for calculating minimum wages in India, tracing its evolution from the introduction of the Minimum Wages Act in 1948 to 2021. Despite the Act's repeal and the introduction of the Code on Wages, 2019, no quantitative criteria for the minimum wage calculation have been definitively laid out in the legislation. Academic discourse has offered conflicting assertions on the norms. The paper identifies three primary theses: 1) There's no established standard criterion, 2) The 15th Indian Labour Conference's (15th ILC) resolution serves as the norm, and 3) The resolution of the 15th ILC in combination with the Supreme Court's Reptakos Brett judgment are the guiding norms. By analysing various events, resolutions, and judgments, this research confirms that the current norms are primarily based on the recommendations of the 15th ILC (1957) coupled with the Supreme Court's judgment in Workmen v. Reptakos Brett (1992). These norms are crucial in ensuring that minimum wage calculations are aligned with the essential needs of the worker, offering them a dignified standard of living.

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1. Introduction

In January 2019, the Expert Committee on Determining the Methodology for Fixing the National Minimum Wage submitted its report to the Ministry of Labour and Employment, Government of India. (GOI 2019) However, in 2021, the Government tacitly rejected the report, by constituting another Expert Group for the determination of the national minimum wage. The press statement by the Ministry stated that the "Expert group will give recommendations to the Government on Minimum Wages and National Floor Wage." (PIB 2021). Yet, while the Government provided this expert group with a mandate similar to its predecessor, it did not clearly specify which laws or guidelines should be followed in setting the minimum wage.

The existing legal framework, including the Code on Wages, 2019 and the now-repealed Minimum Wage Act, 1948, does not provide any quantitative criteria for the enumeration of the minimum wage. The Code on Wages, 2019 is limited to prescribing only the mechanism for the fixation of minimum wages, namely the notification method and the committee method.[1]

Sahab Dayal in 'Wage Policy in India: A Critical Evaluation', after studying the wage policy in India until 1969, stated that "*no norms were laid down under the Act and each authority could develop its own norms; this has manifested itself in the…non-existence of standard criteria*". (Dayal 1969)

Similarly, several academic works, even if they do not *per se* deal with the question of what are the norms for enumerating the minimum wages, have made passing remarks on what are the norms for minimum wage fixation in India:

- Dr A. Fonseca (Labour Economist of the Indian Social Institute, New Delhi) in 'Need-Based Wage and Its Implementation' referred to the 15th Indian Labour Conference's resolution as the norm while expressing his concerns regarding the "difficulties involved in translating the country's policy on minimum wages into monetary terms" (Fonseca 1969)

- Prof. Babu Mathew (Director, Centre for Labour Studies, NLSIU), et al, in 'Critiquing the statutory minimum wage: A case of the export garment sector in India' stated that there are clear guidelines for the determination of the statutory minimum wage based on the 15th Indian Labour Conference (hereinafter referred to as the '15th ILC') and subsequent rulings of the Indian legal system. (Mathew et al. 2018)

- Renana Jhabvala in 'Minimum Wages Based on Worker's Needs' referred to the 15th ILC norms and its modification by the Supreme Court in *Reptakos Brett and Co.* judgement as to the legal norm on the fixation of the minimum wages.(Jhabvala 1998)

- Lastly, a recent Economic & Political Weekly editorial, 'Another Committee for Minimum Wages', also asserted that "the enumeration of the minimum wages is based on two key features: first, the recommendations of the 15th Indian Labour Conference (1957), and second, the Supreme Court judgement in *Workmen v. Reptakos Brett* (1992)…" (EPW 2021)

Herein, there are three kinds of conflicting assertions that emerge in the academic discourse. First, there are no norms as such that could be considered a standard criterion; second, the 15th ILC resolution is the norm; third, the 15th ILC norms coupled with the *Reptakos Brett.* judgement are the norms for the enumeration of the minimum wages.

To evaluate the truth value of these conflicting theses, a systematic study of the evolution of the norms on minimum wage fixation is necessary. However, there is a gap in the academic literature that has systematically examined the norms for the fixation of minimum wages under the Minimum Wages Act or the Code on Wages.

