

Kesar, Surbhi

Working Paper

Economic transition, dualism, and informality in India

Working Paper, No. 2019-03

Provided in Cooperation with:

Department of Economics, University of Massachusetts

Suggested Citation: Kesar, Surbhi (2019) : Economic transition, dualism, and informality in India, Working Paper, No. 2019-03, University of Massachusetts, Department of Economics, Amherst, MA

This Version is available at:

<https://hdl.handle.net/10419/202957>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

DEPARTMENT OF ECONOMICS

Working Paper

Economic Transition, Dualism, and Informality in India

Surbhi Kesar

Working Paper 2019-03



**UNIVERSITY OF MASSACHUSETTS
AMHERST**

[UMass Amherst Economics Papers](#)

Economic Transition, Dualism, and Informality in India

Surbhi Kesar*

*PhD Scholar, Faculty of Economics, South Asian University, New Delhi, India.
Email: kesar.surbhi.05@gmail.com

Much of this work was undertaken when the author was a Fulbright-Nehru Doctoral Research Fellow at the Department of Economics, University of Massachusetts, Amherst during 2017-18. I am extremely grateful to Dr Deepankar Basu, with whom I worked during the fellowship, for his guidance, for unreservedly sharing his expertise and for several discussions.

I am truly indebted to Snehashish Bhattacharya for his supervision, detailed comments and insights on this work and for several discussions that have been formative in conceptualisation of this work. I am also grateful to Rohin Anhal and Anirban Dasgupta for their comments and suggestions.

Abstract

In much of the literature on economic development, sustained economic growth is expected to be accompanied by several interrelated processes of structure change, which involve a shift in economic activities from ‘traditional’ / agricultural / informal to ‘modern’ / industrial / formal sectors. Such transitions are usually accompanied by a transition in the economic dependence of households towards relatively ‘modern’ and formal segments of the economy, along with a rise in their general economic well-being. In this paper, we examine the Indian economy using the only available household-level pan-India panel data over the high growth period between 2005 and 2011-12, to analyse the *patterns* and *natures* of household-level transitions across sectors and *identify* factors that affected the likelihood and nature of such transitions. We categorize households based on their primary income sources into seven sectors characterised by varying degrees of formality/informality and various production structures and labour processes. We find that while substantial proportion of households have transitioned across these sectors during the period, there has been a continued reproduction of the same economic structure, including a regeneration of dependence on ‘traditional’ informal sector and casual wage employment, which are often expected to dissolve over time with high economic growth. To ascertain the nature of these transitions (‘favorable’ or ‘unfavorable’), we employ a ‘counterfactual’ analysis. Contrary to some recent influential literature, we find that, on an average, the transitions towards informal and ‘traditional’ economic spaces are ‘unfavourable’ in nature in terms of well-being of households. Further, using a multinomial logit regression framework, we find that the likelihood and nature of these transitions are largely dependent on household characteristics like levels of education and social caste, some of which are structurally given and cannot be optimally chosen by households. The results show that despite significant churning in the economy, the structure continues to remain fractured, with substantial ‘unfavourable’ transitions towards economic spaces that are continuously reshuffled and reconstituted.

Key words: structural transformation, informality, transition, segmentation, dualism, India

JEL classification: O17, J60, J46, O10

I: Introduction

Indian economy has experienced a long and sustained period of high growth over the last couple of decades, which particularly peaked during the period from 2003-04 to 2011-12, with an average annual growth rate of approximately 8.4 percent. In much of the literature on economic development, economic growth is expected to be accompanied by several interrelated processes of structural change (Syrquin, 1988). Ever since Lewis (1954), the idea that, with economic growth, an ‘underdeveloped’ economic structure may transition towards a full-fledged ‘modern’ economy along the lines of an advanced economy has been central to the problematic of development. The process of structural change involves a shift in production, employment, and other economic activities from agricultural / pre-capitalist / rural / informal to industrial / capitalist / urban / formal sectors. One would expect such transitions to also involve a shift in the economic dependence of the individuals and households towards the relatively ‘modern’ and formal segments of the economy, accompanied by a rise in their general economic well-being with such transitions.

In this paper, we specifically examine the Indian economy during a period of high economic growth to analyse the patterns and nature of household-level transitions across sectors and identify the factors that affect the likelihood and nature of such transitions. The transitions are analysed specifically in terms of shifts in the sector on which the household depends for its primary economic reproduction, each of which is characterised by varying degree of informality and encompassing various production and labour processes.

Several studies in the context of certain Latin American and African economies (Maloney, 2004; Fajnzylber et al, 2006; Mandelman and Montes-Rojas, 2009; Bargain and Kwenda, 2014), have analysed the process of individual or enterprise-level transitions across sectors and the associated evolution of the economic structure. However, for the Indian

economy, there does not exist, to the best of our knowledge, any work that analyses the micro-level transitions and relates it to the process of transformation of the economic structure. This can be partly attributed to the absence of a nationally representative panel dataset for India until recent past, till the availability of the India Human Development Survey (IHDS) panel data set for 2005 and 2011-12. We use this dataset to classify households into different sectors based on their primary income sources and analyse the transitions of these households across sectors over time.

The rest of the paper is structured as follows: Section 2 develops the framework that we follow to analyse the nature and patterns of household-level transitions in the Indian economy. Section 3 describes the data and definitions used in this analysis and categorises the households in terms of various sectors based on their primary income sources. Section 4 maps the patterns of transition of households across these sectors over our period of analysis. Section 5 provides a ‘counterfactual’ analysis to explore the nature of these transitions across sectors—whether they are ‘favourable’/ ‘voluntary’ or ‘unfavourable’/ ‘involuntary’. Section 6 provides a multinomial regression analysis to identify the set of household characteristics that may influence the likelihood of ‘favourable’ versus ‘unfavourable’ transitions. Finally, Section 7 provides a conclusion by relating this analysis to the overall transformation process in the Indian economy.

II: Informality, dualism, and transformation

India’s economic structure is often analysed in terms of strict binaries between formal and informal sectors. However, it is problematic to study India’s informal economy as a single homogenous entity, given the vastness of the sector, encompassing various employment types and economic processes. Further, with the rising ‘informalization’ of employment even within the formal sector over time (Srivastava, 2012), the concepts of informal employment and informal sector do not strictly correspond, thereby, making the distinction between formality

and informality blurred over time. Therefore, analysing the Indian economy in terms of strict binaries of formal and informal sector divests the analysis of the complexities and specificities of informality.

To account for this heterogeneity, we categorise the households in terms of different sectors from which they derive their primary income and analyse the transitions of the household across these sectors over time. This categorisation covers the entire spectrum of formality and informality, with each category representing different shades of formality / informality in terms of various production and labour processes. We classify the households into seven different categories based on their sources of their primary income, either from ownership of the enterprises (informal self-employed or formal/informal employers) or from wage labour (casual/informal wage labour or salaried/non-casual wage labour).

In order to analyse the nature of the household-level transitions, we build upon an analytical framework often employed in the context of labour market transitions across formal and informal sectors (for example, see Maloney, 2004; Perry et al, 2007). In this framework, a transition towards a sector can be characterised as ‘unfavourable’ or ‘involuntary’ if individuals with less ‘favourable’ characteristics, e.g., low levels of education or work experience, or being unemployed, are more likely to enter that sector (Mandelman and Montes-Rojas, 2009). Certain influential works in the literature (e.g., Maloney, 1999; Fajnzylber et al, 2006; Badaoui et al, 2008) further argue that a ‘voluntary’ / ‘favourable’ employment in a sector does not imply that the worker is necessarily well-off in that sector; rather, it only implies that given their characteristics, the individuals will not be better-off in any other sector. They also argue that a prevalence of ‘voluntary’ / ‘favourable’ transitions towards informal sectors suggest that the formal and informal sectors in the economy are integrated with each other. We develop upon this framework to analyse whether the transitions across sectors has been ‘favourable’ or ‘unfavourable’. The exact method employed in this paper is explained in Section V.

I further use this framework to draw implications for understanding the level of integrations between the sectors in the Indian economy. Many studies on labour market transitions (Maloney, 1999; 2004; Fajnzylber et al 2006; Pratap and Quintin, 2006; Badaoui et al, 2008; Bargain and Kwenda, 2014) posit a dynamic view of informality that challenges the dualist understanding of the economic structure of LDEs (Lewis, 1954; Harris-Todaro, 1970; Ranis and Stewart, 1999). They show that informal self-employment can be a desirable alternative to formal sector employment, and further find evidence that the wage gap between formal and informal wage employment is quite modest. This view argues that the sectors in the economy are rather integrated with voluntary movements across formal and informal sectors, thereby, implicitly implying that the issue of transformation of economic structure is no longer central to the process of development. This has, however, been contested by other studies, which find that despite labour mobility, the structure of LDEs remain primarily dualist and a part of the difference in productivity and earnings levels between formal and informal sectors can be explained on the basis of various individual characteristics, particularly their levels of education and experience (Gong and Van Soest, 2002; Mandelman and Montes-Rojas, 2009; Botelho and Ponczek, 2011; Tansel et al, 2015). This strand, therefore, finds support for the dualist characterisation of the economic structure of the LDEs, thereby pointing towards a continued centrality of the issues of transformation in the process of economic development.

An analysis of these transitions across sectors at the level of households further allows us to assess the impacts of these transitions on broad dimensions of their economic well-being. The household is treated as an income sharing unit. Therefore, ‘unfavourable’ transitions of individual members of the household over time do not necessarily imply a deterioration in their economic well-being (measured in terms of the per-capita consumption levels) if other household members transition favourably and the total household income does not fall. This

is particularly relevant for LDEs, where income is usually pooled across household members to satisfy the consumption needs of the household as a unit.

One issue that needs to be noted is that while considering the primary income source in classifying households, this framework does not incorporate the other income sources (secondary or tertiary). This may involve a gender dimension as women are often more likely to be engaged in activities that are not the primary income source of households. On the other hand, any individual-level analysis would leave out a large proportion of the population that is not employed in market-based paid work, but are engaged in unpaid household activities, which, in most developing economies, are not commodified and are carried out by female family members. This is particularly important in context of India, since there has been a steep fall in the female labour force participation rate in the Indian economy, especially over the period of our analysis, from 37 percent in 2005 to 27 percent in 2012 (The World Bank, 2018). The household-level analysis at least accounts for the average well-being of all household members irrespective of whether they are engaged in paid work or not.ⁱ

We use per-capita consumption levels of households as an indicator of their economic well-being. In addition to the observed expenditures, this measure also incorporates the imputed costs for various consumption items that are not directly purchased from the market. This imputation is particularly important for a large proportion of cultivators in India, who are involved in subsistence agriculture and, as pointed out by Basu and Basole (2012), still derive a significant proportion of their consumption from self-cultivation.

In the next section, we describe the data sets and definitions used for the analysis.

III. Data and Definitions:

Here, we provide a classification of households into sectors, and define certain concepts and describe the data that is used in this analysis.

