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Light Touch, Lean Tally: Impacts of an MSME Support Program in Côte d'Ivoire

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Abstract

In many developing countries, micro, small, and medium enterprises (MSMEs) employ more people than any other type of firm, so identifying ways to raise productivity, improve employment conditions, and formalize labor in these settings is of prime policy importance. However, due to the small number of workers per firm and the possibly long results chain linking management to employment, few MSME-targeted interventions and evaluations address job-related outcomes directly. We do so in a randomized controlled trial (RCT) of a support program for MSMEs in Côte d'Ivoire that included financial management and human resources (HR) components. Six and 18 months after the end of the program, we find muted impacts on business practices, access to finance, and firm performance. On the employment side we find positive and significant impacts on job quality, driven by the share of employees receiving at least the minimum wage and the share with written contracts. We find no significant effect on the number of staff. Taken together, our results underscore the difficulty of boosting firm performance and creating jobs with a low-intensity intervention on the one hand, and the feasibility and importance of improvements in employment quality in MSMEs in developing countries on the other.

JEL: O12, L26, M10

Keywords: Côte d'Ivoire, MSME support, employment quality, firm performance, randomized controlled trial

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This study received IRB approval from the GIGA Ethics Committee (GIGA 03/2021) and was pre-registered with the AEA RCT Registry (AEARCTR-0008492).

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Article Outline

1 Introduction

Micro, small, and medium enterprises (MSMEs) are the main employers outside agriculture in most African economies. As the sector continues to be characterized by low productivity and pervasive informality, employment in MSMEs often lacks key attributes of decent employment, such as a written contract, social security, and adequate remuneration. A multitude of support programs exist for small-scale enterprises in developing countries, ranging from classroom-based training schemes to consulting services. Such programs mostly aim to teach improved business practices and raise productivity, ultimately hoping to increase business

formalization rates, improve tax revenue, and create jobs. In this Working Paper, we study a rare example of a consulting program for MSMEs that focuses explicitly on improving employment outcomes.

We study the short- and medium-term effects of the Programme d'Appui à la Productivité des PME (PAP-PME), a support program for MSMEs in Côte d'Ivoire that was implemented by the Ivorian SME agency, Côte d'Ivoire PME (CI PME),[1] with funding from German development cooperation. The program focused on financial management and Human Resources management, offering a randomly selected treatment group of 262 Ivorian MSMEs access to individual consulting and a series of webinars. Individual consulting involved assessing each firm through a diagnostic, which informed specific recommendations. Consultants were also tasked with supporting firms in implementing these recommendations effectively. The program was relatively light touch, with MSMEs receiving an average of two visits.

We assess the short- and medium-term effects of the program at the firm level. Six months after the end of the intervention, our most robust result is a sizeable and significant treatment impact on an employment quality index, which remains stable after 18 months. This effect is driven by positive treatment effects on the share of employees receiving at least the minimum wage, as well as on the share with written contracts. While we also find a small, positive effect on social-security registration in the short run; it is not robust to adjusting for multiple hypothesis testing and disappears after 18 months. The treatment effects on HR management and accounting practices are positive, but insignificant. We find no significant impact on business practices and access to finance.

We also consider treatment effects on firm performance and firm size in terms of the number of staff. Although the coefficients are positive and sizeable when estimating average treatment effects on annual revenues and profits in the fiscal year following the intervention, heterogeneity analyses and quantile regressions reveal that treatment effects are close to zero for the majority of firms, and that positive coefficients are driven by firms in the upper quantiles of the distribution. As for the number of staff, we do not find a significant average treatment effect. Exploratory heterogeneity analyses suggest that positive effects for small firms and negative effects for medium-sized firms cancelled each other out, and that firms outside the country's economic capital, Abidjan, saw positive employment effects.

Whereas these muted overall effects do not compare favorably to the results of recent evaluations of consulting programs, they are plausible given the program's characteristics. The PAP-PME was very low-intensity and low-cost, with an average of less than five hours of individual consulting and a budget of just under 226,000 CFA (345 EUR)[2] per firm. In comparison, a highly effective consulting intervention in Nigeria evaluated by Anderson & McKenzie

1 Until 2022 known as Agence Côte d'Ivoire PME.

2 This figure only covers the payment to the consulting firms and excludes other costs incurred by the implementing organization.

(2022) consisted of 88 hours of individual consulting and cost about 4,000 USD. Our intervention was thus closer in cost and intensity to the classical training interventions reviewed in McKenzie (2020), which typically cost a few hundred USD per firm, delivered up to five days of training, and mostly led to modest improvements in business practices. Also, emphasis was placed on the employment dimension when briefing the consultants, which may have diminished the level of attention paid to financial-management topics.

Our Working Paper adds to a large experimental literature on the effectiveness of MSME support programs. Within this field, it covers a context and a program type where the evidence base is still thin. First, the intervention was implemented in a francophone country in sub-Saharan Africa. The direct applicability of evidence from other world regions to African economies is hampered by factors such as higher informality, a more difficult business environment (including limited access to finance), and less developed markets for high-quality business support services. Our sample covers firms at varying degrees of formality, which means we are able to provide evidence on a highly relevant target group for business support programs. Moreover, our study covers the economically challenging post-COVID-19 period, which makes it relevant to policymakers in times of economic slowdown. Finally, we study the effects of a real-world program that was financed by a development-cooperation agency and implemented by an Ivorian government institution.

Second, our explicit focus on HR management practices and employment outcomes is also a key contribution to the literature. It is rare for a business support program to target HR practices explicitly, and to combine business advice with employment formalization. Relatedly, the subjects of HR management and employment quality in MSMEs in developing countries remain understudied, with much of the existing literature focusing on self-employment. Our main contribution here lies in the explicit study of HR practices and employment conditions at the firm level, which offers important insights into employment quality in African firms.

The Working Paper proceeds as follows. Section II discusses the main findings of the relevant literature on MSME support programs and their employment effects. Section III outlines our experimental design, followed by a brief discussion of our data and estimation methodology in Sections IV and V. We then present our firm-level findings in Sections VI to VIII. Section IX discusses and contextualizes these research results and concludes.

2 What We Know About the Effectiveness of MSME Support Programs for Small Firms in Developing Countries

The objective of the PAP-PME is to improve MSME productivity and performance, create jobs, and improve employment conditions. We briefly outline key findings of the literature on the effectiveness of programs targeting these outcomes in small-scale firms in low and middle-income countries, with a focus on rigorous evidence. Notably, much of the existing data hereon comes from Asia or Latin America, which needs to be considered in its interpretation.

For more exhaustive discussions of the recent experimental literature, see Quinn & Woodruff (2019) for a critical review, McKenzie (2020) for a meta-analysis, and Jayachandran (2020) for a broader overview of the literature on small-scale entrepreneurship.

2.1 Business Practices, Firm Performance, and Productivity

Improving management practices and ultimately firm performance is the main objective of most support programs for MSMEs. McKenzie's (2020) meta-analysis finds that business support programs typically lead to small and often significant improvements in management practices, as well as average increases of 10 percent in firm profits and 5 percent in firm sales.[3] Effects on firm performance often materialize only in the medium to long run, as is shown for instance by Higuchi et al. (2019) in a study from Tanzania.

Much of the existing evidence concerns classical training, but a handful of experimental studies have explored the effectiveness of individual consulting interventions (S. J. Anderson & McKenzie, 2022; Bruhn et al., 2018; Iacovone et al., 2022). Individual consulting is generally found to improve business practices, which often translates into positive effects on firm performance. Bloom et al. (2013, 2020) find considerable positive effects of offering personalized consulting to large Indian firms that persist even nine years after the intervention. Similarly, Bruhn et al. (2018) document positive and significant effects of a consulting program for small and medium enterprises in Mexico on total factor productivity and return on assets.

However, due to the high cost of individual consulting, newer studies examine its effectiveness compared to cheaper alternatives and find no significant difference. Anderson & McKenzie (2022) work with a sample of Nigerian firms and conclude that while individual consulting resulted in significant improvements in management practices and certain business performance indicators, insourcing and outsourcing achieve comparable results at half the cost. Likewise, in a field experiment in Colombia, Iacovone et al. (2022) show that group-based consulting improves business practices by as much as individual consulting but has more robust, positive effects on firm performance, costing only one-third of individual consulting.

2.2 Effects on Job Creation

Whereas job creation is a primary motivation for many business support interventions, employment outcomes are seldom considered as direct program targets, resulting in a thinner evidence base than for business performance outcomes. A meta-analysis of the existing evidence by Grimm & Paffhausen (2015) concludes that the employment-generation effects of

3 Earlier studies (reviewed in Bandiera et al., 2011; Cravo & Piza, 2016; McKenzie & Woodruff, 2014) often found no significant impact of business training on firm performance. McKenzie (2020) attributes this observation to a lack of statistical power given the relatively small expected effects, noting that studies often only considered short-term effects.

interventions targeting MSMEs are modest. Some programs were successful in generating self-employment, but there is little evidence that training or consulting expand employment in existing firms—especially small ones.

One key reason for muted employment impacts in existing firms is the long and complex results chain linking business support programs to job creation (Grimm & Paffhausen, 2015). In the absence of increases in productivity and output, the returns to new staff are unlikely to justify the costs. Relatedly, an experiment where wage subsidies were paid to micro-enterprises in Sri Lanka to hire additional workers only had temporary effects on the number of employees, and did not affect sales and profits in the short or long run (de Mel et al., 2010, 2019).

Two newer studies have found positive impacts of training or consulting interventions on job creation due to increased sales or productivity improvements. Anderson et al. (2018) compare the effects of offering training in marketing or finance skills to micro-enterprises in South Africa. They find that marketing training prompts entrepreneurs to focus on expanding investment and sales, allowing them to increase profits and hire new employees. While the finance training also led to improved business performance, the main mechanism was cost reduction, which did not increase employment. In the case of the above-mentioned consulting program for SMEs in Mexico that led to productivity improvements, Bruhn et al. (2018) also find a notable increase of about 50 percent in the number of employees registered for social security as well as the daily wage bill five years after the program took place.

In a similar vein, training and consulting interventions rarely have an explicit focus on improving HR management practices. This can be attributed to the perception that HR management is of lesser importance for small-scale firms, even though they frequently identify attracting and retaining quality employees as a major challenge. Furthermore, effective HR management is crucial for enhancing employment conditions, a key policy objective.

2.3 Employment Quality and Formalization

Our paper also adds to a long-standing but still growing literature on understanding and tackling informality in developing countries. Importantly, one needs to distinguish between "business formalization," broadly understood as registering a business, and "employment formalization," understood as registering workers with the appropriate authorities, in most cases social-security providers. In a meta-analysis of interventions aiming to reduce informality in low- and middle-income countries, Jessen and Kluve (2021) find that just under half of the

studied estimates are positive and significant,[4] with only minor differences between intervention types.[5] Formalization interventions more often have a positive effect on "worker registration" than on other measures of formalization, with 66 percent of the studied estimates being positive and significant at an average effect of 3.7 percentage points.

Formality and informality are increasingly understood as opposite ends of a spectrum rather than clearly defined opposites, with considerable fluidity over time in terms of respective degree. In a panel study of different dimensions of formality in Peruvian micro-enterprises, Diaz et al. (2018) find that about 30 percent of the firms in their sample are only partly formalized, and that firms' formality levels frequently change in both directions. While instrumental variable analysis finds a positive influence of business formalization on subsequent employment formalization, the reverse is not true.