In this context, this paper aims to answer: *What exactly are the current norms for calculating the minimum wages in India?*

To address this question, the paper analyses analysing the evolution of the norms on minimum wage in India from 1948 to 2021.

2. The evolution of norms for the calculation of minimum wage

While the Minimum Wage Act, 1948 (now repealed) provided a broad framework for the fixation of Minimum Wage, it did not mention any concrete parameters based on which the Minimum Wages ought to be calculated. Section 4 of the Act dealing with 'Minimum rate of Wages' is the closest that the Minimum Wage Act came to prescribing the contents of the Minimum Wage. It stated that:

> "Any minimum rate of wages fixed or revised by the appropriate Government in respect of scheduled employments under section 3 may consist of -
>
> (a) a basic rate of wages and an allowance...hereinafter referred to as "cost of living allowance", or
>
> (b) a basic rate of wages with or without the cost-of-living allowance, and the cash value of the concessions in respect of supplies of essential commodities at concession rates, where so authorised; or
>
> (c) an all-inclusive rate allowing for the basic rate, the cost-of-living allowance and the cash value of the concessions, if any."[2]

However, the Act did not define the meaning of the "basic rate of wages". Thereby, it left a gap in the legislation, for the appropriate Government to fill in – based on its discretion – while determining the Minimum Wages.

Section 5 of the Act[3] provided for the 'procedure for fixing and revising minimum wages'. Two methods by which the appropriate Government can fix minimum wages are the committee method and the notification method. Under the committee method, the appropriate Government can "appoint as many committees and sub-committees as it considers necessary to hold enquiries and advise it in respect of such fixation or revision, as the case may be". And, under the notification method, the appropriate Government is required to publish its proposal on minimum wage for the

information of the stakeholders who are likely to be affected and wait no less than a period of two months before taking it into consideration.

In the same year as that of the Minimum Wage Act coming into force, the Industrial Policy Resolution (1948) laid emphasis on promoting fair wage agreements in the more organised industries. In November 1948, the Central Advisory Committee, a statutory body under the Minimum Wages Act, appointed the tripartite Committee on Fair Wages to "determine the principles on which fair wages should be based and to suggest the lines on which these principles should be applied". (GOI 1966)

The Fair Wage Committee decided that the lower limit of the 'fair wage' would be the minimum wage and the upper limit of it would relate to the capacity of the industry to pay. But the minimum wage would be the bottom-level wage, and no other wage could exist below that level. (GOI 1949)

After having defined the position of the Minimum Wage in the wage structure, the Fair Wage Committee laid down the broad framework to determine the minimum wage for a "standard working class family". According to the committee:

1. A standard working-class family should be reckoned as one consisting of three consumption units, supported by a single male earner including his wife and two children below the age of 14.

2. The wage should cover five categories of needs considered essential for the worker's well-being. It would consist of food, clothing, housing, light & fuel and other miscellaneous needs.

3. Lastly, while calculating the minimum wage, the norms for food category should be based on Dr W.B. Aykroyd's formula for an adequate and balanced diet.

This framework for the calculation of the minimum wage, as laid down by the Fair Wage Committee, still remained largely qualitative in its character – because it did not state how these parameters could be used to arithmetically calculate the minimum wage and arrive at a number. The First Five Year Plan (1951-56) considered it inadequate because it did "not form an adequate basis for a uniform policy in determining the wage rates and effecting the wage adjustments" (GOI 1957). At this juncture, the Union Government entrusted this task to the tripartite Indian Labour Conference to "evolve in as precise terms as practicable the 'norms' and standards which should guide the wage fixing authorities including wage boards in settling questions relating to wages" (GOI 1955).

