

# Promoting Ecommerce in Georgia<sup>1</sup>

## Exploring constraints to online participation using baseline data from an experimental study

10 March 2020

### Summary:

- Strengthening market opportunities for businesses as a pathway to growth was identified in ComPEL's 2015 research agenda as a way to build evidence on innovative interventions that could be supported through the Finance, Competitiveness and Innovation Global Practice
- Ecommerce has the potential to expand market opportunities for businesses, but, as noted in the 2016 World Development Report on Digital Dividends, complementary analog support may be needed to ensure people and businesses are able to fully benefit from the opportunities that high-speed, ubiquitous internet can provide.
- Baseline evidence from an ongoing impact evaluation on ecommerce training in Georgia is consistent with this assessment.
- While most firms in our survey (which focuses on MSMEs outside of Tbilisi) have access to basic internet services like email, the majority of firms do not engage in ecommerce activities such as owning a website or selling online.
- The main correlates with ICTs uptake are the size of firms (measured by the number of employees), the legal status (limited liability or individual entrepreneur), and proportion of skilled employees.
- Sector and gender of the respondents in our survey (who are typically the owner of the business) have no clear correlation with ICT use.
- Overall, the baseline descriptive statistics suggest that, while access to internet per se may not be an important constraint to firms' participation in online markets, firms in Georgia still do not seem to fully utilize the potential opportunities of ecommerce. This suggests that complementary interventions to help firms more effectively utilize these existing opportunities may support business growth.

### Introduction

In 2015, ComPEL and DIME<sup>2</sup> organized a global workshop to support impact evaluations on topics identified as learning priorities for private sector development. While impact evaluation evidence

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<sup>1</sup> This work would not have been possible without the generous funding received by ComPEL and the Jobs Multi-Donor Trust Fund. The report has been prepared by Aidan Coville, Caio Piza, Siddhartha Raja and Raquel Scarpari – a team from the World Bank Digital Development Global Practice and the Development Impact Evaluation Department (DIME).

<sup>2</sup> ComPEL: <https://www.worldbank.org/en/programs/competitiveness-policy-impact-evaluation-lab>; DIME: <https://www.worldbank.org/en/research/dime>

at this point had mostly focused on strengthening *capabilities* (e.g. access to financial and human capital, managerial skills, etc) relatively little evidence had focused on promoting firm *opportunities* (e.g. market access, networks). One of the identified learning priorities was to understand how the Finance, Competitiveness and Innovation Global Practice (FCI GP) in the World Bank could support effective interventions focused on expanding business market opportunities. This note presents the main results of a baseline survey for an impact evaluation (IE) of the Broadband for Development program in Georgia that was selected to be part of the ComPEL impact evaluation program through a competitive call for proposals after the 2015 workshop. The project is a component of the World Bank-supported Georgia National Innovation Ecosystem (GeNIE) project and provides support to micro, small and medium enterprises (MSMEs) to adopt broadband connections and establish an online retail presence through an ecommerce training provided to businesses outside of Tbilisi. This comes on the back of a large-scale rollout of broadband access across the country and is motivated by one of the main messages coming out of the 2015 World Development Report on bridging the digital divide - an increase in access to internet can lead to more local development, but it does not guarantee it, and may require supporting analog services to avoid exacerbating the digital divide. The baseline data analysis provides an overview of the firms' characteristics and how they are using digital tools in their businesses. The results indicate that, although almost 90 percent of firms in our sample have access to broadband internet from their homes and businesses, only 3 percent have a website, and less than two percent have a profile in an ecommerce platform. The follow up survey for the IE will take place approximately one year after the program is completed and the results of the impact evaluation are expected to provide inputs to improve the design of the Broadband for Development component of GeNIE.

## Context

In Georgia, the transition to a market economy has faced important challenges. The economy shrank by almost 60% from 1989 to 2003. Since then, the country has made substantial investment climate reforms, moving from 115<sup>th</sup> place in 2005 to 6<sup>th</sup> in 2019 (ahead of Norway and the United States) in the *Doing Business* ranking. However, Micro, Small and Medium Enterprises (MSMEs) which represent 94% of the approximately 60,000 registered businesses in the country contribute less than 20 percent to the GDP (compared to 60% in the ECA region)<sup>3</sup>. Low levels of innovation and productivity (estimated to be one third of large survey firms) has been identified as a major barrier to growth for these businesses (Project PAD). Georgia's ranking of 91 out of 141 in the World Economic Forum's Global Competitiveness Index's innovation pillar highlights the problem. To address these issues, the Government has prepared a National Innovation Strategy 2020, which aims to "maximize Georgia's growth potential by creating an entrepreneurial, knowledge-based economy, where innovation-led growth will foster increased economic productivity and growth."

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<sup>3</sup> Papiashvli, Tatiana (2012), "The Role of SME Sector in Georgian Economy".

This backdrop has motivated the financing of the GeNIE project—a US\$40M IBRD project implemented by the Georgian Innovation & Technology Agency (GITA) under the Ministry of Economy and Sustainable Development (MoESD). GeNIE was designed to foster innovation, particularly for otherwise marginalized firms. One of the programs within GeNIE is the “Broadband for Development” (BfD) program which aims to provide 3000 firms outside of the capital with tailored ecommerce training as part of its. This is the focus of an ongoing IE.

The IE, led by the Development Impact Evaluation (DIME) group, assesses the impact of the BfD program on key aspects of firm performance and outcomes. The IE evaluates how a combination of interventions – including ecommerce training and artificially induced demand shocks to incentivize firms’ start in online retail – changes firms’ participation in online markets, their performance as measured by turnover, profit, and jobs creation, and how these changes impact these businesses’ demand for high-skilled versus low-skilled laborers.

The remainder of the report is laid out as follows: First we describe the interventions that will be included in the IE. We then describe the experimental design to measure the impact of these interventions. This is followed by a summary of the descriptive statistics drawn from the baseline survey, as well as baseline balance statistics for the experimental sample. We then outline lessons learned so far and conclude with a description of the next steps and overall timeline for the IE.

## **Interventions**

The study focuses on two interventions: an ecommerce training implemented through GITA for business outside of Tbilisi and an associated “demand shock” that entails the purchase goods/services from a subset of trained businesses as a way to incentivize online engagement, and assess the quality of the associated goods and services.

### ***Ecommerce Training:***

The training is a 3-day face-to-face training on ecommerce basics, and covers:

*Day 1:* How to use Google, Facebook, Instagram and Trip Advisor to increase the visibility of your business;

*Day 2:* How to understand customers’ profiles, and how to register in ecommerce platforms to increase sales (like Bookings.com, Airbnb, hotels.com and other local platforms) and;

*Day 3:* How to develop a business model, access financial opportunities and grants, and participate in public procurement opportunities.

In addition to the training, firms receive consultations for website development.

