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To the memory of Michael Ward, who proposed this conference.



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THE INFORMAL ECONOMY IN DEVELOPING COUNTRIES:
AN INTRODUCTION

BY DEREK BLADES

Consultant in Economic Statistics; formerly OECD, Paris

FRANCISCO H. G. FERREIRA*

The World Bank, Paris School of Economics, and IZA, Bonn

AND

MARIA ANA LUGO

The World Bank and Oxford University

In developing countries, a large share of the population typically depends, for its livelihood, on the “informal economy.” Their income comes from subsistence farming or from operating small unincorporated enterprises. Some trade on the streets or in markets; sell cooked food from kiosks; transport people or goods by pedal power or motor bikes; repair clothes, shoes, or motor scooters; build dwellings or add extensions to them; scavenge for reusable waste; or provide a range of personal services like hairdressing, fortune-telling, shoe cleaning, street theatre, house cleaning, and the like. Others are employed in either formal or informal enterprises, but have no access to social security and operate below the radar screen of employment and safety legislation. Although the largest part of GDP may be generated in the formal economy, most people in a large number of developing countries live in the informal one.

Despite a substantial literature on informality in labor and development economics, when compared to the sheer importance of the sector for the lives of billions of people, research on the income and wealth generated in the informal sector in poor countries remains relatively scant. To help fill that gap, the International Association for Research in Income and Wealth (IARIW) and the South Asia Institute of Management (SAIM) jointly hosted a Special Conference on Measuring the Informal Economy in Developing Countries, which took place in Kathmandu, in September 2009. SAIM provided both logistical support and generous hospitality.

The theme of the conference was proposed and the initial arrangements were made by Michael Ward. The conference itself took place during the first anniversary of his death. Michael was a very special and much respected member of the Association, and this special issue of the *Review of Income and Wealth* is dedicated to his memory.

The conference was wide-ranging, and included both theoretical and empirical papers, as well as papers focusing specifically on measurement issues. This

*Correspondence to: Francisco H. G. Ferreira, Deputy Chief Economist, Latin America and the Caribbean Region, The World Bank, 1818 H Street, NW (MSN I-8-808), Washington DC 20433, USA (fferreira@worldbank.org).

special issue contains a selection of the 34 papers presented at the conference. These eight papers underwent the standard refereeing process of the *Review* and, although they were selected purely on the basis of academic merit, they represent a balanced mix of the topics covered at the conference. Two papers consider the choices of entrepreneurs, and how the cost of and returns to capital in different sectors affect the formalization decision. Three articles focus on the choices of workers, and on how labor markets function in the informal sector; two of these discuss the effects on the informal sector of minimum wage setting in the formal sector. Finally, three papers address measurement issues, both through survey instruments and in the context of the National Accounts, with an emphasis on South Asia—the region that hosted the conference.

The first paper, “The Informal Sector: An Equilibrium Model and Some Empirical Evidence from Brazil,” by Áureo de Paula and José Scheinkman, presents a stylized occupational choice model where individuals choose whether to become workers, entrepreneurs operating in the informal sector, or entrepreneurs in the formal sector (de Paula and Scheinkman, 2011). The key trade-off is that informal firms pay no taxes, but face a higher cost of capital. In addition, to minimize the probability of being caught by the tax authorities, the scale of informal firms is limited. Higher capital costs lead to a lower capital–labor ratio and, combined with the size limit, this makes informal sector firms less attractive to high-ability entrepreneurs, who sort into the formal sector. Agents with the lowest ability levels are better-off as wage-earning workers, and individuals with intermediate managerial ability run firms in the informal sector.

Using data from a survey of small firms in Brazil, the authors find empirical support for several of the model’s predictions. Observable inputs into entrepreneurial ability, such as education and experience, are correlated with formality, and formal firms tend to be larger. In addition, controlling for manager and firm characteristics, formalization is associated with higher capital–labor ratios and larger profits per worker. Finally, the authors also find evidence consistent with the existence of a discontinuity in employment as a function of managerial ability, as predicted by the model.

