AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Sri Lanka's Rural Non-farm Economy: Removing Constraints to Pro-poor Growth

Songqin Jin, Klaus Deininger and Mona Sur

The World Bank, Washington D.C.

Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Providence, Rhode Island, July 24-27, 2005

Copyright 2005 by Songqing Jin, Klaus Deininger and Mona Sur. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Sri Lanka's Rural Non-farm Economy: Removing Constraints to Pro-poor Growth

Abstract

We use a survey of small rural enterprises from Sri Lanka to demonstrate quantitatively the economic importance of this sector and to identify participants' characteristics and obstacles to the sector's expansion and productivity. Value added in the rural non-farm sector is estimated to amount to 80% of agricultural GDP and mean incomes for those having a rural enterprise to be about double of those who do not. Barriers to entry appear to be low and the impact of non-farm enterprise development on inequality modest and temporary, implying the potential for the sector to make a significant contribution to growth and poverty reduction. At the same time, infrastructure constraints (but not regulatory obstacles) pose a formidable barrier to startup of new enterprises and to investment and increased productivity by existing ones. The fact that such constraints emerge as particularly harmful for small enterprises suggests that policies to improve delivery of the public services in question will be important to provide a basis for a flourishing rural non-farm sector which in turn will have an important role for poverty reduction.

1. Introduction

A key characteristic of developed economies is that, as a result of a more diversified and developed economy, their share of agriculture in GDP is much lower than in developing ones. Ways to bring about this economic transformation and the associated transfer of labor in a manner consistent with broad objectives have been of interest to development economics. Theories of the transition, and of policies to manage it, have been critical in advancing our understanding of the development process. Initially, the discussion was framed in two-sector models (Fei and Ranis 1969) and a simple vent for surplus theory of agricultural development. Awareness of spatial distinctions between rural and urban sectors gave rise to models of migration (Todaro 1969, Harris and Todaro 1970) which subsequently evolved into a more elaborate consideration of household-level decision-making that incorporates, among others, risk, non-convexities, and fixed setup costs (Singh *et al.* 1986). As, in the initial stages of development, most of the economic actors are farm households, empirical analysis of their behavior using household-level data has helped to test and refine the predictions from such models, leading to insights of great policy relevance.

Development economists also realize that firms in the formal sector of developing economies are important economic actors in their own right, the neglect of which can lead to serious bias. To understand the impact of specific policies on firm behavior and productivity, the World Bank launched a program to collect firm-level data on the "investment climate" that has covered more than 40 countries.[1] Firm-level data have been found very useful to quantify the economic importance of such firms, identify constraints to their development, and put these into broader perspective (Mazumdar 2003, Dollar *et al.* 2004).

The universe of largely informal firms in rural areas has been completely absent from this type of analysis. This is unfortunate because there is now broad recognition on the importance of access to non-agricultural income sources as a pathway out of poverty (de Janvry and Sadoulet 2000). As a consequence of this lack of attention, and the almost complete reliance of the literature on household-based samples, we know very little about the nature and size distribution of rural firms, the constraints they have to overcome in order to expand, their impact on the broader rural economy, and about policies that could spur the development of this sector. To demonstrate that a focus on the rural enterprise sector can yield policy-relevant results, and to illustrate the methodological issues to be taken care of in doing so, this paper uses a survey of rural enterprises in Sri Lanka, the first in a series of pilots undertaken by the World Bank to more specifically target the business environment in rural areas. In doing so, we are guided by three key questions that have not yet been resolved conclusively in the existing literature:

[1] The investment climate project's website at http://iresearch.worldbank.org/ics/jsp/index.jsp provides an up to date list of the countries involved and access to the data.

How big is the economic contribution of the rural non-farm sector? Although the literature demonstrates that non-farm sources make an important contribution to rural households' income portfolio (Haggblade *et al.* 1989, Reardon 2000, Reardon *et al.* 2001, Barrett *et al.* 2001, Lanjouw and Lanjouw 2001, Ellis and Freeman 2004), the economic importance of the rural non-farm sector could be even larger to the extent that household surveys leave out a potentially large segment of enterprises. Use of a firm-based sample allows us to avoid this bias and provide a more precise estimate not only of the size of the sector but also the potential contribution to poverty reduction and the extent to which there are wealth or other barriers to becoming a rural entrepreneur.

How does non-farm development affect inequality? Even though it is accepted that access to non-farm income can offer a route out of poverty, a large literature suggests that, largely because poor households may be pushed into non-farm occupations as a "refuge of poverty" rather than enter the sector voluntarily, expansion of the rural non-farm sector may lead to higher levels of inequality (Kung and Lee 2001, Barrett *et al.* 2001, Canagarajah *et al.* 2001, Lanjouw 2001, Adams 2002). Micro data on rural enterprises, together with listing information on aggregate numbers, allow us to explore not only the impact of an enterprise on its owner but also the relationship between non-farm enterprise development and aggregate levels of inequality by exploring Kuznets' hypothesis (Kuznets 1955) at the local level.

What policies can increase productivity and growth of the rural non-farm economy? The main goal of surveys of the investment climate in the formal sector has been to identify policies constraining the sector's development, to quantify the magnitude of their impact, and to compare with other countries to illustrate how such policies can affect competitiveness. Even though our ability to compare with other countries is limited, the rather large sample and the inclusion of households without enterprises allows us to explore the impact of household endowments, regulatory interventions, and access to infrastructure on startup of enterprises and growth as well as productivity of the non-farm sector. In addition, we are able to test statistically whether some of these constraints are particularly harmful for specific firm size classes.

In addition to allowing us to demonstrate the general methodology, the importance of a non-farm growth that is equitably distributed across regions makes Sri Lanka an appropriate setting to analyze these issues. Past growth of the country's manufacturing sector has been heavily concentrated geographically and, according to most observers, been significantly below potential given the island's excellent human capital base. Inability of the formal sector to absorb additions to the labor force resulted in widespread (youth) unemployment that is regularly quoted as a key contributor to the ethnic conflicts ravaging the country. A more dynamic informal sector, especially in rural areas where the majority of the country's poor continue to live, could not only make a significant contribution to reducing poverty but also help to contain the conflict potential and make peaceful development more sustainable.

The paper is structured as follows: Section two provides a review of the literature on the rural and urban "investment climate" and the challenges confronted in the case of Sri Lanka. Section three discusses the methodology underlying the survey and the estimation strategy and then presents the data used for estimation and descriptive statistics. Section four presents empirical results on startup of new and investment by existing enterprises, total factor productivity, and the possible equity impact of increased development of the rural non-farm sector. Section five concludes with a number of policy implications.

2. Motivation, background, and methodology

To set the stage, we describe results from existing studies of the general "investment climate", the factors affecting this set of variables in rural areas, and some of the methodological lessons that can be drawn from efforts at its measurement. We emphasize advantages from replacing cross-country with more disaggregated evidence from firm-based surveys and note that, despite an emerging consensus on the importance of the non-farm sector in rural areas, analysis has thus far been almost exclusively in terms of households rather than enterprises and discuss ways in which this may bias results and policy conclusions that are based on them. This is complemented by a description of the characteristics that make Sri Lanka particularly appropriate for an analysis of the sort envisaged here.

2.1 Exploring determinants of the "investment climate"

Capital accumulation -much of it by small private entrepreneurs- is a precondition for economic growth. Policy-makers have long been aware that the ability (or the cost) of enforcing contracts, the strength of property rights and the associated risk of losing assets due to social unrest or expropriation, and the availability of public goods, will all have an important impact on such decisions. This implies that, by providing the right policy environment and delivering public goods in an efficient and affordable way, governments will have an important role to support private enterprises and allow them to compete internationally. These factors have often been lumped together under the broad rubric of "investment climate". Efforts to quantify the impact of these factors on economic outcomes are of relatively recent vintage, following either a cross-country or a micro level approach.

The cross-country approach started with measures of governance and contract enforcement based on expert opinion to establish the impact of these factors on aggregate growth and investment (Knack and Keefer 1995, Hall and Jones 1999), an approach that has been refined continuously to improve comparability (Zoido-Lobaton and Kaufmann 2002, Claessens and Laeven 2003). Use of different data sources points towards a strong causal relationship between good governance, in terms of bureaucratic accountability and effective delivery of public goods, and sustainable economic growth. More recently, this has been complemented by efforts to measure the time and resources needed to complete standard processes such as registering a company, collecting a bounced check, acquiring a piece of real estate, in a

clearly defined case study rather than a subjective assessment the comparability of which is likely to be limited (World Bank 2005). This can provide a basis for international comparison at low cost, and, if it will be possible to objectively assess and scale changes over time, can also form a basis for intertemporal comparison. Even if these challenges can be overcome, cross-country approaches face limits in the extent to which impacts can be disaggregated across sectors of the economy or segments of the population, the ability to which one can distinguish between initial conditions and the impact of specific policies, and with respect to data quality. Thus, despite providing interesting insights in the aggregate, recent studies have pointed out the limitations and argued that micro-data at the firm level provide a much richer source of information (Dollar *et al.* 2004, Bastos and Nasir 2004).

