



# 03

## Improving Rural Opportunities for Shared Growth

**This chapter presents the diagnosis for rural backwardness and indicates the possible avenues for unlocking rural opportunities for shared growth in Jharkhand.** Improving economic opportunities in rural areas depends on several factors, such as initial asset endowments (household and geographical), market conditions, quality of institutions, and development interventions (including infrastructure, access to finance, technology, and social policy).

### Access to Assets

**An average rural household in Jharkhand is in a disadvantaged position with respect to access and control of assets.** Assets, as defined in terms of the rural livelihoods framework, include natural, human, physical, financial, and social assets.<sup>44</sup>

**The most important physical asset, land, shows highly skewed distribution in rural Jharkhand.** According to the 2005 RJBS data the bottom 43 percent of the rural population, as per the landownership scale, has only 4 percent of land, while the top 8 per cent has 41 percent (Table 3.1). The average size of landholdings has declined over the 10-year period from 2.25 acres to 1.64 acres, which is a very sharp drop by any standard. This has been accompanied by growing land alienation, as indicated by the rising Gini for landownership from 0.65 to 0.70. The relatively high inequality in land distribution is surprising

given the colonial legacy of legal restrictions on the transfer of tribal land ownership in the state. It is quite possible that the 2005 RJBS data has overstated the inequality of landownership. Estimates based on the 55<sup>th</sup> round of NSS indicate, however, that the concentration of landownership in rural Jharkhand is indeed considerably skewed notwithstanding the legal protections of tribal land, as originally envisaged in the Chhotanagpur and Santhal Pargana Tenancy Acts. The estimated Gini inequality of rural land ownership for the state in 1999/00 was 0.64, which is admittedly lower than the all-India average of 0.71, but would still appear to be on the high side (given the initial condition of tribal land ownership). More importantly, inequality in land distribution is possibly on rise in the recent years through illegal (distress) land transfers.<sup>45</sup>

**While other non-land assets are also distributed unequally across the rural sector, the extent of inequality appears less dramatic.** A case in point is access to physical assets such as agricultural and

<sup>44</sup> Ellis (2000).

<sup>45</sup> Prevention of tribal land alienation is a much discussed public issue in Jharkhand. Unfortunately only anecdotal evidence is available in this regard. In case of un-lawful transfer of tribal land in contravention to section 46 of the Chhotanagpur Tenancy Act, person can apply against the revenue court. In 2003/04 alone 4263 cases of tribal land alienation were officially registered. According to the estimates of the People's Union for Civil Liberties (PUCL) about 15 lakh acres of adivasi land has been alienated from them during 1950–1990 for setting up industries, mines, large dams, animals sanctuaries, and highways. Another 8 lakh acres have been fraudulently and illegally snatched from them by "unscrupulous outsiders". Land alienation resulted in large-scale displacement; 36 lakh adivasis have been displaced, and only one-third of them have been rehabilitated (see, for example, <http://www.pucl.org/Topics/Dalit-tribal/2004/adivasi-jharkhand.htm>).

**Table 3. 1: Distribution of Land and Non-Land Assets**

|  | Households | Land Owned Now | Land Owned 10 Years Ago | Non-Land Assets |
|--|------------|----------------|-------------------------|-----------------|
| <b>Land Ownership Category</b>   |            |                |                         |                 |
| Functionally Landless  | 43.0       | 4.2            | 7.7                     | 24.6            |
| Marginal   | 21.2       | 12.0           | 15.6                    | 19.8            |
| Small  | 15.7       | 17.5           | 18.0                    | 24.6            |
| Medium   | 12.8       | 25.1           | 24.4                    | 15.7            |
| Large  | 7.5        | 41.2           | 34.3                    | 15.3            |
| <b>Social Category</b>   |            |                |                         |                 |
| SC   | 11.5       | 8.5            | 7.0                     | 8.0             |
| ST   | 26.9       | 34.0           | 36.6                    | 18.7            |
| OBC  | 46.0       | 38.7           | 38.6                    | 54.2            |
| Others   | 15.7       | 18.9           | 17.8                    | 19.1            |
| Total  | 100.0      | 100.0          | 100.0                   | 100.0           |
| <i>Source:</i> Estimated from the 2005 Rural Jharkhand BaseLine Survey (RJBS). |            |                |                         |                 |

non-agricultural assets (including consumer durables). The bottom 43 percent along the landownership scale command only 25 percent of non-land assets, while the top 8 percent have 15 percent. This also comes through the prism of the social divide: the tribal category, constituting about 27 percent of total households, has a share of about 34 percent of land, but owns only 19 percent of non-land assets.

**Human asset endowment in rural Jharkhand is quite low, though not as skewed as the distribution of physical assets.** Three different measures of the stock of human capital can be considered: (i) household heads with some exposure to formal education (54 percent); (ii) household heads that have completed primary education (43 percent); and (iii) household heads that have completed secondary education (17 percent).<sup>46</sup> Even at this low level

<sup>46</sup> Human educational capital is a "stock" concept, as an embodiment of the threshold level of knowledge and skills, and is to be distinguished from enrolment, which is a "flow" concept. There is some debate as to which indicator is to be taken as the proxy for human capital—literacy, primary completion rate or secondary completion rate. While the precise measure can justifiably vary across country contexts most opinions agree that the focus should be beyond just "literacy". The other important distinction lies in

of human asset endowment, the poor and non-poor divide (howsoever it may be measured) is quite pronounced at the post-secondary level. Only 15 percent of the poor household heads have attained education up till class X and above, while the corresponding figure for the top non-poor is 31 percent. At below-secondary level education, however, the poor and non-poor divide is not as sharp: while 49 percent of the poor household heads did not have any exposure to formal education, the corresponding figure is 35 percent for the top non-poor. This has been the result of historical neglect of basic education of the rural population afflicting not just the income-poor.<sup>47</sup>

**For the disadvantaged poor, access to favorable market arrangements can improve the returns to initial assets.**

For example: (i) the land-poor can gain access to land through the tenancy market; (ii) returns to land can be enhanced through improved access to technology such as irrigation; (iii) returns to labor can be higher if the poor have access to jobs with better remuneration; and (iv) access to capital through credit markets can help support rural-farm, off-farm or non-farm diversification. However, this is not the case in rural Jharkhand.

