# Inequality Dynamics amidst Rapid Growth: A Post Liberalization Indian Perspective[1]

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# Contents

# I.    Introduction

The Indian growth story has been characterized by reforms (Ahluwalia M. S., 2002) that were initiated in 1990s and have been followed up by a series of economic reforms over the years. The economic growth strategy that India has been pursuing post liberalization in 1990[2] has been a path breaker enabling India to grow considerably over the last few decades. Average growth in the last two decades has been higher than the previous 2 decades with a substantial increase in quantum of growth (Ahluwalia M. S., 2019). Accompanying this growth, poverty rates have fallen, and life expectancy has increased on an average over the years. However, income inequality has been increasing over the years.

This brings us to the question of relevance of income inequality. Is lack of progress or even increase in inequality a cause for concern? Some academics and economists tend to believe that it is not a cause of concern. They believe that it is inevitable part of a fast growth period and that growth and poverty reduction should be the topmost priorities for emerging countries. (Bhalla, 2003). On the other hand, there are others who are less a Funke; they argue that excessive inequality can undermine sustained growth and social cohesion (Ostry, Loungani, & Berg, 2018). This is further attributed to events over the past decade in many countries (U.SA, France, Chile, Tunisia, Lebanon) show that people care about excessive inequality in incomes even when average incomes have risen in these countries.

It is in this context that we describe the evolution of income inequality in India over the past couple of decades and try to make some conjectures about how it might evolve in the future in the face of increased use of direct benefit transfers through digital platforms. We address the following questions:

1) How has income inequality evolved over the period of rapid growth? How do incomes compare across states, across urban and rural areas, and across deciles within rural and urban areas?

2) How is income inequality likely to evolve in the future in India given the increased prevalence of direct benefit transfer schemes?

While there has been recent research on inequality in India (Piketty & Chanel, 2017) and (Chauhan, Mohanty, Subramanian, Parida, & Padhi, 2016), it has not fully captured the changing rural/urban profile of the middle class and the growth of the organized sector. Furthermore, the impact of digitization on inequality has not been addressed due to a variety of factors including lack of access to proper time-series defined data. Within digitization, the literature on comparison between cash and in-kind transfers has been extensive (Alderman, Gentilini, & Yemtsov, 2017) (Vance, 2018) but our focus here isn't on the debate around cash vs in-kind transfers. Our focus has been on the efficiency gains from the digitization in the transfer of public subsidies through the Direct Benefit Transfer (DBT) system. Since the DBT covers almost all of the government's digitization-based initiatives to provide subsidies, it serves as a good overall estimate for our analysis. Using these efficiency gains, we showcase the impact on inequality since the implementation of the scheme.

The paper is organized as follows: Section II focusses on the Growth incidence curve (GIC) approach to measure inequality with cross sectional country-based analysis and Gini coefficient comparisons. Section III provides an overview of the Direct Benefit Transfer (DBT), the savings accrued due to it and possible scenarios/impacts on the GIC curve and broader inequality scenarios. Section IV has the conclusion followed by the appendix for the paper.

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[2] The phrase post liberalization refers to the time-period from 1990 onwards throughout the paper.

# II.  Evolution of Inequality in India

Economic growth in India has accelerated since the early 1990s, accompanied by a reduction of aggregate poverty, and a highly skewed income distribution towards the top few percentiles. Due to lack of systematically comparable data, it is so far unclear how this evolution of inequality reflects the changing rural-urban profile and the growth of the organized sector. We compute new series, using granular micro-data and two class statistical models, to provide answers to these questions. In particular, we show how gains from growth have changed the locational profile of the middle class and led to the emergence of a new upper class over 1990-2017. These results suggest an incomplete dual-sector transition, potentially exacerbating the rural-urban gap and aggregate inequality. Locational and class premiums matter significantly in twenty first century India and may be important for redistributive policy setting going forward. Furthermore, we also discuss the likely impact on direct benefit transfer schemes on the evolution of inequality in  India over the coming years.

According to the latest NSSO datasets available since 1990[3], there have been interesting trends that depict inequality in India. We look at three main metrics in this paper: the Gini coefficient approach, inter-state incomes and the Growth incidence curve approach (GIC). While we make observations on the first two, our focus is mainly on the GIC curve approach in this paper. There have been different ways to measure GIC which includes measuring it in terms of growth rate in incomes for a percentile (Ravallion & Chen, 2003) or use the mean income in the quantile group as in (Lakner & Milanovic, 2016). In this paper, we have preferred to use the latter method with anonymous GIC since we felt it was more robust with regard to India. It is important to note anonymous GIC's ignores the identity of people in the quantile groups in the initial and final years. (Aguilar, et al., 2019) .

We use India's consumption surveys (NSSO), converted into PPP$ by the World Bank in PovCalNet. As such, there is no representative income survey in India on a frequent basis. Tax-data were not published from the 2000-2010 decade (fastest period of growth in India) and still, only cover the upper tail. Agriculture, which employs more than half the labor force, is not taxes and is not captured in any administrative tax data. Consumption surveys are the broadest, in terms of population coverage, and especially relevant in measuring living standards in rural India.

One of the long running debates about India's consumption data is that consumption growth in the surveys has lagged the national accounts. While some of this gap can be explained by the missing incomes of the very rich (Top 3-5%) there are other technical reasons. Authors, such as (Deaton & Kozel, 2005), have noted that the national accounts are by no means perfect and make imputations of rents accruing to owner occupied housing. As (Sundaram & Tendular, 2003) argue, consumption surveys allow a measurement of actual living standards.

Unlike other data, these surveys also allow a disaggregation of living standards for urban and rural households; since much of India's growth is in modern (urban) industries, while the bulk of the population is still residing in rural India, this is likely to be an important asset in understanding inequality. The other comparative advantage of these surveys is that they allow for comparison with consumption survey data in similar emerging economies (China, Indonesia).

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[3] There were about 7 surveys done since 1990 and all of them have been incorporated here.

## Gini Index for India and other countries:

The Gini coefficient has been one of the most popular metrics to measure inequality across the world. In an effort to provide a more comparative perspective, we have compared the Gini coefficient of India with 5 other countries for all of these countries validates the perspective we have got in our earlier analysis. It's important to add the caveat that except for Brazil, all other countries in this comparison have consumption data in the Povcalnet database. Academic research suggests that for the Gini index, the inequality tends to be greater for income data than consumption especially for Latin American countries as mentioned in (Gasparani & Leo, 2015). They had used a multiplicative factor of 0.861 to scale down the income-based indices. We have decided to leave it as it to ensure cross regional comparison of countries.

The Figure below shows the trends for these countries from the Gini index:

*Figure 1: Gini Index for India, China, Brazil, Russia and South Africa since 1990*
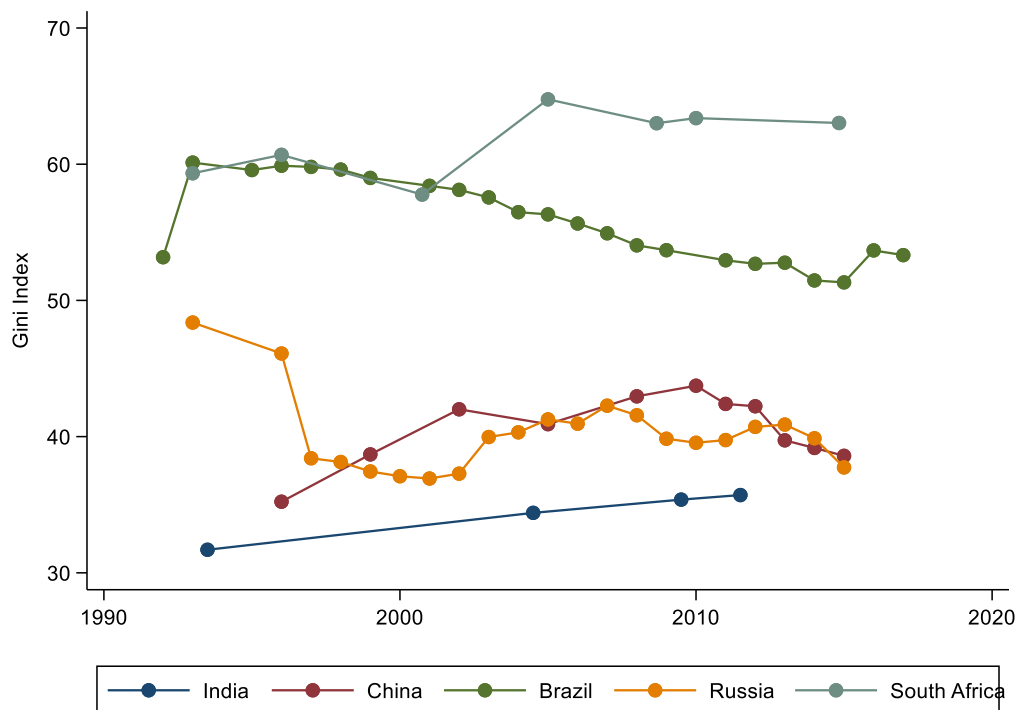


Source: WBG Povcalnet and Authors analysis

The trends indicate that among the BRICS countries, India has the lowest Gini index with South Africa, Brazil, China and Russia ahead of India. Its interesting to note that the Gini index for India has been steadily increasing in the post liberalization period. Given that the latest data available is only till 2011/2012, the possibilities of a greater increase in recent times can't be discounted. Its also important to note that there has been a broad decrease in inequality in Brazil and Russia during this same period from their peaks in

1990's and 2000's. While China's Gini index was increasing till 2010, it has also started to decline since 2010 getting below 40 in the latest index values. This also leads to the fact that India is the only country among the BRICS whose Gini index is increasing while the rest of the countries seem to be stagnating or reducing in recent years. It would be important to refine this perspective by looking at the differences across states and the GIC curves for further reference.

For India, the main trend is a rising consumption gini index which mostly reflects rising urban inequality i.e national and urban ginis are slightly higher leading into 2011. Rural gini index is relatively flat in comparison. Inequality in rural India is static but because of the growing rural-urban gap and growing urban inequality, inequality has risen since liberalization. As shown in a more disaggregated Figure below, India's urban gini follows trends also seen in urban China and Indonesia inequality within rural India on the other hand is lower than rural China and Indonesia.