Although more costly, approaches based on surveys of existing firms, especially the RPED project (Fafchamps *et al.* 2000, Gunning and Mengistae 2001, Devarajan *et al.* 2003), allow to at least partly deal with such constraints and to identify determinants of investment as well as other entrepreneurial decisions in more detail. This has given rise to "investment climate" surveys, primarily focused on the formal manufacturing sector, aiming to collect information on regulation, administrative barriers, and governance that have thus far been carried out in about 50 countries. Recent studies have started to pool firm-level data from a number of countries to obtain more robust conclusions across countries (Beck *et al.* 2004). Unlike the macro studies which focus on a limited number of issues which have to be assumed to be constant within a country, micro studies are able to consider a larger set of possible constraints and to exploit the variation in the investment climate across regions, industry types, and size classes within a country.. Recent studies have also started to quantify the impact of the investment climate on firm performance and productivity either in a global and a country context (Burnside and Dollar 2000, Gunning and Mengistae 2001, Limao and Venables 2001, Reinikka and Svensson 2002, Wallsten *et al.* 2003, Dollar *et al.* 2004, Bastos and Nasir 2004). However, given that the surveys used to provide the empirical basis for these studies focus on large enterprises in the formal (manufacturing) sector, the impact of such enterprise development on poverty will be only indirect, through employment generation. In countries where the informal sector is large or unemployment high, the scope for formal sector development to improve the lives of the majority of the rural poor is likely to be, at least in the short to medium term, quite limited.

2.2 The importance of rural enterprises

Between two thirds and three quarters of the estimated 1.2 billion people living below the one dollar a day poverty line are estimated to live in rural areas (World Bank 2002). While this implies that improved agricultural productivity can make an important contribution to increasing their welfare (Thirtle *et al.* 2003), it is also increasingly recognized that the poor increasingly draw on a diversified income portfolio

to which the rural non-farm sector makes an increasingly important contribution (Haggblade *et al.* 1989, Reardon 2000, Reardon *et al.* 2001, Barrett *et al.* 2001, Lanjouw and Lanjouw 2001, Ellis and Freeman 2004). The large majority of incomes in this sector will come from micro-enterprises many of whom operate in the informal sector, defined by ILO in terms of formal registration or, where data on this variable are unavailable, as the universe of enterprises with fewer than 5 employees (Hussmanns and Mehran 2003). The economic importance of the informal (or extralegal) sector in a wide range of settings (de Soto 2000) is now well recognized. Even though its eventual regularization may be a desirable long-term goal, informal enterprises will be significant part of any economy (Ihrig and Moe 2004) and should not be considered as inferior (Maloney 2004).

Recognition of the importance of the informal sector has, however, not been backed by in-depth study. In fact, most of the information on the rural informal sector is derived from household samples which can provide information on the contribution of non-farm income sources to household welfare but may yield biased estimates of the aggregate size, the dynamics, and constraints facing the informal sector, especially if significant shares of the enterprises are not household-based. To remedy this shortcoming, the World Bank has recently started a program of investment climate surveys that focus on rural enterprises including those operating in the informal sector. Contrary to traditional household-based surveys, these start out by drawing a sample that is representative of the universe of rural enterprises. In doing so, the surveys not only allow an assessment of the extent to which household-based information may be biased, but they also aim to improve understanding of the scope of the rural informal sector in reducing poverty, and identify regulatory policies, infrastructure and other public services more conducive to rural entrepreneurship enterprise productivity and growth of the sector. Before discussing the specific approach and results for the case of Sri Lanka, we describe some of the characteristics that render this country of interest.

2.3 Specific challenges in the Sri Lankan context

There are three characteristics of Sri Lanka's economy that make the country of interest for study of the issue at hand, namely (i) a relatively disappointing economic performance through most of the post-independence period, including a rather muted response to far-reaching measures of economic liberalization adopted during the more recent past; (ii) the fact that, despite a high level of economic diversification, the majority of the population remains rural based and poverty is concentrated in rural areas; and (iii) an urgent need for regionally diversified private sector activity and reconstruction to provide the economic foundations for a sustained peace and equitable development.

In the 1960s, Sri Lanka was characterized by a level of per capita income much superior to that of Korea and Thailand and close to that of Malaysia, and Taiwan, in addition to enviable indicators of human

development. This seemed to point towards a potential for outstanding economic performance. The fact that per capita GDP now amounts to less than half that of Thailand and an even smaller share of Malaysia's or Korea's, indicates that this potential has not been realized. The country's failure to live up to its promise can be attributed, in part, to its civil conflict which is, however, both a cause and a consequence of disappointing economic performance. Domestic structural rigidities continue to constrain economic growth. Factor markets in labor, finance and to a lesser extent land are not sufficiently well developed or flexible enough to foster more rapid growth. High fiscal deficits have also squeezed critical spending on social services and infrastructure. Consequently, productivity of many enterprises remains comparatively low, despite far-reaching liberalization of the economy and the fact that Sri Lanka is one of the most open economies in South Asia (Chandrasiri 2003). Identifying constraints to better performance will be critical for the country to catch up and build on its strong human resource base.

A second reason is that, even though the share of agriculture in GDP (about 20%) has long been eclipsed by services (53%) and industry (27%), 85% of the population live in rural areas where the large majority of the country's poor is concentrated. As only 32% of the labor force derive their main sustenance from agriculture, expansion of the non-farm sector in rural areas will be critical to generate employment and reduce poverty. While indications suggest that Sri Lanka's SME sector makes a positive contribution in both respects, (Osmani and Chandrasiri 2002), data limitations have so far made it impossible to assess whether this potential is fully realized or whether specific policy initiatives could lead to gains on both fronts.

A third reason for focusing on the rural non-farm sector in Sri Lanka is that, in view of the intimate links between economic stagnation and the country's twin political and ethnic conflicts (Abeyratne 2004), renewed economic growth is likely to be required as a basis to sustain peace . As formal sector activity is highly concentrated in the West of the country and may not be able to generate the needed employment in the short term, the rural non-farm enterprise sector is required to jump in, especially in order to provide a basis for development of the war-torn North and East of the country.

3. Data and framework for estimation

This section describes data sources, uses them to provide a descriptive account of rural enterprises in Sri Lanka, and discusses the framework for econometric estimation. We note that, even though most are very small, the estimated value added in the rural non-farm sector amounts to 80% of the contribution by agriculture. Households who run non-farm enterprises have an income that is more than 50% higher than that obtained by those without, implying that it will be of considerable interest to explore whether barriers to entry into the sector could constrain its growth. Also, the fact that current entrepreneurs identified a wide range of constraints justifies investigation of the impact which such constraints have on economic

performance. We thus discuss the framework to estimate the determinants of enterprise startup and expansion, the impact of constraints on enterprises' productive performance, and the extent to which development of the non-farm enterprise sector may contribute to increased inequality at the local level.

3.1 Data sources and descriptive evidence

To provide insight into the rural non-farm enterprise sector in Sri Lanka, a nationally representative survey of 1327 rural enterprises and 1046 households was undertaken in Sri Lanka between December 2003 and May 2004 jointly by the Asian Development Bank and the World Bank.[2] This survey complements an urban investment climate survey administered during a similar time frame that focused on large manufacturing enterprises, tourism and the information technology sectors. By focusing on rural enterprises including those operating in the informal sector and including enterprises located beyond major urban centers, the survey overcomes the regional or "urban" bias inherent in the traditional investment climate assessments.[3] Also, inclusion of households without an enterprise facilitates a better understanding of factors determining enterprise startup. To facilitate analysis, a number of additions to the standard enterprise questionnaire were made (Vijverberg 2003; Vijverberg and Mead 2000). Questions for service and trading establishments were added to cater for firms beyond the manufacturing sector. Retrospective questions were added to allow comparison between current conditions and those encountered in 2000. Questions on constraints to operation of the enterprises were elicited in greater detail from a long list of issues (including public utilities, transportation, financial infrastructure, marketing, registration, licenses and permits, taxation, labor, access to land, non-agricultural trade policy, environmental policy, and governance) and respondents were also asked to rank the four most important overall constraints to enterprise development. The resulting descriptive statistics provide interesting evidence on the characteristics of rural enterprises and the contribution of the sector to the national economy, the differences between households with and without an enterprise, and the constraints to expansion perceived by entrepreneurs.

Characteristics of informal enterprises

[2] The sample was chosen as follows: In the first stage, 150 *Grama Niladari* (GNs) divisions were selected from a total of about 12,000 rural GNs with probability proportional to the number of housing units based on the 2002 population census. In each of the selected GNs, a census of non-farm enterprises and household not operating any non-farm enterprises was undertaken. . Enterprises were then stratified into those with less than 3 and 3 or more workers and larger enterprise were over sampled. For each of these strata, 5 enterprises were selected for interviews through stratified random sampling. 4 households not operating an enterprise were also selected in each GN. In addition to administering one community questionnaire per GN, each enterprise was administered an enterprise questionnaire and, if it was household-based, a household schedule was also administered. In each of the selected GNs, 4 households not operating non-farm enterprises were also administered the household questionnaire. After eliminating non-usable responses, this yielded a total of 1327 enterprise questionnaires and 1046 household schedule from a total of 146 communities across Sri Lanka, including the North East. For a complete description of the sample refer to Asian Development Bank and World Bank, 2005.

[3] In fact, by being the fist in decades covering the country's North and East part of which is not under government control, the survey provides interesting insights concerning differences in conditions for enterprise development and living standards.

