

# Economic Development of Punjab, India: Prospects and Policies

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# Economic Development of Punjab, India: Prospects and Policies\*

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## Abstract

This paper assesses the state of Punjab's economy, reasons for its current situation, prospects for growth, and policies to enable that growth. Punjab's economy is characterized by slow growth, societal challenges, and environmental degradation. We identify four interrelated issues that act as constraints on the Punjab economy. First, driven largely by dependence on the central government's food procurement policy, and its specific nature, the state remains heavily agricultural in a narrow manner. Second, Punjab's fiscal situation is constrained in ways that make fiscal policy dysfunctional: related causal factors include the agricultural structure and the state's political economy. Both physical and soft infrastructure have been negatively affected by the problems in public finances. Third, a combination of regional and domestic politics during an era of liberalization has disadvantaged the state, with existing manufacturing industries declining, and new industries and services not emerging rapidly enough. Fourth, both individual human capital and institutional or organizational capital have either failed to develop, or have deteriorated in some dimensions over recent decades, making Punjab less innovative and less attractive for new investment. The paper argues that prospects for meaningful economic development in Punjab will depend on collaboration between the state and national governments, including fiscal support from the latter to deal with switching costs and accumulated fiscal issues. We also discuss several specific policy areas, including agricultural diversification, industrial development and innovation, cross-border services, and decentralization to the local level.

**Keywords:** Punjab, India, growth, development, agriculture, industrialization, public finances

**JEL Classification:** H70, O13, O14, O15, O43

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## 1. Introduction

This paper assesses the state of Punjab's economy, reasons for its current situation, prospects for growth, and policies to enable that growth. Punjab's economy is characterized by slow growth, social unrest, and environmental degradation. Some of Punjab's recent economic trajectory has been shaped by its geography, including its position on an international border, and its water availability. The availability of water for agriculture was politically constrained by partitioning the region in 1947, and then by dividing Indian Punjab in 1966. The latter event occurred soon after national food security policy created a major shift in the state's pattern of agriculture, towards a greater reliance on a wheat-rice crop cycle, tied to intensive use of water and fertilizers. Furthermore, Punjab's position on the border with Pakistan, over a decade of conflict in the 1980s and 1990s, and proximity to the contested region of Kashmir constrained industrial investment and what might have been a typical progression of development in the state.

After the 1947 partition, the most agriculturally developed areas of Punjab remained in Pakistan. However, the government of Indian Punjab, piggybacking on national efforts such as the Bhakra-Nangal dam complex, introduced land reforms, provided an agricultural research and extension system, irrigation and drainage system, credit, and a paved road network connecting villages and towns (Singh and Kohli, 1997). As a result, Punjab was well positioned to be at the forefront of the national effort to achieve food security, built on new high-yielding varieties of wheat and rice, and a food procurement system that created an assured market for these food grains – what popularly became known as the Green Revolution (GR).

The development of the Punjab economy, as driven by the evolution of the GR and its impacts on the wider economy, has resulted in a mixed picture regarding growth of per capita income, reduction of poverty, provision of health care services and development of human capital. After the GR, the Punjab economy topped the rankings of per capita income among Indian states until 2000, but thereafter its ranking fell continuously, and is 10th among major Indian states as of 2021-22. Punjab continues to do well in more durable measures, its rank in the human development index and multidimensional poverty index is still among the top five states of India. Similarly, physical infrastructure, such as roads and telecommunications, is relatively better than the income rank would predict. Of course, this situation can change in the future if the economy stagnates. More than that, a major concern is the possibility of environmental disaster. In particular, the highly specialized, monoculture agricultural structure contributes to environmental problems such as air and water pollution, soil contamination, and a rapidly falling groundwater table. Climate change will almost certainly exacerbate these problems.

Just as Punjab's geography and history have shaped its current economic situation, they have implications for its development prospects. While Punjab is small relative to many other Indian states, it is not negligible, with a population as large as that of Australia, though with completely different resource endowments and geographic position. The state's agricultural sector, molded by the national food security policy, can be characterized by diminishing returns. Even these diminishing returns are coming at a cost that is not properly measured, because of large subsidies for water and electricity. These subsidies are obviously a consequence of the political

economy structures induced by the food procurement system, and they have created an enormous drain on the state's public finances.

A natural avenue for economic development based on an agricultural base would be a combination of agricultural diversification and development of agro-processing industry. Policies for crop diversification have been formulated since the 1980s, but have made relatively little progress. The higher risks and uncertainty in production and income generation associated with other crops, relative to the safety of growing wheat and rice for the national food procurement system, have acted as a barrier to switching. Many potential crops that could be part of a diversification effort also require more sophisticated infrastructure for storage and transport than what has worked for wheat and rice.

In industry, Punjab had historically done well in small and medium industry, and in subsectors such as light manufacturing, and textiles and garments. Its manufacturing capabilities in these sectors were comparable to the rest of India. In fact, some of the state's industrial development was a response to the needs of more mechanized agriculture – a byproduct of the GR, because harvest timings and labor scarcity favored the use of tractors and harvesters. However, the collapse of the Soviet Union had a negative impact on Punjab's manufacturing sector exports, and this coincided with economic liberalization in India, for which the state was relatively less well-positioned than many other states.<sup>1</sup> The geographic position and skilled labor resources of Punjab work against its competitiveness in large-scale manufacturing, relative to other states, including its neighbor, Haryana. Areas of possible comparative advantage related to cultural distinctiveness, such as designer textiles or garments, also present challenges.

In the services sector, Punjab has failed to establish a significant presence in higher-value-added services such as information and communication technology-enabled services, especially with Gurugram in Haryana becoming a major regional hub for such services. Political corruption<sup>2</sup> and inadequate human capital base were also factors. At the lower end of the skill range in services, hospitality and cultural tourism have potential, given the relatively large Punjabi diaspora. In particular, Sikhs living abroad view Punjab as their homeland in terms of religious heritage, and represent an important source of tourism, often combined with family visits.

The slow growth of Punjab's economy in recent years, especially in relative terms compared to neighboring states and to the recent past, has had serious negative consequences, including high unemployment rates (with youth unemployment being 20% and close to 30% for young women between 2017-22), high rates of emigration,<sup>3</sup>

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<sup>1</sup> The violent conflict in the state in this period also played a role, but disrupting many forms of activity, but especially by discouraging investment. We discuss these issues later in the paper.

<sup>2</sup> Overall, Punjab has generally been below average on recent state rankings of ease of doing business from 2015 to 2019 (RBI, 2022a, Table 140, p. 357), though it ranks at the top in terms of ease of starting a business.

<sup>3</sup> According to a study by Punjab Agricultural University, Punjab has seen a rise in emigration with approximately 13.34 per cent of rural households having at least one member migrated. Amritsar, Gurdaspur, Shaheed Bhagat Singh Nagar and Ferozepur districts have more than 30 per cent households reporting some migration. See <https://www.hindustantimes.com/cities/chandigarh-news/rural-punjab-witnesses-steady-rise-in-emigration-pau-study-101705084071517.html>

accelerated degradation of the environment,<sup>4</sup> agrarian distress (including suicides),<sup>5</sup> and social problems such as drug abuse.<sup>6</sup> The environmental issues are particularly concerning. There may be significant environmental benefits from diversifying agriculture, if that reduces water use and soil contamination. However, new industrial investment, and even services like tourism, generate their own negative environmental impacts. Many of these issues have to be tackled at the national level, through carbon pricing and water pricing, but state and local policies, such as building standards or enforcement of vehicle emission restrictions, are needed as well.

Our historical overview and identification of a range of problems in the Punjab economy has not stated anything that is not already known, and recognized repeatedly by economic analysts and policy makers. What are the constraints on policy making and implementation that have prevented a growth revival in Punjab? We identify four interrelated issues that act as constraints on the Punjab economy.

First, driven largely by dependence on the central government's food procurement policy, and its specific nature, the state remains heavily agricultural in a narrow manner. This structure has created a lock-in, and raised the economic and political costs of switching to a different economic structure. The diversification of the state's economy in general, and the agriculture sector in particular, has been severely limited by these costs. Even within the existing structure, economic growth is hindered by the weakness of interlinkages between sectors (I. Singh and L. Singh, 2011).

Second, Punjab's fiscal situation is constrained in ways that make fiscal policy dysfunctional: related casual factors include the agricultural structure and the state's political economy. Both physical and soft infrastructure have been negatively affected by the problems in public finances. Some of the problems in the state's public finances arose from the costs imposed by the 1980s turmoil, and the associated deterioration of many of the state's organizations and institutions, including for revenue collection. Committed expenditure regularly exceeds the revenue collected by the state government. But over 90 percent of current borrowing goes to debt service. Agriculture based on unprocessed food grains provides little opportunity for tax revenue. Most prominently, the increasing cost of power and water subsidies, driven by the worsening economics of growing wheat and paddy with heavy irrigation and inadequate surface water, has dominated the state's budget.

Third, a combination of regional and domestic politics during an era of liberalization has disadvantaged the state, with existing industries declining, and new ones not emerging rapidly enough. India's economic reforms of 1991 included import liberalization at the same time as China's rise, and this had a negative impact on the state's existing industries, which were already in weaker positions. Simultaneously, the collapse of the Soviet Union affected some export markets for Punjab's manufacturers. Other contributing factors have included poorly designed and inefficient tax and duty

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<sup>4</sup> Among recent surveys of this phenomenon, see Pratiksha and Sharma (2020) and Liu, Sanyal and Singh (2021)

<sup>5</sup> "The frequency of farmer suicides in Punjab has jumped since 2015. From nearly 70 suicides a year between 2000 and 2014, the number increased by nearly four times to 263 a year after 2015 (peaking at 323 in 2018)." See: [https://www.theindiaforum.in/article/spike-farmer-suicides-punjab.The relative decline in Punjabi farmers' incomes is substantial. For example, a Meghalaya farmer's income is now higher than a Punjab farmer's income.](https://www.theindiaforum.in/article/spike-farmer-suicides-punjab.The%20relative%20decline%20in%20Punjabi%20farmers%20incomes%20is%20substantial.For%20example,%20a%20Meghalaya%20farmer%20s%20income%20is%20now%20higher%20than%20a%20Punjab%20farmer%20s%20income.)

<sup>6</sup> According to Chavan et al. (2019), nearly 35 per cent of the households in Punjab have at least one person with a substance use disorder

structures, difficulties in acquiring land, expensive electric power (partly related to agricultural power subsidies), lack of access to finance, and more attractive incentives offered by governments of neighboring states. Punjab's long border, two wars and constant tensions with Pakistan have deterred both domestic and foreign investment in the state.

Fourth, both individual high-skilled human capital and institutional or organizational capital have either failed to develop, or have deteriorated over recent decades, making Punjab less innovative and less attractive for new investment. While the casual perception is that Punjabis have abundant entrepreneurial and leadership skills, inadequate public investment in education and health, without sufficient high-quality private substitutes, has created a mismatch between the skills in demand by business and the low-skilled human capital produced in the state. Higher rates of emigration accentuate this imbalance. Arguably, many public sector institutions have actually declined in their functioning, as a legacy of the long period of attenuated or absent electoral accountability that marked the era of conflict. Arguably, a nexus of police-bureaucracy-political elites led to reduced opportunities for private enterprise investment to flourish in Punjab and contributed to the exodus of human and financial capital from Punjab. The state government also exercises heavy control over local governments, reducing their capabilities as well.

Given these interrelated constraints, the paper argues that prospects for meaningful economic development in Punjab will depend on collaboration between the state and national governments, including fiscal support from the latter to deal with switching costs and accumulated fiscal issues. We also discuss several specific policy areas, including agricultural diversification, industrial development and innovation, cross-border services, and decentralization to the local level. The rest of the paper is organized as follows. In section 2, we discuss Punjab's economic structure, as captured in the standard classification of agriculture, industry and services. We consider output, employment, productivity and the composition of each sector, as well as some recent policy perspectives that have emerged in government documents and expert reports. In section 3, we examine some salient aspects of labor and employment in more detail, while section 4 does the same for education and health services. Section 5 examines the important issues of public finances and governance quality. While various policy concerns are raised in these sections, section 6 offers some additional, integrated consideration of policy options for the Punjab government. Section 7 is a summary conclusion.

## 2. Economic Structure

We consider agriculture (including allied services), industry and services sequentially in this section. The agricultural sector is dominated by growing wheat and paddy for the national food procurement system, and that is a major focus of our discussion. Within industry, our main focus is on the manufacturing sector, and its components. Services are more heterogeneous, and we discuss several aspects of the services sector, although health and education are treated in a separate section.

### 2.1. Agriculture

According to the latest Punjab Economic Survey (PES) for 2023-24, published on March 1, 2024, the share of agriculture and allied activities in GSVa based on advance estimates was 26.68% while the sector accounted for 24.64% of employment in 2022-23. The state's share of agriculture had not declined much since the early 2000s, and was higher than other Indian states with similar levels of per capita income. Of course, this reflects the unique structure of the Punjab economy. As the PES points out, Punjab accounts for only 1.53% of India's area, but contributes 31.22% of the rice and 46.24% of the wheat procured by the central government. In fact, these statistics highlight the central problem of Punjab agriculture, and of the state economy as a whole. Even within agriculture, diversification into less water-intensive crops, or into higher-value-added activities such as animal husbandry, has been inhibited.

Punjab has an area of about 5M hectares, out of which 4.1M hectares is net area sown. Out of these 4.1M hectares, 3.7M hectares is area sown more than once, so cropping intensity is high, at 190% (2019-20). The area deployed for rice increased slightly between 2018-19 and 2020-21, from 2.59M hectares to 2.74M hectares. Productivity also increased by 12.8% for non-basmati varieties, but declined nearly 20% for basmati (which constituted one-sixth of the rice area sown and typically has a lower yield than common paddy). Wheat has been consistently cultivated on over 3.5M hectares, with a stable yield around 5,000 kg/ha in the past few years. Cereals like rice and wheat made up 84 to 87% of the crop area between 2015-16 to 2019-20. Pulses only constituted 0.2-0.4% of the crop area and fruits made up less than 1% of the crop area. Cotton and sugarcane represented slightly larger shares but were still under 5% each. For cotton, the area decreased slightly over the years while yield decreased by about 20%.