The *transition* of a household is defined as a shift over time in the sector from which the household derives its primary income. We categorise households into seven major sectors based on the sector of their primary income sources. These different sectors represent different shades and aspects of formality and informality, as explained below:

(i) *Agricultural self-employed (ASE) households*: These households derive their primary income from either cultivation, allied agricultural activities, or renting agricultural land. A vast majority of these households depend on self-cultivation and only a very small proportion derives its primary income from renting agricultural land. Almost whole of agriculture sector in India forms a part of the informal sector (NCEUS, 2007)

(ii) *Agricultural wage labour (AWL) households*: These households receive their primary income from daily wage labour in agricultural occupations;

(iii) *Non-agricultural wage labour (NAWL) households*: These households receive their primary income from daily wage labour in non-agricultural occupations. We identify (ii) and (iii) as the casual or informal wage-labouring households in agricultural and non-agricultural sectors, respectively, where household members can be causally/informally employed in informal and/or formal sector enterprises;

(iv) *Non-agricultural self-employed (NASE) households*: These households derive their primary income from self-employment in non-farm family-based enterprises that do not hire any wage-worker and carry out production using family labour. These may be classified as ‘traditional’ / ‘non-capitalist’ (Lewis, 1954; Ranis and Stewart, 1999) household enterprises. NSSO classifies such enterprises as own account enterprises (OAEs) and these constitute the vast majority of informal sector enterprises in India (NSSO, 2011-12);

(v) *Non-agricultural employer (NAE) households*: These households derive their primary income from non-farm enterprises owned by them. In case any of these households own

multiple enterprises, at least one of such enterprises must employ hired wage workers for these households to be categorised as an NAE. These enterprises are usually bigger than the OAEs and can be classified as ‘modern’ / ‘capitalist’ enterprises (ibid).ⁱⁱ These enterprises may be part of either formal or informal sector (NCEUS, 2007);ⁱⁱⁱ

(vi) *Salaried non-casual labour (SNCL) households*: These households derive their principal source of income from salaried employment, where workers are paid regularly on a monthly or yearly basis. While formal wage employment (those having access to social security benefits and written job contract) is a very small proportion of regular salaried employment (17 percent of non-agricultural wage workers were formally employed as of 2015), regular employment is generally regarded in the literature as an indicator of formal employment (State of Working in India Report, 2018). However, since any wage worker who is being paid salary on monthly or annual basis is seen to be regularly employed, the category should be interpreted as such and most of those that fall in this category can at best be viewed as those employed in relatively less precarious and informal employment. Such salaried employment is likely to be regular, permanent, or formal employment in either formal or informal sector.

(vii) *Other households*: These households derive their primary income from one of the following sources: pension, dividend, rent, interest, government benefit, or / and remittance. This sector does not directly form a part of the workforce. However, this category might be used in certain parts of our empirical analysis.

The households are categorised into the above sectors based on the primary source of household income. Note that it is possible that a household’s total income is composed of various sources, and the other sources added together may contribute more than the primary source. To take this issue into account, we employ an alternate idea of the primary income source where we classify the household into a particular sector only if it receives more than 50 percent of its total income from that sector. We find that for 93-95 percent of households during

the two survey rounds, the primary income source as per our initial definition (i.e., the sector that contributes the highest proportion to the total household income) also contributes to more than 50 percent of the total household income. We also check the robustness of our later analysis using this alternative classification. Our results hold using this classification as well.

Further, the transitions in terms of primary income sources also correspond with the shifts in the employment structure of the household. In Table 3.1 below, we consider the sample of households that have transitioned across sectors over these two survey rounds and find that 81 – 95 percent of households that transitioned away *from* SNCL, NASE, and NAE sectors towards other sectors in terms of their primary income sources, did not receive any income from these sectors in the second period. Also, 81 – 91 percent of households that transitioned *towards* SNCL, NASE, and NAE sectors, did not receive any income from these sectors in the first period. Similarly, 65 and 58 percent (79 and 56 percent) of households that transitioned from (towards) NAWL and AWL sector towards (from) other sectors did not receive any income from NAWL and AWL in the second (initial) period, respectively. So, overall, for all sectors (except agriculture), these transitions based on primary income sources, to a large extent, also reflect transitions based on the sector of employment of the household members.

Table 3.1: Correspondence between shift in primary income source and employment structure of households between 2005 and 2011-12 (in percentages)

| Sector | Towards | From |
|--------|---------|------|
| NAWL | 79 | 65 |
| SNCL | 81 | 81 |
| NASE | 85 | 83 |
| NAE | 95 | 95 |
| AWL | 56 | 58 |
| ASE | 16 | 21 |

Source: Author's calculation based on IHDS 2005 and IHDS 2011-12

As already noted, we use two rounds (2005 and 2011-12) of India Human Development Survey (IHDS) data for this analysis. It is the only nationally representative household-level

pan-Indian panel dataset that allows us to analyse these households-level transitions.^{iv} The 2005 IHDS survey covered 41,554 households, while the 2011-12 survey covered 42,152 households across 33 states and union territories in India. Of the initial households, 83 percent, i.e., 40,018 households, were re-surveyed in 2011-12. For this analysis, we use a balanced panel of these 40,018 households. However, we find that the attrition of households over the two survey rounds is not proportionally distributed across sectors; rather, some sectors account for higher attrition than others. To account for possible selection bias due to attrition, we run a sector-wise probit regression to estimate the sector-specific Inverse Mill's Ratio (IMR) (reported in Table A1.1 in the Appendix A1), which is used in the empirical analysis. Moreover, for this analysis, all monetary values are indexed to real terms at 2005 prices. The period covered by the IHDS data set (2005 to 2011-12) coincides with a part of the recent high growth period in the India economy.

I use these above concepts and definitions to analyse the patterns and nature of household-level transitions across sectors over this period.

IV: Mapping the Transitions

First, we plot the proportion of households that derived their primary income from the sectors identified above (Figure 4.1 below) at the two time points of the analysis (2005 and 2011-12). It is evident that the structure of Indian economy has not undergone much change in terms of proportions of households deriving their primary income from these sectors. While the proportion of households deriving their primary income from the non-agricultural wage labour (NAWL) sector increased slightly over this period (from approximately 20 percent to 23 percent), the proportion of households belonging to all other sectors registered a marginal fall.

One might expect this stability in the structure given the relatively short time frame of our analysis. However, on plotting for each of the sectors the proportion of households that transitioned out from the sector over this period and those that continued to derive their primary income from that sector (Figure 4.2), it is found that a substantial proportion of households have transitioned across sectors. For example, it is found that around 45 to 72 percent of households from each sector transitioned towards some other sector over this period.

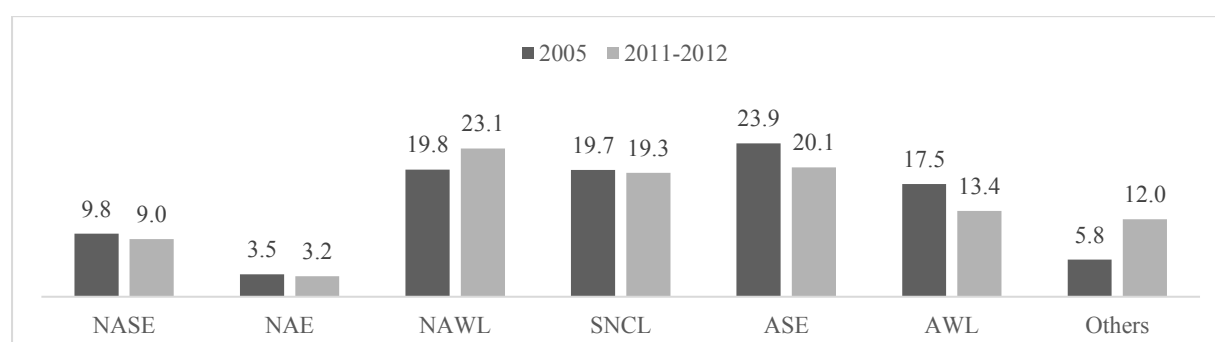


Figure 4.1: Proportion of households receiving primary income from each sector

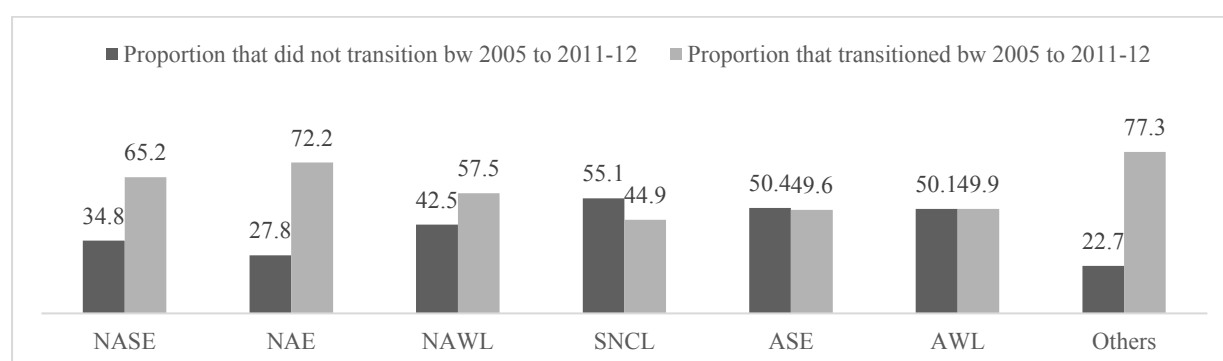


Figure 4.2: Proportion of households in each sector that transitioned or did not transition

However, the fact that the structure has continued to remain intact in spite of these substantial proportions of transitions raises questions about the patterns of transitions. We study these patterns in Figures 4.3 - 4.8, to identify the sectors towards which households from each sector have transitioned in terms of their source of primary income over the period and their respective proportions.^v

