

# **Finding a Path to Formalization in Benin: Early Results after the Introduction of the *Entreprenant* Legal Status<sup>1</sup>**

Najy Benhassine, *World Bank Group*  
David McKenzie, *World Bank Group*  
Victor Pouliquen, *World Bank Group*  
Massimiliano Santini, *World Bank Group*

This draft: 10/19/2015

## *Abstract*

*In April 2014, the Government of Benin launched the *entreprenant* status, a simplified and free legal regime offered to small informal businesses to enter the formal economy. This paper presents the short-term results of a randomized impact evaluation testing three different versions of the *entreprenant* status on business registration decisions, each version including incremental incentives to registration: (i) information on the new legal status and its benefits, (ii) business training, counselling services, and support to open a bank account, (iii) tax mediation services. 3,600 informal businesses operating with a fixed location in Cotonou, Benin, were randomly allocated between three treatment groups and one control group. One year after the program launch, all versions of the program had significant impact on formalization rates. The impact was 9.1 percentage points in the first treatment group; 13 percentage points in the second group; and 15.8 percentage points in the last group. The program had a higher impact on male businesses owners, with more education, operating outside Dantokpa Market, in sectors other than trade, and that before being offered the incentives to formalization had characteristics similar to businesses already formal. Data from a second follow-up survey expected in March 2016 will explore the impacts on other outcomes, like business performances or access to banking.*

---

<sup>1</sup> The authors owe particular appreciation to all the experts and colleagues who contributed to the design and implementation of the *entreprenant* program and its impact evaluation: Louis Akakpo, Theodore Anthonioz, Zoubir Benhamouche, Julien Bornon, Laurent Corthay, Tonagnon Dadjio, Matina Deen, Magueye Dia, Benedicta Houetchenou, Ferdinand Ngobounan, Adrien Pawlik, Dolele Sylla, Kjartan Sorensen, Hamidou Sorogo, Adama Tiendrebeogo, and Alain Traore. The authors would also like to thank the Government of Benin for the cooperation and support during the impact evaluation, CGA (*Centres de Gestion Agrées*), GUFÉ (*Guichet Unique de Formalisation des Entreprises*), Bank of Africa, and Orabank. Research for this paper has been supported by the World Bank Group (WBG), the U.S. Agency for International Development, the U.K. Department for International Development (DFID), Foreign Affairs, Trade and Development Canada (DFATD), through the Impact Program managed by the WBG's Trade and Competitiveness Global Practice; by the WBG's Development Economics Research Group; the Strategic Research Program (SRP); and by the Private Enterprise Development for Low-Income Countries (PEDL) initiative managed by the Centre for Economic Policy Research (CEPR) and DFID. For questions or comments, please contact Massimiliano Santini at <msantini@ifc.org>.

## 1. Introduction

In developing countries, a large majority of small and medium firms operate in the informal sector (La Porta and Shleifer, 2014a). In Benin, informality is particularly high: in 2009, the national statistics agency estimated that the informal sector represented up to 70 percent of the GDP and 95 percent of employment (INSAE, (2009)). High level of informality may carry some costs for both Governments and firms. Governments may face more difficulties to collect taxes and finance public services (Levy 2008). Informal firms may not be able to access bank financing, public contracts and government programs and may face more corruption or intimidations from the authorities. Formal firms may suffer from unfair competition by the informal sector (Farrell (2004)) and from higher taxes if all the tax burden is supported by the formal sector. Two competing and not mutually exclusive theories may explain why most firms remain informal (Perry et al. (2007)). The *exclusion* hypothesis, often attributed to De Soto (1989), supports the view that administrative rigidities and direct costs of registration discourage firms from formalizing, whereas according to the *exit* hypothesis (Levy (2008), Maloney (2004)) firms rationally choose to stay informal by comparing costs and benefits of formality. Direct and indirect (i.e. added taxes) costs of registration may be greater than potential benefits for most informal businesses which are small, have very low productivity, and employ managers with low level of human capital (La Porta and Shleifer, 2014b).

Following the publication of the *Doing Business* project of the World Bank, many countries around the world recently implemented a large number of business entry regulation reforms in order to reduce informality. For example, between 2004 and 2014, 100 out of the 189 countries included in the *Doing Business* project implemented a “one-stop shop” for business registration to reduce the number of steps and the time required to register a firm (World Bank (2015)). However, the literature suggests two important results: (1) easing entry regulation and providing information may not be sufficient to increase formalization (at least when formality also means tax registration) and (2) formalization alone may not be sufficient in itself to increase firms profit and stimulate growth.

A recent review of the literature by Bruhn and McKenzie (2014) suggests that reforms which only ease business registration have limited impact on formalization. In Mexico, Bruhn (2013) finds that a significant simplification of the registration process had a limited impact

on informality. In Sri Lanka (de Mel et al. (2013)) and in Bangladesh (De Giorgi and Rahman (2013)), public programs providing information and cost reimbursement had no effect on the formalization rate. In Brazil, Andrade et al. (2013) evaluate the impact of three different interventions on business formalization. Providing information on the registration process and removing the cost of formalization had no effect on formalization rate, but municipal inspections increased the formalization rate by 22 to 27 percentage points. In Peru, Alcázar et al. (2010) find that offering a subsidy for the cost of obtaining a municipal license led to 10 to 12 percent of informal businesses obtaining it. In Malawi, Campos et al. (2015) find that offering assistance with costless business registration and (separate) tax registration had large impacts on business registration, with 75 percent of those offered assistance obtaining a business registration certificate, but only a limited impact on tax registration.

Evidence on the effect of becoming formal on business performances suggest that whereas some firms may see some benefits from formalization, like being able to advertise more or issuing receipts, for most firms these benefits are smaller than the costs associated with formalization in terms of additional taxes. The study in Sri Lanka (De Mel et al. (2013)) is the only one to our knowledge that finds some impact of formalization on business profits, and this impact is driven by a handful of firms for which profit increased significantly.

Bank financing is often hypothesized as one of the major channels through which formalization can improve firm performance, yet randomized experiments measuring formalization in Sri Lanka (De Mel et al. (2013)) and Brazil (Andrade et al. (2013)) have recorded no significant increase in the number of bank loans awarded to firms becoming formal. One possible reason is that newly formalized firms require more than just their formal certification, but also facilitation and access to banks. In Malawi, one version of the program evaluated in Campos et al. (2015) offered some support to open a bank account as an additional incentive to formalization. Short-term effects showed some impacts on the number of businesses owning a bank account, on savings, and on the use of complementary financial products.

In April 2014, the Government of Benin launched the pilot phase of the *entreprenant* status, a simplified and free legal regime offered to small informal businesses to enter the formal economy. This paper presents the short term results of a randomized impact evaluation testing

three different versions of the *entreprenant* status on business registration decisions, each version including specific incentives to registration.

The first version of the program tests whether simplifying entry regulation and providing information alone could be effective in Benin, where formalization also means tax registration.<sup>2</sup> Specifically, in-person visits were conducted with informal businesses to present the new *entreprenant* status available freely and in a day. The second version of the program is based on the idea that businesses may need additional incentives to take up formalization and, once formalized, additional support to access benefits and grow. In this version of the program, businesses that choose to formalize had the option to benefit from business training, counselling services, and some support to open a business bank account at advantageous conditions. Finally, in the third version of the program, businesses received tax mediation services as an additional incentive to formalization. The premise was to provide some form of protection in case the tax inspectors abused their power with newly formalized businesses. This last version of the programs wants to test the extent to which the fear of the tax administration is a barrier to formality. To our knowledge, this is the first attempt to answer experimentally this question.