There is a long history of failed attempts to make changes to Punjab's agriculture sector, but the PES highlights state government efforts to shift rice to less water-intensive varieties, monetary incentives for direct seeding, which also saves water, and a new Minimum Support Price (MSP) for *dals* (pulses or lentils).<sup>7</sup> More significantly, soon after the PES was released, the Government of India (GoI) announced a major shift in its food procurement policy, with greater purchases of pulses and maize at MSPs, to wean farmers away from rice. Since rice yields in Punjab are the highest in the country, and rice and wheat are grown in a tight alternating cycle, the exact nature of this shift will be important in determining its impact. The PES documents the precipitous decline in the area devoted to maize, and especially pulses, but notes that yields in Punjab are higher for these as well, compared to the rest of India. Fruit is also a potential crop for diversification, accounting for only 1% of cropped area, though it presents different challenges in terms of production and marketing than foodgrains, especially when those are procured by the government.

The PES is optimistic about the potential for animal husbandry, particularly dairy products, although this also requires additional infrastructure. Even fisheries are

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<sup>7</sup> Failed state agricultural policies have been intertwined with the national food procurement system, and even the militancy and conflict of the 1980s and early 1990s, which had multiple roots, but included concerns about the viability of GR agriculture. The conflict directly seems to have contributed towards a decrease in farmer incomes and in long-term investments. For example, P. Singh (2013) estimated that the presence of a major terrorist incident in a district in a year reduced long-term fixed investment by about 17 percent after controlling for other factors. These negative impacts were greater for richer farmers and those living in bordering districts. These impacts translated into a farmer losing close to 4 percent of annual income on average.

presented as an opportunity for further development. In neither case are the environmental impacts of livestock or fisheries discussed, so those issues may need to be considered more carefully. In the realm of environmental impacts, in addition to greenhouse gas emissions and a declining water table, the excess and imbalanced use of fertilizer in growing wheat and rice is well-recognized. Although the inefficiency of fertilizer use has moderated slightly, as has excess use, they remain major problems.

Another well-recognized problem that contributes to distortions in Punjab agriculture is the provision of free electricity to farmers, which encourages over pumping of groundwater. The use of credit by Punjab farmers is similar on average to the rest of the country, although much of this credit is for working capital during the crop cycle, and there is lower use of credit for investment.<sup>8</sup> This could be an obstacle to shifting Punjab agriculture away from its almost complete reliance on growing wheat and rice for central government procurement. This reliance can be gauged from the percentages of output that is procured: 89.1% of paddy and 62.17% of wheat in 2022-23 (PES, p. 234). Factors that could favor the ability to change the nature of the agricultural sector are good road, rail and telecom connectivity in rural areas, as well as relatively good quality rural housing and low poverty rates, all of which suggest a situation that is not dire.

The Punjab Vision Document 2047 (PVD) of the state government, which was published in April 2023, covers much of the same ground as the ESP, but emphasizes the overall unsustainability of the current agricultural system, in terms of fertilizer, pesticide and water use all having a negative impact on soil health and productivity. The PVD also places greater emphasis on the mechanization or capital intensity of the state's agriculture, which – along with the migration of agricultural labor into Punjab, has reduced employment opportunities for the native population. The PVD alludes to various uses of technology for precision agriculture to improve the efficiency of input use. At the same time, it highlights using new varieties of rice and wheat developed by university and other researchers, plus timely supplies of power, fertilizer and credit to increase the yields of these crops. A vision document cannot be expected to provide detailed plans, but it is not clear from the PVD what priority should be given to different policies, since some of the recommendations could prolong the current system, and delay the needed major restructuring of the agricultural sector. In some cases, such as the livestock sector, both the ESP and the PVD provide more detailed recommendations for improving efficiency and innovating, which suggests that policymakers are giving this sector more attention. This is also true for fruits and vegetables, though these represent a much smaller proportion of the agricultural sector's GVA, compared to animal husbandry. Even so, the overall or detailed plans are presented as quantitative or qualitative targets, typically without a clear indication of how policies will be designed and implemented to change agricultural production incentives, investment patterns, and market access, nor what the costs or impacts will be of such policies.<sup>9</sup>

The Punjab Budget Analysis 2024-25 from PRS reports net expenditure for the Government of Punjab (GoP) in 2023-24 (RE) at 1.3 lakh crores., with about 10% of this amount being spent on Agriculture and Allied Activities, and another 1.5% on irrigation

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<sup>8</sup> Marginal farmers in Punjab are relatively heavily indebted, but this is probably true across all of India

<sup>9</sup> In some cases, such as recommendations for diversification to maize, there is some discussion of uses for increased maize output in the government documents. Gulati, et al. (2021) also provide suggestions with significant qualitative and (sometimes) quantitative details, for all the typical diversification recommendations, including horticulture, livestock and fisheries.

and flood control.<sup>10</sup> Two-thirds of the agriculture sector budget was purely on electric power subsidies for farmers, which leaves relatively little for other government expenditure in this sector.<sup>11</sup> The PVD offers some ambitious targets for replacing chemical-intensive agricultural production with “integrated methods,” such as 20% of cropped area under integrated agriculture by 2030, only a few years away. But the economic calculations, in terms of net returns or switching costs, and who will bear such costs, are not always clear or obvious. No doubt such calculations are performed, but not always in a manner that aligns with high level policy targets.

Note that the GoP’s analysis suggests an important role for agriculture in the state’s economic development. In the PES (p. 187):

“Punjab continues to be an agrarian economy and exploratory analysis shows that agriculture sector plays an important role in driving growth in other sectors. With a lag of a year, a unit’s rise in agricultural product results in 1.4 units rise in services product and 1.8 units rise in industrial product, which is two to three times the impact of other sectors. With majority of industries in Punjab being agro-based, the growth in agriculture adds to the raw material for the industries. Further, with Punjab producing a majority share of central pool of wheat and rice, transportation of these cereals adds to the growth of services sector. Additionally, it should be noted that, with higher agricultural income the demand for products from the industry and services sector products grows, boosting the entire economy. It is evident that agriculture sector is the axis in the economy, strongly impacting growth in other sectors and driving the economy.”

While the qualitative statements about transportation and demand would apply to any other part of the economy, the numerical comparison of the linkage effects across sectors is the key claim made, and deserves more investigation. Gulati et al. (2021) ask a different, though related question: what have been the drivers of agricultural growth in Punjab? A regression analysis covering the period 1970-71 to 2015-16 finds that irrigation and road density promoted agricultural growth, as did the agricultural terms of trade.<sup>12</sup> Furthermore, this was found to be a stable long run relationship. At a general level, these results are unsurprising, and they hint at the idea (recognized in Gulati, et

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<sup>10</sup> The decline of the groundwater table in Punjab is not uniform, and some areas suffer from waterlogging. While the reduction of Punjab’s share of the river waters flowing through it has pushed farmers to exploit groundwater, the state has a good system of canals, and there may be possibilities of combining flood control with replenishment of aquifers – this is a possibility that deserves more analysis. Additional analysis of recent state budgetary allocations within agriculture can be found in Gulati, et al. (2021).

<sup>11</sup> To consider an example, the PES reports that an incentive of Rs. 1500 per acre is being offered to switch to direct seeding of paddy. This is about Rs. 3,700 per hectare. Yields of paddy are about 7,500 kg of rice per hectare, and the MSP is about Rs. 22 per kg. Thus, the gross revenue from a hectare under paddy is about Rs. 165,000. Variable costs are about one third of gross revenue, so after subtracting these costs, the direct seeding incentive payment is roughly 4% of those net returns, which is non-trivial. The other issues raised are whether there is an ongoing impact on production costs, such as labor use, beyond one-time switching costs. On the budgetary side, Rs. 3700 per hectare for 3M hectares of paddy amounts to about 1,100 crores, which would be about 27% of the entire state budget for agriculture after power subsidies. However, if this were one-time expenditure spread over several years, it could be fiscally feasible. On the other hand, incentives to switch away from paddy may be a more effective long-run policy, especially if the new crops are higher-value-added, or meet national nutritional needs better.

<sup>12</sup> Specifically, the ratio of GDP deflators for agriculture and industry for Punjab was used to measure the terms of trade.

al., 2021) that further growth in agriculture may need to come from other sources, since there are diminishing returns or limits to increases in the growth drivers identified in the regression.

With respect to policy changes that alter incentives, Gulati et al (2021) is more explicit in recognizing the need for them – government survey or vision documents have to be more cautious in that respect. Examples of these market-oriented recommendations include:

- Metering and charging electric power supply to farmers beyond a fixed level of free supply, and providing cash transfers instead of the price subsidy.
- Switching from fertilizer subsidies to direct cash transfers to farmers, with the requirement that they get the soil tests and soil health cards to qualify for these.
- Simultaneously, removing import duties and price controls on urea.

It should be noted that these are major institutional changes, which potentially introduce new risks and uncertainties for farmers, and will face political feasibility challenges. However, adopting these recommendations would also help in reducing the state debt burden, which currently crowds out more productive public expenditure and hinders economic growth, as discussed in section 5. Note also that the third recommendation example, involves a national policy change that has ramifications well beyond Punjab, so deserves separate analysis.

The political feasibility issue was demonstrated when similar recommendations were included in the first report of a “Group of Experts” created at the request of the then-Chief Minister (CM) of the state (PEG, 2020). Indeed, even more radical changes to agriculture were proposed for consideration in that report, with respect to land markets, including changing state laws to open up a leasing market for agricultural land, geo-tagging all farms and matching them with land records and Aadhaar cards to enable that market, and liberalizing laws relating to the conversion of agricultural land to non-agricultural uses. The merits of these recommendations require separate analysis, and also have to be part of a national effort, although states have constitutional responsibility for agriculture.

The central government’s 2020 attempt to change many aspects of the agricultural sector, especially in the direction of a greater role for markets, was particularly unpopular in Punjab and surrounding states. The Punjab CM rejected the entire agricultural reform section of the initial expert group report, and it was omitted in a final version (PEG, 2021). One can conjecture that this would have happened even if the 2020 report had not coincided with the massive protests against the “farm bills.” In the process, technical recommendations to improve the markets for farm machinery and seeds, or the technologies of irrigation, were also lost from the report.

## 2.2. Industry

The share of industry in Punjab’s GSVA is 27.4%, quite close to the share of agriculture in the state (PES, 2023-24, p. 186, Table 1), and to the average share of industry for India as a whole. However, industry accounts for a higher employment share in the state than agriculture, at 34.3%. Gross Capital Formation (GCF) in Industry is 31% of GSVA, fairly similar to the national figure. Industrial growth in Punjab has been higher than that of agriculture, and similar to the average for India as a whole. The Industry category includes manufacturing, construction and electricity, gas and water

supply. Manufacturing is about 61% of Industry, with another 26% coming from Construction (PES, p. 242, Figure 40). Much of the focus in this section, naturally, will be on manufacturing, although construction is more labor intensive, accounting for 45.6% of industrial sector employment, versus 51.8% for manufacturing. This focus is because of the greater potential of manufacturing in generating future growth.<sup>13</sup>

In India, there is a legal distinction between registered and unregistered manufacturing, based on the number of employees and the use of electric power. The terms “formal” and “informal” or “organized and “unorganized” are also used for these two categories. Registered manufacturing units are surveyed in the Annual Survey of Industries (ASI), and there are about 250,000 such units in India. One third of these factories are registered as corporations of some form. The remaining two-thirds are registered as individual proprietorships, partnerships, cooperatives, and so on. The number of manufacturing units in the unregistered, unorganized or informal sector is over 9 million. Employment in the registered manufacturing sector is about 17 million, which breaks down to average employment of about 110 per corporate manufacturing unit and 20 per non-corporate firm unit. Total employment in unregistered manufacturing is about 45 million, implying 4-5 workers per unit in this sector.

According to the Statistical Abstract of Punjab (SAP, 2023), the state has about 21,000 registered factories, employing a little over 800,000 workers (p. 287). The definition here may be different than the ASI definition, and other calculations based on ASI data report a larger proportion of registered manufacturing units for Punjab, at around 5% of the national total (Singh and Cheema, 2021; ASI, 2021-22). On the other hand, there are almost 312,000 unregistered units in the state (Ministry for MSME, <https://dcmsme.gov.in/ssiindia/census/ch5.htm>). Compared to the all-India figures, therefore, Punjab has a higher proportion of registered units vs unregistered units, by these measures. The state’s proportion of registered units is higher than its population share of 2.3%, but the same is the case for unregistered units, where the percentage is 3.4.

In the following, we will use data from the PES (2024). Table 1 below is based on Table 18 from PES, 2023-24, and reports the distribution of manufacturing across the 10 most important subsectors, based on registered units only. Differences in scale, capital investment and profitability across subsectors are apparent. Food products and non-metallic mineral products account for the largest proportions of units, but they have relatively low proportions of total investment and low profits per factory. Textiles, motor vehicles and chemicals appear to have the largest scale, and the textiles and machinery and equipment (n.e.c.) sectors are the most profitable at the factory level.

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<sup>13</sup> On the other hand, GCF has been shifting in relative terms from manufacturing to construction over the last decade (PES, p. 247, Figure 46). This is similar to the rest of the country, and one of the factors behind this trend is likely the after effects of the early 2000s investment boom, followed by the global financial crisis and an increase in non-performing assets in the banking sector.

**Table 1: Select indicators of registered manufacturing subsector performance, Punjab, 2021-22**

	Share of number of operational factories in the state	Share of GVA in the registered manufacturing sector	Share of GCF in the registered manufacturing sector	Per factory profit (in lakhs of Rs.)
Food products	25%	13%	13%	83.42
Textiles	5%	13%	9%	564.57
Machinery & eqt. n.e.c.	8%	12%	6%	470.67
Non-metallic mineral products	15%	4%	2%	68.71
Wearing apparel	7%	5%	6%	105.57
Basic metals	7%	6%	9%	193.10
Other transport equipment	6%	4%	2%	99.76
Fabricated metal products, except machinery and eqt.	6%	4%	4%	115.36
Motor vehicles, trailers & semi-trailers	2%	3%	3%	180.29
Chemicals & chemical products	2%	5%	4%	547.09

Source: Based on Table 18 from PES, 2023-24

The subsectors reported in Table 1 account for 69% of GVA in registered manufacturing. Later in the PES, the food processing industry is further disaggregated (Figure 48), based on the same ASI data as the table, but a much higher percentage of manufacturing GVA is reported for the subsector.<sup>14</sup> The discussion reiterates that food processing is a natural industry given Punjab's agricultural base, but the economic incentives for such activities are not discussed.<sup>15</sup> Most wheat and rice is sold to the national procurement system, but it is not clear to what degree other agricultural products are processed, or what markets are served.