Value added and employment generation: Table 1 illustrates characteristics of enterprises in the rural informal sector for the whole country and by region. It shows that rural non-farm enterprises tend to be small; the average number of workers including household members is 2.4 and almost 80% employ less than three workers and only 6% have more than five workers. This size distribution is similar in most regions with the exception of the North and East where enterprise sizes are, with 1.73 workers, much smaller and 88% of enterprises employ less than three full time employees. However, their small size notwithstanding, use of the sampling weights from the survey demonstrates the macroeconomic significance of the rural non-farm economy, in line with earlier evidence (World Bank 2003). By providing employment to about 1.5 million[4] out of a national total of 6.5 million employees (Sri Lanka Department of Census and Statistics 2002), self employment in the rural non-farm sector accounts for almost one quarter of national employment or about 40% of employment in rural areas. With an average value added per enterprise of about Rs 300,000 (US$1 equals about Rs 100), this implies that the total value added in the rural non-farm sector amounts to about 80% of Sri Lanka's agricultural GDP.

Sectoral distribution and age: The rural non-farm sector is quite diversified; only 41% of all enterprises are engaged in production (manufacturing related activities) whereas 21% engage in services and 38% in trading. This sectoral distribution is quite similar in all of the country's main regions with the exception of the North and East where the size of the service sector is much smaller (12% of the total) and enterprises engaged in production dominate accounting for 60% of all rural enterprises. While the mean age of non-farm enterprises is slightly more than 9 years, more than half the firms in the sample are under 5 years of age. The age profile, with 22% younger than 2 years and 29% between 2 and 5 years old suggests a high rate of new startups as well as failures. This profile is similar across regions, again with the exception of the North and East where, with only 13% of the sample less than 2 years old, the rate of startups is much lower. Disaggregating also reveals that enterprises that are older and/or are in the production sector tend to be slightly bigger than the rest.

Income, assets and investment: Average total value added varies between Rs 673,000 in the North and East and Rs 506,900 in the South. Average value added per worker, a measure of partial productivity, is Rs 100,000 and more or less uniform across regions with the exception of the North and East where the value added per worker is only 33,500. The mean value of enterprise assets amounts to almost Rs 600,000, with large variation across regions and sectors; the value of assets is highest in South, Uva and Sabaragamuwa and lowest in the North and East regions. We also note that about 27% of the sample made new net investments. At 43%, the share of new investments was highest in the North West and North Central provinces. The average investment by those investing amounted to Rs. 86,700 although

[4] Use of sample weights provides an estimate of about 620,000 for the total number of rural non-farm enterprises in Sri Lanka. Multiplying this with the average number of employees per enterprise (2.4 as per table 2) yields an estimate of 1.49 million employed in the rural non-farm sector.

there was considerable variation across regions ranging from Rs 22,500 for the North and East to Rs 130,300 in the South.

Formalization and infrastructure access: A high share of enterprises in the sample (53%) are formally registered, something that may be attributed to the fact that requirements, both in terms of time (less than 20 days on average) and resources are low compared to other countries.[5] We also note that 59% of enterprises are operated as a stand-alone unit that is separate from the home of the owner or manager. Even though income generated by them may show up with their owners, such enterprises are often not covered adequately in household-based surveys.[6] The fact that the share of such enterprises varies considerably across sectors, from 80% in service and trade to 31% in production, suggests that greater attention to this segment of the econmy would be warranted.

Incidence of enterprise ownership and its relation to household welfare

Table 2 uses the fact that our sample contains an almost equal number of households with and without an own enterprises to perform comparisons between these two groups to identify initial hypotheses on the possible impact of enterprise ownership (by comparing incomes) as well as determinants of starting up an enterprise (by looking at differences in household and community characteristics). Doing so suggests that ownership of a non-farm enterprise is associated with a significantly higher level of household welfare; households operating a non-farm enterprise have total incomes that are 50% higher than those who do not and the difference is statistically significant at the 1% level. Average earnings from non-farm enterprises for participants (Rs 86,087) alone are almost equal to the total income of an average household without an enterprise (Rs 89,113). This provides strong evidence against the argument that the rural non-farm sector would act as a refuge of poverty for those lacking opportunities elsewhere. To the contrary, it appears that, in Sri Lanka, the informal non-farm sector is a dynamic part of the rural economy. Whether or not it makes a contribution to poverty reduction will depend on the presence of barriers to entry to which we will return below.

It is also of interest that, in the case of Sri Lanka, access to non-agricultural self-employment does not appear to reduce household participation in agricultural activities. In fact, there is no statistically significant difference in income from agriculture between the two groups. While this may reflect household efforts to diversify risks in the presence of ill-functioning credit markets, the fact that most

[5] For sole proprietorships, all that is required is to register the name of the business under the Business Name Ordinance 1918, something that needs to be completed once for the lifetime of the enterprise and can now be done at the provincial level at a modest fee ranging from US $ 25 to $ 50. Even in urban areas, the share of registered enterprises is relatively high and 74 percent of firms reported that obtaining business licenses and operating permits was not a problem compared to 41.3 percent, 37.3 percent, and 51.2 percent in China, India, and Philippines, respectively.

[6] A recent review of the information non enterprises in four of the better LSMS surveys (Ghana, Guatemala, Kyrgiz Republic, Vietnam) suggests that even though proprietorships and partnerships in wich the housekols has a stake should be captured in principle, this is often not the case. Also, significant shortcomings in terms of data quality in almost all of these surveys reduce the ability to make inferences and the confidence in the representativeness of the results (Vijverberg, 2005).

households have access to informal credit substantially reduces the plausibility of such an explanation. Instead, it is more likely that this phenomenon reflects imperfections in other markets, in particular the multiple restrictions on land use and transfers in Sri Lanka (Abt Associates 1999). If, as one would expect, agricultural ability differs across households and gains from specialization can be obtained at least to the point where family labor is fully occupied, improving the performance of land rental markets could further improve the performance of the rural economy. Further study of this subject, drawing on data that are more suitable than our survey, would be highly desirable. Households without self-employment rely more on wage earnings and transfer income including remittances, pensions, and other government programs (average wage earnings and transfer incomes of households without enterprises are Rs 50,000 and Rs 14,200, respectively, as compared to Rs 30,000 and Rs 9,000, respectively, for enterprise households) .

Comparison of the other data in table 2 points towards modest differences in initial endowments between households that are self-employed in rural non-farm activities and those that are not: The former are slightly larger, (4.5 compared to 4.1 members) with their household head being somewhat more educated (7.8 as compared to 7.0 years of completed schooling), and a higher share of them having had parents who operated a non-farm enterprise themselves. Surprisingly, the capacity to borrow from informal credit sources is not significantly different between households with and without an enterprise. While data also point towards higher values of durable assets (including house and consumer durables but excluding enterprise assets) for self-employed households (Rs. 591,000 as compared to Rs. 439,000), it is unclear whether this is a pre-existing difference or a result of a process of accumulation over the lifetime of the enterprise, something to be explored in more detail econometrically.

Somewhat surprisingly, descriptive data do not suggest that households with enterprises enjoy better access to infrastructure or informal credit markets. Even though it takes a slightly shorter time to reach the next commercial center or bank for self-employed as compared to non-enterprise households the differences are not statistically significant.

Constraints to enterprise establishment and expansion

In view of the economic benefits rural households can derive from participating in the non-farm sector, identifying factors to promote its development will have far-reaching implications for economic performance and poverty reduction. To do so, we report the most important constraints to entrepreneurial development as identified by respondents in table 3. Overall, one quarter list electricity as the most important constraint, followed by the cost of credit (12%), lack of market demand (11%,), road access (8%), water supply (7%), access to market information (6%) and road quality (5%). Comparison to the top constraints identified by firms in Sri Lanka's urban manufacturing sector (electricity, policy

uncertainty, macro instability, cost of finance, and labor regulations, in descending order of importance) suggests that regulatory constraints are less of an issue for rural enterprises but also points towards the overriding importance of electricity supply as the most important obstacle in both urban and rural areas.

The presence of strong regional inequalities in access to infrastructure is supported by the differences in the share of people identifying electricity as the most important constraint, only 16% of entrepreneurs in the West and Central region as compared to 31% in the North West and North Central region and 38% in the North and East. A similar gap is observable with respect to road access, which is a problem for only 6% in the West and Central region but 17% in the North and East where, possibly because economic activity is quite localized, road access does not emerge as one of the key constraints. Electricity is more important for production and service (31% and 27%) as compared to trade enterprises (19%) who seem more affected by lack of market demand (16%) and lack of financial infrastructure (14%), two areas that are of less importance for production enterprises (8% and 6%, respectively). Separating firms by age suggests that financial infrastructure, lack of market demand and, to a lesser extent, road access are of greater importance for startups than for older and well-established enterprises. These factors, especially finance and road access, are also perceived as more important constraints by small stand-alone enterprises as compared to larger ones.

3.2 Estimation strategy

This section discusses the approach used to analyze enterprise startup and the impact of enterprise concentration on aggregate inequality, and determinants of enterprise expansion and total factor productivity.

