University of Massachusetts Amherst

ScholarWorks@UMass Amherst

2015

Service Sector Growth in India: A View from Households

Deepankar Basu
University of Massachusetts - Amherst

Debarshi Das
Indian Institute of Technology - Guwahati

DEPARTMENT OF ECONOMICS

Working Paper

Service Sector Growth in India: A View from Households

by

Basu, Deepankar
Das, Debarshi

Working Paper 2015-10

UNIVERSITY OF MASSACHUSETTS AMHERST

Service Sector Growth in India: A View from Households

Deepankar Basu[!] and Debarshi Das[±]

June 12, 2015

Abstract

This paper studies the phenomenon of service-led growth in India over the past two decades from the perspective of household expenditure. We use consumption expenditure data from four recent "thick" rounds of the National Sample Survey in 1993-94, 2004-05, 2009-10 and 2011-12, and study aggregate services as well as 5 individual categories – education, healthcare, transportation, entertainment, and personal services – for both rural India. We begin by showing that expenditures of non-rich sections of the population are, and continue to remain, a significant source of the demand that has supported growth of the service sector over the past two decades. In particular, we show that the bottom 75 percent of households in terms of monthly per capita expenditure (MPCE) have been the source of between 31 and 54 percent of total expenditure on services, the larger numbers referring to urban India. Next, we show that expenditure on services, as a share of total expenditure, has increased across the expenditure distribution, even when we control for expenditure growth over time. For a poor country like India with widespread under-nutrition, this presents an unusual trend. We highlight the perverse nature of this trend in two ways. First, we estimate bivariate Lowess curves for the share of services in monthly expenditure against real MPCE, for rural and urban India separately, and show that it has been pivoting in a clockwise direction since 2004-05. Second, we confirm this finding by estimating quadratic Engel curves with an instrumental variable strategy. The clockwise pivoting of Lowess and Engel curves, especially true for urban India since 2004-05, mean that spending patterns of poor households – as captured by the share of monthly expenditure devoted to services – increasingly resemble those of the rich, even as income differentials persist. This suggests that poorer households are possibly getting constrained into spending more on services, even when they have inadequate consumption of food, due to larger structural changes beyond their control.

[!] Department of Economics, University of Massachusetts, Amherst, USA. Email: dbasu@econs.umass.edu
[±] Department of Humanities and Social Sciences, Indian Institute of technology, Guwahati, India. Email: debarshidas@iitg.ernet.in. I would like to thank the Fulbright foundation for funding my visit to UMass Amherst, where the paper was written

1. Introduction

In India, the service sector has grown at a rapid pace over the last two decades. While the service sector grew faster than agriculture in the three decades after independence, its annual growth rate was lower than industry's by about one percentage point. During the 1980s, the service sector's annual growth rate of 6.6% came close to industry's growth rate of 6.8% per annum. The 1990s witnessed the real acceleration, when it clocked an annual growth rate of 7.5%, far exceeding industry's 5.8% (Gordon and Gupta, 2004). This high growth rate has been maintained by the service sector ever since. As a consequence, in 2011-12 the service sector accounted for about 57% of the economy's gross value added (at factor cost) (GOI, 2015). Thus, it would not be an exaggeration to say that India's rapid growth in the last two decades has been led by the service sector.

That there is something unusual about this phenomenon of service-led growth acceleration in India can be highlighted by a comparison with the historical experience of present-day developed economies and with a group of economies which are comparable to the contemporary Indian economy. In general, developing countries have been undergoing "premature deindustrialization" (Rodrik, 2015). This refers to the fact that the share of the industrial sector in aggregate output and employment are reaching their peaks at a lower levels of per capita income in late industrializing countries, like India, than in early industrializing countries. Since agriculture has been declining at the same time, the fall in the industrial sector's share is reflected in a rise in the share of the service sector. In this sense India conforms to a global trend. But this trend is a cause for concern. The industrial sector is technologically the most dynamic sector and displays unconditional convergence across countries (Rodrik, 2013). Moreover, a large industrial sector has historically played a catalytic role in the development of an organized working class, mass political parties and democratic institutions (Rodrik, 2015). Thus, if developing countries bypass industrialization, they risk ending up with more unequal and volatile societies.[1]

---

[1] In contrast, according to GOI (2015), neither industry nor services was found to have an edge over the other as far their potential to transform the economy is concerned.

More interestingly, India stands out within the group of present-day developing economies too. After controlling for level and growth of income, India was found to be a positive outlier in terms of the service sector's share of GDP (Kochhar et al., 2006). The positive outlier status of India has been found in services exports as well (Eichengreen and Gupta, 2012). Not surprisingly, industrial performance of India was found to be a negative outlier (Kochhar et al., 2006).

Both because it departs from well-known patterns and because of its potential implications on poverty, inequality, and welfare, the growth of India's service sector has attracted lot of scholarly attention in recent years (Singh, 2006; Rakshit, 2007; Eichengreen and Gupta, 2011; Nayyar, 2012). To investigate the cause of its growth, it is useful to conceptually subdivide the sources of growth between supply side and demand side factors. Some of the supply side factors that have been seen as having helped the growth of the Indian service sector are (a) the diversified nature of industrial production, and (b) a skilled workforce. Interestingly, both these factors are legacies of the import substitution industrialization (ISI) policy of the post-Independence era. The Mahalanobis model of planning – a key organizing framework of ISI policies – had a pronounced emphasis on self-sufficiency. As a result, the country chose to produce many goods that defied the logic of comparative advantage. For instance, heavy and capital intensive industrialization was consciously pursued as part of the ISI strategy (Chakravarty, 1987; Patnaik, 1994).

To facilitate heavy and capital intensive industrialization, rapid and widespread skill development was necessary. Thus, tertiary education was encouraged as part of the same strategy. While critics have taken the Mahalanobis strategy to task for neglecting primary education and for not capitalizing on comparative advantage, they have often overlooked some of its important unintended consequences. First, India ended up having a high degree of diversification in the domestic production basket. Kochhar et al. (2006) found a positive relation between the degree of diversification and performance of service sector. Thus the growth of the service sector could be partly attributed to this diversification of domestic production. Second, the country managed to create a pool of high quality skilled labour. The magnitude of this pool may be small compared to the vastness of the economy, but it was large enough to support the

3

growth of key branches of the service sector, like IT and telecommunication, which experienced a global upsurge from late 1980s (Kochhar et al., 2006). Thus, curiously enough, the acceleration of the service sector in the 1990s in India was aided, albeit unknowingly, by the ISI strategy of immediate post-Independence years.

Turning to the demand side, we can break up the main sources of demand for the output of the service sector into four broad categories: (a) demand coming from agriculture and industry, (b) export demand, (c) final consumption demand arising from the government (public consumption), and (d) final consumption demand coming from households (private consumption). The first component is "intermediate demand"; the other three components together comprise "final demand".

Intermediate demand, i.e., demand for the service sector output that is used as intermediate inputs in other sectors will rise if, firstly, other sectors grow at a quicker rate, or, secondly, if the intensity of use of service sector inputs rises. Using input-output tables for 1993, 1998, 2003, Eichengreen and Gupta (2011) found that the intensity of use of service sector inputs has not, in general, gone up. On the other hand, we know from aggregate data that the other two sectors, namely agriculture and industry, have grown at a slower rate than services (GOI, 2015). A combination of these two factors means that importance of "intermediate demand" has been going down over time. For instance, industrial demand accounted for 40% of the service sector output in 1991; it fell to 31% in 2007. For agriculture, the corresponding fall has been from 5% to 2% (Eichengreen and Gupta, 2011).