Not all markets are discussed here, partly because of lack of information, and partly because of prioritization. The size of the land-tenancy market, for instance, is very limited in the context of Jharkhand: leased-in land accounts for only 7 percent of cultivated land (much lower than 30–35 percent in West Bengal and 23–26 percent in Bangladesh). On the other hand, little information is currently available on the structure, level of integration, and value-chain in the output market disaggregated by food and cash crops.

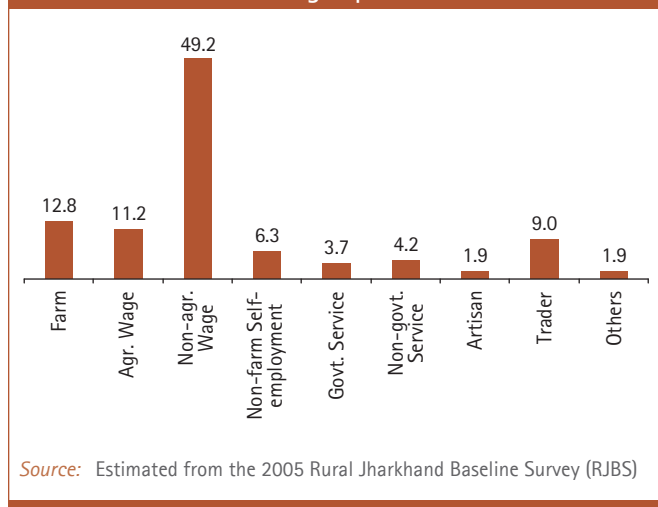
the choice of the demographic group. Since human capital is a direct input into the production process, it is important to focus on the labor force segment of the population, which is why it is important to define literacy or completion rate measures for the adult working population, rather than for population aged seven years and above.

<sup>47</sup> This has been the case until recently. The expansion of basic education (up to class VIII) has been quite rapid in recent years after the creation of the new state (more on this in Section 5).

## Access to Labor Market

The analysis of labor market participation reveals five main conclusions. They relate to: (i) the subsidiary status of farming; (ii) the predominance of non-agricultural casual labor as the main form of employment; (iii) a limited role for rural non-farm self-employment; (iv) the relatively higher incomes of non-agricultural (especially salaried) workers; and (v) an increasing rate of distress out-migration. *First*, farming is largely seen as a subsidiary occupation both for the poor and the non-poor with 39 percent of the rural working population regarding it as their subsidiary occupation and only 12 percent considering it as their main occupation (Figure 3.1). In contrast, rural wage labor is the main occupation for 61 percent and the subsidiary occupation for 20 percent of the rural working population. This is in sharp contrast to irrigated agriculture in the plains such as in West Bengal, Bihar and Bangladesh, where farming tends to be the main occupation of at least 40–60 percent of rural households while the corresponding figure for rural wage labor is in the range of 25–33 percent. The low variation in this respect across different agro-ecological regions suggests that the relatively low share of farming in Jharkhand is not the outcome of agro-ecological constraints alone.

Figure 3. 1: Main Occupation of Rural Working Population



*Second*, in the case of traditional subsistence agriculture, prospects for casual agricultural wage employment are extremely limited even for poor households. As per the principal status of employment, on average, only 13 percent of the rural poor are engaged in agricultural labor. In comparison, 48 percent of the rural poor are employed in non-agricultural casual wage employment, mainly in construction and transport and less so in mining and manufacturing. These activities are characterized by very low labor productivity; consequently, the rural wage rate in Jharkhand is very low (Table 3.2). In fact, the agricultural wage rate appears to rank the lowest amongst the Indian states along with Orissa and Andhra Pradesh.

Table 3.2: Selected State Comparison of Agricultural Wage Rate 2003/04

| States         | Agricultural Wage Rate (Nominal) |        |         |
|----------------|----------------------------------|--------|---------|
|                | Male                             | Female | Average |
| Jharkhand      | 48                               | 34     | 41      |
| Bihar          | 53                               | 47     | 50      |
| Orissa         | 51                               | 30     | 41      |
| West Bengal    | 63                               | 50     | 57      |
| Andhra Pradesh | 51                               | 33     | 42      |
| Tamil Nadu     | 93                               | 42     | 68      |
| Karnataka      | 55                               | 36     | 46      |
| Maharashtra    | 57                               | 36     | 47      |
| All-India      | 63                               | 43     | 53      |

Source: Indiatat.com

*Third*, the development of rural non-agricultural self-employment enterprises has been sluggish in Jharkhand. Currently the sector provides employment to 6 percent of rural households as per the principal employment status criterion and to 8 percent as per the principal income source criterion. This is not unexpected, given the relative absence of consumption demand induced linkages in the context of un-irrigated agriculture.

*Fourth*, the low rate of return to agricultural self-employment is specific to Jharkhand. The latter is only slightly higher than in the case of casual agricultural wage labor, and quite similar to that for non-agricultural wage labor. There is no direct way of

comparing returns to labor by farm/ non-farm status and by mode of employment. Indirect estimates (taking per capita monthly consumption by main employment status of household head) show the familiar ranking: the return to regular wage labor is higher than the return to casual wage labor and the return to non-farm labor is higher than the return to farm labor (Table 3.3).

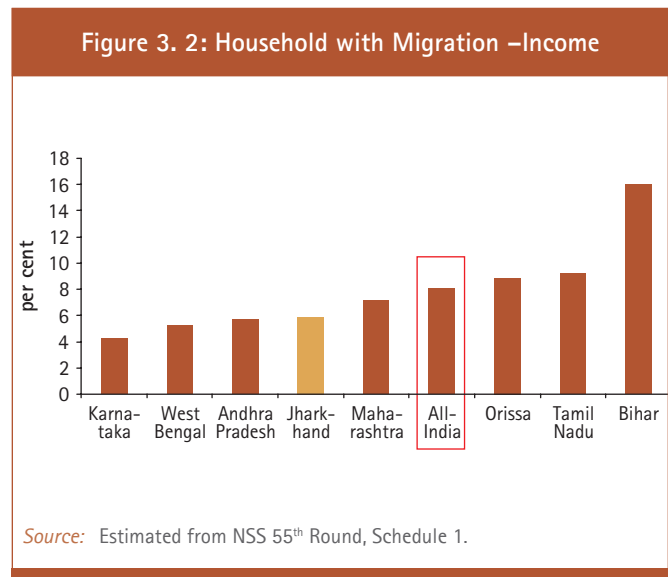
Fifth, while the rate of migration has increased at a fast pace over the past 10 years across all social categories, migration offers upward mobility only for a third of rural migrant households. For others, migration does not offer any immediate upward mobility, although it provides rural poor households access to scarce cash income. It is not difficult to understand the motivation of distress migration. The rate of unemployment in Jharkhand was one of the highest among the Indian states in 1999/2000, which was confirmed by a perception survey (Chapter 1). Ten years ago, about 66 percent of rural respondents thought that it was harder to find employment in rural areas. This figure dropped marginally to 62 percent in 2004/05, indicating that the employment situation has improved only marginally since the emergence of the state. In such a situation, a high rate of out-migration would be expected. The proportion of households reporting migration has gone up sharply from 1.5 percent to 5.1 percent according to the baseline survey data, indicating