Enterprise startup: In view of descriptive evidence suggesting a positive welfare impact for households operating a rural enterprise, enterprise startup regressions can help explore whether entry barriers might partly or totally cancel out what could be a rather favorable equity impact of enterprise ownership. It could also shed light on the types of policies that would potentially help remove obstacles that stand in the way of would-be entrepreneurs. Letting i index households and j communities (GNs), the equation to be estimated is

$$Z_i = \alpha_0 + \alpha_1 (\mathbf{H}_i) + \alpha_2 (\mathbf{C}_j) + \alpha_3 (\mathbf{IC}_j) + \alpha_4 (D_j) + \varepsilon_i \qquad (1)$$

where Z_i is a dummy variable equaling one if household i started a non-farm enterprise within the year or two years preceding the survey and zero otherwise. Right hand side variables include vectors of households' endowment with physical and human capital ($\mathbf{H}_i$), local endowments of infrastructure and the regulatory environment for starting up an enterprise ($\mathbf{C}_j$), as well as constraints to enterprise operation as stated by local entrepreneurs ($\mathbf{IC}_j$). α_1 to α_4 are coefficient vectors to be estimated, and ε_i is an *iid* error term. Specifically , $\mathbf{H}_i$ includes household size, initial asset and land endowments, the household head's

age and education, a dummy variable for whether the head's parents operated a non-farm enterprise, and an indicator for the "informal credit line" available to the household, which measures the ability to the household to tap informal credit markets (such as borrowings from friends and family members). The variables in $\boldsymbol{C}_j$ include the distance to the nearest bank, the number of days required to register an enterprise, a dummy for whether agriculture constitutes the main source of income in the community, and the share of paddy land in total cultivated land. $\boldsymbol{IC}_j$ is a vector of dummies for the most important overall constraints to non-farm enterprise development in the community as identified by entrepreneurs.[7] Finally, D_j denotes provincial dummies included to control unobservable factors at this level.

The sample to be used comprises all households in a GN, including those without enterprises and we can use information on the total number of households and enterprises in the GN obtained in the process of listing to derive the corresponding weights. Comparing the magnitude of the estimated coefficients α will allow an assessment of the relative importance of endowments as compared to policy variables, with clear policy implications.

Enterprise density and inequality: The most common way for using household-based data to make inferences on the impact of non-farm income on inequality has been to decompose income components by source. While appropriate at the household level, doing so does not allow accounting for variation in the number of enterprises, which would be needed to make inferences on the possible path of inequality over time. The ideal way to assess this would be to have observations at two points in time that are characterized by marked changes in enterprise activity. In the absence of such data, we compute for every GN a measure of inequality, I_j, that can be regressed on local enterprise density ED_j in a Kuznets-type regression. *ED* is measured by ratio of the total number of enterprises (including household enterprises and standalone enterprises) to total number of buildings in each GN. Based on the information from the listing practice which categorizes all the buildings in each GN into 3 types of buildings (household without operating any business, standalone enterprise and household-based enterprise), ED_j varies greatly across GNs. ED_j ranges from 0.02 to 0.64 with the mean value at 0.13.

$$I_j = \delta_0 + \delta_1 (ED_j) + \delta_2 (ED_j)^2 + \delta_3 D_j + \eta \qquad (2)$$

This equation, which has been widely used in a cross-country context (Bourguignon and Morrisson 1998), enables an assessment of whether, communities (GNs) with higher levels of entrepreneurial activity are characterized by systematically higher levels of inequality (or vice versa), or whether there is a non-linear relationship between the variables of interest with the caveat that cross-sectional variation should not be

[7] In each community individual enterprises identified the most important overall constraint facing them. Based on responses from enterprises, a community level variable was constructed where the constraint identified by the largest proportion of entrepreneurs as the most important was classified as the most important overall constraint in the community. A dummy variable was constructed for each of the major constraints (such as electricity), which is equal to one if the particular constraint is identified as the most important overall constraint in the community.

equated causality. The variable, ED, is estimated from the census of enterprises and households undertaken as part of the sample design for the survey.

Expansion of existing enterprises Although the impact of policy factors and infrastructure constraints on startup of new ventures is important, new investment by existing firms (indexed by k) is another way for new ideas to be embodied in technology. To explore this and to make a comparison with enterprise startup decisions, we estimate

$$Z_k = \alpha_0 + \alpha_1 (\mathbf{E}_k) + \alpha_2 (\mathbf{IC}_j) + \alpha_3 S_k (\mathbf{IC}_j) + \alpha_4 (D_j) + \varepsilon_k \qquad (3)$$

where Z_k is either a dummy that equals 1 if firm k invested within a given period (probit regressions) or a variable taking the amount of such investment (tobit regressions), $\mathbf{IC}_j$ is a vector of community-level characteristics and constraints as discussed above, $\mathbf{E}_k$ is a vector of enterprise characteristics, and S_k. is a dummy for enterprise size that equals one for enterprises with more than 2 full-time workers and zero otherwise.[8] Sample weights are used throughout. In addition to assessing determinants of net investment in terms of the variables discussed earlier, the coefficients α_2 and α_3 can be used to test statistically whether specific elements of the vector of investment climate constraints $\mathbf{IC}$ affect large and small enterprises equally or whether there are differences based on enterprise size. While most of the variables included in $\mathbf{IC}_j$ have been discussed above, whether or not a firm is registered (an element of the vector $\mathbf{E}_k$) is likely to be endogenous. We use instrumental variables (IV) techniques to account for this. The time requirements for registration are a valid instrument as they affect the likelihood of a firm being registered but are unlikely to indirectly affect investment or production decisions.

Determinants of total factor productivity: A Cobb-Douglas production function can be expressed as :

$$lnY_k = \gamma_0 + \gamma_1 (lnL_k) + \gamma_2 (lnK_k) + \gamma_3 (E_k) + \gamma_4 (D_k) + \mu_k \qquad (4)$$

where Y_k is value added, L_k is the number of workers and K_k the value of fixed assets, E_k a vector of enterprise characteristics such as type and age, and D_k a set of provincial dummies. To the extent that all observable inputs are properly accounted for, the "residual" μ_k can be interpreted as a measure of total factor productivity, i.e. the difference between actual and predicted value added or output (Griliches 1996) for firm k. Regressing μ on the investment climate variables $\mathbf{C}_j$ and $\mathbf{IC}_j$ as defined earlier according to

$$\mu_k = \beta_1 + \beta_2 (C_j) + \beta_3 (ICj) + \beta_4 S_k(ICj) + \eta_k \qquad (5)$$

[8] Splitting the sample along this dimension yields 824 small (enterprises with 2 full time workers) and 503 large enterprises (those with more than two full time workers). In each of the regressions, we also used dummies to differentiate between stand-alone and household based enterprises as well as enterprises who use hired workers and those who relied only on the household's own labor endowment. As these classifications are very similar to each other, results did not differ much from those from the "large-small" distinction. While we refer to them in the discussion, we therefore do not report them separately.

will measure the impact of these variables on total factor productivity, thereby measuring the extent to which investment climate constraints reduce the efficiency of resource use in the economy. We can substitute equation (5) into equation (4) and estimate the impact on TFP in a single equation. Results and interpretation of the coefficients should be exactly the same except that estimate a single equation should be more efficient than estimating two separate equations. The results based on one equation, again using sample weights, are reported although we also estimated two equations separately and obtained almost identical results. Value added is constructed by subtracting expenses on material inputs, charges to utilities, transportation cost and other variable costs from the total sales in the same year. Total sales, material inputs, and utilities (e.g., fuel) are all adjusted for stock change between two continuous years.

4. Econometric evidence

The regressions on determinants of enterprise startup, the link between inequality and enterprise density at the local level, determinants of new investment, and total factor productivity reported below suggest that the local "investment climate" poses significant constraints to economic performance of the informal rural sector. While large firms seem to generally find ways around such constraints, small ones are most affected, suggesting that, even though we find an inverted U-shaped relationship between inequality and the level of informal enterprise development at the local level, infrastructure constraints will hurt the poor disproportionately by reducing the potential for new enterprise startup, making it more difficult for small informal enterprises to be established, to expand, and to compete with others.

4.1 Determinants of enterprise startup

Results from regressions for enterprise startup are presented in table 4 for the last one and two years, respectively (columns 1 and 2). They suggest that the main obstacles to enterprise formation are not pre-existing inequalities but households' access to infrastructure and services. Improving such access appears to have the potential to give a significant boost to entrepreneurial development in rural areas.

While household characteristics are clearly of relevance, they do not appear to be a major constraint to enterprise development; there is some evidence for intergenerational persistence whereby households whose parents had a non-farm business are by between 7 to 10 percentage points more likely to start up a new enterprise of their own, depending on the specification. However, since variables commonly associated with entry barriers (in particular high levels of human and physical capital) are at best of marginal significance, the effect may be transmitted mainly through managerial ability. This interpretation is supported by the fact that the coefficient on the initial land endowment is negative and marginally significant in the second equation. A negative coefficient on the head's age (significant in the second regression), as well as the highly significant and positive coefficient on the number of members of

working age, points towards the importance of life-cycle considerations and the ability to rely on and use family labor as a determinant of enterprise startup. The latter is consistent with the presence of significant labor market rationing reported in the literature (Rama 2003).