*Figure 2: Comparative consumption Gini's: China, India and Indonesia 1980-2020*
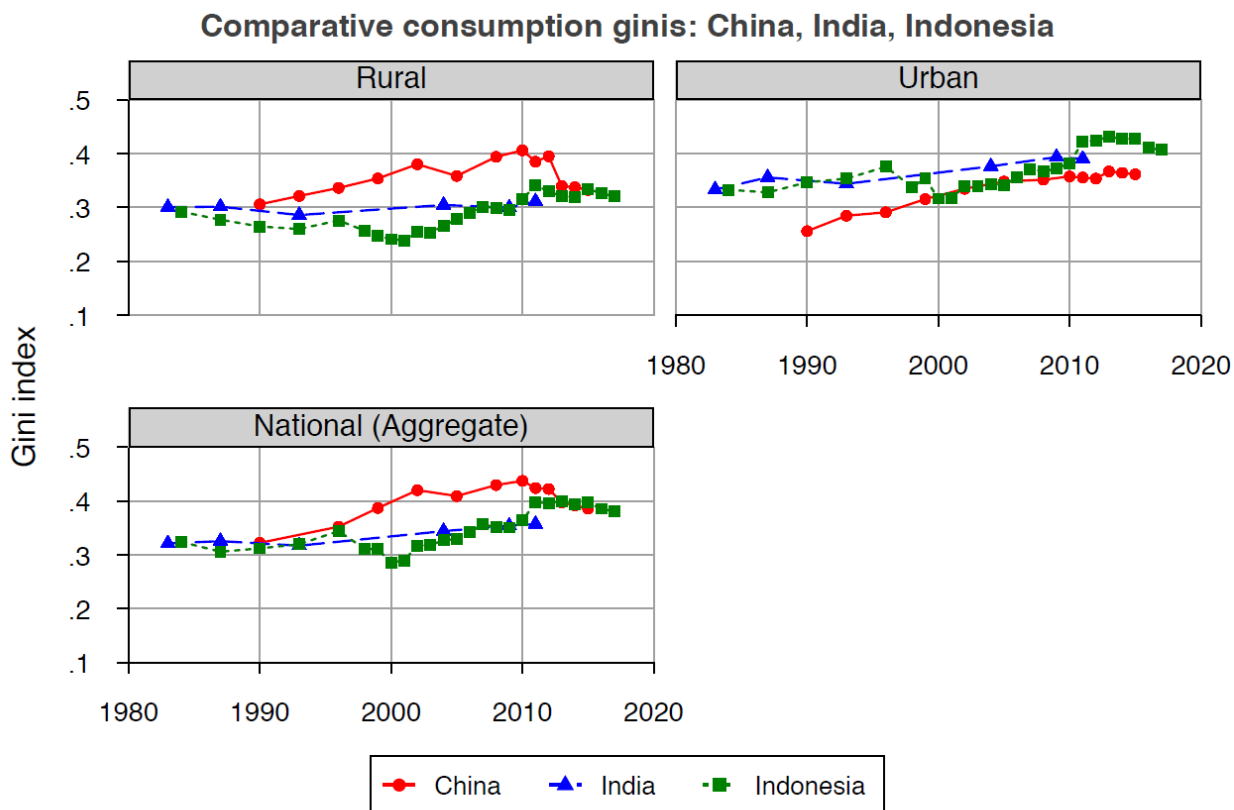


Measuring the consumption share of the Top 10% vs Bottom 40% (the rich vs the poor) in India, we see further evidence of increasing urban polarization in living standards driving aggregate inequality.

These trends are consistent with a dual-sector growth process (Lewis, 1954) . According to the Lewis growth model, the more productive "modern" sector attracts effectively unlimited labor from the traditional sector. The modern sector is dynamic and initially tends to increase aggregate inequality (between rural and urban workers, and within the dynamic urban sector). Since the early 1990s, India's growth rate accelerated, coinciding with its reliance on a market-driven model. Thus, it is natural that the growth trajectory in India would create Lewis-type inequality dynamics.

## Inequality in India through GIC:

The following Growth Incidence Curve (GIC) represents the evolution of inequality in India from 1990 onwards[4]:

*Figure 3: Growth Incidence Curves for India (Rural/Urban/National Aggregate) from 1990-2011*
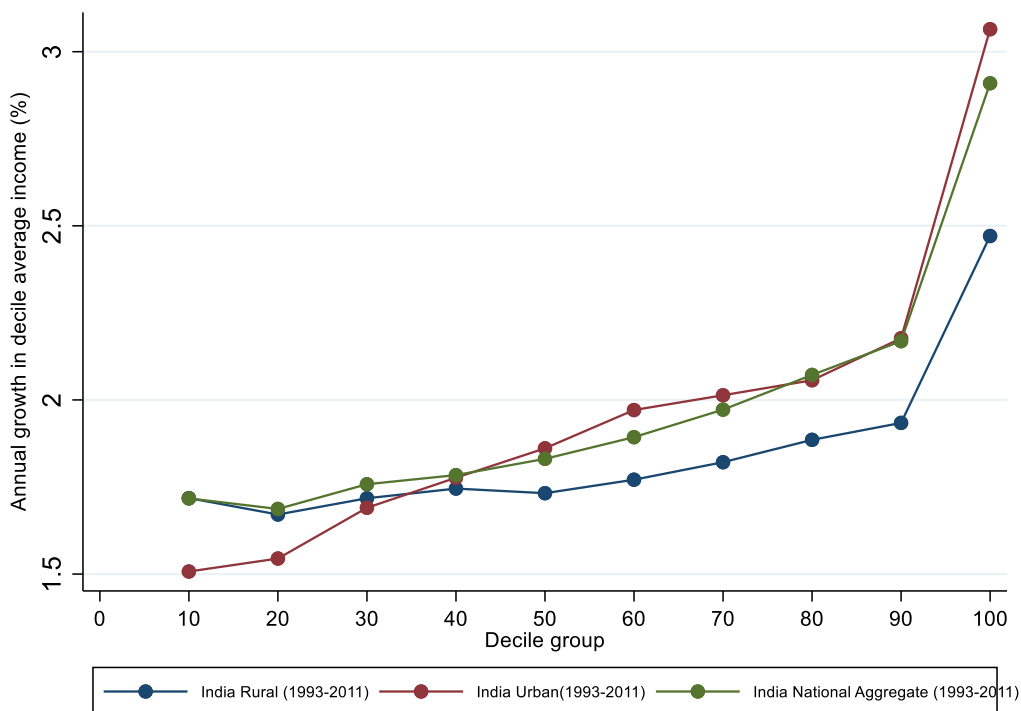


Source: WBG Povcalnet database and authors analysis

The graph indicates that the India national aggregate's annual growth in average decile income for the top 10 percent (1990-2011) increased by almost 2.8 percent while the bottom 10 percent grew by just around 1.7 percent. In rural areas, the disparity seems to be equally high with the top 10 percent growing by approximately 2.5 percent and the bottom 10 percent growing by just around 1.7 percent for the same time period. In urban areas, the growth in income in the top 10 percent was just above 3.0 percent while

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[4] The decile levels arrange the data in order from lowest to highest and is done on a scale of one to ten where each successive number corresponds to an increase of 10 percentage points. In the case of GIC, the 10th decile represents the bottom 10 percent of the population and the 100th decile value represents the top 10 percent of the population.

the bottom 10 percent grew by around 1.5 percent. These indicate trends of increase in inequality which is exacerbated more in urban areas compared to the rural areas during the post liberalization phase.

In the longer run (1983-2011, 1993-2011), consumption growth has skewed towards the top 2 urban deciles. However, as shown in the Figure below, a major turnaround in the relative positions of these deciles became apparent around 2004.

*Figure 4: India GIC Curve (2004-2011)*



India: Growth incidence curve (2004-2011)
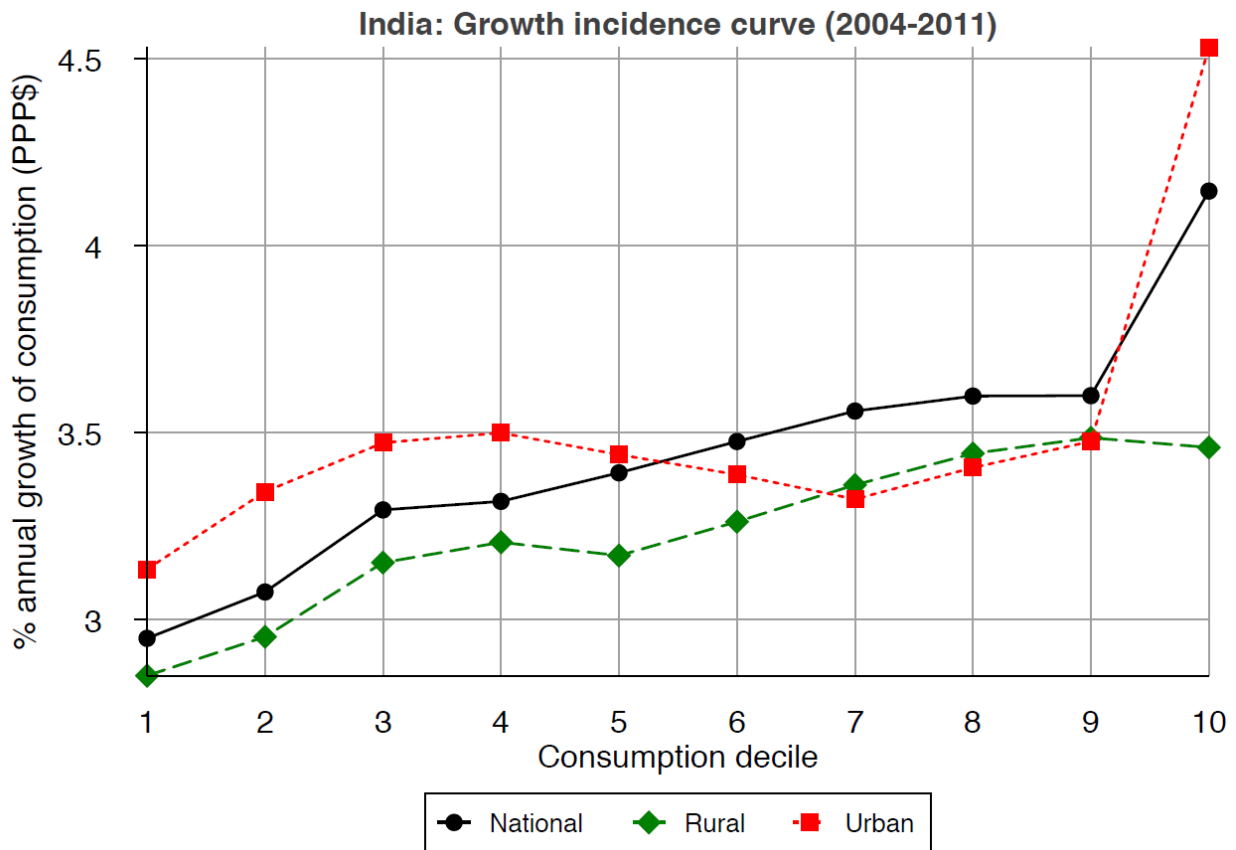
For the period 2004-2011, consumption growth was most apparent for the urban poor (bottom 40) and urban rich (top 10). Between the 50th and 90th deciles, growth appears to have been similar for urban and rural consumption. Strikingly, we find that this non-linearity in the growth-decile relationship is reflected in a linear national GIC shown above. For the middle class (50th-90th) at the national level, growth is relatively higher than for the equivalent deciles at the urban and rural level.

