

# CMI WORKING PAPER

WP 2012: 9

## Caste discrimination and barriers to microenterprise growth in Nepal

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**WP 2012: 9**

November 2012

**CMI** CHR.  
MICHELSEN  
INSTITUTE

**Project number**  
28095

**Project title**  
Poverty traps in industries with low knowledge- and investment barriers

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## Abstract

Studies of microbusiness in poor countries find high marginal returns to capital but also lack of investments. This paper analyzes how caste-based segmentation in the capital and labor markets can act as obstacles to investment in microbusiness in rural in Nepal and also explain high marginal returns to capital. Using a household survey purposively designed for assessing caste as a barrier to microbusiness growth, we find that segmentation leads to inefficient allocation of entrepreneurial talent, labor and capital. This, in turn, leads to lower wages and smaller and less profitable businesses for low castes (Dalits) and lower economic growth of the local economy. The study covers a range of barriers to doing business and finds that in addition to caste segmentation, access to capital and lack of skills and knowledge are the main constraints to doing microbusiness in the studied areas.

# 1. Introduction

Informal and very small enterprises are important sources of income for half or more of the labor force in developing countries (de Mel et al. 2008), and it is estimated that the rural nonfarm economy accounts for up to 50 percent of rural incomes (Haggblade et al. 2007). Studies of microbusinesses often find very high marginal returns to capital and a lack of investments in these profitable businesses (Banerjee and Duflo 2005 and de Mel et al. 2008). When returns to capital for microbusinesses ranges as high as several hundred percent per year, it is important to poverty reduction why we do not see more investment and start-ups in these industries. A key question is therefore to identify and reduce barriers preventing microbusinesses from investing in highly profitable opportunities. Research has mainly focused on capital constraints and credit market imperfections as explanations for high returns to capital. However, little has been done to explore to what extent caste based restrictions acts as a barrier to investment and microbusinesses growth. The aim of this paper is to analyze how segmentation based on caste can act as an obstacle to investment in microbusiness in one particular context in Nepal. We believe obstacles to investments are context specific, but at the same time may reflect general patterns which will also be discussed.

In order to structure the analysis, we apply a model by Lucas (1978) where the level of entrepreneurial talent and abilities influence whether an individual is working or running a firm. We modify the model to incorporate segmentation in the labor market based on observable characteristics of the workers to account for the relatively strict enforcement of the caste system in Nepal where high castes traditionally have hired low castes for only some types of work, and normally avoid working directly with them. Since high castes own more capital, the model predicts that marginal returns to capital is higher for the low caste and also that less segmentation in terms of caste discrimination would lead to higher wages for the low castes, higher profit for low caste entrepreneurs and higher level of production in society. This also implies that less caste-based segmentation would reduce poverty.

Another prediction is that with increases in the capital labor ratio, the share of people engaged in microbusiness will decline as larger companies will pay more in salary than the returns to microbusinesses. Hence, the economic transition of poor countries to higher levels of development and less poverty implies changing from low levels of salaried employment and large share of microbusinesses to high level of salaried employment and high share of employment in larger firms. Many developing countries have policies that attempt to support this transition, in education, infrastructure, regulatory framework and macroeconomic management, but the transformation takes decades of development and future generations will often be the main beneficiaries.<sup>1</sup> However, despite the importance of microenterprises for current wellbeing and the time perspective of transformation, government policies seldom focus on the present potential of microbusinesses in poverty reduction.

Nepal is of interest for at least two reasons. Firstly, it is one of the poorest countries in the world with a relatively strictly enforced caste hierarchy where the low castes are over represented in the poorest segment (Das and Hatlebakk 2010). The plains of Nepal are also representative for large parts of India where caste systems are prevalent. Secondly, little is known about how caste restrictions impact on the allocation of entrepreneurial talent, labor and capital in this economy, and how this in turn impacts on economic growth and income inequality.

In Nepal, some obstacles to doing business attract more attention than others. The frequent strikes and power-shortages are reported to constrain larger enterprises, but little is known about the effects on the different social segments of microbusiness. These interruptions may create both push and pull factors

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<sup>1</sup> Economic growth over decades is often associated with a concentration of production in larger firms with a corresponding decline in self-employment and family enterprises (see for example Gollin 2008).

for microbusiness: Some people may be unemployed due to close-down of factories and may have to start their own business to make a living. On the other hand, if running a small business have more flexible electricity requirements and are not affected by the strikes, then these may be relatively more lucrative as compared to the large companies. In this paper, we not only investigate how microbusiness owners view the abovementioned obstacles, but also compare their importance with a range of other potential impediments across social groups.

Our study uses a household survey designed for the purpose of investigating barriers to growth among microbusinesses across caste groups in a rural VDC<sup>2</sup> and a semi-urban VDC in Morang district of Eastern Nepal. In the period from March to May 2009 we interviewed a random sample of 200 households together with a stratified business survey of 90 households currently running a microbusiness. This was supplemented with qualitative interviews with entrepreneurs running microbusinesses.

We identified the informal businesses which are the most important sources of business income for the poor. Using various sources we found that the most prevalent microbusinesses were teahouses, small shops, milk sales and rickshaw pulling. The rickshaw industry is analyzed in an adjoining study (Hatlebakk 2012) so we purposely selected the three other industries for the microbusiness survey. All respondents were asked detailed questions about their perceptions of the most important obstacles for running a small business in their area, together with a range of questions about social networks, background information, from where they got the idea for starting the business, sales and expenses.

Assessing barriers to microenterprise growth is challenging since there is large heterogeneity among small enterprises when it comes to profitability that not necessarily reflect obstacles to doing business. Some have very high returns, some have zero, and others have negative returns (de Mel et al. 2008), there are often high start-up and closure rates in this segment and most microbusinesses never grow (Nichter and Goldmark 2009). This pattern could reflect a learning-by-doing process where entrepreneurs take risk by entering markets and using technologies with uncertain outcomes (Klinger and Schündeln 2011). Another explanation for the large diversity in returns is a dichotomy of microbusinesses in poor countries reflecting push and pull factors of start-ups (Reardon et al. 2007). Poor people with low endowments and abilities are pushed into this type of business because they have no other alternatives, and these may not have any intention of growing and are likely to receive low returns from their enterprise. On the other hand, entrepreneurs in a more favorable position who are attracted to start up because it offers them a more profitable opportunity than their present engagement may be more successful and hence receive higher returns. These enterprises are also viewed as those with the largest potential for investment and growth, and would thus provide employment opportunities for those with less entrepreneurial skills and endowments.

The research on returns to microbusinesses has generated useful knowledge on the potential for income generation in large segments of the population in poor countries. Potential barriers to investment are in theory well-known, but less empirical work is done on what are the de-facto binding constraints. One important instrument for assessing barriers to firm expansion, which is widely used in developing countries, is investment climate analysis. However, despite the large opportunities for economic growth in the microenterprise segment, and its documented potential for poverty reduction (see for example Mead and Liedholm 1998), the focus of investment climate surveys have almost solely been on larger enterprises in urban areas. One exception is Deininger et al. 2007 who find that

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<sup>2</sup> VDC, or Village Development Committee, is the lower administrative unit of the local development ministry of Nepal and covers a certain rural area – similar to municipalities.

small enterprises face significantly different constraints than larger companies, and that they are more severely affected by investment climate constraints as compared to larger entities.<sup>3</sup>

It is well established that an important advantage of running microbusiness is its flexibility. Microenterprises can easily be operated by a single household in combination with other income generating activities, and household members can easily enter and exit the business. This flexibility does not only permit the household to allocate labor and capital effectively towards the most profitable usage, but also to diversify income sources to make them less vulnerable to shocks, which can be devastating in poor agricultural based economies. Hence, detailed mapping of the economic activities of all household members, as we do in this study, is necessary to get the full picture of the income sources of a household. Such mapping usually reveals a high share of households running a microenterprise in poor areas even if the main occupation of the household head is agriculture or wage labor.

Our findings point to a number of policies that may stimulate microbusiness growth. First of all, reducing caste segmentation in microbusiness could have a relatively high impact on poverty reduction and economic growth. Direct policy measures would be different types of affirmative action in education, the labor market, in the credit market, in training programs and in governance structures related to the business community. Another more subtle approach would be to provide platforms for business interaction across caste groups – like creating business councils, networking forum, exhibitions and similar structures while at the same time ensuring participation of the different caste groups.