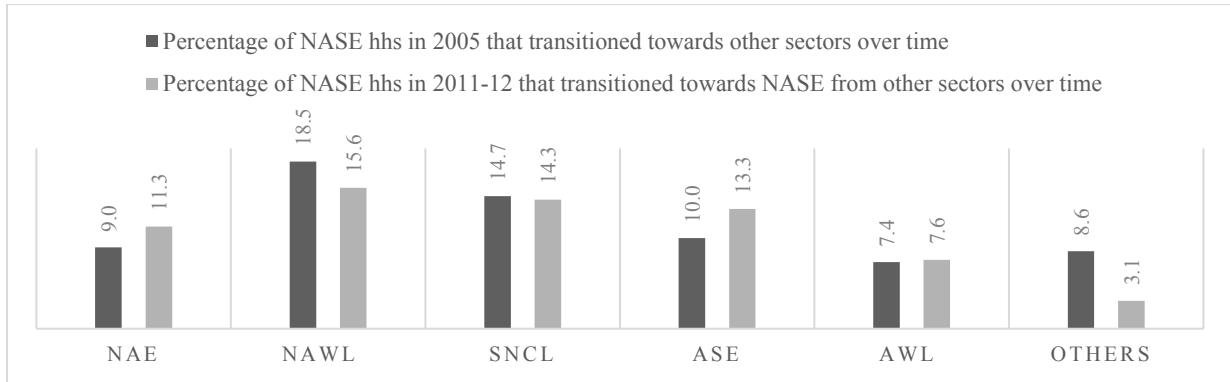


Figure 4.3: Non-agriculture self-employed households

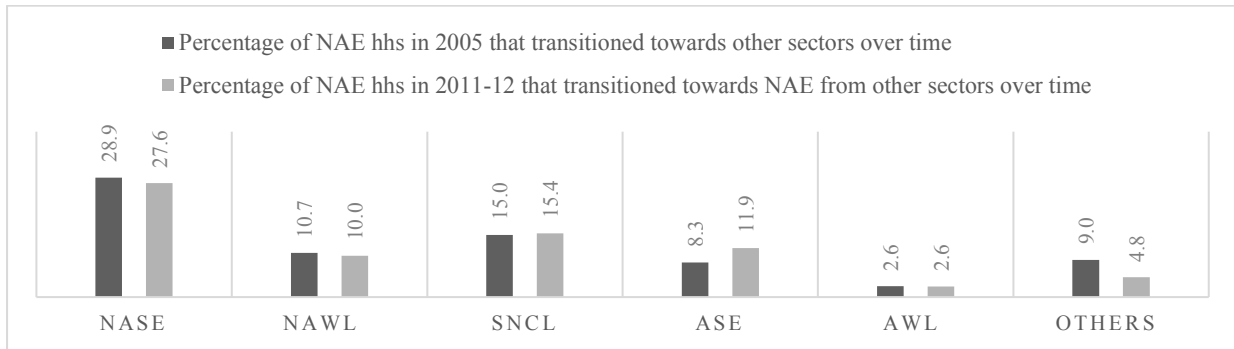


Figure 4.4: Non-agriculture employer households

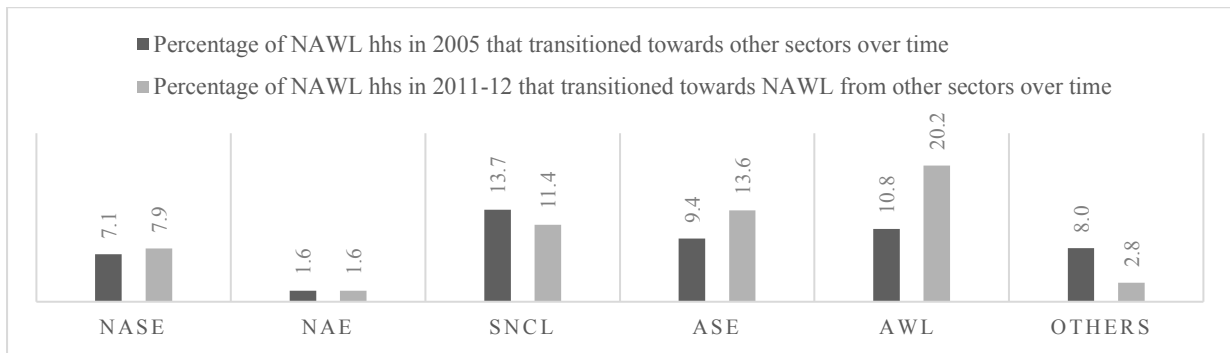


Figure 4.5: Non-agriculture wage labour households

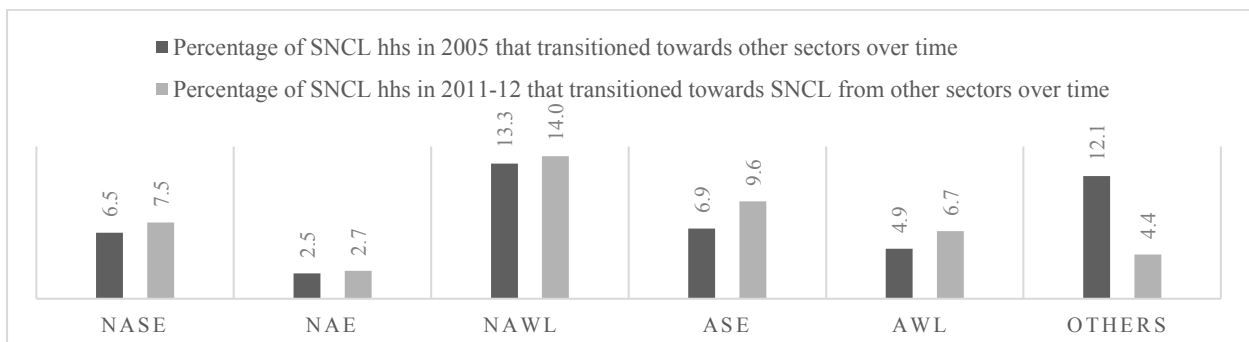


Figure 4.6: Salaried non-casual labour households

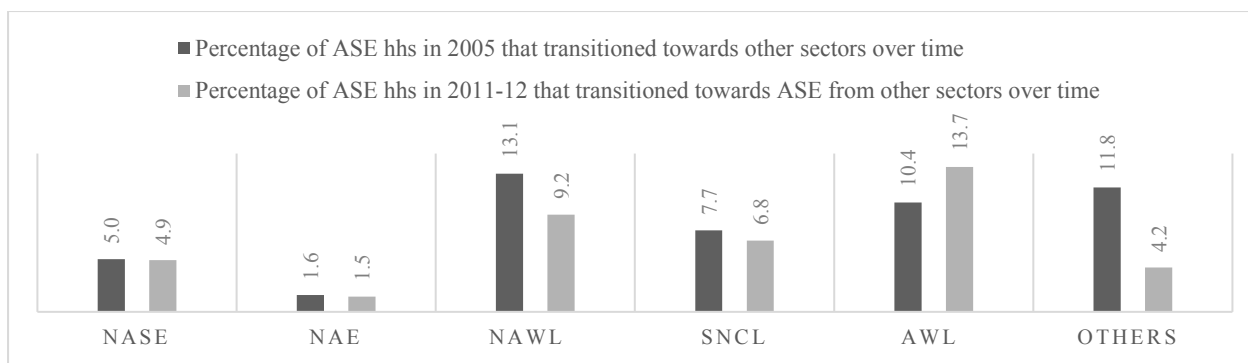


Figure 4.7: Agriculture self-employed households

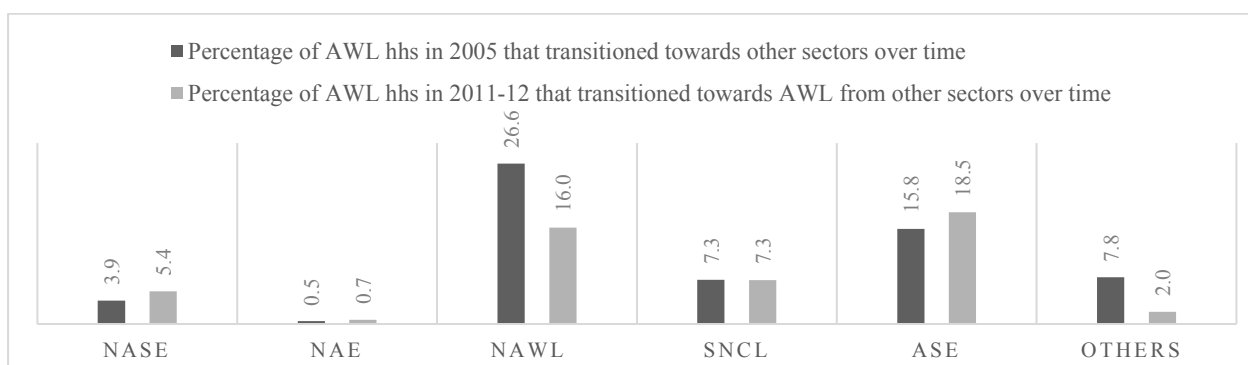


Figure 4.8: Agriculture wage labour households

We find that the transitions from any sector are not concentrated towards any other specific sectors; rather the transitions are spread across all sectors in varying proportions. Moreover, these transitions are not unidirectional; rather they are counterbalanced by simultaneous transitions in the opposite direction. For example, Figure 4.2 showed that around 65 percent of NASE households in 2005 transitioned away towards other sectors in 2011-12 in terms of their primary income source. Figure 4.3 shows that these transitions were not oriented towards a specific sector, rather were spread across sectors. Of the NASE households that transitioned, the highest proportion was towards NAWL (the informal non-agricultural wage labour), followed by SNCL (non-casual salaried labour), ASE (agriculture self-employed), NAE (non-agriculture employers), and AWL (agriculture informal wage-labour). Further, these transitions were accompanied by almost similar proportion of transitions in the opposite direction. While the proportion of NASE households in 2005 that transitioned towards NAWL,

SNCL, ASE, NAE, and AWL were approximately 19 percent, 15 percent, 10 percent, 9 percent, and 7 percent respectively, the proportion of NASE households in 2011-12 that belonged to NAWL, SNCL, ASE, NAE, and AWL sectors in 2005 were around 16 percent, 14 percent, 13 percent, 11 percent and 8 percent respectively. Similar patterns of transitions can be identified for all other sectors, where each transition is counterbalanced by reverse transitions across sectors (although in varying proportions).

Broadly, we can make the following observations from the above figures: (a) While substantial proportion of households shifted away in terms of their primary economic dependence from the ‘traditional’ informal sectors like NASE and ASE, these were accompanied by simultaneous transitions towards these sectors, indicating a regeneration of the ‘traditional’ informal sectors as primary income sources for households. Similarly, a very small proportion (9 percent) of NASE households transitioned towards the relatively ‘modern’ NAE sector, while a slightly higher proportion of NASE households (11 percent) in 2011-12 had transitioned from NAE households over the period (Figure 4.3); (b) NAWL, i.e., the non-agricultural casual wage employment sector, has played a significant role in sustaining the livelihoods over the period. The sector towards / from which the highest proportion of households transitioned from / towards other sectors has largely been NAWL. Although a high proportion of NAWL households transitioned towards the SNCL (less informal) sector, there have been simultaneous transitions from SNCL to NAWL. Similarly, among the SNCL households that transitioned out, the majority (approximately 13 percent of all SNCL) transitioned towards NAWL. However, a similar proportion (about 14 percent) of SNCL households in 2011-12 had transitioned from NAWL over the period (Figure 4.6). We also find that the highest proportion of agriculture self-employed (ASE) households transitioned towards NAWL (followed by AWL), and among those that transitioned towards ASE, the highest proportion were from informal wage labour (AWL followed by NAWL). There

have been considerable number of such transitions from other sectors towards NAWL during the period. (c) As majority of such transitions in terms of primary sources of income (for all sectors except agriculture) also reflect occupational mobility and employment transitions of the households (as shown in Table 3.1 above), these transitions also reflect a continuous process of simultaneous disintegrations and reconstitution of ‘traditional’ informal economic spaces, as well as a high dependence on casual wage employment in the economy in spite of the high economic growth.

V: Nature of transitions

In this section we analyse the nature of the above transitions across sector to examine whether these, on an average, have been ‘favourable’ or ‘unfavourable’ for the general economic well-being of the transitioning households. As noted earlier in Section IV, we use per capita household consumption levels as the indicator of economic well-being of households.

The following figure (Figure 5.1) plots the sector-wise average per capita household consumption levels for the set of households that derive their primary incomes from these sectors at the beginning and end of our period of analysis. We find that for both the time points, non-agricultural employers (NAE) households have highest per capita consumption levels, followed by salaried non-casual labour (SNCL), non-agricultural self-employed (NASE), agricultural self-employed (ASE), non-agricultural wage-labour (NAWL), and, finally, by agricultural wage-labour (AWL) households.