*How can the aggregate be higher than sub groups?* The driving process seems to be reshuffling of deciles across the urban and rural divide. Basically, the poor urban deciles account for a significant portion of the middle class of India; there is a slight convergence in living standards for the urban poor and the rural middle classes. The absorption of labor from rural to urban India requires higher "drawing" wages and in turn push the urban poor to higher living standards than the rural middle class.

*Figure 5: India: Comparative position of consumption deciles 1983-2011*



As shown in the Figure above, ranking the average consumption of each decile (urban or rural), it appears (at least since 1993) that the living standards of the urban 4th decile is around the 6th and 7th rural decile. This alludes to the earlier point on urban poor and rural middle-class households. The table below illustrates this further:

| Rank at national level | 1983 consumption _ranking | 1987 consumption _ranking | 1993 consumption _ranking | 2004 consumption _ranking | 2009 consumption _ranking | 2011 consumption _ranking |
|---|---|---|---|---|---|---|
| 1 | Urban-10 | Urban-10 | Urban-10 | Urban-10 | Urban-10 | Urban-10 |
| 2 | Rural-10 | Rural-10 | Rural-10 | Rural-10 | Rural-10 | Rural-10 |
| 3 | Urban-9 | Urban-9 | Urban-9 | Urban-9 | Urban-9 | Urban-9 |

| | | | | | | |
|----|---------|---------|---------|---------|---------|---------|
| 4 | Urban-8 | Urban-8 | Urban-8 | Urban-8 | Urban-8 | Urban-8 |
| 5 | Rural-9 | Rural-9 | Urban-7 | Urban-7 | Urban-7 | Urban-7 |
| 6 | Urban-7 | Urban-7 | Rural-9 | Rural-9 | Rural-9 | Rural-9 |
| 7 | Urban-6 | Rural-8 | Urban-6 | Urban-6 | Urban-6 | Urban-6 |
| 8 | Rural-8 | Urban-6 | Rural-8 | Rural-8 | Rural-8 | Rural-8 |
| 9 | Urban-5 | Rural-7 | Urban-5 | Urban-5 | Urban-5 | Urban-5 |
| 10 | Rural-7 | Urban-5 | Rural-7 | Rural-7 | Rural-7 | Rural-7 |
| 11 | Urban-4 | Rural-6 | Urban-4 | Urban-4 | Urban-4 | Urban-4 |
| 12 | Rural-6 | Urban-4 | Rural-6 | Rural-6 | Rural-6 | Rural-6 |
| 13 | Urban-3 | Rural-5 | Urban-3 | Rural-5 | Rural-5 | Rural-5 |
| 14 | Rural-5 | Urban-3 | Rural-5 | Urban-3 | Urban-3 | Urban-3 |
| 15 | Rural-4 | Rural-4 | Rural-4 | Rural-4 | Rural-4 | Rural-4 |
| 16 | Urban-2 | Rural-3 | Urban-2 | Urban-2 | Urban-2 | Urban-2 |
| 17 | Rural-3 | Urban-2 | Rural-3 | Rural-3 | Rural-3 | Rural-3 |
| 18 | Urban-1 | Rural-2 | Rural-2 | Rural-2 | Rural-2 | Rural-2 |
| 19 | Rural-2 | Urban-1 | Urban-1 | Urban-1 | Urban-1 | Urban-1 |
| 20 | Rural-1 | Rural-1 | Rural-1 | Rural-1 | Rural-1 | Rural-1 |

In the Table, there have been consistent trends of rural-urban divide especially since 2014. For example, in 2014, Urban-4 is in between both Rural-7 and Rural-6 in the rankings of deciles illustrating that the urban poor is almost on part with certain members of the rural middle class and some members of the upper middle class as well. This widening gap illustrates that instead of the divide being between the rural rich and poor, the divide is primarily between the lower half of urban India and upper-middle deciles of rural India.

A comparative narrative to the growing rural-urban divide is the role of growing inter-state divides between states in the country. We highlight the findings of this in the next sub-section.

## Inter-State income analysis:

The changes in per capita incomes between states provides us another analytical vantage point to understand the evolution of inequality in the given time-period. Academic research varies on the convergence/divergence theories of state-based incomes over the years. While some indicate that from the 1960-1990's, there was absolute convergence with poor states growing faster than their initial counterparts (Cashin & Sahay, 1996), others provides a more nuanced perspective on this proposition. (Mishra & Mishra, 2018) In a complex country like India, there are a variety of factors that contribute to growth of states with geography, market access and infrastructure development playing an important role. (Li, Rama, & Zhao, 2018). There is also a strand of research/thought that argues that competition among states is good and that good performance in some states motivates reforms in the states that lag further (Subramanian, 2018). In a sense, this alludes to the earlier proposition that in a fast-growing economy some amount of inequality is inevitable in the short and medium run.

An analysis of the top 5 and the bottom 5 states by average per capita income for each year from 2011 onwards (irrespective of population thresholds) provides us a more informed perspective as shown in the Figure below:

*Figure 6: Top 5 vs Bottom 5 states average per capita income 2011-2018*
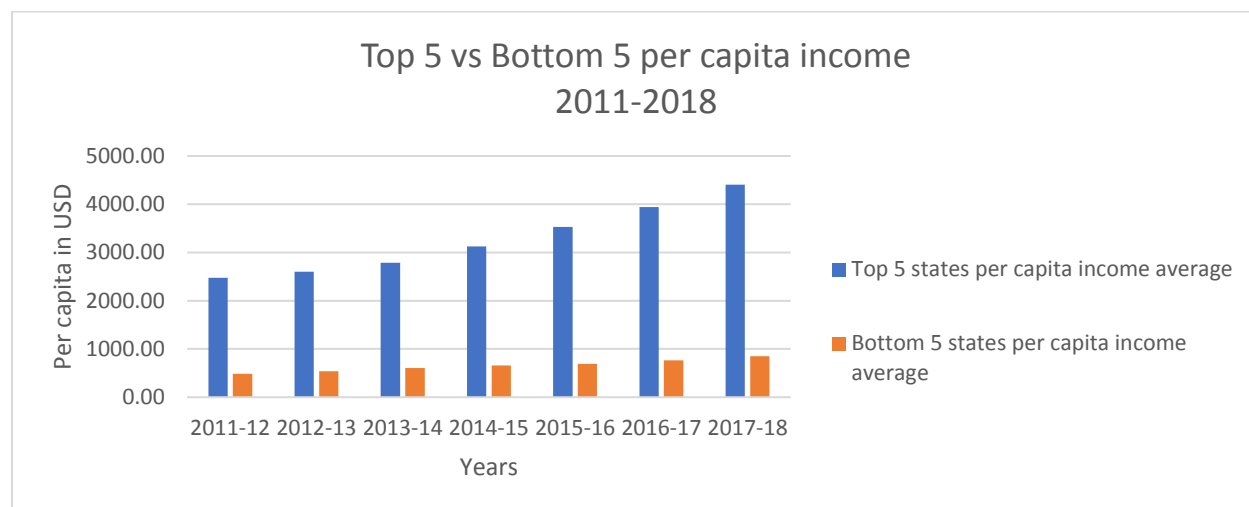


Source: Central Statistics Office, Government of India

The Figure shows an increase in the average per capita income of the top 5 countries from 2478 USD in 2011/12 to almost 4407 USD in 2017/18. This is almost 1.8 times the per capita income levels from 2011 onwards for the top 5 percent with similar trends preceding decades post 1990. On the other hand, the bottom 5 states have increased their average per capita income from 486.5 USD in 2011/12 to about 851.0 USD in 2018. This is about 1.7 times the percent increase from 2011/12. However, a further disaggregated analysis including the population dynamics (Its important to note that states with population> 5 million have been included in the top 5 lists below) presents a different picture. The dynamics of population and income are highlighted in the Figure below:

*Figure 7: India's distribution of state level income and population 2004 and 2013*