Moreover, we find that lack of knowledge and skills are pointed out as one of the most important barrier to doing business, especially among the lowest castes, and not only by those who run microbusiness – but also by those who could potentially be running such an enterprise. Research indicates that there is normally under-investments in education, and even more so among poor people in poor countries. Improving entrepreneurial skills, or making better use of those skills in the economy, will increase economic growth and reduce poverty. There are two strands of policy that seems important in this respect.

One is to support people with entrepreneurial skills so that they can utilize these optimally. This will entail reducing barriers for entrepreneurs to access capital, but also to help in creating a level-playing field so different caste groups can compete for jobs or set up the kind of business they are interested in. The second strand of policy is related to this, and entails direct support to entrepreneurial and other skill training tailored to the qualifications, knowledge and abilities of the candidates.<sup>4</sup> Perhaps the most viable route in this area would be to design different components of business skills training based on the different characteristics of entrepreneurs, and then let them select into the different module which they find the most attractive.

Another policy issue concerns the fact that many business failures are related to factors outside the owner's control. Shocks, like the death of a buffalo that destroy the milk sale, loss of most of the customers due to close-down of a nearby factory, and the immediate need for funds to serve consumption and/or educational purposes seems to make small entrepreneurs precautionary towards new investments. Moreover, it is likely that risk deters potential entrepreneurs from engaging in such

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<sup>3</sup> Deininger et al. (2007) study small companies in the Sri Lankan rural nonfarm economy and find that instead of focusing on regulatory issues, policymakers should improve access to infrastructure in these areas (electricity, roads, market for outputs and credit).

<sup>4</sup> See Klinger and Schundeln (2011), Coduras Martinez et al (2010), Bosma and Levie (2010), Karlan and Valdivia (2011), Bjorvatn and Tungodden (2010) and McKenzie and Woodruff (2012) for evidence on the impacts of business training on entrepreneurship and guidance on design of such programs.

activities, and insurance schemes could be considered by the microfinance industry<sup>5</sup>. Finally, most of the respondents identify lack of capital as a main obstacle for doing business. Despite a rather well functioning microfinance market in the areas under study, it seems that more should be done to address the specific capital requirements for doing microbusiness. Financial products tailored to the needs of individual entrepreneurs with growth ambitions could be quite different than prevailing group lending schemes with very small loan sizes and rigid repayment schemes.

This paper is structured as follows. The subsequent section provides an overview of the theoretical model together with the predictions that will be investigated in the empirical sections. Section 3 presents the descriptive statistics that are applied to analyze potential investment constraints while Section 4 explains the main findings from the survey on constraints for doing business. In Section 5 we analyze the data against the model predictions, discuss the implications and relate them to the literature. Section 6 presents the main policy recommendations and conclusions.

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<sup>5</sup> There are some essential issues related to moral hazard that need to be considered. It is easier to create insurance against correlated shocks at the village level, such as lack of, or too much rain, than insurance to cover household specific shocks.

## 2. The model

The individual decision on whether to become an entrepreneur and start a business or work for others is based on a range of factors. Lucas (1978) model of the size distribution of business firms is likely to explain some of the key underlying mechanisms, so we apply a slightly simplified version as the theoretical starting point. Then we introduce some key features from our empirical setting into the model and derive testable hypotheses.

Assume an economy with  $N$  individuals and  $K$  units of capital that can be combined to produce  $Y$  units of output, where each individual can either be an entrepreneur running a firm or be a worker in such a firm.<sup>6</sup> There is a basic production technology of a single firm given by  $f(n,k)$ , where  $n$  and  $k$  are respectively the units of labor and capital used by the firm. This underlying function has constant returns to scale, but we now add entrepreneurial talent as a fixed and non-tradable factor of production, which in turn implies that we introduce decreasing returns to scale.

That is, we assume that the production of a firm is influenced by the skill and talent of the entrepreneur running it, and that each individual in the economy is endowed with a certain level of entrepreneurial talent,  $x$ , drawn from a fixed distribution  $T \in [0,1]$ . So if an individual with talent  $x$  is an entrepreneur and manages a firm with  $n$  laborers and capital stock of  $k$ , then the production of this firm is assumed to be  $g(n,k;x) = xf(n,k)$  where  $g$  has the normal characteristics that ensure an internal solution. The production function  $g(n,k;x)$  has diminishing returns to scale (since  $x$  is fixed) and in equilibrium each firm will consist of a single entrepreneur,  $n$  employees and  $k$  units of capital. Below we will also need the capital to labor ratio  $r = k/n$ .

We assume that there is a continuum of individuals so that the entire distribution  $T$  of talent is fully represented. Since those with low  $x$  will be working for a wage in equilibrium, the equilibrium allocation of resources in the economy is given by the cut off  $z$  where the individual with  $x = z$  is indifferent between the choices; if  $x < z$  the individual chooses to become an employee, if  $x \geq z$  the individual becomes an entrepreneur. Maximizing output  $Y$  subject to the available resources in the economy,  $K$  and  $N$ , gives an efficient allocation which is also a competitive equilibrium where  $w$  and  $u$  are the equilibrium wage and rental price of capital, respectively.<sup>7</sup> In optimum the marginal product of labor will equal the wage rate, and the marginal product of capital will equal the rental cost of capital. And we can solve for the optimal amounts of labor and capital managed by individual  $x$  and write them as  $n(x)$  and  $k(x)$ . And in optimum we can write the income of an entrepreneur, i.e. individuals with  $x \geq z$ , as the value of the production subtracted the costs of hiring employees and renting capital:

$$(1) \quad \pi = xg[f(n(x),k(x))] - wn(x) - uk(x)$$

where we treat output as numeraire. In the equilibrium of the economy at large we will have that the income  $w$  of a laborer will equal the income of the marginal entrepreneur  $z$ ,

$$(2) \quad zg[f(n(z),k(z))] = w + wn(z) + uk(z).$$

<sup>6</sup> The model can easily be extended to include three categories – selfemployed, workers and entrepreneurs, see Gollin 2008. However, this does not change the implications in our setting.

<sup>7</sup> See Lucas (1978) for details.

Lucas has identified a number of predictions from this model. The cut off  $z$  that defines the marginal entrepreneur will depend in equilibrium on the elasticity of substitution between capital and labor - if the elasticity is less than one.<sup>8</sup> And it will depend on the aggregate amount of capital  $K$  relative to the population  $N$  and the particular distribution of talents. We will now present some of these predictions but for the case where we allow for segmentation based on caste.

We start with the extreme case where there is no economic interaction between social groups. Hence assume there are two segments in the sense that two groups of individuals are not to be in an employer-employee relationship and not to rent capital from each other. The distribution  $T$  of entrepreneurial talent,  $x$ , is identical for the groups, and for simplicity, assume that the number of individuals is the same so that the available labor stock is identical. The only difference between the two groups is the availability of capital – which could be for reasons of discrimination in the capital market or simply that one group (presumably the so called high caste groups) has larger endowments of capital than the other.<sup>9</sup> Let superscript  $h$  indicate the high capital segment and superscript  $l$  indicate the low capital segment. The implications of more capital per worker in the  $h$  segment,  $r^h > r^l$ , can be derived directly from the model: With more capital available, wages will be higher, and by that the critical value  $z$  that defines the marginal entrepreneur will be higher. So we have the predictions,  $w^h > w^l$ , and  $z^h > z^l$  which means that the high capital segment will have a larger share of employees, lower share of entrepreneurs and a larger average firm size. Both wages and average profit to entrepreneurs are higher in the high capital segment.

