



# Informality as a stepping stone: A search-theoretical assessment of informal sector and government policy<sup>☆</sup>

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## ABSTRACT

This paper develops a model of sequential job search to understand the factors determining the effect of tax and enforcement policies on the size (i.e., employment share) of informal sector. The focus is on the role of informal sector as a stepping stone to formal jobs. I argue that the stepping-stone role of informal jobs is an important concept determining how strongly government policies affect the size of informal sector. I measure the extent of the stepping-stone role with the intensity of skill accumulation in the informal sector. If informal jobs help workers acquire skills, gain expertise, and build professional networks for boosting the chances to switch to a formal job, then the size of informal sector is less sensitive to government policy. In this case, the option value of a job in informal sector will be high and a worker with an informal job will not rush to switch to a formal job when a policy encouraging formal employment is in effect. If, on the other hand, informal sector does not provide satisfactory training opportunities, then the size of informal sector becomes more sensitive to government policy. Calibrating the model to the Brazilian data, I perform numerical exercises confirming that the effect of government policy on the size of informal sector is a decreasing function of the intensity of skill acquisition in the informal sector.

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## 1. Introduction

Empirical studies on the informal economy—especially the ones on the Latin American countries—find that young unskilled workers tend to work at informal jobs right after the school, since they see the informal sector as a stepping stone to acquiring

essential skills that will transition them toward better jobs in the formal sector.<sup>1</sup> Formal jobs are more attractive than informal jobs not only because they pay better, but they provide better on-the-job training opportunities that will improve the workers' future career prospects, and better unemployment insurance and job security arrangements against the labor market risks. In this sense, informal job opportunities are welfare enhancing for the young and the unskilled in the developing countries.

The stepping stone argument may not be equally valid for everyone and for all regions in an informal economy. Wahba (2009) finds, using Egyptian data, that informal employment may be a viable stepping-stone to formal jobs for high-educated males, but is likely a dead end for uneducated and for females. There are also regional and industrial differences. For example, if the informal jobs are heavily concentrated in rural or agriculture-dependent areas and sub-sectors with less physical capital requirements, then potential for advancement for an informal worker is slim, which means that the stepping-stone role is not significant. If, on the other hand, informal jobs are densely located in urban areas or regions with capital-intensive sub-sectors, then the returns to start a career in the informal sector can be much higher. Finally, the composition

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<sup>1</sup> For early papers in the literature, see Fields (1975) and Mazumdar (1976). More recent studies along these lines include Bosch and Maloney (2010), Cunningham and Salvagno (2011), and Gunther and Launov (2012). This is also closely related to the idea that younger workers tend to shop around for temporary jobs that will help them build enough skills, experience, and connections until they reach their final career paths (Topel and Ward, 1992). Moreover, the informal sector appears to play the role of informal job training (Hemmer and Mannel, 1989).

of informal jobs in rural versus urban areas may vary across countries, which implies that the degree of the stepping-stone role may also vary across countries. These facts suggest that the degree to which informal jobs can serve as an advancement path to formal jobs can exhibit a significant degree of heterogeneity (*i*) at the individual level, (*ii*) at the sector level, and (*iii*) at the country level. The main goal of this paper is to assess the effect of government policy on the size of the informal sector taking these differences into account.

I argue that the stepping-stone role of the informal jobs is an important concept to understand the link between government policy and the size of the informal economy. Think of a policy proposal targeting to reduce the size of the informal sector. To be concrete, let's assume for a moment that the government wants to reduce the tax burden on formal labor income for the purpose of increasing the relative attractiveness of formal jobs. Leaving the stepping-stone role aside, a simple theoretical setup will naturally predict a certain degree of substitution from informal jobs to formal jobs in case of a tax cut. If the stepping-stone motives are strong enough (i.e., if an informal job provides vocational training and leads to acquisition of productive skills), then the degree of this substitution will be lower because the option value of informal employment is high when informal jobs serve as a stepping-stone to formal jobs. A simple comparison of the policy consequences in these two environments (e.g., with and without the stepping-stone role of informal jobs) will lead us to the conclusion that the stepping-stone role of the informal sector reduces policy effectiveness; that is, in the tax example, the effect of a tax cut on the size of the informal sector will be much lower when the informal sector is a stepping stone to formal jobs.