One key question when expanding social-security coverage for employees in private enterprises is to disentangle job creation from formalization: that is, to gauge the extent to which newly registered workers are also new employees, or simply previously unregistered workers who become formalized. In the case of the consulting intervention in Mexico, Bruhn et al. (2018) suggest that the growth in the number of employees enjoying social-security registration represents job creation, as the effect only becomes visible in administrative data with a delay. Asik et al. (2022) study the effects of a 25 percent subsidy for social-security contributions for small firms in Turkey and find increases of 5–8 percent in the number of registered workers. Contrary to the Mexican case, they conclude based on an analysis of household data that this increase largely represents the formalization of existing workers rather than the hiring of new personnel.

Another important dimension of employment formalization is the existence of written contracts, which often constitute the first step towards formalization. Challenges here are not only some employers' lack of knowledge but also that they often do not see an incentive to offer written contracts to their employees in environments where workers are easily replaced. If, on the other hand, good employees are hard to find and keep, employers may have a stronger rationale to provide written contracts. There is much less empirical literature on the promotion of written contracts than for social security, but some experimental evidence is available for agricultural contexts. Notably, Jäckering et al. (2021) find that a group-based awareness intervention among Ivorian cocoa farmers increases their preferences for providing written contracts to their agricultural workers and the likelihood of initiating concrete steps to do so. The

4 Other reviews of the effects of formalization interventions (Bruhn & McKenzie, 2013; Floridi et al., 2020) draw more muted conclusions, but typically focus on business formalization.

5 Tax incentives are most likely to show positive effects at 56 percent of the considered estimates, but other intervention types do similarly well (labor inspection/enforcement, financial incentives, information interventions, simplifying registration procedures).

authors attribute the change in farmers' preferences to the relative scarcity of reliable employees in the study context, and the realization that responsibilities being clearly defined in written contracts can help pre-empt conflict.

Finally, it is important to acknowledge that the labor markets and employment contexts of developing countries are radically different from those of the industrial countries that standards of decent employment are based on. Dependent employment in large companies, the standard case that contributory social-security systems were designed for, is much less common in African economies than in Europe. Functions highly institutionalized in Western-style social-security systems, such as pension or health-insurance schemes, are often organized per informal systems that coexist with formal ones. Against this backdrop, it is tempting to question the viability and attractiveness of classical contributory social-security schemes in low-productivity contexts where employers and employees struggle to afford the necessary contributions.

However, two discrete-choice experiments provide empirical evidence that workers in developing countries do value attributes of job stability such as written contracts and social security. Such experiments typically test how much of a hypothetical income increase participants would be willing to forgo to have access to a job with a given attribute, for example a one-year written contract. Youth in Kenya are found to place a high value on social insurance,[6] with a willingness to pay 45 to 87 USD[7] per month only for a pension (Elzir Assy et al., 2020). In a similar experiment in Bangladesh, Mahmud et al. (2020) find that workers would be willing to forgo an increase of 27 percent in their monthly salary to have a one-year contract, 44 percent for a long-term contract, and 18 percent for access to a pension fund. Both studies find some heterogeneity in preferences for job stability, with women placing a higher value on pensions in both cases, and more educated workers as well as government employees in the Bangladeshi sample having the highest preference for long-term written contracts.

3 Experimental Design

3.1 The Intervention

The PAP-PME was, as noted, implemented by the public Ivorian SME agency CI PME, with funding from German development cooperation. Our evaluation covers the third cohort of the program, which was implemented in the second half of 2021 and focused on the areas of financial management and HR management. The intervention consisted of **individual consult-**

6 The willingness to pay is highest for health insurance, followed by a pension scheme and then unemployment insurance.

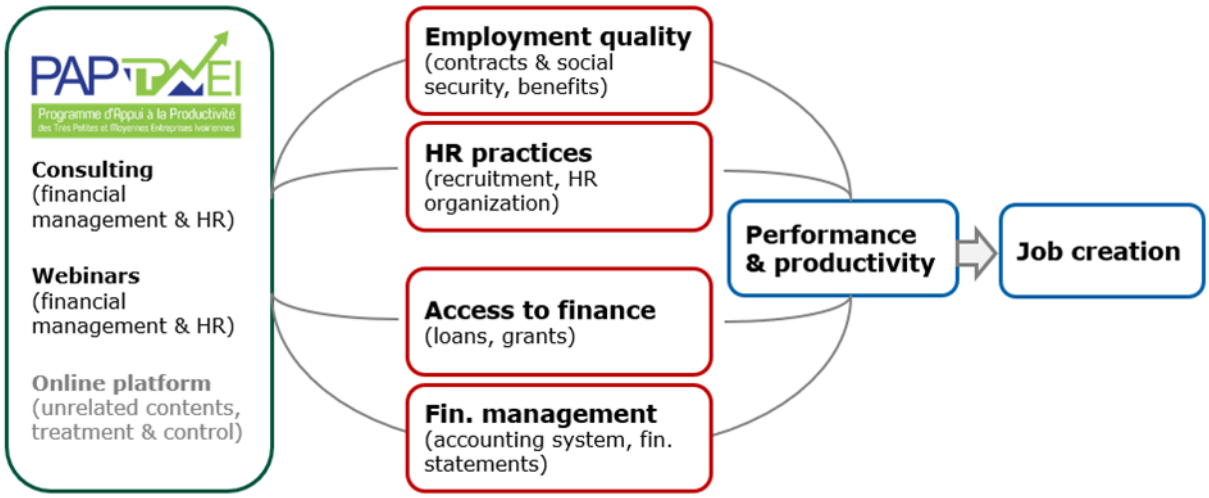
7 The average income as a benchmark is not stated.

ing, which is described in more detail below, and a series of 12 **webinars** with external speakers on subjects relating to financial and HR management. In addition, both the treatment and control groups were given access to an **online platform for SMEs** with content unrelated to HR and financial management.

The consulting firms had the following tasks:

1) **Conduct a diagnostic** of the enterprise identifying strengths and weaknesses in the areas of financial and HR management. Consulting firms were provided with an individual portrait of each SME, including key performance metrics as well as information on financial and HR management practices from baseline data, with instructions to collect additional information from the SME as required.
2) **Draw up a structuring plan** with key recommendations for improvement and discuss it with the SME's management.
3) **Support SMEs in implementing recommendations**. Consultants were asked to provide necessary "tools," such as templates for accounting documents or job advertisements; "training" to use these tools; "information," for example on registration procedures with tax authorities and the social security provider; and "contacts," for example external tax consultants or training providers. They were also asked to follow up on the implementation of recommendations with the enterprises.

Figure 1. Theory of Change



Source: Author's Own Compilation.

We give an illustrative overview of the main hypothesized mechanisms underlying the program design, as informing our analyses, in Figure 1 above. In the short term, the PAP-PME is expected to affect management practices in the two focal areas of financial and HR management. More specifically, the intervention might help formalize a firm's accounting system and tax compliance, including the elaboration of formal financial statements and declarations to the tax authorities. The PAP-PME might also help firms gain greater access to finance. In fact, obtaining funding was the key motivation behind most applications to the program—unsurprising given that firms in sub-Saharan Africa face the world's highest credit constraints (Islam

& Meza, 2023).[8] While the PAP-PME did not place a strong emphasis on access to finance, there could be positive effects here through improved accounting systems and document availability (often a prerequisite for financing), or simply because consultants provided guidance on available financing options.

On the employment side, the PAP-PME aims to improve HR practices in a similar fashion. It placed strong emphasis on improving work conditions, specifically in terms of providing written contracts and social security to employees—with consultants issuing recommendations wherever necessary, and one webinar on each of these dimensions.

Applications for the relevant program cohort were open in March 2021. Out of 576 unique applications received, 503 MSMEs fulfilled the minimum eligibility criteria of one year of existence and having one full-time employee aside from the owner.[9] Of these, 452 eligible MSMEs could be interviewed in a baseline survey in April and May 2021. From this sample, 265 MSMEs were then randomly selected to participate in the program, with the remainder serving as the control group.[10,11]

Five Ivorian consulting firms were contracted to deliver the consulting component of the program. Although each firm was required to include team members specialized in financial and HR management, only 18 percent of those working with these firms were specialists in the latter field. During an initial meeting in late May 2021, representatives of the consulting firms were provided with the details of their task. Among the two program objectives of improving firm productivity on the one hand and creating jobs and improving employment conditions on the other, emphasis was placed on the second of these. Concrete examples given regarding desired outcomes were to raise the number of employees with written contracts and of those enjoying social-security registration.

Each consulting firm was randomly allocated 50 MSMEs using a simplified stratification procedure. The allocation was handled by the research team and no control-group firms received the treatment. The intervention was originally scheduled to last four months, from June to September 2021. In September 2021, based on analysis of monitoring data suggesting that

8 Islam and Meza's analysis, based on World Bank Enterprise Survey Data from 109 economies, finds that sub-Saharan Africa is the region with the highest share of partially or fully credit constrained firms (48 percent). Côte d'Ivoire is above this regional average, with 53 percent of its firms being classified as credit constrained.

9 The program also excludes nonprofit organizations.

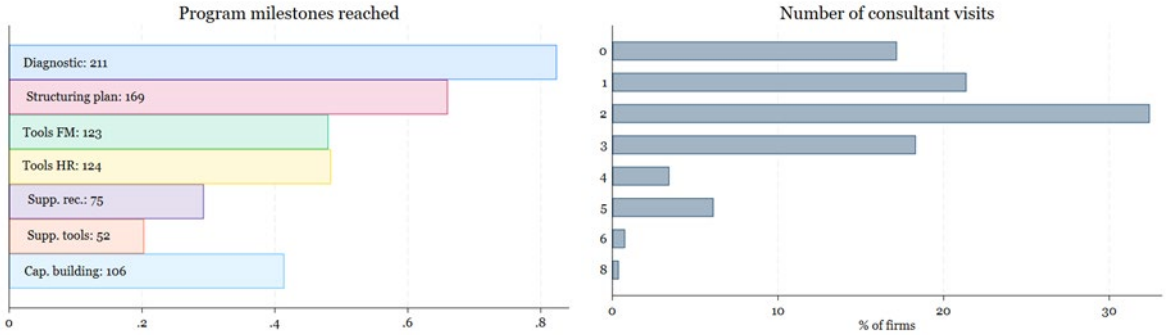
10 We exclude four of the 452 MSMEs interviewed in the baseline survey (three treatment, one control) from the following analyses because they were found to have been closed throughout the study period when re-interviewed in 2022.

11 The original treatment group consisted of 250 MSMEs. Fifteen enterprises were reported as dropouts in the first weeks of the program and replaced by firms from a randomly selected waiting list. As some of the firms reported as dropouts subsequently continued to participate in program activities, we consider 262 (250 + 15 - 3) treatment-group firms in our implementation and take-up analyses.

program delivery was incomplete,[12] CI PME decided to extend the program delivery period until the end of the year, albeit without committing additional funds thereto.

The intensity of the program, in terms of the number of enterprise visits or consulting hours per SME, was not predetermined. The main deliverables were one final report (including a diagnostic and structuring plan) per firm, as well as a global, final report covering all MSMEs. As the program had no clearly defined end point, we present statistics on the different milestones achieved and program components delivered in Figure 2 below. The data were provided by CI PME and largely come from an end-of-program survey conducted with the treatment group in January 2022. While CI PME received final reports for 236 MSMEs, the number of firms confirming the following milestones is lower: 212 confirmed having received a diagnostic, 170 having received a structuring plan. About half of the treatment group report having received "tools" or information on financial and HR management, 76 firms (30 percent) received support in implementing recommendations, and 53 firms (20 percent) received assistance in using the tools provided. Over 40 percent of the firms participated in capacity-building activities, which refers to the webinar series or additional activities undertaken by the consulting firms.

Figure 2. Treatment Intensity



Sources: End-of-program survey of beneficiary firms, administrative data.