In 1957, the 15th Indian Labour Conference (ILC) was conducted in New Delhi, and the tripartite committee that headed the conference consisted of representatives from the government, industry, and workers. This tripartite committee became the first of its kind in laying down the quantitative framework for the minimum wage calculation in India. According to the Seventh Pay Commission, the 15th ILC norms were *"the best approach to estimating the minimum pay as it is a need-based wage calculation that directly costs the requirements, normatively prescribed to ensure a healthy and a dignified standard of living"* (GOI 2019).

The five norms accepted by the Committee were as follows:

a) the standard working class family included a wife and two children apart from the earning worker[4]; an equivalent of three adult consumption units[5]; the husband assigned 1 unit, wife assigned 0.8 unit and two children assigned 0.6 units each.(GOI 2015)

b) a net intake of 2,700 calories per day per consumption unit, as recommended in 1948 by Dr Wallace Aykroyd[6] (first director of the Department of Nutrition at the United Nations Food and Agricultural Organization) for an Indian adult of moderate activity;

TABLE II.—Composition of a Balanced Diet

(Adequate for the maintenance of good health)

	Oz.
Cereals.	.14
Pulses	3
Green leafy vegetables.	.4
Root vegetables.	3
Other vegetables.	.3
Fruits	3
Milk.	.10
Sugar and jaggery.	.2
Vegetable oil, ghee, etc.	.2
Fish and meat.	3
Eggs.	.1 egg.

c) clothing requirements of 72 yards[7] (65.8 metres) per year per family; or 5.5 meters per month for the average worker's family. (GOI 2019)

d) a minimum housing rent charged by the government for low-income groups (GOI 2019) or the rent corresponding to the minimum area provided under the government's industrial housing schemes (GOI 2015); and

e) fuel, lighting and other miscellaneous items of expenditure to constitute 20 per cent of the total minimum wage" (GOI 2019)

However, the Committee also recognised the existence of instances wherein the implementation of the norms would be difficult. It, therefore, provided an escape clause: if minimum wages were to be set below the norms prescribed by the 15th ILC then the concerned authorities ought to justify the circumstances that prevented them from complying with the norms proposed by the 15th ILC.

Furthermore, at the 15th ILC, it was also agreed that the minimum wage should be need-based and must ensure that the minimum human needs of the industrial worker are being met, notwithstanding any other considerations. Lastly, in a welfare State, the fixation of minimum wages by the

Government would be guided by the aim of securing a minimum level of living for the worker and the nature of the labourer's work would not serve as the yard-stick to arrive at the quantum of wages. (GOI 1957)

The norms arrived at by the 15th ILC in 1957 were deeply rooted in the recommendations of the Fair Wage Committee in 1948. It took almost a decade for the five "needs" of the workers highlighted by the Committee on Fair Wages (food, clothing, housing, and light and fuel) to be translated from a qualitative form to a concretised and quantified form in the five norms arrived by the 15th ILC.

In 1991, with more than three decades having passed since the 15th ILC resolution, the Supreme Court of India added a sixth element to the norms for the quantification of the minimum wages. The Supreme Court in the case of *The Workmen represented by Secretary v. The Management of Reptakos Brett & Co. Ltd. and Ors.,[8]* took the socio-economic aspect of the wage structure into consideration, and observed that

> "the concept of 'minimum wage' is no longer the same as it was in 1936. Even 1957 is way-behind. A worker's wage is no longer a contract between an employer and an employee. It has the force of collective bargaining under the labour laws. Each category of the wage structure has to be tested at the anvil of social justice which is the live fibre of our society today. Keeping in view the socio-economic aspect of the wage structure, we are of the view that it is necessary to add the following additional component as a guide for fixing the minimum wage in the industry" and held that the "children education, medical requirement, minimum recreation including festivals/ceremonies and provision for old age, marriages etc. should further constitute 25% of the total minimum wage."

By virtue of this judgement, the Supreme Court added an additional component to the existing norms, as a guide for fixing the minimum wage in the industry. According to the Supreme Court, the wage structure comprising these six components was a minimum wage at the subsistence level.

The calculation of minimum wages by the committees, therefore, was now guided by the six elements enshrined in the *Reptakos Brett Co. Judgement* which was in turn based on the 15th ILC resolution.