This decline has been largely compensated by the rise in export demand, and the combination of public and private consumption demand. Between 1991 and 2007, the share of exports as a proportion of service sector output rose from 3% to 10% (Eichengreen and Gupta, 2011). Sectors within services which benefitted most from external demand are computer-related services, machinery rental, research, accounting, legal services, technical services, communication, banking and other such services. Reflecting this growth of service exports, India's share in world exports of services more than tripled, from 0.8% to 2.6%, in the decade since 1998. Going hand in hand with exports, final consumption demand – sum of public and

private consumption – has also been rising. From a little over 50% of services output in 1991, it rose to approximately 60% in 2007. In this paper we focus on the private component of final consumption demand, i.e., household consumption demand. In the context of the macroeconomic story of India's service sector growth, we are interested in investigating the behaviour of households as regards the consumption of services. While the bulk of the existing literature has analyzed India's service sector growth from a macroeconomic perspective, the main contribution of this paper is to connect the macroeconomic phenomenon to the behaviour of households. This paper investigates household level expenditure behaviour to identify an important source of demand for the service sector and draws out some implications of such behaviour from a distributional perspective.

Among the extant literature, Nayyar (2012) is closest to our paper. While Nayyar's (2012) primary aim is to establish that services behave like luxuries, the focus of this paper is slightly different. In particular, we study the following questions. First, can we see evidence for the growth of expenditure on services at the household level? Second, which sections of the population are purchasing, and supporting the growth of, services? Is it primarily the relatively rich households who are purchasing services? Or, are relatively poorer households also emerging as important sources of demand for services? What are the implications of the consumption patterns of services across the income distribution? By addressing these questions, this paper contributes to the emerging literature on India's experience of service sector led growth in a specific way.

In this paper, we answer these questions using household level data from four recent "thick" rounds of the Consumption Expenditure Survey (CES) conducted by the National Sample Survey Organisation (NSSO) of the Government of India, in 1993-94, 2004-05, 2009-10 and 2011-12. Our analysis of these large scale, nationally representative data sets shows that household level expenditure patterns do show a steep increase in the consumption of services. Moreover, the increase in the consumption of services is true across the income distribution – poor households have increased their consumption of services just like the rich. In fact, expenditure arising from the bottom 75 percent of the population – a conservative measure of the economically vulnerable section of the population, according to Sengupta et al. (2008) – have

become and continues to remain an important source of demand for key services. We also show that over time, the behaviour of relatively poorer households increasingly resemble those of the rich as far as the consumption of services is concerned. We think this indicates towards the operation of perverse structural constraints, of the kind that have contributed to a food budget squeeze (Basole and Basu, 2015).

The rest of the paper is organized as follows. In section 2, we discuss data sources and definitions of key variables. In section 3, we discuss patterns of consumption of services by households to establish that poor households are and continue to remain an important source of demand for services. In section 4, we present Lowess plots and estimates of quadratic Engel curves to argue that the behaviour of poor households are coming closer to those of richer households. Section 5 presents discussion of the results and the last section concludes the paper. An appendix provides details of services consumption items available in the CES of the NSSO.

2. Data and Definitions

The main source of data for the analysis in this paper are the National Sample Surveys (NSS) in India, one of the oldest household sample surveys in the world. The NSS is conducted by the National Sample Survey Organization (NSSO) of the Government of India. While the NSS has collected information on a wide range of aspects – like housing, wages, sanitation, health, schooling, disability – its two most important components are the consumption expenditure survey (CES) and the employment-unemployment survey (EUS). Since 1972-73, the NSS has been split into "thick" (or quinquennial) rounds and "thin" rounds. The thick rounds are conducted roughly every 5 years, have large samples (about 120,000) and a sampling design that ensures its representativeness at sub-national levels. The thin rounds are conducted at a roughly annual frequency between the thick rounds, have smaller samples (roughly 40 percent of thick rounds) and are representative only at the national level.

For the analysis in this paper, we use data from the CES of four recent thick rounds: the 50th, 61st, 66th and 68th rounds of the NSS, which refer to the years 1993-94, 2004-05, 2009-10

and 2011-12, respectively.[2] The CES collects detailed information on the quantity and value of expenditure on a broad range of goods and services, including all important food and nonfood categories.[3] Data from the CES is used to generate estimates of average monthly per capita expenditure (MPCE) and its distribution across households, and has been the mainstay of quantitative analyses of poverty and inequality in the country. The focus of this paper is on the sources and implications of growth in services. Hence, we extract data on the value of expenditure on *all categories of services that are available in the CES*. Aggregating information on expenditure on relevant items, we form 6 broad groups of services expenditure: education, healthcare, transportation, entertainment, personal services, and rent.

In this paper, the category of "education" captures expenditure of households on services directly related to education like tuition, fees, library charges and private tutors. But it excludes expenditure on goods like textbooks that would also be part of the overall household expenditure on education. The category of "healthcare" captures household expenditures on services related to healthcare and excludes expenditure on goods like medicines. The category of "transportation" includes expenses on conveyance services but excludes expenditure on goods like fuel. The category of "entertainment" includes expenditure on cinema, theater, fairs, etc., but does not include the purchase of durable goods like radio, TV, etc. The category of "personal services" includes expenditures on routine services like domestic servant, sweeper, cook, tailor, repair services, telephone (including mobile) charges. The category of "rent" includes house rent, garage rent, hotel lodging charges, etc., and is an imputed number for urban households who own their houses.[4]

While we will conduct some analysis that is disaggregated by the six categories of services expenditure, a major aim of this paper will be to study a composite category of "services expenditure". This composite category is computed as the sum of all the categories other than rent. Thus, in the rest of this paper, when we refer to "services" expenditure

---

[2] We leave out the 55th round (1999-00) for well-known data problems arising from mixing of recall periods.
[3] For education, health care, transportation, personal services and other "miscellaneous goods and services", NSSO only collects information on the value of consumption. No information on quantity of consumption is collected for these categories.
[4] Further details of the construction of services expenditure categories are given in the Appendix.

without further qualifications, we will mean the sum of expenditure on education, healthcare, transportation, entertainment, and personal services. We exclude rent from the composite category for two reasons. First, much of the information on rent for urban households is an imputed figure; hence, its reliability is much lower than the expenditure information on other categories. Second, expenditure that is recorded as "rent" is a transfer payment. It is not an expenditure that correspond to the production of any good or service. Hence, it should be excluded from any analysis that refers to the output of services.

To compute real expenditures, we deflate nominal expenditure by the state-level consumer price indices for agricultural labourers (CPIAL) for rural households; for urban households, we use the state-level consumer price index for industrial workers (CPIIW). While state-level price indices allow us to control for both spatial and temporal changes in prices, we face one data issue. State-level CPIAL and CPIIW, going back to 1993-94, are only available for the following 15 major states: Andhra Pradesh, Assam, Bihar, Gujarat, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. Together these states, whose data we are using, accounted for about 82 percent of Indian households in 2011-12.

To construct a consistent series for the CPIAL and CPIIW at the state level going back all the way to 1987-88, we used data from two sources. For historical data, we used the *Economic and Political Weekly Research Foundation India Time Series* database, and for more recent years we used data available in published reports of the *Labour Bureau of the Ministry of Labour & Employment, Government of India*. Using data from both these sources, we constructed time series for state-level CPIAL and CPIIW with 1960-61 as the base year. Hence, all real expenditures in this paper are expressed in terms of 1960-61 prices.

3. Patterns of Services Consumption

The growth acceleration of the Indian economy since the early 1990s was largely led by the services sector, as has been mentioned above. Between 1993-94 and 2011-12, while real gross value added for the whole economy increased by 245%, the corresponding increase for the

services sector was 340%. Over the same period, the share of services in real value added increased from 45% to 57% (GOI, 2015, Table 1.3 A1).

An important source of demand underlying this acceleration of the services sector since the early 1990s has been final consumption demand arising from household expenditure. While there are many categories of services – like finance, insurance, real estate, business services – that are not consumed by most households, many key services – like education, healthcare, transportation – are part of the consumption basket of households. In this paper, we study those services for which expenditure data is available from the CES conducted by the NSSO. As pointed out in the previous section, the CES allows us to construct a composite category of "services expenditure" comprising of 5 important categories of services: education, healthcare, entertainment, personal services, and transportation.

