STRATEGIC RESEARCH PROGRAM

PRIVATE SECTOR DEVELOPMENT, FIRM DYNAMICS, AND THE ROLE OF GOVERNMENT POLICIES

WORLD BANK GROUP

UKaid
from the British people

The Strategic Research Program (SRP)

was a pivotal partnership between the Department for International Development (DFID) and the World Bank, established to fund economic growth-related research based on an agreed to set of joint objectives. The objectives of the SRP are to (a) generate high quality, cutting-edge research in development economics; (b) contribute to policy making in developing countries; (c) enhance research and data capacity in developing countries; and (d) enable countries and stakeholders to access evidence-based research.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In 2013, the World Bank Group adopted two overarching goals to guide its work. The objectives seek to reduce the share of the global population living in extreme poverty to three percent by 2030 and increase the incomes of the poorest 40 percent of people in every country. A critical component to meeting these ambitious targets is promoting and implementing sustainable economic growth policies and programs for poverty reduction and job creation. A well-functioning financial system and a vigorous private sector are important drivers of such growth and poverty reduction, with finance being central to private sector development and vice versa. Large parts of both sub-disciplines revolve around the micro players, the behavior and performance of firms and entrepreneurs.

Improvements in productivity underlie this development and substantial productivity gains are possible only if inputs are allocated more efficiently to firms that allot inputs to the firms that would have the highest returns using them. A growing body of research from developed countries also highlights the roles of entry, exit, and reallocation of entrepreneurship in generating productivity improvements at the macro level. However, far less information on entrepreneurship and firm dynamics is available for developing countries, and it is unclear the extent to which income growth and job creation come from the entry of new firms, the growth of SMEs, or from large enterprises growing even larger.

Government policies can help or hinder this process. Overall government macroeconomic policies and infrastructure investments have wide-ranging effects on all aspects of the economy, including the private sector. Two main avenues through which more specific government policy affects the process of private sector development are through (i) passive facilitation, whereby regulatory policies affect the ease of doing business; and (ii) active catalysis, whereby the government intervenes more directly to foster industrial development and generate new business growth.

Research from the DFID-World Bank Strategic Research Program allowed for efforts to collect and use a variety of data sources to better document and understand entrepreneurship and firm dynamics in developing countries and responses to public policies. Researchers incubated, prototyped and developed "off-the-shelf" policy instruments and develop practical guidance that policy makers could use to broaden the range of policy ideas.

It is often the case that when governments around the world are presented with policy instruments that can typically be used to foster high growth entrepreneurships (largely in the form of matching grants, business training programs, and partial credit guarantees), they are a very limited range. Moreover, despite the millions spent on such programs, to date there is little rigorous evidence as to their effectiveness, especially in developing countries.

Research from the DFID-World Bank Strategic Research Program allowed for efforts to collect and use a variety of data sources to better document and understand entrepreneurship and firm dynamics in developing countries and how each responds to public policies. Researchers were also able to incubate, prototype and develop "off-the-shelf" policy instruments and develop practical guidance that policy makers could use to broaden the range of policy ideas. The key idea was to use economic theory and existing research to develop new policy instruments. This enabled research to better inform private sector development policy at the

macro, meso and macro levels. The main takeaways highlight some of the more important opportunities and challenges that exist around the role of the private sector in economic development.

Experimental evidence gathered on formalizing firms in Africa shows additional efforts are often not cost-effective, provides guidance on targeting, and highlights that firms can be willing to register separately from taxes.

Resource misallocation and productive firms in African countries. Resource misallocation indicates a scenario in which capital and labor are inefficiently distributed so that less productive firms receive a larger share of those factors. Research from the SRP finds that this is indeed the case in many African countries and that if marginal return rates are equalized within industries, aggregate manufacturing productivity would increase by as much as 30 to 160 percent. The size of these distortions is correlated with business environment.

New evidence on small firm death in developing countries. Small firms are an important source of income for the poor and the demise of a such a firm could mean a significant income loss for owners. 99 percent of firms in a majority of developing countries have fewer than 10 workers and there is ample evidence of misallocation of resources across these firms. Firm death can improve aggregate productivity if less productive firms die and resources and customers are reallocated to more productive firms. Many interventions are designed to help start and grow small firms but not many policy interventions are directed to failure and firm death. An optimal policy response depends on why firms die. Information on what types of firms are most likely to fail, and on the causes of death, should be helpful for either helping to avoid the firms most likely to die if the emphasis is on firm growth, or in targeting these types of firms if the designing interventions/policies that are intended to help struggling firms survive.

Predicting high-growth entrepreneurship. Another important aspect of private sector development is the prediction of successful entrepreneurship. In developing countries millions of small businesses are started every year with more than a quarter of that number failing. Being able to characterize what makes a successful entrepreneur is important for governments seeking to target programs to these entrepreneurs and to allow for investors to maximize returns. Research from the SRP allowed for testing of this identification using judges, economic modeling and machine learning models in business plan competitions in developing countries. Overall all three models struggle to predict entrepreneurship and firms that will grow.

On the effectiveness of different policy instruments. SRP funding allowed for testing the effectiveness of specific policies to spur private sector development in the form of longer-term multi-year randomized experiments, in which one set of firms would be randomly selected to receive some new policy, and another set of firms would be selected as the control group. Getting the business regulatory environment right is only one part of a government's private sector policy agenda. In most countries, governments also intervene more directly to try and boost the growth prospects of the private sector through a variety of more activist policies. These policies may be motivated by potential externalities or market failures, or by political demands. Examples of policies that governments and other policymakers can use to enhance private sector development include efforts to train business managers, attempts to link firms with suppliers or buyers in value

chains (both domestically and internationally); the development of new financial products such as micro-equity, micro-franchising, and broader insurance products designed to help SMEs overcome the risk inherent in innovative ventures; efforts to build business networks; and other approaches to spur entrepreneurship. Such policies are of increased focus in the wake of the global financial crisis and as a result of the youth bulge in many of these developing countries – both of which have made employment creation the number one policy demand in many countries.

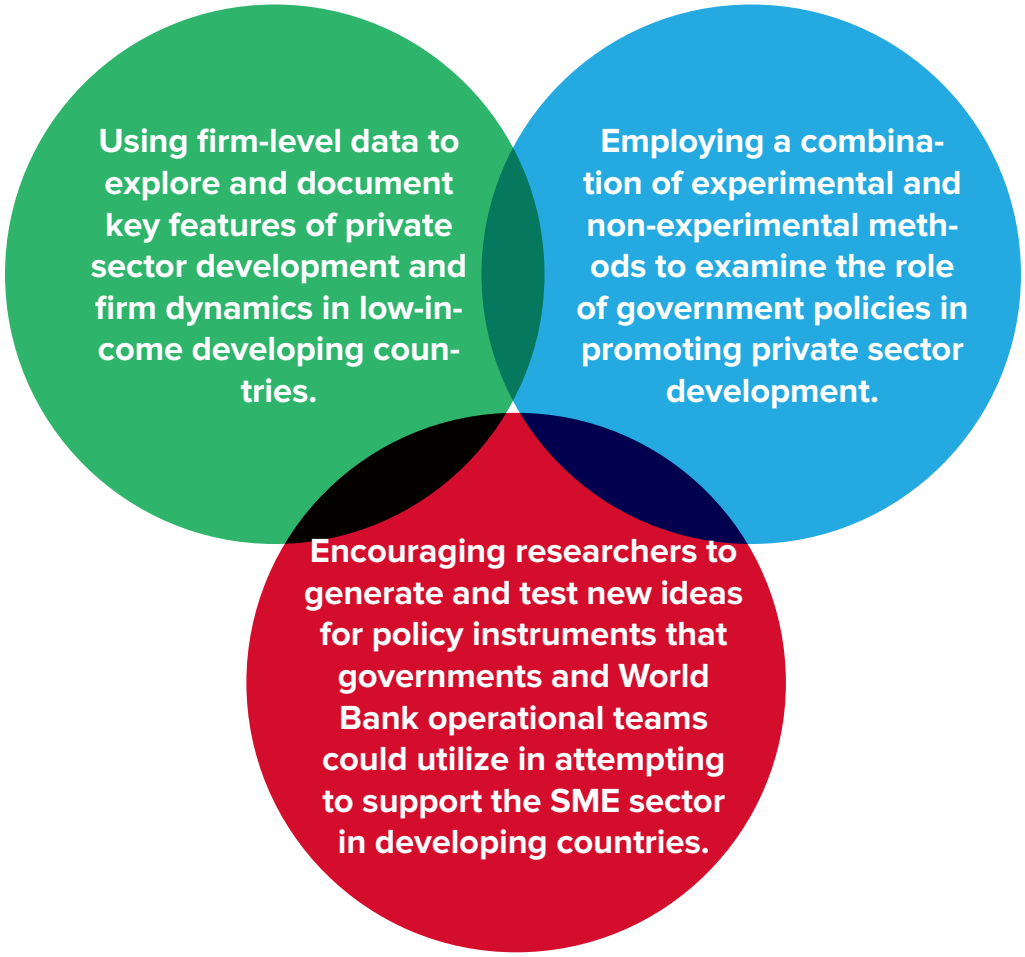
Experimental evidence gathered on formalizing firms in Africa shows additional efforts are often not cost-effective, provides guidance on targeting, and highlights that firms can be willing to register separately from taxes. Pilots and experiments also tested three innovative new solutions to help firms access finance, with mixed results. Much of the existing work on improving skills in businesses in developing countries has focused on short-term training courses. When considering management, intensive consulting can have long-lasting impacts on management in SMEs. And while theoretically there may be a number of labor market frictions that prevent microenterprises from growing, research suggests that these are not the reason the average microenterprise owner does not expand and hire workers. Indeed, getting one-person firms to grow to the point of hiring workers remains a challenge, but it does not seem that labor market distortions are the main constraint. On gender, a gender-informed business training program was able to grow female-owned businesses without hurting neighboring firms, but a micro-franchising program for young women only had short-term impacts. Ongoing research continues to refine how to best train entrepreneurs in different contexts.

INTRODUCTION

What are the key features of private sector development and firm dynamics in developing countries? And what is the role of government policies in determining the relevant policy tools? This paper synthesizes new knowledge generated through operationally-responsive research ideas designed, implemented and tested through the Strategic Research Program. The paper assesses what worked, what did not and why vis-à-vis public policy for the private sector.

The research activities focus particularly on using new data sources to understand firm dynamics in developing countries; conducting a series of impact evaluations designed to measure the impacts of specific policies designed to enhance firm growth; and studying the determinants of informality and consequences of business environment reforms. Much of this work involved closely working with country governments and World Bank operational units to test the impact of specific reforms and policy efforts in the process of being implemented.

INTER-RELATED ACTIVITIES OF THE SRP RESEARCH



THE BENEFITS OF FUNDING RESEARCH THROUGH PROGRAM PROPOSALS

1 MILLION PROGRAM PROPOSAL

Funding from DFID dedicated to the area of private sector development as a USD 1 million program proposal examined:

- Research designed to better understand entrepreneurship and firm dynamics in developing countries, with a focus on Africa, South Asia and the Middle East and North Africa
- What works, what doesn't and why in public policy for the private sector

RESEARCH GOALS

- Each research piece should be publishable in a reputable journal as well as contributing to the whole and not structured as a top-down micro-managed approach geared as producing a single product
- Address a wide range of topics

THE IMPORTANCE OF SUPPORTING PROGRAM PROPOSALS

- Funding a portfolio helped foster linkages and synergies across work.
  - The Benin and Malawi formalization experiments could draw on lessons from one another as the surveys and write-up took place.
  - The data from the program's work in Benin, Malawi, Kenya, Nigeria, Sri Lanka and Egypt was all used together to investigate the issue of small firm death.
- Enabled flexibility to make substitutions due to delays or unfeasibility, as well as to respond to emerging ideas as needed
- Helped manage differences between research life-cycles and funding cycles:
  - Projects at different stages were funded
    - Seed funding allowed ideas to emerge
    - Funding supported key analysis and data collection
    - Funding supported projects to cross the finish line
- Reduced transaction costs in program administration and research areas
- Allowed researchers to be judge of where marginal dollars have the most value for their work
- Allowed researchers to take risks and be flexible

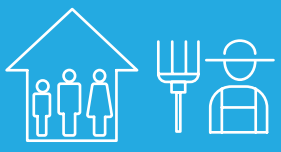
OUTPUTS TO DATE

NEW EVIDENCE ON FIRM DYNAMICS AND KEY FEATURES OF PRIVATE SECTOR DEVELOPMENT IN LOW-INCOME COUNTRIES

The key challenge facing this research topic has been data availability. Data comparable to those collected from advanced economies is increasingly available in developing countries, through enterprise censuses and surveys compiled by official statistical agencies. International partners, including the World Bank, have made steady advances towards better data collection along the lines of advanced economies.

The censuses and surveys of developing countries generally cover formally registered firms and can therefore exclude a vast majority of micro- and small enterprises which are typically informal. Reaching economic units which are not formally registered is difficult, but the result is a disturbing "truncation" of the data. But there are ways to correct that picture. The distribution of businesses by size estimated out of household and labor force surveys can be used to recalibrate the findings informing the conventional wisdom. In addition, in some developing countries detailed data is available about micro-enterprises and the informal sector. There has also been an increasing number of empirical studies on the informal sector, microenterprises and household enterprises. These multiple sources can be used to reconsider the conventional wisdom on developing countries.

There have been creative efforts to collect data that could be emulated in a more systematic manner. They include collecting data on



micro-enterprises from household and labor force surveys and

developing survey instruments which adequately cover the informal sector.