To design the format of the ecommerce training, a joint World Bank project and IE team met with nearly 70 small businesses in Baghdati / Kharagauli (Imereti region), Tevali and Tbilisi, as well as approximately 20 internet service providers in December 2016. The interviews helped trace out the progression of firms as they move towards ecommerce. The transition from offline to online

business follows a natural order as the experience and sophistication of the firm grows. It starts with using the internet for information to get ideas about new production approaches or potential markets. This expands to the use of social media platforms (predominantly Facebook) to build awareness of their product, and in some situations, to the use of ecommerce designated platforms for actual sales of this product. Adoption of online government services may take place at this point too. For instance, online tax submissions through the Revenue Authority is the most common online service used. As businesses start to build their online brand and expand the geographical customer range, transport logistics become an important consideration. Building trust through the brand and repeat customers starts to become more important as geographical scope and volume expands, and with this, there is a greater need for consistently reliable and high-quality products/services. While still very limited in Georgia, once there is a trusted system available, actual online transactions may start to take place. With these tools, and a better understanding of relevant regulations and potential markets, firms may begin to export.

### ***Demand Shock:***

Inexperience engaging in ecommerce means that firms may have uncertainty around the potential benefits, and demand for online services may initially be low in their respective regions as customers are also unused to or unwilling to participate in online markets. This would mean that firms need to make an upfront investment with uncertain returns to that investment. If it were possible to secure some returns to the investment, would this change the firms' calculus and, by doing so, help firms overcome the startup barrier to ecommerce participation? To investigate this hypothesis, we developed a second experiment: an induced "demand shock" to incentivize firms to start engaging in online retail by offering to buy products and services from firms that attended training and are willing to have an online presence. An organization will purchase approximately \$150 worth of products or services from the firms, with the condition that they have participated in the three-day training and that the purchase is done online. This will allow us to look at both how the demand shock may incentivize firms to participate in the training and engage in ecommerce, as well as understanding what the impact of this is on firm performance within a year after the intervention.

### **Experimental Design**

We use a firm-level randomized experimental design to estimate the causal effect of the two interventions. First, we evaluate the effects of an ecommerce promotion package on firms' performance outcomes by randomly offering the training to a subset of eligible firms in Georgia (outside of Tbilisi). Second, we evaluate the impact of an induced demand shock to incentivize firms to start engaging in online retail by offering to buy products and services from a randomly selected subset of firms that were selected to the ecommerce training treatment group and expressed willingness to have an online presence. This allows for two distinct comparisons to answer the two

questions of interest. Figure 1 illustrates the groups that will be compared. To answer the question “What is the impact of providing ecommerce to MSMEs in Georgia?” we compare the training control group of 228 firms (Q1C) to the training intervention businesses that are either not eligible for the demand shock (Q1T – 441 businesses) together with the businesses eligible for the demand shock, but in the treatment group (Q2C – 100 businesses). To answer the question “What is the impact of inducing short-term increased demand for online products on business ecommerce participation?” we compare the 100 eligible firms that receive the demand shock (Q2T) with the 100 eligible firms that are assigned to the demand shock control group (Q2C).

### ***Data Collection and Sample***

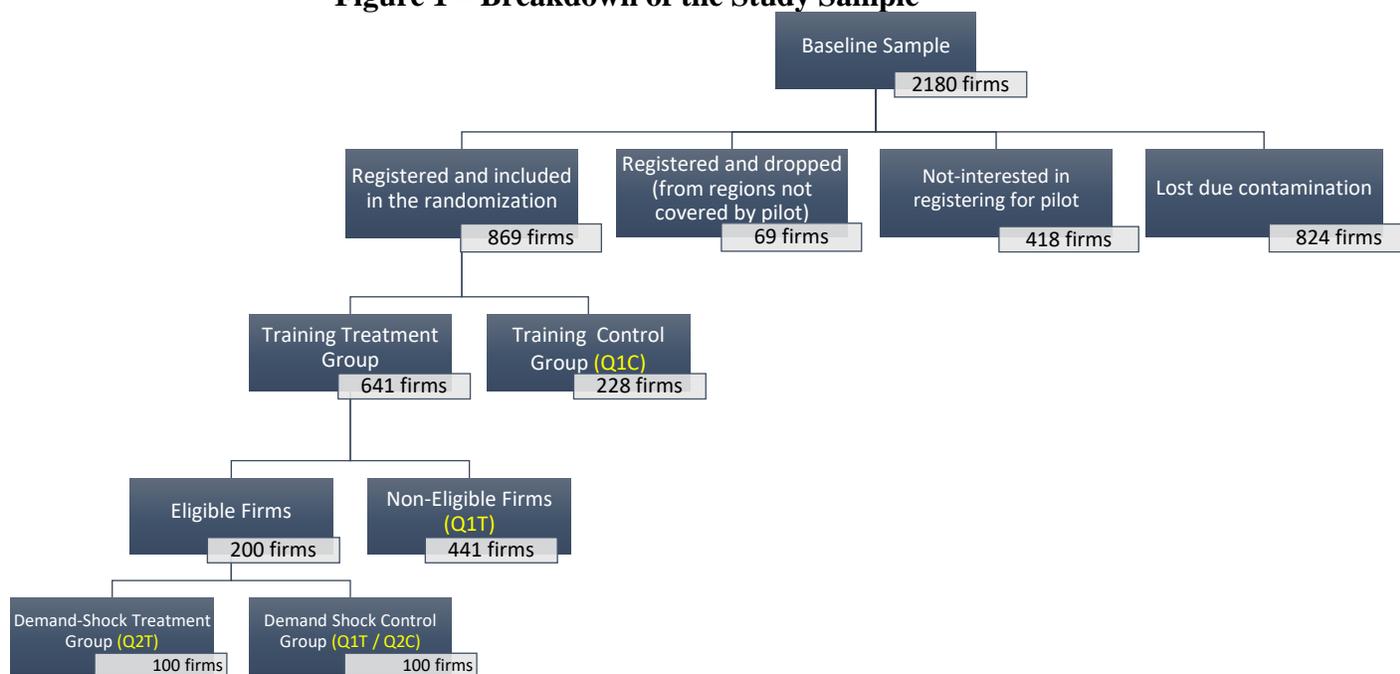
The baseline survey was implemented in July 2018. The team surveyed 2,180 active and legally registered MSMEs through a telephone survey. The sample was drawn from a census of businesses conducted by Geostat, the Georgian statistical agency and comes from six regions of Georgia (Shida Kartli, Kvemo Kartli, Samegrelo-Zemo Svaneti, Mtskheta-Mtianeti, Samtskhe-Javakheti, and Kakheti). The sample was not restricted by sector, but in practice, was made up predominantly of agriculture, tourism and light manufacturing. MSMEs are defined as having less than 100 employees and a turnover of less than GEL 1,500,000 (EUR 474,000). In practice this definition is very seldom binding and the majority of potential businesses fall well below this threshold. The questionnaire covered firm characteristics, aspects of ICT access and use, business transactions, household characteristics, and a variety of questions on firms’ outcomes such as revenues, profits, number of employees and employees’ skills.