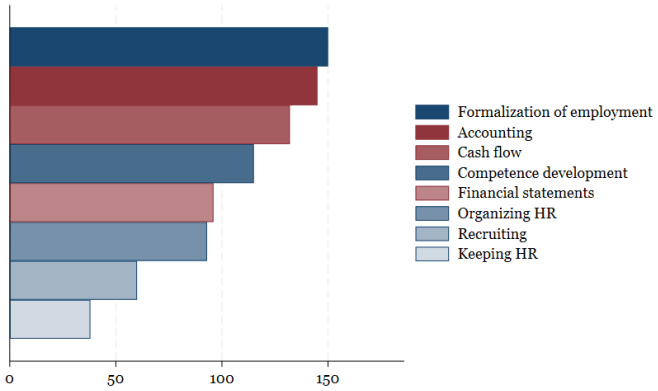
Relatedly, about 40 percent of the treatment group received no visits or only a single one (18 and 21 percent, respectively). About one-third of the treatment group received two visits, which corresponds to the treatment-group average. Just under 30 percent received between three and eight visits. An average of 4.6 hours of one-to-one support was reported by firms (retrospectively), conditional on having received one or more visits.

The numbers above show considerable variation in the intensity of program participation. There is anecdotal evidence for both consultants and firm managers being partly responsible for low treatment intensities. Consultants were paid a fixed amount for each firm without clear

12 More specifically, most MSMEs had received only one or two visits and little or no support in implementing recommendations.

instructions on the number of visits to conduct. They frequently reported scheduling difficulties with the firm managers. The latter were often reluctant to participate because they were mainly interested in financing and did not immediately see the usefulness of the program.[13] We analyze the correlates of take-up, defined as having received two or more visits, in section IV (b.).

Figure 3. Recommendations Given by Consultants



Source: Implementation Data Provided by Consultants.
Note: Recommendations recorded for a total of 179 firms.

Figure 3 categorizes the recommendations consultants gave to firms. Recommendations were recorded by consultants in an online questionnaire for a total of 179 firms. The most common advice given to 150 firms was to formalize employment, which comprises the recommendations to provide written contracts and social-security registration, medical coverage, and to respect the minimum wage. An almost equally high number of firms received suggestions pertaining to accounting, followed by ones on cash-flow management. The second most common HR-related advice was to invest in competence development. Just over half of the firms for which we have data received recommendations about financial statements and HR organization, followed by recruitment procedures as well as motivating and retaining staff.

Both the treatment and control groups received access to an online platform called Campus PME, as offering self-paced courses on management topics not directly related to financial and HR management. Instructions on how to access the platform were given in an online session and sent via email. Self-reported data on platform usage show no significant difference between the treatment and control groups on the probability of accessing the platform, with just

13 There were about 30 cases where consultants submitted reports for firms that did not confirm receiving visits or did not confirm having reached the first program milestones, a diagnostic, and a structuring plan. Three of the five consulting firms diligently submitted reports for all 50 firms they had been allocated, as the individual reports constituted deliverables in their service contract. This was possible because they had received firm portraits, which had been prepared using baseline data. Also, firm managers may not correctly recall consultant visits, may not have "counted" them if they did not perceive them as useful, or may not have been informed of a visit if they did not personally receive the consultant.

under one-quarter of respondents in either group ever having logged on to it. For those who had, an average of two hours was spent on the platform. While treatment-group entrepreneurs report a higher number of hours spent on the platform on average, the difference is not statistically significant. Of those who did not access the platform, 60 percent said they were unaware of its existence, with other reasons being no time, no interest, connectivity issues, and a lack of IT skills (see Appendix D).

3.2 Data and Descriptive Statistics

Baseline data were collected in April to May 2021 for a total of 448 firms who had applied to the PAP-PME and fulfilled the minimum eligibility criteria of one year of existence and one employee apart from the owner. Of these, 262 firms were randomly selected after stratifying by number of employees (up to three; more than three and up to six; more than six), annual revenue (less than 20 million FCFA; 20m FCFA or more; no information), share of female staff (up to 25 percent; more than 25 percent), and firm district. The first three strata variables were averaged over the 2018–2020 period to increase robustness. Some 30 firms from the control group were put on a waiting list using the same randomization procedure. The randomization was prepared in Stata by the research team and executed in a joint workshop with CI PME. The 250 MSMEs were then randomly allocated in batches of 50 to the five consulting firms by the research team. Fifteen firms were reported as dropouts in the first month of the program and were replaced with ones from the waiting list.

As Table 1 below illustrates, the treatment and control groups in the baseline sample are fully balanced with respect to the main outcome variables defined below, strata variables, and other firm characteristics. As an illustration, we give a brief description of the characteristics of the treatment group, bearing in mind that the control group does not differ significantly. On average, roughly 79 percent of staff received at least the minimum wage and 40 percent enjoyed a written contract and social-security benefits, respectively. Some 29 percent of treatment-group firms had external financing, while 69 percent are located in Abidjan, as noted the economic capital, with the remainder spread across the country. The sample mainly consists of: (62 percent) micro-enterprises with an annual revenue of at most 30m CFA Franc (45,730 EUR); (26 percent) small enterprises with an annual revenue of up to 150m CFA Franc (229,000 EUR); and the remainder are medium enterprises with higher annual revenues. The average number of staff was 6.3, with a mean share of female staff of 33 percent. The average firm age at baseline was seven years of existence. Most firms are in the service sector (61 percent), followed by construction (18 percent) and manufacturing (11 percent). The overwhelming majority of sample firms have a male manager (82 percent) with tertiary education (71 percent), and report being formally registered (93 percent).

Table 1. Balance in Baseline Sample and Take-Up

	Treatment (1)		Control (2)		Orthogonality Mean (1)–(2)		Took up (3)		Did not take up (4)		Orthogonality Mean (3)–(4)	
	N	Mean	N	Mean	Difference	p–value	N	Mean	N	Mean	Difference	p–value
Outcome variables												
Employment quality	262	0.506	186	0.515	-0.009	0.764	158	0.504	104	0.509	-0.005	0.907
Minimum wage (share)	234	0.787	167	0.787	-0.001	0.986	139	0.806	95	0.759	0.046	0.317
Written contract (share)	262	0.395	186	0.410	-0.015	0.731	158	0.386	104	0.410	-0.024	0.678
Social security (share)	261	0.400	186	0.405	-0.004	0.905	158	0.392	103	0.413	-0.021	0.667
HR index	262	0.308	186	0.313	-0.005	0.831	158	0.295	104	0.327	-0.032	0.336
Business practices index	260	0.728	186	0.750	-0.022	0.235	157	0.725	103	0.733	-0.007	0.774
Accounting index	262	0.542	186	0.574	-0.033	0.261	158	0.540	104	0.545	-0.006	0.889
Any external financing	262	0.290	186	0.285	0.005	0.906	158	0.285	104	0.298	-0.013	0.818
Strata variables												
Abidjan	262	0.687	186	0.645	0.042	0.354	158	0.646	104	0.750	-0.104	0.075
Revenue (18–20, EUR)	260	111.321	182	118.641	-7.319	0.731	156	110.068	104	113.202	-3.134	0.909
Size: micro (revenue <30m FCFA)	260	0.608	182	0.593	0.014	0.763	156	0.660	104	0.529	0.131	0.034
Size: small (revenue 30m–150m FCFA)	260	0.254	182	0.253	0.001	0.979	156	0.212	104	0.317	-0.106	0.055
Size: medium (revenue above 150m CFA	260	0.138	182	0.154	-0.015	0.652	156	0.128	104	0.154	-0.026	0.559
Staff (18–20)	262	6.846	186	6.524	0.322	0.739	158	6.912	104	6.744	0.168	0.895
1–3 staff	262	0.313	186	0.290	0.023	0.608	158	0.348	104	0.260	0.088	0.132
4–6 staff	262	0.370	186	0.387	-0.017	0.717	158	0.354	104	0.394	-0.040	0.516
More than 6 staff	262	0.317	186	0.323	-0.006	0.897	158	0.297	104	0.346	-0.049	0.409
Share of female staff	262	0.326	186	0.292	0.034	0.210	158	0.315	104	0.344	-0.029	0.460
Firm characteristics												
Annual profit (18–20, EUR)	254	8.494	176	7.022	1.472	0.642	155	7.993	99	9.280	-1.287	0.756
Capital stock (18–20, EUR)	256	46.318	178	50.154	-3.836	0.745	158	43.096	98	51.511	-8.415	0.593
Firm age (years)	261	7.402	186	7.887	-0.485	0.457	158	7.190	103	7.728	-0.538	0.524
Act: Agriculture	262	0.084	186	0.118	-0.034	0.230	158	0.095	104	0.067	0.028	0.432
Act: Manufacturing	262	0.111	186	0.124	-0.013	0.674	158	0.120	104	0.096	0.024	0.545
Act: Electricity & gas	262	0.015	186	0.011	0.005	0.683	158	0.000	104	0.038	-0.038	0.013
Act: Construction	262	0.183	186	0.172	0.011	0.762	158	0.203	104	0.154	0.049	0.321
Act: Services	262	0.607	186	0.575	0.032	0.503	158	0.582	104	0.644	-0.062	0.317
Male manager	262	0.828	186	0.796	0.033	0.383	158	0.861	104	0.779	0.082	0.086
Manager with tertiary education	259	0.703	184	0.761	-0.058	0.177	157	0.637	102	0.804	-0.167	0.004
Registry of commerce	262	0.935	186	0.941	-0.006	0.805	158	0.949	104	0.913	0.036	0.250

Note: "Take-up" is defined here as having received two or more visits from a consultant (as reported by the firm).

We define "take-up" as having received two or more visits from a consultant, the rationale being that the first visit was mostly used to finalize the diagnostic. While there is no significant difference in the baseline values of our main outcome variables between firms who took up the treatment versus firms who did not, we do see that micro-enterprises were more likely and small enterprises were less likely to participate in the program. Firms in Abidjan were less likely to receive two or more visits, although the difference is only statistically significant at the 10 percent level. None of the four treatment-group firms in the electricity sector received two or more visits. Characteristics of the main manager are important for take-up, with female managers and tertiary-educated managers being significantly less likely to take up the treatment.

Of the 448 MSMEs surveyed in the baseline survey, 386 (361) could be interviewed again in the first (second) follow-up survey after six (18) months. The main reason for attrition given in the first follow-up survey was refusal (46 firms), which was largely driven by managers' disappointment over the lack of a financing component in the program. Twelve firms could not be interviewed again because they had closed down, eight dropped out for other reasons. As t-test results reported in Tables A1 and A2 in the Appendix show, drop-outs across both follow-up surveys are significantly more likely to have been in Abidjan. They also tend to have lower average revenues, with small firms being more likely and medium-sized firms being less likely to drop out, although these differences are only weakly significant. Firms in the service sector were significantly more likely to drop out, as were those with a female manager and firms that were not formally registered.

To see whether attrition has led to imbalances, we repeat the balance tests for significant differences in baseline characteristics only for treatment- and control-group firms who were interviewed in the two follow-up surveys. As the right panels of Tables A1 and A2 show, both groups remain balanced with respect to all outcome and strata variables, as well as most firm characteristics. The only imbalance we identify is a significant difference in the share of firms in agriculture, where control-group ones were less likely to drop out. We include controls for firm sector in our analyses. Overall, we conclude that while attrition may have changed the composition of the sample relative to the baseline and thus the group our treatment estimates are valid for, it is not a major threat to the internal validity of our treatment effects.

3.3 Defining and Measuring Outcomes

In line with the theory of change, we study treatment effects on primary outcomes in the areas listed below.