Michael Grimm, Jens Krüger, and Jann Lay’s paper, entitled “Barriers to Entry and Returns to Capital in Informal Activities: Evidence from Sub-Saharan Africa,” offers a different perspective on firm entry into the informal sector (Grimm *et al.*, 2011). In a more empirical contribution, the paper seeks to measure the returns to capital in the informal (small firms) sector in seven West African countries—and to use the resulting estimates to shed light on whether or not firms face barriers to enter the sector. The authors find evidence of considerable heterogeneity in returns to capital across informal firms. Estimated marginal returns are very high at low levels of capital stock—at least 70 percent per month for firms with less than \$150 of capital—but less than a tenth of that for enterprises with higher levels of capital stock. Interestingly, these results are relatively similar across all seven cities in West Africa, despite substantial differences in GDP levels and in the structure of economic activity.

Second, the authors find that while barriers to entry might be negligible in terms of initial investment in capital stock for some informal firms, the operating costs associated with start-up can be quite significant in most activities. Overall,

the results highlight the heterogeneity in returns across firms in the informal sector. While these differences in returns may well reflect credit constraints, the authors emphasize instead the role of differences in the amount of risk faced by different firms.

Although these two papers address related questions—to do with the determinants of entry into the informal sector and the nature of the firms that operate there—they focus on rather different factors. De Paula and Scheinkman emphasize entrepreneurial ability, with an equilibrium sorting model where there are no real barriers to entry into any particular sector. Grimm *et al.*, on the other hand, highlight possible barriers to entry and differences in the degree of risk facing enterprises. It is possible, of course, that each paper found exactly the right answer for the specific context it addressed, respectively in Brazil and West Africa. It is also possible, however, that entrepreneurial ability, differences in the cost of capital, detection probabilities, credit constraints, and heterogeneity in risk all play a role, and that there are gains to be had from intellectual arbitrage between these two approaches.

The third paper, “The Lighthouse Effect and Beyond” by Tito Boeri, Pietro Garibaldi, and Marta Ribeiro, shifts the focus from firms to workers, and from capital to labor markets (Boeri *et al.*, 2011). Standard economic theory of dual labor markets predicts that an increase in the formal minimum wage would drive workers from the formal into the informal sector, increasing labor supply and lowering wages in the latter. Yet evidence from developing countries, especially in Latin America, shows the reverse pattern: informal salaries often rise after a minimum wage hike. The interpretation generally provided is that, in a context where workers have strong bargaining power, a rise in the minimum wage signals (“like a lighthouse”) that the level of “fair remuneration” has increased. In this paper, Boeri *et al.* offer a complementary—and radically different—explanation, related to changes in the skill composition of workers across the two sectors, which arise from changes in the equilibrium sorting of employees induced by an increase in the minimum wage.

In a matching model of the labor market, firms choose whether to post new vacancies in the formal or informal sectors and workers sort into sectors according to their productivity. If the taxes paid in the formal sector and the monitoring probability faced in the informal sector are both sufficiently high then, in the absence of a binding minimum wage, low-skill workers sort into the informal sector and high-skill employees into the formal one. As the minimum wage becomes binding, very low-productivity workers flow into the formal (or legal) sector, increasing the average skills and wages in the informal (or shadow) sector. This is the proposed alternative explanation for the “lighthouse effect,” already present in the partial equilibrium solution of the model. The authors go further, however: they derive the conditions for the general equilibrium of the model, and provide a numerical simulation which suggests that the partial equilibrium effect may survive in general equilibrium. They also exploit a substantial hike in the minimum wage in Brazil in May 1995 to test the predictions of the model. A decomposition of wage changes into lighthouse and sorting effects reveals that sorting accounts for at least one third of the total increase in wages observed in the shadow sector.