Additionally, on the research front, the truncation of the enterprise censuses and surveys on which the standards are based, calls for an effort to collect better information on micro- and small enterprises. There have been creative efforts that could be emulated in a more systematic manner. They include collecting data on micro-enterprises from household and labor force surveys and developing survey instruments which adequately cover the informal sector.

Liedholm and Mead (1994, 1999) constructed a thorough database of micro- and small-firms by visiting every household in a geographic area and collecting data whenever a business was encountered. FajnzIber, Meloney and Rojas (2006) combined information from labor force surveys with surveys on micro-enterprises. Kinda and Loening (2008) and Loening and Imru (2009) focused on rural enterprises, which tend to be informal and small. Fox and Sohnesen (2012) collect and analyze information on household enterprises. And Cling, J. P., Razafindrakoto, M., & Roubaud, F. (2003) have produced so-called 1-2-3 surveys, a mix of household and enterprise surveys specifically designed at capturing the informal sector.

Grant financing from the SRP allowed the research team to access and work with impressive new datasets. A first example comes from a sustained effort to access economic censuses in different developing countries in order to construct comparable statistics on firms. The research team working on this component obtained access to firm censuses from Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Uganda and Zambia. Using this data, researchers examined the extent to which there was resource misallocation in these countries, whereby inputs were not always allocated to the firms with the highest returns to these inputs.

A second activity involved putting together 16 panel surveys from 12 different developing countries to develop stylized facts from over 14,000 firms about the death of small firms. Other activities

under this component used detailed panel data from single economies or a region.

These include:

i. using census data on Indian manufacturing firms to examine how initial conditions predict subsequent firm growth trajectories;

ii. using machine learning methods with panel data on Nigerian entrants to a business plan competition to test the relative efficacy of judges, economist models, and machine learning techniques in predicting high growth entrepreneurship;

iii. using input-output matrix data combined with firm census and customs transaction data for Jordan to explore forward linkages from foreign direct investment in the service sector onto export performance and dynamics of domestic manufacturers;

combining:

iv. balance sheet data on publicly listed firms in Arab nations with data on security issuances to investigate which firms issue securities and how this is related to firm performance;

and data from:

v. Latin America which is used to look at how countries at different development levels invest in projects of different riskiness, and the extent to which this affects innovation and growth;

vi. Latin America which was used to assess the extent to which firms are catching up or converging to the technology frontier;

vii. Mexico was used to examine how competition affects the incentives of firms to use information and communication technologies;

and an

viii. examination of world management data to assess how family ownership is linked to firm management and performance, and to examine why family ownership remains pervasive.

THE SIZE DISTRIBUTION OF FIRMS AND AGGREGATE PRODUCTIVITY IN LOW-INCOME COUNTRIES

Recent literature has emphasized the link between within industry misallocation of resources and cross-country productivity differences. Contrary to previous works that assumed identical productivity at the macro level, this literature explicitly acknowledges the heterogeneity of firm performances, hence the potential misallocation of production factors across heterogeneous production units. The argument was formalized by Restuccia and Rogerson (2008) and was followed by a wave of empirical contributions aimed at quantifying the extent of misallocation. By far the most prominent of these contributions, Hsieh and Klenow (2009) developed a methodology that combines census-based firm-level manufacturing data and a structural theory of misallocation. Based on the hypothesis of constant markups, they argue that differences in marginal revenue products across firms indicate the existence of resource misallocation.

- → Firm census data documents the existence of large resource misallocation in certain Sub-Saharan African countries.
- → Large improvements in aggregate productivity are possible if resources are reallocated to more productive firms within countries.
- → Equalizing returns across firms would increase manufacturing productivity by 31% in Côte d'Ivoire and 163% in Kenya.
- → Business environment indicators such as the extent of corruption, red tape and financial frictions are strong predictors of this misallocation.

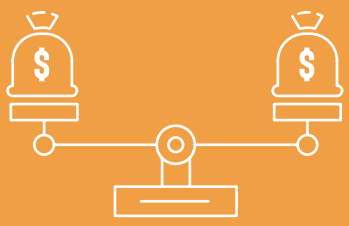
While promising, this approach comes up against data availability in Sub-Saharan Africa (SSA). The considerable balance sheet information required for applying the Hsieh and Klenow methodology is typically not available in the poorest developing countries, if collected at all. This while Sub-Saharan Africa is arguably the region in the world, where total factor productivity is structurally the lowest and the output cost of factor misallocation the highest.

The size distribution of firms is one of the most straightforward metrics of resource allocation. A natural focus for development scholars, the size distribution of firms is closely related to theories of a `dual economy' in developing countries, which suggests that the economic environment faced by businesses varies according to their size, which distorts decisions related to the scale of production (see e.g. Tybout, 2000). At its simplest, investigating the size distribution typically requires less exhaustive data than the methodology mentioned above.

The size distribution mirrors the distribution of firm growth rate. There is a long-standing literature on the relation between growth processes and the resulting size distribution. It is an established fact that most job creation in advanced economies stems from relatively few young high-growth firms and the distribution of growth rates is highly skewed (e.g. Decker et al., 2015). The evidence is scarcer in developing countries, especially in Sub-Saharan Africa.

The World Bank Enterprise Surveys constitute the main source for firm-level data in Sub-Saharan Africa. The Enterprise Surveys comprises over 155,000 businesses in 148 countries and contains data on firm performance and the business environment. To date, the development economics professions has relied extensively on the Enterprise Surveys when it comes to investigating anything related to firm-level performance in this region. See for example Kalemli-Ozcan and Sorensen (2012) and Aterido et al. (2011).

However, the Enterprise Surveys do not cover the complete spectrum of firms. The surveys rely on stratification at the industry, size and location level, and put together extremely valuable firm-level information that would otherwise not be available to researchers. Still, they arguably show a number of limitations when investigating the size distribution. In particular, small firms are under-represented, notably due to left censoring and the fact that only formal firms are surveyed. Moreover, the surveys do not aim at industries representativeness beyond the two digits level at best. Finally, longitudinal data is not available for every country yet.



Equalizing returns across firms would increase manufacturing productivity by **31% in Côte d'Ivoire and 163% in Kenya.**

DATABASE

The mapping of the existing data mostly relied on internet searches. Based on a preliminary hearsay list of potentially available census data, extensive internet searches were carried out to confirm the existence of this data. The searches essentially included the websites of the statistical agencies and the databases for economics research papers. In parallel, World Bank Country Office economists in Sub-Saharan Africa were systematically contacted. They were approached about checking (i) data existence, (ii) data availability and (iii) data quality. The response rate was quite low.

Most data is business register data, not balance sheet data. A number of the censuses on the preliminary hearsay list were never even conducted. Among the actually carried out censuses, most do not contain any balance sheet data. Instead, they are essentially business register data, which typically only include company contact information, location, legal form, number of employees and type of activity.

There is considerable misallocation of resources away from the most productive firms in African countries

A public use matrix lists the available firm-level data in Sub-Saharan Africa. Quality manufacturing balance sheet data is defined as exhaustive data on assets for a representative sample of manufacturing in a given country. Such data is available for Côte d'Ivoire, Ethiopia, Ghana and Kenya. Importantly, the Côte d'Ivoire data is a panel of ten years and opens wider perspectives. Defining quality of business register data as employment data for the entire spectrum of manufacturing and services, such data is available for Cameroon, Ghana, Rwanda, Tanzania and Zambia.

FINDINGS

The newly available data enabled the production of a number of distinct research outputs:

Cirera et al. (2017) study resource misallocation in Côte d'Ivoire, Ethiopia, Ghana and Kenya. In their Policy Research Working Paper titled `Taxing the Good? Distortions, misallocation and productivity in Sub-Saharan Africa', the authors apply the Hsieh and Klenow methodology to these four Sub-Saharan countries from the newly available data. The work emphasizes considerable misallocation of factors away from the most productive firms, which amounts to `taxing the Good'. The same analysis based on the Enterprise Surveys data underestimates the extent of misallocation, which stresses the importance of adequately sampling value added shares when surveying the manufacturing sector.

*REMOVING DISTORTIONS COULD AS MUCH AS DOUBLE THE CURRENT TOTAL FACTOR PRODUCTIVITY LEVEL.

A Hsieh and Klenow analysis was carried out on the newly available data – on a subsample of the data due to missing information constraints– showing that distortions are both sector- and age-specific. It investigated the underlying causes of distortions and identified three main factors of distortions, namely the uneven enforcement of regulations, corruption and defective infrastructure.

*SIZE DISTRIBUTION.

Newly available high-quality business register data is exploited to describe the actual size distribution of firms in SSA. Consistent with Hsieh and Olken (2014), it finds no evidence of a missing middle when defined as an observed bimodality in the distribution of firm size measured by employment. Rather, comparisons with the United States indicate that the entire tail is missing. When looking at employment shares, preliminary results emphasize the crucial role of formality.

EXPLORING AND DOCUMENTING FIRM DYNAMICS AND KEY FEATURES OF PRIVATE SECTOR DEVELOPMENT IN LOW-INCOME COUNTRIES

CAN WE PREDICT HIGH-GROWTH ENTREPRENEURSHIP? COMPARING MACHINE LEARNING AND EXPERT JUDGE PREDICTIONS

Millions of small businesses are started every year in developing countries. However, more than a quarter of these die within their first year (McKenzie and Paffhausen 2017), while only a small subset of firms grows rapidly, creating disproportionate value in terms of employment and incomes (Olafsen and Cook 2016). The ability to identify ex-ante which firms will succeed is of key interest to investors seeking to maximize returns, determining the extent to which capital can be allocated to the highest return projects. Being able to identify these high growth potential firms is also important for governments seeking to target programs to these firms (OECD 2010) and is of interest to researchers seeking to characterize what makes a successful entrepreneur. Moreover, if the characteristics that are predictive of high growth are malleable, this can also spur policy efforts to attempt to change these in individuals without these attributes.

Business plan competitions have increasingly become one policy option used to identify and support high-growth potential businesses. The World Bank has helped design and support these programs in a number of Sub-Saharan African countries, including Côte d'Ivoire, Gabon, Guinea-Bissau, Kenya, Nigeria, Rwanda, Senegal, Somalia, South Sudan, Tanzania, and Uganda. These competitions often attract large numbers of applications, raising the question of how you identify which business owners are most likely to succeed?

McKenzie and Sansone (2017) use data from participants in a business plan competition in Nigeria, and test the relative effectiveness of judges, models from economists, and machine learning models in predicting the growth of firms over the subsequent three years.

Nigerians aged 18 to 40 could apply with either a new or existing business. The first year of this program attracted almost 24,000 applications, and the third year over 100,000 applications. After a preliminary screening and scoring, the top 6,000 were invited to a 4-day business plan training

DATA: 2,506 FIRMS

→ Winners: **475** non-experimental winners, **729** experimental winners

→ Non-winners: **1,103** semi-finalists in control group, **199** firms that submitted

→ business plans but not among semi-finalists

DATA WAS FROM:

→ Online application form – personal background, business idea and motivation, etc.

→ Business plan submission had baseline survey – entrepreneur's background, risk preferences, self-confidence, reasons for going into business, etc.

→ Survey data: Raven, digitspan, grit

→ Three-year measures of success: Business Survival, Employment, Sales, and Profits

THREE MODELS:

⏩ Business plan scores from judges

⏩ Simple heuristic model from human experts

⏩ Machine Learning (ML) using **454+** variables: LASSO, Support Vector Machine (SVM) and Boosting

workshop, and then could submit business plans, with 1,200 winners each chosen to receive an average of US$50,000 each. Data from the first year of this program was used, together with follow-up surveys over three years, to determine how well different approaches would do in predicting which entrants will have the most successful businesses.

THE STANDARD APPROACH: USE EXPERT JUDGES

Business plan competitions typically rely on expert judges to score proposals, with higher scores given to those businesses judges view as having higher likelihoods of success. This was the case with YouWiN!, where 20 judges from the Enterprise Development Center and the Nigerian office of PriceWaterhouseCoopers spent about 30-45 minutes per proposal, scoring business plans out of 100 based on a framework that assigned scores on 10 different criterion such as the management skills and background of the owner, the business idea and market, financial sustainability and viability, job creation potential.

These judges did believe there were big differences amongst these firms in terms of potential: winning scores range from 30 to 91 out of 100, with a mean of 56 and standard deviation of 12. Many of the winners were chosen via lottery from amongst a semi-finalist pool, so that the scores for the non-winners overlap, ranging from 2 to 73 out of 100, with a mean of 51.

ALTERNATIVE APPROACH 1: USE ECONOMISTS AS HUMAN EXPERTS

A first alternative approach is to use ad hoc models of economists to predict business success, where these models take a subset of variables that the literature has suggested correlate with business performance, such as gender, age, education, ability (as measured by Raven test and digit span), business sector, and household wealth.

ALTERNATIVE 2: USE MACHINE LEARNING TO PREDICT WHICH BUSINESSES WILL SUCCEED

An alternative to judges or human experts is to use machine learning methods to build a prediction model, starting with 393 possible predictors. Three machine learning approaches were used: lasso, support vector machines (SVM), and boosting (which is similar to random forests).

In each case the sample was split into three groups: a training sample (60% of the data) which is used to estimate the algorithm, a cross-validation sample (20% of the data) which is used for a grid-search to choose the optimal tuning parameters for each method (e.g. a lasso shrinkage parameter), and then a test sample (20% of the data) which is used to measure out-of-sample performance. The data was split five different times, so that in the end there are out-of-sample performance for the whole sample, and average results over these five folds.