Now, the assumption of two separate economies is too strict for our purposes, so we assess the implications of less than full segmentation. Assume that a fraction  $\theta < 1$  of the individuals in the low capital segment could be hired by the individuals in the high capital segment. Since in equilibrium  $\pi = w$  for the marginal entrepreneur with talent  $z$ , and  $z^h > z^l$ , it is given that both the marginal entrepreneur and all employees in the low capital segment would want to work as employees in the high capital - high wage segment. Hence, if  $\theta$  does not bind, labor would move from the low to the high segment until  $w^l = w^h$  which implies that  $z^h = z^l$  and there will also be equal capital-labor ratios in the two segments. So workers and entrepreneurs from the low segment would move to the high segment and become workers there. However, the more interesting case empirically is where  $\theta$  binds, and we add  $\theta$  to the superscript to indicate this situation. If the fraction of individuals allowed to work in the high capital segment restricts the movement<sup>10</sup>, then we have that  $w^{l\theta} < w^{h\theta}$  and  $z^{h\theta} > z^{l\theta}$ . The general result from the pure segmentation is maintained, albeit with intermediate values of the variables  $w^l < w^{l\theta} < w^{h\theta} < w^h$  and  $z^h > z^{h\theta} > z^{l\theta} > z^l$ . Since we do not get the full competitive solution and thus less than optimal labor allocation in the high segment, we will hence have that capital per worker is higher in the high segment,  $k^{l\theta}/l^{l\theta} < k^{h\theta}/l^{h\theta}$ .

When designing the study, we hypothesized that caste could be a main barrier to microenterprise growth. Given the relatively strictly enforced caste system in the areas under study where high castes

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<sup>8</sup> The elasticity of substitution measures the percentage response of the ratio of the relative marginal products of capital and labor to a percentage change in the ratio of the quantities of capital and labor. If the elasticity is one, we have the Cobb-Douglas type production function for which the equilibrium cut-off  $z^*$  does not vary with capital per capita in this model. There has been a large amount of research to establish the elasticity in developed countries, and recent estimates suggest an elasticity of 0.4 to 0.6 for larger firms (Chirinko 2008, Chirinko et al. 2011). Not surprisingly, little is known about the elasticity of substitution among microbusinesses in developing countries.

<sup>9</sup> Discrimination in the capital market is perhaps more common than what is commonly believed. In 2011, Bank of America agreed to repay USD 335 Million to 200,000 Afro-American and Hispanic borrowers because they had sold them riskier loans with higher interest rates than to white customers (www.cbsnews.com).

<sup>10</sup> We must here imagine a situation where some high caste entrepreneurs are more liberal than others and thus starts hiring low caste workers to jobs that were previously restricted to high caste workers.

hires low castes for only some types of work and regularly avoids working directly with them, and with higher castes having better access to capital, we can apply the model and formulate the following hypotheses that can be taken to the data. People from the so called higher castes will:

- A. run larger businesses with more capital per worker
- B. have a larger share among themselves working as opposed to running a business, but
- C. have higher wage levels and lower returns to capital.

We turn to these hypotheses below, together with a discussion of the other barriers identified by the various caste groups.

### 3. Caste, endowments and livelihood strategies

We start by analyzing the distribution of indicators of human and physical capital by caste group in order to map the actual endowments that are likely to influence their livelihood strategy – in particular the choice between working for a wage and running a microbusiness. In order to keep it brief, we focus on the main assets of the households - land ownership, education and social network. Then we turn to assessing the livelihood strategies of the different social groups.

Table 1 shows that almost half of the households in the random sample were Terai Dalits,<sup>11</sup> while in the non-random business sample this group represents 32 percent of households. The random and business sample consists of around one third from the local indigenous ethnic (Janajati) groups, which we label the Terai ethnic group. These are considered as having higher social status than the Terai Dalits. Above the ethnic group in the social hierarchy, we have the local higher caste category which is represented by 5 and 17 percent of the random and business sample, respectively. Finally, the groups often considered to have the highest social status are the high castes of Hill origin, who amount to 17 percent in both samples.<sup>12</sup>

**Table 1. Social groups by sample**

	Terai Dalits	Terai ethnic group	Terai higher castes	Hill origin castes	Total
Random sample (observations)	48% (97)	29% (58)	5% (11)	17% (35)	100% (201)
Business sample (observations)	32% (29)	34% (31)	17% (15)	17% (15)	100% (90)
Total (observations)	43% (126)	31% (89)	9% (26)	17% (50)	100% (291)

#### 3.1 Land ownership

Ownership of land is a major asset in these areas, and hence an important component of the capital of many households which could influence the choice of livelihood strategy in different ways. Larger plots can be profitable due to the low agricultural wages in Eastern Terai and strong bargaining position of landlords (Hatlebakk 2002, 2004, 2007) and can thus generate substantial cash income to land owners, including through linkages of labor contracts with other means of exploitation such as through high interest loans. This in turn can be used to save for investment purposes, including business investments. In addition, very low wages makes it possible for landowners to spend their time on other income generating activities since workers can take care of most of the farm tasks. Moreover, since land can be used as collateral, it is an important factor in getting access to credit – particularly

<sup>11</sup> We categorize the households into four groups based on social identity. There is one Muslim household in the data, and two Dalit households of hill origin that at some point in time have migrated to the Terai (plains). These three households are categorized together with the Terai low castes (Musahar and Bantar) and labeled Terai Dalits. The local ethnic groups, where we sometimes use the Nepali term Janajatis for ethnic groups are mostly from the indigenous groups of Tharu and Rajbanshi. The Terai higher caste group consists of groups considered to be of higher social status, with many in these villages using the surname Sah. The hill origin social group consists basically of Brahmins and Chettris that at some point in time (for most households this will be one to two generations ago) have migrated to these Terai villages.

<sup>12</sup> Note the low number of observations of Terai higher caste households in the random sample.

larger loans from banks. Again, as access to credit usually is listed as the main obstacle to business growth among entrepreneurs, landholders are in a favorable position for developing larger firms. Land in semi-urban areas has also become an item of speculation where large profits can be made by purchases and sale of land in a market with rapidly increasing prices. Insiders in this market can make large profits, which in turn can be invested in businesses. Finally, some land owners may choose to be farmers, especially those with smaller plots and few other opportunities.

Landlessness and socioeconomic indicators of poverty are highly correlated in the Eastern Terai (Hatebakk 2007) and Table 2 below indicates that the two villages under scrutiny are very poor. Among all respondents in both samples, 65 percent were landless while 21 percent owned relatively small plots of arable land.<sup>13</sup> The distribution of arable land across caste is similar for the two samples. Around 80 percent of the Dalits were landless in both samples and most of the Dalits owning land had small plots. Landlessness was also prevalent among the other castes with roughly half of the Terai ethnic group and hill origin castes owning land in both samples. The Terai higher castes were more divided in that landlessness was as prevalent as for the Dalits while landowners had larger plots. It is also interesting to note the difference in land ownership between the random and business sample of the Terai higher castes. Moreover, in the business sample, the Terai higher castes have a much higher degree of landlessness and fewer households own larger plots as compared to the Terai ethnic groups in the random sample. Taken together, this suggests that Terai higher caste households in the business sample can have quite different socioeconomic status depending on the size of their business as compared to a representative higher caste household in these villages.

**Table 2. Arable land ownership by sample and social group (30 kattha = 1 hectare)**

	Terai Dalits		Terai ethnic groups		Terai higher castes		Hill origin castes		Total
	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	
Landless	80%	79%	50%	52%	73%	87%	43%	47%	65%
1-19 kattha	16%	14%	29%	23%	0%	0%	34%	27%	21%
20 kattha or more	3%	7%	21%	26%	27%	13%	23%	27%	14%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

In both samples we find that 35 percent of households own arable land and that the distribution of plot size is highly skewed. A few own large plots, only five households own plots of 100 khatta (3.3 hectare) or more, while most of those owning land have very small plots. Even though the mean land size among landowners is 33 kattha (1.1 hectare), the median is 14 khatta (0.5 hectare). Table 3 gives the distribution of plot size by social group for all households including landless, and it is evident that the large plots owned by the few influence the averages. The mean land size when including the landless is four to eight times higher in the random sample for the other groups compared to that of the Dalits. This is similar to the means in the business sample, although here the Terai ethnic group and the Dalits have the same mean. Focusing solely on those who own land gives basically the same pattern: The mean and median plots for landowners are much smaller for the Dalits than the others.<sup>14</sup>

<sup>13</sup> In contrast, the Nepal Living Standard Survey 2003/04 found that only 33 percent of households in Eastern Terai were landless, which suggests that we were successful in surveying poorer villages.

<sup>14</sup> The mean and median land size for other castes in the random sample are 40 to 350 and 20 to 260 percent higher than for the low caste.