3,600 informal businesses operating with a fixed location in Cotonou, including Dantokpa market (one of the largest market in West Africa) where randomly allocated between these three treatment groups and one control group. In comparison to the studies mentioned above, this sample is composed by micro and small businesses with 1.2 employees on average and a monthly profit of XOF 47,000 (USD 213).<sup>3</sup> One year after the program started, all 2,400 informal businesses selected in the treatment groups received at least one visit from an advisor who presented the program and the potential benefits associated with formalization (specified by group). The advisors were affiliated with the CGA in Cotonou (*Centres de Gestion Agréés*), a semi-public organization that specialized in business trainings. About 14 percent of businesses in groups 2 and 3 have started to use business training or counselling, and only 3% opened a bank account.<sup>4</sup>

---

<sup>2</sup> A majority of informal businesses also pay taxes but usually the amounts to be paid are much smaller for informal firms. See Section 2 for a description of tax implications of formality.

<sup>3</sup> USD 1 = XOF 218.82 in PPP terms in 2011-2015 (World Bank).

<sup>4</sup> Results on bank account opening are based on data from Bank of Africa (updated to November 2014) and Orabank (updated to April 2015).

In this paper, we focus on the program impact on formalization one year after the program rollout. Important components of the program, like the business trainings, the counselling and the bank services were implemented more than 6 months after the program started. The impact that formalization could have on other outcomes like business performances or access to banking may therefore take more time to materialize. Data from a second follow-up survey expected in March 2016 will explore at the impacts on these other outcomes.

One year after the program launch, all versions of the program had a significant impact on formalization rates. The impact was 9.1 percentage points in the first treatment group providing only registration simplification and information; 13 percentage points in the second group, which also provided business training, counselling and bank support services; and 15.8 percentage points in the last group, which also added to the previous group's benefits the provision of tax mediation services. Differences between groups are all significant, suggesting that businesses valued the additional incentives provided. These impacts are slightly higher than those measured in studies conducted in other contexts, especially given the fact that formalization is linked to tax registration in Benin. Formalization rate in the control group was less than 1 percent, suggesting that in the absence of the program, this type of informal businesses would not usually formalize.

The program had a higher impact on male businesses owners, those with more education, operating outside Dantokpa Market, in sectors other than trade, and that before being offered the incentives to formalization had characteristics similar to businesses already formal. Program impacts in all these sub-population were significantly higher than in the rest of the sample, but formalization rates still did not exceed 23 percent. As a result, the majority of the informal sector are likely to remain informal, even after this policy change.

Two factors may explain why we did not observe greater impacts. First, the lack of proper identification was a barrier: only 53% of business owners had a passport or an ID card, the official documents required to formalize. Second, despite the impact on formalization, the program did not impact much the perception of formalization for many firms. For example, significant shares of beneficiaries still considered registration time and cost excessively high, and procedures complicated.

The remaining sections of the paper are organized as follow: Section 2 presents the potential benefits and costs associated with formality in Benin, section 3 details the *entreprenant* program, the sampling, the study design and the data. Section 4 describes program implementation during the first year and take-up on program components. Section 5 presents program impact on formalization, section 6 analyses mechanisms that could explain the results on formalization and section 7 concludes and presents the next steps.

## **2. Potential benefits and costs of formalization in Benin**

Following technical assistance provided by the World Bank Group (WBG) and other donors, OHADA member countries (*Organisation pour l'Harmonisation en Afrique du Droit des Affaires*) adopted a revised General Commercial Law in December 2010, which came into effect in May 2011. The new law, immediately applicable to all OHADA members, introduced the *entreprenant* status, a simplified legal regime specifically designed for small entrepreneurs, whose intended objective is to facilitate the migration of businesses operating in the informal sector into the formal sector. However, the law did not explicit how the *entreprenant* status practically functioned, nor the specific combination of incentives that it would include, allowing instead each country to fill in the vacuum through *ad-hoc* secondary legislation and institutional changes. Benin, as a member of OHADA, is the first OHADA country to roll out a pilot version of the *entreprenant* legal status.

The *entreprenant* status can apply to a physical person running a micro or small business involved in any type of activity. Formalization with this new status is easy, free of charge and takes only one business day. The introduction of the *entreprenant* status is part of a broader effort from the Government of Benin to simplify and reduce the costs of formalization. Reforms of other existing legal status were implemented a few months before the creation of *entreprenant* status, and included the creation of a one stop-shop for formalization, and a significant reduction of registration costs associated to the main existing legal status. The registration cost for individual enterprises dropped from XOF 65,000 (USD 297) to XOF 10,000 (USD 46) and from XOF 225,000 (USD 1,028) to XOF 17,000 (USD 78) for limited liability companies (only the *entreprenant* status is totally free of charge). For all statuses the time to register was reduced to one business day. As these reforms (including the creation of the *entreprenant* status) were implemented recently, the knowledge of the new conditions to

formalize were not likely to be known by the majority of informal businesses operating in Cotonou at the time of the start of the program.

Formalizing in Benin means to choose a legal status and register at the chamber of commerce (GUFÉ, *Guichet Unique de Formalisation des Entreprises*). It offers some potential benefits (presented in Table 1) depending on the type of status chosen. Most of these potential benefits are related to the possibility to apply for bank services, or to access to new markets like government and large companies' contracts. The *entreprenant* status gives access to all advantages except the rights to export and to access large public contracts. It is explicitly targeted to micro and small businesses managing one type of activity with a limited turnover.<sup>5</sup> Businesses with multiple activities or with turnover greater than a threshold in two consecutive years will lose *entreprenant* status and adopt the *individual entreprise* status.

When they formalize, businesses get a unique fiscal identifier and are registered with the tax administration. Accordingly, the main potential cost of formalization is related to taxes. In Benin, the link between formalization and taxes is complex and varies according to the business. In theory, all businesses with a fixed location would pay taxes even if they were informal. Before the reform of the tax system affecting microentrepreneurs was introduced in 2015,<sup>6</sup> which will be used to calculate the tax owed in 2016, there were four different tax regimes that could apply to informal businesses in Cotonou, depending on their location and economic activity.<sup>7</sup> The regime most commonly applicable was the TPU (*Taxe Professionnelle Unique*) and was calculated based on the rental value of the business premises. However, in the majority of cases taxpayers do not have a lease contract, the only official and opposable proof of rental value. As a result, the law assigned the tax administration as responsible for assessing the rental value. This assessment often left a door

---

<sup>5</sup> The OHADA General Commercial Law defines the *entreprenant* as having an annual turnover below XOF 30 million (approximately USD 137,100) for trading activities, XOF 20 million (approximately USD 91,400) for crafting activities (artisans), and XOF 10 million (approximately USD 45,700) for services. Once the small business adopts the *entreprenant* status, the turnover threshold should not be exceeded for more than two consecutive years.