Some disaggregation of the textile sector is also provided in the PES (Figure 50), but the different components of the sector do not appear to have any great degree of differentiation beyond that between textiles and apparel. In this sector, a disaggregation for unorganized enterprises is also provided, based on the 2015-16 UES survey, and apparel accounts for a much higher proportion of the unorganized sector, which makes

<sup>14</sup> Profitability statistics are also reported (PES, Figure 49), but are difficult to interpret.

<sup>15</sup> Note that we do not have data on factory size and profit relative to capital investment, so we cannot draw firm conclusions from profit per factory figures. However, based on the percentages in Table 1, we can derive a rough estimate that investment per unit in food processing is about 30% of that in textiles, while profits per unit are closer to 15%. The case for food processing might still be made, based on considerations such as employment, market potential, and interlinkages.

intuitive sense. However, there is no comparison of GVA or profitability across the different types of manufacturing enterprises, namely registered vs unregistered.<sup>16</sup>

A few other subsectors of unregistered manufacturing are also discussed briefly, with light engineering, accounting for just 6.3% of unregistered manufacturing GVA, receiving the most attention, metal fasteners and bicycle parts in particular. There is some consideration of how clusters might be created, and this is discussed below. The PES, while advocating for policy attention to these kinds of metal and light engineering products, does not address the decline of such manufacturing in clusters that had been developed in the 1960s (Goyal, 2020).

In general studies of Punjab manufacturing find evidence of a decline from the 1980s onward, with some recovery in the early 2000s, but further stagnation thereafter. Empirical studies indicate that technical efficiency and productivity growth have been relatively low. Investment in industry has also been low – some of this was undoubtedly because of the shadow of the conflict of the 1980s and 1990s, followed by liberalization of industrial licensing and other reforms in 1991, but in the last decade, industrial policy incentives from neighboring states likely also played a role (Goyal, 2020). While some aspects of infrastructure are good, access to reliable electricity and workers with appropriate skills have been relatively poor, given Punjab's otherwise strong economic profile. Underinvestment is both a cause and consequence of the size distribution of firms, and even registered manufacturing firms are mostly very small.<sup>17</sup> Small firms also have a more difficult time obtaining credit – these patterns are somewhat true across the country, but some states have been able to overcome such obstacles.

A few studies have supplemented official statistics with small surveys. Singh, Singh and Cheema (2022) surveyed 191 small enterprises in Tarn Taran and Gurdaspur districts, and identified several obstacles. Note that these are both border districts, and this location can also be a disadvantage. Small size and lack of access to financial capital were major reasons for many respondents not engaging in any technology upgrading. In these districts, the infrastructure was not rated as particularly good, and even acted as a deterrent to potential industrial customers. Despite efforts by the GoP to improve the ease of doing business, many respondents found approval processes to still be fragmented or cumbersome. Furthermore, there was no evidence of an active state-level policy to connect small firms to larger industrial buyers of their products. Essentially the same issues were found in a survey of 120 small firms in Jalandhar district (Bedi et al., 2021). This is more surprising, since Jalandhar is a major industrial hub in Punjab, second only to Ludhiana. This suggests that the findings for Tarn Taran and Gurdaspur districts are not local phenomena due to their border status, but reflective of state-level policy design and implementation issues.

The PES does summarize some policy measures with respect to clusters (Box 6, p. 258): three in Ludhiana (garments, sewing machines, and packaging and printing), Kapurthala (foundry and general engineering) and Patiala (cutting tools). Specific policies for these clusters are not presented, but the PES describes generic policies to

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<sup>16</sup> There is a separate summary of data from the Khadi and Village Industries Commission, which covers small rural enterprises. Khadi is handwoven cloth, but it is not clear how this data is related to unregistered textile units in general. In any case, the employment numbers are small, though the reported output figures per unit are surprisingly large.

<sup>17</sup> Many of these issues were analyzed in Singh and Jain (2007). See also Jain (2016), Verma and Kaur (2018), Goyal (2020), and Singh and Cheema (2021).

increase the ease of doing business. The description of the government funding being provided (in some cases from GoI schemes) suggests that the main expenditure is on creating common facilities for small firms to operate in.

Separately, the PES mentions the sports goods cluster in Jalandhar, and mentions plans for technology support, as well as testing and certification facilities for a sports good park. In fact, Mehta (2023) has provided a detailed analysis of this particular cluster. Jalandhar district appears to be somewhat unique among the largest industrial centers of Punjab, in that it has no significant large firms in the area: thus, it is second in output value for MSMEs, after Ludhiana, but a distant 16<sup>th</sup> in the output of large and medium firms (PES, Figures 56 and 57). Mehta's study is based on a primary survey of 45 firms (4 medium sized, 21 small, and 20 micro enterprises). The medium-sized firms are much better placed, but even many of the small firms export successfully. There are familiar challenges, of access to raw materials, availability of skilled workers and institutional support for imparting skills when needed. For the micro and small firms in the cluster, industry associations and policy-making did not provide enough support,<sup>18</sup> and high import duties on equipment and raw materials were a significant obstacle.

The distance between policy-makers and the operation of industry in practice also emerges from the Punjab Vision Document 2047 (PVD). PVD recognizes that small size and outdated technology are major obstacles to the growth and efficiency of Punjab's industry. However, policy recommendations for existing industry (PVD, p. 50) focus on subsidies, tax breaks and even a call to resurrect the Freight Equalization Scheme, which seriously distorted industrial location in India and was scrapped in 1993. For future industrial growth, the PVD focuses on a wide range of industries that are deemed to fit the label of Industry 4.0 (p. 48), as well as various kinds of services – this list has 38 different items, many of them extremely broad, such as Artificial Intelligence and Electronics, areas where Punjab is unlikely to be deemed suitable, such as Aerospace and Defense, and specific – but mundane – items such as event management services. A list of 9 potential industrial hubs/clusters/parks is also a heterogeneous collection of ideas without much foundation (p. 49). However, referring to an earlier 2030 Vision Document, there is a discussion of agro-food processing as an important priority.

The lesson from these lists is that there is a disconnect between the actual needs of Punjab's manufacturing industry that would promote efficiency and growth, and the vision for the future. In the Punjab government documents, there is no systematic conceptual or empirical analysis of different industrial clusters or subsectors, which could be the basis for policy design. As an alternative conceptual approach for designing more dynamic clusters, one can instead apply the ideas of Chandra (2022), which describes examples from Italy, China, Japan, and other parts of India. In these examples,

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<sup>18</sup> A completely different study (Mehta and Kaur, 2021) found that, even in a much larger and more well-established cluster, that of woolen textiles in Ludhiana, firms were often unaware of government support programs instituted during the Covid pandemic. This is another example of distance of policy-making from day-to-day manufacturing firms' operations. A comparison of agriculture and industry might be useful in this respect, to identify the factors that inhibit communications between government and smaller firms, in particular. Kaur, Shergill and Mehta (2023) also use primary data, collected in 2018, to analyze two clusters in Punjab, a textile cluster in Ludhiana and a hi-tech metal cluster in Mohali. Many of the workers in these clusters were migrants from other states, and they formed effective labor pools in each cluster. There was evidence of knowledge sharing within the two clusters in this study, and less heterogeneity than in the Jalandhar sports good cluster. However, there is no data on policies that might have shaped the development of these clusters, through positive action or through absence.

small firms become a part of a network that collectively acts as a large firm in some respects. These kinds of clusters allow firms to coordinate functions and collaborate in specific ways. In the Italian example, integrated textile mills in Prato, Italy started to lose their competitive advantage, and responded by becoming a cluster of small firms, specializing in certain product categories or specific process capabilities. They cooperated on common services such as logistics, banking, and maintenance, while still competing within the cluster to win orders. In this case, the former owners of the mills provided the expertise and organizational skills to build and maintain the network, whereas in other country cases, new private entities, such as agency firms or industry associations filled this role. Chandra (2022) also gives examples of successful clusters in Rajasthan and Gujarat, so there are models close to home for Punjab to adapt to its own needs.<sup>19</sup>

With respect to the choice of industrial sectors, more technologically advanced versions of food processing, bicycle manufacturing and chemicals are all cases where upgrading is a logical option to consider: these are all in the clusters list. Items such as surgical instruments, medical devices and prosthetics are other examples of products where quality matters, but the production itself is not necessarily technologically sophisticated. But other suggestions might be a wish list that remains in that category, especially if import barriers, worker skills, access to finance, and access to markets do not improve.

### 2.3. Services

Mirroring a pattern found across India, Punjab's Services sector is larger than Agriculture or Industry. It accounts for 45.9% of GSVA and 41.1% of employment (PES, 2024, p. 186, Table 1). The sector has also grown faster than the others, over recent decades, again similar to the rest of India. One difference between Punjab and most other states at similar per capita income levels is that its agriculture sector is proportionately larger, and its services sector share is therefore considerably lower than the national average of 54%. However, Punjab's service sector employs proportionately more of its workforce than the all-India average of 29% (PES, 2024, p. 188, Box 2). This reflects the lower labor intensity of Punjab agriculture, as compared to the rest of the country.

The services sector is well-known to be extremely heterogeneous, in terms of the nature of the services provided. These can range from tasks that can be done with minimal skills, to those that require an extremely high degree of education and training. The breakdown in Table 2 is still somewhat aggregated, and the Other Services residual category is clearly heterogeneous. But even the other categories combine fairly disparate types of services. Three of the categories each account for 20% or more of services GVA, while the other three each has about 10% of services GVA. The growth rates have differed across the categories, and over time, though there are seemingly no outliers at this level of aggregation. Within the first category of services, Trade & Repair

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<sup>19</sup> Punjab's geographic position and human capital profile work against its competitiveness in large-scale manufacturing, relative to some other states. The region around the National Capital Territory, including Punjab's neighbor, Haryana, has attracted industrial investment in a manner that Punjab has been unable to match. Even though Punjab has higher production and employment than Haryana in small and medium enterprises (RBI, 2022, Tables 129 and 130, pp. 335-336), its overall industrial value added is lower.

account for 95% of the GVA, so that Hotels & Restaurants are actually a minor contributor to the overall economy (PES, Table 20, p. 263).

**Table 2: Services Sector Components**

	Share in Nominal GSVA, 2012-13 to 2020-21	Share in Nominal GSVA, 2023-24 (A)	Average Growth Rate, 2012-13 to 2020-21	Growth Rate, 2023-24 (A)
Trade, Repair, Hotels & Restaurants	10.8%	9.6%	5.1%	6.2%
Transport, Storage, Communication & services related to broadcasting	5.4%	5.9%	4.9%	6.2%
Financial Services	5.2%	4.5%	4.3%	8.6%
Real Estate, Ownership of dwellings & Professional services	9.2%	9.3%	6.0%	6.1%
Public Administration	5.2%	5.9%	6.7%	7.2%
Other Services	10.1%	10.7%	7.2%	8.7%

*Source:* Based on PES (2024), Table 5, p. 192.

Further disaggregation of the above subsectors (Table 20 of PES) also indicates that road transport is the most important component of the second category, followed by communications services. However, other categories are not broken down further in this table. The “other services” category includes health, education, and entertainment, so it is an important subsector of the economy. Indeed, health and education services have distinctive characteristics and economic implications, and we treat them separately in this paper.

The role of the services sector in India’s economic growth has been analyzed by many (Singh, 2007; Eichengreen and Gupta, 2011). In this context, the heterogeneity of the sector matters, since the growth of different subsectors will have very different implications for output growth and employment growth. In particular, the potential for productivity growth can vary greatly – indeed some kinds of services are the hallmark of a less-developed economy. It should also be borne in mind that the boundary between industry and services can be arbitrary. For example, Indian national accounts classify electricity, gas and water services as part of the industrial sector. This reflects their capital intensity and economies of scale. Conceptually, they combine elements of production (manufacturing) and delivery of those products (service provision).

The PVD (p. 48) lists 38 subsectors or activities that are considered to have high growth potential. Many of these refer to the production of technologically advanced products such as semi-conductors or e-vehicles, or to categories such as aerospace and pharmaceuticals. Others in the list are so broad that they include elements of products and services, such as “tele-communication and information technology” or “IoT

(Internet of things).” The items on the list that clearly come under the category of services are:

1. AI (Artificial intelligence)
2. Cloud computing
3. Data analytics
4. Cyber security technology
5. Software development
6. R & D firms
7. Consultancy services for insurance, share market, financial matters, real estate
8. Career counseling, guidance and employment services
9. International business, immigration and study abroad services
10. Tourism
11. Hotel management and catering services
12. Event management services
13. Skill development centers
14. Incubation centers
15. Media entertainment
16. Logistics

This is clearly an eclectic list, but it can be mapped onto the different components of the services summarized in Table 2. There are some overlaps, especially in the first five items in the list. What is not clear is what their current role and importance is in Punjab’s economy.

The PES offers an extended discussion of tourism, with a focus on cultural tourism as a motive, although numbers reported will include medical tourists as well. The “tourist footfall” was over 26 M in 2022 (Table 22), of which a little over 1% were foreign tourists (Table 21). Adjusting for the size and location of the state, Punjab does reasonably well, compared to other states, in attracting foreign tourists. Overall numbers indicate that Amritsar is by far the most popular single destination within Punjab, which is to be expected. However, the assertions about the positive contribution of tourism to growth are not quantified in any manner. Certainly, there are economies such as Italy’s, which are very heavily dependent on tourism, but such countries also have other highly developed sectors. Tourism can also have negative environmental impacts and distort patterns of urban development and human capital acquisition. Punjab does not have the same cultural tourism potential as countries like Italy, or environmental or natural tourism potential as regions with coastlines, forests or wildlife. Globally, travel and tourism contributed 9.1% to GDP in 2023 (<https://wttc.org/research/economic-impact>), but this is likely far greater than the potential in Punjab. It is unclear whether tourism can be an engine of growth, and how much policy attention it deserves.

In the case of other services subsectors, such as road transport, telecommunications, and financial services, the state-level statistics for Punjab are all relatively good compared to other states, or to all-India averages (PES, pp. 270-277). However, these averages do not provide any information on the level of infrastructure needed for cities or towns to serve as growth poles, by being the sites for dynamic industrial clusters. Some of the weaknesses of industrial clusters in Punjab were analyzed in the section on industry. Summaries of urban development in Punjab (e.g.,

PES, Chapter 5), or of government initiatives (PES, pp. 277-278) do not address the infrastructure needed for such clusters, although the problem of electricity supply is discussed in the context of urban development.