### ***Randomization Process***

The original plan was to conduct the baseline survey, invite firms to register for the training, and then randomize firms that registered interest in participation in the training into treatment and control groups. This approach was decided upon based on previous evidence and experience from other training programs that showed low take up rates (e.g. McKenzie & Woodruff, 2013). However, after providing the baseline list to the partner implementing the training, a miscommunication resulted in all firms that registered during November and December 2018 being offered the training. This meant that, of the 2,180 baseline firms, 824 had to be excluded from the IE due to the resulting contamination. Once the communication challenges were resolved, the original randomization procedure was rolled out according to plan. In March 2019, we called all remaining surveyed businesses that were not contaminated – 1,356 businesses – to screen for their interest in registering in the ecommerce training pilot and explain the lottery process. We took this path to reduce potential low take-up rates. A total of 938 interested firms registered to have a chance to participate in the training, which included interested firms that were not originally in the baseline. Then, we dropped 69 firms that were located in villages not covered by the pilot. The experiment then randomly assigned the remaining 869 firms into two groups: (i) 228 firms to a pure control group (access to standard internet services without any support except for a light

introductory training); and (ii) 641 firms to a treatment group receiving the training package. A second-stage randomization will be conducted to measure the impact of the demand shock whereby an organization will purchase approximately \$100-150 worth of goods/services from the firm, with the condition that this is done online. Among the 641 treated firms from the training group, we will assess eligibility for participating in the demand shock intervention (having a product/service that can be viably purchased online – found out through a screening exercise). We anticipate approximately 200 firms will be eligible, of which we will randomly assign 100 to receive the demand shock. Assignment to the demand shock is stratified by whether the firms did or did not participate in the training based on the original invitation. For firms that did not participate, they will be advised that a precondition for receiving the online order will be for them to complete the training program. Study design and randomization are shown in figure 1.

**Figure 1 – Breakdown of the Study Sample**



The next section provides descriptive statistics for this full sample of potential study participants to provide more context on the types of firms targeted and the potential constraints they face to adopting ecommerce practices.

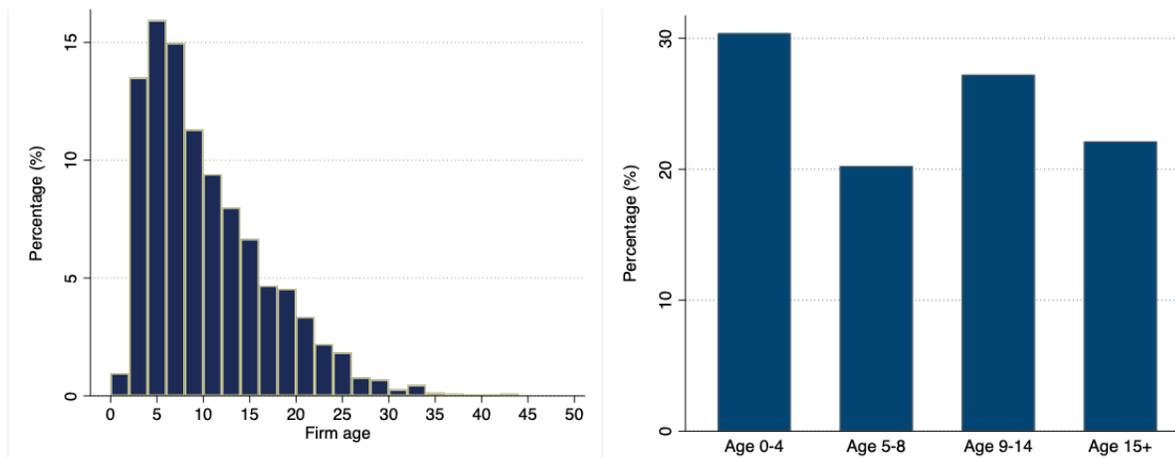
## Baseline Descriptives

### *Firms’ characteristics and outcomes*

This section summarizes the profile of all baseline firms, including characteristics such as size, sector, revenue, legal status, geographic location of customers and educational profile of employees. Table 1 in the Annex summarizes descriptive statistics for these characteristics and graphs show some distributions and correlations. The average age of firms in our sample is 10

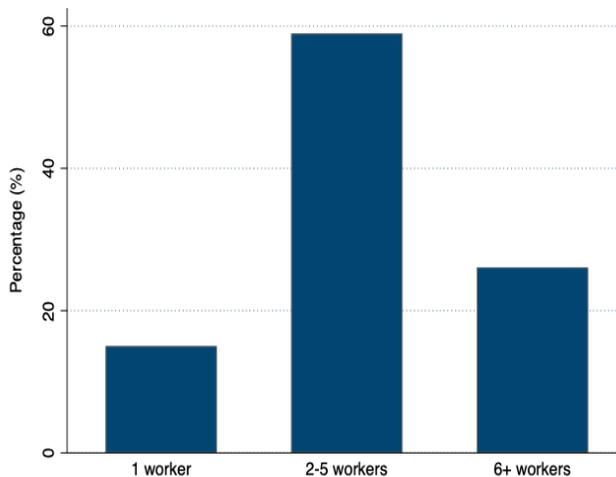
years, with a standard deviation of 6 years. Around 30 percent of firms have less than 4 years (figure 1). Survey data did not show any strong correlation between age of firms and sector, size or revenue.

**Figure 1 – Distribution of firms by age**

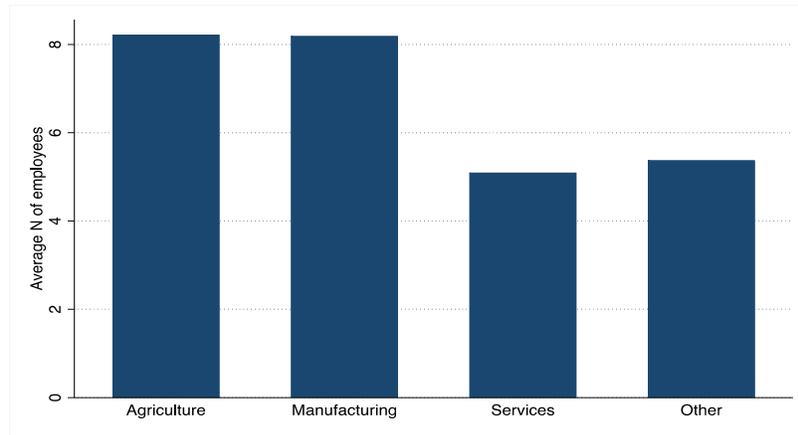


Firms have, on average, 5.6 employees and an average of 4 full-time and 3 part-time employees. The average number of employees with a university degree is 2, which represents, on average, 62.6 percent of employees with a university degree. Approximately 15 percent of surveyed firms have only one employee (figure 2). As expected, firms in the service sector are smaller – they have 5 employees per firm on average, compared to 8 employees in the agriculture and manufacturing sectors (figure 3). The service sector comprises 60.7 percent of our sample. A large share of our sample is registered as an individual entrepreneur (59.3 percent), while 38.5 are registered as a business with limited liability (Annex, Table 1).