<sup>6</sup> On December 2014, the Beninese Parliament adopted a new MSE tax regime. This regime introduced the Synthetic Professional Tax (TPS: *Taxe Professionnelle Synthétique*) which replaces the four taxes that micro and small enterprises were subject to before the reform. This new tax introduces a major shift by changing the basis of tax calculation from the rental value to the use of turnover. This reform creates more predictability and transparency in the calculation of the amount of tax due and prevents small businesses from abuses of tax officers. MSEs will start paying the TPS in 2016 based on their 2015 turnover. All *entreprenants* will pay the TPS.

<sup>7</sup> The four tax regimes were the following: "*Taxe Professionnelle Unique*" (TPU), "*Taxe Unique sur les Transports Routiers*" (TUTR), "*Régime du forfait des revendeurs de tissus et divers*", and "*Régime du bénéfice réel simplifié*".

open for discretion. In practice, tax inspectors estimated businesses ability to pay based on their appearance and on discussion with business owners.

Data collected before program implementation, presented in Table 2 (see section 3.2 below for a description of the database), suggest that taxes were more important for formal businesses for two reasons: first informal businesses were less likely to pay taxes, and second when they were paying taxes, they represented a lower share of their profit<sup>8</sup>. Slightly more than half (55 percent) of the informal businesses targeted were paying some form of tax in 2013. For formal businesses, it was the great majority (84 percent). One explanation for this difference is that informal businesses can possibly avoid paying taxes if their businesses are closed when tax inspectors visit the area. For formal businesses, it is more difficult because the tax administration knows that their businesses exist and should pay something. On average, the amount of taxes paid by formal businesses in 2013 represented 13 percent of annual profits for formal businesses, and only 5 percent for the informal ones. If we only consider businesses which paid some taxes in 2013, the amounts paid represented 17 percent of annual profits for formal businesses and 9 percent for informal ones.

However, the main objective of the Government of Benin with the *entreprenant* program is not to increase the tax collected in the short term. When they formalize, businesses can benefit from tax exemptions under certain conditions. Businesses which also register to the CGA (an association providing business counselling and account certification) can benefit from a full tax exemption for the first year after formalizing, in addition to a reduction of 40% in the amount of taxes due for the following 3 years. As a result, the amount of taxes paid in the very short term may not be sizeable for many businesses.

### **3. Evaluation design**

#### **3.1. Program description**

The *entreprenant* status can be considered as a package of incentives to formalization that the Government offers to small business. The implementation of the *entreprenant* status in Cotonou offers the ideal conditions to study the impact of different packages of incentives on

---

<sup>8</sup> It is difficult to compare informal and formal businesses since levels of profits are very different. Indeed, the difference in tax rates may only reflect progressivity with profits. However, when we compare tax rates at similar levels of profit, the correlation between tax rate and formality is strongly negative.



formalization decisions, the legal environment in which firms operate, and how businesses interact with public authorities. Also, it shows the impact of different business and entrepreneur characteristics as determinants of formalization, and whether specific incentives carry any tangible benefits for the firm and its growth prospects.

The impact evaluation of the *entreprenant* status is a randomized control trial that tests the three following packages of formalization incentives.

*Package A* of incentives includes the following components:

- Provision of information on the new registration system, given in-person to business owners;
- Provision of tax information and clarification on the existing tax regimes applicable to the *entreprenant*.

*Package B* of incentives includes the following components:

- Services and training: services include support to entrepreneurs in the formalization process and, for example, help in drafting financial statements, business plans, and bookkeeping; training include basic accounting and business management, and initiation to legal and tax obligations;
- Bank services: creation of a bank account (checking or saving) with a commercial bank.

*Package C* of incentives includes the following components:

- Provision of tax mediation services: support on preparing the tax declarations; provision of safeguards against arbitrary practices from the tax administration through mediation services between *entreprenants* and the tax authority.

The three different packages of incentives were delivered by the following institutions:

- GUFÉ, the one stop-shop for business registration based in Cotonou. Two additional staffs were hired to assist with *entreprenants* registration;
- CGA, formed by two non-profit organizations based in Cotonou whose mission is to provide small and medium enterprises with business management, accounting, and tax consulting services. Twenty-four advisors, one hotline assistant, and one supervisor were hired at CGA to implement the program;
- Two commercial banks, Bank of Africa (BoA) and Orabank.

The following paragraphs describe in details all program components.

### **3.1.1. Package A – Information on the *entreprenant* status**

CGA advisors visited each business selected in treatment groups and explained the benefits of becoming an *entreprenant*. Different leaflets were given and explained to business owners: one leaflet described the *entreprenant* status, its advantages and requirements, one leaflet explained the registration process at GUFÉ, and one leaflet explained the different tax regimes applicable to *entreprenants* and how to calculate taxes due within each regime (see section 2).

The informal businesses that decided to formalize submitted an application at GUFÉ to obtain the *entreprenant* card. When necessary, CGA advisors helped *entreprenants* with the formalization process at GUFÉ, including filling in the declarations and preparing all the required accompanying documents.

### **3.1.2. Package B – Provision of business services and trainings**

Following the first visit to each business, CGA advisors organized a second visit to deliver a 1-2 hour personalized training session. All businesses in group 2 and 3 were eligible for this second visit even if they had not yet formalized. In addition to the business training, the purpose of this visit was to nudge business owners to participate to the *entreprenant* program. Once the informal business registered at GUFÉ and received the *entreprenant* card, it agreed with the CGA advisors on additional specific trainings that it might need. CGA advisors delivered the business trainings and services via a dedicated “*entreprenant* unit,” using modules customized and developed with WBG support.

The advisory services and trainings were carried out on a one-on-one basis with the businesses at their premises and during group sessions organized at CGA. The group sessions included four workshops: three mandatory and one optional. The mandatory workshops were: (a) basic accounting, (b) initiation to tax obligations, and (c) financial education. For the optional workshop, businesses were invited to choose between (i) basics of microenterprise management, (ii) initiation to sales development and access to markets, and (iii) basic of business plan development. Each workshop lasted three consecutive half-day. Once the business owner completed the four workshops with the CGA, he/she received an official diploma, and a sticker acknowledging that he/she received the training.

### **3.1.3. Package B – Support with bank services**

In addition to the information on the *entreprenant* status and the training and counselling services, businesses in groups 2 and 3 also received support from CGA in opening a bank account. This support was not mandatory, and the *entreprenant* could decide to open a bank account autonomously. The bank account is directly linked to the *entreprenant* activity and it is not a personal account.

The banks partners of the impact evaluation (Orabank and Bank of Africa) designed a specific banking product for the *entreprenant*, with dedicated services and simplified banking access conditions, including debit card, bank account consultation with mobile phone, cash transfers, SMS-banking, internet banking and mobile money. *entreprenant* bank accounts in both banks are cheaper than what businesses can usually get (around XOF 1,000 per month (USD 4.6) against XOF 2,000 (US 9.1) and do not require any initial deposit, whereas business bank accounts usually do in Benin. CGA advisors assisted the *entreprenant* in presenting the information needed to open a bank account and give the necessary training to the entrepreneur on how to use the account.

### **3.1.4. Package C – Provision of tax preparation support and tax mediation services**

For businesses in group 3, the CGA tax advisors offered as an additional incentive to formalization, tax preparation support and protection in case tax inspectors abuse their power when assessing and collecting the taxes owed.