The precise nature of the financial, transport and communication services will depend on the service or industry being supported: any of the first five categories in the list of 16 subsectors extracted from the PVD will need greatly increased communications bandwidth with high reliability, but even sports good and textiles firms need good communications if their suppliers and customers are spread around India or the world. Even in the PVD, there does not appear to be any analysis of the precise nature of improvements in infrastructure that come under the services sector, which would be needed for industrial development, both by specific industry and by local region.<sup>20</sup>

A different approach to the question of industrial development, also rooted in the service sector, can be found in the two reports of the Punjab expert group (2020, 2021), which included representatives of the private sector as well as academics and policymakers. These reports included recommendations such as:

- Streamlining and simplifying procedures for development of land for industrial purposes (PEG, 2020, p. 27)
- Modifying rent control laws and building height restrictions (PEG, 2020, p. 27)
- Making vacant urban land available for development (PEG, 2020, p. 28)
- Improving urban land records, including removing ambiguities in titles (PEG, 2021, p. 28)
- Extend land use for industrial estates to the outskirts of urban areas (PEG, 2021, p. 29)
- Improving institutional and financial mechanisms for joint cost sharing of industrial infrastructure development by industry and government bodies (PEG, 2020, p. 28)
- Incentivizing the use of online platforms to improve liquidity of small firms through more timely payment from industry and government customers (PEG, 2020, p. 32)
- Improve mechanisms for obtaining rights-of-way for digital infrastructure (PEG, 2020, p. 36)
- Focus on coordinating digital infrastructure build-out with the needs of industrial clusters (PEG, 2020, p. 36)
- Involve universities and technology companies in assessing the needs at the high end for digital infrastructure concentrations (PEG, 2021, p. 36)
- Create an institutional ecosystem for start-up formation and success, including funding, training and incubation (PEG, 2020, pp. 38-41)
- Rethinking the design and functioning of public sector technology development institutions (PEG, 2021, p. 32).

Note that most of these recommendations can be viewed as policy interventions to improve the functioning of three services subsectors – real estate, finance, and telecommunications – specifically for industrial development.

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<sup>20</sup> The PVD does allude to using information technology, including AI, to improve delivery of health services, traffic management, and so on, but these are also not discussed with any specificity in either dimension, location or economic activity.

### 3. Labor and Employment

Punjab's agriculture is more highly mechanized than most of the rest of India. Furthermore, yields are higher. As a result, the ratio of agricultural output to employment is higher in Punjab. Correspondingly, the ratio of GVA to employment is lower for industry and services, as compared to the rest of India. The PES (Box 2, p. 188) interprets this a more balanced economy, but it is not clear that there is any virtue in that balance. For 2022-23, based on PLFS data (PES, Table 8, p. 204), Punjab's labor force participation rate was considerably lower than the national average (53.5% vs 57.9%) and its unemployment rate was almost double the national average (6.1% vs 3.2%). Furthermore, the worker-population ratio in the state was much lower than the all-India figure (50.2% vs 56.0%).

These figures also have to be interpreted in the context of substantial in-migration from poorer states such as Uttar Pradesh and Bihar (PES, pp. 201-202), as well as out-migration. According to the 2011 Census, there were 2.4M migrants in Punjab, representing 5.3% of the nation's migrants, more than double Punjab's share of the national population. Many of the migrants were seeking employment, typically as daily casual labor. At the same time, many of those registering with the unemployment bureau are classified as skilled, and there is a high demand for emigration to countries which have substantial diaspora populations. Even countries such as Italy, which did not historically fall in that category, have seen rapidly rising immigrant populations from Punjab, especially from among rural Sikhs. This highlights the mismatch between Punjab's economic structure and its employment opportunities, something that the balanced distribution hides. Note that the difference in unemployment rates between Punjab and the all-India figures is much greater for the rural sector. This may be because of greater labor intensity in much of rural India, or the nature of migration – surplus rural labor in Uttar Pradesh can more easily migrate to Punjab, whereas surplus rural labor in Punjab has to migrate abroad, or shift to skilled jobs in the urban sector, each of which presents greater obstacles than cross-state rural migration for unskilled workers.

Several other specific features of Punjab's employment patterns are worth noting. Punjab has a relatively high employment-output ratio for its service sector, compared to the national average. One can infer from this that Punjab lacks the kind of high productivity service sector employment that would be found in major cities. Arguably, some of this lack might be because Chandigarh, by far the most well-off city in the region, is not included in the statistics for Punjab. On the other hand, Ludhiana, Amritsar, Jalandhar and Patiala are all substantial cities, with industries and universities. A significant amount of service sector employment in Punjab is in the trade and repair segment – the share of this sector in total employment is among the highest for all states in India, at 14.57% (PES, p. 266).

Urbanization in Punjab is slightly higher than the national average, and has been trending upward in a similar fashion. When one examines employment patterns across men and women in rural areas, another striking difference emerges in Punjab. The female worker participation rate in urban Punjab is similar to the national figures (23.2% vs 23.5%, PES, Table 62, p. 324). However, the differences in the rural sector are vast (26.3% vs 40.7%). This is consistent with the mechanized nature of Punjab agriculture, and associated social norms. Women and male youth are not doing agricultural jobs in ways that they would in a more subsistence agricultural situation.

This can also be seen in a much higher unemployment rate for rural females in Punjab, versus the national average (8.7% vs 1.8%). This is suggestive of a situation where neither rural nor urban jobs are being created that fit the individual and social expectations of the population. For example, trade and repair services jobs, even when rural, are unlikely to be filled by women. In many parts of India, middle class women's entry in the labor force has been into white collar-type jobs, which may not be adequately available in Punjab.<sup>21</sup>

### 3.1. Youth Labor Force Participation and Unemployment Rate Patterns: Punjab vs Haryana

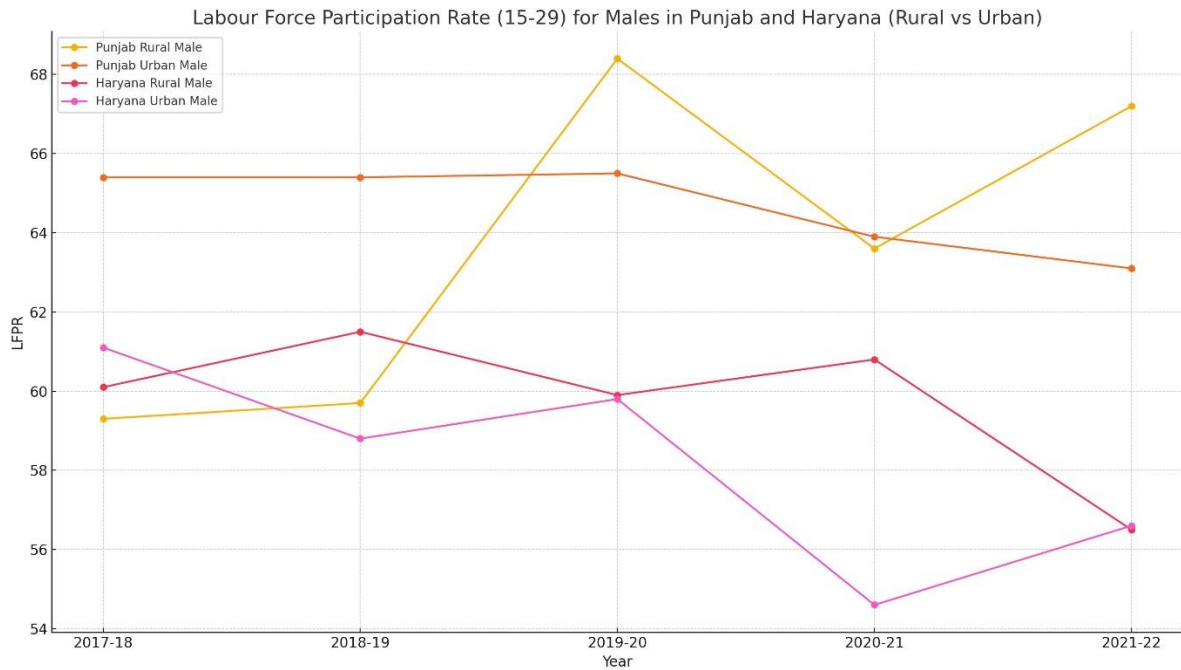
It is also instructive to compare *youth* employment in Punjab with the neighboring state of Haryana. Using Periodic Labour Force Surveys (PLFS) from 2017-18 to 2021-22 (Figure 1), we find that youth labor force participation rates (15-29 years) are higher in Punjab compared to Haryana for males (64% vs 59% overall). There was a declining trend in the labor force participation in urban Punjab in 2020-21 and in 2021-22. However, the labor force participation rate among urban males went up after a steeper fall in Haryana, whereas it recovered faster among rural males in Punjab. This is a puzzle – why did sign of LFPR recovery happen among urban males in Haryana while among rural males in Punjab?

Among female youth (15-29 years), Punjab has a higher LFPR than Haryana (18% vs 12%) and all cohorts (rural or urban, Punjab or Haryana) appear to be showing an uptick in LFPR (Figure 2). Patterns in unemployment among youth are shown for the two states for males in Figure 3 and for females in Figure 4. While rural unemployment is higher in both states for young males, Punjab's rural unemployment depicts a declining trend in the data (with 2021-22 levels at 19.2%) whereas Haryana's youth unemployment (>20%) has increased back to its pre-COVID levels. The overall youth female unemployment rate is high at 30% for Punjab but the rural female unemployment rate has skyrocketed to 33%. This lack of opportunity (i.e. 1 out of 3 young women in Punjab can't find a job despite looking for it) could depress investments in higher education among females in Punjab, we do find suggestive evidence for the same in Section B.

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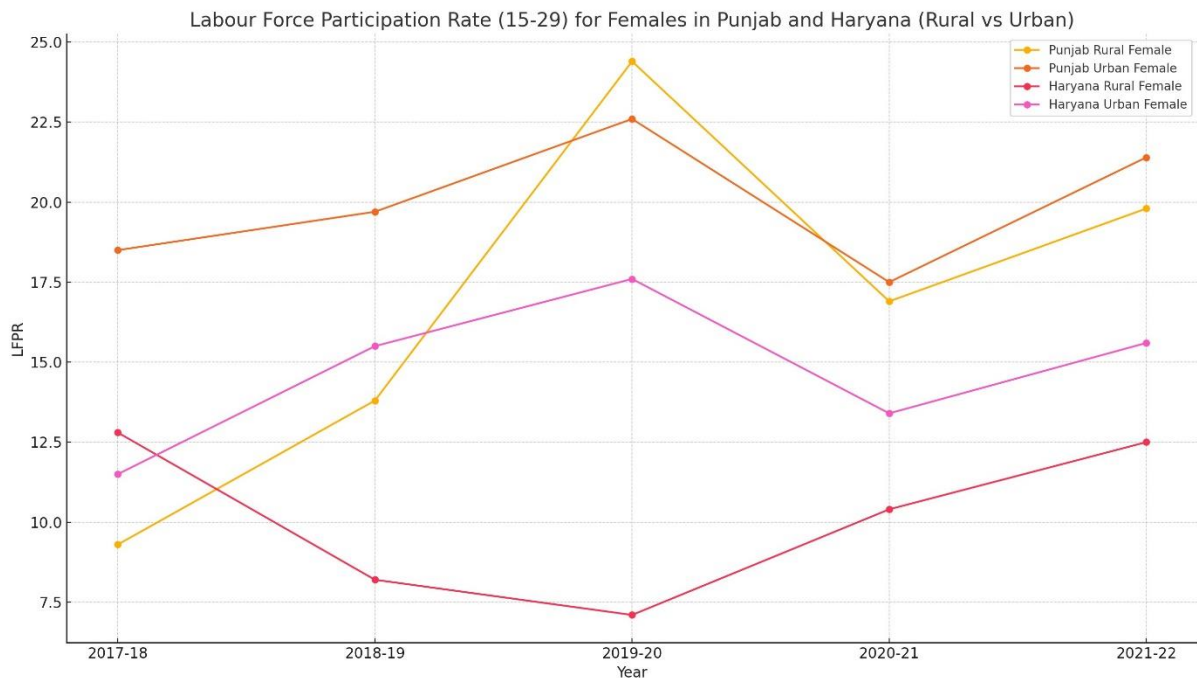
<sup>21</sup> Emigration can be a way to avoid the constraints of social norms, so that working in a factory or other manual occupations is acceptable in a foreign location, but not within one's own social milieu.

**Figure 1 – Labour Force Participation Rate (15-29 years) for Males in Punjab and Haryana (Rural vs Urban).**



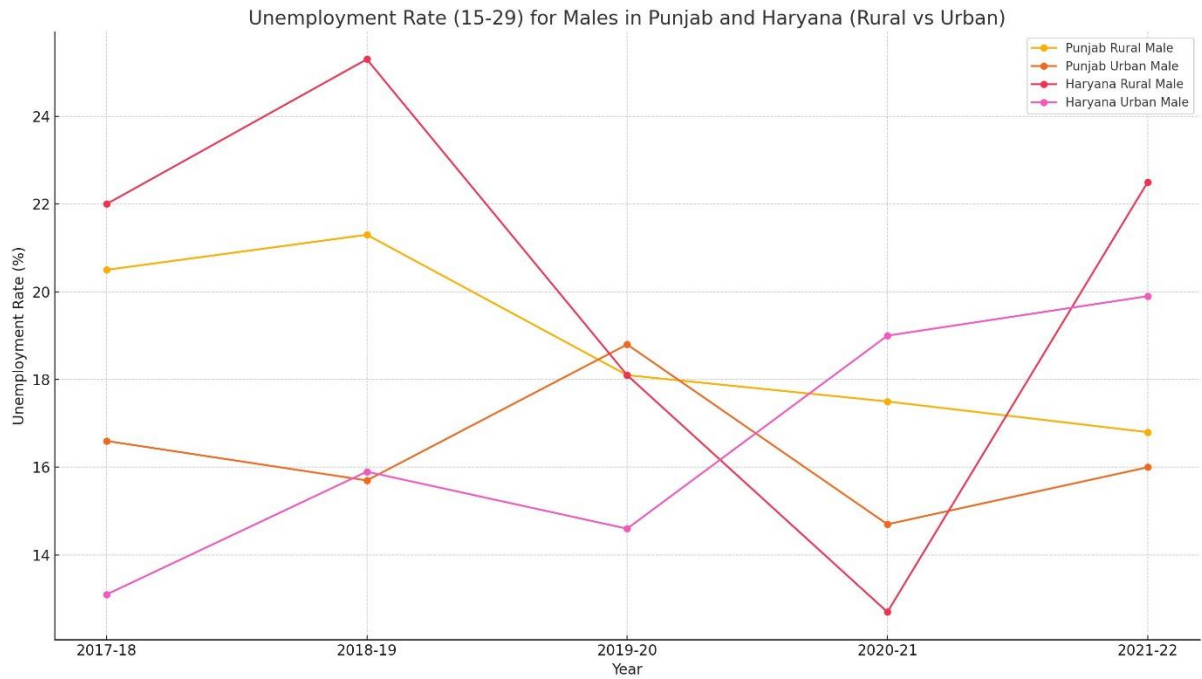
Source: PLFS data.