*These methods can be computationally and time-intensive – the boosted regressions took approximately 25 hours per outcome to estimate for example. *

RESULTS

- → Conditional on getting to the stage of submitting a business plan, the judges' scores have almost no predictive power in determining which entrepreneurs will succeed.
  The judges scores explain less than 2 percent of the variation in outcomes; are not significant predictors of any of our four outcomes for non-winners; and only are able to help in predicting employment for the winners (with much of this coming from those with higher scores getting larger grants).

- → Despite the large number of potential predictors available for machine learning, it neither outperforms simple ad hoc models of economists, nor even simpler single prediction models when it comes to average performance.
  Some simple characteristics are correlated with business success: males in their 30s who score highly on a Raven test are more likely to succeed. Just using the Raven test alone often does just as well as the models of economists, or as our machine learning models.

- → Business success is really hard to predict.
  The out-of-sample performance of all our methods is very low. Typically, the models explain less than 5 percent of the variation in business outcomes after three years.

- → Machine learning does not uncover many predictors that wouldn't already be considered by human experts
  The boosting models choose a lot of the same predictors that were chosen in the ad hoc models that didn't use any model selection methods. Moreover, they contain few splits, suggesting that interactions aren't that important. It does end up using a few variables researchers might not otherwise consider: how close to the deadline people ended up applying, the length of their response to why they wanted to start a business, and how many siblings and children they have.

- → The methods do a little better at predicting the very top firms, and small improvements here might make considerable difference to the return on investment.

Can the methods identify which firms end up in the top 10% of employment or profits? For this the recall rate is used: the proportion of the top tail of firms that are correctly predicted. This would be 10% with random selection, but some of the methods get to be about twice as accurate.

Nevertheless, if one is an investor aiming to pick the top 100% of firms to invest in, and then got royalties based on their profits, one could potentially have 2-4 times the returns of random selection using the ad hoc models of economists – this would beat both the judges and machine learning approaches.

PREDICTING HIGH-GROWTH IS DIFFICULT

- → Judge evaluations are uncorrelated with business survival, employment, sales and profits after three years.
- → Judges do better when it comes to identifying top tail of sales and profits amongst winners
- → Business performance hard to predict, but not completely unpredictable: basic demographic characteristics (age, gender) and ability (Raven score) do increase accuracy.
- → Machine Learning algorithms do not manage to obtain more accurate predictions of average performance than simple models provided by economists, or even simpler single predictor models.
- → Boosting does do better when it comes to identifying top tail.
- → Overall low accuracy of all the models considered

WHY DO WE CARE?

- → Investors want to maximize returns
- → Governments require this information for targeting programs
- → Researchers need it for understanding high-growth entrepreneurs

CAVEATS AND LESSONS

A first caveat is that this is based on trying to pick amongst individuals that had already massively positively self-selected relative to the Nigerian population as a whole – requiring people to apply online and submit a detailed business plan already screens out lots of individuals with low education levels and perhaps lower ability to grow businesses, as well as those who can't get their act together to meet deadlines and to show up for the 4-day training. Thus this doesn't mean that one can't tell business potential apart in a general population, just that after the first stages of a business plan competition, it may be really hard to tell people further apart.

It may be much harder to predict among high-growth entrepreneurs (e.g. Hall and Woodward, or Nanda) than to tell apart subsistence businesses (e.g. Hussam et al; de Mel et al).

It is often argued that random selection is a fair way of selecting participants for programs, as well as helping in impact evaluation. These results help provide support for this view in the context of high-growth entrepreneurs – and this is without even thinking about the costs involved in implementing a judging process.

SMALL FIRMS DIE AT A LOWER RATE IN POORER COUNTRIES, AND FIRM DEATH CAN BE FOR REASONS OTHER THAN JUST LOW PROFITABILITY.

Twenty-seven percent of the non-agricultural labor force in developing countries consists of self-employed business owners with no employees (Gindling and Newhouse, 2014), and 99 percent of the firms in many poor countries have 10 workers or fewer (McKenzie, 2017). These firms are an important source of income for the poor, and many policy interventions are designed to help people start and grow such firms. Yet there has been much less attention devoted to the death of such firms, with no systematic evidence available as to the rate of small firm death, which firms are more likely to die, and why they die.

Almost two-thirds of published randomized experiments testing policy interventions for small firms in developing countries ignore firm death completely, neither reporting the death rate nor examining it as an outcome. Understanding the prevalence, characteristics, and causes of firm death is important for poverty, productivity, and policy. Since self-employment is an important source of income for the poor, firms shutting down could mean a large loss in income for firm owners. A growing body of
literature (e.g. Hsieh and Klenow, 2009) has noted large misallocation of resources in developing countries. Firm death can improve aggregate productivity if less productive firms die and reallocate resources and customers to more efficient competitors. The optimal policy response to firm death then depends on whether it involves large income losses for the poor, and whether it is efficiently selecting out the least productive firms or not.

Data was assembled on more than 14,000 small firms from 16 firm panel surveys in 12 countries, enabling estimation of the rate of firm death over horizons as short as 3 months and as long as 17 years. Detailed questions added to nine of these panel surveys enabled further investigation as to the cause of death.

Firm Death: If a firm is open at one point in time, and then is reported as having shut down by the owner in a subsequent survey round.

Shut down: the owner of the firm has decided to stop operating the firm, and no one else is operating it. It is not intended to include temporary closures of a few days or weeks that may occur when the owner is ill or away.

WHY SHOULD WE CARE ABOUT SMALL FIRM DEATH?

Poverty: small firms are important source of income for the poor – shutting down could mean large income loss for their owners.

Productivity: 99% of firms in many poor countries have fewer than 10 workers; and evidence of misallocation of resources across firms. Firm death can improve aggregate productivity if less productive die and reallocate resources and customers to more productive.

Policy: lots of interventions designed to help start and grow small firms, but what should policy do about failure? The optimal policy response depends on why firms die.

Research Purposes: As researchers designing firm panels/firm experiments, it would be beneficial to understand how many firms will last.

WHAT IS THE DEATH RATE OF SMALL FIRMS?

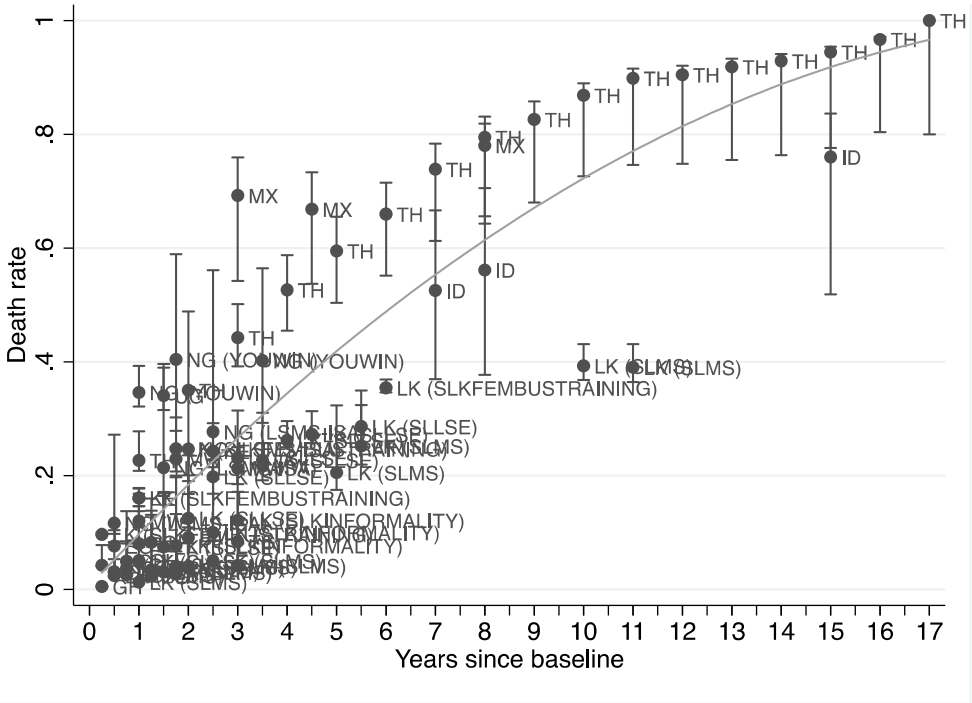
Suppose you take a sample of firms that currently exist today (perhaps as the baseline for a planned intervention). How many of these firms should you expect to be alive one year from now, or five years from now?

Each of the 79 points in Figure 1 is a survey-time interval combination: e.g. the death rate over three years for firms in the Mexican Family Life Survey. The intervals are upper and lower bounds that account for attrition. The fitted curve shows the way the death rate varies with time. The relationship is approximately linear over the first five years, with firms dying at an average of 8.3 percent per year over this interval.

From the quadratic fit, 50 percent of firms are predicted to die within 6.2 years, while from the linear fit, 50 percent are predicted to die within 5.7 years. That is, half of all firms alive today in a country are likely to be dead within 6 years.

WHAT DO WE FIND?

Figure 1: Firm death rates over different time horizons



- → Small firms die at an average rate of 8.2 percent per year
- → Half of all firms alive today will be dead in 6 years
- → Death rates increase with development
- → Young firms die rapidly

WHICH FIRMS ARE MORE LIKELY TO DIE?

Death rates by owner and firm characteristics are examined to establish stylized facts about which types of firms are more likely to die.

- → Young firms are more likely to die: a firm in its first year is estimated to have a 26 percent probability of failure in our data.

- → Among small firms, those with several workers are no less likely to die than one-person firms. Other studies find lower death rates for firms with 50 or 75 or more workers, but among firms with fewer than 10 employees, the researchers don't see differences in death rates with the number of employees.
- → Less profitable firms are more likely to die.
- → Retail firms are more likely to die than those in manufacturing or services.
- → Middle-aged owners have the lowest risk of their firm shutting down: the annualized death rate averages 18.0% for 20 to 24 year olds, compared to 9.6% for 45 to 49 year olds, and then starts rising again at older ages.
- → Firm death rates are higher for female-owners than for male-owners.
- → Firm death rates also seem to be higher in richer developing countries than poorer developing countries, as seen in Figure 2.

Figure 2: Death rates by per capita GDP

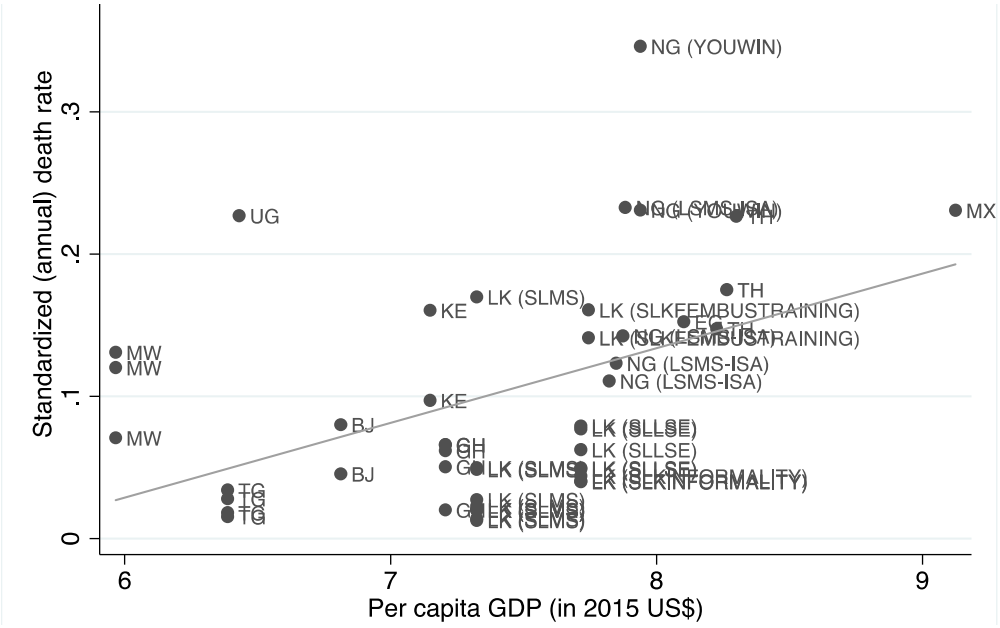
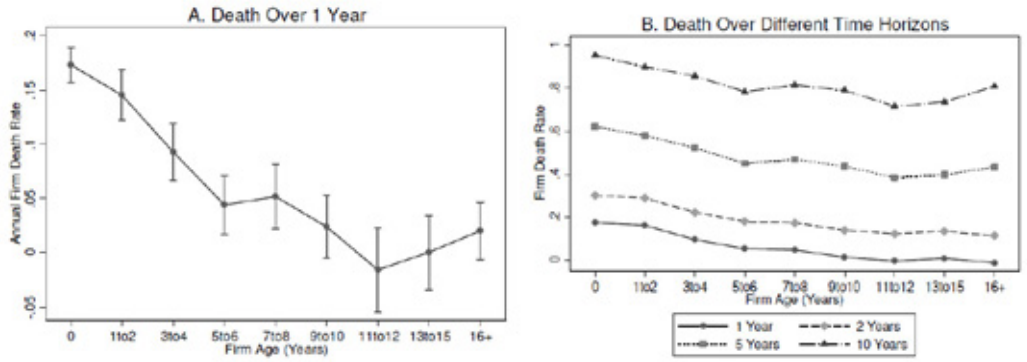


Figure 3: relationship between Firm Death Rate and Firm Age



WHY DO FIRMS DIE?