Those businesses that formalized under the third group, were offered help in preparing the tax forms (including tax returns and supporting documentation). However, given that most businesses were subject to the TPU, and that the amount of TPU to be paid by a given business is determined by the tax administration without any form being filled by the business, this “offer” was not technically implemented. It will, however, be implemented starting in 2016, when the new tax regime comes into force. The advisors also left their contact information in case the *entreprenant* had any complaints about future tax payments and inspections.

Advisors then took action when an *entreprenant* asked for help in interacting with the tax administration, and they served as intermediary between the tax administration and the *entreprenant* in order to provide solutions that satisfy both parties, in case of complaints.

### 3.2. Sample selection and study population characteristics

In order to select the study population, a listing survey was conducted in Cotonou in March-April 2014. This survey was designed in order to obtain a representative sample of all businesses operating in Cotonou including Dantokpa market. All businesses with fixed location, excepting international and nationwide companies, were targeted.

Sampling protocols for inside and outside the market were different:

- *Sampling framework for Dantokpa market:* we used a precise map of the market made by SOGEMA (*Société de Gestion des Marchés Autonomes*), the public company managing markets in Benin. This map allowed to divide geographically the market in small areas. We have then randomly selected areas in the markets in which 50% of the businesses (with fixed location) were sampled for the survey.<sup>9</sup>
- *Sampling framework for other neighborhoods of Cotonou:* We were able to obtain detailed maps of each of the 144 neighborhoods in Cotonou. Those maps allowed identifying the easy identification of *ilots* (blocks), the official administrative unit within a neighborhood. We used this administrative unit as a reference for the listing survey sampling. We then used information given by the tax administration (and confirmed by the survey company) in order to characterize neighborhoods as high or low firm density areas. We randomly sampled 38% of *ilots* in high density neighborhoods and 10% of the *ilots* in low density neighborhoods. In each *ilots* 68% of businesses were sampled for the survey in average.

Overall, 19,246 businesses were listed by surveyors. The listing survey allowed us to estimate the total number of businesses operating in Cotonou (with a fixed location, excluding nationwide businesses and liberal professions) to approximately 68,500, including around 5,000 in Dantokpa market.<sup>10</sup> Among those 19,246 businesses, 9,938 businesses were randomly selected to be surveyed. 7,945 (80%) businesses were successfully surveyed, 1,000 (10%) businesses refused to be surveyed, and 995 (10%) businesses were dropped because the

---

<sup>9</sup> Few areas were excluded from the sampling frame because they almost exclusively included businesses selling illegal products (i.e. taint oil, medicine, and voodoo products) or by large formal businesses.

<sup>10</sup> As previously indicated, some sections of Dantokpa market were not included in the listing survey. Therefore, the total number of firms in Dantokpa is probably much higher.

business owner was not available or not reached after 4 attempts. Figure 1 details the listing survey results inside and outside the market.

From the 7,945 businesses surveyed, a population of 3,600 businesses was then selected to participate to the study based on the following goals:

- Drop businesses already formal;
- Drop businesses that will probably not cooperate in the future or which will be probably difficult to find (i.e. businesses that refused to provide information on profits or turnover during baseline survey);
- Trim the database from (a) businesses very close to formalization who would have formalized anyway and (b) businesses very far from formalization which would not be interested by the program;
- Remove businesses that ever got a loan from a commercial bank that will most probably not been interested by the program (less than 3% of informal businesses);
- Reduce the standard deviation of the main outcomes (profit and turnover).<sup>11</sup>
- Include a sufficient number of businesses in Dantokpa market.<sup>12</sup>

Table 2 shows descriptive statistics for businesses selected in the sample and businesses not selected.

The study sample is composed by relatively small businesses with 1.2 employees on average. The great majority of businesses (86%) were created over a year before being surveyed, 55% of businesses were involved in trade activities, 26% worked in services, and 16% were craftsmen. 63% of businesses sampled for the study were owned by women. This reflects the high share of female owners in Dantokpa market. Around 30% of businesses owners never went to school, and less than 20% of the businesses were keeping some type of accounting. As described previously, the majority of businesses paid some form of tax (55%), but the great majority complained about not knowing in advance the amount of taxes owed to the tax authority (74%).

---

<sup>11</sup> Outside Dantokpa market we excluded businesses with sales or profit lower than XOF 12,000 (USD 55), profit greater than XOF 150,000 (USD 685) or sales greater than XOF 400,000 (USD 1,828). In Dantokpa market, we excluded businesses with sales or profit lower than XOF 10,000 (USD 46), profit greater than XOF 200,000 (USD 914) or sales greater than XOF 500,000 (USD 2,285).

<sup>12</sup> We choose to take 22% of total study population from Dantokpa market to have the same share of businesses from the market than in the 2008 firm census (INSEA, 2008).

In comparison to similar studies in other contexts, this study population is composed of businesses with slightly smaller sizes. In the study in Malawi (Campos et al, 2015), businesses had on average 2 employees and monthly profit of USD 214, while in the study in Sri Lanka (de Mel et al. (2013)), businesses had on average 3 employees and monthly profit of USD 300.

Businesses selected for the study have very similar characteristics to the whole population of informal businesses surveyed, and the overall study shows good external validity.

Formal businesses had on average 3.2 employees and monthly profits of around XOF 210,000 (USD 960), while informal businesses had 1.1 employees and a monthly profit of XOF 46,000 (USD 210). Formal businesses also had higher access to the banking system: 80% of them owned a bank account, whereas only 20% of informal businesses did.

### **3.3. Evaluation Design**

The 3,600 informal businesses were randomly allocated into three treatment groups and one control group. The first group of informal businesses received package A of incentives, the second group packages A and B of incentives, and the third group packages A, B and C (see paragraph 3.1).

The randomization was done in office using STATA. The following methodology was used for stratification:

- (1) 16 strata were created using the following variables: business owner gender, business operating in Dantokpa market, trader and business owner a bank account.
- (2) Inside each stratum a Z-score was created as the average of standardized profits, turnover and number of employees. Based on this Z-score, triplets of businesses were created and inside each triplet, businesses were randomly allocated to 3 groups: group 0, group "1 and 2", and group 3. Each group included 1,200 firms.
- (3) The 1,200 businesses in group "1 and 2" were randomly allocated into group 1 with 300 businesses and group 2 with 900 businesses.

As a result, 300 businesses were allocated to group 1, 900 to group 2, 1,200 to group 3 and 1,200 to the control group. Figure 2 describes the organizational chart of the interventions.

We decided to allocate fewer businesses in groups 1 and 2 than in group 3 and in the control group for statistical power consideration. We were interested in estimating both the impact of the different packages of incentives on formalization and in estimating the impact of formalization on business performances. For the second question, we needed the take-up rate on formalization to be sufficiently high to have enough statistical power. The literature on the impact of business regulation reforms suggests that programs which only simplify and cut the costs of formalization have very limited impact, and we therefore anticipated a small impact on formalization in group 1. We wanted to be able to check that in the context of Benin, but we included more businesses in treatment groups offering more incentives for which we expected a higher impact on formalization.