Given the high degree of landlessness for the three groups with lowest social status, it is not surprising that the median landholding in the samples is zero. However, even for the Hill origin castes plot sizes are very small with a median of 5 kattha (0.2 hectare) for the random sample and 9 kattha (0.3 hectare) for the business sample. Taken together, this implies that land ownership varies a lot even within social groups. Given the potential importance of land ownership for non-farm investments like in business and education, it is likely that the distribution of land ownership also affects the livelihood strategies.

**Table 3. Land ownership by land size (kattha) and social group**

	Terai Dalits		Terai ethnic group		Terai higher castes		Hill origin castes		Total
	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	
Mean	3	3	24	17	18	3	12	27	11
Mean for landowners	15	14	47	35	67	23	21	51	33
Median	0	0	1	0	0	0	5	9	0
Median for landowners	11	7	14	20	40	23	13	25	14
Maximum	60	40	700	240	140	25	65	200	700
Obs.	97	29	58	31	11	15	35	15	291

### 3.2 Education

Education can play an important role for the livelihood strategy of the household and their ability to escape poverty. In particular, having a well-educated member increases the likelihood of this person to get a salaried job, and perhaps also for taking advantage of business opportunities in the village. Salaried employment can enable the household to build capital through saving and may thus enable them to invest in profitable opportunities. Even if the household head is often the largest contributor to income generation in the household, other members can also contribute substantially and we thus assess all members' education by social group.

Starting with the household head, Table 4 shows the level of education for heads by social group and sample. Very few Dalit heads have any education at all, although slightly more of the business sample low caste heads have attended school. This is in sharp contrast to the other social groups in the random sample, - 64 percent of the Terai higher castes and almost half of the Hill origin and Terai ethnic heads have some education.<sup>15</sup>

<sup>15</sup> There is also a large difference between the samples when it comes to the share of uneducated Terai higher caste heads, which is almost twice as high for the business sample as for the random sample. However, the low number of observations precludes any conclusion.

**Table 4. Education of the household head by social group.**

	Terai Dalits		Terai ethnic group		Terai higher castes		Hill origin castes	
	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample
No education	93 %	79 %	53 %	42 %	36 %	62 %	60 %	57 %
Grade 1	3 %	14 %	12 %	19 %	18 %	8 %	3 %	0 %
Grade 5	3 %	3 %	26 %	16 %	27 %	8 %	9 %	7 %
Grade 9	1 %	3 %	4 %	16 %	9 %	15 %	14 %	14 %
SLC	0 %	0 %	4 %	6 %	9 %	8 %	9 %	7 %
Intermediate or higher	0 %	0 %	2 %	0 %	0 %	0 %	6 %	14 %
Obs.	97	29	58	31	11	15	35	15

Among households with educated heads, we see that all groups in the random sample except the Hill origin are more concentrated in the two lowest education completion categories<sup>16</sup> – Grade 1 and Grade 5, but the Dalits to a larger degree than the other groups as almost all with educated heads are in these lower education categories. The Hill origins with educated heads are more concentrated in the higher categories with 29 percent of random sample Hill origin heads having completed Grade 9 or more education. The Terai ethnic and higher castes in this sample also have substantial shares of heads with Grade 9 and higher education with 10 and 13 percent, respectively, while only one percent of Dalits are in this category. In the random sample, no one in the low caste group has higher education or a SLC (School Leaving Certificate), which is the final exam after 10 years of schooling, while the two intermediary groups have 4 to 6 percent of the households with SLC or higher education. Again the Hill origin group stands out in this sample with a larger share of households in higher categories as 15 percent have SLC or more education.

We see that more of the Dalits and the Terai ethnic heads have attended school in the business sample as compared to the random sample, and also that the Terai ethnic heads in the business sample are more concentrated in the higher levels of education (from Grade 9 and above) than they are in the random sample. Moreover, the Hill origin group has a higher share of “intermediate and higher” education in the business sample as compared to Hill origins in the random sample, while the same is true for the Terai higher castes when it comes to Grade 9 and SLC - although the low number of observations precludes any conclusion. We also note that the Terai higher castes have a larger share of uneducated heads in the business sample as compared to the random sample.

Other household members’ education is also likely to influence household livelihood strategies. Even if only 28 percent of the household heads in the random sample have education, we find that 83 percent of the households actually have educated members. Table 5 shows the distribution of the highest educated member of the households by group and sample.

<sup>16</sup> Education was grouped according to certain cut-offs: Grade 1 are those who completed Grade 1 in primary school, Grade 5 are those who completed Grade 5, Grade 9 are those who completed Grade 9, SLC are those who got a School Leaving Certificate (completed 10 years of schooling) and Intermediate of higher refers to those who have completed a grade after 10 years of primary school.

Again we see in the random sample that the Dalits are much more likely than the others to be in households where all are uneducated – 22 percent for the Dalits as compared to 3 to 9 percent for the other groups. Similarly, in this sample one third of the Dalits have a household member with Grade 1 while the other castes range from 2 to 18 percent. The Dalits are thus much less represented in the higher education categories in this sample; 44 percent of them have a member with at least Grade 5, while the Terai ethnic and Hill origin groups have 94 percent of their households in this category. The Terai higher castes have a slightly lower share (63 percent) than the ethnic and Hill groups, but still far higher than the Dalits. We also see a large difference between social groups in the share of households with SLC or higher education. In the random sample, almost three out of four Hill origin households have one such member, while only one out of sixteen of the Dalits have any member with SLC or above. The Terai ethnic group and the Terai higher castes are placed in between as the former has 37 percent of households with at least SLC or above in this sample while the latter has 18 percent.

It is interesting to note that in the business sample, almost all households have at least one educated member, and the difference between social groups in this category is negligible. Moreover, on average within social group, the person with the highest education in the household in the business sample is more educated as compared to the corresponding person in the random sample. Among those households in the business sample who have at least one educated member we basically find the same pattern as for the random sample when it comes to the lowest and highest education levels – a much higher share of the low caste households have Grade 1 as the highest education while the Hill origin group again turns out as much better educated than the others as 80 percent have SLC or higher, compared to around 32 percent for the ethnic group and higher castes and only ten percent of the Dalits. For Grade 5 and 9, however, we find similar shares in the range 53 to 58 percent for all groups in the business sample except for the Hill origin due to their concentration in the higher education categories.

**Table 5. Highest education in the household, by caste group.**

	Terai Dalits		Terai ethnic group		Terai higher castes		Hill origin castes	
	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample
No education	22 %	3 %	4 %	3 %	9 %	0 %	3 %	0 %
Grade 1	33 %	28 %	2 %	10 %	18 %	13 %	3 %	0 %
Grade 5	33 %	34 %	42 %	26 %	27 %	20 %	9 %	0 %
Grade 9	5 %	24 %	16 %	29 %	27 %	33 %	11 %	20 %
SLC	4 %	10 %	28 %	26 %	9 %	33 %	40 %	20 %
Intermediate or higher	2 %	0 %	9 %	6 %	9 %	0 %	34 %	60 %
Obs.	97	29	58	31	11	15	35	15

The fact that the persons with the highest education in the household on average is more educated in the business sample as compared to the random sample – consistently across groups, and similar to the education of household heads - suggests that having a more educated member increases the likelihood of doing business. There are various mechanisms that may explain the pattern as it could be that households running business have some capital and choose to diversify by investing in both education and business, but also that having a more educated member can be beneficial for business operations.

### 3.3 Social networks

Personal networks can play many important roles in business transactions, especially in poor countries where they may substitute for high transaction costs required to use the market (Rauch and Casella 2003). Banerjee and Munshi (2000) and Fafchamps (2000) find that personal networks are important to capital mobilization for factory establishment, Conley and Udry (2004) find significant effects of networks on the spread of new technology and Kajisa (2007) finds in a village survey in the Philippines that in order to start in a self-employment occupation (i.e. microbusiness), networks of all kinds of relationships (i.e. family, relatives, friends and acquaintances) are important. Moreover, others find that networks are important for detecting promising investment opportunities (Patnam 2011), for improving a firm's access to production technologies (Parente and Prescott 1994) and for sharing information about customers or suppliers (McMillan and Woodruff 1999, Greif 1993). In addition to a likely direct positive effect on business transactions, it seems that personal network may contribute to household income from other occupations, which in turn can enable them to save and invest for business purposes (Kajisa 2007). In cross sectional data, however, it is important to note that the causality may go in both directions. Having a large network could lead to more business opportunities, but doing business could also lead to a larger network.