**Figure 2 – Distribution of firms by size groups**



**Figure 3 – Average size of firms by sector**

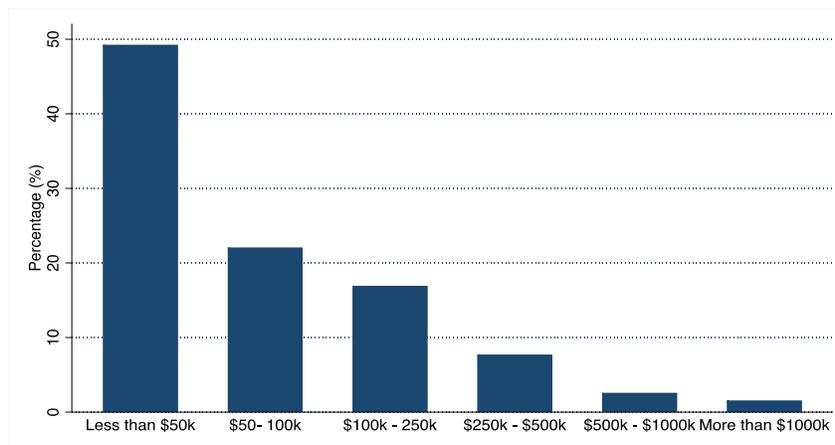


The distribution of firms by region is somewhat heterogeneous. Around 68 percent of the survey firms come from only three regions: Samegrelo-Zemo Svaneti, Kakheti, Shida Kartli (Annex, Table 1). These regions are also the regions where most of the firms from the tourism sector in Georgia are located.

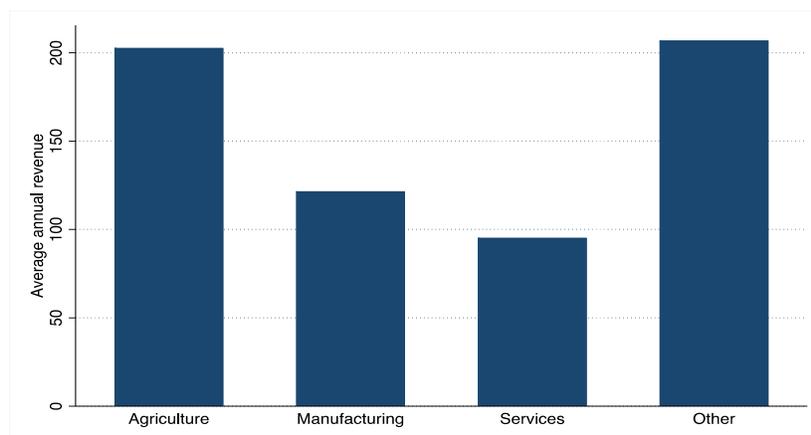
Finally, only 8.6 percent of our sample declared their average annual revenue. As such, the descriptive statistics are likely to be non-representative, but we present for illustration. Among the firms that answered, the average revenue is GEL 145,000. Almost 50 percent of them have an annual revenue of less than GEL 50,000 (figure 4). The average revenue in the agriculture sector is twice the average revenue of the services sector (figure 5).

Nonetheless, almost all firms answered what is the proportion of sales that is local, national or international. The average share of sales that comes from local markets is 72.9 percent, while 16.2 and 5.8 percent of the sales are based on national and international markets respectively (Annex, Table 1).

**Figure 4 – Distribution of firms by Revenue groups (in Thousands, GEL)**



**Figure 5 – Average annual revenue by sector (in thousands, GEL)**



### ***Use of Information and Communication Technologies (ICT)***

Although almost 90 percent of respondents reported having access to internet at home, the rate of firms that reported accessing internet in the firm from a computer and using digital tools and online platforms for businesses purposes is still very low.

Only 40 percent of firms have a computer in their businesses' site, and the average number of computers is 1.95 (Annex, Table 2). Among them, 89.1 percent have access to internet in the firm – which represents 39.9 percent of the total sample. Additionally, while 60 percent of respondents have a personal email, only 4.2 percent of their businesses have a corporate email. Firms use corporate emails for a variety of purposes: 53.6 percent use it to send or receive invoices, 38.2 use email to place and receive online orders, and 36.9 percent use it for a different customer service (Annex, Table 2). Only 11.6 percent of firms have a business profile on Facebook. Among them, 85.7 percent use the social media platform to advertise goods and services, 78.5 percent use it to list firm's goods and services, 87.1 percent use it to respond to clients' questions and comments. Only 1.9 percent have already used an ecommerce platform and 5.6 percent have already received an online order. Among the latter, the share of sales from online orders is 27 percent and the share of customers that buy online is 9.6 percent. Finally, 3.2 percent of firms have a company website. The main use of these websites, reported by 76.6 percent of firms, is cataloging goods and services. Other important uses are listing prices, and placing or receiving online, reported respectively by 58.5 and 46.2 percent of firms.

### ***Correlation between ICT use and firm's characteristics and outcome***

The data identify the following variables to be correlated with use of technological tools:

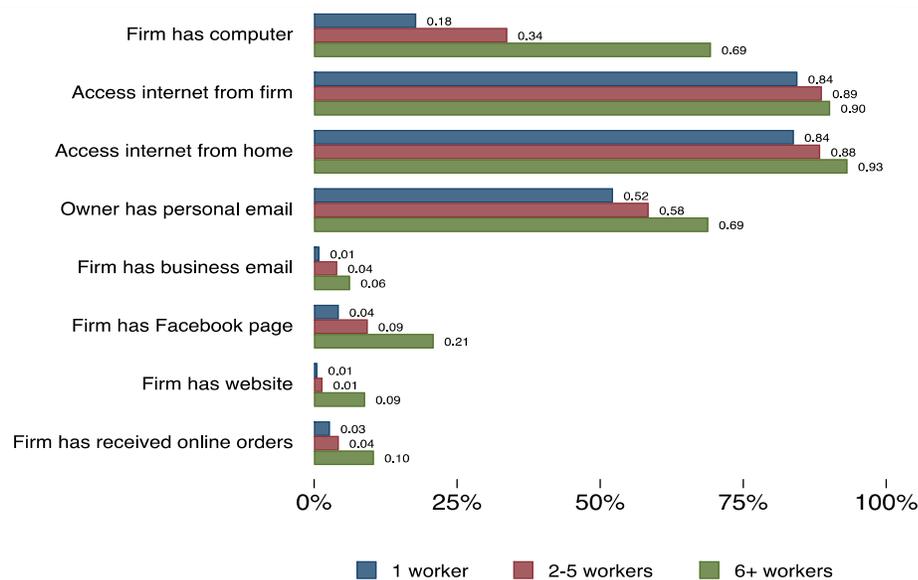
- firm size – measured by the number of employees
- the legal status – whether the firm is an individual entrepreneur or limited liability, and

- level of education of employees – measured by the presence of at least one employee with university degree.

Region, sector and gender of respondent has no clear and statistically significant relationship with ICT engagement.