Based on the regression results, inability to access financing at reasonable cost appears to constrain not only existing enterprises but also to constitute an obstacle to the establishment of new ones. Distance to banks (in km) at the community level has a very significant negative coefficient while greater ability to access informal sources of credit is positive in both cases and significant in the second equation. For example, households in the North and East region would have a 2% higher probability of starting up a business if the current average distance to bank (2.57 km) were reduced to the distance that households in the West and Central region have to travel to their banks (0.98 km). Although regulatory constraints are not mentioned as a key concern by existing enterprises, the time needed to complete company registration, the only variable which one would expect to affect startups differently from existing enterprises, is indeed significant and negative. If the registration process could be simplified by reducing time taken to complete registration from the current level of 19 days to 4 days, the probability for an average rural household to startup a new enterprise would be 1.5% higher. While our results do not bear out the hypothesis that enterprise growth would be slower in areas where agriculture constitutes the main source of income, there is weak evidence to suggest that the share of paddy in total cultivated area at the community level does have a negative impact on startups.[9]

An important result from the analysis of enterprise startups is the overriding importance of infrastructure constraints as compared to household and other community characteristics. As the reported coefficients equal the marginal impact of eliminating a certain constraint, we note that, in areas where electricity is a major problem, the propensity to start up new enterprises is by 17% lower than where it is not, followed by lack of market demand (9.2%), road access (6.1%), and financial infrastructures (6.0%). The estimated impact of these constraints is quite large: with the annual share of startups between 10 and 11%, eliminating constraints on electricity, to take just one example, would increase the number of startups by about 4.5 percentage points.[10] Being able to deal with all the four major constraints (electricity, road access, market demand and market information) at once would be associated with a rate of enterprise formation that is about 7% higher than what is currently observed.

4.2 Inequality of the local income distribution

[9] As hypothesized, this is likely due to land use restrictions that make it more difficult for banks to accept paddy land as collateral than doing so for other types. As there is evidence that, with current holding sizes paddy is unlikely to provide sufficient income (Weerahewa *et al.* 2002), elimination of these constraints could be doubly beneficial.

[10] The number is obtained based on the calculation: 0.26*0.17=0.045, where 0.26 is the share of enterprises that are constrained by electricity and 0.17 is the coefficient of electricity in the startup regression.

Results from estimating equation (4) for the 147 GNs included in our sample, as reported in table 5 for the Gini as well as the Atkinson index (ε=0.5) of inequality, lead us to reject the hypothesis of a linear relationship between inequality and the level of local enterprise development. The coefficient on inequality in a linear regression while positive is insignificant (columns 1 and 3). At the same time we are unable to reject the possibility of a relationship that takes an inverted U-shape in both cases where inequality is expected to increase from a Gini of 0.31 with no enterprises to 0.39 at 2.75 enterprises per 10 buildings and then decline monotonically thereafter, with a very similar relationship (inequality peaking at 2.67 enterprises per 10 buildings) for the Atkinson index. Existence of a non-linear relationship between enterprise density and the level of inequality can explain the divergent findings on this in the literature as being dependent on the level of development of the local economy where introduction of an activity with higher mean income than agriculture first leads to an increase and then to a decrease in inequality (Kuznets 1955). Even though doing so can have only illustrative value and further exploration based on actual time series data will be needed, it is of interest to draw out the possible consequences of such a relationship for our sample. In the data available, 85% of GNs are in the region of increasing and 15% in the area of decreasing overall inequality. The rate of increase in enterprise density depends on mortality of enterprises on which we do not have reliable information. However assuming that about 50% of the enterprises established in any given year will eventually go out of business implies that in the average village, inequality will start decreasing after a little more than 10 years, clearly much less than assumed in the original Kuznets hypothesis at the economy-wide level. Moreover, even if the distribution of income widens intermittently, an aggregate increase could, of course, ensure that everybody will still be better off.

4.3 Determinants of new investment

Results from probit regressions[11] for investment are reported in table 6, both with and without instrumental variables for registration which does not seem to have a significant impact in either regression. We note that new investment decreases in the value of pre-existing assets, though the elasticity of about 3% is relatively low. Older enterprises (5-10 and >10 years of age) are less likely to invest than those that have started more recently. At the same time, enterprises with more workers are more likely to invest; doubling the number of workers would lead to a 6-7 percentage point increase in the probability of new investment. While higher levels of informal credit access and experience of the manager increase the propensity to invest, the magnitudes involved are rather modest.

Even though most of the perceived constraints (aggregated to the community level) lead to significantly lower new investment, the magnitudes involved are different from what had been observed for startup.

[11] Tobit results, which are very similar to the ones reported here, are not reported and available from the authors upon request.

The point estimate for electricity, the most important constraint is negative but insignificant and its magnitude (0.14) is small compared to that of the coefficients on road access (-0.41) and financial infrastructure (-0.38), both of which are significant at 1%. As market information and lack of market demand are insignificant (column 1), expansion by enterprises who managed to overcome initial constraints to establishment seems to be most affected by physical and financial infrastructure.

In fact, the augmented model (column 2 and 4) suggests that small or household-based firms often suffer disproportionately from infrastructure-related constraints at the local level. The negative, though insignificant, coefficient on financial infrastructure interacted with enterprise size implies that investment by large enterprises may suffer at least as much as that by small ones from absence of financial institutions. The opposite is true for road access and lack of electricity. Road access is less significant for the large enterprises compared to the small ones (only 10% versus 1%). Similarly, for electricity, the negative impact (10%) ascertained for small enterprises disappear as far as large ones are concerned.
Overall, and in line with evidence that improving access to finance alone is unlikely to be a panacea (Shaw 2004), the results indicate that gains from removal of infrastructure constraints can be quite large. Removal of constraints related to road and financial infrastructure would increase the share of enterprises with investment by 3.4 and 4 percentage points, respectively, implying a 13% or 15% increase in the share of enterprises undertaking new investment. Equally, removing electricity constraints, while not significant for large enterprises would, according to our regression, imply a 4.5 percentage point increase in the share of small enterprises who invest. Concerning the magnitude all of these coefficients, it is worth noting that all of the estimates relate to the short-term effect of removing such constraints and that, to the extent that other types of obstacles that could be of relevance in the longer term (e.g. technology) pose additional obstacles, the magnitude of the impacts identified here would constitute a lower bound. Taken together, these point towards greater potential of the rural non-farm sector for poverty reduction and reducing conflict than has traditionally been assumed. To ascertain whether this is an issue that might be worth of policy-makers' attention, it is necessary to explore the impact of such constraints on total factor productivity.

4.4 Determinants of total factor productivity

Results for determinants of total factor productivity through a production function approach are reported in Table 7, together with tests for constant returns to scale and equality of constraints across enterprise sizes. Both OLS (columns 1 and 2) and IV regressions, instrumenting for firm registration) estimates are presented (columns 3 and 4). . We first note that the hypothesis of constant returns to scale can not be rejected as illustrated by the test statistics for $L+K=1$ in the lower panel. Relaxing the rather unrealistic assumption that technology is identical across sectors and allowing the coefficients forproduction,

services, and trade to differ from each other by interacting sectoral dummies with the amounts of labor and capital used (not reported) suggests that there are indeed clear differences across sectors: The marginal product of labor is highest for production (0.86), followed by trade (0.68) and services (0.44) while the marginal return to capital is highest in the service sector (0.23), followed by production (0.17) and trade (0.14).

Also, enterprise characteristics that one would a priori expect to be associated with better performance on productivity, such as the manager's education and experience, access to informal credit markets have a much larger impact on productivity than on the more measures used earlier. The output elasticity of labor is, very high (between 0.8 and 0.91) whereas the elasticity of fixed assets is smaller (16%), though still significantly above the real interest rate at the time of the survey (8 %), pointing towards considerable credit rationing. At the same time, we can not reject the hypothesis of constant returns to scale. While enterprise age is not significant, productivity increases significantly in the top manager's number of years of formal education with each year adding an estimated 5% to productivity although years of on-the job experience are not significant. Formally registered enterprises are significantly more productive; in fact instrumenting increases the magnitude of the point estimate for the relevant coefficient. It is also of interest to note that the amount of informal borrowing to which the firm's owner has access is highly significant; increasing it from the 25th to the 75th percentile would enhance productivity by 7.3 to 7.7 percentage points.

In line with what had been observed earlier, key local infrastructure constraints emerge as having a very important impact on enterprise productivity. The coefficients on electricity (-0.25), road access (-0.43), financial infrastructure (-0.47), market information (-0.48) and lack of market demand (-0.44) are all significant at conventional levels and large by any measure. They suggest that, in order of priority, elimination of constraints in electricity, financial infrastructure, market demand and information, and road access, would have the highest impact on productivity with 6.3, 5.6, 4.8, 4.8, and 3.4 percentage points, respectively. In total, this would imply that removing these constraints would enhance productivity by about 25 points.

Running the regression with the interaction of large enterprise dummies and key local constraints as discussed earlier illustrates that the latter suffer disproportionately from infrastructure constraints; as table 7 illustrates, the regression coefficients for each of the constraints mentioned earlier are at least as significant for small enterprises as they are for large ones. Moreover, in most cases, the coefficients on the interaction of the constraint with enterprise size are of the opposite sign to what is observed for small enterprises, suggesting that large enterprises are able to much better deal with the constraints imposed by defective infrastructure than small ones. This is confirmed by formal tests for significance of constraints

for large enterprises as illustrated by the test statistics reported in the bottom panel of the table which allow us to reject the hypothesis of a significant impact of each of the individual constraints on large firms. This is in marked contrast to the impact of constraints on small firms which implies that dealing with the specific restrictions perceived by entrepreneurs will have a major impact on productivity of small firms, in addition to the positive impact on startup of new enterprises and investment by existing ones ascertained above.