Applying the same network measure as Kajisa (2007), our survey includes information about the social networks of the household members by asking them if they know potentially useful persons in their society – like politicians, government officials, managers and owners of enterprises, NGOs etc. Respondents were also asked whether they knew these persons three years ago, and we report on this variable since lagged values could reduce the challenge of reverse causation.

Personal networks differ a lot between the Dalits and the others. The average number of such contacts in the random sample is close to 6 and not statistically different between ethnic, higher and Hill origin groups that average around 7 contacts. However, the Dalits have fewer contacts than the other castes, slightly higher than 5 on average, which is significantly different from the others. Table 6 shows the distribution of the number of such people that the household knew three years ago and we see that the business sample have more contacts than the random sample – although a statistically significant difference only within the Dalit group. In the random sample, there is a substantial difference in the share of households with 7 or more contacts between the Dalits (20 percent) and the other castes (36-57 percent). We also see that within social groups, a much larger share of people in the business sample have 7 or more contacts except for the Hill origin castes.

**Table 6. Social network. Share of households by caste and sample who knew key persons 3 years ago, by number of key persons.**

	Terai Dalits		Terai ethnic group		Terai higher castes		Hill origin castes	
	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample	Random sample	Business sample
1-3 key persons	10 %	0 %	9 %	3 %	18 %	0 %	6 %	20 %
4-6 key persons	70 %	48 %	43 %	29 %	45 %	40 %	37 %	33 %
7-9 key persons	20 %	48 %	33 %	52 %	27 %	53 %	46 %	27 %
10-17 key persons	0 %	3 %	16 %	16 %	9 %	7 %	11 %	20 %
	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

### 3.4 Livelihood strategies

To get an overview of how the different social groups are making their living, we categorized their livelihood strategies according to the primary, secondary and tertiary income generating activities of all household members. Note that by using information on three occupations for a number of household members we shall not expect to find many households that rely on a single activity. Our classifications are according to whether they were doing business only, whether they combined business with salaried work, or with farming, or with daily labor. Households not engaged in business are categorized according to whether they relied solely on salaried jobs, only on farming, only on daily labor or if they combined farming with labor.

As expected from the sampling procedure, the distribution of strategies is different in the two samples, although a few similarities emerge. Table 7 below reveals that not many rely solely on business – only around 6 percent of the random sample and 13 percent of the business sample. Most combine their business with farming, labor or salaried work - as many as 74 percent of the business sample apply this strategy while the corresponding figure for the random sample is naturally lower since many do not do business. Still, 32 percent of all in the random sample combine business with these types of income sources suggesting that this is one of the main livelihood strategies in addition to the 46 percent who rely on labor, farming or a combination of these.

**Table 7. Main livelihood strategy of the household by sample.**

Livelihood strategies	Random sample		Business sample		Sum	
	Share	Obs.	Share	Obs.	Share	Obs.
Only business	6 %	13	13 %	12	9 %	25
Business-Salaried	5 %	10	13 %	12	8 %	22
Business-Farmer	11 %	22	34 %	31	18 %	53
Business-Labor	16 %	32	27 %	24	19 %	56
Salaried	12 %	25	4 %	4	10 %	29
Only farmer	6 %	13	3 %	3	5 %	16
Farmer-Labor	17 %	35	4 %	4	13 %	39
Only labor	25 %	49	0	0	17 %	49
Sum	100 %	199	100 %	90	100 %	289

It is evident that for the discussion about selection into business versus becoming an employee, we need to use the random sample to describe the prevalent distribution of livelihood strategies of the caste groups. Table 8 reveals that the Terai higher castes rely to a much larger extent on business only as compared to the other castes. More than 64 percent of the households in this group has business as the sole income generating source, while only 2 to 5 percent of the three other groups apply that strategy. Their high reliance on pure business is confirmed by comparing their share in the business

sample to their share of the total population - they represent 17 percent of households in the business sample but only five percent of the random sample.<sup>17</sup>

We also see that the Dalits are over represented in combining business with labor as 27 percent of households apply this livelihood strategy. The other social groups rely to a much lesser extent on this combination as all have less than 10 percent of households in this category. Dalits are over represented in the group that combines business with labor as more than every fourth household apply this strategy compared to 5 to 9 percent of the other caste groups. The Terai ethnic group is likely to combine business with farming, where the business for this livelihood strategy is probably small shops with predominantly agricultural products. Both Dalits and the ethnic group are also overrepresented in the wage labor category.

It is evident that many more of the highest caste households rely solely on salaried work. The Hill origin group stands out with 39 percent using this strategy, compared to only four percent of the Dalits. The Terai ethnic group and Terai higher castes fall in-between with 12 and 9 percent, respectively, of the households doing salaried work only.

Taken together, it is evident that the dominant strategy for the Hill origin group is salaried employment as almost 60 percent of these households have at least one member with such an occupation. The Terai higher castes relies mostly on business as almost three out of four household have a member running an enterprise. The low caste is predominantly in farming and labor, although many of them combine this with business. This pattern is similar to the ethnic group, although this group is more diversified across livelihood strategies.

**Table 8. Main livelihood strategy of the household by caste, random sample (n=199).**

Livelihood strategies	Terai Dalits	Terai ethnic group	Terai higher castes	Hill origin castes
Only business	2 %	5 %	64 %	3 %
Business-Salaried	1 %	5 %	0 %	18 %
Business-Farmer	11 %	16 %	0 %	6 %
Business-Labor	27 %	5 %	9 %	6 %
Salaried	4 %	12 %	9 %	39 %
Only farmer	3 %	9 %	18 %	9 %
Farmer-Labor	22 %	19 %	0 %	9 %
Only labor	30 %	29 %	0 %	9 %
Sum	100 %	100 %	100 %	100 %

Summing up this Section, recall that an important implication of the model in Section 2 is that the segmentation based on caste groups leads to a separation in livelihood strategies across groups. More capital among the high castes together with the restriction on hiring from other social groups leads to larger businesses in the high caste segment where higher paid salaried employment is more likely for these castes. The model have the opposite prediction for the low castes as little capital and few

<sup>17</sup> See Table 1 above. The business sample includes basically all businesses of these three categories in the villages and was selected independently of caste.

opportunities to work for higher castes leads to low wages that we typically find in wage labor and many will also be engaged in smaller businesses and self-employment. We find such a structure in our data with respect to the highest and lowest caste using land ownership and education as proxies for capital. The Hill origin castes are to a large degree in salaried employment, and some households also combine this with running a business – which is consistent with the model. The Dalits, on the other hand, relies to a large degree on wage labor, which is typically the lowest paying employment opportunity in these areas, and asre also over represented on combining business with labor. These businesses are likely very small entities and self-employment. We return to the discussion about the model predictions in relation to the data in Section 5, in particular wage levels and firm size, but first we turn to the constraints for doing business as reported by the respondents themselves to analyze if there are similar caste based divisions in perceptions about such obstacles – but also to assess supportive interventions for this population.

## 4. Constraints for doing microbusiness

The role of capital is central in all plausible models of economic growth as illustrated in the model in Section 2 above. In our setting, the entrepreneurs' decision to invest in a business is influenced by their access to capital and its rental price, but likely also by a range of other factors. Evidence from investment climate surveys focusing on larger formal firms suggest that the cost of enforcing contracts, property rights, the availability of public goods, corruption, social strife and risk of losing assets (expropriation, theft, natural disasters etc.) all impact on company investment decisions. The investment climate is often referred to as the degree to which these factors create an environment favorable for private companies' investments, and it is often linked to the degree to which the government is able to create such an environment (Deininger et al. 2007).

The main question of interest in this section is whether the microbusiness investment climate differs between social groups. A-priori, one should expect the obstacles to be related to characteristics of the business (e.g. lack of electricity a problem for milling, poor road a problem for transport and high interest rates a problem for informal businesses) and not to the social group of the owner. Differences in obstacles to doing business between social groups that is not explained by such observables could be a sign of underlying mechanisms of discrimination or segmentation based on social group. In the credit markets of Nepal, there is evidence of segmentation as lenders diversify according to observable characteristics of the borrowers (Hatlebakk 2011). In particular, Dalits have to pay much higher interest rates than other groups after controlling for other factors that may affect the interest rates. This is also a prediction of the model in Section 2 as the rental price of capital will be lower in the low capital (i.e. for lower castes) segment.