**Figure 2 – Labour Force Participation Rate (15-29 years) for Females in Punjab and Haryana (Rural vs Urban).**



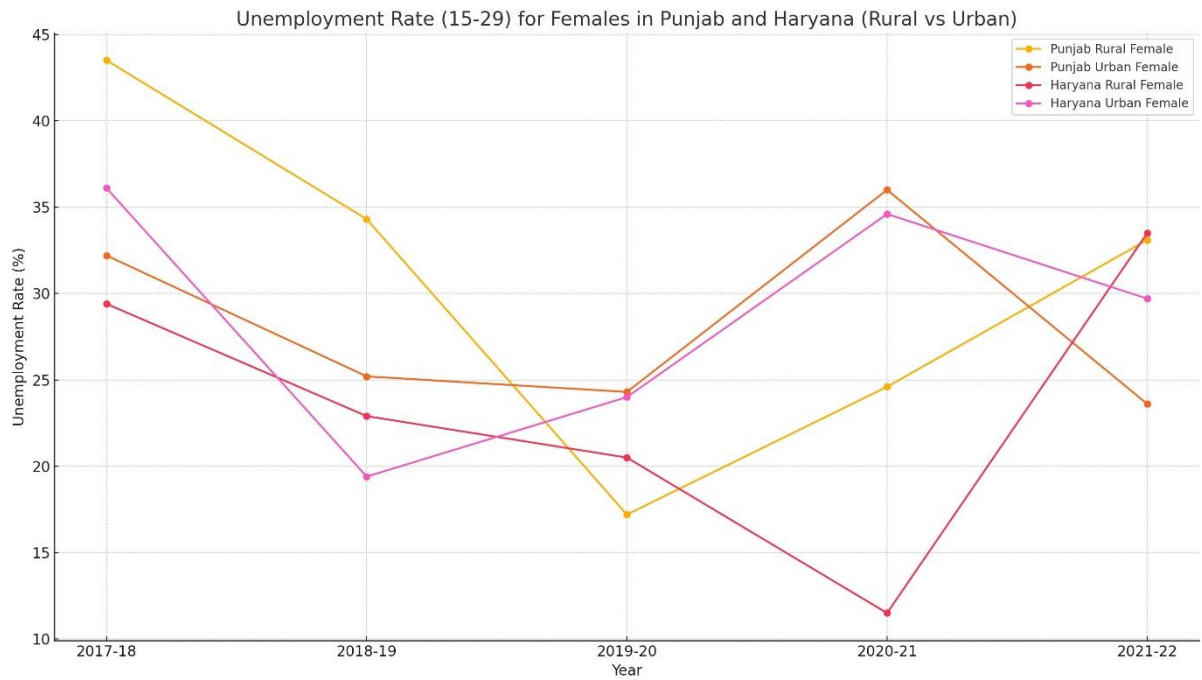
Source: PLFS data.

**Figure 3 - Unemployment Rate (15-29 years) for Males in Punjab and Haryana (Rural vs Urban).**



Source: PLFS data.

**Figure 4 - Unemployment Rate (15-29 years) for Females in Punjab and Haryana (Rural vs Urban).**



Source: PLFS data.

## 4. Education and Health

Education and health services are part of the Other Services category in the state income accounts, but they obviously have some characteristics that are very different. Both sectors involve building human capital, or capabilities more generally. At the level of basic provision of capabilities and wellbeing, such as child nutrition or literacy and numeracy, they are – to use a term coined by Richard Musgrave – merit goods. There is some societal agreement that they should be provided because of their benefits in terms of human flourishing, not on the basis of willingness or ability to pay. Therefore, there is a case for public or publicly-subsidized provision that goes beyond the usual economic case based on goods being non-rival and non-exclusive – the economist’s classic definition of public goods. On the other hand, some aspects of education and health may be more in the category of goods that the market can provide relatively effectively and closer to optimal levels, though even here, there may be an equal access goal for the provision of advanced education and medical care which justifies some public intervention. Punjab suffers from some issues that are common across all of India, but here we focus on its special characteristics.

### 4.1. Education

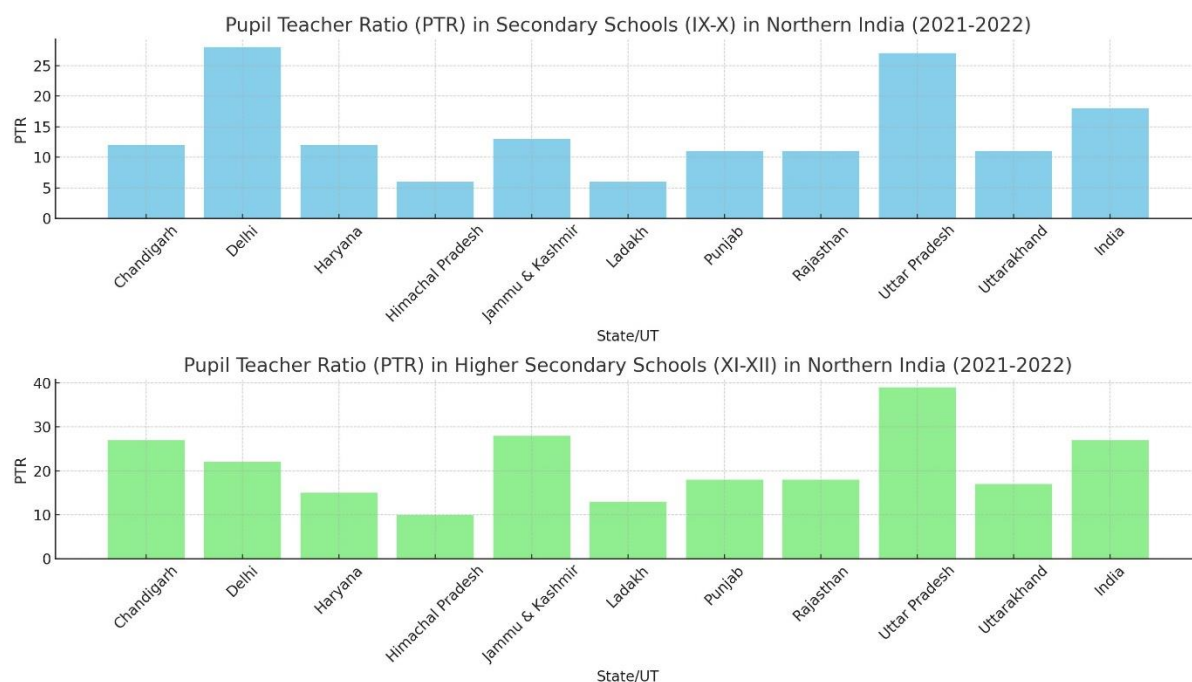
Punjab has a population of slightly over 30 million, with about one fifth of this being of school-going age (5-18 years). Enrollment ratios are high, and dropout rates for primary education are low, but they rise more than for other better-off states in upper primary school. Approximately half of the school-going population attends government schools, which is similar to the national average. The ratio of students in government schools has increased slightly in recent years, arguably because of investments in school infrastructure.<sup>22</sup>

According to national education statistics, Punjab has 27,700 schools, 6.15M enrollments, and 257,000 teachers (UDISE+, 2022). On some indicators, Punjab has been the best performing state in India of late with respect to educational outcomes. For example, the Performance Grading Index 2.0 report (2021-22) released by the Ministry of Education showed that Punjab received the best overall grade based on 73 indicators that were broken down by Learning Outcomes and Quality (LO), Access (A), Infrastructure and Facilities (IF), Equity (E), Governance Processes (GP) and Teacher Education and Training (TE&T). Across LO and IF, Punjab was the best performing state but ranked slightly lower on A, E, GP and TE&T (though still among the good-performing states). Learning outcomes were evaluated on language, mathematics in Classes-3, 5, 8 and 10 as well as in science and social science in Classes 8 and 10.<sup>23</sup> On overall Pupil-Teacher ratio, Punjab appears to do better than average compared to the national average but has a higher Pupil-Teacher ratio than Haryana for Higher Secondary schools. This relative lack of human capital inputs in Punjab could reduce the learning outcomes advantage over time that we observe today for Punjab relative to Haryana.

<sup>22</sup> See <https://www.newindianexpress.com/good-news/2021/Jun/06/punjab-government-runschools-see-growth-of609-lakh-in-enrollment-in-four-years-2312295.html>

<sup>23</sup> By contrast, an earlier study (Brar, 2016) had suggested that, compared to other better-off Indian states, Punjab’s record in the education of its citizens has been weak for decades, as measured by actual skills attained, and by inclusiveness.

**Figure 5 – PTR in Secondary and Higher Secondary Schools across Northern Indian states.**



*Source:* Ministry of Education, Govt. of India. (ON3020)

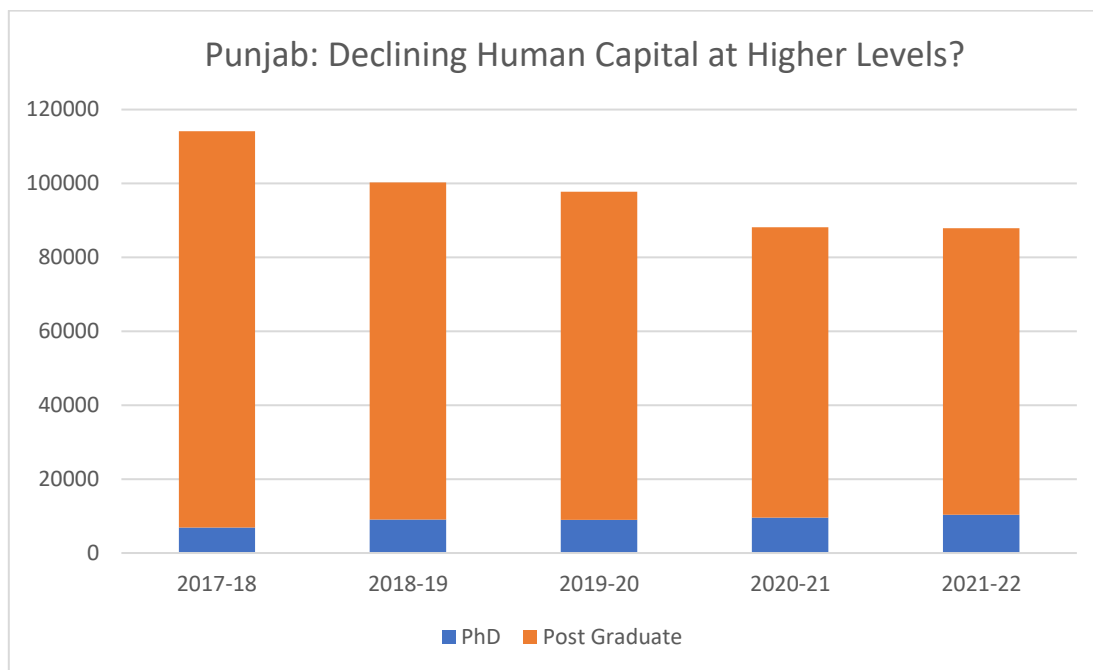
While primary education outcomes are quite good in Punjab, evidence from Muralidharan and Sundararaman (2011) suggests that school teachers should be provided with performance-based incentives for even better outcomes in language, mathematics, and science. This appears to be not happening in Punjab currently. Similarly, school management systems (hiring, performance assessment, promotions, exit) could be re-evaluated for truly understanding the performance of teachers, and then acting on these. There is room for experimentation in a pilot set of representative schools from where wider implications can be drawn. Finally, there is some suggestive evidence from Figure 6, that at for education at higher levels (Post-Graduates), Punjab is showing a decline. This decline is almost entirely driven by female postgraduates. There could be several reasons for this, but we identify three key reasons why this could be happening with an increase in unemployment among females as observed in Section 3.1 – (1) The expected return after a postgraduate degree is not realized, as high-skilled jobs in Punjab are not being created at the rate to offer employability to postgraduates (youth unemployment rates are high as discussed above). (2) There is a decline in the quality of higher educational institutions in Punjab (to add significant value / signal to the student's profile). (3) There is a decline in the number of higher educational institutions available per capita.

Next, we rule out (3). Higher Education institutions have increased by 14 per cent in Punjab from 973 to 1,111 between 2010-11 and 2019-20. From the data in the All India Survey on Higher Education (2021-22), we observe that Punjab is not an outlier among Northern states when it comes to Colleges per Lakh population. In Figure , we see that Punjab has 34 colleges per Lakh population in 2021 or 3.4 for every 10,000. This does not vary much over time suggesting that a decline in the quantity of colleges per capita is not the right explanation for the decline in the number of post-graduates. As of March 2020, there were 32 Universities and 1079 colleges available in Punjab and

the National ranking of Punjab State in terms of Gross Enrolment Ratio is 18<sup>th</sup> (Report of the CAG of India on Performance Audit on Outcomes of Higher Education in Punjab, 2022). However, the availability of faculty in colleges was insufficient – which made the student-faculty ratio 49:1 - more than twice of the recommended 20:1. This contributes to the lack of incremental value-added that postgraduates may also feel. Additionally, the qualifications of the existing faculty were below par. During the CAG audit, it was found that the salary paid to 241 teachers who were appointed as Assistant Professor on contractual basis ranged between ₹ 5,000 and ₹ 21,500 during 2019-20 which was less than the prescribed minimum pay. 81 percent of guest faculty and 36 per cent teachers in the colleges did not have basic qualification as per UGC norms, thereby compromising on the quality of teaching being imparted in these Higher Educational Institutions (HEIs). Further only 1.7 per cent HEIs were accredited with A++/A+ grade. This indicates that the quality of higher education imparted in the state was not satisfactory and needs to be improved through a sustained push towards more qualified faculty members and higher pay for them (especially with a component based on performance). Out of 44 government colleges eligible for accreditation, only 18 per cent received an 'A' grade. 14 per cent colleges were given a 'B++/B+' grade, 20 per cent of the colleges a 'B' grade and 2 per cent received a 'C' grade. 45 per cent of the colleges did not get an accreditation from NAAC (NAAC website). The proliferation of low-quality educational institutions has the potential to create expectations for high-skilled employment, but this does not appear to be happening after graduation as these high-skill jobs (e.g. software engineers) are not available to cater to the supply-side made of graduates.