a three-fold increase over a 10-year period. The rate of migration has increased for both poor and non-poor (and for tribal/ non-tribal groups), but the rate is about twice as high for the non-poor group compared to the poor. The growing role of migration can also be seen from the considerable weight of households with dependence on income from migration (Figure 3.2).

An analysis of migration history for the sample, however, suggests that as many as 60 percent of the households have recorded livelihood migration over the 20-year period between 1985 and 2005.<sup>48</sup> Of these, about 4 percent moved to a different district within the state and another 4 percent to a different state, indicating that most of the migration has taken place within the same district. This is not unexpected given that there is a high cost to migration, which is marked by risks and uncertainties. Another important constraint may be social exclusion, i.e. barriers to entry to urban higher-income jobs, especially for the SC/ST population who would have to compete with both upper caste workers and in-migrant settlers from other neighboring states. As a result, since most of the migration takes place within the same district, the well-

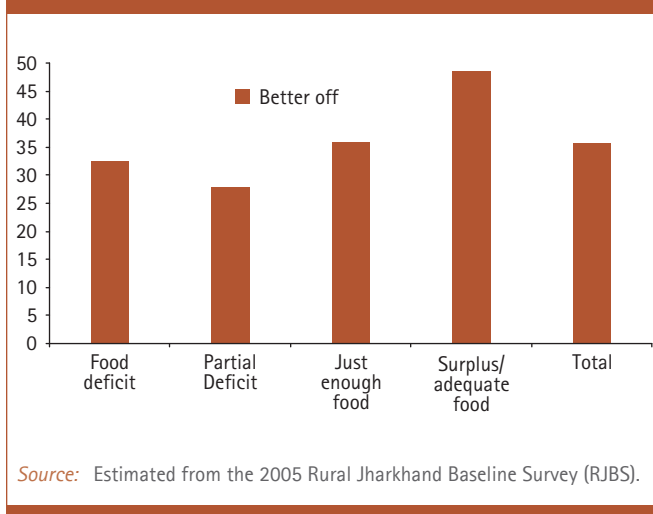
| Table 3. 3: Relative Return to Farm and Non-farm Activities by Modes of Employment |                                      |                       |
|--|--------------------------------------|-----------------------|
| Sectors/Modes of Employment  | Relative Return (Regular Wage = 100) |                       |
|  | Employment Status                    |                       |
|  | Main Occupation                      | Main Source of Income |
| Regular Wage-Employment  | 100.0                                | 100.0                 |
| Non-Farm Self-Employment   | 0.77                                 | 0.83                  |
| Casual Non-farm Wage-Employment  | 0.59                                 | 0.66                  |
| Farm Self-Employment   | 0.64                                 | 0.61                  |
| Casual Self-Employment   | 0.50                                 | 0.58                  |

Source: Estimated from the 2005 Rural Jharkhand Baseline Survey (RJBS).



<sup>48</sup> Assessment of the annual migration rate is difficult to estimate from the existing data.

Figure 3. 3: Incidence of improvement due to migration



being of only one-third of the migrants has improved (Figure 3.3). The incidence of self-reported improvement is proportionately more for the non-poor than for the poor (49 percent versus 33 percent).

**Raising the productivity of farm self-employment appears to be crucial in influencing labor market dynamics along a pro-poor development path.** If the productivity of farm self-employment could be increased through the adoption of improved technology and better crop practices, it could change the current pattern of utilization of rural labor. This would reduce the excessive dependence on casual wage labor, especially non-agricultural wage labor and make farming a more remunerative occupation, thus increasing its weight as the principal status of employment. Such a development would be beneficial for the growth of rural non-farm self-employment through the consumption demand induced linkages arising out of agricultural growth. The trigger for such a process could come from the adoption of appropriate forms of irrigation technology, access to power, and road infrastructure.

## Access to Infrastructure

**Bridging the huge gap in the provision of infrastructure services requires large investments as**

**well as determined concurrent institutional and policy reforms.** Infrastructure, particularly irrigation, power and roads, is a critical requirement for accelerated and inclusive growth. While access to these services across the state is an issue, the situation is worse in rural areas.

## Access to Irrigation

**Among the key infrastructural elements, appropriate irrigation technology is one of the most important.** Irrigation-led agricultural growth has been the key trigger of successful agricultural transformation over the past thirty years in most regions of South Asia.<sup>49</sup> Adoption of irrigation technology can have an immediate effect on rural livelihoods by: (i) raising land productivity; (ii) increasing household food security; and (iii) enhancing profitability of farm operations thereby leading to a rise in real land values. These would eventually lead to the revival of agricultural labor and land tenancy markets, reducing the rate of distress out-migration, and also support rural non-farm growth via favorable linkage effects.

**Other factors can start functioning more effectively once irrigation technology is in place.** The role of agricultural extension becomes important both for informed crop choice differentiated by agro-ecological potential and for the dissemination of improved cultivation. With a growing marketable surplus, agricultural marketing becomes important, which in turn leads to an increased demand for new road investments and better maintenance of existing roads for reducing transport costs. The development of transport infrastructure has a direct employment effect for transport operators. Increasing purchasing power of the farm sector also raises the demand for goods and services produced by the non-farm sectors. This, in turn, creates the scope for increasing productivity enhancing as well as employment generating potentials of the rural non-farm sectors. Once the demand side constraints are released, access to power (and other inputs) can help

<sup>49</sup> Mellor 1976

release the supply-side constraints in the rural non-farm sectors.