Between 1993-94 and 2011-12, average inflation-adjusted total monthly per capita expenditure increased by 38% in rural and 51% in urban India (NSSO, 2014). Our own calculations show that over the same period, inflation-adjusted average monthly per capita expenditure on services increased by 167% in rural and 137% in urban India. Thus, household expenditure on services increased by more than 3 times faster than total expenditure in both rural and urban India. Turning to the five categories, our calculation show that entertainment, education and personal services were the three fastest growing expenditure categories in rural India. Over the period of study, average expenditure on the first grew by 472%, the second by 298%, and the third by 197%. In urban India, these three services were also the fastest growing expenditure categories for households, but the order of increase was different: entertainment grew by 382%, personal services by 209% and education by 170%.

Given these overall patterns of household expenditure on services, we would like to probe deeper and investigate two sets of questions. First: did the contribution of the rich to the demand for services rise over time? Second: have households been devoting an increasing share of their monthly budget on services, and can income growth account for the observed pattern?

9

3.1. Are Poor Households Purchasing Services?

The first question we wish to investigate relates to a common perception that most of the final demand for services that come from households are limited to expenditure made by relatively richer households. To address this question, Table 1 reports estimates of the proportion of per capita expenditure on the 5 categories of services and their sum, that come from the bottom 75% of the MPCE distribution in each year. We choose 75% of the population because, to our mind, this is a meaningful estimate of the poor in India. In fact, this is close to, and a little lower than, the estimate of the economically vulnerable population in 2004-05 presented by Sengupta et al. (2008).

Table 1: Proportion of Per Capita Total Expenditure on Different Services Coming from the Bottom Three Quartiles of Each Year's Nominal MPCE Distribution (%)

	RURAL				URBAN			
	1993-94	2004-05	2009-10	2011-12	1993-94	2004-05	2009-10	2011-12
Education	49.73	36.21	39.13	41.12	42.56	45.13	51.51	43.67
Healthcare	23.92	24.50	28.78	33.81	28.55	13.97	24.67	28.12
Personal Services	38.47	24.93	33.30	34.64	53.42	46.27	57.87	60.79
Entertainment	49.97	39.29	45.62	46.17	53.77	43.86	54.04	55.82
Transportation	41.63	36.57	39.42	42.73	44.95	51.64	55.31	56.95
ALL SERVICES	40.07	31.38	36.91	39.04	45.76	45.86	54.66	54.48

Source: authors' calculation from unit level data from the various rounds of the NSS. Note: all computations use sampling weights.

Let us start with data on total services that is presented in the last row of Table 1. For rural households in our sample, 40.07% of the total per capita expenditure on services in 1993-94 came from the bottom 3 quartiles of the MPCE distribution. This declined to 31.38% in 2004-05, but then climbed back up to 39.04% in 2011-12. For urban households in our sample, the picture is different both in terms of levels and trends. In 1993-94, 45.76% of total per capita expenditure on services came from the bottom 3 quartiles of households. While this increased mildly to 45.86% in 2004-05, it increased sharply thereafter to reach 54.48% in 2011-12.

The same trend is also visible for individual service categories. For rural households in our sample, the proportion of per capita expenditure on healthcare and transportation that

comes from the bottom 3 quartiles of the MPCE distribution increased between 1993-94 and 2011-12; for education, personal services and entertainment, the corresponding figure declined (with education witnessing the largest decline). For the urban households in our sample, the proportion of per capita expenditure arising from the expenditures of the bottom 75% of the MPCE distribution increased between 1993-94 and 2011-12 for healthcare, personal services, entertainment, and transportation, with personal services and transportation witnessing the largest increases. For education, the corresponding figures remained relatively unchanged over this period.

Thus, the data in Table 1 demonstrate that poorer sections of households in both rural and urban India is a significant source of demand for the output of key service sector industries. Close to 40% of the economy-wide total of per capita expenditure on services in rural India come from the spending decisions of the bottom 75% of the MPCE distribution. In urban India, the significance of the expenditures of poorer households is even more pronounced. About 55% of the economy-wide per capita expenditure on services in urban India come from the expenditures of the bottom 3 quartiles of the MPCE distribution. While this is about 28% for education services (the lowest among the 5 categories studied in this paper), it is as high as 61% for personal services in 2011-12. Thus, it would be incorrect to think that expenditure on services is primarily accounted for by the rich; the poor, especially in urban areas, account for a large proportion of the economy-wide (per capita) expenditure on services. Importantly, the share of the poor has not been falling, as would have happened if the demand for services in the boom period had been driven by the rich alone.

3.2. Consumption of Services across MPCE Deciles

The relatively faster growth in the household expenditure on services, in comparison to overall expenditure, was reflected in its rising share in household budgets. This has been the case for an average household. Was this increase restricted to richer sections of the population? To answer this question we present data in Table 2 on the average share of services in the household budget across MPCE deciles. For calculations reported in Table 2, we define deciles

on the basis of the nominal MPCE distribution for each year and within each year, for rural and urban areas, separately. Thus, for instance, the decile cut-offs for rural households in 2004-05 would be different not only from the cut-offs for urban households in 2004-05 but also for rural households in other years.

Table 2: Share of Services in Monthly Per Capita Expenditure (%) across Each Year's Nominal MPCE Deciles

MPCE Deciles	RURAL				URBAN			
	1993-94	2004-05	2009-10	2011-12	1993-94	2004-05	2009-10	2011-12
1	3.71	3.53	5.22	6.42	4.74	4.19	6.77	7.90
2	3.77	4.18	6.58	7.49	5.30	5.63	8.18	9.86
3	4.01	4.74	7.31	8.35	5.82	6.61	9.88	10.95
4	4.47	5.27	7.91	8.88	6.70	7.68	11.06	11.94
5	4.75	5.71	8.61	9.51	7.23	9.29	12.23	12.53
6	5.08	6.26	9.40	10.68	7.95	10.63	13.10	13.05
7	5.61	6.87	10.45	10.68	8.65	12.94	14.87	14.80
8	6.05	8.06	11.01	11.43	10.34	14.84	15.33	14.95
9	7.19	9.99	11.64	12.94	11.77	16.16	17.09	16.17
10	9.89	13.29	14.04	14.62	16.22	20.90	19.30	19.47
All Hhlds	5.25	6.25	8.64	9.56	8.14	11.68	13.21	13.47

Source: authors' calculation from unit level data from the various rounds of the NSS.
Note: MPCE deciles are defined on nominal MPCE for rural and urban areas separately for each year. All computations use sampling weights.

The data in Table 2 highlight three interesting trends. First, on average, households have continually increased the share of their monthly budget for purchasing services: in rural India, the share of services increased from 5.25% in of household budgets in 1993-94 to 9.56% in 2011-12; in urban India, the corresponding increase was from 8.14% in 1993-94 to 13.47% in 2011-12. Second, for any year we observe an increasing trend in the average share of services expenditure in household budgets as we move from poorer to richer households. This is a well-known trend and reflects the fact that poorer households have to spend a larger share of their budgets on other necessary items. Third, as we move across years we see an increase in the average share of services in the household budget across *all* MPCE deciles. This means that, for both rural and urban India, the average share of expenditure on services for households in any

12

(nominal) MPCE decile in any time period was higher than the corresponding average for households in the same (nominal) MPCE decile in a previous time period. Thus, the increase in the average share of services in the household budget is not restricted to any particular section, e.g., rich households, of the population when we define relative position in any year with respect to the distribution of total expenditures in that particular year. Using such a definition of rich/poor, the vast majority of households display the same trend of devoting an increasing share of their household budget on services.