In 2020, after the Code on Wages, 2019 came into force, the six elements that the Supreme Court recognised in the *Reptakos Brett Co. Judgement[9]* were incorporated into Rule 3 of the draft Code on Wages (Central) Rules, 2020.[10] Since 1948, the draft Rule 3 has been the closest to a statute that provides the quantitative criteria for the calculation of the minimum wages. It elucidates six quantitative criteria for the 'manner of calculating the minimum rate of wages'. It states that:

(I) The standard working class family which includes a spouse and two children apart from the earning worker; an equivalent of three adult consumption units;

(II) A net intake of 2700 calories per day per consumption unit;

(III) 66 meters cloth per year per standard working class family;

(IV) Housing rent expenditure to constitute 10 per cent of food and clothing expenditure;

(V) Fuel, electricity and other miscellaneous items of expenditure to constitute 20 percent of minimum wage; and

(VI) Expenditure for children education, medical requirement, recreation and expenditure on contingencies to constitute 25 percent of minimum wage;

The footnote to Rule 3 states that it is "based on the criteria declared in the judgment in Workmen Represented by Secretary vs. Management of Reptakos Brett. And Co. Ltd. and Anr.,1992 AIR 504 pronounced by the Hon'ble Supreme Court and on the recommendations of the 15th Indian Labour Conference (ILC)". However, it does not follow the same rationale when it comes to the calculation of the housing rent allowance. It is because the Reptakos Brett Co. Judgement required that rent allowance to be based upon "a minimum housing rent charged by the government for low-income groups", whereas draft rule 3 states that the "housing rent expenditure to constitute 10 per cent of food and clothing expenditure". Further, in the absence of any explicit mention, it is also still not conclusive as to whether the 2700 calories would be arrived at based on Dr Aykroyd's adequate level diet that was adopted by the 15th ILC and affirmed by the Reptakos Brett Co. Judgement.

In addition to the Draft Code on Wages (Central) Rules, 2020, around nine states[11] have also released their own draft rules for the calculation of minimum wages. These remain identical to the Draft Code on Wages (Central) Rules, 2020. For instance, the Karnataka government released its draft rules for the implementation of the Code on Wage in 2020, which contained the same six criteria as specified in Draft Code on Wages (Central) Rules, 2020.

However, this Rule by virtue of being in its draft stage, it has not yet come into force. Therefore, the norms prescribed by the Reptakos Brett Co. Judgement as per the 15th ILC recommendations are the current norms for the calculation of the minimum wages in India. Hence, the thesis which states that the "enumeration of the minimum wages is based on two key features: first, the recommendations of the 15th Indian Labour Conference (1957), and second, the Supreme Court judgement in Workmen v. Reptakos Brett (1992)" is correct.

It is also important to note that while the six norms prescribed by the Reptakos Brett Co. Judgement, in tune with the 15th ILC recommendations, provides a theoretical framework for minimum wage fixation, in practice, it has been often different. Prior to the Code on Wages, 2019, the actual schedules of employment under the Minimum Wages Act and their revisions across states varied widely. Each state had its own schedule of employment and minimum wage rates, leading to significant discrepancies across the country.

Conclusion

The National Commission on Labour, headed by Justice P.B. Gajendragadkar in 1968, reported that "the minimum wage fixing authorities have generally accepted the formula in principle and departed from it in actual practise when the question of its implementation came". (GOI 1968) The Code on Wages, 2019 tries to overcome this by not retaining the concept of 'scheduled employment' (GOI 2019) and laying down the overarching framework for the enumeration of the minimum wages, which is largely in compliance with the Reptakos Brett Co. Judgement. It also provides for a National Floor Wage, which ensures that the minimum wage fixed by the appropriate Government does not fall below it. However, the actual implementation and enforcement of it remains to be seen. Additionally, the revision of minimum wages continues to be a politically sensitive issue, and it remains to be seen how the various stakeholders will respond to the changes in the minimum wage rates in different sectors and regions in the future.