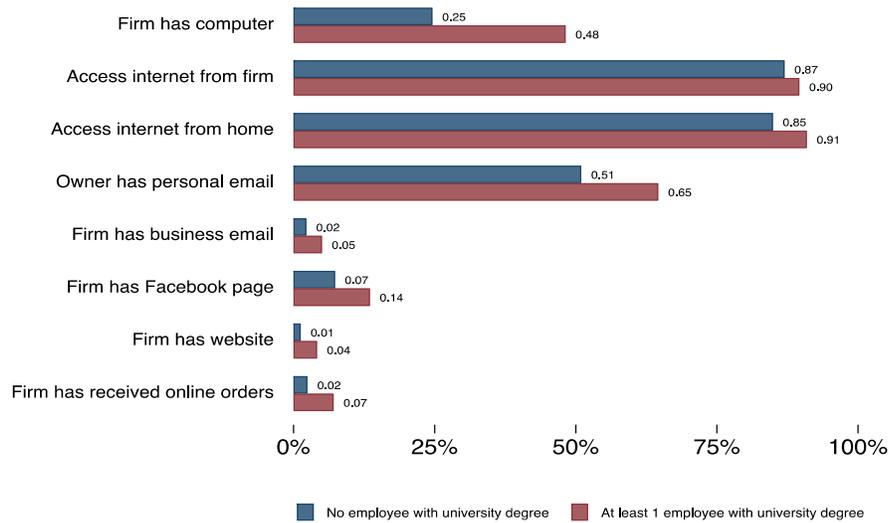
The number of employees has a strong, positive and statistically significant correlation with ICT engagement. Among firms with 6 or more workers, 69 percent have a computer in their business location. This number reduces to 34 percent among firms with 2 to 5 employees and to 18 percent among firms with only one employee (Figure 6). Firm size is also positively correlated with having a Facebook page and a website. Among firms with 6 or more workers, 21 percent have a Facebook page and 10 percent has a website. These numbers reduce to 9 and 1 percent respectively among firms with 2 to 5 employees and to 4 and 1 percent to firms with only one employee. Regression results confirm that this relationship is statistically significant and that having more than six employees is positively correlated with all ICT variables, except for the one related to the access to internet from the firm (Annex, Table 3).

**Figure 6 – ICT use by size of firm**



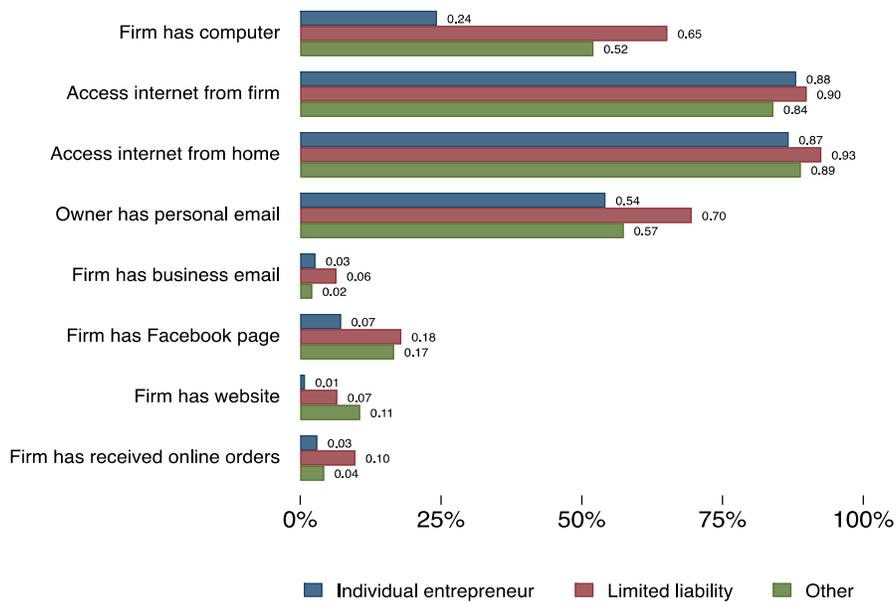
Having skilled workers is also somewhat correlated with the use of ICTs but to a lesser extent. Among firms that have at least one employee with university degrees, 48 percent has a computer in the business location. This percentage reduces to 25 percent among firms with no employee with university degree. The rate of firms that have a corporate email, a Facebook page or a website and having received an online order is low for all firms. However, among firms with at least one skilled worker, this rate is two times higher than the one among firms with no skilled employee.

**Figure 7 - ICT use by skill of workers**



Regression results confirm that this relationship is statistically significant and that having at least one employee with university degree is positively correlated with all ICT variables, except for the one related to the access to internet from the firm (Annex, Table 4).

**Figure 8 – ICT use by legal status of the firm**



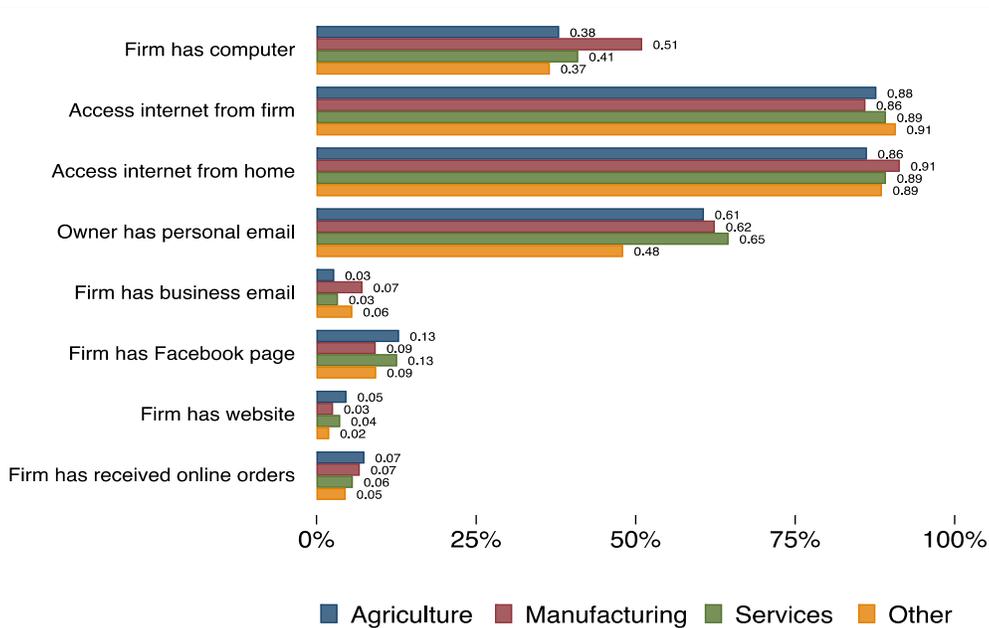
Regression results also confirm that having a limited liability company (as opposed to being an individual entrepreneur) is positively correlated with all ICT variables, except access to internet from the firm (Annex, Table 5). Interestingly, when we include all independent variables in the

same regression, which isolates the correlation of each variable and accounts for potential correlations between explanatory variables, we still see a positive and statistically significant effect of these variables on ICT engagement (Annex, Table 6).