1) *Business practices and financial management*:
    a. An index of **business practices** calculated based on 25 of the 26 items suggested by McKenzie & Woodruff (2015). The index covers the areas of advertisement, record-keeping, stock management, and planning, for which we calculate subindices. The stock-management index is only defined for firms that report keeping stock.

   b. An index of **accounting practices** and tax compliance. The index is an unweighted average of the following items: having a formal accounting system (self-reported), the share of key accounting documents the firm has, the share of digitized or outsourced accounting practices (i.e. practices that are not done manually), the share of financial statements prepared for the past three years, the share of financial statements submitted for the past three years.

2) *Access to finance:* An indicator variable equal to 1 if the firm reports having received **any external financing** in the past year and 0 otherwise.
3) *Personnel management:* An index of seven **HR management practices**. The index is an unweighted average of indicator variables for each of the following practices: documents working hours of each employee, has public organigram, uses formal recruitment channels, provides employees with monthly pay slips, uses a pay grid, regular performance evaluations, offered staff training in past year.
4) *Job quality:* The unweighted average of three measures of **employment quality** at the firm level, as reported by the firm:
   a. The share of employees receiving at least the minimum wage.[14]
   b. The share of employees with a written contract. The calculation excludes the employer.
   c. The share of staff registered with the social-security provider CNPS.

We then consider the following secondary outcomes.

5) *Firm performance and productivity:*
   a. 2022 annual **revenues** as reported by the firm, in '000 EUR. Based on the firms' financial statements where available.
   b. 2022 annual **profits** as reported by the firm, in '000 EUR. Based on the firms' financial statements where available.
   c. **Labor productivity** calculated as annual revenues in 2022 divided by the number of workers at the end of the year.
   d. **Capital productivity** calculated as annual profits in 2022 divided by the value of the firm's capital stock.

6) *Job creation:*
   a. The logarithm of the number of full-time employees.

3.4 Empirical Strategy

For all primary outcomes, we estimate intention-to-treat (ITT) effects at the firm level using the following ANCOVA specification:

$$y_{ft} = \beta_1 T_f + \beta_2 y_{ft-1} + \beta_3 M_{ft-1} + \beta_4' S_f + \varepsilon_{ft}$$

14 The minimum wage was raised from 60,000 CFA (91.50 EUR) to 75,000 CFA (114.30 EUR) in January 2023, between the two rounds of follow-up data collection.

where y_{ft} is our outcome of interest for firm f at the time of the endline survey t, T_f is assignment to treatment, y_{ft-1} is the baseline value of the dependent variable, and M_{ft-1} is an indicator variable equal to 1 if the baseline value of the dependent variable was missing and 0 otherwise. S_f is a vector of variables used in randomization[15] discussed above, and ε_{ft} is the error term. We use robust standard errors to account for unobserved heterogeneity. The ITT estimate is then given by coefficient β_1.

All primary outcomes were measured in the two follow-up surveys. We can thus estimate short-term effects on outcomes six months after the end of the intervention as well as their persistence one year later (i.e. 18 months after the program). The secondary outcomes may be affected eventually by changes in the primary outcomes, for example an improvement in business practices raising profits. For performance and productivity, we have annual revenue and profit data for 2022, the year following the intervention. For the number of full-time employees, we have four post-treatment data points (0, 6, 12, and 18 months after the end of treatment, respectively), which allows us to follow evolution in the number of employees.

3.5 Multiple Hypothesis Testing

As we estimate the effect of our treatment on a multitude of outcomes, we appropriately adjust for multiple hypothesis testing. We reduce the number of regressions by grouping related outcomes into indices whenever appropriate (HR practices, business practices, accounting), or by using broad outcome indicators (access to any type of finance). In addition, we calculate and report sharpened q-values for our main outcomes using the procedure developed by Benjamini et al. (2006) and implemented by Anderson (2008).

4 Treatment Effects on Primary Outcomes: Management Practices, Access to Finance, and Employment Quality

4.1 Average Treatment Effects

We report ITT effects and local average treatment effects (LATE) relating to our primary firm-level outcomes in Table 2 below. For each outcome, we estimate the ITT and LATE separately for the six-month and the 18-month follow-ups, and then pool the two surveys. The estimated impact of the intervention on the McKenzie & Woodruff (2017) business practices index is close to zero and insignificant both in the short and the medium term (columns 1–3). The lack of significant impact is not surprising given that the intervention did not target underlying practices specifically. However, the set of practices contained in the index has been shown by

15 We include the following variables capturing randomization strata: (i) location in Abidjan versus the rest of the country, (ii) average annual turnover 2018–2020, and (iii) average number of employees 2018–2020.

McKenzie & Woodruff (2017) to be robustly associated with key measures of firm performance such as sales and profits, as well as labor productivity and total factor productivity. The muted effect on the broad index thus dampens expectations for substantial impacts on firm performance and productivity. We also consider treatment effects on a narrower accounting index (columns 4–6), which is more closely aligned with the contents of the intervention. At the six-month follow-up, we find a small, positive, but insignificant ITT of 0.031, corresponding to 5.4 percent of the control-group mean. The effect is below the minimum detectable effect size and driven by entrepreneurs now describing their accounting system as formal (see Appendix C). The LATE is of a similar size and weakly significant when pooling the two survey rounds. We find no significant impact of the intervention on having any external financing in any of the survey rounds (columns 7–9).

We report ITT and LATE effects on HR management practices in columns 10–12 of Table 2 (below). While the coefficients are all positive, only the short-run effects are weakly significant with an ITT of 0.44, corresponding to 12.6 percent of the control-group mean. Finally, we find a positive and highly significant effect of the intervention on employment quality (columns 13–15): after six months, assignment to the treatment group is associated with an increase of 0.072 in the employment quality index, corresponding to about 14 percent of the control-group mean. The effect remains similar in size and highly significant after 18 months. All LATE estimates are close to 0.11 percentage points and highly significant. As the results for the components of the employment quality index in Table 3 below show, the effect on the index is driven largely by positive effects on the share of employees receiving the minimum wage, especially after 18 months, as well as positive effects on the share of employees having a written contract in both survey rounds. Both effects are substantial: the share of employees earning at least the minimum wage rose by 10.2 percentage points after 18 months, corresponding to 15.2 percent of the control-group mean of 67 percent. The share of employees with a written contract rose by 9.9 percentage points after six months, corresponding to 23 percent of the control-group mean of 43 percent. While we also observe a positive coefficient for the share of staff being registered for social security in the short run, it disappears completely in the medium term.

We now conduct three types of robustness checks. First, we adjust for multiple hypothesis testing to avoid drawing conclusions based on chance differences between the treatment and control groups, which may occur given the high number of outcome variables we estimate effects for in this and the following sections. We report sharpened q-values as proposed by Benjamini et al. (2006) and implemented by Anderson (2008) to adjust for multiple hypothesis testing in Table B1 in the Appendix. The effect on the employment quality index remains strongly significant, with a q-value of 0.003. All effects that were insignificant in the main specification remain so, and the effect on the HR index becomes insignificant.

Second, we calculate Lee bounds as proposed by Lee (2009) and implemented by Tauchmann (2014) for our main ITT results to adjust for attrition. Although attrition did not cause significant imbalances between the treatment and control groups as shown above, the sample

composition changed due to MSMEs dropping out—potentially influencing our results. Lee bounds give us lower (upper) bounds for the treatment effect under the extreme assumption that attrition is perfectly negatively (positively) correlated with the outcome variable. Results reported in Table B2 in the Appendix show coefficients ranging from 0.062 to 0.094 for the employment quality index, with 90 percent confidence intervals between 0.002 and 0.169. This result largely supports the robustness of the effect on employment quality, although our sample size prevents us from estimating it more precisely. For the business practices index, the lower and upper bounds as well as the confidence intervals are centered around zero, supporting our finding of a zero effect. For the accounting index, access to finance, and the HR index, we estimate positive lower bounds with confidence intervals including zero. Here, we cannot reject small treatment effects that are below the minimum detectability threshold given our sample size.

A third concern, especially for the employment-quality outcomes, is social-desirability bias: the treatment may have increased entrepreneurs' awareness of employment legislation, notably the obligation to pay the minimum wage and register employees for social security, as well as the importance of written contracts. Per this line of argument, the observed positive treatment effects may be partly or entirely driven by social-desirability bias rather than by true changes. To rule out this possibility, we conduct a further robustness check where we use an employee survey to cross-validate the firm-level results for the employment quality index and its components. The underlying rationale is that employees were not the target of the intervention and do not have a reason to overreport their employment quality. The details of this analysis are part of a separate paper where we examine treatment effects on employee-level outcomes and do not find systematic reporting disparities between employers and employees.

Here, we show a comparison between firm- and individual-level estimations when pooling the two waves, with the individual-level data being weighted to achieve comparability with the firm sample. The results based on the individual-level dataset as shown in Table B3 in the Appendix largely support the firm-level findings: the coefficients are close in significance and size, with a maximum disparity of 1 percentage point. While the treatment effect on minimum wages is slightly larger in the individual sample (at 0.093 vs. 0.083 in the firm sample), the effect on written contracts is smaller in the individual sample (at 0.085 vs. 0.092), as is the effect on social security (although both are small and insignificant). In sum, while we cannot rule out the possibility that employers are slightly overreporting employment-quality outcomes, we do not find any evidence that social-desirability bias drives our results.

Table 2. Treatment Effects on Primary Outcomes

	BP (Index 0-1)			Accounting (Index 0-1)			Any finance (0/1)			HR index (Index 0-1)			Employment quality (Index 0-1)		
	6M	**18M**	**P**	**6M**	**18M**	**P**	**6M**	**18M**	**P**	**6M**	**18M**	**P**	**6M**	**18M**	**P**
Panel A: ITT															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Treat	-0.002	-0.006	-0.002	0.031	0.019	0.025	0.027	0.024	0.023	0.045*	0.012	0.025	0.072***	0.071***	0.075***
	(0.018)	(0.020)	(0.013)	(0.019)	(0.021)	(0.017)	(0.040)	(0.039)	(0.032)	(0.026)	(0.024)	(0.019)	(0.024)	(0.024)	(0.020)
R^2	0.267	0.138	0.189	0.521	0.398	0.469	0.279	0.273	0.284	0.265	0.227	0.258	0.519	0.545	0.537
N	386	360	720	386	360	720	386	360	720	386	360	720	385	360	719
Panel B: LATE															
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
2+ visits	-0.003	-0.009	-0.003	0.047	0.029	0.038*	0.041	0.037	0.035	0.069*	0.019	0.038	0.111***	0.108***	0.115***
	(0.027)	(0.031)	(0.021)	(0.030)	(0.032)	(0.022)	(0.062)	(0.059)	(0.043)	(0.041)	(0.037)	(0.028)	(0.038)	(0.038)	(0.027)
R^2	0.180	0.108	0.130	0.406	0.330	0.360	0.194	0.200	0.204	0.183	0.144	0.158	0.359	0.436	0.400
N	386	360	720	386	360	720	386	360	720	386	360	720	385	360	719
Panel C: supplement															
CM	0.76	0.75	0.75	0.57	0.52	0.54	0.22	0.20	0.22	0.35	0.30	0.33	0.52	0.50	0.51
Strata	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LDV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: 6M/18M: 6 months/18 months post-treatment. P: pooled sample of two follow-up surveys. Standard errors in parentheses: robust Huber/White standard errors (6M/18M), clustered at firm level (P). Significance: *** p<.01, ** p<.05, * p<.1.