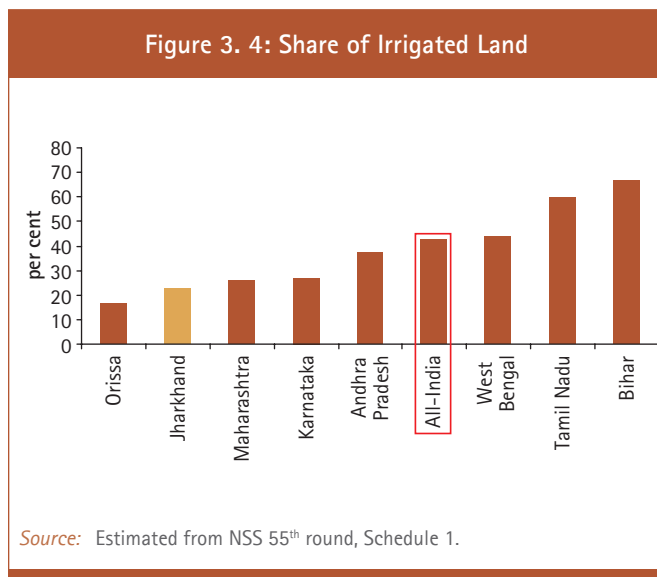
**The rate of irrigation is low and distributed extremely unequally—more unequally than the distribution of physical and human assets.** The level of irrigation remains one of the lowest among all the states. According to the NSS data, the irrigation rate (defined as irrigated land as a percentage of cultivated land) is only 23 percent for Jharkhand compared to 41 percent at the all-India level (Figure 3.4). Besides, not only is the rate of irrigation low, it is also highly unequally distributed. Nearly all the irrigated land classified in the NSS data is concentrated in the first two deciles—which indicates a much higher concentration ratio than in case of physical and human assets.

**The lack of investment, institutional capacity, user participation and inadequate agricultural extension services are some of the reasons responsible for only about 10 percent of the total cultivated area receiving some form of irrigation in Jharkhand.** First, the irrigation coverage is quite low partly due to lack of investment in the past. A well-prepared investment plan based on a robust set of data used in a Decision Support System (DSS) model with appropriate cash flow forecasts is required. If the absorption capacity

can be created, feasible investment in this sector over the next two decades could be around Rs. 10,000 crore. *Second*, the technical skills available in the water resources department need urgent improvement in order to design modern irrigation infrastructure and to operate and maintain it in a sustainable manner. At present, irrigation coverage is about 200,000 ha. With the proposed investment, this coverage would expand to 1,000,000 ha. The present capacity to handle this fivefold increase in the magnitude of operation is inadequate. *Third*, community participation in irrigation operations in Jharkhand has been minimal, contributing to poor services and lack of accountability. Involvement of all stakeholders, especially users, would require enactment of necessary legislation. *Finally*, up-scaling of irrigation infrastructure must be carried out with improving productivity of water and land as the objective. This objective can be realized only with agricultural intensification and diversification to income-earning crops that can be grown with limited water, using improved irrigation and agricultural technologies. It is necessary to go beyond the line agencies and reach out to the private sector, including NGOs, to obtain this service.

**It is possible to improve the situation substantially by:** (i) completing ongoing schemes as quickly as possible in a rational manner; (ii) promoting equity through investment in areas neglected so far; (iii) developing hydropower for increasing irrigation coverage through groundwater exploitation, using shallow or open dug wells; (iv) unbundling water resource management from irrigation service provision to develop these resources in an efficient manner while addressing various competing demands on this resource; (v) introducing new institutional arrangements with a state-level apex body like the State Water Resources Agency, and basis and management agencies; (vi) appointing an independent regulator (similar to the electricity sector regulator) to encourage public-private partnerships in developing mini hydroelectric stations and irrigation systems with specialized agricultural crop zones; and (vii) facilitating

Figure 3. 4: Share of Irrigated Land



capacity building of the irrigation service delivery institutions, including improving the technical and managerial capacity of the service provider.

**If addressed, irrigation can provide a viable entry point for accelerated rural development.** This is so for two reasons. *First*, the technical scope for irrigation expansion exists and needs to be reaped in full. The current low irrigation coverage indicates that there is room to grow at least up to 40 percent of cultivable land. While the groundwater potential is limited (only 25 percent of total irrigation potential) the scope for surface water irrigation is considerable. Different types of irrigation possibilities, that is, major-, medium-, and micro-irrigation systems can be developed. Indeed, different irrigation technologies can entail different ownership mix possibilities: while major and medium irrigation systems are likely to be public sector led, micro-irrigation through water harvesting is suitable for the tribal upland and likely to be community led. In Jharkhand, irrigation coverage did not expand in the past largely because of under-investment in major and medium irrigation systems.<sup>50</sup> *Second*, returns to irrigation appear to be considerable even in the present context. Based on NSS data it is estimated that the impact of adding an

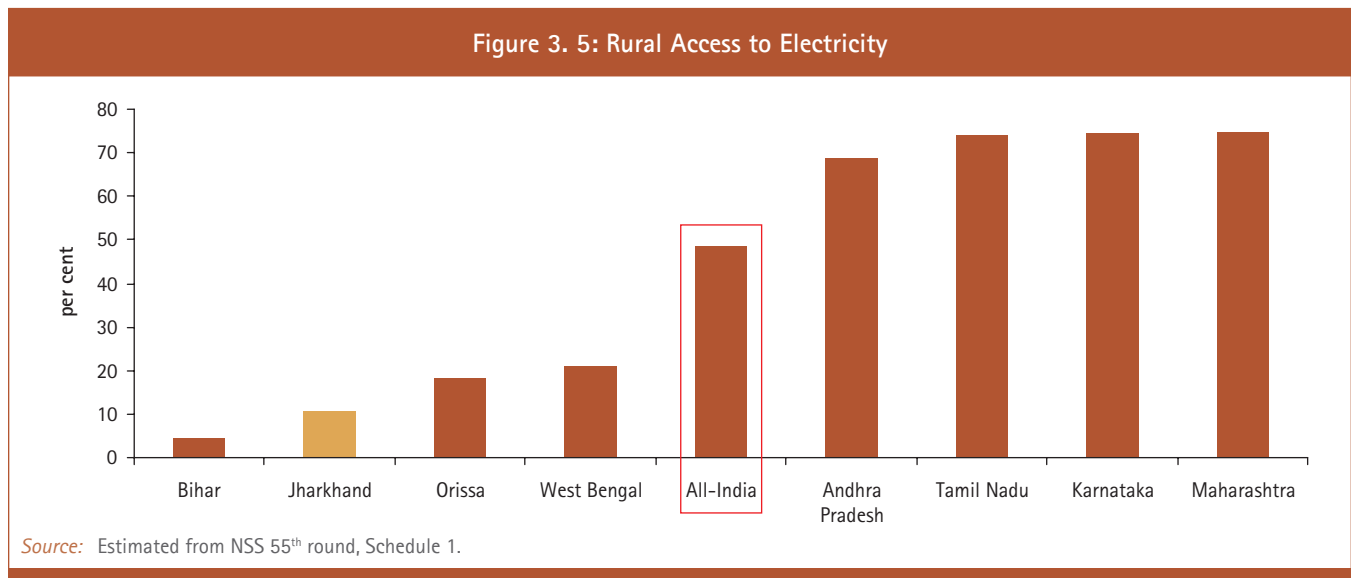
extra unit of land under irrigation increases average per capita monthly expenditure by about 17 percent while controlling for regional effects (Annex Table 3.1, col. 2).