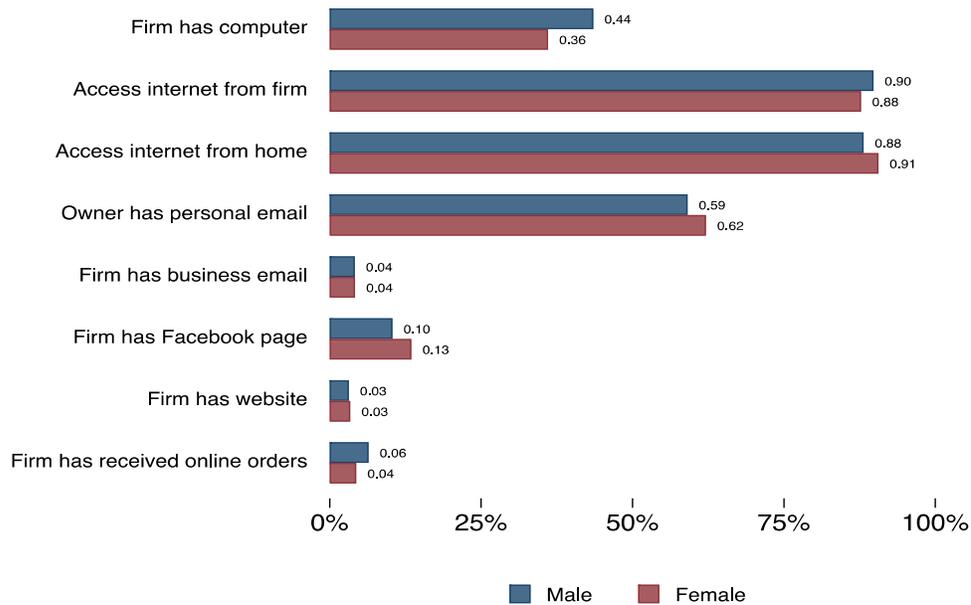
Sector and gender of the respondents (typically the owner) have no clear and statistically significant correlation with ICT use (Figures 9 and 10).

Taken together, the results strengthen the rationale for finding complementary analog support services to businesses to help them make the most out of high-speed internet. However, low participation in online markets could also be affected by low demand if customers are unused to or unwilling to participate in online markets. The experimental evaluation will explore both a supply-side shock (strengthening firms' understanding of ecommerce and promoting their participation) and a demand-side shock (guaranteeing orders from firms if they go online). This will help unpack some of the constraints firms face in fully engaging in online activities.

**Figure 9 – ICT use by sector**



**Figure 10 – ICT use by gender of the respondent**



## Randomization and Baseline Balance

As outlined in Figure 1, the set of baseline firms is not the same as the final set of firms that were included in the experiment. The experimental sample included all firms that registered their interest, which was predominantly based on firms from the baseline that were contacted, but also included some firms that registered independently of participating in the baseline and receiving follow up calls. This meant that, of the 869 firms in our final sample that was randomized into treatment and control, only 552 were part of the original baseline (412 treatment and 140 control). Table 7 presents the baseline balance statistics from this sample. While differences are measured with less accuracy than anticipated in the follow up survey (since the follow up survey will cover the full set of 869 businesses), the table still shows that there is reasonable balance across treatment and control for most of the important outcomes of interest. Of the 39 variables included, only one is statistically significant at the 5% level (number of months operational in the year), and two at the 10% level (days in the week open, and whether they have a personal email). This suggests that randomization helped ensure balance across the sample for most observable measures of interest, and this is unlikely to present challenges for analysis in the follow up survey.

## Challenges and Lessons Learned

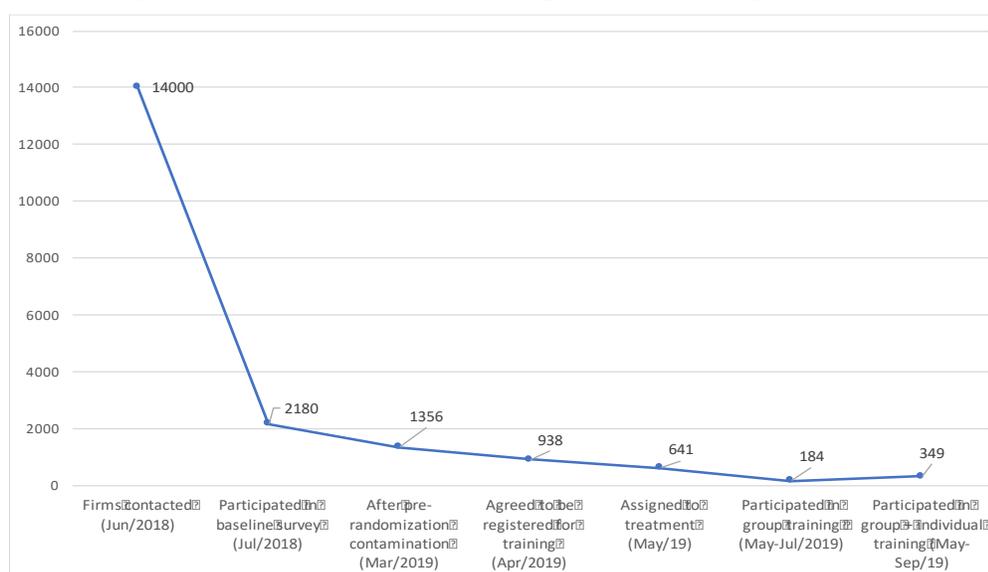
We present the main practical challenges to implementing the IE which include:

1. Low take up of the intervention resulting from low perceived benefit and high opportunity costs

2. Implementing partner pressure to provide the intervention to the control group as a way to overcome low take up challenges
3. Measurement difficulties for important outcomes of interest.

A summary of the difficulties in securing sample size (due to low take up and control group contamination) is summarized in Figure 2, which also highlights the relative improvements that came from changing implementation plans near the end of the program to try address these challenges directly.

**Fig 2 - Number of firms in each phase of the impact evaluation**



### **Low take-up**

Low take-up rates reduce power and attenuate the treatment effect. From experience, we knew take-up could be an issue. The average participation rate across several impact evaluations where individuals received an invitation to training is only about 65 percent (McKenzie and Woodruff, 2013). Among studies that evaluate firm-level training, this average is lower, even when studies focus on samples that initially expressed interest in attending the rates (Bruhn and Zia, 2012; Valdivia, 2012).

As such, we prepared for this and carefully developed strategies to increase participation. First, we managed to have a large initial sample. Larger samples increase the power of the study and the

ability to analyze which firms are benefiting more from the program (McKenzie and Woodruff, 2013). Second, we restricted our baseline survey only to people that said they were interested in the training. Then, we developed a strategy to contact firms and encourage them to participate. We conducted an initial pilot to assess their interest, estimate participation rates, and improve our pitch to firms. Then we contacted all baseline firms, invited them to register for the lottery, and, only then, we conducted the randomization among registered firms. Finally, we contacted the treatment group again to confirm training dates, remind them of all benefits they would get from the program, and confirm that we were providing transportation and food subsidies. We made sure that training was free of charge, and when required, the training company even offered transportation vouchers to cover travel costs.

Nonetheless, we finished the first round of training with a take-up rate of 27 percent. We discussed the possible reasons for low take-up with GITA and the implementing firm. In our case, the time of year when the training was implemented may have impacted the rates of participation. Firms indicated that they could not participate in trainings because they happened during the summer, which is the high-season for businesses in the countryside of Georgia. A relatively large share of our sample comes from the tourism sector and are busier in the months of May to September. Thus, it is harder for them to leave their businesses to participate in training during this period. In addition, the day of the week and location of training also seemed to play an important role in firm participation.

A new strategy that changed the timing (weekdays instead of weekends) and location (at the business' office instead of a central training location) increased participation rate to 54 percent by the end of the implementation.

For the future, one change that could be implemented in the training program or in new evaluations is to have more restrictive criteria for participation and concentrate the intervention towards firms from specific sectors. By doing so, we can have a more homogeneous set of firms. From the research design perspective, this would allow for a higher statistical power even with a small sample or lower take-up. Homogenous sectors could also make the delivery of richer, more tailored training possible. However, in cases like Georgia with small numbers of businesses in different sectors, this may reduce the potential relevant population significantly which is an important tradeoff.