Table 3. Treatment Effects on Employment Quality Index and Components

	Employment Quality (Index 0-1)			> min. wage (share)			Written contract (share)			Social security (share)		
	6M	**18M**	**P**	**6M**	**18M**	**P**	**6M**	**18M**	**P**	**6M**	**18M**	**P**
Panel A: ITT												
	1	2	3	4	5	6	7	8	9	10	11	12
Treat	0.072***	0.071***	0.075***	0.045	0.102***	0.083***	0.097**	0.091**	0.092***	0.067**	0.004	0.037
	(0.024)	(0.024)	(0.020)	(0.034)	(0.039)	(0.029)	(0.040)	(0.041)	(0.032)	(0.033)	(0.036)	(0.029)
R^2	0.519	0.545	0.537	0.316	0.323	0.328	0.387	0.371	0.386	0.396	0.378	0.391
N	385	360	719	346	303	629	373	360	707	383	349	706
Panel B: LATE												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2+ visits	0.111***	0.108***	0.115***	0.070	0.158**	0.130***	0.151**	0.138**	0.141***	0.104**	0.007	0.056
	(0.038)	(0.038)	(0.027)	(0.052)	(0.062)	(0.041)	(0.063)	(0.063)	(0.045)	(0.051)	(0.055)	(0.038)
R^2	0.359	0.436	0.400	0.134	0.191	0.162	0.246	0.289	0.276	0.328	0.343	0.331
N	385	360	719	345	303	629	373	360	707	383	349	706
Panel C: supplement												
CM	0.52	0.50	0.51	0.78	0.67	0.72	0.43	0.41	0.42	0.41	0.48	0.44
Strata	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LDV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: 6M/18M: 6 months/18 months post-treatment. P: pooled sample of two follow-up surveys. Standard errors in parentheses: robust Huber/White standard errors (6M/18M), clustered at firm level (P). 6M/18M: 6 months/18 months post-treatment. P: pooled sample of two follow-up surveys.

4.2 Heterogeneous Effects

We now test for heterogeneity in treatment effects between categories of our strata variables (annual revenue, number of staff, location), firm characteristics (years of existence, the largest sector categories, the education level of the main manager), as well as baseline values of the dependent variable. For each main outcome, we report the results of regressions where assignment to treatment is interacted with the categories of a given heterogeneity dimension. It should be stressed that this is an exploratory analysis, and results need to be interpreted with care, as we conduct many hypothesis tests and inference is based on small samples of varying size. Our main interest here is an improved understanding of the groups of MSMEs driving our results. We also examine heterogeneous effects explicitly by testing for significant differences in ITTs between groups (see p-values in the final column(s) of each table).

Our results reported in Tables C1–C7 in the Appendix do not show significant effects on the business practices index for most subsamples,[16] which is in line with the overall ITT from Table 2 above. For the accounting index, we find positive and significant effects for some subgroups (mid-sized firms with four to six staff, firms in the construction sector, firms with below-median accounting practices at baseline), but the between-group differences in ITTs are not statistically significant. We also find positive and significant treatment effects for firms outside Abidjan, with a (weakly) significant difference in ITTs. For access to finance, we find heterogeneous treatment effects with respect to firm age: those that have existed for three years or less saw an increase of 13.2 percentage points in access to external finance, more than four times the control-group mean of 3 percent.

There is some heterogeneity in the treatment effects on the HR management index, where the smallest and youngest firms (up to three staff members, up to three years of existence) as well as those in the service sector, see the largest and most significant positive effects. Somewhat puzzlingly, we also find a negative and highly significant treatment effect of 24.5 percent of the control-group mean in the manufacturing sector.

We do not find any significant heterogeneity in the treatment effects on the employment quality index, as almost all subgroups see positive and significant impacts ranging roughly from 0.06 to 0.12. However, the treatment effect is insignificant for medium enterprises with annual revenues exceeding 150m CFA (roughly 229,000 EUR), where the control-group mean is already high at 0.76. The treatment effect for manufacturing enterprises is small and insignificant as well.

16 The only exception is a small, weakly significant, and negative effect for manufacturing enterprises. This is driven by a short-term negative effect on the stock-management subindex; we do not have reason to assume a direct connection to the treatment.

5 Treatment Effects on Firm Performance and Productivity

5.1 Methodological Considerations

The estimation of treatment effects on firm performance and productivity is complicated by the high variance and right-skewed distributions of these outcomes. Treatment effects estimated using untransformed versions of the dependent variables are sensitive to the influence of extreme values, which may partly be due to measurement error and partly reflect real but rare outcomes. Even if true, individual observations with extreme values can have large impacts in linear regression, thus leading to conclusions that do not reflect the underlying mechanisms for most firms. Any decision to exclude certain observations, for example by winsorizing the dependent variable at the 99th or 95th percentile, implies a trade-off between preserving valuable information on the one hand and letting extreme values drive results on the other.

Although the widely used logarithmic and inverse hyperbolic sine (IHS) transformations can mitigate the discussed problems, while coefficients are conveniently interpreted as percentage changes, these approaches come with other drawbacks. The validity of treatment effects estimated using log-like transformations of dependent variables such as log(y+c) or the IHS has been called into question lately. Notably, treatment effects based on IHS-transformed dependent variables are: (i) unit-dependent, meaning that the size of the estimated treatment effect changes with the scaling or the currency of the underlying variable (Aihounton & Henningsen, 2021; Chen & Roth, 2023; De Brauw & Herskowitz, 2021; Mullahy & Norton, 2022); (ii) prone to the weighting of extensive-margin versus intensive-margin effects also being dependent on the scaling of the variable (Chen & Roth, 2023; Mullahy & Norton, 2022). Robustness tests where regressions are re-estimated with differently scaled versions of the dependent variable (see Aihounton & Henningsen, 2021; De Brauw & Herskowitz, 2021) shed light on the degree of unit dependency, but do not convincingly solve the problem of arbitrary weighting of extensive-margin and intensive-margin effects (Chen & Roth, 2023; McKenzie, 2024).

Considering these challenges, we proceed as follows. We first estimate ITTs based on: (i) untransformed annual revenues and profits, in '000 EUR; (ii) 90 percent winsorization of annual revenues and profits in '000 EUR;[17] and (iii) IHS-transformed annual revenues and profits. While these estimates suffer from the discussed shortcomings, they are nevertheless informative. In a second step, we estimate heterogeneous as well as quantile treatment effects.

5.2 (Average) ITT Effects on Firm Performance and Productivity

Results for untransformed, winsorized, and IHS-transformed annual revenues and profits are reported in Table 4 below. We find an extremely large and weakly significant treatment effect

17 Values below the 5th and above the 95th percentile in the distribution are set to the 5th and the 95th percentile, respectively. Regressions include indicator variables controlling for these cases.

of 236,000 EUR on annual revenues (corresponding to more than twice the control-group mean of 110,000 EUR), which however dwindles to an insignificant 16,000 EUR—less than 10 percent of the control-group mean—for winsorized revenues. The coefficient for IHS revenues is positive and weakly significant. For annual profits, we also find a positive and significant treatment effect. Even for the winsorized outcome variable, there is a significant treatment effect of about 3,850 EUR, corresponding to more than 50 percent of the control-group mean of 7,500 EUR. However, the ITT for IHS profits is positive and insignificant.

Table 4. 12-Month Treatment Effects on Annual Revenue and Profits

	Revenue ('000 EUR)	Revenue ('000 EUR wins)	Revenue (IHS)	Profit ('000 EUR)	Profit ('000 EUR wins)	Profit (IHS)
	1	2	3	4	5	6
Treat	235.513*	15.793	0.265*	14.843**	3.853**	0.349
	(136.441)	(12.743)	(0.152)	(6.866)	(1.922)	(0.243)
R-squared	0.124	0.604	0.782	0.063	0.370	0.579
Number of observations	335	335	335	299	299	235
Control mean	109.98	105.55	10.90	3.29	7.48	8.92
Strata controls	Yes	Yes	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Missing values for lagged dependent variables are replaced with the mean of the estimation sample, with regressions including a dummy variable to control for such cases. Outlier detection method: dfits. Model 1: 5 obs. excluded. Model 2: 15 obs. excluded. Model 3: 13 obs. excluded. Model 4: 11 obs. excluded. Significance: *** p<.01, ** p<.05, * p<.1.

We also estimate program impacts on labor productivity, calculated as annual revenue per worker, and capital productivity, calculated as annual profits divided by capital stock. Results reported in Table 5 below show positive but insignificant coefficients for labor productivity, driven by the positive effect on annual revenues outlined above. For capital productivity, the coefficients are both insignificant.

Table 5. 12-Month Treatment Effects on Productivity

	Lab. prod. ('000 EUR wins)	Lab. prod. (IHS)	Cap. prod. ('000 EUR wins)	Cap. prod. (IHS)
	1	2	3	4
Treat	0.394	0.200	0.238	-0.043
	(3.070)	(0.154)	(0.195)	(0.133)
R-squared	0.474	0.109	0.256	0.386
Number of observations	323	321	287	268
Control mean	23.66	3.12	0.74	0.41
Strata controls	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Missing values for lagged dependent variables are replaced with the mean of the estimation sample, with regressions including a dummy variable to control for such cases. Outlier detection method: dfits. Model 1: 6 obs. excluded. Model 2: 15 obs. excluded. Model 3: 2 obs. excluded. Model 4: 11 obs. excluded. Significance: *** p<.01, ** p<.05, * p<.1.

Robustness checks where we use DFBETA and DFITS criteria to detect outliers (see Tables B3–B6 in the Appendix) still yield positive and significant results for untransformed revenues and labor productivity, and for IHS profits when using the DFITS outlier correction. When controlling for multiple hypothesis testing (Table B1) and attrition (Table B2), however, we do not obtain significant results. Taken together, the lack of significance for the IHS variables as well

as the multiple hypothesis tests and Lee bounds suggest there is no robust, average treatment effect on firm performance and the derived productivity measures. The unrealistically large, sometimes significant ITTs suggest that the effects we observe for the '000 EUR variables are largely driven by extreme values.

5.3 Heterogeneous Effects

We now estimate heterogeneous effects for winsorized as well as IHS-transformed revenues and profits with respect to the set of baseline characteristics we considered for the primary outcome variables (Tables C6–C9 in the Appendix). Given the large variation in the dependent variables, our results need to be interpreted with caution and should be seen only as identifying characteristics associated with reporting higher performance for the treatment group. Our results for annual revenues show some heterogeneity with respect to firm size: most notably, we find a large and significant ITT of 113,000 EUR for medium-sized firms, corresponding to just over one-third of the control group's annual revenue. We find a similar pattern of a large and significant ITT for IHS-transformed annual profits, although the coefficient is so large that it cannot be meaningfully interpreted. The results for labor and capital productivity (Tables C10–C13 in the Appendix) largely reproduce these results, with pronounced positive effects on labor and capital productivity for medium-sized firms.