**India: Distribution of state level income and population**
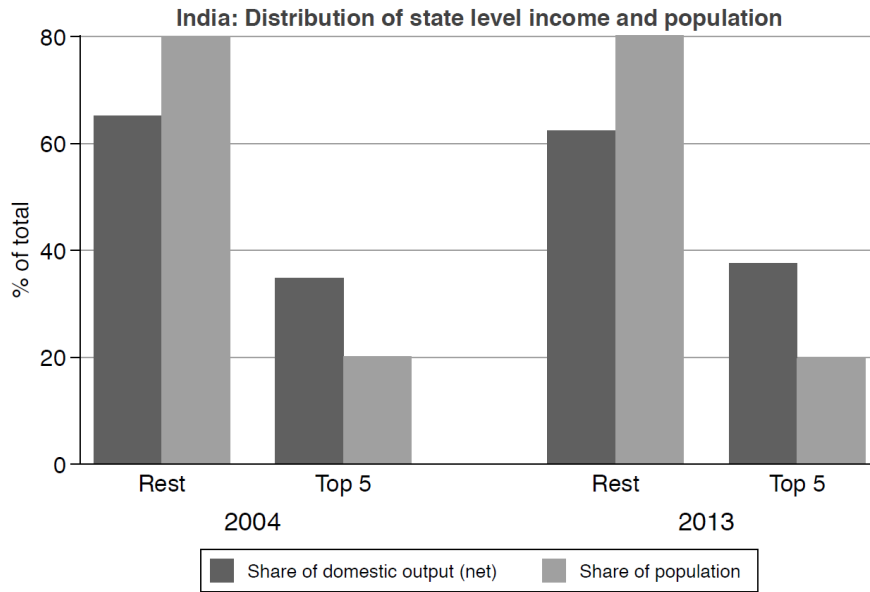
Source: Central Statistics Office (CSO) and authors calculations

This seems to suggest that there isn't much change in the contribution of output from the Top 5 states compared to the rest of the states from 2004 till 2013. The Top 5 states had a marginal increase in the contribution to total income with a corresponding marginal decrease in rest of the states during the same time period. These indicate that state-wide trends, with population dynamics accounted for, reflects not too much divergence in income levels over the years.

Even growth rates for per capita income between top 5 percent and the rest is fairly static according to the Figure below which depicts a state wise disaggregation of the per capita incomes in 2014 across all states in India. Its important to note that states with population> 5 million have been included in the top 5 lists.

*Figure 8: % Growth of per capita incomes top 5 vs rest 2014*

**India: growth rate of per capita income (top 5 vs rest)**
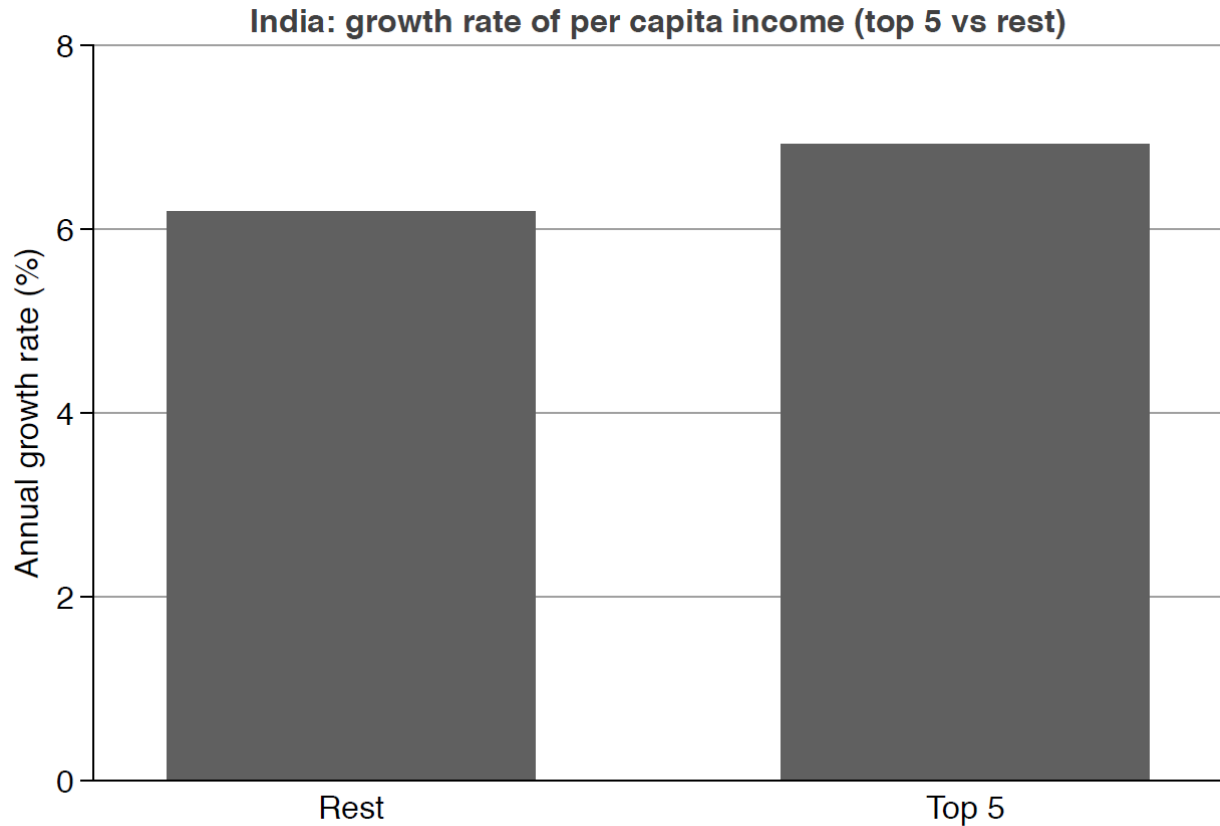
Ranked on 2004 (net) domestic product. Only States and Union Territories with population >5mn

Source: Central Statistics Office (CSO) and authors calculations

However, comparatively and supplementary to our earlier analysis, there has been a significant shift of population from rural to urban India. As shown in the Figure below, the percentage of populations in urban decile as a share of rural decile has increased from approximately 32 percent in 1980 to almost 46 percent in 2011. This is likely to have increased in more recent analysis since the rural urban migration has been increasing over this time period.

*Figure 9: Populations in urban decile as a fraction of rural decile 1980-2010*



**Populations in urban decile as a fraction of rural decile**
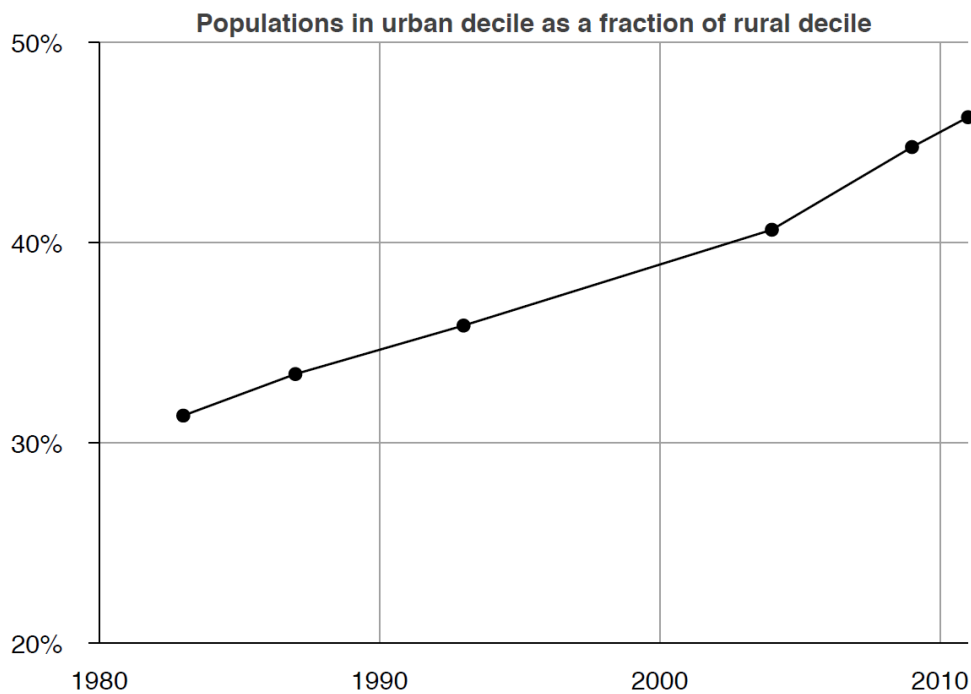
Source: Authors calculations

## III.    Rural/Urban inequality (1990-2019)

GIC Rural Inequality and comparative analysis with China and Indonesia:

The rural urban filters can be seen through a more granular analysis of the data in the Povcalnet database as shown in the Figure below:

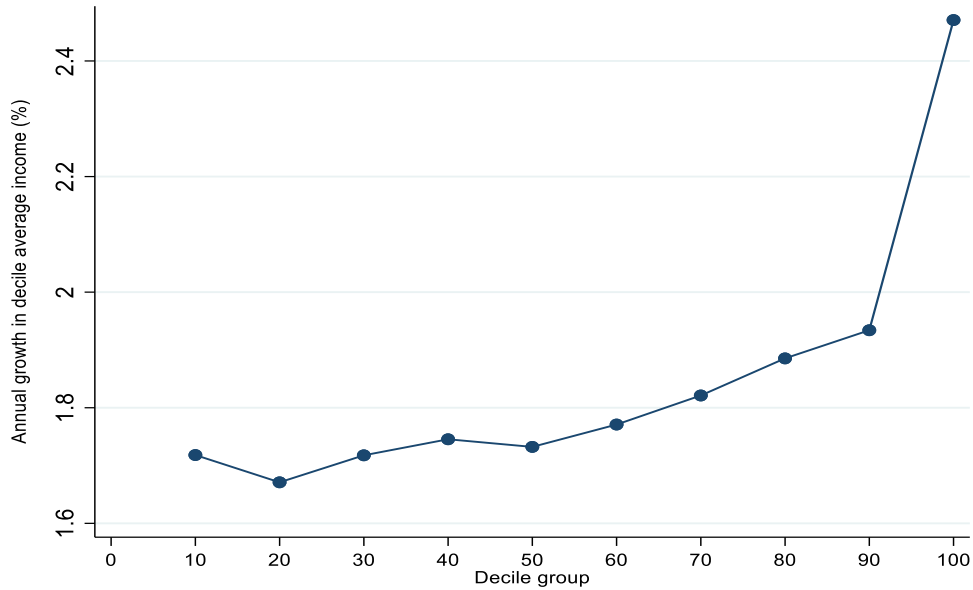*Figure 10: India Rural GIC curve from 1993-2011*