While the pattern seen in Table 2 is striking, it needs to be interpreted with caution. This is because of two reasons: (a) the group of households that occupy a given (nominal) MPCE decile in some period is different from those that occupy the same (nominal) MPCE decile in a subsequent (and previous) period; and, (b) since the early 1990s, India has witnessed relatively rapid income growth so that income (and expenditure) levels of households have generally increased over time. The first reason comes from the fact that the NSS does not collect a panel data set, i.e., the same household is not interviewed at different points in time. Instead, for every round, a different stratified random sample is used for collecting data. The second reason is important to keep in mind because households generally increase their budget share of non-food, of which services is a component, as they become richer. This trend is observed for households across the world and arises from the fact that services are luxuries, with income elasticities greater than unity.[5] Thus, to investigate if anything unexpected is going on with regard to household expenditure patterns in India, it is essential to control for income variation over time (and across space).

Since the absence of a panel data set prevents us from tracking the same household over time, we adopt an indirect way to control for income variation (over time and space). We compare (groups of) households with *similar* real incomes levels at different points in time and space, where we compute real expenditure by deflating nominal expenditures by the state-level CPIAL for rural and state-level CPIIW for urban households. In Table 3, we present

---

[5] We use total expenditure (MPCE) as a proxy for income. We do so because the NSS does not collect data on income of households.

estimates of average share of service expenditure in household budgets for rural and urban households across inflation adjusted MPCE deciles.

Note that Table 3 is similar to Table 2 with the sole and important difference being the manner in which the deciles are calculated. To prepare the estimates in Table 2, decile cut-offs had been defined for the nominal MPCE distribution pertaining to rural/urban India for each year separately. Hence, since average MPCE increased over the years, the decile cut-offs also increased over the years. For the calculations reported in Table 3, we define decile cut-offs on the basis of real MPCE for the *pooled sample* of households from all the four years. We do this separately for the sample of rural and urban households. The important point of this exercise is that the decile cut-offs *do not change* over the years. Thus, when we compare estimates of the average share of services expenditure in household budgets across years, we are able to compare groups of households with *similar* levels of real income.

One way to understand our procedure is to note that any decile defined on the basis of real MPCE for the pooled sample of households will include households from all the four years. For instance, the first decile will have households with real MPCE lower than the first decile cut-off. In general this condition will be satisfied by households from all the four years in our sample. Hence, the first (or any other) real MPCE decile will have households from 1993-94, 2004-05, 2009-10 and 2011-12. Now, for all households in the first (or any other) real MPCE decile, we compute the average share of service expenditure by time periods. Since all households within the first (or any other) decile of real MPCE have similar real MPCE, this gives us an indirect way of answering the following question: do (groups of) households behave differently over time with respect to their expenditure on services even when their income level(s) do not change too much?

Table 3 shows that the answer to the above question is generally in the affirmative. For instance, the average share of household budget devoted to services increased from 3.68% in 1993-94 to 6.14% in 2011-12 for rural households in our sample with real income in the bottom most decile. For the analogous group of urban households, the corresponding increase was from 5.05% in 1993-94 to 8.10% in 2011-12. If we move to the other end of the real MPCE

distribution we see the same pattern of increase over time but with an important difference: the magnitude of increase is much lower. For instance, for the top most decile in rural India, average share of household budget on services increased from 11.67% in 1993-94 to 13.17% in 2011-12. In urban India, the increase at the top is even lower: from 17.69% in 1993-94 to 18.68% in 2011-12. Moreover, if we compare 2004-05 and 2011-12, the increase is even lower for rural areas and is reversed for urban India. For the top most decile in rural India, the share of household budget devoted to services barely increased from 13.06% in 2004-05 to 13.17% in 2011-12. In urban India, the corresponding share goes down from 21.62% in 2004-05 to 18.68% in 2011-12. The pattern of decline is true for deciles 7 through 10 in urban India.

Table 3: Share of Services in Monthly Per Capita Expenditure (%) across Real MPCE Deciles for Pooled Data

Real MPCE Deciles	RURAL				URBAN			
	1993-94	2004-05	2009-10	2011-12	1993-94	2004-05	2009-10	2011-12
1	3.68	3.57	5.22	6.14	5.05	5.00	7.37	8.10
2	3.99	4.23	6.09	6.37	5.83	7.02	8.87	9.81
3	4.47	4.70	6.89	7.25	6.71	8.17	10.46	10.48
4	4.76	5.23	7.55	7.46	7.31	10.07	11.16	11.73
5	5.27	5.53	8.01	7.98	8.23	11.22	12.32	12.20
6	5.66	6.12	8.67	8.52	9.10	12.42	13.27	12.58
7	6.34	6.79	9.82	8.91	10.10	14.31	14.35	13.98
8	6.94	7.99	10.24	9.97	11.44	15.30	15.61	14.73
9	8.38	9.40	11.03	11.03	13.21	17.36	17.06	15.66
10	11.67	13.06	13.32	13.17	17.69	21.62	19.27	18.68
All Hhlds	5.25	6.25	8.64	9.56	8.14	11.68	13.21	13.47

Source: authors' calculation from unit level data from the various rounds of the NSS.
Note: Real MPCE deciles are defined on the basis of the distribution of real MPCE pooled for all years, separately for rural and urban areas. All computations use sampling weights.

Let us summarize the evidence presented in this section so far by highlighting two important points. First, we have shown that the sole source of demand for key services is not only the richer sections of the population; in fact, a large part of the total demand is arising from expenditure made by poorer sections of the population too, and this is especially

15

important in urban India. Second, we have shown that the increasing purchases of services by households – especially poorer households – is larger than what can be accounted for purely by the growth of income. This is because groups of households with similar levels of real income have increased the share of their monthly budget for services over the years. Moreover, this patterns seems to be relatively stronger at lower ends of the MPCE distribution.

4. Are Poor Households Becoming Like the Rich?

The evidence presented in the previous section highlights two patterns. First, on average, the share of household expenditure devoted to services has gone up over time in both rural and urban India (Table 2). Second, the average increase over time is driven by very different patterns for rich and poor households. For poorer households, the share has increased over time, even as it has decreased for rich households, especially since 2004-05 and in urban India. This suggests that the difference in the behaviour of rich and poor households with respect to expenditure on services – as captured by the share of household budget used for services – has narrowed down over time. In this section, we will present two types of evidence to support this claim about the narrowing down of difference between the behaviour of rich and poor households: bivariate nonparametric relationship between real MPCE and share of services; quadratic Engel curves for share of services.

4.1. Lowess Plots

The first pieces of evidence we would like to present are the bivariate relationship between the share of services share and real MPCE for the entire distribution of real MPCE for each particular year. In Figure 1 and 2, we present this relationship using Lowess plots of the share of services in MPCE on the logarithm of real MPCE for rural and urban India respectively. These Lowess plots are computed through locally weighted bivariate regression of the share of services in MPCE on the logarithm of real MPCE. This method was first proposed by Cleveland (1979) and has been widely used since then as a flexible method for capturing bivariate relationships among random variables. Being a local smoothing technique, it is sensitive to

16

variations in the bivariate relationship at *all* points in the distribution of the independent variable.