The household survey and business module contain questions about the respondents' perception about constraints for doing microbusiness in the area where they live. Asking all respondents in both surveys to think of a business that they have experience with, have knowledge about or a business that they would like to start, we asked them to rank 17 potential problems for doing business. In line with other investment climate surveys, the respondents were asked to state whether the problem is very important, important, of little importance or not important. We also included a "not relevant" category to ensure that the respondent could identify whether the suggested problem in fact was not of concern for business operations. These suggested problems include finance, market situation, transport, knowledge, infrastructure and regulatory issues including labor issues. Moreover, we also asked them in open-ended questions to explain what the most important problems for doing business were, and allowed multiple answers.

From the open-ended questions and among the 17 potential problems for doing business, first note that government regulation, informal or formal taxes, difficulties with labor, physical threats, unavailability of fuel, distance to the main city (Biratnagar) and unreliable transport of goods and supplies are not considered generally to be important obstacles for doing business for any of the social groups. Table 9 shows that the two obstacles that scored highest in the pre-determined list of problems described above also score highest on being the main obstacles identified in the open-ended question.<sup>18</sup> The first column shows that 63 percent state that lack of capital is the key constraints while almost half of the respondents indicate that knowledge and skills are the most important constraints. Similarly, column two shows that 66 percent thinks that being unable to get a bank loan is an important or very important obstacle, while 71 percent thinks the same about lack of knowledge. However, there were large differences in responses for the three other important obstacles: Even if 65 percent of respondents think that too high interest rates is an important or very important challenge, only nine percent thinks it

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<sup>18</sup> We report for the full sample only since the results are very similar between those with experience in running a business and those without such experience, see annex 2.

is the most important problem. Unreliable electricity and poor road quality are perceived to be important or very important by 48 percent and 31 percent, but only seven and 13 percent consider them the main problem for doing business.

**Table 9. Self-reported obstacles for doing business, both samples (n=291)**

	Main obstacle	Important or very important	Not important or some importance	Not relevant
Unable to get bank loan	n.a.	66 %	34 %	0 %
Lack of capital	63 %	n.a.	n.a.	n.a.
Lack of knowledge	49 %	71 %	23 %	6 %
Poor road quality	13 %	31 %	39 %	30 %
Interest rate is too high	9 %	65 %	34 %	1 %
Unreliable electricity	7 %	48 %	40 %	12 %
Banda/strike	7 %	n.a.	n.a.	n.a.
Few customers	4 %	17 %	81 %	2 %
High competition	3 %	20 %	74 %	6 %

Note: Column 1 reports from the open-ended question with multiple answers, so it sums to more than 100%, see annex 1 for details. The “Important or very important”, “Not important or some importance” and “Not relevant” sums to 100% for each obstacle.

Given the importance attached to lack of skills and knowledge and access to capital we assess the ranking of these obstacles by livelihood strategy and, subsequently, by social group. Most of those who rely only on farming report that lack of knowledge is the main obstacle for operating business, and Table 10 shows that as many as 94 percent of them indicate this to be an important or very important challenge. The share of those who combine farming with business reporting the same is considerably lower (62 percent) and could thus indicate that many in the farming only category could combine this with business if the knowledge and skills barrier was reduced. This could also be the case for those who rely on labor only as 80 percent of them state that knowledge is an important or very important obstacle, compared to 70 percent of those who combine labor and business.

A program to enhance skills and business knowledge would need, however, to take into account that many with these livelihood strategies never attended school. This is especially the case for those who rely on labor alone or in combination with farming or business as more than 80 percent of such household heads never attended school. We also note that those who specialize in doing business only, a mere 20 percent of them consider lack of knowledge to be the main problem despite the fact that almost half the household heads in this group never attended school. This suggests that the experience gained through specializing in business render skills and knowledge as a lesser problem for this group compared to those with other livelihood strategies, but also that skills and knowledge can be important for the choice of whether to specialize in business or labor or farming.

**Table 10. Knowledge as an important obstacle, by livelihood strategy, both samples (n=289).**

Livelihood strategy	Important or very important	Main problem
Only business	60%	20%
Business-Salaried	64%	50%
Business-Farmer	62%	43%
Business-Labor	70%	54%
Salaried	76%	48%
Only farmer	94%	69%
Farmer-Labor	72%	59%
Only labor	80%	53%

Table 11 below reveals relatively small differences in the importance attached to capital for doing business across livelihood strategies. However, we see that a higher share of those who have specialized in business report that lack of capital is the main problem as compared to the share stating that inability to get a bank loan is an important or very important obstacle. Many of those who do business only have a portfolio of informal loans and may be aware that the relatively small scale of their business operations are usually not of interest to banks due to high transaction costs. So even if most of the households with other livelihood strategies than specialization in business report that inability to get a bank loan is an important or very important obstacle it does not necessarily mean that the solution is to create any mechanism to facilitate bank lending for these groups. Nevertheless, high shares of all livelihood groups report lack of capital as the main problem for doing business – highest for those who do farming only (75%) and lowest for those who combine business and salaried work (50%). Having salary could contribute to access to capital both as informal collateral (as is common in some other developing countries, especially Ethiopia), and also serve as a source of building capital through own saving.

**Table 11. Capital as an important obstacle, by livelihood strategy, both samples (n=289).**

Livelihood strategy	Unable to get bank loan - important or very important	Lack of capital - main problem
Only business	56%	68%
Business-Salaried	68%	50%
Business-Farmer	60%	60%
Business-Labor	75%	68%
Salaried	52%	62%
Only farmer	75%	75%
Farmer-Labor	59%	62%
Only labor	78%	63%

Now we assess whether there are differences in perceived obstacles by caste. Table 12 displays the five most prevalent obstacles by social group when asked about the main obstacle for doing business. There are small differences between caste groups when it comes to lack of capital, but much larger variations for lack of knowledge. A much higher share of Dalits (56 percent) compared to Terai higher castes (38 percent) reports lack of knowledge to be the main obstacle while the two other groups fall in-between (46 percent). Given that Dalits are over represented in wage labor, which does not require

much skills and knowledge, while the Terai Higher castes are overrepresented in business only, which is likely to require some knowledge, it seems that skills and knowledge gaps may contribute to the segmentation of the livelihood strategies across castes. A larger share of Terai higher castes indicates that the interest rate is too high, which again could reflect the importance of borrowing for business purposes since 73 percent of these households are engaged in business. Finally, the two groups with the highest socio-economic status have three times higher share of households indicating that the Banda (strike) is the main obstacle for doing business compared to the two groups with lower status.

**Table 12. Main obstacle for doing business, both samples (n=291)**

	Terai Dalits	Terai ethnic group	Terai higher castes	Hill origin castes
Lack of capital	63%	65%	62%	62%
Lack of knowledge	56%	46%	38%	46%
Poor road quality	13%	11%	15%	18%
Interest rate is too high	9%	9%	15%	8%
Banda/strike	6%	6%	19%	18%

Turning to the pre-specified list of obstacles, Table 13 shows small differences across social groups in the shares reporting inability to get a bank loan and high interest rates as important or very important obstacles. Somewhat larger differences are found in shares reporting lack of knowledge – again more Dalits indicate that this is important compared to Terai higher castes while the two other groups fall in-between. We also see that there are substantial differences across social groups with respect to the importance of unreliable electricity – the share of Terai higher castes indicating that this is an important or very important obstacle is 50 percent higher than the share of Dalits indicating the same. For this obstacle we see a division between the groups with higher status compared to those with lower status as Hill origins have similar shares as Terai higher castes while Terai ethnic groups have similar shares to the Dalits. The differences may be explained by the nature of the businesses that respondents were considering during their response. Dalits usually run very small businesses that do not require electricity while more prosperous groups, and especially those who run somewhat larger microbusinesses, could be considering slightly more advanced businesses that would benefit from stable electricity. If segmentation leads Dalits to stick to the lowest scale of microbusiness operations, these patterns should be expected. When it comes to poor road quality Terai higher castes have much higher shares compared to the Terai ethnic group with the Hill origin and the Dalits having shares in-between. Again the scale of operations could matter for their responses, and we return to this below.