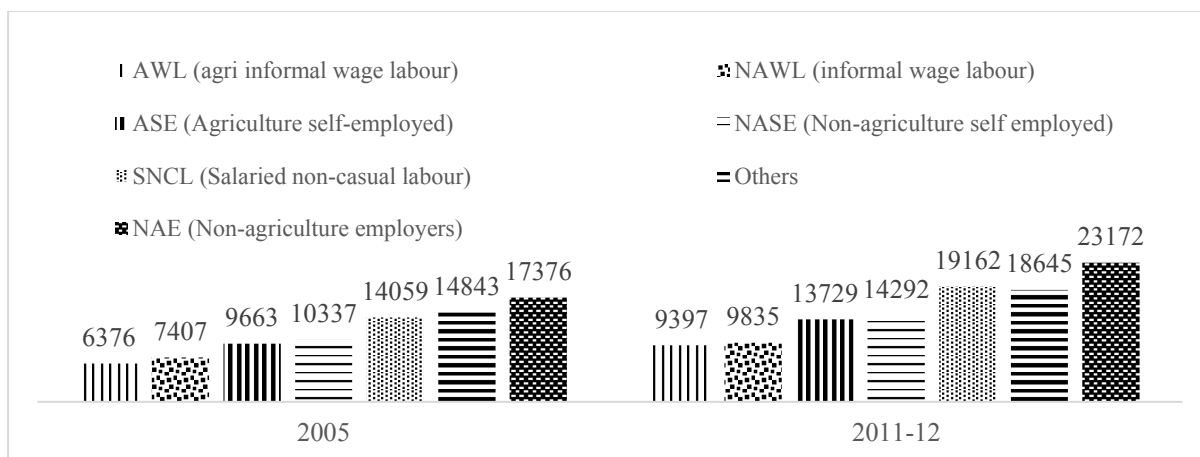


Figure 5.1: Sector-wise household per capita consumption levels for 2005 and 2011-12

Next, comparing the average per capita household consumption levels of transitioning households from each sector with that of the households that did not transition, we find that households that transitioned from NASE (relatively ‘traditional’ and informal) to SNCL and NAE (relatively ‘modern’ and less informal) had higher average per capita consumption levels in both 2005 (INR 11558 and INR 13861 respectively) and 2011-12 (INR 16411 and INR 21096 respectively) than the NASE households that did not transition (INR 10012 in 2005 and INR 13201 in 2011-12). On the other hand, the NASE households that transitioned towards NAWL and AWL (casual wage employment) had lower per capita consumption levels in both the years (INR 8328 and INR 7494 respectively in 2005 and INR 10027 and INR 9491 respectively in 2011-12) than the NASE households that did not transition. Further, the SNCL households that transitioned to NASE, NAWL or AWL (relatively more informal) had lower consumption levels at both time points (INR 12788, INR 9234, and INR 8290 respectively in 2005 and INR 16936, INR 11223, and INR 9493 respectively in 2011-12) than the SNCL households that did not transition (INR 15269 in 2005 and INR 22425 in 2011-12). Similarly, the NAWL households that transitioned to SNCL, NASE, or NAE, on an average, had higher consumption levels than those NAWL households that did not transition. All these point to a similar hierarchy of sectors as identified above, in terms of the associated economic well-being of the households.

However, following Maloney (1999; 2004) and the framework discussed in Section III above, a transition cannot be characterized as ‘favourable’ or ‘unfavourable’ simply on the basis of a comparison between the average well-being of households that transitioned and those that did not. Rather, a transition may be characterized as ‘favourable’/‘voluntary’ (‘unfavourable’/‘involuntary’) in nature, only if, given various household characteristics, such a transition entailed an improvement (deterioration) of the household’s economic well-being in comparison to what its well-being would have been had the household not transitioned.

Following this argument, we estimate for the households that transition the *counterfactual* per capita consumption levels that the households would have had if they did not transition. In this counterfactual analysis, we estimate the sector-wise consumption levels that the transitioning households would have had in the final period (i.e., 2011-12), *if* the average returns to their household characteristics were the same as those for non-transitioning households. We denote the six sectors to which the households belong (in terms of their primary income sources) in 2005 as ‘i’ and the sector to which they belong in 2011-12, as ‘j’. For each specific ‘i’, the set of households that did not transition (i.e., for whom $i=j$) are used as control groups to evaluate the nature of transitions for the households that transitioned out from the respective ‘i’ (i.e., for the households for whom $i \neq j$). Therefore, there are six control groups, one for each sector.

For each sector-specific control group, we regress the per capita consumption levels in 2011-12 on a vector of household characteristics at 2011-12 levels (denoted by \mathbf{X}) that may determine the consumption levels of the households (while including the sector-specific IMRs as independent variables in the regressions, as discussed in section III) (reported in Table A.2.1 in Appendix A.2). \mathbf{X} includes the following: (i) social caste of the household members (general/forward or backward castes), (ii) religion (Hindu, Muslim, or other religious minorities), (iii) years of education of the highest educated adult in the household, (iv) largest

amount of loan taken by the household, (v) proportion of adults in the household, (vi) area of land owned, (vii) state zones, and (viii) location (rural or urban). We estimate the sector-specific vector of coefficients (i.e., the vector of average returns to the household's characteristics) for the set of households that did not transition. We then use this sector-specific coefficient vector to predict the 'counterfactual' consumption levels of households that transitioned out from the respective sectors. For each sector to which the households belonged to in 2005, this 'counterfactual' assesses the consumption levels that the transitioning households would have had in 2011-12, if the average returns to their observed household characteristics in final period were same as that of the households that did not transition (i.e., the control set).^{vi}

Finally, in order to determine whether the transitions across sectors, on an average, were 'favourable' / 'voluntary' or 'unfavourable' / 'involuntary', 'consumption difference' between the 'actual' per capita consumption levels and the corresponding 'counterfactual' for the transitioning households are calculated. If average 'consumption difference' for households transitioning between two sectors is found to be positive, the transition is characterised as 'favourable' / 'voluntary', and if the difference is negative, the transition is characterised as 'unfavourable' / 'involuntary'. Table 5.1. reports the average per capita consumption differences for the sets of households that have transitioned across sectors. Each cell of the table depicts the average 'consumption difference' for the set of households that transitioned from a sector in 2005 (rows) to another sector in 2011-12 (columns). Further, based on the counterfactual analysis, Table 5.2 reports the proportion of households that transitioned 'favourably' and those that transitioned 'unfavourably' from each sector.

Table 5.1: Nature of transitions across sectors between 2005 and 2011-12

| Sector to which the household belonged (2005) | Actual - counterfactual consumption per capita | Sector to which the household transitioned (2011-12) | | | | | |
|---|--|--|---------|-----------|----------|-----------|----------|
| | | NASE | NAE | NAWL | SNCL | ASE | AWL |
| NASE | | ---- | 6176*** | -1458*** | 1622*** | -611 | -1711*** |
| NAE | | -7326*** | ---- | -10549*** | -9041*** | -10645*** | -7976*** |
| NAWL | | 2790*** | 4794*** | ---- | 1080*** | 1649*** | -670*** |
| SNCL | | -2414*** | -287 | -3338*** | ---- | -961** | -1696*** |
| ASE | | -295* | 2624*** | -1909*** | 956 | ---- | -2401*** |
| AWL | | 654** | 4383* | 57 | 2649*** | 1467*** | ---- |

Source: Based on author's calculation using the IHDS data.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5.2: Percentage of 'favourable' and 'unfavourable' transitions from each sector

| | NASE | NAE | NAWL | SNCL | ASE | AWL | Total |
|--------------|------|-------|-------|-------|-------|-------|-------|
| Favourable | 38.4 | 16.88 | 42.29 | 33.15 | 31.86 | 46.31 | 37.53 |
| Unfavourable | 61.6 | 83.12 | 57.71 | 66.85 | 68.14 | 53.69 | 62.47 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

We find from Table 5.2 that majority of these transitions were 'unfavourable' in nature, if we were to compare the actual consumption levels of the transitioning households in 2011-12 with the counterfactual consumption levels that they would have attained if in they had the same average returns to household characteristics as the non-transitioning households.

The analysis shows that, on an average, the transition of NASE ('traditional' informal) households towards NAWL and AWL (informal casual wage labour) to derive their primary income, is 'unfavourable' in nature, whereas that towards SNCL and NAE ('modern' and less informal) is 'favourable'. Similarly, the transition of households towards NASE from casual wage labour sectors is 'favourable', whereas that from SNCL, NAE and ASE is 'unfavourable'. For example, the average 'consumption difference' for the set of households that transitioned from NASE to NAWL is negative INR 1458, implying that upon transitioning to NAWL, the

NASE households registered a fall in their average per capita consumption levels by this amount compared to what they would have had if they had not transitioned. On the other hand, those that transitioned from NAWL to NASE, on an average, registered an increase in their per capita consumption level by INR 2790. Similarly transitions towards NAWL from all sectors (except AWL), on an average, are ‘unfavourable’ in nature (and as seen earlier the proportion of NAWL households has increased over this period). Moreover, transitions from SNCL households towards all other sectors (except NAE), on an average, are negative, while those towards SNCL from NASE, NAWL, and AWL, are positive. Finally, transitions from ASE (‘traditional’ informal in agriculture sector) towards NAWL, AWL and NASE are, on an average, ‘unfavourable’ in nature (and as seen earlier the highest proportion of ASE households transitioned towards NAWL and AWL sectors).

As noted earlier in Section II, an economy can be argued to be closely integrated if there is a substantial proportion of transitions happening across sectors, and if such transitions are ‘favourable’ / ‘voluntary’ in nature. However, given the nature of the transitions as reported above, it seems that the sectors in the Indian economy, characterised by varying degrees of informality and employment types, continue to remain strictly delineated. Specifically, given the ‘unfavourable’ nature of household transitions from relatively ‘modern’ and less informal sectors (SNCL and NAE) to relatively ‘traditional’ and more informal sectors (NASE, ASE, NAWL, AWL), the segmentations between the ‘traditional’ / more informal and ‘modern’ / less informal economic spaces have remained intact. Moreover, the ‘unfavourable’ nature of transitions from ‘traditional’ informal sector (NASE and ASE) to informal casual wage labour (NAWL and AWL) suggests that such segmentations are not limited to that between sectors with varying degrees of informality, but also exist within the informal sector between different employment types. Further, the ‘unfavourable’ nature of transitions from relatively less informal wage labour (SNCL) to informal self-employed (NASE) questions the dynamic view

of informality proposed in some parts of the literature (e.g., Maloney, 1999, 2004; Fajnzylber et al, 2006), which argue that self-employment in the informal sector is often preferred over formal salaried employment. Finally, the ‘unfavourable’ nature of transitions from agricultural self-employment (ASE) to casual wage labour (NAWL and AWL) – highest proportion of ASE households transitioned towards NAWL and AWL – indicates a process of distress driven transition, where dependence on self-employment in agriculture for primary economic reproduction is increasingly seen to be unsustainable. However, as noted earlier, dependence on the ASE sector is also simultaneously reproduced as households from casual wage labour sectors also transition towards it, maybe because of lack of alternate livelihood opportunities.

The robustness of the above results are checked by: (a) Carrying out sector-specific OLS regression to measure the impact of transitions on the 2011-12 consumption levels of transitioning households, while controlling for other household characteristics as well as their initial consumption level in 2005 (in order to account for possible selection bias); (b) Re-doing the counterfactual analysis with two modifications: (i) including the lag of consumption per capita in the list of covariates used to construct the counterfactual, and (ii) using income per capita of households instead of consumption per capita to capture the household’s economic well-being in (i); and (c) Re-doing the counterfactual analysis using the alternate idea of primary income source that was introduced in Section III, where a sector is considered to be the primary income source of households only if the households received more than 50 percent of their income from it. The results from these robustness checks are qualitatively same and the magnitudes are quantitatively similar to the results from the analysis reported above. The results from the robustness check (Table A.2.2 for part (a), Table A.2.3 for part (b- i), Table A.2.4 for part (b-ii), and Table A.2.5 for part (c)) are reported in Appendix A.2.

VI: Household characteristics and transitions

Next, we use a multinomial logit regression framework to identify the characteristics that affect the likelihood of ‘favourable’ or ‘unfavourable’ transition. The following equation is estimated for each of the six sectors to which households belong in the first period:

$$\text{Transition}_{si} = \alpha_s + \beta_s \mathbf{X}_{si} + \gamma_s \text{IMR}_{si} + u_{si},$$

where, for each sector s , ‘transitions’ is a categorical variable that for each household ‘ i ’ takes a value based on the sector towards which the household transitioned, with ‘no transition’ being the base category. \mathbf{X} is the vector of household characteristics in 2005 that are expected to affect the likelihood of transitions, which, in addition to the 2005 per capita household consumption levels, include the same covariates (except for the variable ‘land owned’) that we used for the counterfactual construction in the previous section. IMR is sector-specific Inverse Mill’s Ratio that accounts for possible attrition biases.

I calculate the average marginal effects that measure how these household characteristics, \mathbf{X} , affect the probability of a household to transition out of sector ‘ s ’ towards another sector relative to continuing to derive its primary income from the same sector.^{vii} The average marginal effects from the regression are reported in Table 6.1 to 6.6.