The GIC curve for rural India from 1993 onwards highlights the significant disparity between the 100th decile (approximately 2.5 percent income growth) and the 10th decile (approximately 1.7 percent income growth) of the population. It's also interesting to note that the gap between the 100th and 90th decile (top 10 and top 20 percent of the population) is almost 0.6 percent. This ensures that the gap between the 90th decile and the 10th decile (top 20 percent and bottom 10 percent of the population) is only 0.3 percent. In that sense, there is more inequality between the top 10 percent and the rest of the rural India than the inequality between the rest of the 90 percent which is much lesser. However, the quantum of income growth across the decile groups is below average compared to similar countries with such indicators. The following Figure below helps to highlight that:

*Figure 11: GIC curves for India, China and Indonesia rural 1990-2017*
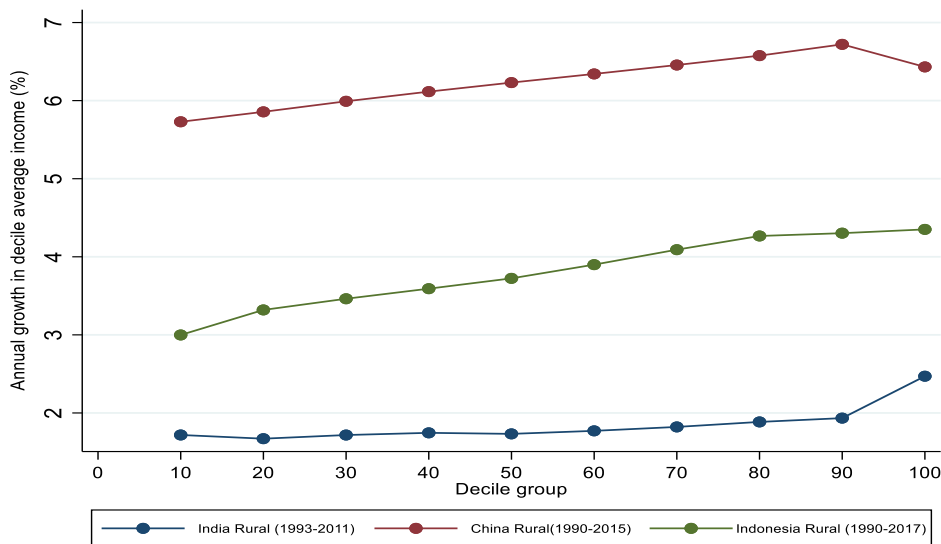
The differences in the GIC curves between India, China and Indonesia is shown here. As seen from the Figure, in terms of income growth, China is far ahead of both Indonesia and India across all decibel groups. There is a linear increase across decile groups from 5.7 percent in the 10th decile to almost 6.7 percent in the 90th decile group with a dip to 6.4 percent in the 100th decile group. In Indonesia's case, there is a fairly linear increase from 3 percent for the 10th decile group to about 4.4 percent in the 100th decile group. Clearly, compared to these two emerging markets, India is lagging behind in terms of the quantum of growth in mean income and also has the highest disparity between the 100th decile( top 10 percent of the population) and the 10th decile (bottom 10th percent of the population).

## GIC India Urban inequality and comparative analysis with China and Indonesia:

In terms of the GIC curve for the urban India, the trends are similar to rural India in many respects with some differences. As seen in the Figure below, the 100th decile group (top 10 percent of the urban population) had almost 3 percent increase in mean income during the time-period mentioned. The bottom 10 percent of the population had just 1.5 percent growth during this phase. There has been a steady gap between the 90th decile group and the 10th decile group in terms of mean income growth and this gap widens significantly when we compare with the 100th decile group.

*Figure 12: India GIC curve urban 1993-2011*
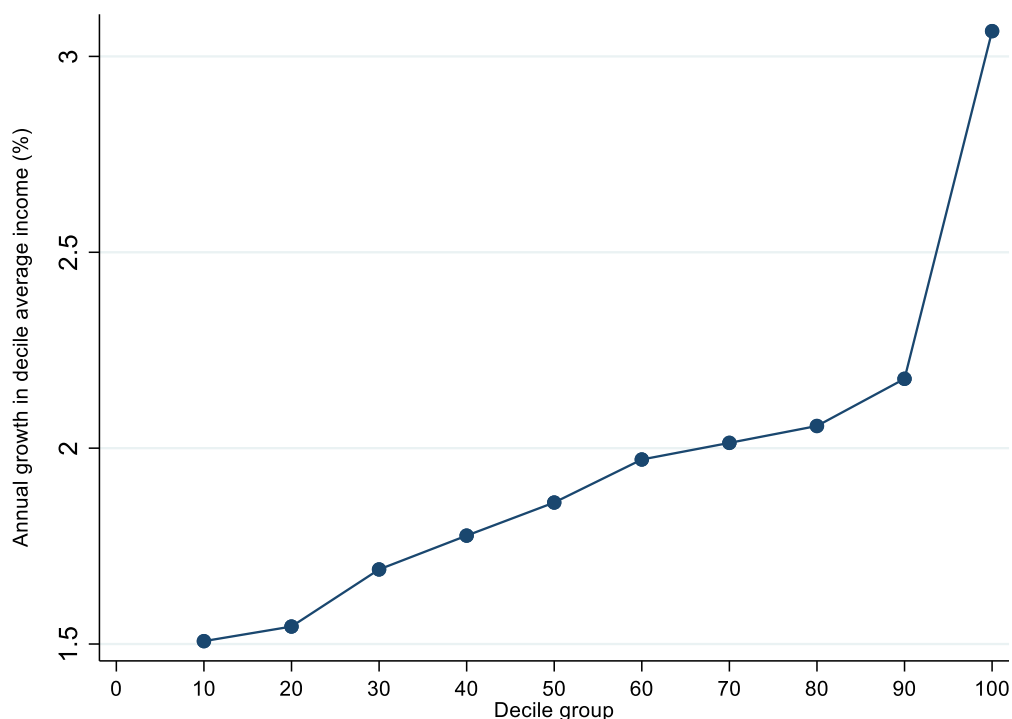


When a comparative analysis is done for the GIC curves with India, China and Indonesia (similar to the rural comparison), there are some interesting trends. Firstly, China's mean income growth is much higher than the other two countries and is also higher than its rural population. The 100th decile (top 10 percent of the population) is growing at almost 8.0 percent whereas the 10th decile group (bottom 10 percent of the

population) is growing at about 4.2 percent. This is higher than both India and Indonesia's growth of the 100th decile group, i.e top 10 percent of the population. The gap between India and Indonesia is much lesser compared to the rural comparison with the 100th decile group for India and Indonesia growing at 3.1 percent and 3.9 percent respectively. The 10th decile group is growing at 1.5 percent and 2.3 percent respectively.

*Figure 13: GIC curves for India, China, Indonesia Urban 1990-2017*
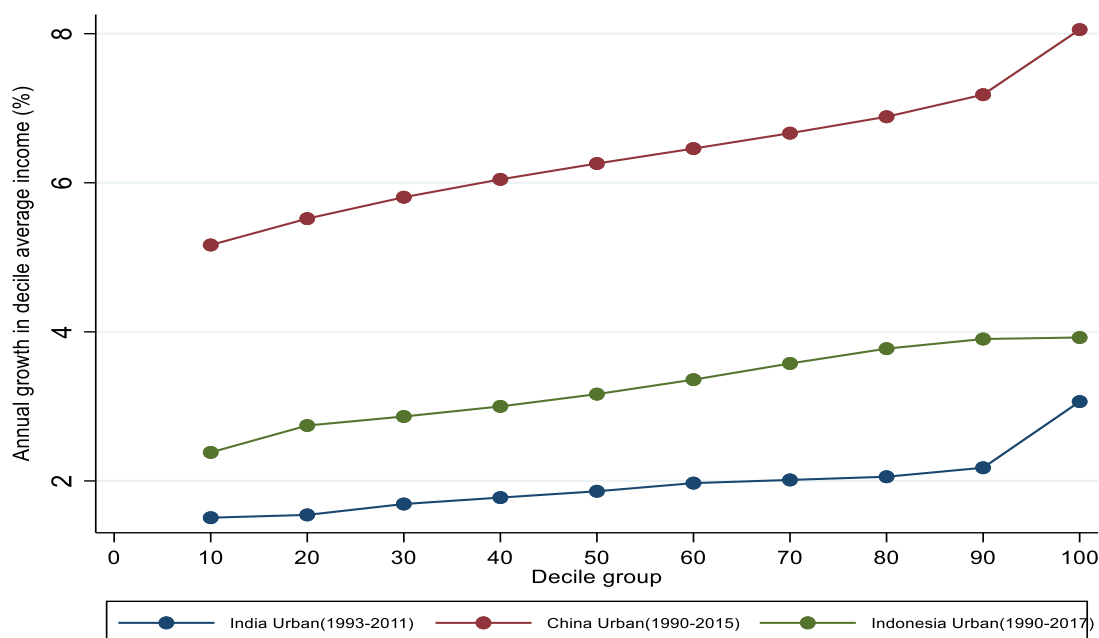


# IV.    Direct Benefit Transfers

The subsidy delivery system in India has evolved over the decades with a gradual movement from public distribution systems to cash based transfers and eventually to Direct benefit transfers. In early 2006, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme was launched to mainstream the idea of cash transfers to large sections of the population.

With the aim of improving the efficiency of welfare schemes to improve targeting of beneficiaries, de-duplication and reduction of fraud, the DBT was formally announced in 2013 (Narayanan, 2013). This was further bolstered through the JAM trinity (Economic Survey, 2015/2016)---Jan Dhan, Aadhar and Mobile---which enabled to create a productive ecosystem for its functioning. The digital ID has reached more than a billion Indians through the Aadhar initiative and there have been an equal number of mobile connections in the country. These are integrated with the Pradhan Mantri Jan Dhan Yogana which has created more than 360 million bank accounts (Today, 2019) for poor Indians.