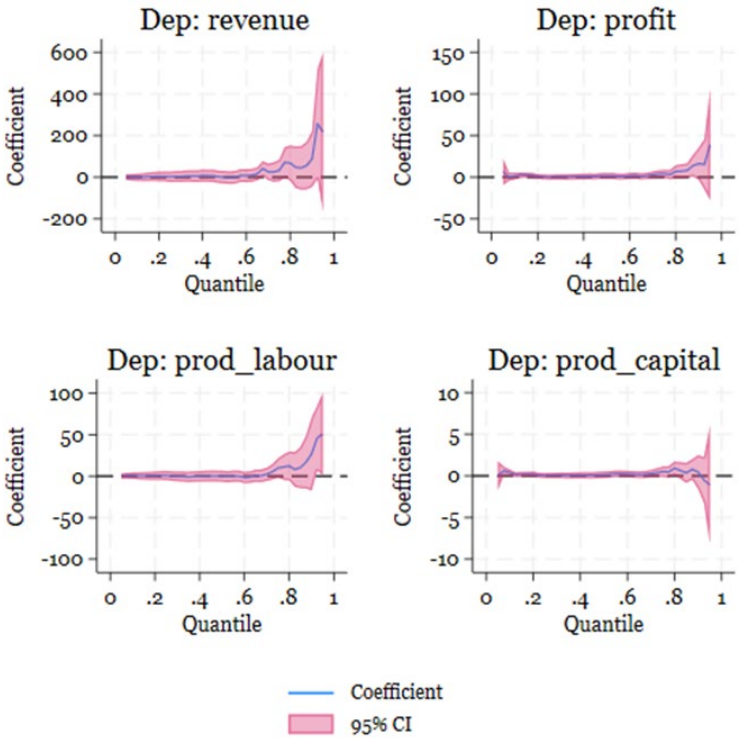
5.4 Quantile Treatment Effects

To shed more light on the drivers of the implausibly large average effects seen in the previous section, we now estimate quantile treatment effects for annual revenues, profits, as well as labor and capital productivity. As Figure 4 below shows, the estimated treatment effect is very close to zero up until the 60th percentile in the case of annual revenues, at which point it rises: first somewhat moderately up to the 80th percentile and then sharply after the 90th percentile. The confidence intervals become considerably larger from the 70th percentile onwards, and no quantile treatment effect is significant at a confidence level of 95 percent. The pattern is somewhat similar for profits: here, we have large confidence intervals at the 5th percentile, as there are some extreme, negative values for profits. The coefficients remain close to zero and start rising from the 40th percentile onward. At the 70th percentile, we estimate a weakly significant treatment effect of about 4,200 EUR, corresponding to more than half of the control-group value at this percentile. The estimated coefficients then get successively larger, as do the confidence intervals, translating into insignificant estimates.

The estimated quantile treatment effects on labor productivity show a similar pattern to annual revenues, with zero effects up to the 70th percentile and increasingly positive effects for the upper percentiles. While the confidence intervals remain large, the estimates pass the 95 percent significance threshold after the 90th percentile. We do not see significant effects on

capital productivity for any of the percentiles, with estimates that are close to zero until the 70th percentile, slightly positive thereafter, before turning negative at the 90th percentile.

Figure 4. Quantile Treatment Effects on Firm Performance and Productivity Outcomes



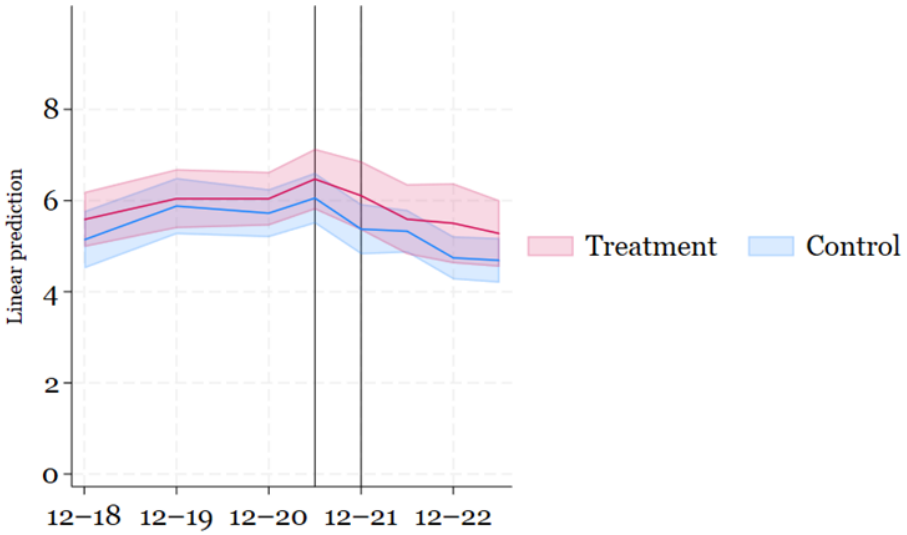
6 Treatment Effects on Employment

6.1 ITT Effects

We first graph the evolution of predicted firm sizes in terms of the number of full-time staff in the treatment and control groups from 2018 to 2023 in Figure 5 below.[18] This period includes four pretreatment data points over 2.5 years, as well as four post-treatment data points for firm size, at 0, 6,12, and 18 months after the end of the intervention, respectively. While firm sizes rose slightly in both groups until reaching 6 to 6.5 persons in mid-2021 (the beginning of the intervention), they started declining and fell below their 2018 levels in 2022/2023. Although predicted firm size for the treatment group is above that of the control group throughout, with the distance widening slightly post-treatment, the confidence intervals overlap; the differences between groups are not statistically significant.

18 To do so, we first construct a full panel dataset for all time periods for which we have data on the number of staff. The resulting dataset has a longer panel dimension than our three survey rounds, as we also asked retrospective questions about the number of staff at the end of each year. We then regress the number of employees on a full interaction of assignment to treatment and a time indicator, plus sector, strata, and enumerator controls. The sample is restricted to firms interviewed in the second follow-up survey.

Figure 5. Predicted Number of Employees 2018–2023



Source: Firm surveys.

Notes: 95% confidence intervals. Excludes top 1% in terms of baseline firm size.

We then estimate ITT effects in a model where we pool all data points from 0–18 months post-treatment, resulting in more than 1,400 observations. In principle, we might now be able to detect even a small effect with higher precision thanks to the larger sample size. However, as shown in Table 5 above, we find no significant treatment effect for the level or log specification. One might also suspect that effects are not yet visible directly after the intervention. If we shorten the time period over which effects are pooled, namely looking only at 6–18 months or 12–18 months post-treatment, the coefficients remain small and insignificant.

6.2 Heterogeneous Effects

As a next step, we test for effect heterogeneity using the pooled sample and in terms of the same baseline characteristics as before (size, age, sector, location). Although the pooled sample offers more power than for the other outcomes, these remain only exploratory analyses. Our results reported in Tables C10 and C11 in the Appendix illustrate that the muted average impacts hide opposing effects for some subgroups. While small firms with annual revenues between 30m and 150m CFA see a positive and significant treatment effect of 19 percent (corresponding to 0.93 additional workers per firm), there is a negative and significant treatment effect of -21 percent for medium-sized firms, which is, however, only significant in the log specification. The treatment effect for micro-enterprises with annual revenues of up to up to 30m CFA is positive but insignificant. We also find a positive and highly significant treatment effect of 14 percent for firms located outside Abidjan, corresponding to 0.73 additional workers on average.

Table 6. Treatment Effects on the Number of Staff

	Staff		Staff		Staff	
	(No)	(Log)	(No)	(Log)	(No)	(Log)
Months since treatment	0-18	0-18	6-18	6-18	12-18	12-18
	1	2	3	4	5	6
Treat	0.431	0.029	0.365	0.014	0.487	0.035
	(0.336)	(0.049)	(0.335)	(0.052)	(0.373)	(0.063)
R-squared	0.246	0.371	0.238	0.352	0.226	0.306
Number of observations	1406	1406	1052	1052	707	707
Control mean	5.03	1.38	4.91	1.37	4.71	1.32
Strata controls	Yes	Yes	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Estimations are based on a dataset pooling 2-4 post-treatment observations per firm. Significance: *** p<.01, ** p<.05, * p<.1.

7 Discussion and Conclusion

We have presented experimental evidence on the effects of the Programme d'Appui à la Productivité des PME (PAP-PME), which was implemented in Côte d'Ivoire in 2021. The intervention focused on financial and HR management and consisted of six months of individual consulting support and a series of webinars. Out of 448 eligible firms that participated in the baseline survey in 2021, a treatment group of 262 MSMEs was selected randomly after stratification by annual turnover, the number of staff, share of female employees, and district. The remainder served as the control group. We evaluate the short- and medium-term effects of the intervention based on surveys of 386 (360) treatment- and control-group firms conducted in mid-2022 (mid-2023).

We assessed these short- and medium-term effects of the program at the firm level. Six months after the end of the intervention, our most robust result is a sizeable and significant treatment impact on an employment quality index, which remains stable after 18 months. This effect is driven by positive treatment effects on the share of employees receiving the minimum wage, as well as the share having written contracts. While we also find a small, positive effect on social-security registration in the short run, it is not robust to adjusting for multiple hypothesis testing and disappears after 18 months. The treatment effects on HR management and accounting practices are positive but insignificant. We find no significant impact on business practices and access to finance. In line with these muted impacts on primary outcomes, we also do not find significant and robust average impacts on firm performance, productivity, and the number of staff.

Our observations allow for some tentative conclusions being drawn regarding program design. First, our results suggest that the program was not ideally targeted. Take-up was higher outside Abidjan and for micro-enterprises, which implies that it was perceived as more relevant by these firms. Similarly, despite muted average impacts, there were positive treat-

ment effects on some management practices for firms with low baseline values of these outcomes, firms outside Abidjan, and firms where the manager had below tertiary education. If the program had only been implemented outside Abidjan or targeted firms with specific needs, evaluation results may have been more favorable given the larger observed treatment effects. The consulting firms frequently stressed that the large geographical distances and the heterogeneity between the firms they worked with made it more costly and difficult to cater to their differing needs. Also, most MSMEs submitted applications hoping to get access to finance, which resulted in cases of treatment-group firms that were ultimately not interested in the program at all.

Second, although the program was of low intensity overall compared to other consulting interventions, the diagnostic conducted for each firm was about as similarly time-intensive as for other programs. While the ratio between the time spent on the diagnostic and subsequent individual consulting was roughly 1:1 for the PAP-PME, it was 1:10 for the consulting program in Nigeria evaluated by Anderson & McKenzie (2022) and 1:25 for the program in Mexico evaluated by Bruhn et al. (2018). In some cases, the diagnostic was conducted and reports were submitted for firms that did not go on to receive further consulting. These observations suggest that the comprehensive diagnostic was not put to optimal use.

In sum, our results suggest that the effectiveness and efficiency of future programs could be enhanced by tailoring them more specifically to the needs of firms of a certain size, level of formalization, sector, and/or geographic zone. Also, it is advisable to adapt overall intensity as well as the relative weight of different program components to the interests and needs of the respective firms, to avoid spending resources on those that are ultimately unlikely to benefit. McKenzie (2020) discusses a "funnel" approach, where very basic services are offered to a large group of MSMEs and additional services to a smaller group based on the results of the first stage.

In the employment dimension, there is a striking disparity between the program's ambitious objective, which was to create about one new job per firm, and our findings of no significant job creation. Although one could argue that the evaluation period was too short and jobs might still be created in the longer run, the lack of substantial short-term impacts on management and firm performance suggests otherwise. At the same time, our results underscore the feasibility and importance of focusing on employment quality and employment formalization in MSMEs in developing countries. Our data illustrate that dependent employment often needs improvement in terms of formalization and remuneration. The evaluation results suggest that (small) improvements in employment conditions are possible and can be achieved even with a relatively light consulting intervention, especially with firms that previously did not have access to relevant information or services. Policymakers should thus keep in mind that some "quick wins" in terms of improved employment conditions may be both possible and worthwhile.