- → Death arises from firm competition and firm-level shocks causing firms to make losses and exit. Here firm death is involuntary, tends to cull less productive firms, and lowers the income of the owner. Household shocks (sickness/illness) – particularly important for female-run firms – also associated with large income drop
- → Firm death arises from occupational choice decisions of the owner. Firm death can be voluntary here, with owners choosing to shut down when better outside opportunities arise, with less impact on poverty and less selectivity on productivity. Positive outside options – less common, but occur most for educated men – leaving for wage job or to start new firm – income drop very temporary
- → Firm death results from non-separability of business and household decisions due to imperfect markets. The result is that illness and shocks in the household can cause the business to have to close, resulting in income loss for the owner and not necessarily the least productive firms closing.

The most common reason for firm death is that less profitable and less productive firms end up making losses and closing. However, other small firms, particularly those run by women, close because of illness and family reasons, suggesting non-separability between the household and firm, while a minority of firms, largely run by more educated owners, close because better opportunities arise for the owner.

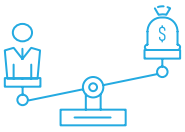
POLICY USES:

- → Importance of designing insurance-type products: One implication is that policymakers may want to experiment with policies that help small firm owners insure against firm and household shocks, with this being potentially of particular usefulness to female business owners.

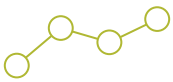
HOW MIGHT THIS BE USEFUL?

- → As a benchmarking tool: Figure 2 shows the death rate is not too different from the fitted line and reflects the low income in the country. The rates in this study can hopefully be useful to others wondering whether death rates they see are normal or not.
- → As a planning tool for designing experiments: if there are 500 firms to start, the results suggest 40 or so will close each year – which matters for power calculations.
- → As a targeting tool for policy and intervention design: Information on what types of firms are most likely to fail, and on the causes of death, should be helpful for either helping to avoid the firms most likely to die if the emphasis is on firm growth, or in targeting these types of firms if the designing interventions/policies that are intended to help struggling firms survive.

NEW EVIDENCE ON FIRM DYNAMICS AND KEY FEATURES OF PRIVATE SECTOR DEVELOPMENT IN LOW-INCOME COUNTRIES: KEY RESULTS AND IMPLICATIONS



There is considerable misallocation of resources away from the most productive firms in African countries. Cirera et al. (2017) use firm census data from Côte d'Ivoire, Ethiopia, Ghana and Kenya to investigate resource misallocation. The authors find considerable misallocation of factors away from the most productive firms and show that if marginal returns were equalized within industries, aggregate manufacturing productivity would increase by 30 to 160 percent. Moreover, the authors argue that the same analysis based on the Enterprise Surveys data underestimates the extent of misallocation, which stresses the importance of adequately sampling value added shares when surveying the manufacturing sector. Cirera et al. then find that the size of these distortions is correlated with various constraints to the business environment, such as lack of access to finance, corruption, and regulations.



It is very difficult to predict which firms will have high-growth, but starting size persists. McKenzie and Sansone (2017) use data from participants in a business plan competition in Nigeria, and test the relative effectiveness of judges, models from economists, and machine learning models in predicting the growth of firms over the subsequent three years. The authors find all three methods struggle to predict which firms will grow fastest. The business plan competition appears to act as a good screen for identifying firms with some potential for growth, but conditional on getting to the stage of submitting a business plan, firms with plans scored poorly by judges grow just as well as those with high-scoring plans.

***Ayyagari et al. (2017) use Indian census data to track the trajectory of formal firms over their early years.** They find that the rate of firm entry and the size at which firms enter are sensitive to institutional differences across states in India such as the level of credit provided and the quality of business regulations. When institutions are poorly developed, fewer firms enter, and those that do tend to be larger. However, after entry, small and large firms grow at the same rate across different industries and different institutions, so that initial size persists. Firm owners themselves also find it very difficult to know how much their firms would grow if given assistance: McKenzie (forthcoming) shows that even after having received substantial financing, Nigerian business owners are not able to accurately assess how much it has helped them; nor can those who did not receive financing accurately predict how much they would have grown had they received this finance.

Small firms die at a lower rate in poorer countries, and firm death can be for reasons other than just low profitability. McKenzie and Paffhausen (2017) put together panel data from 12 developing countries and find that small firms die at an average rate of 8.3 percent per year over the first five years of observing them, so that half of all firms operating at a given point in time are dead within 6 years. These death rates are lower in the poorest countries, suggesting limited alternative options; are higher for younger firms and those in retail, and for firms operated by women. On average, firms that die are less productive to begin with,

and their owners suffer a fall in labor earnings. This is most consistent with the firm competition theory, and least consistent with firm death being a voluntary occupational choice. However, there is considerable heterogeneity in the cause of death, with subsets of firms dying because of household shocks, or because their owners receive better alternative opportunities. One implication is that policymakers may want to experiment with policies that help small firm owners insure against firm and household shocks, with this being potentially of particular usefulness to female business owners.

***New data shows growth and changes in the external financing of firms in Arab countries.** Using data on 1,462 firms over the period 2003-11 from 12 Arab countries, Cortina et al. document three patterns. The first is that there has been a considerable increase in issuance activity of equity and debt in these countries, but corporate bond markets still lag behind other regions. Second, this growth also occurs at the extensive margin, with the number of firms raising external finance rising. Third, firms that issue equity, bonds, or syndicated loans are larger than those that don't.

***Learning to process information and manage risk is a key part of the development process.** Ongoing work explores the link between risk and quality and productivity growth. Like productivity, product quality is found to increase with development and can be seen as both a complement to efficiency gains as well as an alternative window on the firm upgrading process. The research identifies a risk-return frontier and shows that rich countries tend to invest in more risky products and projects and hence there is a process of divergence between rich and poor countries. The observed retrogression of local entrepreneurship in Latin America and the dominance of immigrants in the industrialization process suggests that neither institutions nor business climate can explain patterns of growth alone, but an inability to manage the increasingly sophisticated industrialization processed can.

***Firm competition leads to better use of Information Technology.** Iacovone et al. (2017) use a two-period panel of firm-level information using Mexico's National Survey on Information Technologies from 2009 and 2013. They find that firms which faced more intense import competition from China used IT more intensively and more efficiently. Moreover, firms that increased their use of digital technologies in selling products that directly compete with Chinese imports had higher productivity growth, whereas there was no significant effect of IT use on productivity for firms that did not face this competition.

It is very difficult to predict which firms will have high-growth, but starting size persists.
Most firms in developing countries have no paid workers, and hardly any reach the size of 10 workers or more. For example, Hsieh and Olken (2014) report that in India and Indonesia "the fraction of firms with less than 10 workers is almost visually indistinguishable from 100 percent", and in Nigeria, survey data indicate that 99.6 percent of firms have fewer than 10 workers. Are there constrained entrepreneurs in developing countries with the ability to grow a firm beyond this 10-worker threshold? If so, this raises the questions of whether such individuals can be identified in advance, and of whether public policy can help them overcome these constraints to firm growth?

PREDICTING HIGH-GROWTH ENTREPRENEURSHIP IS DIFFICULT

McKenzie and Sansone (2017) use data from participants in a business plan competition in Nigeria, and test the relative effectiveness of judges, models from economists, and machine learning models in predicting the growth of firms over the subsequent three years. They find all three methods struggle to predict which firms will grow fastest. The business plan competition appears to act as a good screen for identifying firms with some potential for growth, but conditional on getting to the stage of submitting a business plan, firms with plans scored poorly by judges grow just as well as those with high-scoring plans.

WHAT DETERMINES ENTREPRENEURIAL OUTCOMES IN EMERGING MARKETS? THE ROLE OF INITIAL CONDITIONS

Ayyagari et al. (2017) use Indian census data to track the trajectory of formal firms over their early years. They find that the rate of firm entry and the size at which firms enter are sensitive to institutional differences across states in India such as the level of credit provided and the quality of business regulations. When institutions are poorly developed, fewer firms enter, and those that do tend to be larger. However, after entry, small and large firms grow at the same rate across different industries and different institutions, so that initial size persists. A final point to note here is that firm owners themselves also find it very hard to know how much they would grow if given assistance:

CAN BUSINESS OWNERS FORM ACCURATE COUNTERFACTUALS? PROBABLY NOT.

McKenzie (forthcoming) shows that even after having received substantial financing (of USD 50,000), Nigerian business owners of a business plan competition experiment are not able to accurately assess how much it has helped them; nor can those who did not receive financing accurately predict how much they would have grown had they received this finance. The control group dramatically overestimates how much winning would help them grow the size of their firm. The treatment group overestimates how much winning helps their chance of their business surviving, and overestimates how much winning helps them grow their firms. In addition, these counterfactual expectations appear unable to generate accurate relative rankings of which groups of participants benefit most from treatment.

GOVERNMENT POLICIES AND PRIVATE SECTOR DEVELOPMENT

Research within this component involved working with governments and other partners to test the effectiveness of specific policies to spur private sector development. Much of this work consisted of randomized experiments, in which one set of firms would be randomly selected to receive some new policy, and another set of firms would be selected as the control group. This type of work tends to involve long-term, multi-year efforts, and the main challenges stemmed from delays or changes in the implementation of the projects that these evaluations were built around.

The majority of firms in many developing countries are informal. The influential view of Hernando de Soto, (who calculated that it would take 289 days, 11 permits, and over $1,000 to legally register a small business in Peru), that these informal firms are potential entrepreneurs hampered by red tape motivated the World Bank Doing Business project measuring and reforming barriers to business registration around the world. And multiple other Bank projects and government efforts are designed to try and encourage firms to become formal.

Policy uncertainty and macroeconomic instability are also the two most common constraints to firm growth listed by firms in developing countries in the World Bank's Investment Climate Surveys, ranking ahead of taxes, regulation, corruption, and access to finance.

Underlying these policies is, in part, the notion that formalizing benefits firms, giving them more access to credit and government services, and making them more productive. Simple comparisons of formal and informal firms, such as those conducted by the McKinsey Global Institute in a number of countries, indeed show formal firms to be more productive. But these simple comparisons ignore the fact that formality is a choice of firms – if it is really so beneficial, why don't firms register of their own accord?

Existing evidence also suggests that easing entry regulations and providing information on the formalization process has had only very limited impacts on the formalization of existing informal firms, especially with regards to tax registration. One explanation is that although, in theory, formality has advantages in terms of access to business banking, government training programs, and tax certainty, in practice many firms which formalize fail to receive these benefits. As a result, the costs of formalization exceed the benefits, and so most firms stay informal.

Policy uncertainty and macroeconomic instability are also the two most common constraints to firm growth listed by firms in developing countries in the World Bank's Investment Climate Surveys, ranking ahead of taxes, regulation, corruption, and access to finance. Faced with such uncertainty, firms may be reluctant to make new investments or hire new workers, choosing to wait and see how their economy evolves. This concern may be particularly important for firms in much of the Middle-East and North Africa regions, which have faced dramatic increases in political and macroeconomic instability in the context of the Arab Spring.

The majority of enterprises in many developing countries have no paid workers. Previous work providing capital grants to microenterprises has found long-term impacts on firm profitability and survival, but that capital alone was insufficient to get these firms hiring workers. Do labor market frictions prevent more of these firm-owners from hiring workers? In the presence of training costs, search and supervision costs, regulatory distortions, and other frictions, firm owners with the abil-

ity to grow may not hire workers, even when doing so would be profitable in the long-term. As a result, their firm size would be inefficiently small.

Business training is one of the most common support services offered by governments to small firms around the world. However, a number of evaluations of such training programs have struggled to identify impacts, and an additional concern has been that any growth of trained firms might come at the expense of their competitors. In contrast, supporters of training programs argue that there might be positive benefits to other firms in the economy, if better business practices are like a technology that others can observe and copy, or if training encourages collective action.
And finally, innovative start-ups and SMEs in developing and transition countries often have good ideas, but may not have these ideas fine-tuned to the stage where they can attract outside funding. This is the case in the Western Balkans, where there is a perceived lack of investment readiness of innovative start-ups to be in a position where they can compete for, and take on, outside equity.

Investment Readiness Programs are a relatively new intervention that are intended to provide a comprehensive approach to overcoming the constraints to firms receiving outside investment through a mix of individualized training, mentoring and coaching, at an intensity that is sufficient to make firms more investment-ready, while maintaining a cost that is low enough to be scalable to a large numbers of firms. These programs have now been used in the U.S. by the National Science Foundation, and by several government agencies in Europe (e.g. The UK Government's Small Business Service and Enterprise Ireland), along with pilot programs in Romania and Malaysia. However, to date there is no causal evidence as to their effectiveness.