The First phase of DBT was initiated in 43 districts and additional 78 more districts were covered in 27 schemes pertaining to scholarships, women, child and labour welfare. In 2014, 7 new scholarship schemes

and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was brought under DBT in 300 identified districts with higher Aadhaar enrolment. This has expanded to almost 1170 schemes from almost 75 ministries in the central government.

## Progress and income effects of DBT:

The overall progress of DBT is best illustrated by the graph below:

*Figure 14: Direct Benefit Transfer Overview (2013-2019[5])*
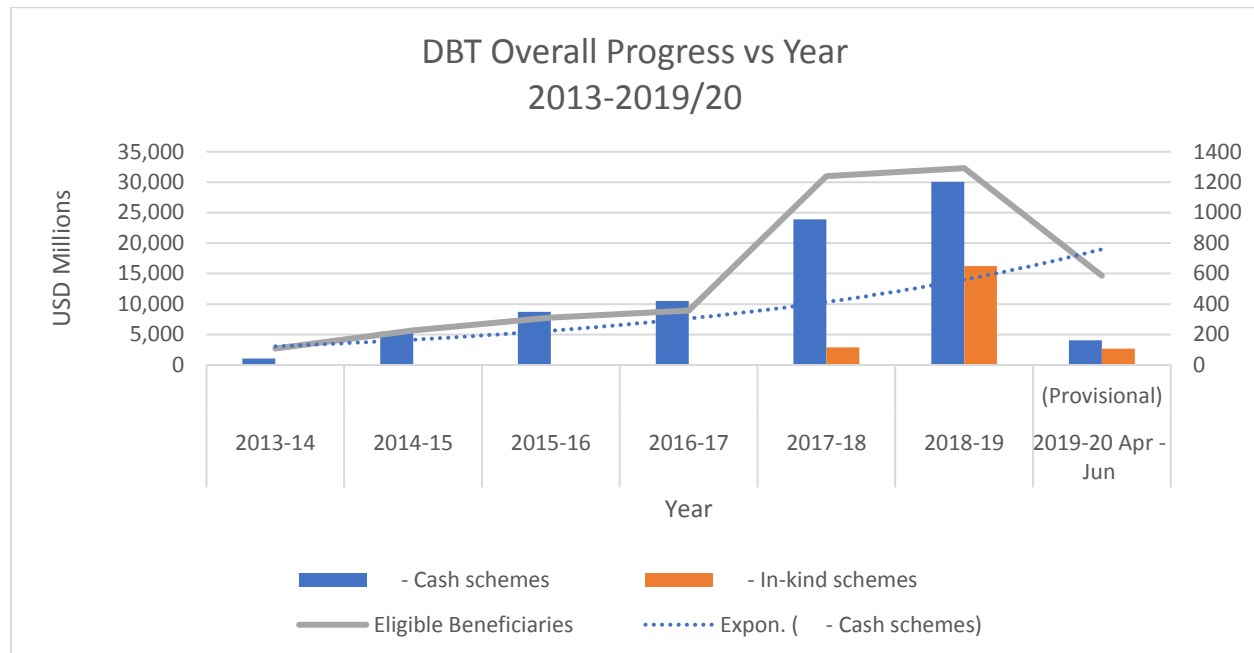


Source: DBT Mission GOI and authors analysis

As seen in the graph above, the DBT transfers have increased substantially over the years. From almost 1,034 million USD in 2013/14, it has increased to almost 30,061 million USD in 2018/19 according to official records. There was 30 times increase in DBT transfer has been attributed to a few factors. First, the integration of JAM (Jan Dhan Yogana, Aadhar and Mobile) has been accelerated significantly. This has provided an important template to scale up the DBT program at an accelerated pace. Second, the improvements in efficiency in the DBT program, which we highlight in the paper, has improved the targeting to a large extent. Moreover, it has also ensured substantive savings to the government due to identification of fake and overlapping accounts and reduction in corruption due to the elimination of middle men. This has ensured that the number of schemes has expanded in recent years into new schemes and there is growing research which indicates that DBT programs are more effective than conventional subsidy-based schemes. (Kumar, 2019)

## Direct benefit transfer by state:

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[5] The exchange rate used was 1USD=71.2 Rupees as of October 2nd 2019 for all DBT calculations in this paper.

Among the states, there has been an obvious increase in DBT transfers in from 2018 onwards. The top 5 states in terms of DBT transfers in 2016-7, 2018-9, 2019-20 are shown in the table below:

*Table 1: State wise DBT Transfers and their percentages of overall DBT transfers 2016/17-2019/2020*

| State Name | 2016-17 | State Name | 2017-2018 | State-name | 2018-2019 | State-name | 2019-20 |
|---|---|---|---|---|---|---|---|
| West Bengal | 963.92 | Tamil Nadu | 1352.29 | Uttar Pradesh | 5177.73 | Uttar Pradesh | 1019.16 |
| Tamil Nadu | 839.31 | West Bengal | 1130.89 | Madhya Pradesh | 3591.22 | Bihar | 528.07 |
| Uttar Pradesh | 776.29 | Uttar Pradesh | 993.02 | Maharashtra | 3432.91 | Rajasthan | 494.02 |
| Rajasthan | 572.32 | Rajasthan | 656.04 | West Bengal | 3230.99 | Andhra Pradesh | 439.50 |
| Andhra Pradesh | 481.63 | Karnataka | 635.20 | Andhra Pradesh | 2987.36 | Madhya Pradesh | 435.36 |
| **Top 5** | 48.6% | | 49.2% | | 45.1% | | 45.7% |
| **Top 10** | 74.5% | | 73.8% | | 73.2% | | 74.0% |

Source: DBT and author calculations in USD millions

As seen from the table, the state of Uttar Pradesh has been present in all of the top 5 lists since 2016-17. Other states such as Tamil Nadu, Andhra Pradesh and West Bengal have been in the top 5 lists for almost 4/5 years. In addition, the top 5 states share of the overall DBT transfer has been around 45-49.2 percent and the top 10 percent around 73.2-74.8 percent in the years mentioned. Its also interesting to note that most of these states, except Uttar Pradesh, have reasonably high per capita incomes and stronger distributional networks for their PDS systems. The analysis of the DBT transfer through per capita incomes are as follows:

*Figure 15: DBT Transfer vs Per capita incomes 2016-17*
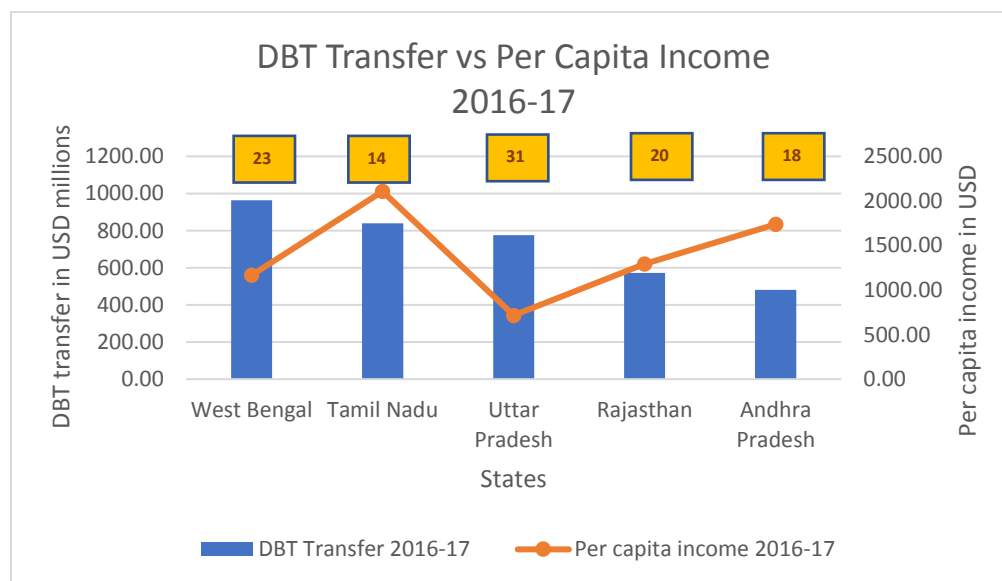


Source: DBT Missions and authors analysis

In the 2016/17 DBT transfers, the top 5 states had the following ranking in the per-capita rank among all states[6]. The rankings (yellow rectangular boxes) were 23rd,14th, 31st,20th and 18th for West Bengal, Tamil Nadu, Uttar Pradesh, Rajasthan and Andhra Pradesh respectively. In the 2017/18 DBT transfers, the rankings[7] for the states were 8th,12th,17th,11th and 4th for Tamil Nadu, West Bengal, Uttar Pradesh, Rajasthan and Karnataka respectively. The overall DBT transfer and the per-capita comparison is reflected below:

*Figure 16: DBT Transfer vs Per capita income 2017-2018*
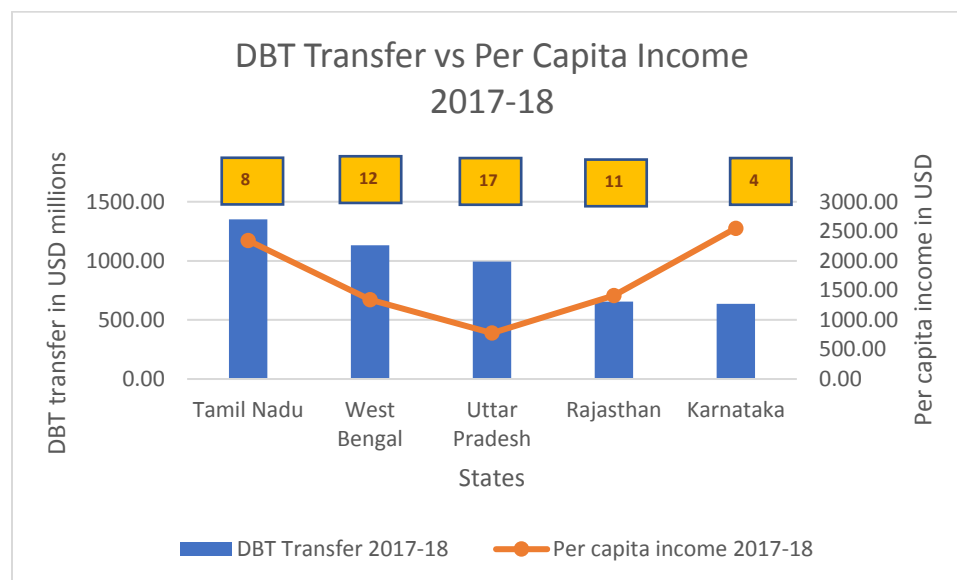


Source: DBT Mission and authors analysis

The DBT transfer scheme-based analysis provides a more granular scheme-based disaggregation of the DBT transfers over the years.