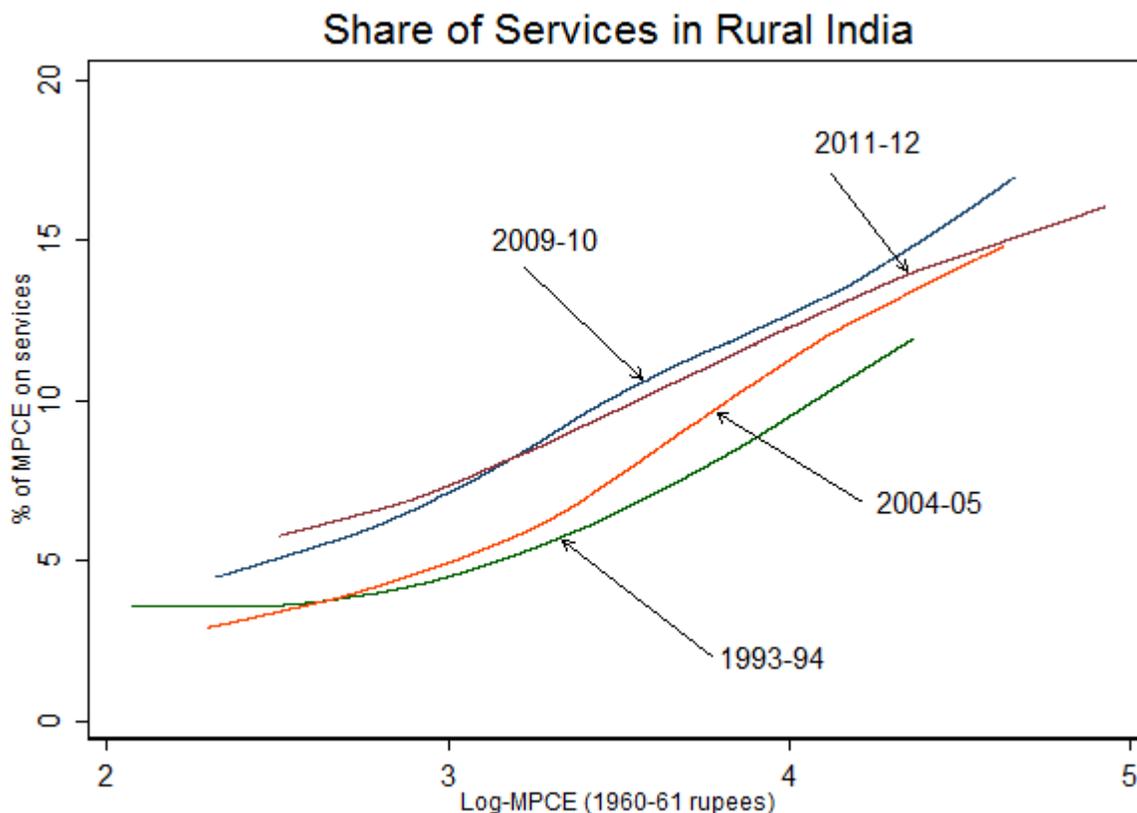## Share of Services in Rural India

Figure 1: Lowess plot (with a bandwidth of 0.4) of the share of monthly per capita expenditure (MPCE) on services (excluding rent) and log-real MPCE in Rural India. Source: authors' calculation from unit level data from the NSS. To exclude outliers, the top and bottom 1 percent of the log-real MPCE distribution for each year has been dropped.

Two important patterns can be observed in the Lowess plots in Figure 1 and 2. First, they show that the share of services in MPCE and the logarithm of real MPCE are positively related for every year in both rural and urban India. Thus, as households become richer, they spend a larger share of their monthly budget on services. Second, the Lowess plots shift over time in interesting ways. Between 1993-94 and 2004-05, Lowess curves for both rural and urban India pivot anti-clockwise. Thus, curve shifts down at the left end of the real MPCE distribution, and the rest of the curve shifts up. This anti-clockwise shift of the Lowess curve

between 1993-94 and 2004-05 is much more pronounced in urban that in rural India. Between 2004-05 and 2009-10, the Lowess curve for rural India shifts up in an almost parallel manner. Over the same period, the Lowess curve for urban India pivots in a clockwise direction. This clockwise movement leads the Lowess curves for the two years to intersect. Between 2009-10 and 2011-12, the Lowess curves for both rural and urban India pivot in a clockwise direction.
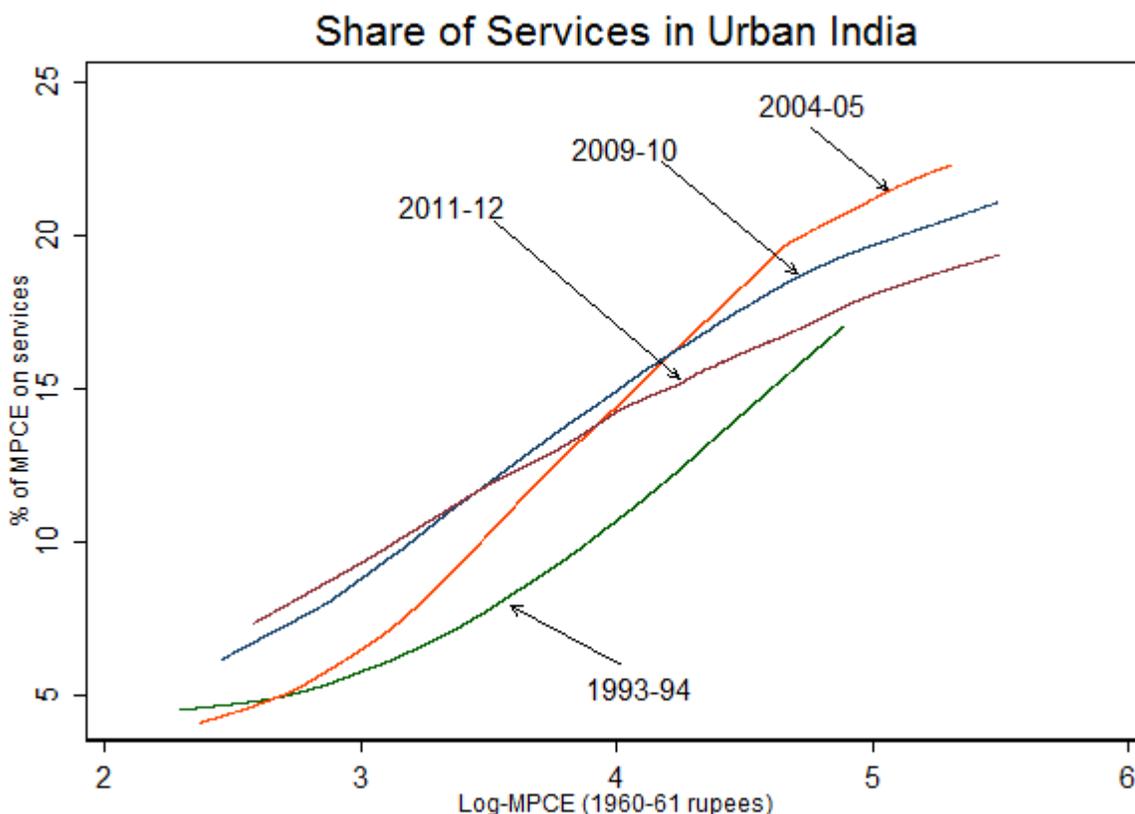

Figure 1: Lowess plot (with a bandwidth of 0.4) of the share of monthly per capita expenditure (MPCE) on services (excluding rent) and log-real MPCE in Urban India. Source: authors' calculation from unit level data from the NSS. To exclude outliers, the top and bottom 1 percent of the log-real MPCE distribution for each year has been dropped.

These two Lowess plots suggest an interesting fact. In urban India, the consumption pattern of the poor with regard to services – as measured by the share of monthly expenditure devoted to services – have increasingly resembled the pattern of the rich since 2004-05. This is

because the Lowess curve for urban India has pivoted in a clockwise direction, so that the difference in the monthly expenditure share for services for the upper and lower ends of the real MPCE distribution has narrowed down. While pattern is observed for urban India since 2004-05, it is observed for rural India since 2009-10.

4.2. Quadratic Engel Curves

While the Lowess curve are extremely informative and give us an idea about the changing relationship between the share of services and real MPCE, its main disadvantage is that it is a bivariate relationship. Hence, the Lowess curves are not able to control for other factors that might impact both the share of services and real MPCE so that the bivariate relationship estimated and presented in the Lowess curves might be biased. To control for other relevant factors, we supplement the Lowess plots with results from regression analysis.