To check the robustness of the results, an alternate idea of primary income source, i.e., the sector from which households derive more than 50 percent of their total income, is used in the regression. The results are similar in both cases.

It is found that years of education of the highest educated adult in the household, social caste of the household members, location of the households (rural/urban), and availability of loans are the most important factors that affect the likelihood of a household to transition ‘favourably’ vis-à-vis ‘unfavourably’.

We find that additional years of education play an important role in increasing the probability of an average household to make a ‘favourable’ transition, which is associated with a transition towards a relatively ‘modern’ sector and a sector with relatively low degree of informality, while decreasing its probability to transition ‘unfavourably’, which is associated with a transition towards a relatively ‘traditional’ sector and a sector with a higher degree of informality. For example, at the level of median per-capita consumption, an increase in 5 years of education of the highest educated adult of the family (which is the average standard deviation in the years of education across sectors) from the mean value, increases the probability of the NASE households to transition to NAE sector (a ‘favorable’ transition towards more ‘modern’ and less informal sector) by 1.6 percent, while decreasing the probability to transition towards NAWL and AWL sectors (an unfavorable transitions towards casual wage labour employment), by 5 percent and 3.7 percent respectively, given other household characteristics (see Table 6.1). We find similar results for households deriving their primary income from other sectors. This result is in resonance with other country-specific, as well as cross-country, studies that highlight the importance of education and human capital development in facilitating the transition of an economy towards formality (Mandelman and Montes-Rojas, 2009; Gong et al, 2004; La Porta and Shleifer, 2014).

However, we also find that other *structural* factors, which cannot be directly altered through policy interventions or cannot be optimally chosen by households, have significant impact on this likelihood and nature of these transition. One such important characteristic is the social caste to which household members belong. Belonging to a ‘forward’ social caste increases the probability of a household to transition ‘favourably’, i.e., towards a relative ‘modern’ sector and towards a sector with a relatively lower degree of informality, while decreasing the probability of an ‘unfavourable’ transition. For example, at the level of median per-capita consumption, with all other household characteristics at their mean or base value, a

‘forward’ / general caste NASE household has, on an average, a 4.2 percent higher probability to transition to NAE sector (a ‘favourable’ transition towards a relatively ‘modern’ sector) and 8.5 percent lower probability to transition to NAWL sector (an ‘unfavourable’ transition towards casual wage employment), relative to ‘backward’ caste (SC/ST/OBC) households. Further, an average SNCL household belonging to the ‘forward’ social caste has a lower probability to transition ‘downward’ towards NAWL and AWL (casual wage labour employment with higher degree of informality) relative to ‘backward’ caste households, whereas a ‘forward’ caste NAWL household has a higher probability to transition to SNCL (a ‘favourable’ transition and associated with relatively lower degree of informality) than a ‘backward’ caste household. Given that those at higher levels of social hierarchy have higher probabilities to transition ‘favourably’, i.e., towards sectors that are relatively ‘modern’ and have lower degree of informality, the likelihood of making a ‘favourable’ or ‘unfavourable’ transition is a structural issue as well.

It may be argued that the effect of caste, in some sense, can be altered through affirmative action policies that may improve the economic welfare of ‘backward’ castes. However, as shown in the Indian context by Thorat et al., 2017 and others, ‘backward’ caste groups have a higher probability to fall into or to remain in poverty than ‘forward’ caste groups, and such probabilities cannot be explained only on the basis of their educational, social and financial disadvantages.

We also find that households located in urban areas have both higher upward mobility as well as higher vulnerability than those located in the rural areas. For example, the urban NAWL households have a higher probability to transition towards NAE and NASE (a ‘favourable’ transition) while urban SNCL households have a higher probability to transition towards NAWL and NASE (an ‘unfavourable’ transition), relative to their rural counterparts.

Finally, the amount of the largest loan taken by a household has a small but significant positive impact on the probability of the households to transition ‘favourably’, while decreasing the probability of ‘unfavorable’ transitions. However, majority of households (around 53 percent) did not take any loans from formal or informal sources of credit. Of the households that have taken loans, the average value of the largest amount of loan taken in 2005 was as low as INR 34,775.

Therefore, while household characteristics play an important role in determining whether the household transitions favourably or unfavourably, not all of them, like, for example social caste of the household members, can be ‘optimally’ chosen or altered by the households, but are rather structurally given.

[Tables 6.1 to 6.6 on pages 29 to 34]

VII: Discussion and Conclusion

Despite high growth experienced by the Indian economy, the informal economy continues to persist and provide livelihood to a vast majority of working population. We argue that given the vastness and heterogeneity of the informal economy, India’s economic structure cannot be divided into strict binaries of formal and informal sectors. Rather, there exist delineations between different sectors that encompass different shades of formality/informality and employment types. This makes the structure more complex than what is often understood in terms of strict duality.

We find that during the celebrated period of high economic growth in India, while substantial proportion of households have transitioned across sectors in terms of their primary income sources, the pattern of transitions has been such that the overall structure of the economy has been reproduced and has remained more or less intact over the period. There has been a continuous reconstitution and regeneration of different economic spaces in terms of

economic dependence of households, including the ‘traditional’ informal sectors and the casual wage employment that were often expected to dissolve over time with high economic growth. This, however, does not imply that the sectors have become integrated and the structural aspects of formal-informal delineations are no longer relevant (as often suggested in the literature following Maloney, 1999). Rather, our analysis shows that while these structural aspects remain centrally important, given the specificities of the sectors, one needs to take into account these complexities instead of simply focussing on broad binaries.

We show that while transitions from relatively ‘modern’ and less informal sectors towards relatively ‘traditional’ and more informal sectors have been ‘unfavourable’ in nature, the reverse transitions have been ‘favourable’. We also show that such segmentation also exists within the informal economic space between ‘traditional’ informal sector and informal casual wage employment. We find that a significant proportion of household-level transitions in the economy during the period of analysis have been ‘unfavourable’ in nature. Further, the likelihood and nature of transitions (‘favourable’ or ‘unfavourable’) is highly dependent on household characteristics, including education and social caste, some of which may be structurally given and cannot be optimally chosen by households.

The seven-year period of our analysis (necessitated by the availability of panel data) may not be sufficient to conclusively argue about the long trend of the process of the transformation of economic structure in India. However, from the above analysis, it is clear that, in spite of the significant amount of churning in the economy in terms of household-level transitions, there has been a continued reproduction of the economic structure, as well as a regeneration of dependence on ‘traditional’ informal economic spaces and on casual wage labour. A large proportion of workforce seems to be either in a state of flux, moving between sectors and occupations in search of livelihood as ‘footloose’ labour without a firm grounding anywhere, or continue to reproduce their conditions of livelihood at the margins in the

‘traditional’ informal economic spaces. A possible explanation of this phenomenon might be found in Sanyal (2007), who contends that India has experienced a process of exclusionary economic growth that transfers resources from the ‘traditional’ / informal sector to the ‘modern’ / formal sector, without absorbing the workforce that depends on these resources for their survival. This ‘excluded’ population is forced to continue to eke out their livelihood from the ‘traditional’ informal spaces for their survival, thereby ensuring a continuous reproduction of these spaces. Further, we also find that the population that occupies these spaces is not a stagnant set; rather it is being continuously reshuffled – while the older occupants of the set might leave, others continue to join and reproduce these spaces. This *dynamic* process of reproducing a rather *stagnant* structure provides an insight into the complexity of India’s development trajectory, that is often glossed over in the literature.

[Table 6.1 – 6.6 here]

Tables 6.1 – 6.6

Table 6.1: Marginal effects for ML regression – Dependent variable: Transitions out of NASE sector

| | ASE | NAWL | NAE | AWL | other | SNCL |
|--|-------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|
| Annual consumption per capita (by10000) | -0.00724 (0.0157) | -0.0274 (0.0234) | 0.0196** (0.00627) | -0.0160 (0.0116) | 0.0166*** (0.00392) | 0.0186* (0.00913) |
| Years of education | 0.00263 (0.00196) | -0.0100*** (0.00265) | 0.00321** (0.00155) | -0.00735*** (0.00152) | 0.00135 (0.00142) | 0.00234 (0.00189) |
| Social caste (Base: SC/ST/OBC) | 0.0463** (0.0169) | -0.0847*** (0.0201) | 0.0417** (0.0164) | -0.000761 (0.0115) | 0.0000753 (0.0165) | 0.0225 (0.0143) |
| Largest loan amount (by 10000) | 0.000558 (0.00131) | -0.00718* (0.00375) | 0.00128*** (0.000372) | -0.00294 (0.00283) | 0.00160** (0.000688) | 0.00171*** (0.000579) |
| Religion: Muslim (Base category: Hindu) | -0.0173 (0.0192) | 0.0514 (0.0456) | 0.0189 (0.0182) | -0.00166 (0.0107) | -0.00581 (0.0145) | -0.0182 (0.0268) |
| Religion: others (Base category: Hindu) | -0.0664*** (0.0209) | 0.120** (0.0564) | 0.0251 (0.0284) | 0.00114 (0.0311) | -0.00277 (0.0227) | 0.000128 (0.0272) |
| Urban (Base category: rural) | -0.124*** (0.0315) | -0.000420 (0.0344) | 0.0550** (0.0269) | -0.110*** (0.0361) | -0.0683*** (0.0174) | 0.102*** (0.0235) |
| Proportion of adults in the HH | 0.0498 (0.0312) | -0.00376 (0.0584) | 0.00142 (0.0251) | -0.0527** (0.0215) | 0.0717* (0.0289) | 0.0161 (0.0526) |
| Inverse Mills Ratio (NASE) | -0.202 (0.243) | 0.0893 (0.170) | -0.0378 (0.0931) | 0.0191 (0.118) | 0.146** (0.0729) | -0.00136 (0.123) |
| State controls | yes | yes | yes | yes | yes | yes |
| Observations | 3894 | 3894 | 3894 | 3894 | 3894 | 3894 |

Cluster robust standard errors in parenthesis, clustered at state level

Pseudo R square = 9.8 percent

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The marginal effects reported in Table 6.1 – 6.6 are estimated with consumption per capita being held at its median level.