### Access to Power and Roads

**The return to initial assets can be enhanced through improved access to physical infrastructure such as electricity and roads.** Comparable estimates based on NSS data suggest that household access to electricity at 11 percent is extremely low in rural Jharkhand, compared to 48 percent for rural India (the only state that has a lower access rate than Jharkhand in this sample is Bihar). Similarly, while 80 percent of the NSS primary sampling units at the rural all-India level have reported the presence of electricity, this figure is only 26 percent for rural Jharkhand (Figure 3.5).

**With respect to road access, rural Jharkhand is in a disadvantaged position vis-à-vis the all-India average.** Only 36 percent of villages in the state have immediate access to all-weather roads compared to the all-India average of 57 percent.<sup>51</sup> Bihar is the only neighboring state which has a lower rate of all-weather and metal road access.

Figure 3. 5: Rural Access to Electricity



<sup>50</sup> More on this in Chapter 4.

<sup>51</sup> The corresponding figures for village-level access to metal roads are 25 percent and 45 percent.

**Lack of clarity of roles, non-participation by non-state government stakeholders, poor funding mechanisms and outdated business and management practices are amongst the underlying causes for poor road service delivery.** There is a lack of clarity with respect to responsibilities for different parts of the network and different aspects of the system (construction, operation and maintenance). For example, rural roads are somewhat arbitrarily reassigned between the Rural Engineering Organization (REO) and Road Construction Department (RCD); or constructed under one rural development scheme or another only to find itself "orphaned" with no agency to maintain it. In several such areas, including road safety, accountability is unclear.

**However, the findings of the User Satisfaction Survey are not so bad.** A number of respondents in the survey rated certain aspects of rural road and transport services as "good"<sup>52</sup> (Figure 3.6).

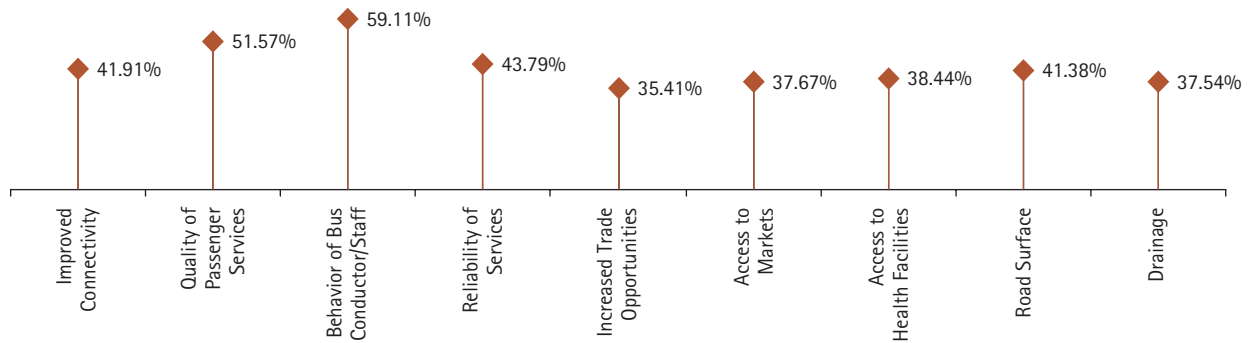
**Both electricity and road access at the community level can make considerable difference to average rural affluence.** This can be measured by a range of indicators (Figure 3.7). Just being located in a village with electricity

access can increase average income (consumption) of a typical rural household by about 22 percent. When the condition of road access is good, it can enhance income by about 18 percent. The largest impact is noted when the village is directly connected to a wholesale market by good road access; the corresponding difference increases over 40 percent compared to those communities without such access. The expansion of this basic infrastructure tends to result in the clustering of other infrastructural factors such as bus-stops, pharmacies, public telephones, post offices and small community-level shops around roads and electricity.<sup>53</sup>

## Access to Credit Markets

**Access to formal credit is extremely low, even for the non-poor category. Only 20 percent of the demand for loans is related to productive (farm and non-farm) purposes, while the rest is accounted for by consumption and risk-coping.** Access to credit (capital) markets is an important factor for stimulating both farm and non-farm growth. As per the Baseline Survey Data, only 17 percent of rural households had taken credit from any source during the year preceding the survey (i.e. 2004/05). A formal/informal breakdown based on the last credit transaction

Figure 3. 6: Percentage Respondents Rating Road/Transport Attributes as "Good" on 3-point Scale