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Appendix A: Attrition

Table A1. Attrition and Balance in Sample Observed at Six-Month Follow-Up

	Observed in endline (1)		Drop-out (2)		Orthogonality Mean (1)–(2)		Treatment (3)		Control (4)		Orthogonality Mean (3)–(4)	
	N	Mean	N	Mean	Difference	p-value	N	Mean	N	Mean	Difference	p-value
Outcome variables												
Employment quality	386	0.506	62	0.534	-0.028	0.535	229	0.505	157	0.508	-0.003	0.918
Minimum wage (share)	349	0.789	52	0.775	0.013	0.799	203	0.793	146	0.782	0.011	0.780
Written contract (share)	386	0.392	62	0.462	-0.070	0.268	229	0.386	157	0.400	-0.014	0.766
Social security (share)	385	0.396	62	0.442	-0.046	0.380	228	0.402	157	0.386	0.016	0.692
HR index	386	0.308	62	0.323	-0.015	0.680	229	0.308	157	0.308	-0.000	0.989
Business practices index	384	0.739	62	0.727	0.012	0.645	227	0.731	157	0.751	-0.019	0.324
Accounting index	386	0.545	62	0.622	-0.077	0.061	229	0.534	157	0.560	-0.026	0.402
Any external financing	386	0.298	62	0.226	0.072	0.245	229	0.297	157	0.299	-0.002	0.959
Abidjan	386	0.650	62	0.790	-0.140	0.030	229	0.668	157	0.624	0.044	0.375
Strata variables												
Revenue (18–20, EUR)	381	121.419	61	70.094	51.324	0.091	227	118.149	154	126.238	-8.090	0.740
Size: micro (revenue <30m FCFA)	381	0.606	61	0.574	0.033	0.631	227	0.612	154	0.597	0.015	0.770
Size: small (revenue 30m–150m FCFA)	381	0.236	61	0.361	-0.124	0.038	227	0.238	154	0.234	0.004	0.926
Size: medium (revenue above 150m CFA	381	0.157	61	0.066	0.092	0.058	227	0.150	154	0.169	-0.019	0.617
Staff (18–20)	386	6.749	62	6.483	0.266	0.847	229	6.941	157	6.469	0.472	0.665
1–3 staff	386	0.303	62	0.306	-0.003	0.958	229	0.306	157	0.299	0.006	0.895
4–6 staff	386	0.383	62	0.339	0.045	0.501	229	0.380	157	0.389	-0.009	0.865
More than 6 staff	386	0.313	62	0.355	-0.041	0.518	229	0.314	157	0.312	0.002	0.962
Share of female staff	386	0.310	62	0.327	-0.017	0.664	229	0.320	157	0.294	0.027	0.360
Firm characteristics												
Annual profit (18–20, EUR)	377	7.839	53	8.266	-0.427	0.928	225	8.999	152	6.122	2.877	0.408
Capital stock (18–20, EUR)	377	48.733	57	42.324	6.409	0.709	225	49.470	152	47.641	1.830	0.889
Firm age (years)	385	7.584	62	7.726	-0.141	0.879	228	7.526	157	7.669	-0.142	0.835
Act: Agriculture	386	0.104	62	0.065	0.039	0.338	229	0.079	157	0.140	-0.062	0.052
Act: Manufacturing	386	0.122	62	0.081	0.041	0.349	229	0.127	157	0.115	0.012	0.724
Act: Electricity & gas	386	0.016	62	0.000	0.016	0.324	229	0.017	157	0.013	0.005	0.713
Act: Construction	386	0.187	62	0.129	0.057	0.274	229	0.183	157	0.191	-0.008	0.850
Act: Services	386	0.573	62	0.726	-0.153	0.023	229	0.594	157	0.541	0.052	0.307
Male manager	386	0.839	62	0.661	0.178	0.001	229	0.847	157	0.828	0.019	0.616
Manager with tertiary education	384	0.714	59	0.814	-0.100	0.109	227	0.683	157	0.758	-0.075	0.110
Registry of commerce	386	0.946	62	0.887	0.058	0.078	229	0.952	157	0.936	0.016	0.506

Notes: On the left side of the table, we compare baseline characteristics of panel firms (1) to those of drop-outs (2). On the right side of the table, we compare baseline characteristics of treatment (3) and control group firms (4) who were observed in the endline survey.

Table A2. Attrition and Balance in Sample Observed at 18-Month Follow-Up

	Observed in endline (1)		Drop-out (2)		Orthogonality Mean (1)–(2)		Treatment (3)		Control (4)		Orthogonality Mean (3)–(4)	
	N	Mean	N	Mean	Difference	p-value	N	Mean	N	Mean	Difference	p-value
Outcome variables												
Employment quality	360	0.506	88	0.526	-0.020	0.611	213	0.506	147	0.506	-0.000	0.993
Minimum wage (share)	327	0.786	74	0.790	-0.004	0.936	189	0.788	138	0.784	0.003	0.932
Written contract (share)	360	0.394	88	0.434	-0.040	0.462	213	0.392	147	0.396	-0.004	0.934
Social security (share)	359	0.394	88	0.437	-0.044	0.343	212	0.405	147	0.377	0.027	0.506
HR index	360	0.307	88	0.320	-0.012	0.691	213	0.311	147	0.302	0.010	0.731
Business practices index	358	0.739	88	0.733	0.005	0.820	211	0.729	147	0.752	-0.023	0.248
Accounting index	360	0.545	88	0.597	-0.052	0.146	213	0.536	147	0.558	-0.022	0.498
Any external financing	360	0.303	88	0.227	0.076	0.162	213	0.300	147	0.306	-0.006	0.909
Abidjan	360	0.639	88	0.795	-0.157	0.005	213	0.662	147	0.605	0.057	0.274
Strata variables												
Revenue (18–20, EUR)	357	122.077	85	81.818	40.259	0.130	212	121.615	145	122.754	-1.139	0.964
Size: micro (revenue <30m FCFA)	357	0.608	85	0.576	0.031	0.596	212	0.608	145	0.607	0.002	0.976
Size: small (revenue 30m–150m FCFA)	357	0.232	85	0.341	-0.109	0.038	212	0.236	145	0.228	0.008	0.856
Size: medium (revenue above 150m CFA	357	0.160	85	0.082	0.077	0.069	212	0.156	145	0.166	-0.010	0.803
Staff (18–20)	360	6.791	88	6.387	0.404	0.735	213	7.002	147	6.487	0.515	0.656
1–3 staff	360	0.300	88	0.318	-0.018	0.740	213	0.305	147	0.293	0.013	0.798
4–6 staff	360	0.383	88	0.352	0.031	0.591	213	0.376	147	0.395	-0.019	0.717
More than 6 staff	360	0.317	88	0.330	-0.013	0.817	213	0.319	147	0.313	0.006	0.899
Share of female staff	360	0.305	88	0.340	-0.035	0.306	213	0.314	147	0.292	0.022	0.462
Firm characteristics												
Annual profit (18–20, EUR)	352	7.726	78	8.638	-0.911	0.822	209	9.065	143	5.770	3.296	0.365
Capital stock (18–20, EUR)	351	46.172	83	55.159	-8.987	0.543	209	50.686	142	39.529	11.156	0.375
Firm age (years)	359	7.549	88	7.830	-0.281	0.728	212	7.448	147	7.694	-0.246	0.722
Act: Agriculture	360	0.103	88	0.080	0.023	0.513	213	0.075	147	0.143	-0.068	0.038
Act: Manufacturing	360	0.125	88	0.080	0.045	0.234	213	0.127	147	0.122	0.004	0.904
Act: Electricity & gas	360	0.014	88	0.011	0.003	0.854	213	0.019	147	0.007	0.012	0.341
Act: Construction	360	0.183	88	0.159	0.024	0.596	213	0.178	147	0.190	-0.012	0.772
Act: Services	360	0.575	88	0.670	-0.095	0.103	213	0.601	147	0.537	0.064	0.232
Male manager	360	0.847	88	0.682	0.165	0.000	213	0.859	147	0.830	0.029	0.450
Manager with tertiary education	358	0.712	85	0.788	-0.076	0.158	211	0.687	147	0.748	-0.061	0.210
Registry of commerce	360	0.947	88	0.898	0.049	0.086	213	0.953	147	0.939	0.014	0.553

Notes: On the left side of the table, we compare baseline characteristics of panel firms (1) to those of drop-outs (2). On the right side of the table, we compare baseline characteristics of treatment (3) and control group firms (4) who were observed in the endline survey.

Appendix B: Robustness

Table B1. Sharpened Q-Values

Estimate #	Outcome variable	Coefficient	P-value	Sharpened q-value
1	BP Index	-0.002	0.896	0.559
2	Accounting index	0.025	0.134	0.377
3	Any finance	0.023	0.474	0.437
4	HR Index	0.025	0.207	0.429
5	Employment Quality	0.075	0.000	0.003
6	IHS revenue	0.265	0.082	0.370
7	IHS profit	0.349	0.152	0.377
8	Labor productivity	28.286	0.090	0.370
9	Capital productivity	-13.929	0.269	0.429
10	Log (no. of staff)	0.029	0.557	0.449

Note: Sharpened two-stage q-values are calculated as described in Anderson (2008) and introduced in Benjamini, Krieger, and Yekutieli (2006).

Table B2. Lee Bounds

Wave	Outcome variable	Lower bound	Upper bound	CI lower	CI upper	Trimming
2	BP index	-0.011	0.010	-0.043	0.047	0.029
3	BP index	-0.010	0.007	-0.046	0.060	0.028
2	Accounting index	0.015	0.042	-0.031	0.094	0.029
3	Accounting index	0.007	0.021	-0.043	0.073	0.028
2	Any finance	0.030	0.058	-0.053	0.131	0.029
3	Any finance	0.011	0.036	-0.085	0.119	0.028
2	HR index	0.030	0.057	-0.023	0.107	0.029
3	HR index	0.007	0.030	-0.049	0.080	0.028
2	Emp. quality	0.062	0.089	0.003	0.152	0.029
3	Emp. quality	0.070	0.094	0.002	0.169	0.028
3	IHS revenue	0.289	0.466	-0.358	1.541	0.010
3	IHS profit	1.184	1.482	-0.468	3.725	0.011
3	Labor prod.	11.759	29.605	-48.211	52.789	0.011
3	Capital prod.	-26.143	-26.123	-73.794	21.732	0.000
3	Log (no. of staff)	-0.044	0.033	-0.208	0.186	0.025
3	Log (no. of staff)	-0.012	0.083	-0.192	0.238	0.026

Notes: Lee bounds are calculated using the leebounds Stata command introduced in Tauchmann (2009), based on the Lee (2009) approach. We report 90% confidence intervals. Regressions of primary outcomes include the firm size by revenue as a tightening parameter.

Table B3. Cross-Validation with Employee Data

	Firm sample				Individual sample			
	Employment quality	> min. wage	written contract	social security	Employment quality	> min. wage	written contract	social security
	(0-1)	(share 0-1)	(share 0-1)	(share 0-1)	(0-1)	(0/1)	(0/1)	(0/1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treat	0.075***	0.083***	0.092***	0.037	0.066**	0.093***	0.085*	0.029
	(0.020)	(0.029)	(0.032)	(0.029)	(0.029)	(0.031)	(0.044)	(0.039)
R-squared	0.537	0.328	0.386	0.391	0.392	0.219	0.292	0.399
N	719	629	707	706	1498	1432	1491	1384
Control mean	0.51	0.72	0.42	0.44	0.54	0.76	0.47	0.36
Strata controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: 6M/18M: 6 months/18 months post-treatment. P: pooled sample of two follow-up surveys. Standard errors in parentheses: robust Huber/White standard errors (6M/18M), clustered at firm level (P). Significance: *** p<.01, ** p<.05, * p<.1.

Table B4. 12-Month Treatment Effects on Annual Revenue and Profits (DFBETA)

	Revenue ('000 EUR)	Revenue (IHS)	Profit ('000 EUR)	Profit (IHS)
	1	2	3	4
assignment	74.742**	0.060	-2.413	0.156
	(29.934)	(0.108)	(3.638)	(0.208)
R-squared	0.367	0.866	0.113	0.627
Number of observations	333	329	289	232
Control mean	109.98	10.90	3.29	4.29
Strata controls	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Missing values for lagged dependent variables are replaced with the mean of the estimation sample, with regressions including a dummy variable to control for such cases. Outlier detection method: dfbeta. Model 1: 2 obs. excluded. Model 2: 6 obs. excluded. Model 3: 10 obs. excluded. Model 4: 3 obs. excluded. Significance: *** p<.01, ** p<.05, * p<.1.