The SRP supported evaluations to fund final data collection and analysis to finish studies, while other work helped get some new evaluations underway. The interventions and solutions tested under this work are:

i. Testing different policies to enhance the benefits of a new formal status for entrepreneurs in Benin. This involved testing whether formalization would be greater if accompanied by personalized visits, links to supplementary services, facilitation of banking services, and tax mediation assistance;

ii. Testing the demand for different dimensions of formalization in Malawi (registration in a firm registry and tax registration), and whether combining this with bank information sessions spurs firm outcomes;

iii. Piloting macro-insurance for microenterprises in Egypt. Firms identify macroeconomic and political uncertainty as key barriers to their growth. This project provided microenterprises with insurance against these risks;

iv. Examining whether labor market frictions constrain firms from growing in Sri Lanka. Wage subsidies were offered to microenterprises to encourage them to hire a worker and overcome potential labor market frictions that could prevent small firms growing;

v. Testing the relative effectiveness of a "business-in-a-box" microfranchising program compared to cash transfers for young women in Kenya;

vi. Examining whether a high-intensity consulting intervention that improved management in Indian textile factories had lasting impacts eight years later;

vii. Testing whether business training and mentoring helped microenterprises run by Kenyan women to grow, and whether this growth came at the expense of other business owners in their marketplaces;

viii. Examining whether Nigerian firms are able to assess accurately how much a business plan competition helped them if they won, or would have helped them had they won;

ix. Testing the effectiveness of a matching grant program that provided consulting services to firms in Puebla, Mexico;

x. Testing the relative impacts of a program to start and maintain small businesses versus a program to help seek paid employment for beneficiaries of a conditional cash transfer program in the Dominican Republic;

xi. Designing and piloting a micro-equity program for microenterprises in Sri Lanka;

xii. Testing whether a psychometric-screening approach can help expand access to credit to SME borrowers in Peru;

xiii. Testing whether business practices can be improved among Indonesian business owners by disseminating the best practices other firms in the industry are doing, providing talks by role models, and providing individualized business consulting.

ENHANCING THE BENEFITS OF FORMALIZATION UNDER A NEW STATUS IN BENIN (INCENTIVES AND TARGETING FORMALIZATION OF FIRMS)

A large majority of micro, small, and medium-sized firms in the developing world operate in the informal sector (La Porta and Shleifer, 2014a). This is also the case in Benin, where the national statistics agency has estimated that the informal sector represents up to 70 percent of GDP and 95 percent of employment (INSAE, 2009). A high level of informality is often seen to be costly for governments (who lose out on tax revenues and information on the firm sector), formal firms (who may suffer from unfair competition), and for the informal firms themselves (who may not be able to access bank financing, public contracts, or government programs, may face corruption or intimidation from tax inspectors, and as a result have low productivity) (e.g. Levy 2008; Farrell, 2004; Perry et al, 2007; La Porta and Shleifer, 2014b). In response, many countries have implemented business entry regulation reforms in order to reduce informality, spurred by the work of De Soto (1989) and the Doing Business project of the World Bank (World Bank, 2016).

Existing evidence suggests that easing entry regulations and providing information on the formalization process has had only very limited impacts on the formalization of existing informal firms, especially with regards to tax registration. One explanation is that although, in theory, formality has advantages in terms of access to business banking, government training programs, and tax certainty, in practice many firms which formalize fail to receive these benefits. As a result, the costs of formalization exceed the benefits, and so most firms stay informal.

THE ENTREPRENANT PROGRAM

Benin, along with 16 other OHADA (Organization of the Harmonization of Business Law in Africa) countries in Africa, revised their commercial law to introduce a new status called entreprenant. This status is designed for micro and small businesses, and registering with this new status is easy, free of charge and takes only one business day. Formalizing means firms gain access to many of the key benefits of formal status, but also makes the firm registered for tax purposes.

The World Bank and IFC worked with the Government of Benin to pilot different approaches for

how this status should be operationalized, and this opportunity was used to test via a randomized experiment whether offering supplementary services can enhance the benefits of formalizing for firms and bring more of them into the formal system.

DATA AND INTERVENTION DESIGN

A listing survey of businesses around Cotonou was utilized in early 2014 to obtain a sample of 3,596 informal businesses.

These were randomized into four groups:

- A control group of 1,197 firms
- Treatment group 1: received an in-person visit explaining the benefits of formalizing and help with registering if needed.
- Treatment group 2: received the in-person visit, and also facilitated access to government training programs, and support to open a business bank account designed for the entrepreneant.
- Treatment group 3: in addition to the services provided to groups 1 and 2, was also offered support in dealing with the tax authorities including tax mediation services.

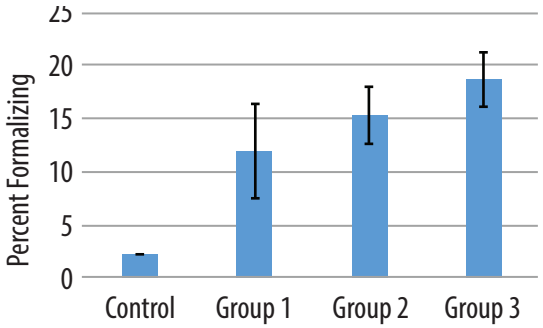
A subsequent treatment was later implemented to test whether information alone improved take-up by giving half the control group leaflets explaining the new status.

Monthly administrative data on formalization allows us to trace out the formalization response, while follow-up surveys one and two years after baseline enable us to measure impacts on firm outcomes.

RESULTS

- Information alone has almost no effect on formalization. Adding the supplementary services did lead to large increases in take-up of the new status. The most comprehensive package of services (Group 3) boosted the formalization rate by 16.3 percentage points (Figure 3).
- Public Disclosure Authorized
- Pre-specified tests of heterogeneity in take-up are used to learn how governments could best target these services. The impact on formalizing is higher for male business owners, those with more education, those operating outside the biggest market in Cotonou, and those that are classified ex-ante as being more similar to already formal businesses. Targeting on these characteristics could boost the formalization impact to 27 percentage points.

Figure 4: Formalization rates



Note: Error bars show 95% confidence intervals

- Even with this targeting then, most informal firms choose to remain so.
- Formalizing leads to increased participation in business training, more formal accounting, lower tax harassment, and less taxes paid (due to a tax exemption in the year after formalizing).

- → However, formal firms are not significantly more likely to obtain business bank accounts or loan financing, do not gain more customers, and have no significant gains in sales, profits, or standard of living.

POLICY IMPLICATIONS:

The new entreprenant status does offer an improvement for those firms that want to become formal, making the process easier and cheaper. However, the existence of this status alone is not enough to induce many existing informal firms to formalize.

The supplementary services that were tested do increase these formalization rates. However, while the benefits of formalizing are modest, the cost of the intervention is not. The average cost was estimated at US$1,200 - 2,200 per firm formalized without targeting, and at least $600 per firm formalized even if targeting were used. This is large relative to the average monthly profits of these firms of only $79 and to the tax collection the government can expect to receive from such firms. As such, the analysis suggests that adding additional services or in-person visits to explain this new status is unlikely to pass a cost-benefit test. Alternative strategies, including targeted enforcement may be needed to bring more of the larger informal firms into the formal system.

PILOTING MACROINSURANCE FOR MICROENTERPRISES IN POST-REVOLUTION EGYPT

Policy uncertainty and macroeconomic instability are the two most common constraints to firm growth listed by firms in developing countries in the World Bank's Investment Climate Surveys, ranking ahead of taxes, regulation, corruption, and access to finance. Faced with such uncertainty, firms may be reluctant to make new investments or hire new workers, choosing to wait and see how their economy evolves. This concern may be particularly important for firms in much of the Middle- East and North Africa regions, which have faced dramatic increases in political and macroeconomic instability in the context of the Arab Spring.

MACROINSURANCE FOR MICROENTERPRISES

Insurance is a natural financial instrument to help protect against risk. There has been a lot of attention devoted to developing insurance products for farmers, but to our knowledge, hardly any attention to developing insurance instruments that can protect other types of firms against the risks they face.

The researchers worked with Alexandria Business Association (ABA), Egypt's largest microfinance organization, to develop and pilot an innovative insurance product to help protect its clients against the uncertainty they faced in the aftermath of the January 25, 2011 revolution which ended almost thirty years of rule by President Hosni Mubarak.

The insurance product was designed for microfinance clients who were deciding whether or not to take a new 12 month loan from ABA. The cost of the insurance was then 0.5 percent of the value of this new loan. If a shock covered by the insurance occurred during the loan period, the payout would be two months of loan principal installments – one to ABA to cover that month's loan, and one to the client to give them cashflow to compensate for potential loss in business from the shock. If a second covered shock occurred in a subsequent month, the EPP would pay out an additional month's loan installment.

The insurance would pay out if any of the following shocks occurred:

- → The Cairo Alexandria stock exchange being suspended for 5 days or more;
- → A curfew of 14 hours or more imposed in Alexandria for 5 or more business days;
- → Monthly CPI inflation rising to 4% or more.
- → The official price of subsidized Benzene gasoline rising above a specified level.
- → The official price of subsidized LPG gas rising above a specified level.

These shocks were identified through market testing as salient in the wake of the revolution, and likely to harm business owners either directly, or because of what their trigger would likely signal about economic and political chaos in the country.

DATA AND EXPERIMENTAL DESIGN

The sample size was 2,961microfinance clients, who were finishing one loan and about to decide on taking out a new loan between April and September 2012. These were randomly split into two equal sized groups: a treatment group who were offered the insurance product, and a control group who were not.

These firms were microenterprises, with most having no paid workers. Half were in retail, the rest in manufacturing or services. Median monthly profits were around US$200, with an average loan size of around US$800.

RESULTS

- → Demand for the insurance product was relatively high: 36.7% of the firms in the treatment group purchased it. The insurance could only be purchased along with a new loan – 55% of those taking a new loan purchased the insurance.
- → However, the insurance had no impact on firm investment behavior. Treated firms were no more likely to take a loan, did not take larger loans, and were no more likely to use their loan to make new capital investments. The sample is relatively large and confidence intervals small around zero, so this lack of effect is not a result of low statistical power.
- → As a result profits and sales did not increase, if anything there is some evidence revenues fell.
- → The insurance did not pay out (several of the events in Egypt came close to triggering payout, but did not exceed the thresholds). As a result, the researchers were not able to see how much this insurance protected firms when shocks do occur.

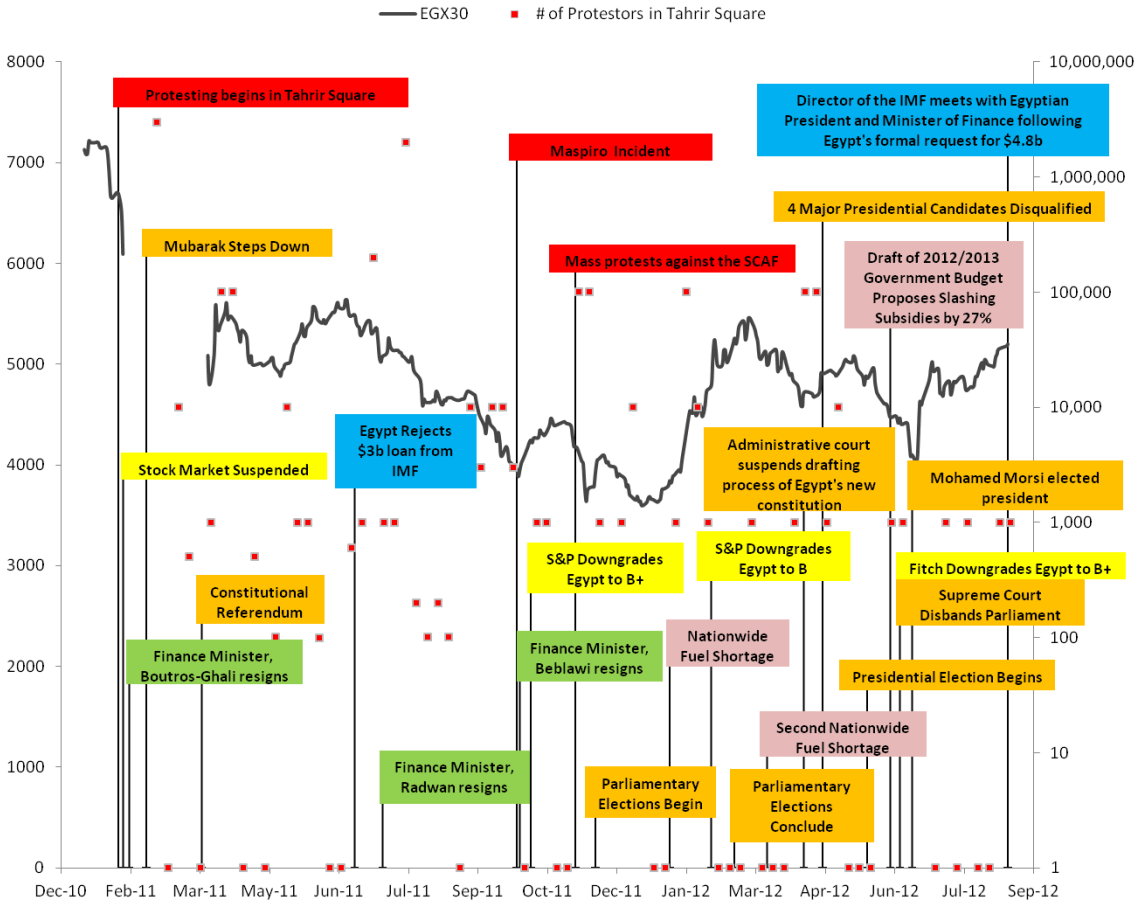
POLICY IMPLICATIONS

The lack of effect appears to be because these microenterprises seldom make fixed capital investments anyway – their loans largely went to working capital. Since these investments are short-term and easily adjusted, they are less affected by uncertainty. The results do suggest that despite firms complaining uncertainty is a constraint to business growth, this uncertainty does not appear to be preventing microenterprises from making profitable investments in machinery and equipment.

While the product did not change the investment behavior of firms, the demand for the product suggests firms might still value the protection it could provide when shocks do occur. The product could be more valuable for SMEs, who may be more likely to be considering lumpy capital investments that they defer because of uncertainty.