Table 6.2: Marginal effects for ML regression –Dependent variable: Transitions out of NAE

| | ASE | NAWL | NASE | AWL | other | SNCL |
|--|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|------------------------------|
| Annual consumption per capita (by10000) | 0.0185** (0.00752) | 0.00231 (0.0113) | -0.0342** (0.0173) | -0.0126 (0.00861) | -0.00144 (0.00573) | 0.0157** (0.00647) |
| Years of education | -0.00342 (0.00294) | -0.00748*** (0.00220) | -0.00934** (0.00426) | -0.00521*** (0.00118) | 0.00450** (0.00188) | -0.000537 (0.00289) |
| Social caste (Base: SC/ST/OBC) | 0.00295 (0.0315) | -0.00174 (0.0236) | -0.0122 (0.0316) | -0.0180** (0.00849) | -0.00410 (0.0120) | 0.0169 (0.0183) |
| Largest loan amount (by 10000) | -0.000740 (0.00107) | -0.000833 (0.00182) | 0.00133 (0.00150) | 0.000150 (0.000247) | -0.000494 (0.000636) | -0.00106 (0.000669) |
| Religion: Muslim (Base category: Hindu) | 0.0224 (0.0241) | 0.0644** (0.0304) | -0.109*** (0.0253) | 0.0199 (0.0189) | -0.0470*** (0.0117) | 0.0237 (0.0353) |
| Religion: others (Base category: Hindu) | 0.0313 (0.0543) | -0.0577** (0.0240) | -0.101 (0.0842) | 0.0528 (0.0470) | -0.000289 (0.0356) | 0.0843** (0.0418) |
| Urban (Base category: rural) | -0.0737*** (0.0258) | 0.0522 (0.0431) | -0.0161 (0.0796) | -0.00638 (0.0173) | -0.103* (0.0579) | 0.133*** (0.0425) |
| Proportion of adults in the HH | -0.00422 (0.0342) | -0.0141 (0.0462) | -0.0283 (0.0940) | 0.000121 (0.0203) | 0.110 (0.0691) | 0.0310 (0.0518) |
| Inverse Mills Ratio (NAE) | -0.377 (0.215) | -0.333* (0.187) | 0.563* (0.225) | -0.135 (0.107) | 0.285* (0.154) | -0.225* (0.131) |
| State controls | yes | yes | yes | yes | yes | yes |
| Observations | 1596 | 1596 | 1596 | 1596 | 1596 | 1596 |

Cluster robust standard errors in parenthesis, clustered at state level

Pseudo R square = 9.5 percent

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6.3: Marginal Effects for ML Regression – Dependent variable: Transitions out of SNCL sector

| | ASE | NAWL | NAE | NASE | AWL | other |
|--|---------------------------------|--------------------------------|-------------------------------|-----------------------------|----------------------------------|------------------------------|
| Annual consumption per capita (by10000) | -0.00340 (0.0127) | -0.0485*** (0.00795) | -0.000938 (0.00150) | -0.00325 (0.00968) | -0.00403 (0.0110) | 0.00894 (0.00904) |
| Years of education | -0.000255 (0.000918) | -0.0118*** (0.00300) | -0.000508 (0.000546) | 0.000208 (0.000888) | -0.00520*** (0.000927) | 0.000191 (0.00174) |
| Social caste (Base: SC/ST/OBC) | 0.0311*** (0.0105) | -0.0350*** (0.0128) | 0.00527 (0.00480) | 0.00523 (0.00890) | -0.0373*** (0.00810) | 0.0121 (0.0123) |
| Largest loan amount (by 10000) | 0.000791** (0.000380) | -0.00253 (0.00199) | 0.0000461 (0.000359) | 0.000195 (0.000754) | -0.000966 (0.000787) | 0.000919 (0.000592) |
| Religion: Muslim (Base category: Hindu) | 0.0112 (0.00971) | 0.103*** (0.0214) | 0.0118*** (0.00397) | 0.0180 (0.0168) | -0.000111 (0.00915) | -0.0228 (0.0229) |
| Religion: others (Base category: Hindu) | 0.00647 (0.0155) | 0.0254 (0.0149) | -0.0107** (0.00478) | -0.0211* (0.0109) | 0.0199 (0.0247) | -0.0131 (0.0168) |
| Urban (Base category: rural) | -0.119** (0.0551) | 0.0908** (0.0373) | -0.00929 (0.0111) | 0.0278* (0.0159) | -0.0534** (0.0227) | -0.122*** (0.0458) |
| Proportion of adults in the HH | 0.0855*** (0.0325) | 0.0534*** (0.0181) | 0.0191* (0.00988) | 0.00507 (0.0158) | -0.00292 (0.0104) | 0.140*** (0.0190) |
| Inverse Mills Ratio (SNCL) | -0.0135 (0.207) | -0.271** (0.120) | 0.0983*** (0.0364) | -0.0261 (0.0690) | -0.115 (0.152) | 0.238 (0.152) |
| State controls | yes | yes | yes | yes | yes | yes |
| Observations | 8906 | 8906 | 8906 | 8906 | 8906 | 8906 |

Cluster robust standard errors in parenthesis, clustered at state level

Pseudo R square =11.8 percent

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6.4: Marginal Effects for ML Regression – Dependent variable: Transitions out of NAWL

| | ASE | NAE | NASE | AWL | SNCL | Other |
|--|-------------------------------|---------------------------------|-------------------------------|---------------------------------|--------------------------------|------------------------------|
| Annual consumption per capita (by10000) | 0.0139 (0.0134) | 0.00326 (0.00294) | 0.0168** (0.00730) | -0.0347 (0.0223) | 0.00895 (0.00917) | 0.00905 (0.0155) |
| Years of education | 0.000215 (0.00180) | 0.00214*** (0.000450) | 0.00307** (0.00122) | -0.00811*** (0.00192) | 0.00782*** (0.00120) | 0.000141 (0.00127) |
| Social caste (Base: SC/ST/OBC) | 0.0448** (0.0194) | -0.00118 (0.00395) | 0.00169 (0.00991) | -0.0188 (0.0186) | 0.0215* (0.0128) | 0.0146 (0.0142) |
| Largest loan amount (by 10000) | 0.00107 (0.00205) | 0.000118 (0.000338) | -0.000868 (0.00192) | -0.00178 (0.00228) | 0.00247** (0.00120) | 0.000304 (0.00181) |
| Religion: Muslim (Base category: Hindu) | -0.0586*** (0.0112) | 0.0242** (0.00808) | 0.0466* (0.0282) | -0.0236 (0.0218) | -0.0158 (0.0190) | 0.0268** (0.0109) |
| Religion: others (Base category: Hindu) | 0.0515 (0.0447) | -0.00296 (0.00420) | -0.0135 (0.0111) | -0.0212 (0.0209) | -0.00907 (0.0169) | 0.00826 (0.0159) |
| Urban (Base category: rural) | -0.0957*** (0.0144) | 0.0140* (0.00716) | 0.0980** (0.0392) | -0.149*** (0.0388) | 0.0847** (0.0312) | -0.0306 (0.0194) |
| Proportion of adults in the HH | 0.0433 (0.0305) | 0.00389 (0.00815) | 0.00408 (0.0309) | -0.00250 (0.0244) | -0.116* (0.0633) | 0.0959*** (0.0268) |
| Inverse Mills Ratio (NAWL) | -0.135 (0.174) | -0.0165 (0.0376) | -0.151 (0.140) | 0.188 (0.183) | -0.00948 (0.155) | -0.0620 (0.127) |
| State zone controls | yes | yes | yes | yes | yes | yes |
| Observations | 7683 | 7683 | 7683 | 7683 | 7683 | 7683 |

Cluster robust standard errors in parenthesis, clustered at state level

Pseudo R square = 7.6 percent

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6.5: Marginal Effects for ML Regression – Dependent variable: Transitions out of ASE

| | NAWL | NAE | NASE | AWL | other | SNCL |
|--|-------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|--------------------------------|
| Annual consumption per capita (by10000) | -0.0644*** (0.0212) | 0.00499*** (0.00119) | 0.000272 (0.00816) | -0.0415*** (0.0150) | 0.0193*** (0.00667) | 0.00826 (0.00456) |
| Years of education | -0.00111 (0.00130) | 0.00118*** (0.000370) | 0.00236* (0.00123) | -0.00778*** (0.00248) | -0.000527 (0.00164) | 0.00724*** (0.00138) |
| Social caste (Base: SC/ST/OBC) | -0.0632*** (0.0123) | 0.00368 (0.00278) | -0.00324 (0.00680) | -0.0561*** (0.0202) | 0.0165 (0.0127) | 0.00300 (0.00862) |
| Largest loan amount (by 10000) | -0.00110 (0.00148) | 0.000152 (0.000250) | 0.000785*** (0.000238) | 0.0000887 (0.00120) | -0.00655*** (0.00203) | -0.000900 (0.000708) |
| Religion: Muslim (Base category: Hindu) | 0.0370* (0.0216) | 0.0165*** (0.00624) | 0.0269* (0.0153) | 0.0536** (0.0240) | 0.0112 (0.0238) | -0.0121 (0.0133) |
| Religion: others (Base category: Hindu) | -0.0220 (0.0376) | -0.00380 (0.00233) | -0.0171 (0.0111) | -0.0268 (0.0253) | -0.0191 (0.0248) | 0.00193 (0.0214) |
| Urban (Base category: rural) | 0.0103 (0.0410) | 0.0277** (0.0127) | 0.0728** (0.0335) | -0.0572** (0.0238) | -0.0215 (0.0168) | 0.0752*** (0.0244) |
| Proportion of adults in the HH | -0.124*** (0.0424) | -0.0148* (0.00758) | -0.0220 (0.0212) | -0.0147 (0.0422) | -0.000512 (0.0283) | 0.0000722 (0.0298) |
| Inverse Mills Ratio (ASE) | 0.441*** (0.162) | -0.00680 (0.0348) | 0.0340 (0.0996) | 0.1037 (0.1409) | 0.316*** (0.114) | 0.0299 (0.121) |
| State zone controls | yes | yes | yes | yes | yes | yes |
| Observations | 9206 | 9206 | 9206 | 9206 | 9206 | 9206 |

Cluster robust standard errors in parenthesis, clustered at state level

Pseudo R square = 7.5 percent

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6.6: Marginal Effects for ML Regression – Dependent variable: Transitions out of AWL

| | ASE | NAWL | NAE | NASE | other | SNCL |
|--|-------------------------------|------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------------------|
| Annual consumption per capita (by10000) | 0.0306 (0.0178) | 0.00834 (0.0192) | -0.00257 (0.00208) | 0.000123 (0.00882) | -0.00733 (0.0132) | -0.00518 (0.0123) |
| Years of education | 0.00343 (0.00286) | 0.00292 (0.00291) | 0.000898** (0.000379) | 0.00279*** (0.000724) | 0.000797 (0.00175) | 0.00366*** (0.00110) |
| Social caste (Base: SC/ST/OBC) | 0.0810*** (0.0179) | -0.0535** (0.0242) | 0.00276 (0.00372) | -0.00753 (0.00877) | 0.0385*** (0.0129) | 0.00378 (0.0130) |
| Largest loan amount (by 10000) | 0.00921** (0.00417) | -0.0104* (0.00624) | 0.000509** (0.000219) | 0.00166 (0.00157) | 0.00424* (0.00236) | 0.00441** (0.00203) |
| Religion: Muslim (Base category: Hindu) | -0.0849*** (0.0302) | 0.0109 (0.0450) | -0.0002003 (0.00388) | 0.0614** (0.0279) | 0.00607 (0.0130) | -0.0303*** (0.00530) |
| Religion: others (Base category: Hindu) | -0.0709** (0.0300) | 0.0453 (0.0403) | -0.00334 (0.00239) | -0.00887 (0.0126) | -0.00280 (0.0196) | -0.0146 (0.0133) |
| Urban (Base category: rural) | -0.118*** (0.0215) | 0.113 (0.0931) | 0.00689 (0.00613) | 0.0260 (0.0227) | -0.0206 (0.0128) | 0.0697** (0.0350) |
| Proportion of adults in the HH | -0.0134 (0.0586) | -0.0652 (0.0463) | 0.00662* (0.00369) | -0.0554** (0.0270) | 0.0801* (0.0446) | -0.0461 (0.0580) |
| Inverse Mills Ratio (AWL) | -0.141 (0.245) | 0.0311 (0.251) | 0.0160 (0.0212) | 0.140* (0.0806) | 0.148 (0.150) | 0.0727 (0.123) |
| State controls | yes | yes | yes | yes | yes | yes |
| Observations | 6319 | 6319 | 6319 | 6319 | 6319 | 6319 |

Cluster robust standard errors in parenthesis, clustered at state level

Pseudo R square = 6.7 percent

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

References

- Bargain, O., and Kwenda, P. (2014). The informal sector wage gap: New evidence using quantile estimations on panel data. *Economic Development and Cultural Change*, 63(1), 117-153.
- Basu, D. & Basole, A. (2012). The calorie consumption puzzle in India: An empirical investigation. Political Economy Research Institute. Working Paper 285.
- Bhattacharya, S. (2017). Reproduction of Noncapital: A Marxian Perspective on the Informal Economy in India. In Ted Burczak, Rob Garnett, and Richard McIntyre (eds.), *Knowledge, Class, and Economics: Marxism Without Guarantees*. New York and London: Routledge
- Bhattacharya, S., and Kesar, S. (2018). Possibilities of Transformation: The Informal Sector in India. *Review of Radical Political Economics*, 50(4), 727-735
- Botelho, F., & Ponczek, V. (2011). Segmentation in the Brazilian labor market. *Economic Development and Cultural Change*, 59(2), 437-463.
- El Badaoui, E., Strobl, E., & Walsh, F. (2008). Is there an informal employment wage penalty? Evidence from South Africa. *Economic Development and Cultural Change*, 56(3), 683-710.
- Fajnzylber, P., Maloney, W. F., and Montes-Rojas, G. V. (2009). Releasing constraints to growth or pushing on a string? Policies and performance of Mexican micro-firms. *Journal of Development Studies*, 45(7), 1027-1047.
- Gong, Xiaodong, and Arthur van Soest. 2002. "Wage Differentials and Mobility in the Urban Labour Market: A Panel Data Analysis for Mexico." *Labour Economics*, 9 (September): 513–29.
- Gong, X., Van Soest, A., and Villagomez, E. (2004). Mobility in the urban labor market: a panel data analysis for Mexico. *Economic Development and Cultural Change*, 53(1), 1-36.
- Harris, J. R., and Todaro, M. P. (1970). Migration, unemployment and development: a two-sector analysis. *The American economic review*, 60(1), 126-142.

