

Comment on La Porta and Shleifer “The Unofficial Economy and Economic Development”

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1. Introduction

This very nice paper is filled with interesting facts — the large size of the informal economy in poor countries (around 50% of the formal sector); the extent of theft among small and large firms in developing countries (less than 5%); and the number of days in the last year that firms faced power outages (about 50, even for large firms!). The tour through the extensive firm-level surveys across many countries is itself a valuable contribution of the paper. Indeed, but for the expert guidance provided by the authors, it would be easy to get lost along the way.

La Porta and Shleifer helpfully frame their discussion in terms of three “views” of the informal economy. The romantic view of De Soto (1989) and others suggests that the informal sector is an engine of growth just waiting to be released by giving informal firms property rights. The parasitic view associated with the McKinsey Global Institute sees the informal sector as a collection of firms that remain small (and unproductive) in order to avoid taxes and regulations, which allows them to inefficiently take away market share from more productive formal firms. Finally, the dual economy view associated with Harris and Todaro (1970), among others, suggests that informal firms are not so much a threat to formal firms as a social safety net that provides a livelihood for millions of very poor, uneducated people. In this view, the informal economy is not so much a drag on development as it is a waiting place for people until development leads to the establishment of additional productive formal firms that can provide them with jobs.

By studying a wide range of correlations, facts, and survey responses in extensive firm-level surveys, La Porta and Shleifer conclude that the evidence is most consistent with the dual-economy view. The main evidence against the romantic view is that informal firms look very different from formal ones — for example, the managers are much less well-educated — and they see very little evidence that growth occurs by informal firms eventually becoming large, productive formal establishments. The main evidence they offer against the parasitic view is that formal firms do not view competition from informal firms as a serious problem; they are much more concerned with access to markets, finance, and taxes.

A fact that emerges quite clearly from the data is that the informal sector is very large in the poorest economies and surely provides a kind of social safety net for many workers. By avoiding taxes and regulations, this sector can employ people who are not sufficiently productive to work in the formal sector. Given that this sector can encompass as many as 1/2 of the labor force in an economy, this is a substantial safety net. A natural question that emerges from these facts is whether or not this is the most effective way of providing such a safety net. What is the cost?

The firm-level surveys and a recent paper by Chang-Tai Hsieh and Pete Klenow (2008) suggest one way to make progress on this question. Because it also provides some useful insights into the meaning of “value-added per worker,” I will outline a simple story along these lines in the remainder of my comment.

2. What does value-added per worker really measure?

A recent and growing literature emphasizes that we must be careful about interpreting measures of value-added per worker or “labor productivity.” In particular, we usually do not have access to firm-specific price deflators, and this means labor productivity actually measures *revenue per worker* rather than a real quantity — that is, it confounds both price and quantity. Prominent examples from this literature include Klette and Griliches (1996), Bernard, Jensen, Eaton and Kortum (2003), Katayama, Lu, and Tybout (2003), Foster, Haltiwanger, and Syverson (2008), and Hsieh and Klenow (2008). La Porta and Shleifer recognize this in the published version of their paper and do a good job of incorporating some of the implications of this point in their analysis. In particular, they employ an insight from Hsieh and Klenow that says that if you know the shape of the demand curve, then you can infer price and quantity from revenue.

It is possible, however, to go even further. In particular, while “revenue labor productivity” is not a quantity measure, it contains very useful information about the nature of the distortions that affect firms. One can use these revenue measures to back out the distortions and consider the hypothetical question of

“How much higher would output be in the economy if there were no distortions to the allocation of resources?” To see how this works, we consider a benchmark model. This will be a simplified version of the framework in Hsieh and Klenow (2008), augmented to include a Harris-Todaro dual economy element.