In moving to a regression analysis, we are able to draw on a vast body of literature that has studied Engel curves (for instance, see Lewbel, 2008). Engel curves capture a crucial aspect of household behaviour: the relationship between expenditure on particular items or group of items and the household's income or total expenditure. One of the most popular forms of the Engel curve is expressed as a relationship between budget shares (of items or groups of items) and total expenditure. Empirical studies of the budget share Engel curve have often used the Working-Leser model, where budget share of an item (or group of items) is a linear function of log-expenditure (Working, 1943; Leser, 1963). In this paper, we will use this popular specification – the Working-Leser model – of the Engel curve.

In estimating Engel curves, at least four issues need to be addressed. The first issue relates to the appropriate functional form. Even though the early literature used a linear specification of the Working-Leser model, many researchers have argued that a quadratic specification is more appropriate for various reasons, like allowing for potential nonlinearities (Banks et al., 1997). In this paper, we follow the recent literature in estimating a quadratic form of the Engel curve. The second issue relates to the use of other covariates in the model. While some papers have used bivariate specifications – budget share regressed on a constant and log

expenditure – it is now common to control for other households level characteristics, especially demographic factors. In this paper, we follow this literature and include extensive demographic controls in the model.

The third issue pertains to the zero-expenditure problem (Deaton and Irish, 1984). This problem arises because households often report zero consumption of many goods and services. If a large proportion of households report zero expenditure for the item under investigation, then ignoring this feature of the setting might give rise to biased estimates. On the other hand, it is often difficult to identify the exact reason for the reported zero expenditure. It could arise because of non-consumption or because of low frequency of purchase or measurement error. Hence, it becomes difficult to address the zero expenditure problem. In this paper, we could avoid the problem of zero expenditure because our main variable of interest is the composite category of services. While many households reported zero expenditure for individual items, very few households reported zero expenditure for all items. Hence, for none of the years did we have a sample with more than 5 percent zero expenditure. Since a rule of thumb is to address the zero expenditure problem only when more than 10 percent of sample households fall in that category, we ignored the issue (Wooldridge, 2002).

The final issue relates to the potential problem of endogeneity. In the Working-Leser model, the dependent variable is budget share of an item (or a group of items) and the key independent variable is log-expenditure. Since expenditure on an item (or group of items) is jointly determined with total expenditure, the key independent variable in the model is likely to be endogenous. Hence, estimating the model with OLS is likely to produce biased an inconsistent parameter estimates. In this paper, we address this potential problem by using two instruments for log-real expenditure: amount of land owned for potentially productive purposes, and educational attainment of the household head.

To construct the instruments, we use relevant data from the CES. For the first instrument – amount of land owned for potentially productive purposes – we use information from two questions in the CES questionnaire: (1) whether the household owns any land?, and (2) if it owns land, which of the following three types does it fall into: (a) homestead only, (b)

homestead and other land, and (c) other land only. If any household owns land of type (b) or (c), we count that as "land owned for potentially productive purposes". For the second instrument – educational attainment of household head – we use information about the "general educational level" of the household head. The educational level is measured as a categorical variable with the following 6 categories: not literate, literate but without formal schooling, literate but below primary school, primary school, middle school, secondary school and above.

To function as a valid instrument, a variable must satisfy two conditions. First, it must be strongly correlated with the endogenous variable (the relevance condition). Second, it must impact the dependent variable only through its effect on the endogenous variable (the exogeneity condition). We think that the first condition is satisfied because the amount of land owned for productive purposes is a proxy for wealth, and educational attainment of the household head is a proxy for "human capital". Thus, both instruments are likely to be strongly correlated with household income and total expenditure so that the relevance condition would be satisfied. We think that the second condition is satisfied because wealth and human capital are largely pre-determined at the time the households undertake monthly expenditure decisions. Hence, the exogeneity condition is likely to be satisfied. While these intuitive reasons suggest that the instruments might be valid, we will report results from statistical tests to ascertain them more rigorously – first stage results for the relevance condition and overidentification test for the exogeneity condition.

Keeping in mind these four points, we estimate the following model in this paper:

$$s_i = \beta_0 + \beta_1 y_i + \beta_2 y_i^2 + \gamma' X_i + \varepsilon_i \qquad\qquad (1)$$

where i indexes households, s_i denotes the share of MPCE spent on services, y_i denotes log-real MPCE, y_i^2 denotes the square of log-real MPCE, X_i refers to a vector of demographic controls that include number of male adults, number of female adults, number of male children, number of female children, age and age-squared of the household head, caste of the household, religion of the household head, and a dummy variable for female-headed households, and ε_i denotes an unobserved stochastic error term. To address the potential

problem of endogeneity of log-real MPCE, we instrument it with the amount of land owned for productive purposes, and educational attainment of the household head. We estimate the parameters of the model for each of the thick rounds of the CES separately with 2SLS and report the results in Table 4. Since we estimate the model separately for each time period, we do not need to account for the temporal variation in prices. But, following Kedir and Girma (2007), we control for spatial variation in prices by deflating MPCE by relevant state-level consumer price indexes.

Let us start from the last two rows of Table 4, which present results for the validity of the two instruments. A large p-value of the overidentification test suggests that the exogeneity condition is satisfied and a large value of the F-stat for the first stage regression – a rule of thumb is that the F-stat should be greater than 10 – suggests that the relevance condition is satisfied. From the results reported in the last two rows we see that the estimation for urban India is strongly valid – the p-values of the overidentifcation tests are large and the F-stats for the first stage regressions are much larger than 10 –but that the results for rural India are weak. For rural India, the overidentifcation test fails in 2004-05 and the relevance condition fails for every time period. Thus, we do not have lot of confidence on the results for rural India. So, in the rest of the paper, we will focus on urban India.

The results for urban India in Table 4 show that the coefficient on log-real MPCE is greater than zero (and strongly significant) for all time periods. For instance, the coefficient for 1993-94 suggests that a 1 percent increase in real MPCE is associated with a 0.87 percent increase in the share of services in household budgets. This finding about the response of spending on services to income (or total expenditure) is in accord with existing results (Nayyar, 2012). Interestingly, the coefficient on the quadratic term is always negative and significant. This suggests that at the upper end of the MPCE distribution, i.e., for rich households, services are not considered luxuries. Our finding of the importance of nonlinear behavior is in line with much of the existing literature on Engel curves (Banks et al., 1997; Kedir and Girma, 2007). But this is not the focus of our paper; so we will not pursue the question further.

Table 4: Quadratic Engel Curve Estimates for Services Excluding Rent

	RURAL				URBAN			
	1993-94	2004-05	2009-10	2011-12	1993-94	2004-05	2009-10	2011-12

Dependent Variable: Proportion of MPCE on Services (excluding Rent)

	1993-94	2004-05	2009-10	2011-12	1993-94	2004-05	2009-10	2011-12
Log Real MPCE	-1.884*	0.368	2.195**	2.411*	0.869***	0.968***	0.678***	0.476**
	(0.732)	(0.408)	(0.764)	(1.009)	(0.225)	(0.120)	(0.075)	(0.158)
Log Real MPCE-Squared	0.295**	-0.045	-0.302**	-0.314*	-0.111***	-0.114***	-0.077***	-0.051**
	(0.112)	(0.059)	(0.110)	(0.137)	(0.031)	(0.016)	(0.010)	(0.019)
Constant	3.000*	-0.674	-3.860**	-4.479*	-1.607***	-1.896***	-1.316***	-0.936**
	(1.178)	(0.697)	(1.314)	(1.845)	(0.404)	(0.218)	(0.144)	(0.319)
Observations	56317	60752	46467	46830	36535	23742	24567	24681
Overid Test (p-value)	0.146	0.000	0.633	0.218	0.254	0.986	0.307	0.585
First Stage (F-Stat)	3.228	2.998	4.690	3.109	28.662	34.068	36.293	58.142

Note: In all regression, log Real MPCE is instrumented by educational attainment of household head and land owned for productive purposes; demographic variables include number of male and female adults, number of male and female children, age, caste and religion of household head, age of household head squared, and whether the house is female headed. Standard errors are clustered by state-regions and appear in parentheses below estimates. All regressions are estimated by 2SLS and use sampling weights.