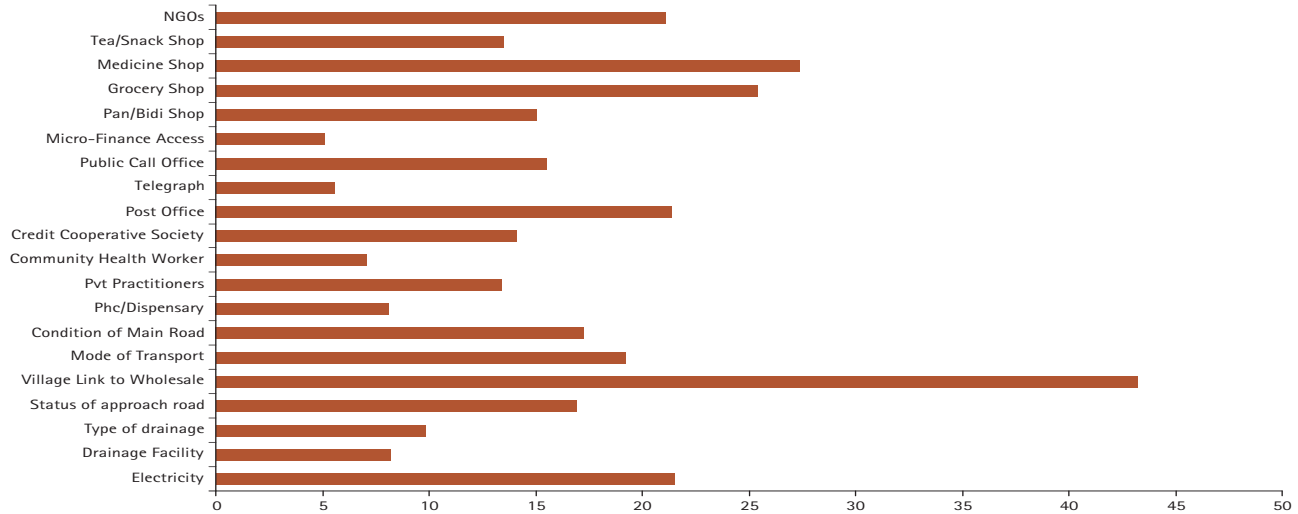


Source: Estimated from the 2005 Rural Jharkhand User Satisfaction Survey (RJUSS).

<sup>52</sup> User Satisfaction Survey of Rural Services, ORG for World Bank, 2006, based on a sample of 1400 respondents.

<sup>53</sup> Bivariate correlation among these factors range from 0.3 to 0.6 in the community level of data of the Rural Jharkhand Baseline Survey.

Figure 3. 7: Impact of Community Assets on Income



Source: Estimated from the 2005 Rural Jharkhand Baseline Survey (RJBS).

Note: These are based on simple bivariate results measuring the average household income (consumption) difference between the "presence" and "absence" of a particular community asset.

over the past five years shows that only 20 percent of the loan cases can be attributed to any institutional source (16 percent are provided by government and commercial banks). Moneylenders account for about 39 percent of loan cases while a slightly higher proportion of loan cases are accounted for by the "friends and relatives" category. Most loans (81 percent) were for non-productive purposes (consumption loan-18 percent; coping with risks such as health and social/festival expenses-63 percent). Only 19 percent supported productive investments, indicating the nature of demand in the credit market.

**With respect to financial assets, rural Jharkhand is characterized by the lack of access to credit rather than inequity.** This may be partly explained by the persistence of low demand for credit given the aspect of largely un-irrigated agriculture and little rural diversification with low returns to assets. But, low access may well be due to the lack of financial institutions. According to the 2002 survey carried out by the NSSO, self help groups (SHGs) are present in only 5 percent of villages in Jharkhand, as compared to 11 percent in Orissa, 23 percent in West Bengal, 28 percent in Chhattisgarh, and 80 percent in

Kerala, with the all-India average at 24 percent.<sup>54</sup> Only 3 percent of Jharkhand's villages have the presence of NGOs. As many as 60 percent of these villages are located at a distance of 5 km and above from the nearest bank with 27 percent at a distance of more than 10 km.

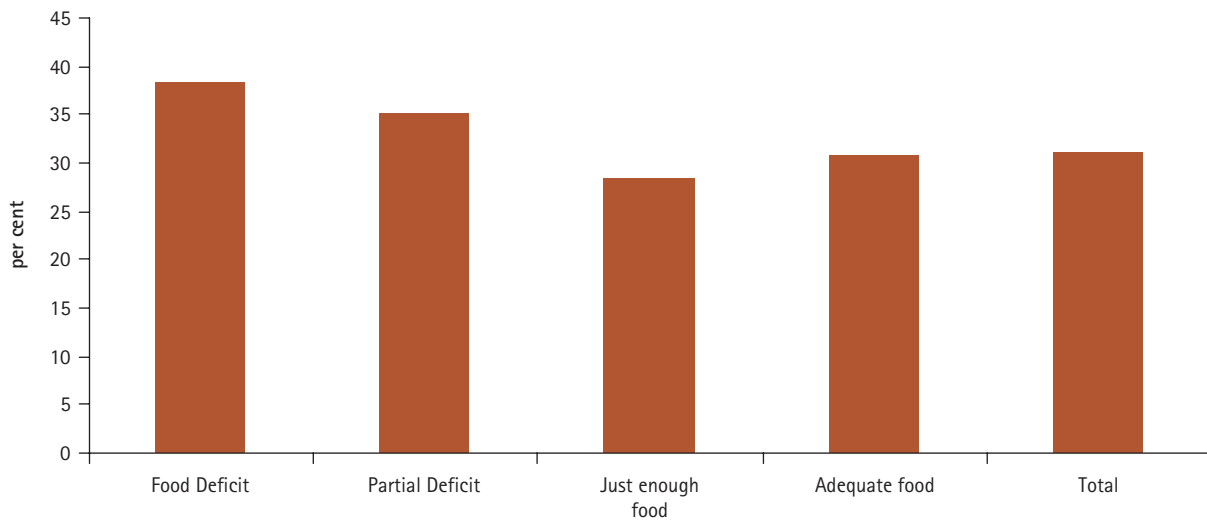
## Risks and Risk-Mitigating Institutions

**Susceptibility to risks is extremely high in rural Jharkhand. At the rural level about 35 percent of households faced a major crisis-event in the past three years with higher vulnerability recorded for the poor than for the non-poor.** The highest percentage (38.2 percent) of crisis events was experienced by food-deficit households in contrast to 30 percent observed for the food-surplus category (Figure 3.8).

**Idiosyncratic risk such as health shocks and covariate risk such as natural disasters constitute the two most important categories among the shocks.** Health

<sup>54</sup> NSSO (2003).

Figure 3. 8: Incidence of Crisis in Past Three Years



Source: Estimated from the 2005 Rural Jharkhand Baseline Survey (RJBS).

shocks account for about 68 percent of all crisis events, followed by natural disaster (22 percent). In the case of rural Jharkhand, almost all the natural disaster events are caused by drought leading to crop failure (Figure 3.9).