While Boeri *et al.* examine the impact of changes in the formal minimum wage on informal wages, the article by Margherita Comola and Luiz de Mello investigates the effect of the same policy change on employment levels for non-salaried workers (the self-employed, employers, and family workers) (Comola and de Mello, 2011). Minimum wage policy remains a controversial issue in Indonesia. Previous empirical work has argued that increases in minimum wage in Indonesia were to blame for persistent unemployment since the 1997–98 financial crisis. “How Does Decentralized Minimum Wage Setting Affect Employment and Informality? The Case of Indonesia” takes advantage of a minimum wage hike following the 2001 decentralization of wage setting to provincial governments, to estimate the effects of the policy on employment in all sectors. Combining three different surveys (labor force, household expenditure and earnings, and industrial), Comola and de Mello jointly estimate models of formal-sector employment, informality, and unemployment. They thus hope to account for the interdependence of the three outcomes. To identify the effects, the authors exploit variation in minimum wage increases across provinces following the decentralization process, as well as the (arguably) exogenous variation in the Kaitz index (minimum wage over mean district wage) across districts within provinces. In contrast with previous findings, the authors find that the hike in real minimum wage leads to growth in employment in the informal sector that more than compensates for job losses in the formal sector. The net gain in total employment is associated with a decline in the proportion of the unemployed queuing for a formal-sector job.¹

In their paper “Earnings Structures, Informal Employment, and Self-Employment: New Evidence from Brazil, Mexico, and South Africa,” Olivier Bargain and Prudence Kwenda estimate the conditional earnings gap between formal and informal sector workers in the three emerging economies (Bargain and Kwenda, 2011). In their definition, the informal sector includes both unregistered wage earners and the self-employed. Wage premia and penalties for both groups of workers, relative to formal wage employees, are estimated using standard Mincer earnings equations. The paper uses comparable short-duration panel datasets of male workers for each of the countries under study, so that it is possible to control not only for observed characteristics but also for time-invariant unobserved factors that might affect both earnings and the choice of sector. The conditional earning gaps are thus identified by individuals switching sectors within the period of analysis. The paper also explores the heterogeneity of the wage distribution using (fixed-effects) quantile analysis.

Bargain and Kwenda find two regularities across the three countries. First, conditional on observables and time-invariant unobservables, informal salary workers are paid systematically less than their formal-sector counterparts, with the largest penalties at the bottom of the conditional earnings distribution. The earnings gap is, however, relatively small in Brazil and Mexico. Second, there is more dispersion in the distribution of earnings from self-employment than in the distri-

¹It is interesting to note that this increase in the size of the Indonesian informal sector arising from a higher minimum wage in the formal sector, although consistent with standard theory, is inconsistent with both the general equilibrium simulation results and the empirical evidence from Brazil presented by Boeri *et al.* Their model predicts—and their data supports—a decline in employment in the informal sector.

butions for both formal and informal wage-earners. On the other hand, while the self-employed in South Africa are paid consistently less than formal employees, in Mexico self-employment generates significant conditional wage premia, except at the bottom of the distribution. Brazil is an intermediate case. The authors argue that the differences between the three countries are likely to be driven by institutional differences, such as in minimum wages and social security systems.

The final three papers in this special issue turn to measurement questions. By its nature, the informal economy is difficult to measure. Informal enterprises are not usually listed in the statistical registers used for official surveys so that indirect methods have to be used to estimate their contributions to value added, output and employment. Measuring the informal economy was therefore a major theme of the Special Conference.

“Measuring the Unorganized Sector in India,” by A. C. Kulshreshtha, explains how the “unorganized sector” is defined in the statistical systems of India and other countries in South Asia, which broadly follow the Indian model (Kulshreshtha, 2011). Although it is not identical to the informal sector as defined by the International Labour Organisation, it can be seen as a good operational definition—one that can be applied in practice by many developing countries. In India the informal/unorganized sector generates nearly 60 percent of NDP (India uses Net rather than Gross Domestic Product as its central measure), with more than half coming from agriculture and trade and a further 20 percent from manufacturing, construction, and road transport.

The National Sample Survey Organisation (NSSO) carries out regular surveys of informal businesses, but they do not cover all activities every year. The author argues that, as a result, the surveys yield plausible estimates for ratios (e.g. value added per worker) but not for levels. The paper therefore proposes and implements an indirect estimation strategy, based on combining information on levels and ratios from different sources. Employment data for several activities is obtained from labor force surveys, for example, and then used together with output/worker ratios from informal business surveys, to estimate value added and gross output in the informal sector. The author’s calculations suggest that the contribution of the informal sector to total value added is slowly declining but still accounted for 57 percent of NDP in 2006. He admits, however, that many analysts believe that this may be little more than a statistical artifact due to poor measurement. Government focus on the formal sector has led to poor measurement of the informal sector, despite its importance in the lives of the Indian population.