**Table 13. Importance of obstacle, by caste, both samples (n=289).**

	Important or very important obstacles			
	Terai Dalits	Terai ethnic group	Terai higher castes	Hill origin castes
Unable to get a bank loan	71%	61%	62%	64%
Too high interest rate	65%	66%	62%	64%
Lack of knowledge	75%	69%	62%	70%
Unreliable electricity	43%	46%	65%	58%
Poor road quality	31%	26%	38%	34%

## 5. Discussion

Access to capital is deemed important for growing a business not only in theory but also by the microbusiness operators themselves. In discussions of how microbusiness could contribute to poverty reduction it is often assumed that starting business could lead to higher household income and in turn more assets and capital. But capital accumulated from other occupations, whether it is farming or salaried work, can also be used to start a business, so causality can go both ways<sup>19</sup>. Similarly, the decision to start in a particular occupation may simultaneously mean to acquire assets, whether it is equipment, land, or education. All these trajectories were observed during our fieldwork.<sup>20</sup>

In the model presented above, however, more talented entrepreneurs rent more capital and run larger businesses (with higher profits) providing a causal link between running a business and wealth accumulation. If there were no restrictions on rental of capital in the model, the capital-labor ratio would be independent of ownership of assets, and there would thus be no reverse link from asset holdings to occupation. If there is segmentation in the rental market according to caste, then the lower castes (due to limited asset holdings, and lack of supply to their segment) will be constrained. Any policy that can remove the stigma against interaction between high and low castes would thus lead to more businesses among low caste people. Moreover, since capital in a segmented market does not move to the most profitable business (here run by talented low caste people) it is evident that total production will be lower in a segmented market.

The model predicts that the segmentation would lead to larger businesses in terms of capital per worker among the higher castes, and we find large differences between castes in our samples - in accordance with the segmentation hypothesis. The capital to labor ratio in our data (measured by the initial capital used for starting the business plus later investments in that business, divided by the average number of people working in the business)<sup>21</sup> we find that the Terai higher castes invested almost four times the amount that the Dalits invested per worker. Similarly, Hill origin people invested three times more capital per worker than the Dalits, while the Terai ethnic group had close to double the capital labor ratio as compared to the Dalits.

When it comes to the second prediction that high castes will have a larger share among themselves working as opposed to running a business, the data is less useful. The mechanism in the model suggests that the higher wage in the high caste segment implies that more of them work for a wage rather than as entrepreneurs. Moreover, it is necessary to use the random sample only for assessing the shares of workers with respect to shares of those who run business since obviously the business sample is skewed for this purpose. Table 8 above renders some support to the model in that Hill origin castes are over represented in salaried work as compared the lower caste groups. Nevertheless, there are small differences in the random sample between the shares of businesses to the number of employed people within each social group, except for the Terai higher castes who has a much higher share as compared to the other groups. Moreover, many Dalits work as agricultural laborers and on

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<sup>19</sup> Business is a particularly common investment if you have unemployed family members, otherwise investments in children's education, housing and land are common investments.

<sup>20</sup> The cases are available upon request. One of the women running a shop had a husband working in Malaysia sending substantial amounts of money home every month. She explained that she had used that money to set up the shop, but the business was not generating any surplus. In contrast, we interviewed a young couple with a relatively impressive business. They had started very small, with 4000 Rs. and reinvested the profit and expanded the business to such a level that they were able to send their children to boarding school and bought a wide range of household assets.

<sup>21</sup> Using an alternative capital-labor measure (capital used to start the business divided by the number of workers at the time for start-up) yields similar results.

their own small plot of land which, taken together with the low number of employed persons in the businesses, prevents us from drawing any firm conclusions on this prediction.

The model also predicts that wages and salaries should be lower for low castes and that returns for capital should be higher than for the high castes. On the former, the average remuneration for a household member working for a wage or salary is twice as high for the Hill origin castes as for the Dalits.<sup>22</sup> Even for salaried work only, Hill origins earn 70% more than Dalits in salaried occupations. The Terai ethnic groups earn 30 percent more than the Dalits in wage and salary employment, while the Terai higher castes have too few household members in such employment for statistical inference. Moreover, we do not have figures for returns to capital for our sample. The wide coverage of microcredit in the area and the fact that households use the loans for both consumption smoothing and investment purposes implies that the interest paid on loans is a poor proxy for returns to capital. Hence, even though the average interest rate in our samples does not vary much across social group we do not conclude with respect to the prediction of differences in returns to capital – especially since others have found evidence of strong segmentation in the credit market with Dalits paying higher interest rates than others (Hatlebak, 2009).

Taken together, the data provides relatively strong support to the model of caste-based segmentation of the labor and capital markets based. However, it is evident that the segmentation works through the labor and capital markets in relatively subtle ways and may not be easily detectable by the workers and entrepreneurs themselves as an obstacle for doing business. Hence, it is perhaps not surprising that no one in our samples identified discrimination based on caste as a main obstacle to doing business when asked the open ended questions. However, the relationship between the respondents' ranking of obstacles according to degree of importance, on one hand, and whether it was the most important obstacle, on the other, gives one rationale for prioritizing interventions on other issues important to growing microbusiness. According to the people living in these areas, interventions should prioritize knowledge and skill enhancement and access to capital as these are considered the main important obstacles in almost all the different groups, but more so for the most disadvantaged groups. This conclusion is strengthened by the fact that also those who are currently running an enterprise indicate that these are the most important challenges for doing business. One difference stands out on these obstacles, however: Much fewer of those who specialize in business state that knowledge and skills are the main obstacles. This is likely to be a result of the fact that when business is their sole occupation, they are probably doing well since they are able to sustain the household with this activity only – and hence feel that they have the knowledge they need. Programs to enhance business knowledge and skills should thus be designed to take into account that those who rely solely on business might be interested in different types of support programs to stimulate further growth.

Despite the fact that microbusiness is an important contribution to people's livelihood, very few have received any business training. In the random sample, every third household was involved in business in one way or another, but only one percent of the households in the sample had ever received any type of business training. In the business sample, only three percent had received business training. Moreover, the high degree of illiteracy among those who do microbusiness, and those who potentially could start such business, indicate that such programs should be designed so that it is feasible to participate even without any prior numeracy and literacy skills. A more comprehensive training course could include numeracy and literacy skills, which would not only be useful for them to develop more advanced businesses but would also be beneficial in most other livelihood strategies. Unfortunately, there are few conclusions from research on the impact of business training on microbusiness profits, sales and employment (McKenzie and Woodruff 2012) so program design should involve careful piloting and testing.

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<sup>22</sup> The average household remuneration per employee for Dalits was Rs. 155 while the corresponding figure for Hill origins were Rs. 314.

There is considerable debate among policymakers on the best approach in provision of business training. Market based solutions, which is typical for “business development services” (BDS), usually charge a fee for the training which is to cover the cost of the program. This is sometimes called a “commitment fee” under the assumption that people not willing to pay a nominal price for attending the training are not likely to benefit much from the program. This may, however, not be the optimal approach for training of microentrepreneurs since the more inexperienced of them may not be able to assess the likely benefit from participating in this training. If that is the case, then it could be that those for whom the impact will be highest may be least likely to pay the fee and join the program. This is supported by Karlan and Valdivia (2011) who find that the largest impact of business training for entrepreneurs that initially expressed the least interest in such training.

Few of those who have business only as their livelihood strategy report knowledge and skills as the main obstacle for doing business and they typically run larger businesses than those with other livelihood groups. Our data shows that the value added for the business-only group is more than 80 percent higher than the value added of those that combine business with other activities. The implications could be that most of the entrepreneurs in the business-only group would require different support than the others – perhaps larger loans on terms suited to the business cycle and relatively more advanced training that could for example include basic business practices like keeping records of transactions, separating household and business finances, feasibility assessments of product ideas, profit calculations, marketing and inventory monitoring to assess what are the most sold goods. Such practices are seldom implemented even in more advanced microbusinesses (McKenzie and Woodruff 2012).