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**The difference between the poor and the non-poor living in the same community does not manifest so much in the overall incidence of crisis-events as in the case of the varying coping methods.** While the poor are more vulnerable to the so-called negative coping methods such as distress sale, drop in consumption or borrowing at higher interest, the non-poor can deploy less costly coping methods such as dissaving or accessing soft loans. For example, in the case of food deficit categories, the financial cost triggered by the crisis was mostly managed through the support of family or friends, in the absence of which households were forced to take loans at higher interest rates to cope with the crisis. The situation was different for breakeven (no deficit-no surplus) and surplus food categories, almost 35 percent of which had family support as the first source to cope with the financial cost induced by crisis. The difference between the two categories lies in their relative ability to cope through buffer saving. While 30 percent of households in the surplus group coped with crisis by spending through the

buffer saving, the corresponding figure is 15 percent for the breakeven category.

## Livelihood Outcomes and their Determinants

Access to household, community and public assets, different factor and product markets, availability of infrastructure, and susceptibility to a variety of exogenous shocks with diverse methods of coping can influence the occupational choice and rate of return to assets, in turn determining livelihood outcomes.<sup>55</sup>

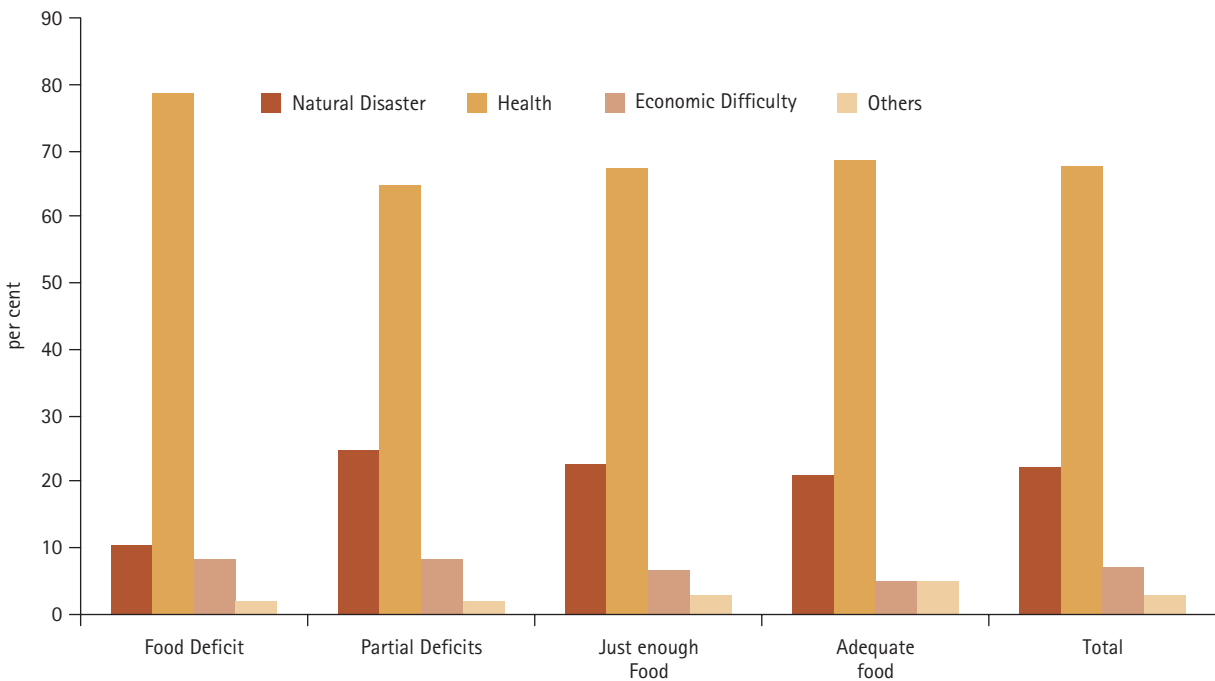
## Insights from NSS Thick Round Data

**Results from micro-analysis using data of NSS households surveyed in Jharkhand under the 55<sup>th</sup> round highlight some special features of rural Jharkhand.**<sup>56</sup> First, education has an effect on increasing rural household income only after one reaches the post-secondary education level suggesting that the incremental

<sup>55</sup> In this section the term "income" and "survey-based consumption expenditure" has been used interchangeably. This is because although we are interested in the analysis of household income the survey data for India is typically available for consumption expenditure only.

<sup>56</sup> Detailed results are presented in Annex Table 3.1.

Figure 3. 9: Types of Shocks



Source: Estimated from the 2005 Rural Jharkhand Baseline Survey (RJBS).

effect is rather modest in households headed by someone with secondary education while the gains to completing college education are much higher.<sup>57</sup> The problem is that only a few rural households can take advantage of this, as access to human capital is extremely limited both at secondary (18 percent of household heads) and post-secondary (5 percent of household heads) levels of education. *Second*, electricity access appears to have strong effects on increasing rural income.<sup>58</sup> The income of households who have access to electricity is Rs. 188 (amounting to 46 percent of the average per capita monthly expenditure in rural areas) more than those without such access. The quantitative importance of

<sup>57</sup> While the incremental income effects of households with someone with college-level education are in the range of Rs. 248–266 (about 60–65 percent of the average per capita monthly NSS expenditure in rural areas), it is only about Rs. 40 higher compared to the reference category of heads with no formal education (about 10 percent of average per capita monthly expenditure).

<sup>58</sup> NSS data have limited information about household access to infrastructure. Connectivity to all-weather rural roads is one important missing variable. However, it is possible to assess the impact of access to electricity and irrigation.

electricity access is second to having post-secondary education. Unfortunately, only 10 percent of the rural households currently have access to electricity. *Third*, only 22 percent of the cultivated land is irrigated at present. Quantitative analysis indicates considerable effects of irrigation access on increasing rural household income.<sup>59</sup> *Fourth*, households who have temporary or seasonal access to work in nearby towns have higher incomes than those who lack that access.<sup>60</sup> Unfortunately, the pace of urbanization has been rather slow in the state.<sup>61</sup>

<sup>59</sup> Addition of an extra unit of land under irrigation coverage will increase per capita income by about Rs. 35 (about 9 percent of average per capita monthly expenditure). The marginal effect increases to Rs. 65 (about 17 percent of average per capita monthly expenditure) if one controls for the regional effects.