References

Dayal, Sahab. "Wage policy in India: A critical evaluation." *Indian Journal of Industrial Relations* (1970): 149-170.

Mani, Mohan, Babu Mathew, and Dithhi Bhattacharya. "Critiquing the statutory minimum wage: A case of the export garment sector in India." (2018).

Fonseca, A. "Need-Based Wage and Its Implementation." *Indian Journal of Industrial Relations* (1969): 411-432.

Jhabvala, Renana. "Minimum wages based on worker's needs." *Economic and Political Weekly* (1998): 500-502.

Editorial, "Another Committee for Minimum Wages." *Economic and Political Weekly* (2021): 8.

Aykroyd, Wallace Ruddell. *Nutritive Value of Indian foods and Planning of Satisfactory Diets.* 1963.

GOI (1949): "Report of the Committee on Fair Wages", New Delhi: Ministry of Labour, Government of India.

GOI (1955): "First Five-Year Plan", New Delhi: Planning Commission, Government of India.

GOI (1957): "Summary Proceedings of the 15th Session of Indian Labour Conference", New Delhi: Ministry of Labour, Government of India.

GOI (1966): "Report of the National Commission on Labour", New Delhi: Ministry of Labour, Government of India.

GOI (1968): "Report of the Committee on the Functioning of the System of Wage Boards", New Delhi: Ministry of Labour. Government of India.

GOI (2019): "Report of the Expert Committee on Determining the Methodology for Fixing the National Minimum Wage" New Delhi: Ministry of Labour and Employment, Government of India, https://labour.gov.in/sites/default/files/Commitee_on_Determination_of_Methodology.pdf

GOI (2019): "FAQs on the Code on Wages, 2019", Noida: V.V. Giri National Labour Institute, Ministry of Labour & Employment, Government of India, https://vvgnli.gov.in/en/code-wages-2019

Notes

[1] Under Section 8 of The Code on Wages, 2019, the procedure for fixing and revising minimum wages is detailed. For fixing or revising minimum wages, the appropriate government can appoint committees to conduct enquiries and give recommendations regarding the fixation or revision of the minimum wages. Alternatively, it can publish its proposals for fixing or revising the minimum wages through a notification, ensuring that all pertinent information is available to the affected parties.

[2] Section 4 of the Minimum Wage Act, 1948.

[3] Section 5 of the Minimum Wage Act, 1948.

[4] On the basis of Dr. Aykroyd's formula (as enunciated in Health Bulletin No. 23, 1937), this yielded 3 consumption units per earner. While the worker was treated as 1 consumption unit and his wife 0.8 unit, the two children together were equated to 1.2 units by the Fair Wage Committee - by averaging the coefficients for children of different age groups and multiplying the average by two.

[5] Dr Aykroyd worked on nutrition for nearly 30 years. In 1935, he was appointed Director of the Government's nutritional research centre in India, situated in Connor in Kerala.

[6] The provision for clothing is based on an average for the whole of India, but 72 yards of clothing per annum per family did not presumably envisage the provision of woollen clothing and it may not have been enough to cover the requirements of a family in the cooler regions of the country.

[7] The optimum diet would include more vitamins and less protein in its calorie content, while an adequate diet would include more protein and less vitamins.

[8] Workmen Represented by Secretary vs. Management of Reptakos Brett. And Co. Ltd. and Anr.,1992 AIR 504.

[9] *Id.*

[10] Draft Rule 3 of Draft Code on Wages (Central) Rules, 2020.

[11] Karnataka, Rajasthan, Uttar Pradesh Haryana, Tamil Nadu, Maharashtra, Madhya Pradesh, Punjab and Odisha. The list, however, is not exhaustive.

The Quest for Supremacy and Sagacity in AI

A Book Review of "Four Battlegrounds: Power in the Age of Artificial Intelligence" by Paul Scharre

Anushka Saxena[*]

The world is undergoing geopolitical flux, and rivalling quests for power have critical and emerging technologies at their core. Artificial Intelligence (AI) is one of them. And even as basic and applied research on AI continues to expand, how the technology works and why its deployment matters to the layperson remains comprehensible only to those sitting behind the golden doors of Silicon Valley, and occasionally, to some working behind the high walls of military-industrial complexes.

