Journal of Development Economics 99 (2012) 105–115

Contents lists available at SciVerse ScienceDirect

Journal of Development Economics

journal homepage: www.elsevier.com/locate/devec

Coming out of the shadows? Estimating the impact of bureaucracy simplification and tax cut on formality in Brazilian microenterprises ☆

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ARTICLE INFO

Article history:
Received 20 September 2007
Revised 8 September 2011
Accepted 16 October 2011

JEL classification:
D73
E26
K34

Keywords:
Informal economy
Tax legislation
Bureaucracy

ABSTRACT

This paper evaluates the impact of a program of bureaucracy simplification and tax reduction on formality among Brazilian microenterprises — the SIMPLES program. We document an increase of 13 percentage points in formal licensing among retail firms created after the program when compared to firms in ineligible sectors. The impact on retailers is robust to a series of tests. We find no impact on construction, transportation, services and manufacturing sectors.

1. Introduction

In most countries, a substantial portion of the GDP is produced by the so-called shadow or underground economy. In Latin America, for example, the size of the informal sector relative to official GDP ranges from 25% to 50%. For OECD countries, underground activities account, on average, for 16% of GDP (Enste and Schneider (2000)).

A large body of literature addresses the measurement of the shadow economy. Many contributions are published in a special issue of the *Economic Journal* (**109**:456, June 1999) and a survey of the different methodologies and main estimates can be found in Enste and Schneider (2000). However, less attention has been devoted to the causes and consequences of informality. Empirical evidence about key determinants is still very scattered due, predominantly, to the absence of data. As mentioned by Enste and Schneider (2000), "*gathering information about underground economic activity is difficult, because no one engaged in such activity wants to be identified*".

This paper evaluates the effects of new bureaucracy simplification and tax reduction legislation for micro and small firms in Brazil — the so-called SIMPLES system. The analysis of SIMPLES program offers a great opportunity to contribute to the literature on determinants of informality because the program promotes a sizeable reduction in tax burden and reduces the red tape involved in tax payments, and therefore bypassing cumbersome procedures that increase the costs of being formal.

Our evidence is based on a special cross-sectional survey of micro and small firms conducted in 1997, less than one year after the implementation of the program. This database along with the implementation of this new taxation in Brazil provides an opportunity for investigating the informal economy at the firm level.

The identification strategy is based on a few key aspects of the empirical environment. First, the new tax system is restricted to a subset of sectors. We explore this characteristic using a *difference-in-difference* approach, comparing the legal status of firms in sectors affected and not affected by the reform, created before and after the program. By restricting the analysis to a single country, our empirical strategy is less subject to other changes in the legal environment than other studies based on cross-country comparisons. Second, we do have data on unofficial firms – more than 75% of the firms in our sample are unlicensed – and we investigate the variation in the official registration of firms.

We show that the SIMPLES program affects the formalization of economic sectors differently. There is an increase of 13 percentage points in the licensing of retail firms, while the licensing of the other eligible sectors (construction, manufacturing, transportation and service) remains unaffected by the new legislation. Since only 27% of the retailers which started-up before the program are licensed, this result represents a measurable reduction in unlicensed firms in

☆ We would like to thank Áureo de Paula, Sérgio Firpo, Gustavo Gonzaga, Naércio Menezes Filho and Rodrigo Soares for useful comments and suggestions on this paper. Financial support from CNPq and FINEP is gratefully acknowledged. Any remaining errors are our own.

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doi:10.1016/j.jdeveco.2011.10.002

the retail trade sector. The estimated impact on retailers holds after a series of robustness checks, accounting for differentiated time effects across groups, the possibility of split-ups, firm age measurement errors, time to formalize and sector or occupational changes.

The result that SIMPLES effect varies by economic sector is in line with previous indications that the requirements to enter and operate in the formal sector depend on the economic activity (see Capp et al. (2005), Farrell (2004), Paula and Scheinkman (2010)). Since SIMPLES promoted a partial reduction in the cost of being formal, it is possible that the incentives generated vary by sector. We discuss further in the paper why we find positive results just for the retail sector. In particular, we argue that the benefits of SIMPLES reform are clearer for retail firms. Transportation and construction firms face other important barriers to register and there is uncertainty over eligibility in the service and manufacturing sectors.

We are also aware that our empirical setting leaves open the possibility that the effect on the retail sector could be generated by a specific sectoral shock coincident with the SIMPLES reform. Therefore, in addition to the interpretation described above, one can argue that the SIMPLES reform had little significant impact, and that the effect on the retail sector is a statistical artifact generated by another simultaneous sectoral shock. Even after the robustness tests we provide, we are not able to rule out this possibility, especially because we cannot explore possible variations of the reform within our sample. Only future research, with better data, can shed light on these issues.