Our main interest in estimating Engel curves is to see how they change over time, and to infer from these changes the difference in the behaviour between relatively rich and poor households. The result for urban India shows that between 1993-94 and 2004-05 the Engel curve pivoted in a counter-clockwise direction. The intercept slipped down from -1.61 to -1.9 and the slope increased from 0.87 to 0.97. But, the pattern is reversed thereafter. Between 2004-05 and 2009-10, and then again between 2009-10 and 2011-12, the Engel curve pivots in a clockwise direction. Between 2004-05 and 2009-10, the intercept goes up from -1.9 to -1.32 and the slope falls from 0.97 to 0.68; between 2009-10 and 2011-12, the intercept goes up further from -1.32 to -0.94 and the slope falls further from 0.68 to 0.48. Thus, the Engel curve estimation results support the pattern observed in the Lowess curve shifts: since 2004-05, the behaviour of the relatively rich and poor households with respect to service expenditure have increasingly converged.

5. Discussion and Conclusion

In this paper we have presented evidence that the consumption of services has increased rapidly in India since 1993-94. Both in terms of average real expenditure on key services and as a share of monthly budgets devoted to services, households have increased the purchase of the output of India's service sector. There is something paradoxical about this. For a low income country like India it seems unlikely that most households can afford to set aside an increasingly large portion of their budgets for consumption of services when consumption of basic necessities like food remain unmet. Not only do the majority of households fall below the Indian Council of Medical Research norms for calorie intake in any year, there has been a decline in calorie intake over time (Basole and Basu, 2015).

Given this paradoxical situation, two hypotheses have been proposed to explain the increase in the average household demand for services. The first hypothesis suggests that because of worsening income distribution, the bulk of the benefit of income growth is going to the rich. The rich have a high income elasticity of demand for services. Hence, they are spending an increasingly larger share of their rapidly growing income on services, which is driving up the

demand for services. The important point to note is that in this case demand is coming primarily from the rich. The second hypothesis suggests that people's preference for services is rising over time due to greater availability, rising consumerism, and other relevant factors. Both these factors have been commented upon by Rakshit (2007), and these may very well be important contributors.

In this paper we have examined a third hypothesis: spending on services by the poor increasingly resemble the spending pattern of the rich. We have presented evidence from Lowess plots (Figure 1 and 2) and quadratic Engel curves (Table 4) as evidence in support of this hypothesis. The important implication of this evidence is that high demand for services can arise even without rising inequality in the distribution of income. This is because demand, according to our hypothesis, is generated by the poor as well as the rich.

Of course the evidence presented in this paper could also be interpreted as a change in the preference of the poor. If that is the case, it is similar to the second hypothesis noted above. However, we prefer to be cautious here. Usually change in a consumer's preference, which affects her expenditure, is taken as a voluntary behavioural change. But naive truism seems unwarranted here. In a sense, every purchase is voluntary (unless the customer is made to make a purchase at gunpoint). If such a view is subscribed to, one will not able to distinguish between cases where a consumer buys something because she is affluent enough to do so, and cases where she is buying it because she is poor but must buy it to survive. Both cases appear to be voluntary decisions to the naïve empiricist. What gets lost in the second case is the possible element of coercion. For our purpose here, if the poor are behaving more like the rich with respect to services consumption it could be due to their vulnerability and helplessness.

There are at least three possible mechanisms that could contribute to this vulnerability, we discuss them below as hypotheses that could be investigated in future research.

First, since the late 1980s, the Indian government has adopted a set of policies that have a pronounced neoliberal orientation. As part of this policy "reform", growth in public provisioning of education, healthcare, housing and other essential services has been checked. Shariff et al. (2002) report that public expenditure on education, which rose as a share of GNP

between 1950-51 and 1990-91, has stagnated since then. Bhat and Jain (2004) find that public healthcare expenditure as a percentage of state GDP has gone down in major states between 1990 and 2002. Comparing the pre-reform (1980-1991) to the post-reform (1991-2001) period, Joshi (2006) notes that average developmental expenditure, as a share of total expenditure, has fallen for both the Central and State governments. These declines in public expenditures on items which are essential in nature, may have forced households to substitute private for public provisioning, leading to increasing demands on the household budget.

Second, structural transformation of the Indian economy has impacted access by households to key common property resources, like forests, rivers, grazing grounds. This loss has been reflected in rising expenditures on goods and services that are no longer available from the commons. For instance, Basole and Basu (2015) report that the proportion of rural households using commercial sources of fuel – which includes coke & coal, LPG, electricity, kerosene and charcoal – has more than tripled from around 5% in 1987-88 to 16% in 2009-10. In a similar vein, NSS data reveals that in the short duration from 1993-94 to 1998, the percentage of households using firewood declined from 87% to 62% (NSSO, 1999).

Third, agrarian distress and growth of the informal sector have been two notable developments in recent times. Kotwal et al. (2011) have contrasted employment growth in organized and unorganized manufacturing sectors. In the former, employment growth fell from 1.08% per annum between 1983 and 1993-94, to -0.38% per annum between 1993-94 and 2004-05. In the latter employment growth rose from 2.3% per annum to 4.26% during the same period. Kar and Marjit (2009) highlighted the rising share of unorganized sector employment in total employment since the late 1970s. Informalization might have increased migration. This might have been exacerbated by distress in the rural hinterland (Rodgers and Rodgers, 2001). Increased migration has, in turn, led to increased expenditures on transportation, communication, rent, and other such services.

Many of these transformations are of a structural nature. While such structural changes are beyond the control of households, they do entail changes in their expenditure patterns related to services. Hence, it would be incorrect to attribute the growth of expenditure by

relatively poorer households to voluntary choice alone. Thus, it might not be altogether amiss to identify an important source of growth of the service sector in India with compulsions, rather than the affluence, of the poor.

References

Banks, J., Blundell, R., & Lewbel, A. (1997). Quadratic Engel Curves and Consumer Demand. *The Review of Economics and Statistics*, 79(4): 527-539.

Basole, A., & Basu, D. (2015). Fuelling calorie Intake Decline: Household Level Evidence from Rural India, *World Development*, 68: 82-95.

Blinder, A., (1973). Wage discrimination: Reduced form and structural estimates. *Journal of Human Resources*, 8: 436-455.

Bhat, R. & Jain, N. (2004). Analysis of Public Expenditure on Health Using State Level Data, Indian Institute of Management, Ahmedabad. Retrieved June 10, 2015 from http://www.iimahd.ernet.in/publications/data/2004-06-08rbhat.pdf

Chakravarty, S. (1987). *Development Planning*. New Delhi: Oxford University Press.

Cleveland, W. S. (1979). Robust Locally Weighted Regression and Smoothing Scatterplots. *Journal of the American Statistical Association*, 74: 829-836.

Deaton, A., & Irish, M. (1984). Statistical Models for Zero Expenditures in Budget Shares. *Journal of Public Economics*, 23: 59-80.

Eichengreen, B., & Gupta, P. (2011). The Service Sector as India's Road to Economic Growth (NBER Working Paper 16757). Cambridge, MA: National Bureau of Economic Policy Research. Retrieved May 28, 2015, from http://www.nber.org/papers/w16757

Eichengreen, B., & Gupta, P. (2012). Exports of Services: Indian Experience in Perspective (NIPFP Working Paper 2012-102). New Delhi: National Institute of Public Finance and Policy. Retrieved May 28, 2015, from http://www.nipfp.org.in/media/medialibrary/2013/04/wp_2012_102.pdf

Gordon, J., & Gupta, P. (2004). Understanding India's Services Revolution (IMF Working Paper 04/171). Washington, D.C.: International Monetary Fund. Retrieved May 28, 2015, from https://www.imf.org/external/pubs/ft/wp/2004/wp04171.pdf

GOI. (2015). Economic Survey 2014-15. New Delhi: Ministry of Finance, Government of India. Retrieved May 28, 2015, from http://indiabudget.nic.in/survey.asp

Joshi, S. (2006). Impact of Economic Reforms on Social Sector Expenditure in India. *Economic and Political Weekly*, 41(4): 358-365.