Insurance penetration is very low in Egypt, with regulations inhibiting the development of the sector. As a result, many firms have little understanding of the concept of insurance. This unfamiliarity with insurance does not appear to explain the results of our study but does make it hard to launch new products and build an understanding of how they work. Given the enormous volatility in incomes for microenterprise owners in developing countries, hopefully the lack of impact of this product in this pilot does not deter further policy and research efforts to develop better ways to help insure urban microenterprises against some of this risk.

Figure 5: Timeline of Major Events in Egypt through the 1st EPP Offering Window



Source: Own analysis from news sources. Red text boxes indicate major protests, orange national political events, yellow stock market events, blue Egyptian government interactions with the IMF, green resignations of Finance Ministers, and pink boxes represent issues related to government subsidies.

ARE LABOR MARKET IMPERFECTIONS THE REASON SO FEW MICROENTERPRISES HIRE WORKERS? AN EXPERIMENT IN SRI LANKA SUGGESTS THEY ARE NOT.

An experiment that provided wage subsidies to small firms to help them hire workers, examines whether labor market imperfections stop microenterprises from growing.

The majority of enterprises in many developing countries have no paid workers. Previous work providing capital grants to microenterprises has found long-term impacts on firm profitability and survival, but that capital alone was insufficient to get these firms hiring workers. Do labor market frictions prevent more of these firm-owners from hiring workers? In the presence of training costs, search and supervision costs, regulatory distortions, and other frictions, firm owners with the ability to grow may not hire workers, even when doing so would be profitable in the long-term. As a result, their firm size would be inefficiently small.

WAGE SUBSIDIES TO MICROENTERPRISES

A temporary wage subsidy was provided to owners of microenterprises in Sri Lanka to encourage them to hire a new worker. The subsidy was for approximately half the cost of an unskilled worker, and lasted six months, with an additional two months of subsidy at half this amount.

If firms are constrained from hiring workers because it takes time to train them to become productive, or because it is costly to search for and identify good workers, or if it takes firm owners time to learn their own entrepreneurial ability, then this short-term subsidy could lead to long-term increases in firm employment.

The control group consisted of 286 microenterprises and a wage subsidy treatment group of 250 microenterprises in three urban areas of Sri Lanka. These firms were all run by men, only 11 percent had any paid workers to begin with, and they averaged US$130 per month in profits. Additional groups were given the wage subsidies together with business training or a savings intervention to determine whether complementary interventions were needed for firms to realize the benefits of wage subsidies.

The study began in 2008 with a baseline survey, and then tracked the firms through 12 survey rounds through 2014, enabling us to measure the dynamics of adjustment over a period of four years after the subsidy ended.

Firms expand during the subsidy period, but the impact quickly fades when the subsidy is removed, and the results suggest that labor market frictions are not a key constraint on small firm growth.

- → 24% of firms take the subsidy to hire a worker, resulting in an increase in employment during the subsidy period. However, once the subsidy ends, firms fire some workers, others quit, and there is no long-term employment impact.
- → The new firms induced to hire workers because of the subsidy are smaller and less profitable than the firms in the control group that hire workers. The subsidy does appear to have provided these firms with additional funds, which helps them survive: the subsidy increases the likelihood of still running a firm four years later by 5.8 percentage points.
- → There are no significant impacts of the subsidy on firm profitability and sales. The return to the additional labor appears similar in magnitude to the subsidy offered, suggesting

additional workers bring no more value to the firm than their unsubsidized labor cost.

- → The effect is no larger when business training or a savings intervention are provided, suggesting the lack of impact is not due to the lack of complementary skills.
- → Detailed survey questions suggest that firm owners can fill vacancies reasonably quickly, that it usually takes only a month to get the worker up to speed in the new role, and that lack of access to capital does not seem to be the reason few firms are hiring.

POLICY IMPLICATIONS

Taken together, the results suggest that the labor market functions with modest frictions for these firms, with hiring frictions not the main constraint to firm growth. This then raises two issues for policy:

To what extent do these results generalize to other settings? Many characteristics of this labor market may hold in most urban areas in developing countries. Workers remain unregistered and hiring is generally unregulated. The work performed by employees in small enterprises involves relatively more brawn and less creative energy. Employees are hired from local areas and there is usually a low degree of separation between employer and employee before hiring. However, it was noted that generalized trust appears higher in Sri Lanka than many other developing countries, perhaps lowering one potential difficulty in hiring a worker.

If capital grants and wage subsidies don't cause firms to hire, what will? Our results are consistent with a Lucas (1978) model of firm size, in which firms are small because the productivity of the firms and entrepreneurial ability of the owners is low. This suggests four directions for policy:

i. from a social protection viewpoint, noting that relieving capital constraints may increase the incomes of these owners, even if they don't go on to hire others;

ii. working towards ways to better identify the subset of firm owners who may have more capacity to grow;

iii. developing better ways of building entrepreneurial capacity given the mixed results from business training; and

iv. continuing with policies to help develop the growth of larger firms which can eventually hire these owners as wage workers.

BUSINESS TRAINING FOR FEMALE MICROENTERPRISE OWNERS IN KENYA GREW THEIR FIRMS WITHOUT HARMING THEIR COMPETITORS

Business training is one of the most common support services offered by governments to small firms around the world. However, a number of evaluations of such training programs have struggled to identify impacts, and an additional concern has been that any growth of trained firms might come at the expense of their competitors.

In contrast, supporters of training programs argue that there might be positive benefits to other firms in the economy, if better business practices are like a technology that others can observe and copy, or if training encourages collective action. The designed experiment aimed to measure both the direct and spillover impacts of training.

THE GET-AHEAD PROGRAM

The ILO's Gender and Enterprise (Get-Ahead) training program is a 5-day business training program for low-income female business owners. It has been used now in at least 21 countries, training over 400,000 women. It aims to teach both traditional business skills such as marketing and accounting, as well as helping women to overcome gender-specific barriers to business growth (such as dealing with gender attitudes and separating household and business tasks), and to network and work together.

Training cost approximately $250 per woman trained and was offered for free in our study. 77.7 percent of those offered training participated. The study used a sample of 3,537 women working in 157 markets in four counties of Kenya. The typical business owner was selling food products from a table in the market, was 36 years old, and was earning approximately $13 per week. The researchers used a two-stage randomized experiment. First, they allocated markets to treatment (93 markets) or control (64 markets). Then within the treatment market the researchers randomly selected 1,172 women to invite to training.

Comparing the women invited to training in the treatment markets to women in the control markets enables the researchers to estimate the impact of training. Comparing the women in treatment markets who were not invited to training to women in the control markets enables measurement of any spillover impacts of operating in a market where others are trained.

Researchers conducted four rounds of follow-up surveys, two after one year, and two after three years, in order to measure impacts. They were able to interview 95 percent after one year, and 92 percent after three years.

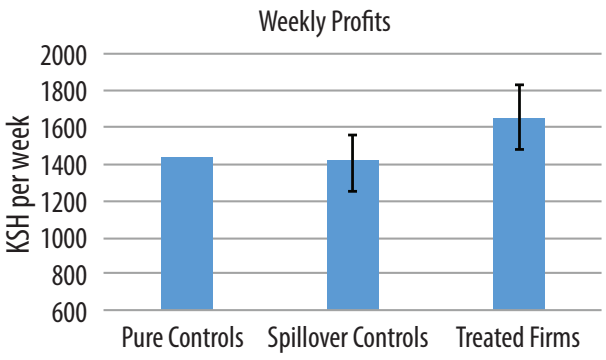
RESULTS

- → After three years treated women are earning 15 percent higher profits (about $2.60) than the pure control group, with no spillover impact on other women in their markets (see figure 1). They also are 3 percentage points more likely to have had their businesses survive and have 13 percent higher weekly sales.
- → This increase in business income is accompanied by improvements in mental health and subjective well-being.

PUBLIC DISCLOSURE AUTHORIZE

- → Examining impacts at the level of the market, rather than individual firm, shows that the treated markets have 17 percent more customers each week, and14 percent higher sales. There is no change in the rate of new business entry into these markets.
- → Treated firms have a 0.05 to 0.07 increase in the proportion of good business practices used.
- → A main mechanism for this market growth appears to be that training led business owners to be more re-

Figure 6: Profits Increase for the Treated with No Spillover Impact



Notes: 95 percent confidence interval around means shows impact relative to pure control group.

liable in their opening hours, and to diversify the range of products they sell. Both factors make the market more attractive for customers, and allow overall sales to grow rather than just reallocating sales from one business to another.

- → The treatment impacts are stronger after three years than after one year. Few firms receive finance, and training does not increase the use of credit. As a result, it seems firm owners had to slowly build their inventories by reinvesting profits over time.
- → A mentoring intervention was also offered for half of those trained. This was more costly ($553 per woman), and did not have a significantly different impact than training alone.

POLICY IMPLICATIONS

Many evaluations of business training programs have struggled to find significant impacts. A key reason has been that they have used relatively small samples with heterogeneous firms. This lack of statistical significance has been interpreted by some as evidence that training seldom works, rather than the correct interpretation of a lack of evidence of whether it works or not. The treatment impacts here are not larger than found in prior studies, but are much more precise, and show that training can have a positive impact.

The impact of $2.60 per week is not transformative but represents an important increase in income for poor women. Moreover, importantly this benefit to the women trained does not come at the expense of other women operating in their same markets. It appears the training passes a cost-benefit test, since gains would need to last 1.5 years to offset the costs, and a higher profitability was found and sales are occurring three years after training took place.

The results also highlight the role of policy in building markets in developing countries, since many markets are full of poorly managed firms selling a limited variety of products.

NEW EVIDENCE ON THE EFFECTIVENESS OF DIFFERENT POLICY INSTRUMENTS

The first experimental evidence on formalizing firms in Africa shows additional efforts are often not:

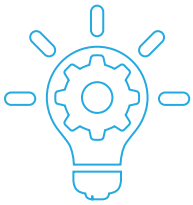
cost-effective,

provides guidance on targeting, and

highlights that firms can be willing to register separately from taxes.

Benhassine et al. (2018) carry out an experiment in Benin, which tests the effectiveness of offering supplementary services to encourage business owners to register under the new entreprenant status. They find that offering access to training, banking services, and tax mediation does increase formalization by 16 percentage point but is not cost effective. They show how firm characteristics can be used to target such programs at firms that are more likely to formalize, which can guide policy efforts going forward. In Malawi, Campos et al. (2015) show that a system that separates firm registration in a firm registry from tax registration can result in high take-up of assistance in receiving business certification, with 75 percent of firms formalizing in this domain. However, demand for tax registration was low. Combining this business registration assistance with bank information sessions led to increases in financial access, and suggests that the purported benefits

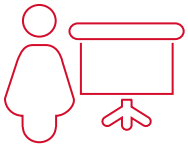
of formality may not come automatically, but may need further government facilitation to help firms benefit.



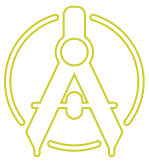
Pilots and experiments tested three innovative new solutions to help firms access finance, with mixed results. In Egypt, the concern was that firms might be reluctant to borrow after the revolution because of considerable macroeconomic uncertainty, and firms identified macro and political uncertainty as key barriers to their growth. Groh and McKenzie (2016) worked with a large microfinance organization in Alexandria to provide microenterprises with insurance against these risks. They find insurance take-up was high at 37 percent, suggesting a demand for this protection, but firms did not change their investment behaviors, suggesting firms of this size are not holding back on investments because of uncertainty. In Sri Lanka, ongoing work designed a micro-equity contract that could be used to make investments in small firms in which there is no likelihood of "exit" via sale to other investors, so that returns have to be received in the form of royalties and owner buy-back. This work is currently dealing with the complexities of enforcing repayment from firms in an environment with poor record-keeping and a slow process for legal restitution. More promising evidence on how to extend more finance to SMEs comes from Arráiz et al. (2017). They test the effectiveness of a new credit-scoring approach, based on psychometric assessments of SME owners, in extending credit in Peru. They find that this is able to increase small and medium enterprise loan use by 59 percentage points for applicants without a previous credit history, and that this expansion comes without worsening credit repayment behavior.

Intensive consulting can have long-lasting impacts on management in SMEs. Much of the existing work on improving skills in businesses in developing countries has focused on short-term training courses. Two studies show how more intensive management consulting engagements can have large, and long-lasting impacts on SMEs. In Mexico, a matching grant program run with small and medium enterprises in the state of Puebla provided four hours per week of consulting services for one year. Bruhn et al. (forthcoming) show that this program had a positive impact on productivity, and led to employment growth over the subsequent five years. The program also took advantage of the opportunity to return to textile plants in India, where an intensive five-month consulting intervention with large firms had led to short-term improvements in management practices and productivity. Bloom et al. (2018) return to these plants eight to nine years later, to see whether good management practices stick. They find that while about half the practices originally adopted in the experimental plants had been dropped, there was still a large and significant gap in practices between the treatment and control plants. Likewise, there remained a significant performance gap between treatment and control plants, suggesting lasting impacts of effective management interventions. They also demonstrate that management practices have spread across plants within a firm, but not across firms. They find that the most common reasons for dropping practices were turnover of managers and lack of director time, highlighting the importance of key employees in maintaining good management. Ongoing work is examining how family ownership affects firm management and performance, arguing that its prevalence is in part due to a weak contracting environment.

Getting one-person firms to grow to the point of hiring workers remains a challenge, but it does not seem that labor market distortions are the main constraint. De Mel et al. (2016) conduct a field experiment in Sri Lanka that provided own-account workers with wage subsidies to try to get them to cross the barrier to becoming employers. While the subsidy temporarily increased employment, tracking the firms over the next four years shows no lasting impact on employment, profitability, or sales. While theoretically there may be a number of labor market frictions that prevent microenterprises from growing, this work suggests that these are not the reason the average microenterprise owner does not expand and hire workers.