2.1. The Model: Walmart versus a Trinket Shop

Suppose there are two highly-substitutable goods in our economy, the output of a very productive Walmart-like store, y , and the output of a small and less productive informal trinket shop, x . Each good is produced using only labor. There is a fixed total quantity of labor in the economy, \bar{L} , which can be used for production or can be left unemployed (u is the endogenous fraction unemployed).

This setup is summarized in the following equations:

$$\text{Utility} \quad U(x, y) = (\alpha x^\rho + \beta y^\rho)^{1/\rho}$$

$$\text{Formal Production} \quad y = A_y L_y$$

$$\text{Informal Production} \quad x = A_x L_x$$

$$\text{Resource Constraint} \quad L_x + L_y = (1 - u)\bar{L}.$$

We assume resources are allocated according to perfect competition, subject to several distortions. First, each sector faces a firm-specific sales tax, at rates τ_x and τ_y , respectively. (We can think of the informal sector facing a tax rate of $\tau_x = 0$ as a special case.) Second, a combination of minimum wage laws and regulations lead to a wedge between the wage in the formal sector and the informal sector. In particular, the formal sector pays a wage that is $1 + \mu$ times the wage in the informal sector. This wage differential leads to queueing for the formal jobs, generating the Harris-Todaro unemployment.

Profit maximization by the two kinds of firms ensures that labor is hired until

the after tax marginal revenue product of labor equals the wage:

$$p_y(1 - \tau_y)A_y = w_y = w_x(1 + \mu) \quad (1)$$

$$p_x(1 - \tau_x)A_x = w_x. \quad (2)$$

On the household side, utility maximization delivers the following conditions for demand and the allocation of labor:

$$\frac{U_y}{U_x} = \frac{p_y}{p_x} \quad (3)$$

$$w_x = w_y(1 - u) \Rightarrow u^* = \frac{\mu}{1 + \mu}. \quad (4)$$

Combining these equations, the allocation of labor to the formal and informal sectors satisfies

$$\frac{L_x^*}{L_y^*} = \left(\frac{\alpha}{\beta} \cdot \frac{1 - \tau_x}{1 - \tau_y} \cdot (1 + \mu) \right)^{\frac{1}{1-\rho}} \left(\frac{A_x}{A_y} \right)^{\frac{\rho}{1-\rho}}. \quad (5)$$

In particular, the informal sector is larger when

- the informal sector faces low distortions/taxes (τ_x),
- the formal sector faces higher distortions/taxes (τ_y),
- the wage premium in formal sector is higher (μ),
- the informal sector is relatively more productive (A_x/A_y).

2.2. Value-Added Per Worker

Now suppose we do not have Walmart-specific and trinket store-specific price indexes, but instead just deflate all firms' revenue by a common retail sector price deflator. What does a comparison of "value-added per worker" tell us in this case? Recall the first-order conditions in equations (1) and (2), which can be rearranged to yield

$$\frac{p_y y}{L_y} = \frac{w_x(1 + \mu)}{1 - \tau_y} \quad (6)$$

and

$$\frac{p_x x}{L_x} = \frac{w_x}{1 - \tau_x}. \quad (7)$$

In particular, notice that *differences in “revenue” labor productivity across firms reflect differences in the distortions* (τ_y , τ_x , μ) *and tell us nothing about differences in “true” productivity* (A). Marginal revenue products are equated across firms, apart from any distortions that are present. At some level, everyone knows this already: more productive firms will charge lower prices, so sales revenue will not reveal the higher productivity.

We’ve developed this point in the context of labor productivity. But exactly the same point applies to multifactor productivity measures.

While this result is well-known at some level, it is also ignored quite often in studies of firm-level productivity. One prominent example is the draft of the La Porta and Shleifer paper that was presented at the conference, but these authors are certainly in extremely good company — nearly every study of firm-level productivity until recently likely suffers from the same criticism.

From this point, there are two useful directions in which to proceed. First, one can seek better price deflators or other clever means to recover the true underlying productivities. Second, one can consider what is to be learned from revenue labor productivity itself. We consider each of these in turn.