<sup>60</sup> The matched difference is Rs.70 (equivalent to 17 percent of average monthly expenditure).

<sup>61</sup> Annual urban population growth was 2.9 percent between 1991 and 2001, compared to 3.1 percent at all-India level. The matched pace is similar to Orissa and Bihar (2.9 percent in both cases), but was much higher in the newly created states such as Chhattisgarh (3.6 percent) and Uttaranchal (3.3 percent), and in advanced states such as Punjab (3.8 percent), Tamil Nadu (4.3 percent), and Maharashtra (3.4 percent).

*Fifth*, participation in non-farm and non-agricultural activities increases rural household incomes indicating the importance of rural diversification. Compared to the reference category of construction, households that derive their main source of income from these sources have considerably higher household income.<sup>62</sup> The key problem is that only a few rural households currently participate in these growth promoting, non-farm and non-agricultural activities,<sup>63</sup> because entry into formal services requires access to human capital, entry to the trade and transport business requires access to financial capital, entry to rural manufacturing requires artisanal skills and proximity to markets, and mining (as has been seen earlier) owing to its capital-intensive nature currently offers limited job openings. *Sixth*, the results also suggest the need for addressing regional imbalances, as there is statistical evidence of considerable regional disparity in rural income, adding an important dimension to any inclusive growth strategy in Jharkhand. The rural parts of Godda, Sahibganj, Dumka, Deoghar appear to be significantly poorer while Ranchi and East Singhbhum are significantly richer compared to the reference category of Pakur. *Last*, results show that, controlling for all other characteristics, the SC/ ST and OBCs<sup>64</sup> have much lower income (with ST being the most disadvantaged) compared with the more privileged groups. This is not only due to the fact that they are relatively more asset-deprived, but also possibly because the return to their assets is lower.

**One limitation of the NSS rounds data is that it does not contain any community module and hence cannot capture the independent effects of community assets on rural consumption (income).** Jharkhand's baseline survey carried out during 2005 in connection with this

<sup>62</sup> The incremental difference is Rs.57 for mining, Rs.58 for trade, and Rs 62 in manufacturing. The highest incremental effects are noticeable in case of transport business (an addition of Rs.121), followed by formal service (an addition of Rs.100).

<sup>63</sup> 2 percent in mining, 3 percent in formal services, 7 percent in manufacturing, 16 percent in trade, and 17 percent in transport business.

<sup>64</sup> The above three groups considered together constitute as many as 83 percent of the rural households (and 75 percent of all households in the state) as per the NSS data for the 55<sup>th</sup> round.

study can be used to explore the relative importance of various community- level factors. Additional motivation of using this new survey data is to check the robustness of the previous NSS-based findings along with new household-level factors not captured earlier.

### Insights from Rural Jharkhand Baseline Survey Data

**Some striking similarities between the NSS and the baseline survey data relate to the following: (i) low returns to un-irrigated cultivation practices; (ii) very low returns to land; (iii) greater importance of non-agricultural regular wage labor and/or skill demanding jobs; (iv) disadvantaged position of the female worker; (v) lower income earning status of the tribal and lower caste population (followed by OBCs and SC/ST); and (vi) strong favorable effects of household access to electricity and access to post-secondary education.**

Annex Table 3.2 presents regression results in three groups: (i) results with only household-level factors; (b) results with both household and community-level factors; and (iii) results with household, community and region-level factors. The focus will be on the second set of regression results involving household and community-level factors.

While most results based on the NSS round have been vindicated by the new survey data, some additional aspects are noteworthy. *First*, as expected, farming appears to be a residual employment category in the current context of rural Jharkhand, constrained by techno-economic factors. The most promising occupations are specific activities in non-agricultural sectors such as salaried job, informal service, and non-farm self-enterprise. Access to all of these activities requires human capital (some degree of prior skill formation), entrepreneurship, and access to finance. *Second*, migration to non-agricultural sectors when it is driven by pull-factors can be an important income-augmenting source and can contribute approximately 20 percent of per capita monthly consumption expenditure. *Third*, while both female and male workers contribute to household income, the degree of gender inequality is quite high. Thus, controlling for other demographic, household

and community characteristics, an average male earns an income that is twice as high as an average female worker. *Fourth*, as in the case of NSS round data, it is only at the post-secondary level of education (those who completed Class X and above) that the return to human capital becomes significantly positive. Household heads who have attained this level of education can contribute an amount equivalent to 12–15 percent of per capita average monthly consumption. The corresponding figure for electricity access is also of similar magnitude (about 15 percent).

**The rural baseline survey clearly establishes the independent importance of community-level assets over and above the demographic and household-level factors. Access to market-connecting roads, the quality of approach roads, financial access through alternative channels as mediated through NGOs and vibrancy of the local economy all appear to contribute favorably to increasing average rural income.** Market connectivity appears to be an important factor, especially when the village is in close proximity to a main road connecting to a large growth center such as a wholesale market. This factor alone contributes an amount equivalent to about 20 percent of per capita consumption. It is noteworthy that the presence of SHGs in the village is not a statistically significant factor of income-determination.

Part of the reason for insignificance may lie in the quality of Jharkhand's SHG movement.<sup>65</sup> Although SHGs are present in 22 percent of villages as per the baseline survey (up from just 5 percent as per the NSSO data for 2002), their quality may have deteriorated with the rapid pace of expansion post-bifurcation. However, microfinance and other programs supported by NGOs can have an important effect on income (the matched contribution is about 11 percent of average per capita consumption expenditure). The most important factor is, perhaps, vibrancy of the local economy (captured here via the presence of community shops). This factor alone will augment average rural affluence by an amount equivalent to 17 percent of per capita consumption expenditure.

Cross-sectional analysis of income can only give an idea about the relative importance of various proximate factors that determine rural income. It also intuitively suggests the major areas of possible rural investment strategy. However, the rural sector does not persist in isolation from the rest of the economy. Some of the constraints to rural growth may lie elsewhere, that is in the non-rural part of the economy, which requires extending the analysis to a broader inter-sectoral framework where the choice of various development paths can result in very different outcomes for rural growth and poverty reduction.

<sup>65</sup> The quality of microfinance mediated through the Bank-SHG channel varies considerably across the states. See, Basu and Srivastava (2005).