Kar, S. & Marjit S. (2009). Contemporary Perspective on the Informal Labour Market: Theory, Policy and the Indian Experience. *Economic and Political Weekly*, 44(14): 60-71.

Kedir, A., & Girma, S. (2007). Quadratic Engel Curves with Measurement Error: Evidence from a Budget Survey. *Oxford Bulletin of Economics and Statistics*, 69(1): 123-138.

Kochhar, K., Kumar, U., Rajan, R., Subramanian, A., & Tokatlidis, I. (2006). India's Pattern of Development: What Happened, What Follows (NBER Working Paper 12023). Cambridge, MA: National Bureau of Economic Policy Research. Retrieved May 28, 2015, from http://www.nber.org/papers/w12023

Kotwal, A., Ramaswami, B, & Wadhwa W. (2011). Economic Liberalization and Indian Economic Growth, *Journal of Economic Literature*. 49(4): 1152-1199.

Lewbel, A. (2008). Engel curve. In Steven N. Durlauf and Lawrence E. Blume (Eds.), The New Palgrave Dictionary of Economics. Palgrave Macmillan.

Leser, C. E. V. (1963). Forms of Engel Functions. *Econometrica*, 31(4): 694-703.

NSSO. (1999). *Common Property Resources in India. NSS 54th Round. January 1998 – June 1998.* National Sample Survey Organization, Ministry of Statistics and Programme Implementation, Government of India.

NSSO. (2014). *Level and Pattern of Consumer Expenditure 2011-12. NSS 68th Round. July 2011 – June 2012.* National Sample Survey Organization, Ministry of Statistics and Programme Implementation, Government of India.

Nayyar, G. (2012). *The Service Sector in India's Development*. New York: Cambridge University Press.

Oaxaca, R. (1973). Male-female wage differentials in urban labour markets. *International Economic Review*, 14: 693-709.

Patnaik, P. (1994). P. C. Mahalanobis and the Theory of Development Planning, *Economie Appliquée*, reprinted in *Whatever Happened to Imperialism*, (New Delhi: Tulika), 107-119, 1995.

Rakshit, M. (2007). Services-led Growth: The Indian Experience. In, *Macroeconomics of Post-Reform India. Volume 1.* New Delhi: Oxford University Press.

Rodgers, G. & Rodgers, J. (2001). A Leap across Time: When Semi-Feudalism Met the Market in Rural Purnia. *Economic and Political Weekly*, 36 (22): 1976–83.

Rodrik, D. (2013). Unconditional Convergence in Manufacturing. *The Quarterly Journal of Economics*, 128(1): 165-204.

Rodrik, D. (2015). Premature Deindustrialization (NBER Working Paper 20935). Cambridge, MA: National Bureau of Economic Policy Research. Retrieved May 28, 2015, from http://www.nber.org/papers/w20935

Sengupta, A., Kannan, K. P., & Raveendran, G. (2008). India's Common People: Who Are They, How Many Are They and How Do They Live? *Economic and Political Weekly*, 43(11): 49-63.

Shariff, A., Ghosh. P. K. & Mandal, S. K. (2002). Indian Public Expenditures on Social Sectors and Poverty Alleviation Programmes during the 1990s, National Council of Applied Economic Research, Human Development Division, working paper 169. Retrieved June 10, 2015 from http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2704.pdf

Singh, N. (2006). Services-Led Industrialization in India: Prospects and Challenges. Working Paper No. 290, Stanford Center for International Development. Retrieved May 12, 2015 from http://web.stanford.edu/group/siepr/cgi-bin/siepr/?q=system/files/shared/pubs/papers/pdf/SCID290.pdf

Wooldridge, J. M. (2002). *Econometric Analysis of Cross-Section and Panel Data*. Cambridge, MA: MIT Press.

Working, H. (1943). Statistical Laws of Family Expenditures. *Journal of the American Statistical Association*, 38 (221): 43-56.

Appendix

In this appendix we provide detailed information on the items that have been included in various categories of the services expenditure and their identification according to the "item code number" in various rounds of NSS data.

CATEGORY	ITEM NAMES	ITEM CODE NUMBER IN NSS DATA			
		1993-94	2004-05	2009-10	2011-12
EDUCATION	LIBRARY CHARGES	652	402	403	403
	TUITION, OTHER FEES (SCHOOL, COLEGE ETC.)	654	404	405	405
	PRIVATE TUTOR, COACHING CENTRE	655	405	406	406
	OTHER EDUCATIONAL EXPENSES (INCLUDING ENROLLMENT IN WEB-BASED TRAINING)	658	406	408	408
HEALTHCARE	X-RAY, ECG, PATHOLOGICAL TEST ETC.	671	411	411	411
	DOCTOR'S/SURGEON'S FEES	672, 673	412	412	412
	HOSPITAL, NURSING HOME CHARGES	674, 675	413	413	413
	OTHER MEDICAL EXPENSES	678	414	414	414
	X-RAY, ECG, PATHOLOGICAL TEST ETC. (NON-INSTITUTIONAL)	662	421	421	421
	DOCTOR'S/SURGEON'S FEES (NON-INSTITUTIONAL)	663, 664	422	422	422
	OTHER MEDICAL EXPENSES (NON-INSTITUTIONAL)	668	424	424	424
ENTERTAINMENT	CINEMA, THEATRE	520	430	430	430
	MELA, FAIR, PICNIC	521	431	431	431
	CLUB FEES	523	433	433	433
	VCD/DVD HIRE	528	436	436	436
	CABLE TV	528	437	437	437
	OTHER ENTERTAINMENT	528	438	438	438
RENT	HOUSE RENT, GARAGE RENT (ACTUAL)	630	520	520	520
	HOTEL LODGING CHARGES	630	520	521	521
	RESIDENTIAL LAND RENT	631	521	522	522
	OTHER CONSUMER RENT	632	522	523	523
	HOUSE RENT, GARAGE RENT (IMPUTED-URBAN ONLY)	630	539	539	539

CATEGORY	ITEM NAMES	ITEM CODE NUMBER IN NSS DATA			
		1993-94	2004-05	2009-10	2011-12
PERSONAL SERVICES	DOMESTIC SERVANT/COOK	580	480	480	480
	ATTENDANT	580	480	481	481
	SWEEPER	581	481	482	482
	BARBER, BEAUTICIAN, ETC.	582	482	483	483
	WASHERMAN, LAUNDRY, IRONING	583	483	484	484
	TAILOR	584	484	485	485
	GRINDING CHARGES	592	492	486	486
	TELEPHONE CHARGES, LANDLINE	590	488	487	487
	TELEPHONE CHARGES, MOBILE	590	488	488	488
	POSTAGE & TELEGRAM	587	487	490	490
	MISCELLANEOUS EXPENSES	592	492	491	491
	PRIEST	585	485	492	492
	LEGAL EXPENSES	586	486	493	493
	REPAIR CHARGES FOR NON-DURABLES	592	490	494	494
	INTERNET EXPENSES	590	488	496	496
	OTHER CONSUMER SERVICES EXCLUDING CONVEYANCE	598	494	496	497
TRANSPORTATION	AIRFARE	600	500	500	500
	RAILWAY FARE	601	501	501	501
	BUS/TRAM FARE	602	502	502	502
	TAXI, AUTO-RICKSHAW FARE	603	503	503	503
	STEAMER, BOAT FARE	604	504	504	504
	RICKSHAW FARE	605	505	505	505
	HORSE CART FARE	607, 606, 610	506	506	506
	PORTER CHARGES	611	507	507	507
	SCHOOL BUS, VAN, ETC.	616	512	512	512
	OTHER CONVEYANCE EXPENSES	618	513	513	513