A gender-informed business training program was able to grow female-owned businesses in Kenya without hurting neighboring firms, but a microfranchising program for young women only had short-term impacts. McKenzie and Puerto (2017) test a business training program for women called Get-Ahead, that teaches both basic business skills as well as ways for women to overcome other constraints that sometimes arise for women running businesses. They find firms offered training are 3 percentage points more likely to survive after three years, earn 18 percent higher sales, and make 15 percent higher profits. An innovation in this work was measuring carefully the impact on neighboring firms – the research finds the trained businesses are able to expand the whole market by introducing new products, so that their profit growth does not come at the expense of other women in their markets. Brudevold-Newman et al. (2017) evaluate a microfranchising program for young women in Kenya, that provided a "business-in-a-box" bundle. They benchmark this against an unrestricted cash grant. Both interventions had economically large and statistically significant impacts on income over the medium term (7 to 10 months after the end of the interventions), but these impacts dissipated in the second year after treatment. Although the two programs increase self-employment, they do not lead to long-run increases in income or other measurable aspects of consumption or welfare; this suggests that the gains from encouraging self-employment are modest at best.



Ongoing research continues to refine how to best train entrepreneurs in different contexts. In ongoing research, the gains to encouraging self-employment are being tested in an experiment with conditional cash transfer beneficiaries in the Dominican Republic. Some of these beneficiaries are receiving training in starting and maintaining micro businesses, while others are being given employment-seeking skills to test if facilitating wage work has larger impacts. Other ongoing research in Indonesia finds that retailers who find a handbook of the best practices of successful peers, along with counseling, increases their monthly profits by up to 40 percent compared to the control group, and monthly sales by 15%. In contrast, simply giving business owners information alone on profitable local practices from peers (in the form of a handbook) was not sufficient to create substantial changes in business routines or outcomes.

GENDER AND BUSINESS TRAINING

A gender-informed business training program was able to grow female-owned businesses in Kenya without hurting neighboring firms, but a microfranchising program for young women only had short-term impacts.

Firms that offered training are
3 PERCENTAGE POINTS
more likely to survive after three years, earn
18 PERCENT higher sales,
and make 15 PERCENT higher profits.

"BUSINESS-IN-A-BOX"
program led to an increase in
SELF-EMPLOYMENT AND INCOME GENERATION,
but this INCREASE IN INCOME
was not sustained.

McKenzie and Puerto (2017) test a business training program for women called Get-Ahead, that teaches both basic business skills as well as ways for women to overcome other constraints that sometimes arise for women running businesses. They find firms offered training are 3 percentage points more likely to survive after three years, earn 18 percent higher sales, and make 15 percent higher profits. An innovation in this work was measuring carefully the impact on neighboring firms – the research finds the trained businesses are able to expand the whole market by introducing new products, so that their profit growth does not come at the expense of other women in their markets.

Brudevold-Newman et al. (2017) evaluate a microfranchising program for young women in Kenya, that provided a "business-in-a-box" bundle. They benchmark this against an unrestricted cash grant. Both interventions had economically large and statistically significant impacts on income over the medium term (7 to 10 months after the end of the interventions), but these impacts dissipated in the second year after treatment. Although the two programs increase self-employment, they do not lead to long-run increases in income or other measurable aspects of consumption or welfare; this suggests that the gains from encouraging self-employment are modest at best.

Testing a microfranchising model for young women in Kenya. Early results from a "business-in-a-box" program which provides young women with training and capital for a franchise business finds that it has led to an increase in self-employment and income generation, but this increase in income was not sustained.

Building a better entrepreneur in Togo. This work tested a new psychology-based personal initiative training program against the traditional training approach provided by the IFC's Business Edge program. It finds the personal initiative training approach to do much better in generating business growth, especially for women. This has led to this personal initiative approach being implemented in several other countries.

TESTING NEW IDEAS FOR POLICY INSTRUMENTS

This component under the SRP aimed to encourage researchers to generate and test new ideas for policy instruments that governments and policy makers can utilize in trying to help the SME sector in developing countries. Typically, within impact evaluations, what is achieved is an evaluation of a program that others have designed, or the presentation of an opportunity to work with a financial institution or NGO that is willing to try a new idea. What is often missing is a space where new ideas can be tested in the hands of governments designing SME programs. To generate new ideas for SMEs, a call for innovative ideas was issued to both internal and external researchers, and two of the winning ideas were piloted. Unlike existing research grants, the goal was to identify promising ideas and support the process of matching these with World Bank operational staff and governments interested in implementing innovative and potentially high impact initiatives.

AS A PILOT INITIATIVE, THE KEY QUESTIONS WERE:

- → Is there a supply of new ideas that researchers have that are not currently being tested? Will researchers take the time to put these ideas forward?
- → Is there a demand from governments working on SME projects for new ideas in this space?
- → Can matches be formed between this supply and demand?

This ideas competition was itself a proof of concept, and the results suggest that this approach to generating new policy ideas could be used more widely. The competition showed that there was a supply of potential innovative ideas, with more than 70 submissions received. This was narrowed down to 15 finalists, who were asked to prepare 8 to 9 page concept notes on their ideas, resulting in a portfolio of new ideas that operational staff could use in their decisions with policymakers. In May 2015, a pitch event was then held in which these ideas were pitched to operational staff working on SME programs. Good attendance at this event showed a demand for new ideas, and match-making resulted in two winners being chosen to be piloted.

The first idea piloted was a business library, launched as WorkShop Nairobi. The idea was to upgrade the skills and access to capital of the jua kali furniture maker sector. The idea was to provide access to shared machinery that would be too expensive and not used often enough for any single firm to buy, to provider training on the use of this machinery and of more advanced techniques and designs, and to provide supplementary training services. The team set up both a high intensity 30-hour training course, as well as a mobile app to provide a low-intensity digital version. An impact evaluation carried out found that take-up was lower than anticipated, but that the program led to significant increases in innovation outcomes such as the number of new designs and likelihood of purchasing new tools for those who did participate (Shapiro and Jang, 2017). The workshop continues to operate and is developing a path to financial sustainability by developing its own product line, examples of which can be found at https://www.workshopnairobi.com/.

The second idea piloted was to leverage technology to shorten the supply chain between small vendors of fruits and vegetables and farms, launched by Agruppa in Colombia. Agruppa aggregates demand of mom-and-pop shops in a given neighborhood. Compiling larger quantities, they then generate economies of scale, source produce from farmers, bring it to their warehouse in the city and then deliver onto their customers' shops. The goal was to reduce the amount of time and money spent by small vendors travelling each day to the central marketplace, reduce costs to these firms, and hopefully result in price savings for customers in poor neighborhoods. After being selected as one of the winners, Agruppa went from supply 20 to supply 300 firms on a recurrent basis, selling to over 1000 shops overall. Preliminary results from an ongoing impact evaluation found that this did result in a reduction in travel time for firm owners, lowered the costs of produce to small vendors by approximately 15%, and resulted in 5-10% lower prices for consumers of these products. However, in order to break even, Agruppa calculated that they would need a lot more capital, and to scale to at least 1,500 regular clients. They received some additional funding from social investors, but in January 2018 closed down.

INCUBATING, PROTOTYPING, AND DEVELOPING "OFF-THE-SHELF" POLICY INSTRUMENTS: SME IDEAS COMPETITION

CONTEXT

The World Bank and governments around the world have a very limited range of policy instruments that are typically used to foster small and medium enterprise (SME) growth and entrepreneurship.

INTERVENTION

To generate new ideas for SMEs, a call was issued to both internal and external researchers to propose new ideas for policies in this area, motivated by economic theory and existing research findings. This ideas competition was itself a proof of concept, and the results suggest that this approach to generating new policy ideas could be used more widely.

PROCESS AND TIMELINE

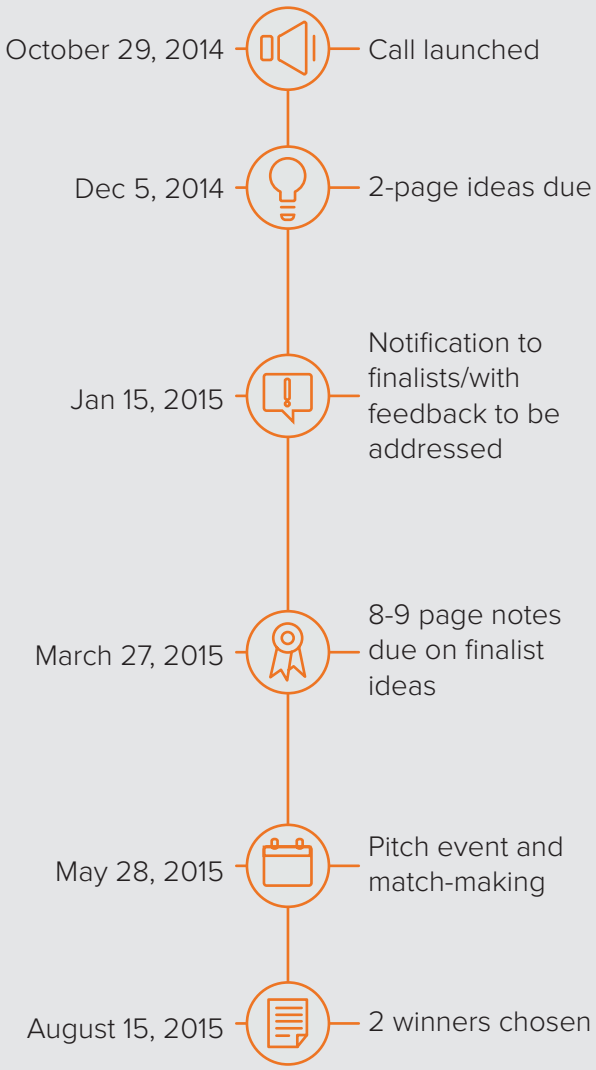
The competition showed that there was a supply of potential innovative ideas, with more than 70 submissions received, narrowed down to 15 finalists, who were then asked to prepare 8 to 9 page concept notes on their ideas, resulting in a portfolio of new ideas that on-the-ground staff could use in their decisions with policymakers.

In May 2015, a pitch event was held where these ideas were pitched (each finalist presented their idea in a 5-7 minute pitch followed by 5 minutes of questions and answers), to operational staff working on SME programs and projects.

Good attendance at this event showed a demand for new ideas, and match-making resulted in two winners being chosen to be piloted:

- → a business libraries project in Kenya
- → a value-chain intermediation project in Colombia.

PROCESS AND TIMELINE



In December 2016, the Trade and Competitiveness Global Practice launched an SME Productivity Launchpad, for teams to develop innovative ideas in the SME space.

FUNDING USE

Support development of idea to concept note stage; funded part of pilot intervention; co-funded impact evaluation

ACTION

Test out a new idea for policy feasibility and as an impact evaluation

PILOT PROJECT 1

USING BUSINESS LIBRARIES TO PROMOTE GROWTH IN SMALL MANUFACTURERS

CONCEPT

The first idea piloted was a business library, launched as WorkShop Nairobi. The idea was to upgrade the skills and access to capital of the jua kali furniture maker sector, providing (1) access to shared machinery that would be too expensive and not used often enough for any single firm to buy, (2) training on the use of this machinery and of more advanced techniques and designs, and (3) supplementary training services.

The team set up both a high intensity 30-hour training course, as well as a mobile app to provide a low-intensity digital version.

FINDINGS

An impact evaluation carried out found that:

- → take-up was lower than anticipated
- → program led to significant increases in innovation outcomes (number of new designs and likelihood of purchasing new tools for those who did participate) (Shapiro and Jang, 2017).

SUSTAINABILITY

The workshop continues to operate and is developing a path to financial sustainability by developing its own product line, examples of which can be found at https://www.workshopnairobi.com/.

PILOT PROJECT 2

LEVERAGING TECHNOLOGY TO SHORTEN SUPPLY CHAINS IN COLOMBIA

CONCEPT

Agruppa, in Colombia, aggregates demand of mom-and-pop shops in a given neighborhood. Compiling larger quantities, they then generate economies of scale, source produce from farmers, bring it to their warehouse in the city and then deliver onto their customers' shops. The goal was to:

- → reduce the amount of time and money spent by small vendors travelling each day to the central marketplace.
- → reduce costs to these firms, and hopefully result in price savings for customers in poor neighborhoods.

FINDINGS

After being selected as one of the winners, Agruppa went from supplying 20 to supplying 300 firms on a recurrent basis, selling to over 1000 shops overall. Preliminary results from an ongoing impact evaluation found:

- → reduction in travel time for firm owners
- → lowered costs of produce to small vendors by approximately 15%
- → 5-10% lower prices for consumers of these products.

SUSTAINABILITY:

However, in order to break even, Agruppa calculated that they would need a lot more capital, and to scale to at least 1,500 regular clients. They received some additional funding from social investors, but in January 2018 closed down.

FROM RESEARCH FINDINGS TO RESEARCH GAPS: NEXT STEPS

FROM RESEARCH FINDINGS TO RESEARCH GAPS: NEXT STEPS

This report covers the extensive research work undertaken within private sector development, in the past five years with funding from the SRP. The three inter-related components of the activities carried out targeted firm dynamics and entrepreneurship, government policies and finally innovative and new ideas for policy instruments.