Moreover, access to capital is important to all caste groups and all livelihood strategies. However, potential investors often have limited markets in these villages since people produce their own food, and limit their purchases to small amounts of readymade food, some transport and a few services while reserving larger purchases for visits to towns or cities. They consume most of their income, so savings and thus investments are low and the local demand will be stable and markets are not growing much without any investments from the outside or other inflow of resources. Hence, interventions to support savings to increase the capital stock of the village economy seem to be the most beneficial starting point to trigger investments.

Through our qualitative investigation we also noted that entrepreneurial talent and desire to grow the business is likely to matter for the success of their firm performance. It is important to note that the implication is not necessarily that business development programs should be targeted towards this group. On the contrary, our discussions with the respondents indicate that skill training, microcredit and other types of support can help poor people secure a livelihood in poor areas even for those without much entrepreneurial talent. In line with several others (see Nicheter and Goldmark 2009 for an overview) the anecdotes from qualitative interviews indicated that that there could be relatively high starting and closing rate of micro businesses in these villages. The most important reason for this pattern seems to be that many entrepreneurs often test out their business ideas to see if it is viable. If not, they close down the business in order to explore other opportunities. Some of the reasons for closure can be attributed to a functioning market – the entrepreneur was not able to supply what was demanded at the market rate. Other reasons lies outside the control of the entrepreneur – our qualitative interviews revealed shocks like illness, loss of capital and disappearance of customers (which happened when nearby factories closed down). One policy issue arising from this is that the provision of adequate insurance may contribute to lower closure rates.

It is likely that high risk deters potential entrepreneurs from engaging in highly profitable activities due to lack of insurance, and this could be an opportunity for the microfinance industry. The problems here, as with all insurance, are moral hazard and adverse selection. It is difficult for the insurance company to prevent and detect irresponsible behavior that increases the likelihood that the insurance will be paid out, and the insurance could attract only those who have a high probability of failing.

However, with joint responsibility in a group where each insured individual have to monitor each other's behavior to ensure continued insurance, similar to group lending in microfinance schemes, this problem could be mitigated. Moreover, with repeated contracts for such groups, it would be possible to detect groups that repeatedly perform poorly and prevent these from further participation. It is essential for the sustainability of the insurance scheme that people only get support in case of non self-inflicted bad outcomes, and that careful testing is conducted before any conclusions are drawn.

Another important issue concerns targeting of business training, i.e., who should be eligible for participation. The research literature on business training suggests two distinct approaches. The first is to have a broad coverage among entrepreneurs and potential entrepreneurs to also capture those who are not aware of the benefits of business training. The second approach attempts to target the entrepreneurs with the highest probability of success by introducing business plan competitions. In order to single out those with highest entrepreneurial potential, one could implement several rounds of training where only those with the best test scores will be eligible for further training. TechnoServe, a NGO that has conducted such competitions since 2002, start with a public announcement of the competition and accept applications from all that is interested. Then the most promising applicants are selected and receive entrepreneurial training, and must subsequently submit a proposal for a formal business plan. This plan is then reviewed, and the most promising candidates are then given an additional round of training before they must submit the final business plan. The top score business plans then win the competition and the entrepreneurs get a prize that is to be invested in their business (see Klinger and Schundeln 2011 for further details).

However, in our setting, the two approaches clearly have complimentary elements. One could for example start with a broad, simple and accessible training program suited for people with low literacy and numeracy skills, and then let the participants compete in a second round without excluding anyone from further participation. In that way one would be able to stimulate those who opt for microbusiness as a means of survival, and be able to support the entrepreneurs with the larger potential for growth. Finally, it is usually more efficient to draw on existing organizations in the intervention area with experience in supporting microbusiness compared to setting up new institutions.

## 6. Policy recommendations

Our findings provide recommendations on the priorities for the Government in order to stimulate microbusiness. Careful approaches to reduce all types of segmentation, most importantly caste segmentation, are likely to have a positive economic effect if labor and capital mobility across groups are improved. Direct policy measures would be different types of affirmative action in education, the labor market, in the credit market, in training programs and in governance structures related to the business community. Programs to stimulate business interaction between socioeconomic groups could be a viable route for this purpose. Such programs could be focused on supporting the microbusiness community like establishing business councils, arranging exhibitions, networking events and other types of formal platforms for interaction, and then ensure the participation from all socioeconomic group to promote business transactions across castes.

The findings also suggest what should be government priorities for improving the investment climate in the microbusiness segment. All groups apart from those who run larger microbusinesses highlight lack of knowledge and skills and access to capital as the most important obstacles for doing business. Given the high illiteracy rate among the poor in these areas, such programs need to be designed to accommodate their level of initial human capital. Moreover, our results also indicate that for improving the investment climate for microbusiness, the government need not focus on obstacles relating to government regulation, informal or formal taxes, difficulties with labor, physical threats, unavailability of fuel and transport related issues.

Finally, it is likely that risks deter potential entrepreneurs from investing and expanding their microbusiness. However, more research is needed to assess how insurance mechanisms could lower the risk of doing microbusiness, and the viability of such arrangements. A starting point could be to do an impact evaluation of a small insurance pilot targeted at a sub-segment of microbusiness where there are high risks of loss of capital due to factors outside of the entrepreneurs' control.

## Annex 1 Main problems when doing business

All 291 respondents were asked “What is the biggest problem for doing business today” in an open ended question and multiple answers were allowed for each respondent.

Problems	Number of respondents
Lack of capital	184
Lack of knowledge & skill/training	144
Poor road quality	39
High interest rate	27
Banda/strike	27
Electricity	19
Easy loan	18
Lack of information for loan	17
No confidence	15
Few customers	13
Goods on credit	12
Low purchasing power	11
High competition	10
Lack of self confidence	9
Difficult to get loan	9
No idea	8
Landless	8
Cost high & product price in low	8
Security problem	4
Lack of market stalls	3
Transportation problem	3
Political instability	3
Very poor	2
Irrigation problem	2
Not any significant problem	1
Short time for loan repayment	1
Lack of labour for work	1
Youth migration	1
Lack of Education	1
Lack of willingness to work	1
Family constraint	1
Bird flu threat	1
Lack of fuel/firewood	1

## Annex 2 Obstacles for doing business, business sample

Distinguishing between those currently running a business or who ran a business previously and those who never ran any business confirms the broad consensus on capital constraints, knowledge and skills, high interest rates and unreliable electricity as important challenges for doing business. Table 10 shows that almost two out of three business owners indicate that these four issues are important or very important. However, a statistically significantly lower share of those running a business indicate that loans and knowledge are in this category as compared to those who never had any business experience – while there is no significant difference when it comes to high interest rates and electricity. Similar to the combined samples, business owners also rank capital constraints and lack of knowledge as the main obstacles for doing business and a much lower share consider any of the other challenges to be the main hinder for doing business.

**Table 10. Self-reported obstacles for doing business: respondents who own a business, both samples (n=152).**

	Main obstacle	Important or very important	Not important or little importance	Not relevant
Unable to get bank loan	n.a.	62%	37%	1%
Lack of capital	64%	n.a.	n.a.	n.a.
Lack of knowledge	39%	65%	24%	11%
Poor road quality	16%	34%	34%	32%
Interest rate is too high	12%	63%	36%	1%
Unreliable electricity	9%	61%	26%	13%
Banda/strike	13%	n.a.	n.a.	n.a.
Few customers	6%	20%	79%	1%
High competition	6%	26%	67%	7%

Note: The “Important or very important”, “Not important or some importance” and “Not relevant” sums to 100% for each obstacle.

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Studies of microbusiness in poor countries find high marginal returns to capital but also lack of investments. This paper analyzes how caste-based segmentation in the capital and labor markets can act as obstacles to investment in microbusiness in rural in Nepal and also explain high marginal returns to capital. Using a household survey purposively designed for assessing caste as a barrier to microbusiness growth, we find that segmentation leads to inefficient allocation of entrepreneurial talent, labor and capital. This, in turn, leads to lower wages and smaller and less profitable businesses for low castes (Dalits) and lower economic growth of the local economy. The study covers a range of barriers to doing business and finds that in addition to caste segmentation, access to capital and lack of skills and knowledge are the main constraints to doing microbusiness in the studied areas.