2.3. Measuring True Productivity

Recovering true productivity requires some measure of the price. In some (limited?) cases, such a price measure can be obtained directly; this is the approach taken in Foster, Haltiwanger, and Syverson (2008). Alternatively, one can use information about the demand elasticity to recover the price and quantity measures from the revenue. For example, in the simple model here,

$$\frac{y}{x} = \text{Constant} \times \left(\frac{p_y y}{p_x x} \right)^{\frac{1}{\rho}}. \quad (8)$$

Knowledge of the curvature parameter (or the elasticity of substitution) allows one to infer relative quantities.

Hsieh and Klenow (2008) discuss this second approach in more detail, and

this is the approach followed by La Porta and Shleifer; see their Tables X.c and XI.c, for example.

An interesting and surprising finding that seems to be emerging from this literature — it is a feature in the La Porta and Shleifer paper, in Foster, Haltiwanger, and Syverson (2008), and in Hsieh and Klenow (2008) — is that revenue labor productivity and “true” labor productivity are highly correlated. That is, even though there is no *a priori* reason to expect revenue labor productivity to tell us about true labor productivity, the two seem to be closely related.

One interpretation of this — explored in the next section — is that it tells us something important about the pattern of distortions: namely that more productive firms face higher distortions. Still, I have to confess to a nagging worry that it might reflect something else, though what exactly I’m not sure.

2.4. Studying Distortions

As noted above in our discussion of equations (6) and (7), even if revenue labor productivity does not tell us about true productivity it can still be quite informative about the distortions that affect the allocation of resources. Indeed, the results from Tables IX and X of the paper allow us to back out estimates of the distortions faced by firms. In particular, the ratio of revenue labor productivity provides an estimate of $(1 + \mu)(1 - \tau_x)/(1 - \tau_y)$. We can summarize this in a measure of an “effective tax rate” — the tax rate that would apply “as if” all of the distortions were embodied in τ_y itself. This effective tax rate is then equal to $1 - 1/RLP$, where RLP denotes the ratio of revenue labor productivity across two groups of firms.

An example of these kind of results is summarized in Table 1. Apparently, big firms — which turn out to be the firms with the highest “true” productivity — have a marginal revenue product of labor that is 8.33 times larger than unregistered firms. Part of this difference could be that big firms employ higher quality labor, although notice from Table IX that big firms pay only slightly higher wages than unregistered firms and even lower wages (!) than small firms. Instead, the interpretation suggested by the Hsieh-Klenow approach outlined here is that big firms face much larger distortions than unregistered firms.

Table 1: Effective Tax Rates Faced by Formal Firms

	Log Difference	Factor (exp(logdiff))	Effective tax rate
Regist. vs Unregistered	.18	1.20	0.17
Small vs Unregistered	1.54	4.66	0.79
Big vs Unregistered	2.12	8.33	0.88

Note: The first column reports the “average” log difference results in Table X.a for value added per employee. The second column is the exponential of this difference. The final column is the effective tax rate — the tax rate on formal firms that would apply if τ_x and μ were zero.

The implication is that moving labor from the unregistered sector into big firms would have a large effect on overall output in the economy. Hsieh and Klenow (2008) perform calculations along these lines (for China and India) to see by how much output could be raised if marginal revenue products were equated across firms.

A similar calculation could be done in this paper, not across individual firms, but across groups of firms. By how much would output be raised if labor were re-allocated across unregistered, small, medium, and big firms to equate the marginal revenue products? I have done some simple calculations along these lines, and the results suggest that output could be increased by a factor of between 3.1 and 3.5 (with a factor of two of this coming from the Harris-Todaro distortion associated with μ). A more careful calculation along these lines would be interesting and would help to shed some light on the important question of “How costly is the informal sector as an approach to providing social insurance?” Large costs might lead us to think about more efficient ways of providing that insurance.