## Direct Benefit transfer by scheme:

As seen in the Figure 12 (Annexure), three big schemes dominate more than 75 percent of the transfers from 2013 till 2017. These are MGNREGS, PAHAL and NSAP respectively. From 2017 onwards, greater diversification and expansion of DBT has resulted in other schemes such as Pradan Mantri Awas Yogana and the Fertilizer subsidy scheme gaining traction among DBT transfers. The increase in the DBT transfers, as highlighted in the secondary axis, also reflects the growing effectiveness/saving from these transfers every year.

The data indicates that MGNREGS has been on an average the scheme with the highest number of DBT recipients over the years as seen in Figure 13 (Annexure). While there has been a dip from the peak of around 50 percent in 2016/17 to about 14.0 percent in 2018/19, there has been a considerable improvement even in the preliminary numbers in 2019/20 with approximately 27 percent of the recipients from MGNREGS as shown. This is likely to address the significant leakages which were present earlier

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[6] It's important to note that these are official figures based on availability. So the rankings might be subject to changes if availability is improved for certain states.
[7] The rankings for the 2017/18 has many states which haven't reported their data, so the rankings might need to be updated in the future as the numbers are shared by states.

when the cash transfers in person were introduced. A recent study (Muralidharan, Niehaus, & Sukhtankar, 2016) with a sample size of 19 million people and 157 sub-districts in Andhra Pradesh, concluded that *'while incompletely implemented, the new system delivered a faster, more predictable, and less corrupt NREGS payments process without adversely affecting program access'* .

Most of these top schemes have highest seeding to Aadhar ecosystem as shown in Figure 14 (Annexure). There has been research which has indicated that greater seeding of Aadhar improves the efficiency of the DBT transfers especially in food related subsidies (Saini, Sharma, Gulati, Hussain, & von, 2017). On the other hand, there have been other reports which also mention that the seeding of Aadhar plays a less than significant role in better efficiency of the transfers. Nevertheless, the seeding indeed provides greater financial inclusion for future DBT transfers.

An example of a successful rollout of a DBT scheme is the fuel subsidy scheme which was introduced in 2013/14. Academic research (Barnwal, 2016) from 23 million fuel purchase transactions and distributor-level fuel sales suggests that roll out of this scheme helped to reduce subsidies diversion by reducing fuel purchases by 11-14 percent. Furthermore, the research also suggests that almost 13-19 percent reduction in black market prices indicating a significant reduction in corruption in the system.  This level of success also applies to other schemes such as the LPG scheme which has benefitted through the implementation of DBT. (Jain, Agrawal, & Ganesan, 2016)

## Income based savings from scheme-based transfers:

The advantages of DBT can be accrued to a far more efficient income transfer to the recipients. This is illustrated through the following scheme-based analysis of savings that have been accrued since 2013 onwards in Figure 15 (Annexure). As seen from the Figure, there have been substantive savings from DBT transfers in some of the big schemes that the governments have pursued. In the 2013-2018 phase, PAHAL, PDS and MGNREGS had 5935.8 USD million, 4171.3 USD million and 2256.8 million in savings respectively. Between April and March 2019, the three schemes had savings of 2432.5 USD million, 2516.8 USD million and 662.4 million USD respectively. The cumulative net effect in terms of income savings scheme wise shows substantial savings since the scheme was implemented. Between 2013-2019, PAHAL, PDS and MGNREGS had 8368.3 USD million, 6788.1 USD million and 2919.2 USD million respectively. Moreover, schemes such as Fertilizer subsidies had cumulative savings of 1404.1 USD million besides other schemes which had marginal savings using DBT.

These findings reiterate the possible income effect both on the state as well as the recipients due to the implementation of DBT. Though aggregated over multiple schemes, the impact has been significant on the biggest schemes that the Government of India has pursued. These indicate increase in both income and consumption patterns among the rural public as mentioned.

## Scenario based impact by DBT on GIC:

The linkages between the efficiency improvements in DBT and the broader inequality story has been rarely established. We attempt to showcase that in a couple of measures and provide some new analysis in this regard. Before this, we need to be clear that the authors are assuming that the efficiency gains provided by the official records in DBT are accurate and approximated well. Given these assumptions, we look at two scenarios and their impact on the GIC curve below:

*Scenario 1:* The impact on the GIC curve if all of the efficiency gains are transferred back to the schemes that are part of DBT

In Scenario 1, we expect an upward shift in the GIC curve for the 10th and 20th decile of the population since almost all of the DBT schemes target this section of the population. This is likely to reduce the gap between the top 10 percent and the bottom 10 percent by an estimated 0-10 percent range.

*Scenario 2:* The impact of the GIC curve if all of the efficiency gains are used elsewhere in other areas of development

In Scenario 2, we expect that the impact on targeted inequality reduction at the 10th and 20th decile levels to be much lesser compared to Scenario 1. This is largely due to the lack of targeted gains from DBT which are nullified in other developmental projects.

*Scenario 3:* The forecasted impact on the GIC curves if the efficiency gains continue with similar trends in the next 5, 10 and 15 years.

In Scenario 3, we hope to forecast the impact on the GIC curves if these efficiency gains continue in the medium to long run. We expect to have more empirical data and analysis for these scenarios in a more updated version of this paper.

# V.    Conclusion

A broad set of conclusions can be gathered from the paper's observations and findings. It's important to be cognizant that in a country like India, where growth and elimination of poverty are prime goals of development, the trade-off viz-a-viz inequality tends to be overlooked in the short and medium term. While this is understandable, there have been after-effects of this relentless growth in increased inequality across various levels. This paper broadly provides some conclusions on this as follows:

-   The Gini index and the per capita income based analysis of the various states in India seem to indicate an increase in inequality since 1990 onwards. There has been a rapid increase in the top performing states in terms of per capita income since 2011 onwards with similar trends in preceding decades. However, when accounted for population thresholds, the divergence in states in terms of both per capita income as a % of total output and per capita income growth seems to be marginal.

-   The increase in inequality in urban India seems to be much higher than in rural area. Even though the rural India figures have reduced overall inequality, the India aggregate inequality is still substantially high as the GIC curves show.

-   Moreover, when a cross sectional analysis is done, there is evidence to suggest that the urban poor seems to be more well off or on par with the middle class of rural households. Along with the observations on inter-state income analysis, this reiterates that the evolution of inequality is a more urban-rural divergence phenomena than a inter-state divergence phenomena.

-   A further disaggregated view of rural inequality in comparison with other similar countries such as China and Indonesia reveal that India has much progress to make since it lags both the quantum of
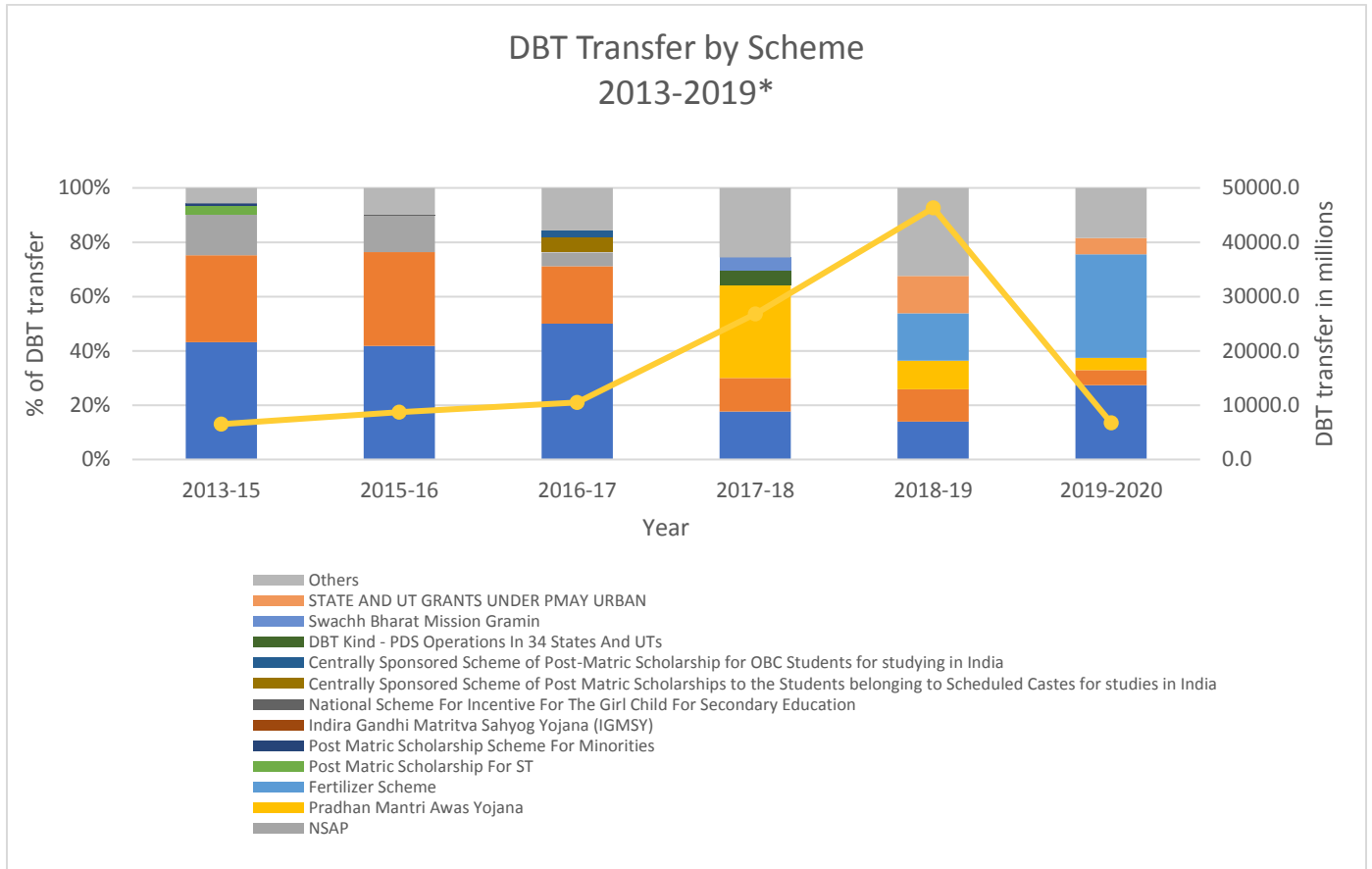
growth (annual growth percentage increases) and the gap between the top 10 percent and the bottom 10 percent.