Ramesh Kolli’s paper, “Measuring the Trade Sector in the National Accounts of India,” looks at practical issues that arise in the measurement of the contribution of trade to GDP and employment (Kolli, 2011). In India, as in many other developing countries, trading enterprises are predominantly small family businesses. Hard data on this informal trade sector are scarce, and National Accounts compilers have had to devise indirect methods to measure the output and value-added of this sector. Similarly to the previous paper, the basic approach is to make benchmark estimates of value added per worker in the trade sector from five-yearly sample surveys of informal traders, and to combine these with estimates of the total number of workers in the sector from a labor force survey. Benchmark estimates are then extrapolated to years between benchmarks using a specially

constructed index of tradable goods produced each year by domestic agriculture and industry and from imports. This index is compiled in both volume and value terms, so that estimates of gross value added by the trade sector are available in both current and constant prices. The author recognizes that India's methodology is not perfect, but argues that it is an ingenious way of making the best possible use of scarce data—and perhaps one that could be tried in other developing countries.

In the final paper, “Surveys of Informal Sector Enterprises: Some Measurement Issues,” Kaushal Joshi, Glenita Amoranto, and Rana Hasan analyze the results of a survey carried out by India's NSSO to determine the best way of measuring value added by small businesses (Joshi *et al.*, 2011). The standard procedure—used by the NSSO and indeed by most other countries—is to ask respondents about the value of their sales, followed by a series of questions on purchases of goods and services for intermediate consumption. As it is time-consuming to work through a long list of outputs and inputs, the NSSO wanted to see if they could get the same information on value added by a short-cut method, namely by simply asking respondents to report their profits earned and wages paid.

For all respondents taken together, the simpler, direct questions about profits and wages produced an estimate of value added that was about 4.5 percent lower than the (presumably more accurate) estimate derived from the longer series of questions on sales and purchases. The survey collected information on a range of enterprise characteristics, and the authors examine whether the various enterprise types identified in the survey were all likely to underestimate their value added when the direct questions were posed. They found that differences were in the same direction regardless of location in urban or rural areas, whether or not the business kept accounts, the size of the enterprise in terms of employment or capital assets, the gender of the respondents, and other characteristics that might seem relevant. However, they found that the differences tended to be smaller for certain enterprise types and for some types of respondents. Thus, although they conclude that the short-cut method of estimating value added is inferior to the more time-consuming standard procedure, the authors argue that it can be used for enquiries addressed to certain types of enterprises. Their analysis identifies the kinds of situations where the simpler (and cheaper) method could be used.

Taken together, these eight papers illustrate the diversity and complexity of the issues involved in measuring and understanding informal economic activity in developing countries. Although we feel that each paper makes an important contribution to the field, it also appears to us that they collectively reveal how far the discipline still is from a stable, crystallized understanding of the informal sector(s). The first two papers, both of which look at the nature of the firms which enter the informal sector, end up painting rather different pictures of the sector. There are also interesting differences in the results of the three labor market papers, including on the effect of higher minimum (formal sector) wages on the size of the informal sector. The three measurement papers highlight the difficulties of accurately recording the size of the informal economy in terms of employment, output, and income. Better understanding of the informal sector and the development of appropriate policy measures will depend to a large extent on better coverage of informal activities in the national accounts and related datasets. Progress is being made but there is still some way to go.

Perhaps the one general message for which there appears to be broad support across this set of papers is that what we call “the informal sector” is enormously heterogeneous. It is heterogeneous in terms of returns to capital across firms (as discussed by Grimm *et al.* for West Africa), as well as between the wage-earning and the self-employment segments across workers (as illustrated by Bargain and Kwenda). The latter paper also documents considerable cross-country heterogeneity in terms of the size and direction of conditional earnings gaps. And there are substantial differences across sub-sectors even in the extent to which profits are under-reported in short-form questionnaires, as suggested by Joshi *et al.* Put together the substantive heterogeneity of the “sector,” both across and within countries, and the apparent differences in how economists conceptualize and analyze it, and it seems certain that, despite the progress made in Kathmandu, the need for additional research on informal economic activity in poor countries remains great.

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