- Desai, Sonalde, Reeve Vanneman, and National Council of Applied Economic Research, New Delhi (2005). India Human Development Survey (IHDS) (ICPSR22626-v8). Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2010-06-29. <http://doi.org/10.3886/ICPSR22626.v8>
- Desai, Sonalde, and Reeve Vanneman and National Council of Applied Economic Research, New Delhi (2011-12). India Human Development Survey-II (IHDS-II) (ICPSR36151-v2). Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2015-07-31. <http://doi.org/10.3886/ICPSR36151.v2>
- La Porta, R., and Shleifer, A. (2014). Informality and development. *Journal of Economic Perspectives*, 28(3), 109-126.
- Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *The Manchester School*, 22(2), 139-191
- Maloney, W. F. (1999). Does informality imply segmentation in urban labor markets? Evidence from sectoral transitions in Mexico. *The World Bank Economic Review*, 13(2), 275-302.
- Maloney, W. F. (2004). Informality revisited. *World Development*, 32(7), 1159-1178.
- Mandelman, F. S. and Montes-Rojas, G. V. (2009). Is self-employment and micro-entrepreneurship a desired outcome? *World Development*, 37(12), 1914-1925.
- National Commission for Enterprises in the Unorganised Sector (NCEUS) (2007)
- ‘Definitional and Statistical Issues: Task Force Report’. New Delhi: NCEUS.
- National Sample Survey Organisation (NSSO) (2012). Economic characteristics of unincorporated non-agricultural enterprises (excluding construction) in India (Report No. 549). New Delhi: NSSO, Ministry of Statistics and Program Implementation.
- Perry, G. E., Arias, O., Fajnzylber, P., Maloney, W. F., Mason, A., & Saavedra-Chanduvi, J. (2007). *Informality: Exit and exclusion*. The World Bank.
- Pratap, S., and Quintin, E. (2006). Are labor markets segmented in developing countries? A semiparametric approach. *European Economic Review*, 50(7), 1817-1841.

- Ranis, G., and Stewart, F. (1999). V-goods and the role of the urban informal sector in development. *Economic development and cultural change*, 47(2), 259-288.
- Syrquin, M. (1988). Patterns of structural change. *Handbook of development economics* 1: 203-273.
- Centre for Sustainable Employment (CSE) (2018). State of Working in India Report. Bangalore: CSE, Azim Premji University
- Srivastava, R. (2012). Changing employment conditions of the Indian workforce and implications for decent work. *Global labour journal*, 3(1), 63-90.
- Thorat, A., Vanneman, R., Desai, S., and Dubey, A. (2017). Escaping and falling into poverty in India today. *World development*, 93, 413-426.
- Tansel, Aysit, Halil Keskin, and Zeynel Abidin Ozdemir (2015). "Is There an Informal Employment Wage Penalty in Egypt?." *IZA discussion paper* 9359.
- World Bank (2018). "Labour Force Participation Rate, female (% of female population ages 15+) (modelled ILO estimate)". The World Bank. Available from <https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?>

Appendices

Appendix A.1: Probit analysis to calculate IMR ratio to account for attrition between surveys

Table A.1 Sector-wise probit analysis of attrition between surveys rounds

| | ASE | NAWL | NAE | NASE | AWL | SNCL | Others |
|---|------------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
| Annual consumption per capita (by10000) | -0.0589** (0.0290) | -0.127*** (0.0349) | -0.0552** (0.0224) | -0.0870** (0.0372) | -0.167*** (0.0563) | -0.0791*** (0.0190) | -0.0778*** (0.0160) |
| Social caste: OBC (Base: General) | 0.292** (0.128) | 0.159 (0.143) | 0.339** (0.155) | 0.342*** (0.100) | -0.148 (0.493) | 0.190** (0.0811) | 0.200** (0.0994) |
| Social caste: SC (Base: General) | 0.0776 (0.123) | 0.207 (0.169) | 0.534** (0.254) | 0.272** (0.120) | 0.0139 (0.496) | 0.226*** (0.0595) | 0.287** (0.146) |
| Social caste: ST (Base: General) | 0.323** (0.146) | -0.150 (0.220) | -0.247 (0.206) | -0.291 (0.229) | -0.233 (0.484) | -0.0598 (0.110) | -0.0151 (0.163) |
| Social caste: others (Base: General) | 0.0659 (0.116) | 0.0672 (0.179) | 0.186 (0.130) | 0.0925 (0.0803) | -0.216 (0.481) | 0.0483 (0.0675) | 0.0419 (0.118) |
| Religion: Muslim (Base: Hindu) | -0.128 (0.143) | -0.104 (0.0993) | -0.208* (0.113) | -0.0568 (0.0999) | 0.0482 (0.149) | -0.0128 (0.0952) | 0.0749 (0.136) |
| Religion: Christian (Base: Hindu) | 0.0555 (0.163) | 0.0780 (0.195) | -0.0723 (0.179) | 0.161 (0.157) | -0.00262 (0.100) | 0.00459 (0.0993) | -0.0328 (0.156) |
| Religion: Sikh (Base: Hindu) | -0.167 (0.164) | -0.0816 (0.242) | -0.908*** (0.179) | 0.0815 (0.144) | -0.157 (0.198) | -0.0847 (0.124) | 0.0218 (0.240) |
| Religion: others (Base: Hindu) | -0.771*** (0.294) | -0.0372 (0.202) | -0.126 (0.182) | 0.109 (0.178) | -0.362 (0.284) | -0.0435 (0.103) | -0.442* (0.255) |
| Years of education | 0.0366*** (0.00795) | 0.00580 (0.00605) | 0.0199 (0.0164) | 0.0148* (0.00849) | 0.0239*** (0.00719) | -0.00334 (0.00542) | 0.0180* (0.00978) |
| Sector: Urban (Base: Rural) | -0.410*** (0.133) | -0.484*** (0.111) | -0.594*** (0.111) | -0.583*** (0.0794) | -0.244** (0.0952) | -0.675*** (0.0725) | -0.415*** (0.0971) |
| Number of assets owned by HH | -0.00152 (0.0135) | -0.000167 (0.0122) | -0.0128 (0.0117) | 0.00225 (0.00874) | -0.00773 (0.00553) | -0.00591 (0.00515) | 0.0179** (0.00845) |
| Land owned (in acres) | 0.00206 (0.00543) | 0.0456 (0.0375) | 0.00857 (0.0192) | 0.0319** (0.0143) | 0.0366* (0.0213) | 0.00431 (0.00805) | 0.0172* (0.0103) |
| Largest loan amount | 0.00361 (0.00627) | 0.0319*** (0.0108) | 0.00111 (0.00163) | 0.00231 (0.00270) | 0.0186 (0.0146) | 0.00303 (0.00251) | 0.0187*** (0.00694) |
| Proportion of adults in the household | -0.861*** (0.291) | -0.396*** (0.107) | 0.213 (0.372) | -0.436*** (0.138) | -0.842*** (0.145) | -0.0625 (0.101) | -0.981*** (0.161) |

| | | | | | | | |
|---|----------------------|----------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|
| State zone: North-Central (Base: North) | -0.0849 (0.106) | 0.0704 (0.180) | 0.161 (0.208) | -0.121 (0.128) | -0.110 (0.126) | -0.216 (0.147) | -0.0275 (0.116) |
| State zone: North Eastern (Base: North) | -1.098*** (0.119) | -0.792*** (0.133) | -0.689*** (0.165) | -0.535*** (0.0883) | -1.280*** (0.322) | -0.534*** (0.0840) | -0.241 (0.131) |
| State zone: Eastern (Base: North) | -0.209 (0.220) | 0.137 (0.183) | -0.0310 (0.0966) | -0.0879 (0.139) | 0.0881 (0.133) | 0.0165 (0.128) | 0.205 (0.149) |
| State zone: Western (Base: North) | -0.105 (0.145) | -0.127 (0.247) | -0.305* (0.173) | -0.124 (0.146) | -0.0785 (0.120) | 0.0855 (0.192) | 0.0574 (0.149) |
| State zone: Southern (Base: North) | -0.420** (0.131) | -0.267 (0.164) | -0.299* (0.162) | -0.524*** (0.101) | -0.383** (0.167) | -0.389*** (0.105) | -0.315*** (0.122) |
| Constant | 1.898*** (0.253) | 1.570*** (0.263) | 1.248*** (0.298) | 1.571*** (0.197) | 2.188*** (0.570) | 1.554*** (0.113) | 1.400*** (0.198) |
| R-square | 9.3 % | 8.3 % | 9.2 % | 8.1 % | 6.7 % | 8.8 % | 9.9 % |
| Observations | 9886 | 8827 | 1993 | 4622 | 7039 | 11571 | 2925 |

Source: Based on author's calculation using the IHDS data.

cluster robust standard errors in parenthesis, clustered at state level

** $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$*

Appendix A.2. Counterfactual Analysis

Table A.2.1: OLS regression to estimate the vector of coefficients for the construction of counterfactual (Dependent variable: household per capita consumption levels)

| | ASE | NAWL | NAE | NASE | AWL | SNCL |
|--|------------------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|
| Social caste (Base: SC/ST/OBC) | 2250.5*** (448.6) | 1066.5*** (368.3) | 4136.1 (2933.6) | 3089.8*** (801.9) | 1665.0*** (510.3) | 1365.2*** (485.4) |
| Religion: Muslim (Base category: Hindu) | 1513.5 (986.3) | 434.6 (418.9) | -1849.1 (3120.8) | -1731.8*** (624.3) | 152.4 (569.3) | -2776.4** (1064.1) |
| Religion: others (Base category: Hindu) | 5452.2*** (1106.0) | 750.5 (572.7) | 1720.9 (9813.0) | 270.0 (1322.1) | -244.9 (769.5) | 737.9 (1492.6) |
| Years of education (in 2011-12) | 107.2** (49.96) | 60.55*** (20.88) | 554.2 (407.0) | 217.9*** (47.12) | -72.38 (46.27) | 647.3*** (105.8) |
| Largest loan amount (in 2011-12) | 0.0147*** (0.00460) | 0.0299*** (0.00611) | 0.00398 (0.00429) | 0.00833* (0.00468) | 0.0856*** (0.0231) | 0.0334*** (0.00974) |
| Proportion of adults in the HH (in 2011-12) | 13525.9*** (1354.2) | 6789.2*** (888.9) | 18469.4*** (6111.5) | 6888.7*** (1112.6) | 7098.1*** (1112.7) | 13615.1*** (2818.3) |
| Land owned (in acres) (in 2011-12) | 28.49** (12.57) | -15.38** (6.550) | 394.7* (210.7) | -15.30** (7.131) | -61.43 (99.97) | 83.37*** (25.49) |
| Urban (Base category: rural) (in 2011-12) | 3577.6*** (1030.9) | 1839.7*** (385.8) | 6749.8 (5255.2) | 2296.1*** (785.0) | -421.4 (1196.4) | -3327.0 (3475.9) |
| Inverse mills ratio | -8267.7 (6366.7) | -5589.4 (3620.5) | -1645.9 (20101.0) | -2300.9 (4012.1) | 1171.0 (2936.0) | 30825.2*** (9063.3) |
| State zone controls | yes | yes | yes | yes | yes | yes |
| Constant | 4755.4** (1739.0) | 5667.1*** (792.5) | 5283.1 (9608.1) | 5159.9*** (1352.0) | 3717.2*** (937.3) | -1552.5 (2836.7) |
| R square | 17.2 % | 24.6 % | 13.5 % | 14.2 % | 11.1 % | 15.8 % |
| Observations | 4821 | 3853 | 438 | 1326 | 2415 | 4944 |