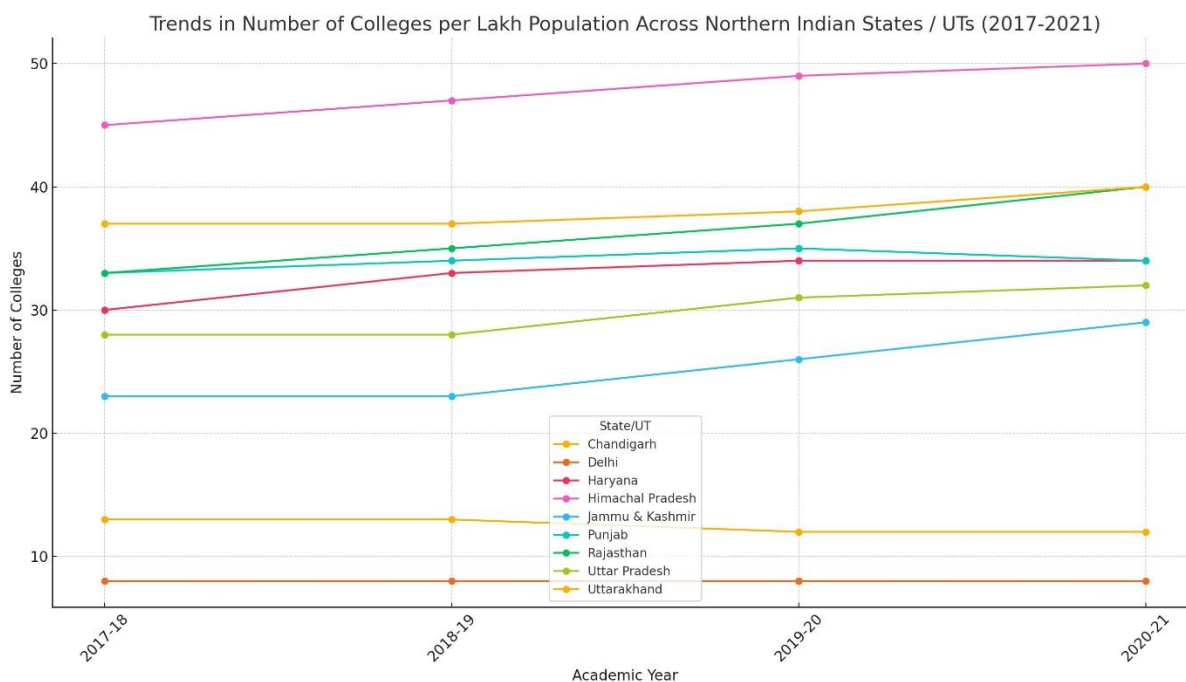
Reason (2) is unlikely to be the case if the postgraduates decline is only happening for females in Punjab. Furthermore, reason (1) appears most likely – there appears to be no data maintained related to students' employment, students' progression to higher studies and students' performance in competitive examinations across colleges. Less than 30% of the colleges were found to have a placement cell in the CAG audit. Focusing on creation of job facilitating mechanisms for students would help in reducing costs of search and matching for potential graduates and postgraduates, apart from improving their NAAC grades.

**Figure 6 – Number of Postgraduates and PhDs in Punjab from 2017-18 to 2021-22.**



Source: All India Survey on Higher Education 2021-22.

**Figure 7 – Trends in Number of Colleges per Lakh Population Across Northern Indian States / UTs (2017-21).**



Source: All India Survey on Higher Education 2021-22.

## 4.2. Health

In many aspects of healthcare and health outcomes, Punjab does considerably better than the national average, though not necessarily better than other better-off states.<sup>24</sup> Life expectancy is just a few years more than the national figures, but Punjab's statistics for prenatal and postnatal care, immunization, malnutrition, and infant and child mortality are much better than those for India as a whole.<sup>25</sup> This situation is a consequence of Punjab's previous decades of prosperity, and reflects the durability of certain kinds of institutional development that occur in parallel with income and output growth. At the same time, the statistics indicate that Punjab's rate of improvement is slowing down, and other states in India are catching up. Additionally, changes in lifestyles and nutrition associated with prosperity are having new, adverse impacts on health. Finally, Punjab's demographic transition is occurring more rapidly than in many other parts of India, so it will have an aging population earlier than some other Indian states. Therefore, there is no basis for complacency in healthcare policy. We consider some of the detailed indicators of possible health issues for Punjab, currently and in the future.

Looking at the evidence from the 4th and 5th rounds of the National Family Health Survey (NFHS), a significant shift in female health outcomes was observed in Punjab between 2015-16 and 2019-21. The proportion of women aged 15 to 49 with a normal BMI (18.5 to 24.9 kg/m<sup>2</sup>) decreased from 56% to 47%. In contrast, Haryana remained relatively stable at a rate of about 52%. This reduction in Punjab was largely due to an increase in the percentage of overweight or obese women (BMI  $\geq$ 25.0 kg/m<sup>2</sup>), which rose from 31% to 40%.

A closer look at specific districts within Punjab reveals substantial increases in overweight female populations: Bathinda saw an increase of 80%, Faridkot 76%, and Jalandhar 52%. Moreover, there was a notable 67.5% surge in the proportion of overweight women within the 15-19 years age group in Punjab, hinting at the concerning trend of teenage obesity in Punjab, especially among females.

The increase in anaemia rates among women and children over the past five years across both Punjab and Haryana is also concerning. In Punjab, the proportion of women with anaemia (haemoglobin levels below 10.9 g/dl) rose by 11%, from 53% in 2015-16 to 59% in 2019-21. The rate of severe anaemia in women—characterized by haemoglobin levels below 7.0 g/dl—tripled, escalating from 0.5% to 3% during the same period. In children below 5 years of age as well, population having anaemia went up from 57% to 70% in these 5 years while severe anaemia went up from 1.3% to 5% (see Figure 9). This suggests a need to create initiatives to combat obesity and anaemia at an early part of the life cycle, since these are likely to create explicit (healthcare costs), implicit costs (say, due to lower work productivity and wages as a result of anaemia for which there is sufficient evidence) and intergenerational costs (since, children of anaemic women may be more likely to be anaemic) for households and workers. Iron fortification of rice, easier access to healthier food, nutritional

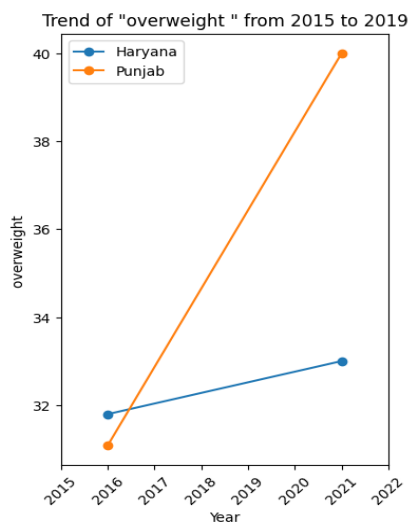
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<sup>24</sup> It should be kept in mind that states with relatively high per capita incomes such as Maharashtra and Karnataka may also have much higher intra-state inequality than Punjab, because they contain very wealthy metros as well as poor rural regions.

<sup>25</sup> See, for example, Arora, Singh and Visaria (2023) and PES (2024, Chapter 6.2).

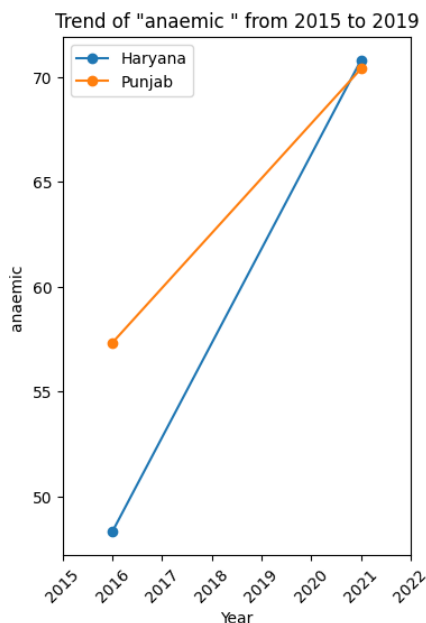
information, with heavier regulation or Pigouvian taxes on obesity-causing foods (such as packaged chips, aerated drinks) should be evaluated.

**Figure 8 - Percentage of women 15-49 years who are overweight or obese (BMI  $\geq 25.0$  kg/m<sup>2</sup>).**



Source: NFHS 4 and 5.

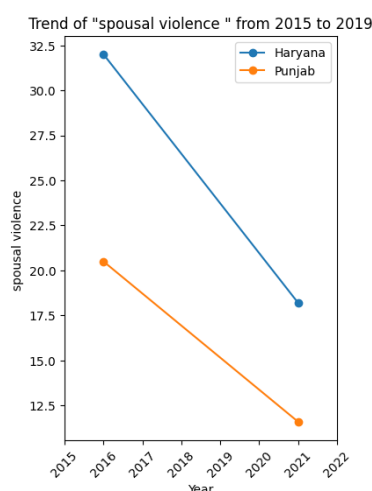
**Figure 9 - Children 6-59 months who are anaemic (<11.0 g/dl)..**



Source: NFHS 4 and 5

On a positive note, both Punjab and Haryana showed a decline in self-reported 'spousal violence' wherein Punjab went down from 20.5% to 11.6% of ever-married women 18-49 years who have ever experienced spousal violence, continuing to do better than Haryana.

**Figure 10 Percentage of ever-married women 18-49 years who have ever experienced spousal violence. Spousal violence is defined as physical and/or sexual violence.**



Source: NFHS 4 and 5

## 5. Public Finances and Governance

Even in an era of markets and liberalization, the role of government remains well-recognized. Governance involves a range of institutions, political, judicial and administrative. Aside from institutional quality, the heart of government functioning is the collection of revenues and allocation of expenditures. Fiscal policy is a vital contributor to economic stability and growth. In a federal system like India's state governments play significant roles, although their functioning is greatly affected by that of the national government, as well as the constraints embodied in the federal structure.

Any state government in India, including that of Punjab can use fiscal policy to affect economic growth and development in the short, medium, and long run. Indeed, a wide range of economically important activities and sectors are the sole or concurrent responsibility of state governments, including health and education. Especially after the reforms of 1991, state governments can devise incentive (or disincentive) systems for influencing private investment in their jurisdictions, although they may be competing with other states in this effort. Even though macroeconomic stability is the purview of the nation's central bank and the central government, state governments do have the ability to borrow within certain limits, and this can play a role in the promoting the stability of their own economies.

In general, however, the structures and actual operation of Indian federalism have tended to give the central government considerable influence over what state governments can do in practice. Recently, several states of India have reported difficulties in the operation of their fiscal policies. Five chief ministers of different states of India (three from southern states and two from north Indian states) staged a protest in New Delhi to highlight how the Union government of India was putting hurdles in their way for fiscal policy. In a historic first, the government of Kerala filed a case in the Supreme Court of India to challenge sudden new borrowing restrictions imposed by the

Union government. While the Supreme Court denied interim relief to the state government in this case, the underlying issue is that the constitution assigns wide discretionary powers to the Union government, within a framework where revenue assignments also favor the center. Center-state fiscal transfers, in principle meant to give states adequate fiscal resources, are also subject to this discretionary power.<sup>26</sup> With these kinds of structures, the concept of cooperative federalism does not have a firm footing in practice.

The structural centralization of revenue assignments has combined with particular historical circumstances to impact Punjab's public finances particularly negatively. As a result, the state's fiscal policy has been dysfunctional for decades. Punjab suffered from severe political and social turmoil from the early 1980s through the mid-1990s. During that decade-and-a-half, Punjab remained under President's rule for much of the time. There was a significant shift of public expenditure from developmental purposes to the law and order machinery, which itself operated without checks and balances. A revenue surplus turned into a revenue deficit, which has persisted. The revenue collection machinery also collapsed, and state government borrowing rose dramatically. The gap between revenue receipts and revenue expenditure was Rs. 544 crores in 1990-91 and has risen consistently, so that the revenue deficit was Rs. 24,588 crores in 2022-23 (RBI, 2023). After adjusting for inflation, this represents a five-fold increase in the revenue deficit. This section mainly focuses on examining the nature and drivers of Punjab's public finances, and the sources and extent of the challenges to fiscal policy, as well as possible corrective measures. We also briefly examine some ways of assessing the quality of governance in the state, since a decline in governance quality has arguably accompanied the state's fiscal problems.

### 5.1. Fiscal Situation of Punjab

The story of fiscal dysfunction is apparent when we look at the rising outstanding liabilities. At the beginning of the century, Punjab government had an outstanding debt of Rs. 34,063 crores, which was 38.97 per cent of the GSDP. The debt of the state quickly increased, reaching Rs. 47,548 crores in 2004-05. The debt-GSDP ratio peaked at 49.10 per cent. Subsequently, the debt-GSDP ratio fell, reaching a low of 30.78 per cent in 2013-14. The debt-GSDP ratio then resumed its increase, reaching 49.46 per cent in 2021-22.<sup>27</sup> According to Reserve Bank of India (RBI) statistics, the Punjab government has a debt burden of 47.6% of GSDP, which is more than Rs. 3.51 lakh crores, as of March 2024. If we include pending liabilities, non-guarantee loans and expected government borrowings in the current fiscal year (2024-25), the total accumulated debt by end-March 2025 will exceed Rs. 4 lakh crores. Compared with other major states of India, Punjab has the highest debt-GSDP ratio. Each government in

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<sup>26</sup> The Finance Commission, appointed every five years to determine center-state revenue sharing, is independent, but only makes recommendations. Precedent and political bargaining both affect the nature of recommendations and the extent to which they are implemented. Each state also appoints its own finance commission to determine transfers to local governments – the report of the Punjab Finance Commission is discussed in section 5.2.