Together, these insights allow us to draw three policy conclusions: First, local infrastructure constraints have a large impact on productivity, implying that high financing costs affect enterprise startups and new investment by existing firms, exploring in more detail the transaction costs involved in providing financing would be an issue to warrant attention of policy makers. Second, infrastructure constraints are clearly an obstacle to starting up new firms but, by reducing new investment by existing small ones, may also be responsible for a higher than necessary rate of failure, an issue on which we unfortunately do not have sufficient information and which should be strengthened in future surveys of this type. Finally, even if existing large firms may be able to cope with the challenges imposed by bad infrastructure better than small ones, such constraints could still have an impact on productivity to the extent that they might affect the overall composition of the sector, something that can, however, not be tested with our data.

5. Conclusion and policy implications

The exercise reported here provides methodological as well as substantive lessons. In terms of substantive conclusions, it is worth mentioning three areas. First, the fact that the value added by rural non-farm industry in Sri Lanka almost approaches the contribution to GDP by the agricultural sector provides a strong justification for more intensive study of this sector and its dynamics. Especially in view of the fact that the importance of rural enterprises is likely to increase in the future, greater focus on this segment of the economy would be warranted. Second, we find that the poverty-reducing impact of self employment in the local non-farm economy is unambiguously positive, i.e. those with enterprises have significantly higher incomes than those without. In fact, given that there are few barriers to entry into the sector, the aggregate relationship between inequality and enterprise density follows an inverted "U" shape that is rather flat, would be expected to decline within about a decade, and can be offset by overall rising incomes. The finding that most of the infrastructure-related constraints are particularly relevant for the expansion and productivity of small firms would imply that removing these constraints may in itself be a very important strategy to facilitate pro-poor growth. Third, pre-existing endowments are found to be much less important than policy-related infrastructure constraints, suggesting that addressing these constraints will not only help foster establishment of non-farm businesses in rural areas but also enable

those that already exist to make the transition from family-based ventures to enterprisesthat, by hiring local staff, will make a direct contribution to economic growth and poverty reduction.

To put these results into perspective, one should note that high levels of educational attainment, and rather comprehensive coverage with a well-functioning social welfare program, together with relatively high levels of population density, make it much easier and less risky to start up an enterprise in Sri Lanka than in other countries where these conditions may not hold. It would be of great interest to use similar data from other countries to assess the extent to which such institutional factors may explain part of the results obtained here. We also note that more careful study of enterprises in the informal sector is warranted in view of the fact that current household-based surveys appear to be not adequately capture all the relevant information and thus fail to do justice to the economic importance of this sector – and even in the best of cases are unlikely to be able to bring out the marked differences between large and small enterprises emerging from our analysis. As comparable data on small and micro-enterprises in the urban sector are currently not available, it would make sense to expand the sample frame to include small and micro enterprises including those operating informally in urban areas. Not only would this allow a better appreciation of the economic contribution of this sector but this will also help construct a more complete picture of the difficulties faced by potential entrepreneurs in a given country and the design of policy responses. Finally, in view of differences in the relative weight of constraints for enterprise expansion and startup, our analysis demonstrates the relevance of having a household sample complement the one of firms will be appropriate to improve understanding of factors conducive to formation of new enterprises. In fact, to fully appreciate the impact of policy-related factors on the dynamics of the informal sector, it may be necessary to pay more attention to the factors that lead to disappearance of enterprises, something that could be accomplished through appropriate modification of the sample frame.

Table 1. Enterprise characteristics across regions

	Entire Sample	West and Central	North West and North Central	South, Uva, and Sabaragamuwa	North and East
Staffing					
Number of employees	2.40	2.56	2.28	2.75	1.73
1-2 employees	0.79	0.79	0.79	0.74	0.88
3-5 employees	0.15	0.13	0.15	0.20	0.09
> 5 employees	0.06	0.08	0.06	0.06	0.03
Top manager's education (years)	9.61	9.28	9.12	9.96	10.15
Top manager's experience (years)	9.02	9.82	8.25	9.75	7.43
Male top manager	0.76	0.76	0.84	0.73	0.72
Sinhalese top manager	0.76	0.88	0.90	0.96	0.08
Sectoral distribution and age					
Production	0.41	0.35	0.38	0.37	0.60
Service	0.21	0.25	0.22	0.23	0.12
Trade	0.38	0.39	0.40	0.40	0.29
Age < 2 years	0.22	0.27	0.24	0.23	0.13
Age 2-5 years	0.29	0.24	0.34	0.31	0.29
Age 5-10 years	0.19	0.18	0.17	0.16	0.30
Age >10 years	0.29	0.32	0.25	0.30	0.29
Output, costs, and infrastructure access					
Value added (Rs.)	299763	282819	210627	525231	69789
Value added per worker (Rs.)	93763	114757	93675	110252	34762
Value of fixed assets (Rs.)	607603	585281	607662	848078	262974
Made net investments in 2003	0.27	0.23	0.43	0.22	0.24
Value of investment in 2003 (Rs.)	89891	46874	131569	135056	23331
Registration and infrastructure access					
Time to obtain registration (days)	18.98	10.38	26.04	22.11	20.41
Registered	0.53	0.57	0.58	0.58	0.33
Time to market (minutes)	31.37	23.43	24.53	53.60	18.50
Distance to bank (km)	1.50	0.98	1.57	1.54	2.57
Stand-alone enterprises	0.59	0.66	0.71	0.57	0.37
"Informal credit line" (Rs.)	38719	62495	21497	31854	30234
Enterprise density and income inequality					
Enterprise density [a]	0.133	0.116	0.111	0.150	0.158
Gini Coefficient	0.329	0.364	0.294	0.330	0.283
Atkinson Coefficient	0.116	0.138	0.105	0.115	0.009
Number of observation	1326	441	259	441	185

Source: Own calculation from 2002/03 Sri Lanka rural investment climate survey.

Table 2. Household and community characteristics

	Total sample and difference	Without enterprise	With enterprise
Income and its composition			
Per capita income (Rs/year)	24886***	23654	35685
Total household income (Rs.)	95418***	89113	148798
of which wage income (Rs.)	48285***	50187	30628
of which agricultural income (Rs.)	19409	19015	19779
of which from non-farm enterprises (Rs.)	8341***	0	86087
of which from remittances (Rs.)	5488*	5708	3316
of which pension and transfers (Rs.)	13894***	14202	8988
Household characteristics			
Parents operated non-farm business (%)	0.21**	0.20	0.30
Per capita arable land (ac)	0.21	0.21	0.19
Landless household (%)	0.38	0.38	0.35
Household size (persons)	4.18***	4.13	4.53
No. of persons 14 – 65 years old	3.07***	3.04	3.37
Head's age (years)	49.06	49.00	48.18
Head's formal education (years)	7.04***	7.03	7.82
Maximum formal education (years_	10.03***	9.97	10.86
Total wealth (Rs)	454645***	439010	590733
Informal “credit line” (Rs.)	15239	15126	15636
Access to infrastructure and markets			
Time to obtain registration (days)	20.34	20.60	19.41
Time taken to the commercial center (min.)	40.55	41.14	37.47
Unpaved internal road (%)	0.20	0.20	0.22
Unpaved external road (%)	0.12	0.12	0.13
Distance to bank (km)	2.01	2.07	1.72
Agriculture main income source (%)	0.47	0.47	0.46
Share of land planted to paddy (%)	0.36	0.36	0.37

Source: Own calculation from 2002/03 Sri Lanka rural investment climate survey.
Note: Stars indicate statistically significant differences between columns 2 and 3 with *, **, and *** indicating significance at the 10%, 5%, and 1% level, respectively.

Table 3. Key constraints for different types of enterprises

	Electricity	Financial infrastructure	Market Demand	Market Information	Road Access	Road Quality	Water Supply
Entire Sample	0.25	0.12	0.11	0.06	0.08	0.05	0.07
By Region							
West and Central	0.16	0.15	0.16	0.03	0.06	0.07	0.08
North West and North Central	0.31	0.15	0.08	0.03	0.17	0.03	0.05
South, Uva and Sabaragamuwa	0.23	0.13	0.13	0.03	0.10	0.03	0.04
North and East	0.38	0.02	0.001	0.18	0.001	0.08	0.13
By Industry							
Production	0.31	0.08	0.06	0.08	0.09	0.06	0.08
Service	0.27	0.15	0.11	0.03	0.05	0.03	0.10
Trade	0.19	0.14	0.16	0.05	0.10	0.05	0.05
By Age							
Less than 2 Years	0.20	0.15	0.14	0.05	0.11	0.06	0.09
2-5 Years	0.33	0.13	0.10	0.03	0.09	0.07	0.04
5-10 Years	0.23	0.11	0.12	0.07	0.07	0.05	0.10
More than 10 Years	0.24	0.09	0.08	0.09	0.07	0.03	0.08
By Size							
1-2 Employees	0.25	0.13	0.10	0.07	0.09	0.06	0.08
3-5 Employees	0.29	0.11	0.13	0.02	0.06	0.02	0.07
More than 5 Employees	0.26	0.07	0.11	0.02	0.05	0.04	0.03
By Type							
Household-based Enterprises	0.24	0.08	0.09	0.09	0.11	0.07	0.09
Stand-alone Enterprises	0.26	0.15	0.12	0.03	0.07	0.04	0.06

Source: Own calculation from Sri Lanka rural investment climate survey.