Source: Based on author's calculation using the IHDS data.

cluster robust standard errors in parenthesis, clustered at state level

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.2.2: OLS regression: Impact of transitions across sectors on household per capita consumption

For each sector 's', to which the households belong to, based on their primary income source 2005, we estimate the following regression: $COPC_{is} = \alpha_s + \beta_s \text{Transition}_{is} + \lambda_s COPCI_{is} + \gamma_s X_{is} + \rho_s IMR_{is} + u_{is}$, where $COPC_{is}$ is the 2011-12 level of per capita consumption for each household 'i'. 'Transition' is a categorical variable, where each category represents a transition from sector 's' to other sectors, with no transition, i.e., the household continuing to remain in sector 's', as the base category. $COPCI_{is}$ is the 2005 level of per capita consumption and it controls for possible self-selection issues, and X is the vector that controls other household characteristics enlisted in section V, and IMR is the sector-specific inverse mill's ratio.

| | Regression 1 | Regression 2 | Regression 3 | Regression 4 | Regression 5 | Regression 6 |
|-----|-----------------|------------------|-------------------|-----------------|------------------|-----------------|
| | ASE | NAWL | NAE | NASE | AWL | SNCL |
| ASE | ---- | 2020.6*** | -8854.4*** | -60.06 | 1774.4*** | -1282.2 |

| | | | | | | |
|--|------------------------------|------------------------------|--------------------------------|------------------------------|------------------------------|------------------------------|
| | | (712.7) | (2619.9) | (730.6) | (462.5) | (1072.7) |
| NAWL | -2694.3*** (617.6) | ---- | -11910.1*** (2214.9) | -1652.4*** (466.2) | 113.1 (191.9) | -5239.2*** (919.3) |
| NAE | 2789.2*** (965.0) | 4902.6*** (821.2) | ---- | 5911.7*** (1222.8) | 5634.1*** (1896.6) | 1074.1 (1298.9) |
| NASE | -1231.3 (810.2) | 3122.5*** (1010.9) | -7499.3*** (1943.5) | ---- | 584.0 (474.4) | -3132.8*** (576.8) |
| AWL | -2887.1*** (803.9) | -426.0 (430.2) | -11950.8*** (2607.6) | -1373.5 (677.3) | ---- | -4800.8*** (974.4) |
| others | 57.60 (653.3) | 2453.3** (1092.0) | -2170.3 (3204.1) | 2165.0*** (700.8) | 4021.8 (2428.5) | -23.74 (841.8) |
| SNCL | 748.4 (812.8) | 1217.1** (505.4) | -8254.4*** (2550.0) | 1684.8** (594.5) | 2641.4 (1623.6) | ---- |
| Consumption per capita (2005) | 0.239*** (0.0372) | 0.185*** (0.0342) | 0.221*** (0.0480) | 0.312*** (0.0473) | 0.284*** (0.0354) | 0.306*** (0.0338) |
| Caste dummy (Base category: Backward) | 1232.5** (539.6) | 1865.3*** (456.0) | 133.2 (1142.3) | 2179.5*** (653.5) | -160.2 (1304.0) | 1322.4*** (439.6) |
| Religion Muslim Base category: Hindu | -825.4* (473.9) | -883.4** (414.6) | -851.5 (1321.1) | -1217.3 (883.5) | 2408.5 (3077.2) | -2159.2** (920.1) |
| Religion others Base category: Hindu | 2445.8 (1468.8) | 126.4 (535.7) | 3730.0 (4350.0) | 2211.8 (1349.7) | -801.0 (1222.9) | 2228.2 (1459.2) |
| Years of education | 255.5** (94.19) | 137.4*** (36.74) | 686.1*** (171.4) | 203.6*** (52.98) | 247.9** (110.4) | 206.7** (84.23) |
| Largest loan amount (by INR 10000) | 0.00211 (0.00155) | 0.0212** (0.00858) | 0.00646*** (0.000832) | -0.000464 (0.00186) | 0.0206 (0.0124) | 0.0115** (0.00444) |
| Proportion of adults | -2585.3 (1800.3) | -1830.5* (922.6) | 257.0 (4269.8) | -1905.4 (1251.2) | -6965.6** (2982.3) | -2805.7* (1446.2) |
| Land owned (in acres) | 80.17* (30.44) | -97.47 (68.55) | -268.1** (127.2) | -5.482 (86.57) | -59.05 (62.72) | 74.00 (87.72) |
| Urban (Base category: rural) | -641.1 (1011.5) | 280.8 (799.9) | 74.02 (2591.0) | 2412.5*** (663.9) | -2173.1 (1434.9) | -5839.8** (2045.9) |
| Inverse mills ratio | 11445.4 (9011.4) | 5211.4 (5230.8) | 7950.9 (10132.1) | -578.06 (2463.3) | 19154.35*** (6622.2) | 36706.1*** (6639.8) |
| State zone controls | yes | yes | yes | yes | yes | -yes |
| Constant | 10040.1*** (1537.0) | 7643.1*** (845.7) | 15439.6** (5362.5) | 7903.7*** (1349.2) | 6578.7*** (855.5) | 8602.8*** (1676.0) |
| R square | 12.51 % | 16.6 % | 18.4 % | 18.7 % | 8.7 % | 13.6 % |
| Observations | 9201 | 7678 | 1596 | 3890 | 6316 | 8901 |

Clustered robust standard errors, clustered at state level, in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.2.3: Difference in actual and counterfactual consumption (including the lag of the last period's consumption)

| | With lagged consumption | Sector to which the household transitioned (2011-12) | | | | | |
|---|---|--|-----------|---------|----------|----------|----------|
| Sector to which the household belonged (2005) | Actual- Counterfactual consumption per capita | ASE | NAWL | NAE | NASE | AWL | SNCL |
| | ASE | ---- | -1614*** | 2146*** | -235* | -2201*** | 1035 |
| | NAWL | 1622*** | ---- | 4714*** | 2755*** | -623*** | 1085*** |
| | NAE | -10929*** | -10104*** | ---- | -6212*** | -8501*** | -8846*** |
| | NASE | -448 | -1310** | 5710*** | ---- | -1447*** | 1486*** |
| | AWL | 1368*** | -8 | 4405* | 533* | ---- | 2612*** |
| | SNCL | -917*** | -2990*** | -298 | -2144*** | -1995*** | ---- |

Source: Based on author's calculation using the IHDS data.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.2.4: Difference in actual and counterfactual per capita income (including the lag of the last period's income)

| | With lagged income per capita | Sector to which the household transitioned (2011-12) | | | | | |
|---|--|--|-----------|----------|----------|----------|-----------|
| Sector to which the household belonged (2005) | Actual- Counterfactual income per capita | ASE | NAWL | NAE | NASE | AWL | SNCL |
| | ASE | ---- | -2596*** | 14653*** | 714 | -3495*** | -42** |
| | NAWL | -842 | ---- | 6161*** | -234 | -3015*** | 1992*** |
| | NAE | -17713*** | -11099*** | ---- | -12464* | -5726** | -14378*** |
| | NASE | -591 | -618* | 13174*** | ---- | -1632*** | 4025*** |
| | AWL | 2301*** | 1785*** | 4464*** | 2675*** | ---- | 4811*** |
| | SNCL | -5841*** | -3478*** | 3816 | -6964*** | -2328*** | ---- |

Source: Based on author's calculation using the IHDS data.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.2.5: Counterfactual analysis if the primary income source of the household is defined as the sector from which the households receives more than 50 percent of the income from it

| | | Sector to which the household transitioned (2011-12) | | | | | |
|---|---|--|---------|-----------|----------|-----------|----------|
| Sector to which the household belonged (2005) | Actual- Counterfactual consumption per capita | NASE | NAE | NAWL | SNCL | ASE | AWL |
| | NASE | ---- | 6086*** | -1319*** | 1603*** | -92* | -2414*** |
| | NAE | -7477*** | ---- | -10830*** | -8781*** | -10189*** | -8990*** |
| | NAWL | 2999*** | 4993*** | ---- | 1140*** | 2027*** | -650*** |
| | SNCL | -2097*** | 204 | -3302*** | ---- | -1101** | -1490*** |
| | ASE | -736*** | 3197*** | -2452*** | 1035 | ---- | -2358*** |
| | AWL | 896** | 4236* | -45 | 3206*** | 2141*** | ---- |

Source: Based on author's calculation using the IHDS data.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes:

ⁱ Another issue with an analysis of household-level transitions analysis based on the primary income sources could be that it does not allow us to look at specific changes in the employment of the household members. However, we find that for the majority of transitions across sectors (except for the agriculture sector), the transition in primary income also corresponds to the shift in the employment patterns. This is explained in detail in section III.

ⁱⁱ In some of the recent works (Bhattacharya, 2017 and Bhattacharya and Kesar, 2018), it's found that there is a huge gap in the accumulation possibilities of the 'traditional' / 'non-capitalist' and 'modern' / 'capitalist' even within the informal sector. Therefore, the distinction of sectors based on whether they employ wage workers or not is not arbitrary. It also corresponds well with the Lewisian distinction of a 'traditional' and 'modern' production process.

Notes

ⁱⁱⁱ National Commission of Employment in Unorganised Sector (NCEUS) identifies the informal enterprises as those that employ less than 10 total workers. The IHDS dataset does not report the number of workers hired by the enterprises, therefore, not allowing us to distinguish between formal and informal enterprises among the NAE households.

^{iv} Most other work at individual and household-level use the data from NSSO's Employment-Unemployment survey rounds. However, these are cross-sectional – a not panel – data sets. Thus, they are not usable to studying transitions for same households or individuals over time.

^v Given the absolute size of each of the sector vary widely, all the calculations are normalised in terms of each sectors, for example, in Figure 4.3, we compare the proportion of NASE households in 2005 that have transitioned towards other sectors over time with the proportion of NASE households in 2011-12 that transitioned towards it from other sectors over time.

^{vi} Note that the coefficient vector (or the vector of 'average returns to household characteristics') is constructed from the set of actually observed characteristics of the non-transitioning households. In addition to the analysis reported above, we also identified, for each sector in 2005, the set of household characteristics of the non-transitioning households whose coefficient vector can predict the *actual* initial consumption levels of the households that would transition between 2005 and 2011-12. Using this sector-wise set of characteristics, we estimate for 2011-12 the coefficient vector of the households that did not transition and use this vector to predict

for 2011-12 the counterfactual consumption levels of the households that did transition. We find that the nature of sectoral transitions as reported in the text still holds using this alternate method.

^{vii} The average marginal effects are calculated conditional on the fact that the household self-selects itself into a particular sector ‘i’ at the initial time point. These coefficients should be interpreted as such.