<sup>27</sup> One reason was in 2006-07 a special term loan of Rs 3772 crores was waived by the Government of India. Another reason was implementation of the Punjab Fiscal Responsibility and Financial Management Act 2003. There was also a slight decline in interest rates. A jump in the debt-GDP ratio again occurred in 2016-17 when a Rs. 30,000 crore discrepancy in receiving advance payments to procure food grains for the PDS was added to the debt.

the state, during its time in office, has borrowed in a profligate manner. The state debt rose 22.85% and 40.80% in 2015-16 and 2016-17 respectively, though this was partly due to exceptional circumstances (footnote 24). Subsequently, the state debt has been rising at an annual average rate of more than 9%. However, most of the new borrowing has to be used to servicing the existing debt. In 2021-22, the Government of Punjab paid Rs. 32,468 crores (interest payments Rs. 18,210 crores + repayment of principal Rs. 14,258 crores) for servicing the debt (see Table 3 as well). The net availability of borrowed funds was only Rs. 2,734 crores (7.8% of total borrowings). In other words, 92.2% of new borrowing went to debt service. In effect, the Punjab government is in a debt trap, which is a huge drag on the revival of economic growth in the state.

**Table 3: Rising Share of Committed Expenditure (Rs. Crore)<sup>28</sup>**

Year	Main Components of Revenue Expenditure					Total
	Salaries/Wages	Pensions/Retrial Benefits	Interest Payments	Power Subsidy	Other	
2001-02	4133	1035	3178	448	3916	12710
%	32.5	8.1	25.0	3.5	30.8	100.0
2011-12	12064	5657	6280	3200	5844	33045
%	36.5	17.1	19.0	9.7	17.7	100.0
2016-17	21729	8773	11642	5601	7551	52296
%	39.3	15.9	21.1	10.1	13.7	100.0
2020-21 PA	24187	14730	18909	14516	24141	96462
%	25.1	15.3	19.6	15.0	25.0	100.0
2022-23 BE	31172	15146	20122	15846	25647	107932
%	28.9	14.0	18.6	14.7	23.8	100.0

Source: (RBI, 2023) State Finances-A Study of Budgets, Accessed from [Reserve Bank of India - State Finances : A Study of Budgets \(rbi.org.in\)](https://www.rbi.org.in/State_Finances_A_Study_of_Budgets)

In terms of ratios, the revenue deficit-GSDP ratio in 2018-19 was 2.56% and rose to 3.23% in 2020-21. In 2022-23, the revenue realization so far is 63 per cent of the target, which suggests that Punjab's revenue deficit-GSDP will increase further. If we include past liabilities, the promised employment generation through government hiring and promised transfer payments and subsidies, the government will increase expenditure without raising the desired level of revenue.

What are the factors that have contributed to Punjab's precarious public finances? An important reason has been the low tax capacity of the state. The own tax revenue-GSDP ratio has remained low, fluctuating from 6.56 per cent in 2001-02 to 8.27 per cent in 2004-05 and down to 5.59 in 2019-20. It has improved thereafter, reaching 7.24 per cent in 2022-23. One reason for the low tax capacity is that Punjab is heavily agricultural, and that sector is exempted from direct taxes. Another reason is tax

<sup>28</sup> See also Table 3.2 in the Punjab Finance Commission report (GoP, 2022), which documents the declining share of developmental expenditure in the state budget. Figure 4.13 in the same document displays the increasing share of committed expenditure over just the last decade.

evasion, where the institutional quality and capacity of the government matters. Surprisingly, the implementation of GST has not improved the own tax revenue situation of the state (Table 4). The revenue problems go beyond tax collection. Indeed, there has been a sharp decline in the non-tax revenue-GSDP ratio, from 5 per cent in 2001-02 to less than one per cent in 2022-23.

**Table 4: Structure of Own Tax Receipts of Punjab**

Type of Tax	2001-02	2011-12	2016-17	2020-21	2021-22 PA	2022- 23BE
Land Revenue	8.58	25.65	67.82	67.63	83.54	150.30
%	0.18	0.13	0.24	0.23	0.22	0.33
Stamp Duty and Registration	444.31	3079.13	2043.61	2470.33	3308.35	3600.00
%	9.21	16.34	7.37	8.22	8.36	7.90
GST				11818.93	15541.59	20550.00
%				39.33	41.64	45.08
Sales Tax/VAT	2063.86	10754.70	16930.98	5372.02	6869.31	6250.00
%	42.80	57.08	61.02	17.88	18.40	13.71
Central Sales Tax	620.47	416.97	655.73			
%	12.87	2.21	2.36			
Excise Duty	1350.06	2754.60	4406.01	6164.32	6157.28	9647.87
%	27.99	14.62	15.88	20.51	16.60	21.16
Vehicle Tax	318.44	850.06	1548.74	1472.13		2575.00
%	6.60	4.51	5.58	4.90		5.65
Electricity Duty	9.19	928.28	1993.01	2541.84	5366.78	2550.00
%	0.19	4.93	7.18	8.46	14.38	5.59
Others*	7.62	32.61	100.78	145.63		265.00
%	0.16	0.17	0.36	0.48		0.58
Total	4822.53	18841.00	27746.68	30052.83	37226.85	45588.17
%	100.00	100.00	100.00	100.00	100.00	100.00
GST/VAT/CVAT	2684	11172	17587	17191	22411	26800
%	55.66	59.29	63.38	57.20	60.04	58.79

Source: (RBI, 2023) State Finances-A Study of Budgets, Accessed from [Reserve Bank of India - State Finances : A Study of Budgets \(rbi.org.in\)](https://www.rbi.org.in)

As noted earlier, the origins of the ballooning state government debt lie in the 1980s turmoil in Punjab. A revenue deficit first emerged in 1984-85, and became chronic in 1987-88. Not only was economic activity disrupted, but many government institutions, including those for revenue collection, became dysfunctional. Arguably, the creation of a security apparatus has led to vested interests that make reconfiguring expenditure back toward developmental purposes difficult. For example, attempts to withdraw or reduce security cover were appealed to the Punjab and Haryana High Court. The Punjab government continues to recruit more police personnel every year to strengthen the security apparatus, and its spending on police is among the highest of all major states (Table 5, and N. Singh, 2023).

**Table 5: Trends in Budgetary Expenditure in Punjab (Figures are in %)**

Year	Social Services			Economic Services				General Services		
	Education	Health	Agri and AAs	Irrigation and FC	Energy and Power	Industry and Minerals	Transport and Comm.	Pensions	Interest Payment	Police
1981-82	23.26	9.11	9.80	6.81	0.91	12.02	11.93	2.61	6.09	
1985-86	20.32	7.19	5.98	6.88	0.93	7.92	na	na	na	
1991-92	13.55	4.32	4.05	3.16	32.84	0.31	4.11	8.59	3.40	6.06
2001-02	14.42	4.86	3.31	2.56	3.55	0.18	3.19	25.00	8.14	6.60
2011-12	16.01	4.69	2.61	3.0	9.69	0.16	2.10	19.00	17.12	8.64
2016-17	15.94	5.19	10.34	2.35	2.92	0.11	0.91	21.05	15.87	8.58
2020-21	13.85	4.36	9.64	1.17	2.54	2.46	1.02	21.05	15.86	7.12
2021-22 RE	13.45	4.61	1.46	1.08	4.28	2.48	0.82	18.70	13.86	9.05

Source: (RBI, 2023) State Finances-A Study of Budgets, Accessed from [Reserve Bank of India - State Finances : A Study of Budgets \(rbi.org.in\)](https://www.rbi.org.in)

How can Punjab come out of the double trap of slow growth and increasing debt? The state government has to take concerted steps. First, it can modify institutional arrangements to strengthen the internal policy-making process to identify sources of tax evasion. Proper auditing of goods and services entering the state, and of the wholesalers, and retailers involved, will help to collect the legitimate revenue owed from the GST. The same logic applies to non-tax revenue, the share of which has declined from 30% in 2001-02 to 6% in 2021-22. These revenues include user charges for services such as police and use of government facilities, and institutional precedents and mechanisms exist for collecting these, and so there is scope for restoring such revenues. New service charges are also possible, and unnecessary subsidies can be eliminated, such as free electricity for income tax paying households if they consume below some level. Second, as the economy is transitioning from capital asset-based income to knowledge-based income, the state government should devise new taxes to raise revenue. Third, there is a general need to rationalize subsidies and reorient expenditure to support a faster transition to a knowledge-based economy.<sup>29</sup>

Whatever the Punjab state government does, its accumulated debt will continue to remain the biggest constraint. Is there some way to reduce the debt? Clearly, state government revenue has to be increased, and expenditure reoriented away from the security apparatus toward investment in future growth.<sup>30</sup> Among other options,

<sup>29</sup> Various granular reforms in expenditure control and revenue administration were suggested in PEG (2020). All such reforms are useful, but will be insufficient by themselves, because of the high debt service cost. The same applies to any realistic increase in devolution through the Finance Commission, as proposed in PEG (2021).

<sup>30</sup> The PEG (2021) report highlighted the analysis of the Fifteenth Finance Commission (FFC), which submitted its full report in February 2022, regarding lack of public investment in the state. To quote PEG (2021), "The Fifteenth Finance Commission, ... has also drawn pointed attention to the fiscal situation in

government could set up a debt relief fund (DRF) and issue an appeal to all concerned citizens, as well as Punjabi emigrés, to voluntarily deposit money in the DRF, possibly with some tax advantages. Another option could be rescheduling the debt by issuing new bonds. The national government has used such devices in the past, and the state would need approval from the center and the RBI, but all options need to be considered.

Much more directly, Punjab can argue that the services it provides to the rest of the country, in the form of national security – including food security – deserve to be explicitly valued and compensated. A moratorium on state debt, or targeted investment grants, could be ways of implementing compensation. The national government can also pay for Punjabi farmers to switch out of the increasingly unremunerative and destructive wheat-paddy rotation. On its own, Punjab will have difficulty in fixing its public finances in any meaningful way, because of the double trap it is in.

## 5.2. Local Governments

State finance commissions are charged with making recommendations for transfers from the state government to local governments within that state. In addition, because of the limitations on such state-local devolution, the central finance commission also makes recommendations for transfers from the Union government to local governments in each state. In the case of Punjab, per capita grants to rural local governments by the 15<sup>th</sup> Finance Commission were Rs. 3124 (slightly more than the average for India), and for urban local governments they were Rs. 2661, lower than the average for the country). In aggregate, the grants to local governments in Punjab were Rs. 8174 crores.<sup>31</sup> However, these figures are all five-year aggregates, so the annual average grants are only one-fifth of these amounts. The annual per capita grants are about Rs. 600, while the annual total is less than 1% of the total annual budget of the state.

The 5<sup>th</sup> Punjab Finance Commission, which made recommendations for 2016-2021, proposed devolution by the state government to local governments of Rs. 7274 crores over that entire period, based on a formula of 4% of net own-tax revenue (NOTR), but the actual devolution was almost zero (GoP, 2022, Table 6.2). This complete disregard of devolution by the state government was a pattern that began with the 3<sup>rd</sup> finance commission, which made recommendations for the period beginning 2006-07. The state government has been making compensatory payments outside the state finance commission framework, but the latest report (GoP, 2022) argues that these payments are not well-structured. Overall, the quality of urban local governments' expenditures is poor, and their incentives on the revenue side are also badly structured in the current system.

Averaging over 2013-18, per capita expenditure by rural local governments in Punjab was only Rs. 341 (GoP, 2022, Table 7.3), which was comparable to some of India's poorest states, and much lower than an average of Rs. 2083 for 13 major states. Most of Punjab's rural local government expenditure was from own revenues, whereas other states achieved higher expenditure through devolved funds (Table 7.4). Similarly,

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Punjab which it has described as “extremely precarious” with an unsustainable debt pattern in recent years. The FFC drew attention to the fact that Punjab's capital expenditure in the budget is only 0.7 per cent of GSDP compared with 2.6 per cent for all states. In fact, it is the lowest of any state.”