Through his latest book, '*Four Battlegrounds: Power in the Age of Artificial Intelligence*', Paul Scharre manages to bring down these walls, bringing to the layperson a comprehensive analysis of the four battlegrounds where the war for supremacy in AI is being fought – data, computing power, talent, and institutions.

The research featured in the book, and its writing style, are methodological and conversational at the same time. Scharre has conducted extensive interviews with field experts, including both researchers and practitioners, and has analysed their first-hand accounts of key events that have shaped the American and Chinese AI industries.

For example, the author references his discussions with Liz O'Sullivan regarding the private sector's sentiments against the deployment of AI in the US Department of Defense (DoD), which is akin to hearing testimony straight from the horse's mouth. In 2019, O'Sullivan, a former employee of the AI firm 'Clarifai', sent a letter to her boss protesting against the company's involvement in the US DoD's AI programme. It set off the "revolt" in the American private industry against the use of AI in lethal weapons systems.

Similarly, to explain the AI-enabled panopticon the Chinese party-state has deployed to surveil the people of Xinjiang, Scharre has interviewed Maya Wang of Human Rights Watch, who broke the story about the use of China's "algorithm of repression," the Integrated Joint Operations Platform (IJOP).

In discussing China's AI panopticon and surveillance ecosystem, Scharre covers not just the IJOP deployed in Xinjiang, but other ominous aspects that make the Chinese ecosystem resemble a techno-nationalistic, dystopian society, akin to those envisioned in sci-fi movies. From the nationwide

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deployment of 500 million facial recognition cameras and various 'Police Cloud' computing data centers, to the use of AI for management and effective use of DNA databases, the Chinese Communist Party is leveraging machine learning and deep neural networks to perfect a digital authoritarian state.

In many aspects, the primary difference that emerges between the US and Chinese ecosystems is that the American government has to create incentives for things that the Chinese party-state can do coercively. As Scharre notes, "*Were Chinese tech employees to openly criticize the government, as employees did at Google, Amazon, and Microsoft of the U.S. government, they would risk jail time or worse.*" What's more, multiple other countries with authoritarian regimes (such as Zimbabwe, Tanzania, Libya, Egypt, Saudi Arabia and Thailand) are willing to import the Chinese model.

Each chapter in Scharre's book is a story alluding to one aspect of the AI ecosystem, such as a stakeholder, an event, or a phenomenon. For example, while highlighting the potential implications of machine learning for network security and mobile communications, Scharre narrates the story of 'Modulate', an AI software that switches the tone and tenor of an individual's voice on the phone to that of another individual of their choice. Similarly, to illustrate the truth-altering capabilities of Large Language Models (LLMs) and Generative AI, the author delves into his meeting with Jack Clark (former Policy Director of OpenAI), who demonstrated to him the innovative text generation capabilities of the GPT-2 LLM (which has now turned into GPT-4).

Aside from describing in great detail, almost like a primer, the use cases of AI and key actors engaged in its development and deployment, 'Four Battlegrounds' lists key differences between the authoritarian uses of AI, as witnessed in China, and the more democratic and knowledge-building-related uses of AI, as witnessed in the US. He explains how talent has a strategic role to play in this, because even though the American AI value chain is disaggregated, the US has a unique capability to attract talent from around the world: they can receive higher education in the US, continue research work on algorithms, and eventually outperform other actors (like China) in the race for technological power.

At the same time, his recommendation is also that governments invest in algorithmic evolution and computing power on their own accord, without relying solely on the developments made by private companies and researchers. This, he says, is necessary because with time, AI computing power and training data requirements are becoming bigger and bigger, and after a certain point in time, governments' pockets will only be the ones deep enough to invest in them.