Table 3 presents the results of balance checks of baseline characteristics across the different treatment groups and control group. Overall, it shows that all groups are relatively well balanced with respect to observable characteristics: the number of tests that are statistically significant is close to what should be expected due to chance (2 out of 15 tests for the joint tests of all coefficients are equal to zero are significant).

### **3.4. Data**

Three main sources of data are used for this study: administrative data on formalization and program implementation, in-person quantitative surveys with business owners, and qualitative data with study participants and implementing agencies.

Our main measure of formalization is based on monthly administrative data on business registration provided by the GUFÉ. This database includes the complete list of all newly registered businesses for all legal entities. We matched this list with the list of business owners who participated to the program. Two important features characterize this measure of formalization:

- Formalization rate is captured for all legal entities: Most businesses in the control group were not aware of the new *entreprenant* status, so they were probably more

likely to choose another legal status if they wanted to formalize. For this reason we choose to define formalization as registered at the chamber of commerce and not to only focus on the *entreprenant* status.

- Matching businesses in the GUFÉ database with businesses in the program database involved several steps. In order to match two businesses, we used the variables business owner names, business address, gender of the owner, sector of activity and phone number; however, in some cases name spellings were different in both databases, and most of the times addresses were not precise. For this reason, we used a conservative definition of a match between the business names in the two databases as “two businesses with a close surname, and at least one close first name, and either the same phone number, or the same sector of activity and an address in the same neighborhood.” Using this definition, the likelihood that a business in the program database was considered as formal, whereas the business was in reality not formal, was very low (see Annex 1 for additional details of the matching process). The opposite case (i.e. a business was considered as informal, whereas it is in reality formal) is however more likely, so this measure of formalization most probably underestimates the actual number of businesses which formalized in all groups. This does not imply that the measure of program impact is biased, but just that formalization rates in both treatment and control groups are underestimated by the same percentage.

Other main outcomes on business performances (profits and turnover) and intermediate outcomes like business knowledge and practices, taxes and banking were measured through in-person interviews with business owners. The first survey of the selected sample of businesses was conducted in March-April 2014 prior to program implementation and was also used for the sampling. A follow-up survey was conducted in April-May 2015 to measure short-term effects one year after the program started. Attrition at this survey was 11.9 percent and was not correlated with treatment status. One year after the baseline survey, 6.1 percent of the businesses had closed their operations. Business closure is also not correlated with treatment status. Table 4 presents survey rate, closure rate and reason for attrition by groups.

Program implementation data were also collected to better understand the quality of services delivered. These included detailed monitoring data from CGA and qualitative surveys with implementing agencies and program participants. 30 semi-structured qualitative interviews



were conducted with program participants at different stage of the program, a qualitative surveyor was also regularly sent with the CGA advisors to assess if the study design was respected (29 surveys). In addition, 61 qualitative interviews were conducted with business owners not selected for the program to monitor potential externalities of the program. Finally, focus groups were conducted with the main implementing agencies (CGA, GUFÉ and both commercial banks).

A final in-person follow-up survey will be conducted in March 2016 to measure the medium-term effects after two years from the beginning of the program, in particular the impact on business performance.

#### **4. Program implementation**

Data from the implementing partner, in addition to quantitative and qualitative data, suggest that the program was implemented consistently with the study design. Treatment allocation was respected for all businesses, and all components of the program were effectively offered to almost all program beneficiaries.

The advisors from CGA delivered the program to each business owner following four main steps:

- (1) First visit: A CGA advisor conducted a first visit to each business to explain the benefits of becoming an *entreprenant*, specific by group, and to distribute informational leaflets. If a business owner was not present on the day of the visit, the CGA advisor attempted to call the owner on the phone. If the owner could not be reached, the CGA advisor made another attempt by trying a visit or a call in different moments of the day. After 4 attempts (visits or calls), the business was considered as not interested;
- (2) Second visit: For businesses in group 2 and 3, the same CGA advisor called, arranged, and confirmed a meeting, which took place approximately two weeks after the first visit, and provided 1-2 hours of personalized training. If a business owner was not present on the planned day of the second visit or could not be reached, the CGA advisor made another attempt by trying a visit or call in different moments of the day. After 3 attempts (visits or calls), the business was considered not interested.

Registration at GUFÉ was not mandatory to be eligible to this second visit. In group 3, the CGA advisor devoted additional time in reviewing the procedures to calculate the taxes to pay, and the option of receiving tax mediation help, if necessary;

- (3) Formalization decision: After having received the first and/or the second visit, business owners decided whether or not to register as *entreprenants* at GUFÉ;
- (4) Provision of additional benefits: Businesses in group 2 and 3 could also register to CGA, and receive counselling and business training (group sessions). Businesses in group 3 could benefit from tax mediation services with CGA, if needed. Finally, businesses could open a bank account with specific conditions at BoA or Orabank.

The program was implemented on a rolling basis: CGA advisors started to reach out to informal businesses in April 2014, and completed both visits in February 2015. The advisors are currently offering group trainings and counselling services to the *entreprenants* that requested it after the registration.

Between April 2014 and January 2015, 2,400 “first visits” (100% of total) were attempted by CGA. The take up rate for the first visit was remarkably high and 2,344 were completed with success (98% of total). First visits were considered as not completed successfully when CGA advisers were not able to locate the business. Between April 2014 and February 2015, all businesses who received a first visit in groups 2 and 3 were offered a second visit by CGA. Only 932 of these second visits were completed with success (44% of total). The main reasons for this relatively low take-up rate were that many businesses were not interested by the second visit, or did not have time to receive it. Most of the group training sessions applicable to businesses in groups 2 and 3 were conducted after September 2014. The time lapse between the first and the second visits was much greater than originally planned (3 months in average instead of 2 weeks) due to logistical constraints, and because it often required several trips to the business to complete the second visit successfully.

As of April 2015, 251 businesses registered with CGA (12% of total in groups 2 and 3), and 143 businesses participated in a group training session at CGA (7% of total in groups 2 and 3). Since businesses had first to register with GUFÉ in order to be eligible to register at the CGA, and thus receive the trainings, the percentage of eligible businesses that did register with CGA is sizeable. In fact, 78% of the businesses in groups 2 and 3 that formalized (322 businesses in total) decided to register with the CGA, and slightly less than 45% decided to

obtain trainings. Business owners in group 2 and 3 who decided to register as *entreprenant* had also the possibility to open a bank account at BoA or Orabank. As of April 2015, 69 businesses opened a bank account (3.2% of total).<sup>13</sup> Panel A of Table 5 summarizes the program implementation progress until May 2015.

Qualitative information collected during program implementation<sup>14</sup> with beneficiaries suggests that the program was implemented following the study protocol and in particular that the formalization process with the *entreprenant* status was considered as simple and fast and was free. Panel B of Table 5 shows quantitative data from follow up survey and confirms that the formalization process was fast and cheap for businesses in treatment groups. More than 85 percent of businesses that benefited from the program declared that they did not pay anything to formalize (those who paid something in the treatment groups formalized with another status than the *entreprenant* status).

Qualitative work conducted few days or weeks after the businesses received a visit from the CGA suggests that the program understanding was relatively good, given the complexity of the intervention. However, data from the midline survey suggest that after some time, most businesses had forgotten the program. Only 36 percent of businesses in groups 2 and 3, and 24 percent of those in group 1, remembered the *entreprenant* program. Moreover, only 21 percent in groups 2 and 3, and 11 percent in group 1, were able to describe correctly what it is.