This paper contributes to the literature on determinants of formality. A first branch of this literature is primarily based on cross-country comparisons. Johnson et al. (1997) and Johnson et al. (1998) present evidence of close relationships between the size of the unofficial economy, taxes, quality of public goods, regulatory discretion, and corruption. Based on a sample of 69 countries and using an instrumental variable approach, Friedman et al. (2000) suggest that bureaucracy, corruption and a weaker legal environment are all determinants of the informal sector. However, they find that the tax rate has no effect on informality. Djankov et al. (2002), studying 85 countries, show that firms have significant entry costs, both in terms of time and monetary fees for registration and licensing, and that stricter entry regulation is associated with higher levels of corruption and the size of the unofficial economy. Auriol and Warlters (2005), using a sample of 53 countries, also show that the shadow economy diminishes when the fixed cost of market entry is reduced.

Recently, there is an emerging literature exploring firm-level data and within country variation to understand the causes and consequences of informality. McKenzie and Sakho (2010) argue that proximity to tax registration office increases the information a firm has about registration and, by using the distance of a firm to the tax office as an instrument, shows that registering to pay taxes leads to significantly higher profits among middle firms but a decrease in profits of small and large firms. Paula and Scheinkman (2010) show that formalization is affected by the tax structure in different value chains. Bruhn (2011) finds that an improvement in business entry regulation stimulates formality. By analyzing the economic effects of a reform that simplified business entry regulation in Mexico, she finds that the reform increased the number of registered businesses by 5%, which was driven mostly by former wage earners opening businesses. However, her results indicate that the program did not stimulate registration among existing informal firms. De Mel et al. (2011) find that simply providing information and reimbursing the cost of registration is not enough to lead firms in Sri Lanka to register. By conducting a field experiment which provided incentives to register to randomly selected informal sector firms, they show that only payments equivalent to one-half to one month profit leads to an increase in registration. Among the firms not registering after receiving the larger incentive, authors show they face issues related to ownership of land.

Taking all together, these studies suggest that the effect of a reform aiming to reduce to costs of formalization may be heterogeneous among firms, depending on the economic and institutional environment. The specific constraints that prevent firms to become formal can vary across sectors and circumstances. Therefore, reforms that do not have a sufficient large scope may fail to increase formalization in some sectors. In this context, our results contribute to a better understanding of the determinants of formality — a joint effort of tax reduction and bureaucracy simplification is found to be effective in reducing informality in retail sector, although having no effect on construction, transportation, services and manufacturing.

The rest of the paper is organized as follows. Section 2 provides the institutional background of the SIMPLES reform. Data are presented in Section 3. The empirical strategy is presented in Section 4. Main results are depicted in Section 5, while a series of robustness checks are provided in Section 6. In Section **7**, we discuss why the results are expected to vary by sector. Finally, we summarize our main findings in the conclusion.

2. Institutional background: the SIMPLES reform

The SIMPLES system (Sistema Integrado de Pagamento de Impostos e Contribuições das Microempresas e Empresas de Pequeno Porte) was enacted in December 1996 with the objective to reduce and simplify the tax system to micro and small firms. According to the Law, microenterprises are firms with an annual revenue equal to or lower than R$ 120,000, while small firms are the ones with annual revenue up to R$ 1,200,000.[1]

The system combines six different federal taxes and social contributions into one single and monthly-based rate. The taxes included in the system are IRPJ (corporate income tax), PIS/PASEP (contribution to employees' savings programs), CSLL (contribution on net profit), COFINS (contribution for financing the social security system), IPI (industrialized products tax) and the employer's social security contribution. The system represents a partial simplification and reduction of the tax burden since firms still need to pay for other federal, state and municipal taxes.[2]

The Law also opens the possibility that states and municipalities collect their most important taxes, respectively, ICMS (value-added tax) and ISS (service tax), through the SIMPLES system. However, in October 1997 when our survey was carried out, only 45 municipalities in the country (out of 5565) have signed an agreement to collect ISS through the SIMPLES system.[3] No Brazilian state adhered to the system in 1997. Apart from that, the system was set nationally and there is no variation across states or municipalities. In 2006, the government added the municipal and state taxes SIMPLES system (instead of simply allowed this possibility). With this modification, the incentives to adhere to the law can vary among states. Unfortunately, there is no survey that enables us to assess the impact of this second reform.

Table 1 presents a diagram that shows the tax and bureaucratic requirements that an entrepreneur needs to perform under the Brazilian regular tax system and the requirements of SIMPLES. Under the regular system, the burden of five taxes covered by SIMPLES (IRPJ, CSLL, COFINS, PIS and IPI) varies from 5% to 11% of gross revenue, depending on the economic activity. In addition, firms must contribute with 20% of the payroll to the social security.

On the other hand, firms under the SIMPLES system pay a single rate that varies from 3% to 5% of the total revenue for microenterprises and from 5.4% to 8.6% for small firms. The SIMPLES rates for microenterprises are the following: 3% of total revenue for firms with annual gross revenue up to R$ 60,000; 4% for firms with annual

[1] The exchange rate in December 1996 was US$ 1 = R$ 1.0365.These limits were increased, respectively, to R$ 240,000 and R$ 2,400,000 in 2004.

[2] Federal taxes not included in the system include FGTS, employees' social security contribution (INSS dos empregados), IOF (financial operations tax), CPMF, ITR (land property tax) and II (Import tax).

[3] Source: http://www.receita.fazenda.gov.br/PessoaJuridica/SIMPLES/MunicipiosConveniados.htm