### ***Implementation pressure***

Low take up combined with the implementing partner needing to meet certain targets for firm trainings placed pressure on using the control group as a sample to offer the intervention to help reach targets. We had initially designed an experiment based on encouragement and registration before randomization. However, once firms had started registering for the training, a

miscommunication led to the implementing partner making firm offers to allow these firms to receive training, rather than participate in the randomization to assign treatment and control groups. From an implementation perspective this made sense since these were all firms that expressed interest in training and, because of lower-than-anticipated take up, there was a need to increase training numbers. This miscommunication resulted in 824 firms receiving an offer to the training before randomization that we had to drop from our sample. Later, after randomization, our partner was preparing an intense dissemination strategy using social media and local governments to increase the take-up rate. We had to reinforce that, although increasing participation was crucial, by following that strategy, we may also be reaching the control group and facing the risk of additional contamination. A key challenge to the IE design was the need to provide the implementing partner with both the potential control and treatment firms. In other settings, where the partner only receives the list of treatment firms, this risk of contamination could be reduced. Regular monitoring, some flexibility, and close coordination with partners was essential to be able to mitigate the effects of these actions on the IE identification strategy and ensure the remaining implementation followed protocols that would allow for the IE to continue.

### ***Measurement of outcomes: revenues***

Measuring MSME's revenues can be very challenging as some business owners do not typically register and keep track of financial flows (McKenzie and Woodruff, 2013). In general, the questions related to revenues have much lower response rates than the ones related to nonfinancial topics (McKenzie and Woodruff, 2013; Drexler et al., 2012). In our case where the survey was conducted telephonically, the baseline response rate for nearly all of our questions was approximately 95 percent, but only 4.3 percent of firms reported their revenues. Nonresponse in the follow up survey for such an important outcome can limit the conclusions we can draw from the study as it increases variation and reduces the power of the study. This is a primary motivation for planning a face-to-face survey for the follow up.

### **Timeline and Next Steps**

The baseline was completed in July 2018 and initial recruitment into the training program began in November 2018. The experimentally evaluated training started in May 2019 after screening was complete, and continued until October 2019. With the training intervention recently finalized, we are preparing for implementing the demand shock will which roll out from January to March 2020. The first follow up survey is scheduled for early 2021, about a year after the interventions have been completed in order to measure primary outcomes on growth, employment and skills composition. The team will organize dissemination events for the implementing partners GITA, OpenNet and the Ministry of Sustainable Development of Georgia, as well as within the World Bank, with a focus on the FCI and Digital Development global practices, anticipated in mid-2021.

## Annex

**Table 1 – Firm Characteristics (Summary Statistics)**

	<b>N</b>	<b>Mean</b>	<b>St.Dev</b>	<b>min</b>	<b>max</b>
Firm Age	2178	10.047	6.841	1	73
N of employees	2180	5.67	11.077	1	297
N of full-time employees	2180	4.184	8.111	0	297
N of part-time employees	582	3.162	4.154	1	45
N of employees with university	1598	2.165	.91	1	3
Share of employees with university	1,481	62.655	30.848	2.2	100
Female respondent	2180	.382	.486	0	1
Legal Status					
<i>Individual entrepreneur</i>	2180	.593	.491	0	1
<i>Limited liability</i>	2180	.385	.487	0	1
<i>Other</i>	2180	.022	.147	0	1
Sector					
<i>Agriculture</i>	2180	.069	.253	0	1
<i>Manufacturing</i>	2180	.09	.286	0	1
<i>Services</i>	2180	.607	.489	0	1
<i>Other Sectors</i>	2180	.234	.423	0	1
Region					
<i>Samegrelo-Zemo Svaneti</i>	2180	.251	.434	0	1
<i>Samtskhe-Javakheti</i>	2180	.079	.27	0	1
<i>Shida Kartli</i>	2180	.202	.402	0	1
<i>Mtskheta-Mtianeti</i>	2180	.061	.239	0	1
<i>Kvemo Kartli</i>	2180	.171	.376	0	1
<i>Kakheti</i>	2180	.236	.425	0	1
Revenue	195	145.793	341.142	.003	3000
Share of sales that are local	2085	76.305	33.37	0	100
Share of sales that are national	2085	17.084	27.16	0	100
Share of sales that are international	2085	6.18	19.36	0	100

**Table 2 – ICT Usage by Firms (Summary Statistics)**

	N	Mean	St.Dev	min	max
Has a computer in the firm	2176	.407	.491	0	1
N of computers in the firm	885	1.95	2.481	1	43
Access to internet in the firm	871	.891	.312	0	1
Access to internet at home	1977	.891	.312	0	1
Has personal email	2066	.603	.489	0	1
Has business email	2066	.042	.2	0	1
Use email for					
place and receive online orders	1410	.382	.486	0	1
send/receive invoices	1408	.536	.499	0	1
any other customer service	1402	.369	.483	0	1
Firm has Facebook Page	2155	.116	.32	0	1
Use Facebook to					
advertise goods and services	244	.857	.351	0	1
list firm's goods and services	242	.785	.412	0	1
to respond to clients' questions	240	.871	.336	0	1
involve clients in product design	224	.312	.465	0	1
cooperate with partners	235	.417	.494	0	1
hire employees	247	.211	.409	0	1
Firm has used ecommerce platform	2180	.019	.136	0	1
Firm has website	2155	.032	.177	0	1
Use website for					
placing/receiving online orders	65	.462	.502	0	1
cataloguing goods and services	64	.766	.427	0	1
listing prices	65	.585	.497	0	1
tracking online orders	60	.267	.446	0	1
customizing product design	61	.131	.34	0	1
personalizing searches	60	.167	.376	0	1
online applications	65	.277	.451	0	1
having transactions without calling	61	.295	.46	0	1
Firm has received online orders	2145	.056	.231	0	1
Share of sales from online orders	104	26.99	29.681	0	100
Share of customers from online orders	2136	.096	.294	0	1

**Table 3 - Regression results of ICT use and firm size**

VARIABLES	(1) Firm has a computer	(2) Access to internet from firm	(3) Access to internet at home	(4) Owner has personal email	(5) Firm has corporate email	(6) Firm has Facebook	(7) Firm has website	(8) Firm has received online orders
More than 6 workers	0.388*** (0.0225)	0.0196 (0.0213)	0.0567*** (0.0158)	0.117*** (0.0244)	0.0289*** (0.00999)	0.126*** (0.0156)	0.0760*** (0.00861)	0.0646*** (0.0114)
Constant	0.305*** (0.0115)	0.882*** (0.0142)	0.876*** (0.00818)	0.572*** (0.0125)	0.0341*** (0.00511)	0.0835*** (0.00787)	0.0131*** (0.00435)	0.0400*** (0.00573)
Observations	2,176	871	1,977	2,066	2,066	2,155	2,155	2,145
R-squared	0.121	0.001	0.006	0.011	0.004	0.029	0.035	0.015

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 4 - Regression results of ICT use and having skilled workerd**