In the control group, only 6 percent of the businesses declared that they had heard about the *entreprenant* program, and 2 percent were able to describe it correctly. It suggests that only marginal externalities were generated by the program on those not directly targeted. This is consistent with qualitative interviews conducted with informal businesses not targeted by the program.

For businesses in group 3 that formalized, tax mediation services were implemented by CGA. Some *entreprenants* reported that the tax administration requested for tax payments higher

---

<sup>13</sup> For Orabank, data are available until April 2015, and for BoA until November 30<sup>th</sup>, 2014.

<sup>14</sup> 22 semi-structured qualitative interview with program participants after they received the first of second visits; 29 field visit with the CGA advisors during the first or second visits; 8 interviews with business owners who decided to formalize; 61 interviews with informal businesses not selected for the program; focus groups with all implementing agencies.

than expected. The CGA advisors helped them to solve these issues as they arose. Only 2 cases happened in the first year of program implementation.

## 5. Results

### 5.1. Estimation Specification

Our estimation is at the business level, and involves the following specification for business  $i$ :

$$Y_{i,t=1} = \beta_0 + \beta_1 T1_i + \beta_2 T2_i + \beta_3 T3_i + X'_{k,i} + \varepsilon_{i,t=1} \quad (1)$$

Where  $Y_{i,t=1}$  is the outcome variable (formalization),  $T1_i$  is an indicator for being assigned to treatment group 1,  $T2_i$  an indicator for being assigned to treatment group 2 and  $T3_i$  an indicator for being assigned to treatment group 3.  $X_k$  is a vector of strata dummy variables (one dummy variable for each triplet of businesses) (Bruhn and McKenzie, 2009) and  $\varepsilon_{i,t}$  is the error term.  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  provide the intent-to-treat effect of been assigned to group 1, 2 and 3. This is the effect of being a business assigned to treatment 1, 2 or 3 relative to being a business in the control group.

### 5.2. Impact on formalization

As detailed in section 3.4, our main measure of formalization correspond to the registration of the business with the chamber of commerce at GUFÉ (i.e. the registration was found in GUFÉ data). We think that this definition of formalization is preferable over others that use midline survey data because administrative data included information on all study population, whereas survey data only have information on those who were surveyed. Moreover, survey data are subject to declaration bias. However, the correlation between survey data and administrative data was high (0.64), and we show similar results using the survey data as well.

Table 6 presents the results on formalization one year after the program started. The Impact of the program on the formalization rate was 9.1 percentage points in group 1, 13 percentage points in group 2, and 15.8 percentage points in group 3. All these effects are statistically significant at one percent level. The effects in group 2 and 3 are significantly higher than in group 1, and the effect in group 3 is significantly higher than in group 2: both sets of additional incentives included in package B (counselling, trainings and bank services) and in package C (tax mediation) seemed to be valued by informal businesses as incentives to register.

The formalization rate in the control group was only 0.9 percent. Therefore, in the absence of the program, only few businesses would have formalized. Alternative measures of formalization that combine survey and administrative data show consistent results on businesses surveyed during the follow-up survey. Impact rates in group 2 and 3 are always significantly higher than in group 1, and impact rates in group 3 slightly higher than in group 2 (but not significantly).

Table 7 shows heterogeneous impact by business characteristics. We find that male business owners formalized much more than female business owner. Slightly above 10 percent of businesses owned by women formalized in groups 2 and 3, compared to around 20 percent for those owned by men. This result could be correlated with the fact that a large majority of businesses operating in Dantokpa market are owned by women. However, column 7 of the table shows that it is also true outside Dantokpa Market for women not operating in trade.

In all groups, formalization rates were 7-9 percentage points higher outside Dantokpa market than inside the market. One explanation to this result is that formalization could be less attractive in the market as businesses are already registered with the public company in charge of all markets in Cotonou (SOGEMA- “*Société de Gestion des Marchés Autonomes*”). They are also more interconnected as they usually have representatives they can address in case of problems with the administration.

Businesses operating in the trade sector had lower formalization rates than in other sectors. This result is probably correlated with the fact that almost all businesses in Dantokpa market are traders, but it is also true outside the market<sup>15</sup>. One possible explanation which was mentioned during qualitative interviews is that before the program implementation, traders already had access to a “trader card” that provides a formal status with specific benefits (see Table 1), whereas no such specific card existed for other sectors.

The program was more effective on businesses with an owner who went at least to secondary school. This is not surprising if we consider that business owners with more education may

---

<sup>15</sup> Results not shown but available upon request

benefit more from trainings and counselling services. Formalization also requires doing some basic accounting, which could be more difficult with a low level of education.

Formalization rates were higher among informal businesses that were similar to formal businesses before program implementation. Using species classification techniques (de Mel et al, 2010) we classified 18 percent of the businesses in the sample as “looking more like formal businesses before the program”.<sup>16</sup> This result is especially large for group 3, as businesses with characteristics similar to formal businesses in this group formalized 20 percentage points more than the same businesses in the control group.

Finally, businesses that received more than one visit from a tax inspector in the year prior to program implementation were more likely to formalize. This result, which is only significant for group 3, may suggest that the program was perceived as a way to limit tax harassment.

## **6. What prevents more firms from formalizing?**

We have seen that in the third treatment group, which combined all packages of incentives and in which the impact was the greatest, formalization rate was about 17 percent. This impact is greater than for similar programs in other contexts (Bruhn and McKenzie, 2014) in which formalization is also linked to taxes. But it means that even though this type of program had a significant impact, the majority of the informal firms still remain informal. This is true even if we consider specific sub-population like businesses operating outside the market or with an owner who went to secondary school, for which impact on formalization remained below 23 percentage points.

We think that some important factors could explain this result in our particular context:

- (1) The presence of other legal barriers to formalization;

---

<sup>16</sup> Looking like a formal business owner is based on the predicted probability of being formal from a logit of formality status on baseline characteristics. This logit uses the data collected during the listing/baseline survey on 7,829 businesses who accepted the survey. Among them, 608 (7.8%) were formal at the time of the survey. We used the following baseline characteristics in the logit: operating in TOKPA market, gender, age, only primary education, only JHS or SHS level, higher level of education, operating in services, craftsman, business created less than 1 year ago, firm connected to electricity network, total number of employees, firm is doing some accounting, have done any advertising in the last 6 months, log of total amount of sales in an average week, log amount of last month profit, firm owner owns a bank account, the firm pays taxes, have done any advertising in the last 6 months (and controls for missing levels of these variables). Using the “predict” command in STATA, we end up classifying as “looking more like formal” 654 (18.2%) businesses out of the 3,600 in the study sample.

(2) The lack of success in changing the perception of formalization costs and benefits.

(1) Other legal barriers, like the lack of identification documents, may play an important role in explaining the results, as qualitative data from program beneficiaries and implementing agencies suggest. Moreover, data presented in Table 8 show that only 53 percent of business owners have one of the legal ID required in the formalization process. The administrative process necessary to receive an ID card or a passport may have discouraged business owners to formalize. For other types of legal documents, like the birth certificate or the electoral card, ownership rates are much higher. Authorizing these other legal document for the formalization process could help releasing this constraint.