<sup>31</sup> All these numbers are taken from GoP (2022), Table 5.3, p. 94.

for urban local governments, Punjab's per capita revenue is lower than the average for India, and those governments rely much more on their own funds, with very little devolution from the state government (Figures 8.4 to 8.7). However, own tax revenue is not particularly strong, and there is a case for strengthening the urban property tax regime (PEG, 2020), but that will require improving institutional capacity at the local level.<sup>32</sup>

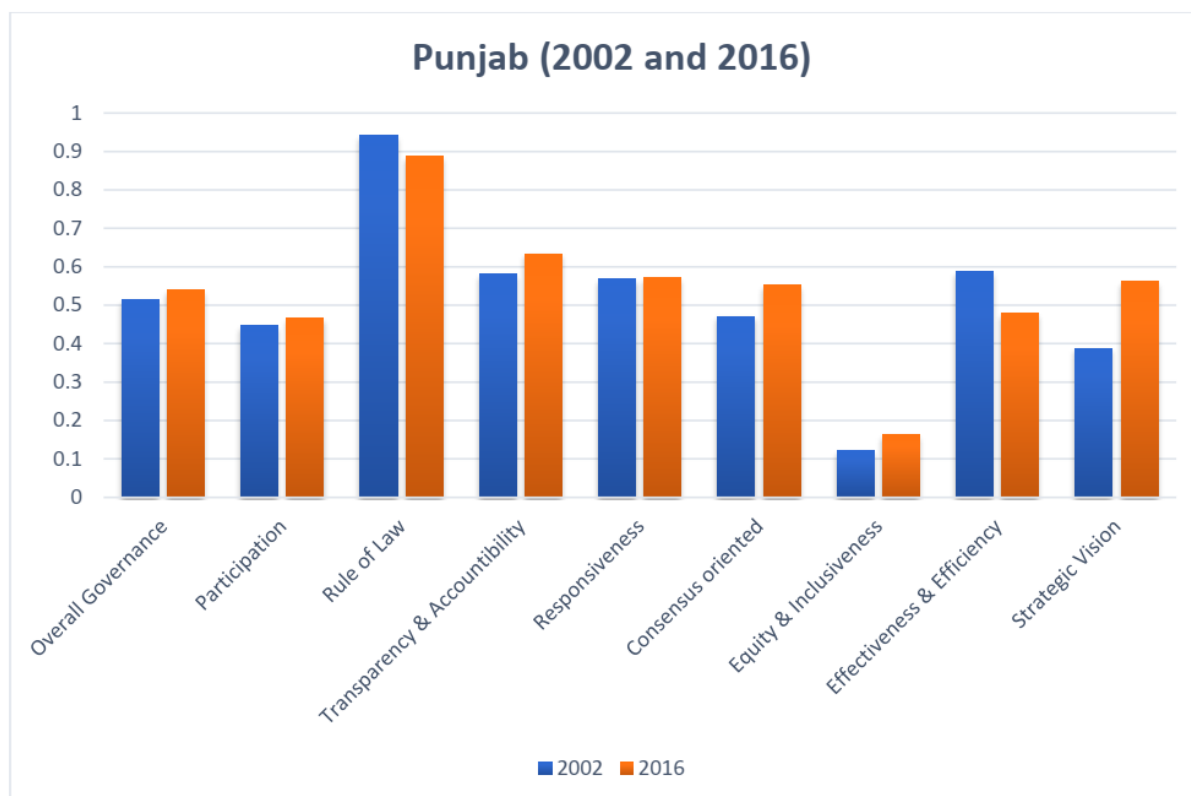
To some extent, the problems of underfunding of local governments are a nationwide issue, but Punjab seems to do particularly poorly on this front. Its rank is not necessarily the lowest, but in particular, other states with stronger recent economic growth records do better. The per capita capital expenditure of the state's two largest municipal corporations (Ludhiana and Amritsar) is also relatively low (Table 8.13), suggesting that these cities are doing less to prepare for future possible growth. Of course, comparisons across states, or any kind of counterfactual, are fraught with difficulties because of the heterogeneity of India, and the limited information on the functioning of urban local governments.

### 5.3. Governance – Focus on Efficiency

The United Nations Development Program (UNDP) has suggested 8 major characteristics of good governance. These are (a) participation (b) rule of law (c) transparency (d) responsiveness (e) equity and inclusiveness (f) accountability (g) effectiveness and efficiency (h) consensus. Sodhi (2024) explored different aspects of governance for Punjab and attempted an index of its governance performance (based on the 8 principles mentioned above). Sodhi finds that apart from (g) effectiveness and efficiency, Punjab's performance in 2016 has generally improved relative to 2002, or even if there has been a slight decrease, the overall levels are significantly higher than other states (e.g. on rule of law). This suggests that where Punjab needs to improve are on the components of effectiveness and efficiency – these include metrics, such as, power, urban development, transport and communication, irrigation and fiscal performance.

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<sup>32</sup> Despite a decade having passed since the introduction of a modern property tax system (replacing an old "house tax"), the state has done little to make it effective, even forcing reductions in rates in the tax's early days in 2013-14.

**Figure 11 – Punjab Governance Index over time (2002-2016).**

Sub-dimensions	Indicators
• Participation (SDI 1)	Women Participation
• Rule Of Law (SDI 2)	Incidence and rate of crime, Victims of rape and murder
• Transparency and Accountability (SDI 3)	Corruption cases, Crimes by police
• Responsiveness (SDI 4)	Pendency of cases in courts and with police, Vacancies in courts and police
• Consensus (SDI 5)	Inclusion in state assembly elections, SC/ST representation
• Equity and Inclusiveness (SDI 6)	Inclusion in education/welfare, PDS, regional development
• Effectiveness And Efficiency (SDI 7)	State of power, urban development, transport/communication, fiscal performance, irrigation
• Strategic Vision (SDI 8)	Human resource development, social/family welfare, environment & sustainability

Source: Sodhi (2024).

## 6. Policy Discussion

As noted earlier, Punjab's governance institutions eroded during a long period of political and social unrest, and many of them have been slow to recover. Recent efforts to improve governance have included digital access to citizen services and improving ease of doing business. Punjab's high ranking in the specific dimension of starting a business – one of eight used to construct the overall ease-of-doing business index – is

based on its single-window clearance process for new businesses. In 2019, existing efforts at improved governance were embedded in a consultative process, the Punjab State Advisory Council (PSAC), but it made slow progress, until being overtaken by the pandemic in early 2020. The PSAC attempted a broader scope of policy action, simultaneously examining several aspects of the state economy and economic reform. In particular it recognized the link between the condition of Punjab's public finances and the quality of the state's governance institutions, at a granular level. Previously, such integrated approaches had been embodied in traditional planning exercises. Academics working outside government had also been an important source of such integrated analyses (e.g., CDEIS, 2012). More often, government policy making that brings in experts for consultation proceeds through specialized committees, as in the case of crop diversification. As we have argued, narrow efforts at reform face obstacles because of the interlocking constraints that are very specific to Punjab.

The PSAC was replaced by a "Group of Experts," which produced two reports (PEG, 2020, 2021), with numerous granular level recommendations, some of which were discussed in the sections on agriculture and industry. The reports covered eight areas: health, agriculture, industry, skill development, social sectors, public finances, digitization and start-ups. There were some tie-ins across these areas. For example, digitization included governance – with implications for public finances – as well as goals of improving access to finance for smaller firms, and making agricultural value chains more efficient. For the health sector, recommendations such as filling vacancies in the public health system were inevitably tied to strained public finances, but also to shortages of personnel due to inadequate higher education institutions and to emigration. On the health front, Punjab faces challenges of an aging population, lifestyle diseases, and possible novel infections in the future. Public expenditures on healthcare in Punjab are low, and the state's weak record in health as well as in higher education can be traced to a combination of lack of fiscal resources and weak institutions.

As discussed earlier in the paper, the first PEG report (2020) included technical reforms for agriculture in matters such as seeds and irrigation, but these were lost in the political alarm raised by recommendations for reducing subsidies or replacing them with cash transfers, reforming land markets, and marketing reforms. In this situation, the resources needed for making systemic changes arguably have to come from the national government. While a major reform of the national food procurement policy has been announced – offering farmers unlimited purchases of maize and pulses at MSPs if they switch from wheat or paddy, this may not be enough to incentivize large scale changes in crop choices. Additional payments may be required, which could be justified politically as compensation for past contributions to national food security. Those payments could be earmarked for upgraded infrastructure for marketing or processing the crops to which farmers switch. The CDEIS (2020) report explicitly recommended this conceptual approach and framing, namely that the national government pay the state for its contributions to national food security. On a less ambitious scale, the first PEG report (2020) argued that the Food Corporation of India (FCI) should bear some of the costs of procurement, which were straining the state government budget.<sup>33</sup> Measures like these can be fiscally helpful in the short run, as part of a transition away from the current agricultural system. The larger scale CDEIS proposal, for what it

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<sup>33</sup> The final report, PEG (2021) modified this suggestion to a withdrawal of the state government from procurement, which would shift the cost to the FCI.

termed a Special Investment Deficiency Package (SIDP), would have supplemented the state government budget by about 20 percent a year for five years. Coincidentally, the current gap between the state government's receipts and expenditures is a little less than 20 percent of expenditures, with borrowing covering the gap.<sup>34</sup>

At a basic level, Punjab's long run economic growth will require a number of policy reforms to support industrial transformation. Business owners require ease of doing business at a very granular level, and numerous barriers remain beyond the initial step of government clearance: inspectors, enforcing contracts, access to finance, finding skilled workers, and access to markets. In these areas, Punjab does worse than many other states, especially in the cost of electric power and the structure of taxes.

In addition to attending to current interlinked obstacles to economic growth, as discussed earlier in the paper, future sources of growth have to be envisioned. The Punjab Vision Document 2047 provides some general perspectives, but, as indicated earlier, lacks specific analysis. As economic growth becomes increasingly knowledge-intensive, Punjab's economic structure appears more and more out of date. Much of the Punjab economy, in agriculture, manufacturing and services, involves activities and firms that are low productivity, low wage, and input intensive. In particular, the agriculture sector has been relatively high productivity compared to other Indian states, but because most of its output goes to national food procurement, there is very low value added beyond the farm gate. Many of Punjab's subsectors in manufacturing and services are also low in value addition.

According to a relatively new composite innovation index, developed by NITI Aayog, Punjab is not doing too badly. It ranks 6<sup>th</sup> among 17 major states, with an index value of 15.35 in 2021 – in a range which goes from 10.97 to 18.01. Delhi and Chandigarh have much higher index values, each about 27, and Haryana, while its own index is only slightly higher than that of Punjab, borders both cities. With Delhi being a much larger city than Chandigarh, one might argue that Punjab's relative position is worse than the index values suggest. It must also be recognized that the innovation index is based on very broad and diverse criteria. Punjab does relatively better on input measures than on output measures. Perhaps the most striking relative deficiency is in investment in science, technology, and the environment. Punjab spends as little as 0.39 per cent of its GSDP in this category, much less than many other states. Other areas in which Punjab is weak are knowledge-intensive employment, involvement of NGOs in knowledge-intensive activities and skill development training. The state's lack of financial resources is a pervasive problem. For example, the PEG report (2020) recommended a "skills university," and this was reported to be under construction a year later, namely, the Sri Guru Gobind Singh Skill Institute. But in 2022, construction had been halted because of a lack of funds. The parent institution, the IK Gujral Punjab Technical University, is itself an umbrella for hundreds of colleges of varying quality. Another barrier to the delivery of quality education at all levels in the state could be a lack of organizational incentives for performance, both at the level of individual employees, and at the institutional level, through regulatory mechanisms such as accreditation. Skill development efforts also run into problems because there is little

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<sup>34</sup> The increases in Punjab's share of devolution recommended by the FFC were far short of the scale calculated by the CDEIS report, and that scale requires careful attention to how it is framed, to achieve political acceptability. The history of Punjab as a contributor to national food security, and the accumulated costs associated with that, suggest a possible narrative. Such a program would likely need to fall outside the purview of the Finance Commission.

effective participation from industry, which, because of its structure, itself lacks adequate competitive pressure and financial resources to drive skilling or training programs. By contrast, an example of what can be accomplished, is the success of Indian software firms that served foreign markets, and developed internal training programs for university graduates using international certification standards.<sup>35</sup>

If, as seems to emerge from the Punjab Vision Document 2047, the goal is to transform the Punjab economy into some form of knowledge economy, the state government and private economic actors will have to consider how to effectively increase expenditure on in-house R&D, and increase the level of involvement of science and technology workers. While science and technology workers can potentially be hired from elsewhere, there is probably a case for ramping up local production – universities and colleges in Punjab would have to improve their educational capabilities in key areas emphasized in the PVD 2047. This will also require significant investments in building organizational infrastructure and capabilities in these higher education institutions.

Within the government, annual budget formulation could include a new budgetary head, namely, investment in R&D. An immediate, short run target for R&D could be 1% of GSDP, to be raised to 2% in the medium term, with a final target of the level of the East Asian tigers, at around 3%.<sup>36</sup> The state government would also need to find ways of enabling the improvement of business-university linkages. Additionally, the R&D budget could focus more on risky, but short-gestation projects for specific technologies. Both the state government and business enterprises can seek stronger linkage with the diaspora, as has happened in the case of software hubs in southern India. Spillover effects from the knowledge gained from work experience in developed countries can be substantial.<sup>37</sup> Local spillover effects from creating industrial clusters, but built around universities in the case of knowledge industries, can also be substantial, as the experience of other innovation regions, from Silicon Valley to Bengaluru, illustrates.

## 7. Conclusion

Punjab is locked-in to an economic structure that is subject to diminishing returns, technological stagnation, and environmental degradation. The core of this structure is a national food procurement policy that encourages farmers to grow wheat and rice in a tight rotation, using water, electricity and fertilizer that are subsidized or even given away. The cost of the subsidies distorts public finances, and the state government has been accumulating debt at unsustainable rates. Modifying the agricultural system with support from the central government has to be prime component of any reform, and one of the keys to unraveling the current inefficient equilibrium. Giving farmers alternative, less-water-intensive options for crops that can be grown for procurement at MSPs is an important step forward, but likely not enough

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<sup>35</sup> In a different context, the Innovation Mission Punjab, created as a recommendation of the PEG, seems to have developed effective institutional mechanisms for imparting the eclectic range of skills required for successful entrepreneurship. But here one is not providing industrial-scale skills to workers, nor technical skills, but rather a combination of other higher-level skills to owners of firms.

<sup>36</sup> One has to be careful in terms of implementing such a recommendation – the definition and quality of expenditures in this category can vary greatly, and some states in India have figures much higher than 3% of GSDP for the broader science, technology and environment category.

<sup>37</sup> Green energy is an obviously important area for innovation in various technologies.

on its own. Farmers may need larger incentives for switching to occur at a large enough scale. If the central government provides a compensation fund that can be used for investments to promote switching, such as for infrastructure and marketing for alternative crops, that could begin to solve the problem, especially since the state budget cannot support such investments in its current situation.

Transforming the industrial and service sectors also has to be part of the solution to Punjab's stagnation. The state has too many subsectors that are not very productive, partly because of lack of scale, but also because they are not geared toward quality and high value-added products or market segments. There is ample scope for upgrading various subsectors, but investments in higher education and in urban infrastructure will be required, especially for more knowledge-intensive industries and services. Strengthening local governments financially and institutionally seems to be a necessary condition for creating high-value-added clusters. In many areas, specific, granular reforms are also needed, but those cannot succeed without fundamental changes in Punjab's economic structure: they will be "putting a band-aid on a corpse."<sup>38</sup>

Lack of desirable employment, social problems such as drug and alcohol use, and the over-politicization of religion all seem to stem from Punjab's lock-in to the agricultural system created by the green revolution and an outdated national food procurement policy. The destruction of the groundwater table in Punjab, and potential desertification, will destabilize the state further, and have enormous national consequences. The original green revolution came from a national need for food security, and cooperation between the central and state governments. At the time, there was greater political alignment between the center and most state governments. The current political system may not be as well-equipped to achieve a new political bargain which replaces the one that originally made the green revolution system effective. However, realizing that the economic, social and environmental situation in Punjab is a matter of national concern is the first step in working towards a new bargain.

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<sup>38</sup> This phrase is memorably used by Banerjee et al (2008).

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