Table 4. Determinants of Starting up a Non-farm Enterprises

	Start-up in last year	Start-up in last two years
Household characteristics		
Head's age	-0.055	-0.099**
	(1.44)	(2.09)
Head's education (years)	-0.008	-0.011
	(0.29)	(0.32)
Members aged 14 to 65	0.028***	0.031***
	(4.27)	(3.22)
Parents operated non-farm business	0.072**	0.104***
	(2.38)	(2.71)
Past household wealth (log)	0.016*	0.020
	(1.65)	(1.57)
Per capita land endowment	-0.039	-0.082*
	(1.42)	(1.94)
Infrastructure; community characteristics		
Distance to bank	-0.013***	-0.017***
	(2.68)	(2.63)
Informal credit line (log))	0.007	0.015**
	(1.41)	(2.02)
Time to complete registration (days)	-0.001**	-0.001*
	(2.39)	(1.72)
Share of paddy in cultivated land (community level)	-0.078*	-0.088
	(1.85)	(1.62)
Agriculture main source of income	-0.001	0.015
	(0.06)	(0.45)
Most important overall constraint		
Electricity	-0.175***	-0.234***
	(6.69)	(6.17)
Road access	-0.061**	-0.112***
	(2.45)	(3.15)
Cost of credit	-0.060**	-0.112***
	(2.39)	(3.16)
Market demand	-0.092***	-0.151***
	(4.22)	(4.48)
Observations	517	549
Pseudo R-squared	0.25	0.21
Log likelihood	-158.62	-211.00

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. Income Inequality and Enterprise Density

	Gini coefficient		Atkinson Index	
	Linear	Non-linear	Linear	Non-linear
Enterprise density (No. of enterprises per 10 households)	0.138	0.609***	0.054	0.264*
	(1.35)	(2.76)	(0.84)	(1.87)
Enterprise density squared		-1.105**		-0.493*
		(2.39)		(1.67)
Region 2 dummy	-0.068**	-0.070**	-0.033	-0.033
	(2.11)	(2.18)	(1.59)	(1.63)
Region 3 dummy	-0.029	-0.034	-0.025	-0.027
	(1.00)	(1.21)	(1.35)	(1.49)
Region 4 dummy	-0.086**	-0.073**	-0.050**	-0.044**
	(2.48)	(2.10)	(2.28)	(1.99)
Constant	0.347***	0.319***	0.132***	0.119***
	(14.97)	(12.33)	(8.97)	(7.19)
No. of observations	147	147	147	147
R^2	0.06	0.10	0.04	0.06

Absolute value of t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Determinants of new enterprise investment

	Probit Model		IV Probit Model	
	Base Model	Augmented model	Base Model	Augmented model
Enterprise characteristics				
Total fixed assets (log)	-0.028***	-0.029***	-0.030***	-0.030***
	(5.59)	(5.71)	(5.81)	(5.86)
Number of workers (log)	0.069***	0.074***	0.060***	0.065***
	(3.75)	(3.01)	(3.14)	(2.60)
Age of enterprise 2-5 years	-0.053	-0.062	-0.056	-0.061
	(1.17)	(1.37)	(1.24)	(1.34)
Age of enterprise 5-10 years	-0.092*	-0.094**	-0.098**	-0.102**
	(1.96)	(2.02)	(2.09)	(2.18)
Age of enterprise more than 10 years	-0.135***	-0.137***	-0.147***	-0.150***
	(2.82)	(2.87)	(3.06)	(3.12)
Service enterprise	0.068*	0.067*	0.047	0.048
	(1.81)	(1.78)	(1.20)	(1.22)
Trade enterprise	-0.010	-0.012	-0.039	-0.039
	(0.28)	(0.35)	(1.04)	(1.03)
Registered enterprise (instrumented)	-0.003	-0.002	0.079	0.075
	(0.09)	(0.05)	(1.48)	(1.42)
Amount of informal borrowing (log)	0.013***	0.013***	0.013***	0.012***
	(3.13)	(3.10)	(3.01)	(2.94)
Education of top manager if there is one	0.006	0.006	0.005	0.005
	(1.42)	(1.33)	(1.14)	(0.99)
Years of experience of top manager	0.003**	0.003**	0.003**	0.004**
	(2.09)	(2.21)	(2.21)	(2.31)
Key local constraints				
Electricity ($\alpha 0$)	-0.137	-0.185*	-0.129	-0.174*
	(1.49)	(1.84)	(1.40)	(1.71)
Electricity*enterprise size ($\alpha 1$)		0.143		0.128
		(1.46)		(1.29)
Water ($\beta 0$)	-0.080	0.054	-0.057	0.072
	(0.60)	(0.33)	(0.42)	(0.42)
Water *enterprise size ($\beta 1$)		-0.286		-0.282
		(1.32)		(1.27)
Road access ($\chi 0$)	-0.413***	-0.430***	-0.370***	-0.394**
	(3.13)	(2.83)	(2.77)	(2.57)
Road access*enterprise size ($\chi 1$)		0.034		0.053
		(0.16)		(0.24)
Road quality ($\delta 0$)	0.082	0.151	0.090	0.151
	(0.52)	(0.85)	(0.57)	(0.84)
Road quality*enterprise size ($\delta 1$)		-0.216		-0.218
		(0.77)		(0.77)
Financial infrastructure ($\gamma 0$)	-0.380***	-0.349**	-0.343**	-0.321**
	(2.67)	(2.16)	(2.39)	(1.97)
Financial infrastructure*enterprise size ($\gamma 1$)		-0.120		-0.106
		(0.59)		(0.52)
Market information ($\eta 0$)	-0.109	-0.126	-0.058	-0.060
	(0.56)	(0.53)	(0.30)	(0.25)
Market information*enterprise size ($\eta 1$)		0.065		0.026
		(0.18)		(0.07)
Market demand ($\varphi 0$)	0.011	0.032	0.026	0.043
	(0.09)	(0.24)	(0.22)	(0.32)
Market demand*enterprise size ($\varphi 1$)		-0.065		-0.056
		(0.40)		(0.34)
Test for size effect: $\alpha 0 + \alpha 1 = 0$		0.42		0.42
$\chi 0 + \chi 1 = 0$		1.74*		1.75*
$\gamma 0 + \gamma 1 = 0$		2.21**		2.25**
Observations	1121	1121	1121	1121
R-squared	0.11	0.11	0.11	0.12
Log-likelihood	-579.85	-577.36	-578.72	-576.33

Robust t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Dummies for region are included but not reported
Water supply and constraints (insignificant in all specifications) included but not reported.

Table 7: Determinants of total factor productivity

	OLS		IV	
	w/o interaction	with interaction	w/o interaction	with interaction
Conventional inputs				
Total number of employees (log) (L)	0.950***	0.836***	0.939***	0.821***
	(12.50)	(9.55)	(11.31)	(8.55)
Total fixed assets (log) (K)	0.171***	0.173***	0.168***	0.169***
	(4.09)	(4.08)	(4.07)	(4.08)
Service sector dummy	0.258*	0.281**	0.229	0.244
	(1.97)	(2.14)	(1.47)	(1.58)
Trade sector dummy	0.413***	0.448***	0.382**	0.407***
	(3.64)	(3.93)	(2.45)	(2.64)
Registration dummy (Last four columns are instrumented)	0.424***	0.426***	0.499**	0.524***
	(4.18)	(4.27)	(2.46)	(2.64)
Amount of informal borrowing (log)	0.056***	0.054***	0.055***	0.053***
	(2.80)	(2.74)	(2.72)	(2.65)
Education of top manager	0.061***	0.059***	0.059***	0.057***
	(3.08)	(3.03)	(3.14)	(3.05)
Years of experience of top manager	0.010*	0.010	0.010*	0.010
	(1.69)	(1.59)	(1.68)	(1.58)
Key local constraints				
Electricity (a0)	-0.209	-0.292*	-0.208	-0.291*
	(1.56)	(1.88)	(1.55)	(1.87)
Electricity*enterprise size (a1)		0.321		0.326
		(1.43)		(1.43)
Water	-0.281	-0.303	-0.277	-0.299
	(1.43)	(1.29)	(1.41)	(1.27)
Water*enterprise size		0.035		0.043
		(0.12)		(0.15)
Road access (b0)	-0.476***	-0.602***	-0.463**	-0.586***
	(2.68)	(3.26)	(2.55)	(3.12)
Road access*enterprise size (b1)		0.768*		0.771*
		(1.84)		(1.85)
Road quality (c0)	-0.425*	-0.475*	-0.427*	-0.478*
	(1.70)	(1.76)	(1.71)	(1.77)
Road quality*enterprise size (c1)		0.333		0.332
		(0.57)		(0.57)
Financial infrastructure (d0)	-0.429***	-0.498***	-0.423***	-0.495***
	(2.86)	(2.95)	(2.75)	(2.90)
Financial infrastructure*enterprise size (d1)		0.277		0.299
		(0.95)		(1.02)
Market information (e0)	-0.518***	-0.528***	-0.513***	-0.523***
	(2.99)	(2.98)	(3.02)	(3.05)
Market information * enterprise size (e1)		-0.060		-0.047
		(0.19)		(0.15)
Market demand (f0)	-0.444***	-0.585***	-0.440***	-0.578***
	(3.06)	(3.63)	(3.00)	(3.54)
Market demand * enterprise size (f1)		0.480		0.469
		(1.36)		(1.33)
CRS technology and size effect test:				
L+K=1	1.34	0.10	1.10	0.11
a0+a1=0		0.17		0.17
b0+b1=0		1.28		1.28
c0+c1=0		0.46		0.46
d0+d1=0		0.28		0.28
e0+e1=0		0.74		0.74
f0+f1=0		1.66		1.66
g0+g1=0		0.35		0.35
No of observations	1182	1182	1182	1182
R^2	0.41	0.42	0.41	0.42

Note: Regional and enterprise age dummies included but not reported.