(2) Table 8 shows the perception that business owners have of the formalization costs and benefits. Three main types of cost were cited by respondents: increase in taxes (30 percent), high registration costs (23 percent), and complicated or time consuming registration process (23 percent). In the control group, 24 percent of the respondents answered that they do not know what costs are associated with formalization, and 20 percent do not think that there are any cost. Perceived benefits of formalization can be divided into four categories: access to new markets (35 percent), better reputation or social acceptance for the business (31 percent), increased access to bank services (24 percent), and reduction of the risk of been fined or asked for bribes (15 percent). 22.5 percent of the control group did not know what benefits are associated to formalization and 14 percent did not think that there were any benefits. The program did not have many effects on the perceived costs and benefits of formalization. We see that slightly less respondents in group 2 and 3 considered the registration costs as a disadvantage (only significant for group 3), and that the program had a five percentage points impact on the share of respondents who answered that there are no costs associated to formalization. We also see a significant impact in group 2 and 3 on the share of respondents who answered that formalization can give access to bank services.

This result is surprising given that, as detailed in section 4, the take up rate of the first visit of CGA advisors to businesses was close to full coverage. Almost all business owners in treatment groups received at least one visit from a CGA advisor who detailed the benefits and costs associated to formalization and gave them program leaflets. Less than one year after that visit, most of them did not change their perception of formalization. Similar findings occurred in Andrade et al. (2013)'s experiment in Brazil, where they find few changes in knowledge

about formalization after a communication treatment. Possible explanations could be that they did not trust the CGA advisors, that the message was too complicated, or perhaps that the question of formalization is not of first importance for this type of small businesses. The fact that one year after the program launch, only 30 percent of businesses in group 2 and 3 and only 20 percent of those in group 1 remembered the *entreprenant* program could be an argument for this last point (see section 4 and Table 5).

## 7. Conclusions and next steps

These early findings show that the launch of the *entreprenant* status and assistance registering under it has resulted in an increase in formalization, with this increase greater when the status is coupled with access to business services and tax mediation. A key question is then whether it is worth it for these firms to formalize from either a firm viewpoint or a public policy viewpoint. This depends on the extent to which formalization enables firms to access finance, gain more customers, and grow, and the extent to which incorporating firms into the formal sector results in increased tax payments or other public policy benefits. Our ongoing impact evaluation will attempt to measure these channels.

## References

Alcázar, L., Andrade, R. and Jaramillo, M. (2010): “Panel/tracer study on the impact of business facilitation processes on enterprises and identification of priorities for future business enabling environment projects in Lima, Peru – Report 5: impact evaluation after the third round.” Report to the International Finance Corporation. World Bank Group, Washington, DC.

Andrade, G. H., Bruhn, M., and McKenzie, D. (2013): “A helping hand or the long arm of the law” Experimental evidence on what governments can do to formalize firms”, *World Bank Economic Review*, forthcoming.

Bruhn, M. (2013): “A Tale of Two Species: Revisiting the Effect of Registration Reform on Informal Business Owners in Mexico” *Journal of Development Economics* 103: 275–83

Bruhn, M., McKenzie, D. (2009): “In Pursuit of Balance: Randomization in Practice in Development Field Experiments”, *American Economic Journal: Applied Economics*, 1(4): 200-32.

Bruhn, M., McKenzie, D. (2014): “Entry regulation and formalization of microenterprises in developing countries”, *World Bank Research Observer*, 29(2): 186-201.



Campos, F., Goldstein, M., and McKenzie, D., (2015): "Short-term impacts of formalization assistance and a bank information session on business registration and access to finance in Malawi," *Policy Research Working Paper Series* 7183, The World Bank.

De Giorgi, G., and R. Rahman. (2013): "SME's Registration: Evidence from an RCT in Bangladesh." Stanford University, Stanford, CA, and World Bank, Washington, DC.

De Mel, S., D. McKenzie, and C. Woodruff. (2013): "The demand for, and consequences of, formalization among informal firms in Sri Lanka." *American Economic Journal: Applied Economics* 5 (2): 122–50.

De Mel, S., D. McKenzie, and C. Woodruff. (2010): "Who are the Microenterprise Owners?: Evidence from Sri Lanka on Tokman v. de Soto" in *International Differences in Entrepreneurship*, J. Lerner and A. Schoar (eds.), pp.63-87, 2010.

De Soto, H. (1989): *The Other Path*, New York: Harper and Row Publishers.

Farrell, D. (2004). "The Hidden Dangers of the Informal Economy." *McKinsey Quarterly* 2004, no. 3:26–37.

INSAE, (2009): "Comptes nationaux," INSAE, Cotonou.

La Porta, R., Shleifer, A. (2014): "Informality and Development", *Journal of Economic Perspectives* 28(3): 109-26.

La Porta, R. Shleifer, A. (2014): "The Unofficial Economy in Africa," NBER Chapters, in: African Successes: Government and Institutions National Bureau of Economic Research, Inc.

Levy, S. (2008): "Good Intentions, Bad Outcomes: Social Policy, Informality and Economic Growth in Mexico", *Washington: Brookings Institution Press*

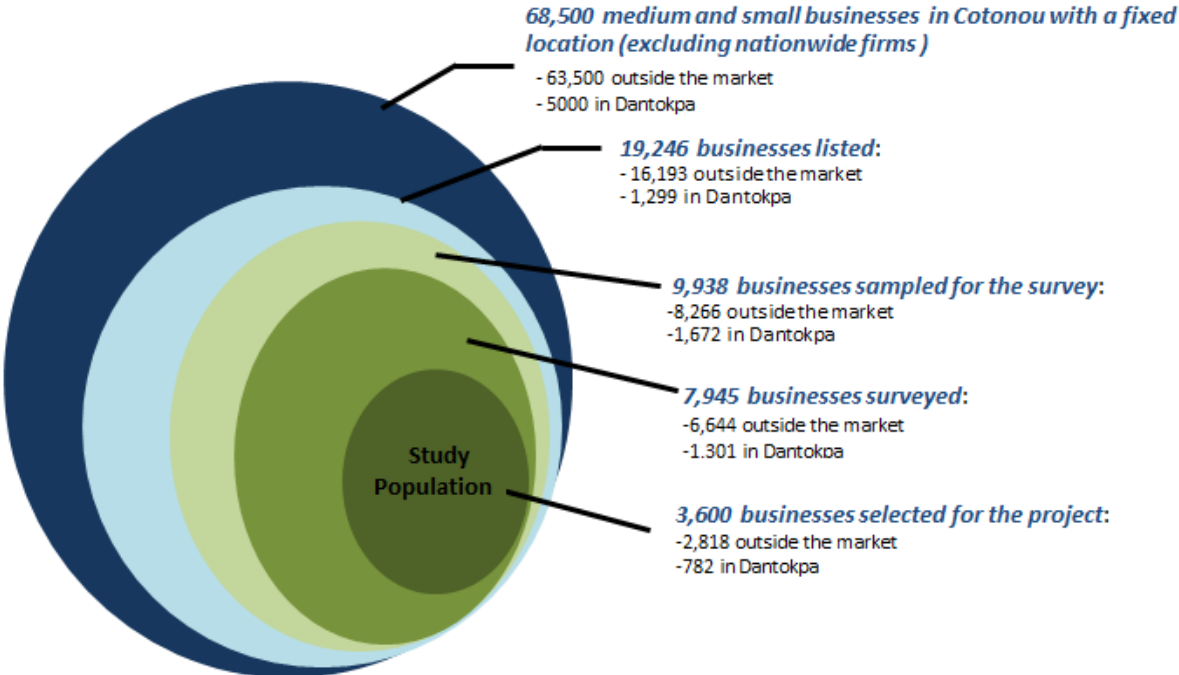
Maloney, W. (2004): "Informality Revisited", *World Development* 32(7): 1159-78

McKenzie, D. (2012): "Beyond Baseline and Follow-up: The Case for more T in Experiments", *Journal of Development Economics*, 99(2): 210-21.