I develop an equilibrium sequential search model to assess the relevance of these ideas both qualitatively and quantitatively. The basic theoretical setting is a version of the McCall (1970) search model. There are three labor market states; unemployment, employment in the informal sector, and employment in the formal sector. Unemployed workers gradually lose their skills over time, while employed workers in formal and informal jobs accumulate skills—where the rate of skill accumulation is higher at formal jobs. The motivation behind the way I introduce these ideas into a job search environment comes from Ljungqvist and Sargent (2008). I measure the extent of the stepping-stone role with the intensity of skill accumulation in the informal sector. In other words, whether the informal sector serves as a good stepping stone to formal jobs or not depends on the intensity of skill accumulation in the informal sector. I vary this intensity to understand the link between government policy and the size of the informal sector under different configurations for the importance of the stepping-stone role. This is the first paper in the literature mentioning the stepping-stone role of the informal sector to operate as a mechanism determining policy effectiveness.

Calibrating the model to the Brazilian economy, in which policing is moderate (close to being loose) and around 50 percent of the workers are employed in informal jobs, I perform numerical exercises to assess these ideas quantitatively. The focus is on two policy variables: taxes on formal labor income and the degree of enforcement (or policing). I vary the intensity of skill acquisition at an informal job.<sup>2</sup> I find that a 5 percentage points reduction in taxes—a reduction from 40 to 35 percent—leads to a 6.5 percentage points decline in the size of the informal sector when the stepping-stone role of the informal sector is strong, while the size of the informal sector declines by almost 14 percentage points when the stepping-stone motives are weak.

The same mechanism works when the degree of enforcement is varied, holding the taxes fixed. When the stepping-stone role motives are strong, 10 percentage points increase in the probability of getting caught—an increase from 30 percent to 40 percent—leads to an approximately 9.5 percentage points decline in the size of the informal economy. When the stepping-stone role of the informal sector is diminished, however, the decline in the size of the informal economy now amounts to almost 23 percentage points.

There are also implications for the unemployment rate. It is well-known that there is a tradeoff between lower informal employment and higher unemployment rates; that is, policies that reduce the size of informal employment will likely increase the rate of unemployment (Boeri and Garibaldi, 2005). The model suggests that government policy generates extra unemployment when the intensity of skill accumulation in the informal sector is low. For the tax exercise, the environment with a low-learning-intensity informal sector generates an additional 1.83 percentage points unemployment rate than the environment with a high-learning-intensity informal sector does. The difference goes up to 4.42 percentage points for the enforcement exercise.

These results communicate two related but distinct messages in terms of policy recommendations:

1. These findings suggest that government policy is potentially less effective on the size of informal sector in countries with more capital-intensive, skill-intensive, and “urban” informal sectors. Conversely, standard tax and enforcement policies are potentially more effective in countries with less capital-intensive and rural (i.e., agriculture-oriented) informal sectors. In terms of empirical research based on cross-country comparisons, this result means that the explanatory power of cross-country tax and enforcement differentials on the size of informal sector depends on the composition and types of jobs in the informal sector.
2. At the individual-level, these results mean the effect of government policy on skilled workers in the informal sector will be limited. However, government policy will more likely affect those who work in informal jobs with low-intensity training opportunities.

To my knowledge, this is the first paper in the literature studying the question how the effectiveness of government policy (targeted to reduce the size of the informal sector) depends on the stepping-stone role of the informal sector. Specifically, this paper is innovative in the sense that it introduces the stepping stone role of the informal sector as an intermediary mechanism that determines policy effectiveness. Moreover, this is the first theoretical attempt to explicitly model how informal sector may help workers to get formal jobs and how the existence of this avenue, in turn, affects workers' decision to accept formal versus informal job offers. I incorporate this idea into a version of the McCall search model via an explicit law of motion for human capital, which is stochastic and state-dependent.<sup>3</sup>

This paper is related to a growing body of literature investigating the effect of government policy on the size of the informal sector using search-theoretical models.<sup>4</sup> Boeri and Garibaldi (2005)

<sup>3</sup> Esteban-Pretel et al. (2011) embed the idea of a “stepping-stone” job into a search model; but, they do this in their analysis of contingent jobs versus regular jobs and they do not model human capital dynamics.

<sup>4</sup> There are also papers focusing on the same question in the RBC and AK growth model literatures. Ihrig and Moe (2004) is an example to the former literature and papers including Loayza (1996) and Sarte (2000) are in the latter.

<sup>2</sup> See Section 3 for the details.

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