References

Abeyratne, S. 2004. "Economic Roots of Political Conflict: The Case of Sri Lanka." *World Economy 27* (8): 1295-314.

Abt Associates. 1999. "The Land Tenure System in Sri Lanka." *Bethesda MD*.

Adams, R. H. 2002. "Nonfarm Income, Inequality, and Land in Rural Egypt." *Economic Development and Cultural Change 50* (2): 339-63.

Asian Development Bank and World Bank. 2005. *Sri Lanka: Improving the Rural and Urban Investment Climate*. Washington DC: World Bank.

Barrett, C. B., T. Reardon and P. Webb. 2001. "Nonfarm Income Diversification and Household Livelihood Strategies in Rural Africa: Concepts, Dynamics, and Policy Implications." *Food Policy 26* (4): 315-31.

Bastos, F. and J. Nasir. 2004. "Productivity and the Investment Climate: What Matters Most?" The World Bank, Policy Research Working Paper Series: 3335.

Beck, T., A. Demirguc-Kunt, and V. Maksimovic. 2004. "Financial and legal constraints to growth: Does firm size matter?" Paper presented at the conference on small and medium size enterprises, Oct 14-15, 2004. Washington, DC: World Bank.

Bourguignon, F. and C. Morrisson. 1998. "Inequality and Development: The Role of Dualism." *Journal of Development Economics 57* (2): 233-57.

Burnside, C. and D. Dollar. 2000. "Aid, Policies, and Growth." *American Economic Review 90* (4): 847-68.

Canagarajah, S., C. Newman and R. Bhattamishra. 2001. "Non-farm Income, Gender, and Inequality: Evidence from Rural Ghana and Uganda." *Food Policy 26* (4): 405-20.

Chandrasiri, S. 2003. "Technological Issues in Small and Medium Enterprises in Sri Lanka." *Sri Lanka Economic Journal 4* (1): 59-96.

Claessens, S. and L. Laeven. 2003. "Financial Development, Property Rights, and Growth." *Journal of Finance 58* (6): 2401-36.

de Janvry, A. and E. Sadoulet. 2000. "Rural Poverty in Latin America: Determinants and Exit Paths." *Food Policy 25* (4): 389-409.

de Soto, H. 2000. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere else* New York: Basic Books.

Devarajan, S., W. R. Easterly and H. Pack. 2003. "Low Investment Is Not the Constraint on African Development." *Economic Development and Cultural Change 51* (3): 547-71.

Dollar, D., M. Hallward-Driemeier, and T. Mengistae. 2004. "Investment Climate and International Integration." The World Bank, Policy Research Working Paper Series: 3323.

Ellis, F. and H. A. Freeman. 2004. "Rural Livelihoods and Poverty Reduction Strategies in Four African Countries." *Journal of Development Studies 40* (4): 1-30.

Fafchamps, M., J. W. Gunning and R. Oostendorp. 2000. "Inventories and Risk in African Manufacturing." *Economic Journal 110* (466): 861-93.

Fei, J. C. H. and G. Ranis. 1969. "Economic Development in Historical Perspective." *American Economic Review 59* (2): 286-400.

Griliches, Z. 1996. "The Discovery of the Residual: A Historical Note." *Journal of Economic Literature 34* (3): 1324-30.

Gunning, J. W. and T. Mengistae. 2001. "Determinants of African Manufacturing Investment: The Microeconomic Evidence." *Journal of African Economies 10* (0): 48-80.

Haggblade, S., P. Hazell and J. Brown. 1989. "Farm-Nonfarm Linkages in Rural Sub-Saharan Africa." *World Development 17* (8): 1173-201.

Hall, R. E. and C. I. Jones. 1999. "Why Do Some Countries Produce So Much More Output Per Worker Than Others?" *Quarterly Journal of Economics 114* (1): 83-116.

Harris, J. R. and M. P. Todaro. 1970. "Migration, Unemployment & Development: A Two-Sector Analysis." *American Economic Review 60* (1): 126-42.

Hussmanns, R. and F. Mehran. 2003. "Statistical definition of the informal sector -International standards and national practices." Geneva: International Labour Office, Bureau of Statistics.

Ihrig, J. and K. S. Moe. 2004. "Lurking in the Shadows: The Informal Sector and Government Policy." *Journal of Development Economics 73* (2): 541-57.

Knack, S. and P. Keefer. 1995. "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures." *Economics and Politics 7* (3): 207-27.

Kung, J. K. S. and Y. f. Lee. 2001. "So What If There Is Income Inequality? The Distributive Consequence of Nonfarm Employment in Rural China." *Economic Development and Cultural Change 50* (1): 19-46.

Kuznets, S. 1955. "Economic Growth and Income Inequality." *American Economic Review 45* 1-28.

Lanjouw, J. O. and P. Lanjouw. 2001. "The Rural Non-farm Sector: Issues and Evidence from Developing Countries." *Agricultural Economics 26* (1): 1-23.

Lanjouw, P. 2001. "Nonfarm Employment and Poverty in Rural El Salvador." *World Development 29* (3): 529-47.

Limao, N. and A. J. Venables. 2001. "Infrastructure, Geographical Disadvantage, Transport Costs, and Trade." *World Bank Economic Review 15* (3): 451-79.

Maloney, W. F. 2004. "Informality Revisited." *World Development 32* (7): 1159-78.

Mazumdar, D. 2003. *The African manufacturing firm: An analysis based on firm surveys in seven countries in sub-Saharan Africa* Studies in Development Economics, vol. 31. London and New York: Routledge.

Osmani, S. R. and S. Chandrasiri. 2002. "The Social Impact of SME Sector Development in Sri Lanka." *Sri Lanka Economic Journal 3* (1): 27-75.

Rama, M. 2003. "The Sri Lankan Unemployment Problem Revisited." *Review of Development Economics 7* (3): 510-25.

Reardon, T. 2000. "Effects of Non-Farm Employment on Rural Income Inequality in Developing Countries: An Investment Perspective." *Journal of Agricultural Economics 51* (2): 266-88.

Reardon, T., J. A. Berdegué and G. Escobar. 2001. "Rural Nonfarm Employment and Incomes in Latin America: Overview and Policy Implications." *World Development 29* (3): 395-409.

Reinikka, R. and J. Svensson. 2002. "Coping with Poor Public Capital." *Journal of Development Economics 69* (1): 51-69.

Shaw, J. 2004. "Microenterprise Occupation and Poverty Reduction in Microfinance Programs: Evidence from Sri Lanka." *World Development 32* (7): 1247-64.

Singh, I., L. Squire and J. Strauss. 1986. "A Survey of Agricultural Household Models: Recent Findings and Policy Implications." *World Bank Economic Review 1* (1): 149-79.

Sri Lanka Department of Census and Statistics. 2002. "Census of Population and Housing: Results." Colombo:

Thirtle, C., L. Lin and J. Piesse. 2003. "The Impact of Research-Led Agricultural Productivity Growth on Poverty Reduction in Africa, Asia and Latin America." *World Development 31* (12): 1959-75.

Todaro, M. P. 1969. "A Model for Labor Migration and Urban Unemployment in Less Developed Countries." *American Economic Review 59* (1): 138-48.

Vijverberg, W. P.M. and Donald C. Mead. 2000. “Household enterprises.” In M. Grosh and P. Glewwe, eds., Designing Household Questionnaires for Developing Countries, Ch. 18. (Washington, DC: World Bank,.

Vijverberg, W. P. M. 2003. Measuring the Investment Climate in Rural Areas. Paper with a prototype questionnaire and technical annexes prepared for ARD, World Bank, Washington DC, available at www.worldbank.org/rural

Vijverberg, W. P. M. 2005. Rural Investment Climate and Non-Farm Entrepreneurship in Living Standards Surveys, paper prepared for the Agriculture and /rural Development Department, World Bank, Washington, DC mimeo

Measuring the Investment Climate in Rural Areas. Paper with a prototype questionnaire and technical annexes prepared for ARD, World Bank, Washington DC, available at www.worldbank.org/rural

Wallsten, S., M. Hallward-Driemeier, and L. C. Xu. 2003. "The Investment Climate and the Firm: Firm-Level Evidence from China." The World Bank, Policy Research Working Paper Series: 3003.

Weerahewa, J., H. M. Gunatilake and H. Pitigala. 2002. "Future of Paddy Farming in Sri Lanka: Comparative Advantage, Scale and Rural Poverty." *Sri Lanka Economic Journal 3* (2): 104-44.

World Bank. 2002. *Reaching the Rural Poor: A Rural Strategy*. Washington, DC: World Bank.

World Bank. 2003. "Sri Lanka: Promoting Agricultural and Rural Non-Farm Sector Growth." Report CE-25387. Washington, DC: The World Bank, Rural Development Unit, South Asia Region.

World Bank. 2005. *Doing Business in 2005: Removing Obstacles to Growth*. Washington, D.C.: World Bank, International Finance Corporation, and Oxford University Press.

Zoido-Lobaton, P. and D. Kaufmann. 2002. "Governance Matters II: Updated Indicators for 2000-01." The World Bank, Policy Research Working Paper Series: 2772.