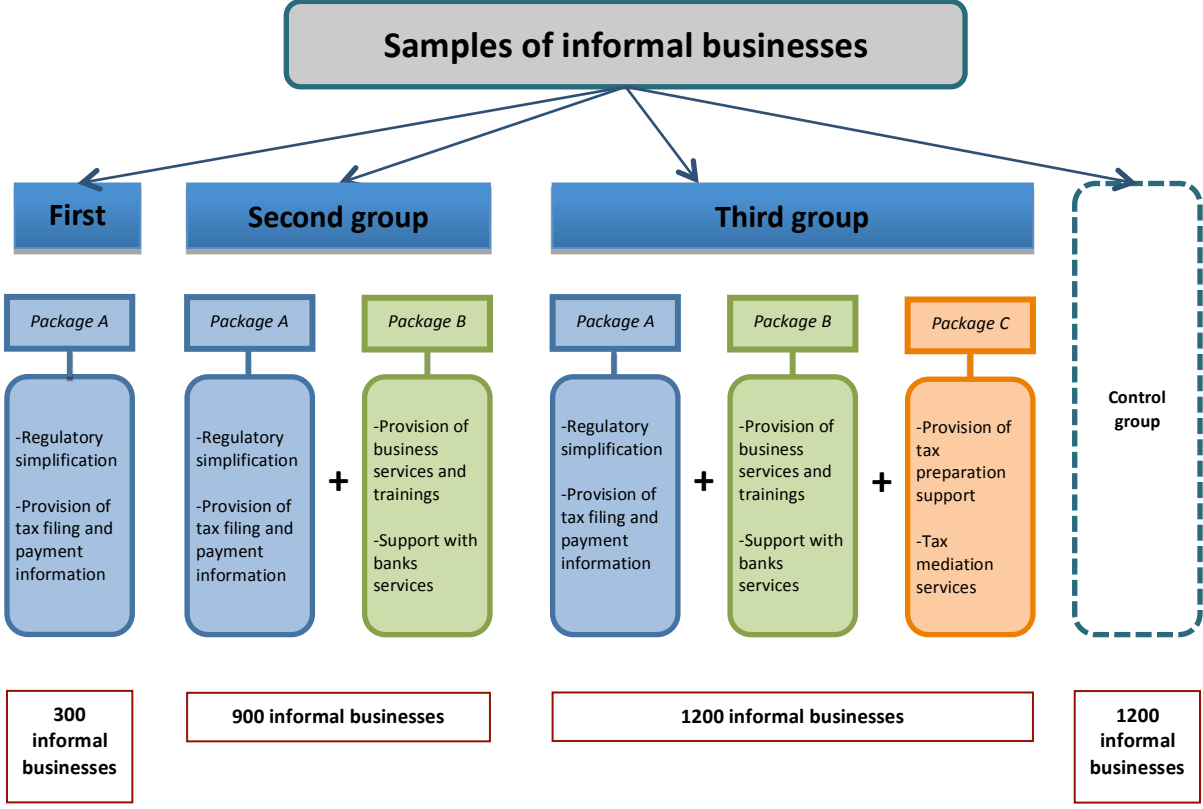
Perry, G., Maloney, G. Arias, O. Fajnzylber, P. Mason, and A., Saavedra, J. (2007): "Informality: Exit and Exclusion". World Bank Latin America and Caribbean Studies: World Bank, Washington D.C.

World Bank (2015): *Doing Business 2015: Going Beyond Efficiency*.

**Figure 1: Sampling strategy and Survey completion rates**



**Figure 2: Evaluation Design**



## **Annex 1: Matching program data to administrative data on formalization**

This Annex describes the protocol to match businesses in the administrative database on formalization provided by the GUFÉ (around 550 businesses every month) with the program data (3600 informal businesses prior to the program start).

### **Information available:**

We had the following information in both databases:

- Surname of the business owner. It can be written with different spellings in each database.
- Between 1 and 5 first names. In GUFÉ data we usually have more than one first name. In the program data we only have one first name in most of the cases.
- The business activity as described by the owner (no codes). The business activity is missing for 30% of businesses in the GUFÉ data.
- Business addresses. In the GUFÉ data addresses were given by the business owner whereas in the program data, we are using “official” addresses used by the tax administration (there are 144 neighborhoods in Cotonou). In practice only neighborhoods can be matched. In GUFÉ data, there are few missing variables and some cases for which the neighborhood does not belong to the official list of neighborhoods.
- Gender of the business owner.
- Phone number of the business owner

### **Definition of a match:**

We consider it to be a match if: (i) the surname, at least one first name, the activity, and the neighborhood match or (ii) if surname and at least one first name match and either the activity, the neighborhood or the phone number also match, and the others are missing (or does not exist for the neighborhood or the phone number).

### **Method of matching:**

We used first the Stata command “reclinck” designed for fuzzy name matching. This command uses record linkage methods to generate matching scores. For this first step, we used three variables: surname, first name and gender. As a second step, we looked manually (in

an Excel file) to all matches and validate each match only if names, activity and neighborhood were consistent in both databases.

The “relink” command allows inputting different weights to match on each of the three variables used (surname, first name and gender). In order not to rely on the weights used, we reiterate the process with different weights until no additional matches were found.

Since it is possible that the first name in the program data corresponds to the second name in the GUFÉ data, we also reiterate the whole process for all combinations of first to fifth names. Surname and first name were inverted in one of the two databases. So we also reiterate the process with other combination of surname and first names.

### **Checking that the matching method is working:**

To assess whether our matching method is working efficiently, we used the following methods:

1. First we looked at whether we could find additional matches using a more usual method of matching. That is looking at the two lists (sorted by surnames) and trying to find each business of the GUFÉ data in the program database. So it means looking mainly at businesses with surnames starting with the same letters. We were not able to find any additional matches.
2. Secondly, we looked at the proportion of business which formalized with the *entreprenant* status during the first 3 months after program launch. Indeed, most businesses which formalized with the *entreprenant* status should be also in the program data (in theory they are the only businesses aware of this new status). We matched 78% (119/153) of the newly registered *entreprenants*.
3. We then took the 34 businesses which formalized with the *entreprenant* status and were not matched with the program data and we tried harder to match these businesses. We took the program data and looked at all the businesses in the same neighborhood as the unmatched businesses. We were able to find 6 new matches. These 6 matches are very imperfect matches with surnames somewhat different and first name sometimes different. For two cases, the match was not done with our main method because the surname is missing in the program data.