The book makes an effort to remind readers of the expectations we have of AI systems, based on the perceptions we have developed from watching sci-fi movies and reading dystopian novels. For example, we expect that AI systems will act exactly like human brains do. However, the reality can go either way. For example, on the one hand, the 2017 poker competition between Jason Les (who has been referred to as the "human benchmark" for poker skills) and Libratus AI software (developed by Carnegie Mellon University) demonstrated that Libratus could learn techniques and poker hands that the human players couldn't anticipate and imagine, even though they believed they were well prepared

to tackle it. On the other hand, Scharre narrates his own experience with attending an AlphaPilot drone racing league, where he argued that autonomous drones racing a human-piloted aircraft "couldn't match even a half-decent run from a human."

At the same time, the book sheds light on warning signs that are already apparent to humans – especially those navigating the 'Post-Truth' information landscape. As already mentioned above, AI has the capability to generate authentic text and skew audio-visual communications. This has severe implications for the socio-moral fabric.

Scharre gives the example of how AI-enabled face-swapping and deepfake video technologies led to the creation of an obscene video of actress Scarlett Johansson, who later remarked that "*the internet is a vast wormhole of darkness that eats itself.*" Moreover, such an information landscape, where everything is "synthetic reality," is the greatest tool in the hands of authoritarian leaders, who thrive on manipulating narratives. Clearly, this indicates that a two-pronged investment is required towards both, advancing the capabilities of AI technologies, as well as countering their dangerous misuses.

From an Indian perspective, the book has various takeaways. To begin with, even though India, with the world's largest population, generates massive amounts of (potential) training data, Scharre demonstrates the significance of diverse data sets when training an AI model. He states that a trustworthy algorithm needs to be trained in different contexts and with different sets of people, lest it remain restricted by regional similarities.

Also, the author demonstrates China's increasing experimentation with AI in surveillance and weapons systems, as well as influence operations that the country has conducted using AI and social media tools like TikTok (which India has now banned, following the clash between armed forces on the two sides of the Border at Galwan Valley, Ladakh, in June 2020). These issues are interlinked with India's national security goals, and the book serves as a guide in this regard. Scharre warns, however, that for cooperation in military AI, it is necessary for the two sides to build and deliver on existing Confidence-Building Measures (CBMs). This is easier said than done, given the unwillingness China has demonstrated in the past few years to negotiate with India's interests in mind.

In global politics, AI has now become a tool to further national security imperatives and project power. In this regard, CBMs aren't something for India and China to build alone – a multilateral effort is required to build global governance mechanisms on AI. However, this is not to say bilateral and minilateral arrangements towards this aren't already emerging. Taking India's example itself, Scharre has discussed in the book the initiatives taken collaboratively by Quad countries (India, the US, Japan and Australia) on AI ethics and governance.

One such initiative is the launch of the Quad Senior Cyber Group, and there is the promulgation of documents such as the 'Quad Joint Principles on Cybersecurity' and 'Secure Software'. India and the US also concluded an Initiative on Critical and Emerging Technologies earlier this year, the impetus behind which is to secure scientific and industry-wide partnerships between the two countries to build a robust innovation ecosystem.

If both India and the US's rivalry with China is one of the factors behind the conclusion of this Initiative, the global AI ecosystem is becoming fragmented into two large bins – one that is China-led (and appeals to authoritarian regimes) and another that is led by democratic countries like the US and its allies. This is also evident from another example that Scharre discusses in this book – the support Japan and the Netherlands have extended toward US export controls against China, which essentially curb China's access to key semiconductor technology and manufacturing tools (which are crucial to the advancement of AI compute).

Overall, the book isn't essentially jargon-free, but is equipped with an expansive glossary and source list to help the reader navigate the complexity that accompanies the study of a topic such as AI. It is the second of Scharre's books on understanding the AI ecosystem, and its implications on geo-technological power, the first one being '*Army of None*' – which is another must-read.

"Four Battlegrounds: Power in the Age of Artificial Intelligence" by Paul Scharre, W.W Norton, 2023, Pages 496. ₹2,320 (Hardcover).

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