- A further disaggregated view of urban inequality in comparison with other similar countries such as China and Indonesia reveal a better comparative picture. While India has lagged behind in annual income growth rates across all decile levels, the gap between the growth between the top 10 percent and the bottom 10 percent is significantly less than China but marginally more than Indonesia as shown earlier.

- Direct Benefit transfer (DBT) has played a transformative role in subsidies management and has reduced substantial inefficiencies in the system. The total net savings till March 2019 is estimated to be at about USD 20,042.1 million as per the analysis shown above.

- The impact of this on the broader inequality story through the GIC curve can be estimated to a 0-10% decrease in inequality between the top 10 percent and the bottom 10 percent if there is a complete transfer of the increase in efficiency back into the subsidies eco-system. If the savings from the increase in efficiencies, is used completely for other government developmental initiatives, the impact on inequality between the top and bottom 10 percent would be reduced by a lesser margin. The forecasted future impact on inequality seem to follow current trends. The authors hope to validate these estimates with empirical analysis in an update to this paper in the next few months.

The DBT transfer scheme-based analysis provides a more granular scheme-based disaggregation of the DBT transfers over the years. The data for the schemes is shown in the Figure below:

*Figure 17: DBT transfer by scheme 2013-2019*



DBT Transfer by Scheme
2013-2019*

**Legend:**
- Others
- STATE AND UT GRANTS UNDER PMAY URBAN
- Swachh Bharat Mission Gramin
- DBT Kind - PDS Operations In 34 States And UTs
- Centrally Sponsored Scheme of Post-Matric Scholarship for OBC Students for studying in India
- Centrally Sponsored Scheme of Post Matric Scholarships to the Students belonging to Scheduled Castes for studies in India
- National Scheme For Incentive For The Girl Child For Secondary Education
- Indira Gandhi Matritva Sahyog Yojana (IGMSY)
- Post Matric Scholarship Scheme For Minorities
- Post Matric Scholarship For ST
- Fertilizer Scheme
- Pradhan Mantri Awas Yojana
- NSAP

Source: DBT mission GOI and authors analysis

*Note that 2019-2020 numbers are provisional from April-June of this financial year.

*Figure 18: MNREGA through DBT 2013-2019*
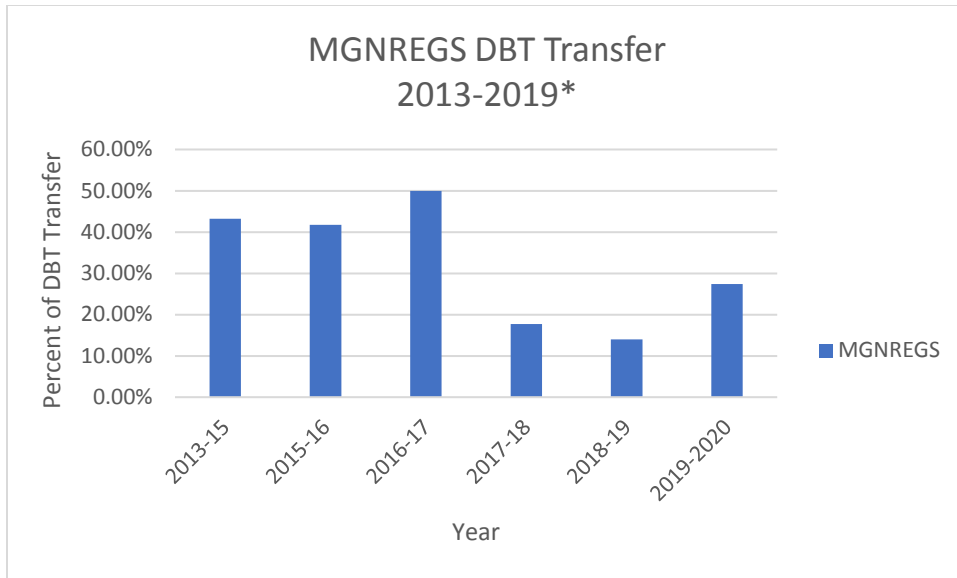
**MGNREGS DBT Transfer 2013-2019***

Source: DBT Mission GOI and authors analysis

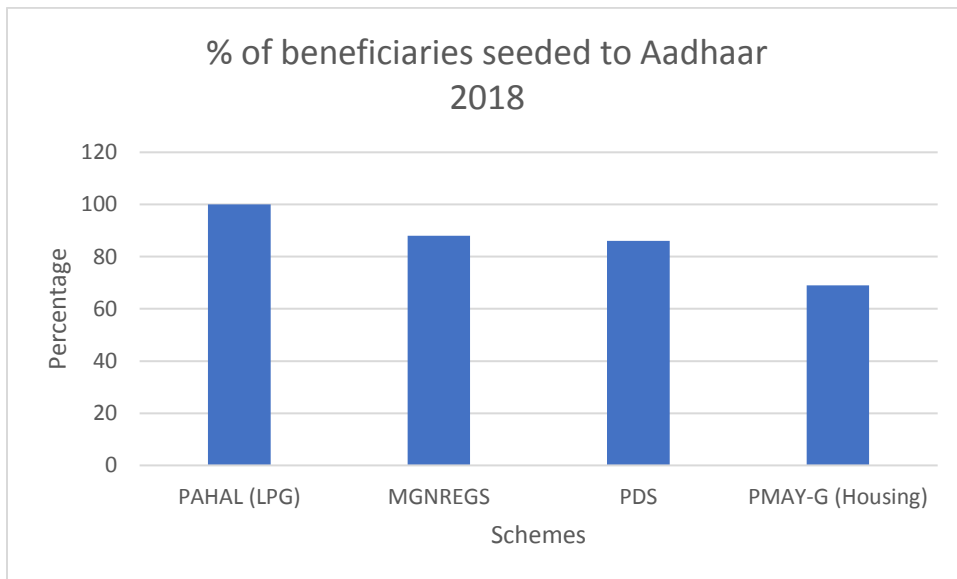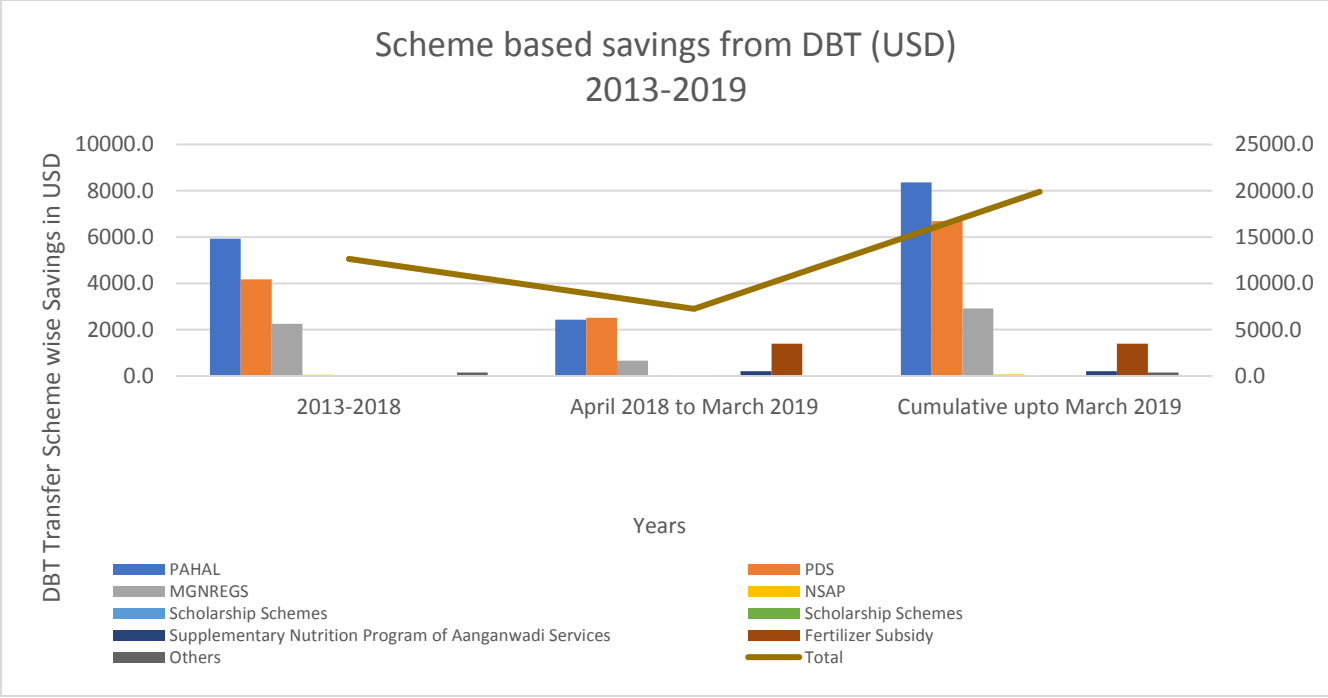**Note that 2019-2020 numbers are provisional from April-June of this financial year.

*Figure 19: % of beneficiaries seeded to Aadhar 2018*



**% of beneficiaries seeded to Aadhaar 2018**

Source: DBT mission GOI and authors analysis

*Figure 20: Scheme based savings from DBT (USD) 2013-2019*

Scheme based savings from DBT (USD)
2013-2019

Source: DBT mission GOI and authors analysis

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