VARIABLES	(1) Firm has a computer	(2) Access to internet at firm	(3) Access to internet at home	(4) Owner has personal email	(5) Firm has corporate email	(6) Firm has Facebook	(7) Firm has website	(8) Firm has received online orders
One worker with university	0.236*** (0.0220)	0.0262 (0.0267)	0.0601*** (0.0151)	0.136*** (0.0229)	0.0277*** (0.00941)	0.0618*** (0.0147)	0.0287*** (0.00816)	0.0464*** (0.0106)
Constant	0.246*** (0.0182)	0.870*** (0.0240)	0.849*** (0.0126)	0.510*** (0.0189)	0.0228*** (0.00777)	0.0736*** (0.0121)	0.0130* (0.00672)	0.0248*** (0.00878)
Observations	2,176	871	1,977	2,066	2,066	2,155	2,155	2,145
R-squared	0.050	0.001	0.008	0.017	0.004	0.008	0.006	0.009

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 5 - Regression results of ICT use and legal status**

VARIABLES	(1) Firm has a computer	(2) Access to internet at firm	(3) Access to internet at home	(4) Owner has personal email	(5) Firm has corporate email	(6) Firm has Facebook	(7) Firm has website	(8) Firm has received online orders
Limited liability	0.399*** (0.0199)	0.0216 (0.0217)	0.0574*** (0.0143)	0.152*** (0.0218)	0.0374*** (0.00897)	0.104*** (0.0140)	0.0538*** (0.00778)	0.0670*** (0.0102)
Constant	0.253*** (0.0123)	0.878*** (0.0170)	0.868*** (0.00898)	0.543*** (0.0136)	0.0270*** (0.00561)	0.0759*** (0.00866)	0.0120** (0.00480)	0.0309*** (0.00627)
Observations	2,176	871	1,977	2,066	2,066	2,155	2,155	2,145
R-squared	0.156	0.001	0.008	0.023	0.008	0.025	0.022	0.020

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 6 - Regression results of ICT use and different firms characteristic**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Firm has a computer	Access to internet at firm	Access to internet at home	Owner has personal email	Firm has corporate email	Firm has Facebook	Firm has website	Firm has received online orders
More than 6 workers	0.281*** (0.0221)	0.0181 (0.0222)	0.0429*** (0.0165)	0.0745*** (0.0253)	0.0184* (0.0104)	0.101*** (0.0162)	0.0641*** (0.00900)	0.0467*** (0.0119)
One worker with university	0.153*** (0.0204)	0.0266 (0.0271)	0.0500*** (0.0155)	0.106*** (0.0233)	0.0200** (0.00964)	0.0406*** (0.0148)	0.0177** (0.00823)	0.0322*** (0.0109)
Legal status: limited liability	0.286*** (0.0205)	0.0146 (0.0227)	0.0351** (0.0153)	0.108*** (0.0234)	0.0280*** (0.00965)	0.0670*** (0.0150)	0.0322*** (0.00830)	0.0467*** (0.0109)
Constant	0.119*** (0.0173)	0.852*** (0.0280)	0.831*** (0.0133)	0.468*** (0.0198)	0.0123 (0.00820)	0.0367*** (0.0126)	-0.00817 (0.00695)	0.00485 (0.00915)
Observations	2,176	871	1,977	2,066	2,066	2,155	2,155	2,145
R-squared	0.232	0.003	0.016	0.036	0.012	0.045	0.046	0.031

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 7 - Baseline balance statistics**

Variable	CONTROL			TREATMENT			T-test [2]-[4]
	[1] N	[2] Mean	[3] Std Error	[4] N	[5] Mean	[6] Std Error	[7] Difference
Year when firm started	140	2008.921	[0.552]	412	2009.112	[0.314]	-0.190
Year you joint/started the business	138	2009.174	[0.536]	407	2009.533	[0.304]	-0.359
Number of business owners	139	1.360	[0.075]	411	1.350	[0.055]	0.009
Registered as an individual entrepreneur	140	0.607	[0.041]	412	0.619	[0.024]	-0.012
Registered as a limited liability company	140	0.379	[0.041]	412	0.369	[0.024]	0.010
Firm includes female owners	140	0.393	[0.041]	411	0.370	[0.024]	0.023
Main sector is services	140	0.586	[0.042]	412	0.595	[0.024]	-0.009
Main sector is agriculture	140	0.093	[0.025]	412	0.085	[0.014]	0.008
Main sector is manufacturing	140	0.086	[0.024]	412	0.083	[0.014]	0.003
Has a bank account in the name of the business	140	0.900	[0.025]	408	0.882	[0.016]	0.018
Days per week this business is in operation	140	6.336	[0.119]	412	6.029	[0.088]	0.307*
Months of the year this business operates	140	11.493	[0.159]	412	10.833	[0.141]	0.660**
Number of workers	140	5.836	[0.673]	412	5.544	[0.387]	0.292
Number of full time employees	140	4.350	[0.428]	412	3.951	[0.227]	0.399
Proportion of workers that are related to owner	132	0.316	[0.056]	388	0.292	[0.022]	0.024
Number of part time employees	43	3.395	[0.804]	119	3.546	[0.478]	-0.151
Monthly wage of highest earning employee	71	696.606	[71.975]	179	961.006	[178.327]	-264.400
Monthly wage of lowest earning employee	68	236.250	[15.975]	181	284.017	[28.931]	-47.767
Firm has at least one computer	140	0.400	[0.042]	412	0.439	[0.024]	-0.039
Number of computers	56	2.000	[0.287]	181	2.088	[0.186]	-0.088
Has a computer at home	139	0.906	[0.025]	403	0.923	[0.013]	-0.017
Number of computers at home	126	1.603	[0.083]	372	1.473	[0.043]	0.130
Computers are used in the firm	139	0.496	[0.043]	401	0.474	[0.025]	0.023
Number of people using computer at least once a week for business	129	1.806	[0.217]	395	1.499	[0.126]	0.307
Can access internet from firm	221	0.204	[0.027]	637	0.243	[0.017]	-0.040
Can access internet from home	221	0.511	[0.034]	637	0.509	[0.020]	0.003
Can access internet from mobile phone	221	0.425	[0.033]	637	0.419	[0.020]	0.006

Has personal email	133	0.684	[0.040]	397	0.602	[0.025]	0.082*
Has business email	133	0.218	[0.036]	397	0.189	[0.020]	0.029
Has used online banking	135	0.296	[0.039]	404	0.292	[0.023]	0.004
Firm has a Facebook page	137	0.088	[0.024]	404	0.097	[0.015]	-0.009
Firm has website	138	0.029	[0.014]	406	0.025	[0.008]	0.004
Has received order online	137	0.073	[0.022]	402	0.057	[0.012]	0.016
Has applied for government tenders	140	0.114	[0.027]	412	0.073	[0.013]	0.041
Files firm's taxes through e-filing	139	0.403	[0.042]	402	0.351	[0.024]	0.052
Sells Internationally	140	0.214	[0.035]	412	0.240	[0.021]	-0.026
Sells Nationally (outside of local area)	140	0.943	[0.020]	412	0.927	[0.013]	0.016
Respondent has a university degree	139	0.698	[0.039]	408	0.676	[0.023]	0.021

The value displayed for t-tests are the differences in the means across the groups.

\*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent critical level.