In general, there was a need for more and better data collection, curation and dissemination. Many country statistical agencies had no procedures to be able to share the data they had collected, while for many others the firm censuses were incomplete in terms of coverage and key firm information. This suggests the need for further efforts to support these agencies in their collection of firm data, as well as developing infrastructure to allow for better access to this data.

These gaps extend from the data side to the research side as well where there is a dearth of research affecting other areas of study in developing countries. An extensive amount of studies focus on more advanced nations and utilize refined methods for looking into these problems. For example, McKenzie and Sansone (2017) builds on existing literature predicting which firms will succeed. Most of the existing literature looks at start-ups and venture-backed firms in developed countries, and while some of these studies find that judges' scores have some predictive power (e.g. Astebro and Elhedhli 2006; Scott et al. 2015), they also point to the immense difficulty of identifying who will be more successful (Kerr et al. 2014; Nanda 2016). Data analysts have also started to predict which new tech firms will be successful by looking at which sub-sectors have attracted the highest investments by venture capitalists and which companies have raised funds from the top-performing investment funds in the world (Ricadela 2009; Reddy 2017). There has been much less study of this issue in developing countries (Nikolova et al. 2011). An important exception is Fafchamps and Woodruff (2017), who compare the performance of judges' evaluations to survey-based measures and find that both have some (independent) predictive power among business plan contestants in Ghana. The research work conducted under this program points to a need for more activities to be conducted in developing countries.

There are also new technologies that can contribute to this type of research. A growing body of literature uses machine learning in economics (Mullainathan and Spiess 2017). Kleinberg et al. (2015) note that this method may be particularly useful for a number of policy-relevant issues that are prediction problems, rather than causal inference questions. Economists have started applying these methods to a number of different settings such as predicting denial in home mortgage applications (Varian 2014), quality of police and teachers (Chalfin et al. 2016), poverty from satellite data (Jean et al. 2016), conflicts in developing countries (Celiku and Kraay 2017), if defendants will commit crimes when released on bail (Kleinberg et al. 2017), and college dropout (Aulck et al. 2016). This research does also show the limits of this approach when it comes to predicting entrepreneurial success, and that machine learning need not necessarily improve on the performance of simpler models that have been more commonly used by economists.

There are several other areas around which the policy discussion can be framed.

A LOT OF INTERVENTIONS ARE DESIGNED TO HELP START AND GROW SMALL FIRMS, BUT WHAT SHOULD POLICY DO ABOUT FAILURE?

Part of the impact of the work is in showing policymakers when ideas did not work, and here impact was seen by the absence of policies. One example is a microinsurance for microenterprises product developed jointly with the Alexandria Business Association in Egypt. Once it was demonstrated through research from the SRP that it had no impact on client loan behavior or outcomes the Business Association no longer offered it. The work on formalization in Benin found that it was not cost effective to offer added incentives for formalization under the entreprenant status, and the Government of Benin has not rolled out these incentives as a result. Other countries in West Africa including Senegal and Guinea Bissau are now introducing their own versions of the entreprenant status and are also not using these additional incentives. The limited impact of the micro-franchising program in Kenya, and the fact that similar impacts could be achieved with pure cash transfers, may mean the International Rescue Committee directs more of its support towards cash transfers and less towards the microfranchising program in the future.

TO WHAT EXTENT DO THE RESULTS FROM THIS RESEARCH GENERALIZE TO OTHER SETTINGS?

There are several other points to emphasize in noting policy impact. The first is that the majority of the outputs from this research program came out towards the end of the program. The result is that there has not been much time for the activities to influence new project activities, or to be cited. The second is that a known reliable database of client country policy documents that can be searched to find references to these research findings currently exists and often such influence can occur without formal citations.

Many World Bank operational documents do not cite formal research extensively, but instead the impact is likely to be found in discussions that take place in project preparation and in peer reviews of planned projects, and there is no searchable database that allows us to document citations to the program's work.

Finally, this research program contains a lot of work which is very careful in trying to ascribe causality to the impacts of policy efforts. The researchers are unfortunately not able to meet this same evidence standard for demonstrating causal impacts of these findings on specific policies. Instead, the examples given must be taken as an incomplete subset of evidence that is consistent with the work having policy impact.

LESSONS FOR TRYING TO BRING RESEARCH IDEAS INTO OPERATIONAL PRACTICE

Activities conducted within the SRP were innovative and pioneering. While there are now more opportunities to fund impact evaluations, many grant-makers are extremely reluctant to fund interventions at all, or to fund development of an idea without a partner in place to test it. So just as in the start-up industry there is a role for angel-investors to fund early stage start-ups, there seems to be a definite space for donors to fund idea development.

REFERENCES

Background Paper for the World Development Report 2013.

Cirera, Xavier, Roberto N. Fattal-Jaef and Hibret B. Maemir, 2017. Taxing the Good? Distortions, misallocation and productivity in sub-Saharan Africa. Policy Research Working Paper 7949, The World Bank

Cirera, Xavier, Roberto N. Fattal-Jaef and N. Gonne, 2017. High-growth firms and misallocation in low-income countries: evidence from Côte d'Ivoire. Forthcoming

Decker, Ryan A., John Haltiwanger, Ron S. Jarmin and Javier Miranda, 2015. Where has all the skewness gone? The decline in high-growth (young) firms in the U.S. NBER Working Paper 21776, National Bureau of Economic Research

Kalemli-Ozcan, Sebnem and Bent E. Sorensen, 2014. Misallocation, property rights, and access to finance : Evidence from within and across Africa. CEPR Discussion Paper 9859, Centre for Economic Policy Research

Hsieh, Chang-Tai and Benjamin A. Olken, 2014. The missing `missing middle'. Journal of Economic Perspectives 28(3):89—108

Hsieh, Chang-Tai and Peter J. Klenow, 2009. Misallocation and manufacturing TFP in China and India. Quarterly Journal of Economics 124(4):1403—49

Restuccia, Diego and Richard Rogerson, 2008. Policy distortions and aggregate productivity with heterogeneous establishments. Review of Economic Dynamics 11(4) : 707—20

Tybout, James R., 2000. Manufacturing firms in developing countries : how well do they do, and why ? Journal of Economic Literature 38(1):11—44

Aterido, Reyes, Mary Hallward-Driemeier and Carmen Pages, 2011. Big constraints to small firms growth ? Business environment and employment growth across firms. Economic Development and Cultural Change 59(3):609—47

Ayyagari, Meghana, Asli Demirguc-Kunt and Vojislav Maksimovic. (2017) "What Determines Entrepreneurial Outcomes in Emerging Markets? The Role of Initial Conditions", Review of Financial Studies 30(7): 2478-2522.

Benhassine, Najy, David McKenzie, Massimiliano Santini, Victor Pouliquen. (2018) "Can enhancing the benefits of formalization induce informal firms to become formal? Experimental evidence from Benin" Journal of Public Economics, 157: 1-14

Bruhn, Miriam, Dean Karlan and Antoinette Schoar (2018). "The Impact of Consulting Services on Small and Medium Enterprises: Evidence from a Randomized Trial in Mexico." Journal of Political Economy, Volume 126, Number 2, April 2018: pp. 635–687.

Cortina, Juan Jose, Soha Ismail, and Sergio Schmukler (2017). "Firm Financing and Growth in the Arab Region," Economic Systems, Vol 42. Issue 2, June 2018, pp. 361-383

Groh, Matthew and David McKenzie. (2016) "Macroinsurance for microenterprises: a randomized experiment in post-revolution Egypt", Journal of Development Economics, 118: 13-25

Iacovone, Leonardo, Mariana Pereira-López and Marc Schiffbauer. (2017) "ICT Use, Competitive Pressures, and Firm Performance in Mexico," World Bank Economic Review, 30: S109-S118

McKenzie, David (2018) “Can business owners form accurate counterfactuals? Eliciting treatment and control beliefs about their outcomes in the alternative treatment status”, Journal of Business & Economic Statistics, 36:4, 714-722

McKenzie, David and Anna Luisa Paffhausen (forthcoming) “Small Firm Death in Developing Countries”, Review of Economics and Statistics, accepted, posted Online November 02, 2018.

Suresh de Mel, David McKenzie, and Christopher Woodruff. (2016) “Labor Drops: Experimental Evidence on the Return to Additional Labor in Microenterprises.” World Bank Policy Research Working Paper no. 7924

David McKenzie and Susana Puerto (2017) “Growing Markets through Business Training for Female Entrepreneurs: A Market-Level Randomized Experiment in Kenya.” World Bank

Arráiz, Irani, Miriam Bruhn, Claudia Ruiz, and Rodolfo Stucchi (2017) “Are Psychometric Tools a Viable Screening Method for Small and Medium-Size Enterprise Lending? Evidence from Peru.” World Bank Policy Research Working Paper No. 8276.

Benhassine, Najy, David McKenzie, Massimiliano Santini, Victor Pouliquen (2016) “Can enhancing the benefits of formalization induce informal firms to become formal? Experimental evidence from Benin” World Bank Policy Research Working Paper no. 7900

Bloom, Nicolas, Aprajit Mahajan, David McKenzie and John Roberts (2018) “Do management interventions last? Evidence from India”, NBER Working Paper no. 24249

Brudevold-Newman, Andrew, Maddalena Honorati, Pamela Jakiela, and Owen Ozier (2017) “A Firm of One’s Own: Experimental Evidence on Credit Constraints and Occupational Choice”, World Bank Policy Research Working Paper no. 7977

Campos, Francisco, Markus Goldstein, David McKenzie (2015) “Short-term impacts of Formalization Assistance and a Bank Information Session on Business Registration and Access to Finance in Malawi”, World Bank Policy Research Working Paper no. 7183

Cirera, Xavier, Fattal Jaef, Roberto N.; Maemir, Hibret Belete (2017) “Taxing the good? distortions, misallocation, and productivity in Sub-Saharan Africa” World Bank Policy Research working paper no. 7949.

Cortina, Juan Jose, Ismail, Soha, and Schmukler, Sergio. (2016) “Firm Financing and Growth in the Arab Region,” World Bank Policy Research Working Paper 7756.

De Mel, Suresh, David McKenzie and Christopher Woodruff (2016) “ Labor drops : experimental evidence on the return to additional labor in microenterprises”, World Bank Policy Research Working Paper no. 7924

Iacovone, Leonardo, Mariana De La Paz Pereira Lopez, and Marc Schiffbauer. (2016) “Competition makes IT better: evidence on when firms use it more effectively,” Policy Research Working Paper Series no. 7638

McKenzie, David (2016) “Can business owners form accurate counterfactuals? Eliciting treatment and control beliefs about their outcomes in the alternative treatment status”, World Bank Policy Research Working Paper no.7668

McKenzie, David and Anna Luisa Paffhausen. (2017) “Small firm death in developing countries”, World Bank Policy Research Working Paper no.8236

McKenzie, David and Susana Puerto. (2017) “Growing markets through business training for female entrepreneurs : a market-level randomized experiment in Kenya”, World Bank Policy Research Working Paper no. 7993.

McKenzie, David and Dario Sansone. (2017) “Man vs. machine in predicting successful entrepreneurs : evidence from a business plan competition in Nigeria”, World Bank Policy Research Working Paper no.8271

Shapiro, Jeremy and Chaning Jang (2017) “Evaluating the impacts of WorkShop access for small-scale craftsmen in Kenya”.

Campos, Francisco, Markus Goldstein and David McKenzie (2018) “How Should the Government Bring Small Firms into the Formal System? Experimental Evidence from Malawi”, World Bank Policy Research Working Paper no. 8601

POLICY NOTES:

Benhassine, Najy, David McKenzie, Massimiliano Santini, Victor Pouliquen (2016) “Enhancing the Benefits of Formalization Under a New Status in Benin”, Finance & PSD Impact note no. 37.

Benhassine, Najy, David McKenzie, Massimiliano Santini, Victor Pouliquen (2017) “Enhancing the Benefits of Formalization Under a New Status in Benin”, VoxDev post

Brudevold-Newman, Andrew, Maddalena Honorati, Pamela Jakiela, and Owen Ozier “Girls Empowered by Microfranchising: Estimating the Impacts of Microfranchising on Young Women in Nairobi,” GLM LIC Policy Brief No. 12.

Brudevold-Newman, Andrew, Maddalena Honorati, Pamela Jakiela, and Owen Ozier “The Impacts of Microfranchising on Young Women in Nairobi,” PEDL Research Note MRG Project #2330.

De Mel, Suresh, David McKenzie and Christopher Woodruff (2017) “Are labor market imperfections the reason so few microenterprises hire workers? An experiment in Sri Lanka suggests they are not”, Finance & PSD Impact note no. 38

Groh, Matthew and David McKenzie (2014) “Piloting Macroinsurance for Microenterprises in Post-Revolution Egypt”, Finance & PSD Impact note no. 31

Iacovone, Leonardo, Mariana De La Paz Pereira Lopez, Marc Schiffbauer (October 2017). “Competition Makes IT Better”, VoxEU note.

McKenzie, David and Susana Puerto (2017) “Business Training for Female Microenterprise Owners in Kenya Grew Their Firms without Harming Their Competitors”, Finance & PSD Impact note no. 42

Campos, Francisco, Markus Goldstein and David McKenzie (2018) “Helping firms realize the benefits of (partial) formalization”, Finance & PSD Impact note no. 52, October 2018.

SME Ideas Competition products:Agruppa (2017) “Agruppa Final Report”.

World Bank (2015) “Portfolio of Innovative Ideas on SME Growth and entrepreneurship”, World Bank, Washington D.C.