Table B5. 12-Month Treatment Effects on Annual Revenue and Profits (DFITS)

	Revenue ('000 EUR)	Revenue (IHS)	Profit ('000 EUR)	Profit (IHS)
	1	2	3	4
assignment	84.437***	0.098	0.779	0.412**
	(31.706)	(0.102)	(2.899)	(0.190)
R-squared	0.385	0.875	0.094	0.727
Number of observations	330	320	286	224
Control mean	109.98	10.90	3.29	4.29
Strata controls	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Missing values for lagged dependent variables are replaced with the mean of the estimation sample, with regressions including a dummy variable to control for such cases. Outlier detection method: dfits. Model 1: 5 obs. excluded. Model 2: 15 obs. excluded. Model 3: 13 obs. excluded. Model 4: 11 obs. excluded. Significance: *** p<.01, ** p<.05, * p<.1.

Table B6. 12-Month Treatment Effects on Productivity (DFBETA)

	Lab. prod. ('000 EUR wins)	Lab. prod. (IHS)	Cap. prod. ('000 EUR wins)	Cap. prod. (IHS)
	1	2	3	4
assignment	8.251*	0.034	-13.929	-0.121
	(4.492)	(0.143)	(12.576)	(0.127)
R-squared	0.395	0.131	0.888	0.388
Number of observations	315	314	270	264
Control mean	23.71	3.10	1.28	0.39
Strata controls	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Missing values for lagged dependent variables are replaced with the mean of the estimation sample, with regressions including a dummy variable to control for such cases. Outlier detection method: dfbeta. Model 1: 3 obs. excluded. Model 2: 7 obs. excluded. Model 3: 0 obs. excluded. Model 4: 4 obs. excluded. Significance: *** p<.01, ** p<.05, * p<.1.

Table B7. 12-Month Treatment Effects on Productivity (DFITS)

	Lab. prod. ('000 EUR wins)	Lab. prod. (IHS)	Cap. prod. ('000 EUR wins)	Cap. prod. (IHS)
	1	2	3	4
assignment	7.765*	0.206	-0.302	0.116
	(3.992)	(0.138)	(0.662)	(0.092)
R-squared	0.211	0.181	0.012	0.456
Number of observations	312	306	268	257
Control mean	23.71	3.10	1.28	0.39
Strata controls	Yes	Yes	Yes	Yes
Lagged dep. var.	Yes	Yes	Yes	Yes

Notes: Robust Huber/White standard errors in parentheses. Missing values for lagged dependent variables are replaced with the mean of the estimation sample, with regressions including a dummy variable to control for such cases. Outlier detection method: dfits. Model 1: 6 obs. excluded. Model 2: 15 obs. excluded. Model 3: 2 obs. excluded. Model 4: 11 obs. excluded. Significance: *** p<.01, ** p<.05, * p<.1.

Appendix C: Heterogeneous Effects

Table C1. Business Practices – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30m)			Small (30m–150m)			Medium (150m+)				
	434	0.74	0.00	166	0.79	-0.03	114	0.80	-0.00	0.33	0.90	0.51
No. of staff		1–3			4–6			More than 6				
	216	0.70	0.00	276	0.76	-0.00	228	0.80	-0.00	0.90	0.92	0.98
Firm age		0–3 years			4–9 years			10+ years				
	80	0.70	0.03	396	0.77	-0.02	242	0.75	0.01	0.28	0.64	0.33
Broad sector categories		Manufacturing			Construction			Services				
	164	0.79	-.046*	132	0.78	-0.02	424	0.73	0.02	0.54	0.03	0.20
Firm location		Abidjan			Rest of the country							
	466	0.75	-0.00	254	0.76	0.00	.	.		0.91		
Manager education		Tertiary			Below tertiary							
	510	0.76	-0.00	206	0.73	-0.00	.	.		0.96		
Baseline value		Above-median			Below-median							
	343	0.82	-0.03	375	0.69	0.02	.	.		0.09		

Notes: OLS regression with variable bp_all_4 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on clustered standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C2. Accounting Practices – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30m)			Small (30m–150m)			Medium (150m+)				
	434	0.47	0.04	166	0.66	0.01	114	0.64	0.01	0.47	0.46	0.95
No. of staff		1–3			4–6			More than 6				
	216	0.46	-0.02	276	0.55	.049*	228	0.60	0.04	0.10	0.14	0.78
Firm age		0–3 years			4–9 years			10+ years				
	80	0.52	-0.03	396	0.55	0.02	242	0.54	.051*	0.39	0.17	0.35
Broad sector categories		Manufacturing			Construction			Services				
	164	0.56	-0.01	132	0.58	.059*	424	0.52	0.03	0.19	0.40	0.46
Firm location		Abidjan			Rest of the country							
	466	0.57	0.00	254	0.49	.071**	.	.		0.05		
Manager education		Tertiary			Below tertiary							
	510	0.57	0.01	206	0.47	.064*	.	.		0.24		
Baseline value		Above-median			Below-median							
	360	0.68	0.00	360	0.40	.049*	.	.		0.18		

Notes: OLS regression with variable acc_4 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on clustered standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C3. Access to Finance – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30m)			Small (30m–150m)			Medium (150m+)				
	434	0.15	0.00	166	0.33	0.00	114	0.33	0.13	0.98	0.22	0.30
No. of staff		1–3			4–6			More than 6				
	216	0.13	0.00	276	0.22	0.04	228	0.30	0.03	0.69	0.78	0.92
Firm age		0–3 years			4–9 years			10+ years				
	80	0.03	.141**	396	0.17	0.07	242	0.34	-0.08	0.36	0.01	0.04
Broad sector categories		Manufacturing			Construction			Services				
	164	0.27	-0.06	132	0.12	0.02	424	0.23	0.06	0.32	0.14	0.66
Firm location		Abidjan			Rest of the country							
	466	0.17	0.04	254	0.30	-0.01	.	.		0.44		
Manager education		Tertiary			Below tertiary							
	510	0.22	0.01	206	0.22	0.07	.	.		0.44		
Baseline value		Above-median			Below-median							
	218	0.49	0.06	502	0.10	0.01	.	.		0.48		

Notes: OLS regression with variable finance_any_4 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on clustered standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C4. HR Management – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30m)			Small (30m–150m)			Medium (150m+)				
	434	0.27	0.03	166	0.39	-0.01	114	0.47	0.06	0.34	0.66	0.29
No. of staff		1–3			4–6			More than 6				
	216	0.21	.065**	276	0.33	0.02	228	0.43	-0.00	0.28	0.15	0.68
Firm age		0–3 years			4–9 years			10+ years				
	80	0.23	.126**	396	0.34	0.00	242	0.33	0.03	0.03	0.13	0.47
Broad sector categories		Manufacturing			Construction			Services				
	164	0.38	-.092**	132	0.34	0.05	424	0.29	.065**	0.02	0.00	0.74
Firm location		Abidjan			Rest of the country							
	466	0.35	0.02	254	0.28	0.04	.	.		0.62		
Manager education		Tertiary			Below tertiary							
	510	0.34	0.02	206	0.26	.062*	.	.		0.25		
Baseline value		Above-median			Below-median							
	274	0.48	-0.00	446	0.23	.041*	.	.		0.28		

Notes: OLS regression with variable hr_all_4 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on clustered standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C5. Employment Quality – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30m)			Small (30m–150m)			Medium (150m+)				
	434	0.40	.083***	165	0.63	.068*	114	0.76	0.06	0.75	0.62	0.86
No. of staff		1–3			4–6			More than 6				
	216	0.37	.106***	276	0.55	0.04	227	0.59	.084**	0.24	0.67	0.40
Firm age		0–3 years			4–9 years			10+ years				
	80	0.44	.117*	395	0.51	.048*	242	0.53	.103***	0.29	0.84	0.20
Broad sector categories		Manufacturing			Construction			Services				
	164	0.47	0.04	132	0.59	0.07	423	0.50	.093***	0.57	0.23	0.67
Firm location		Abidjan			Rest of the country							
	465	0.59	.062**	254	0.37	.099***	.	.		0.37		
Manager education		Tertiary			Below tertiary							
	510	0.55	.065***	205	0.37	.114***	.	.		0.27		
Baseline value		Above-median			Below-median							
	317	0.74	.073***	402	0.33	.074**	.	.		0.97		

Notes: OLS regression with variable empquality_4 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on clustered standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C6. Revenue – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	206	40.92	0.58	74	124.22	23.50	53	324.33	113.175**	0.47	0.05	0.15
Number of staff		1–3			Up to 6			More than 6				
	102	45.30	5.02	128	94.12	15.71	105	175.71	54.419*	0.68	0.16	0.27
Firm age		0–3 years			4–9 years			10+ years				
	18	63.48	140.325*	197	102.19	9.28	120	117.13	28.63	0.08	0.14	0.47
Broad sector categories		Manufacturing			Construction			Services				
	78	122.67	-31.69	61	130.28	31.76	196	88.30	45.426***	0.13	0.01	0.71
Firm location		Abidjan			Rest of the country							
	213	126.18	25.24	122	73.07	23.44	.	.		0.94		
Manager education		Tertiary			Below tertiary							
	236	111.36	33.509**	97	88.28	2.99	.	.		0.24		

Notes: OLS regression with variable revenue_wins5 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C7. IHS Revenue – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	206	10.16	0.11	74	11.72	-0.21	53	12.61	1.447**	0.66	0.08	0.10
Number of staff		1–3			Up to 6			More than 6				
	102	9.91	0.02	128	10.84	.769*	105	11.89	-0.08	0.30	0.90	0.20
Firm age		0–3 years			4–9 years			10+ years				
	18	9.72	2.61	197	10.85	0.15	120	11.15	0.12	0.17	0.17	0.95
Broad sector categories		Manufacturing			Construction			Services				
	78	11.23	-0.57	61	10.64	1.01	196	10.82	0.40	0.10	0.17	0.46
Firm location		Abidjan			Rest of the country							
	213	10.95	0.39	122	10.82	0.10	.	.		0.59		
Manager education		Tertiary			Below tertiary							
	236	10.99	0.33	97	10.62	0.21	.	.		0.84		

Notes: OLS regression with variable ihsrev as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C8. Profit – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	192	4.54	0.75	66	9.26	2.19	39	17.45	17.26	0.79	0.13	0.21
Number of staff		1–3			Up to 6			More than 6				
	90	3.65	3.65	118	8.67	2.94	91	9.38	2.93	0.87	0.90	1.00
Firm age		0–3 years			4–9 years			10+ years				
	17	1.06	-5.18	182	7.84	5.454*	100	8.07	-0.02	0.05	0.40	0.29
Broad sector categories		Manufacturing			Construction			Services				
	69	11.62	0.49	54	8.10	3.62	176	5.36	4.12	0.69	0.54	0.94
Firm location		Abidjan			Rest of the country							
	190	8.41	3.23	109	6.06	3.00	.	.		0.96		
Manager education		Tertiary			Below tertiary							
	213	8.08	4.55	84	5.68	0.84	.	.		0.43		

Notes: OLS regression with variable profit_wins5 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C9. IHS Profit – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	192	5.47	-0.39	66	3.50	0.27	39	1.31	6.824**	0.79	0.02	0.07
Number of staff		1–3			Up to 6			More than 6				
	90	3.47	1.81	118	5.76	0.39	91	3.21	0.61	0.50	0.63	0.93
Firm age		0–3 years			4–9 years			10+ years				
	17	0.11	-1.41	182	4.95	0.79	100	3.97	1.08	0.57	0.54	0.89
Broad sector categories		Manufacturing			Construction			Services				
	69	5.19	2.40	54	3.97	1.79	176	3.98	-0.05	0.83	0.25	0.47
Firm location		Abidjan			Rest of the country							
	190	2.88	1.77	109	6.46	-0.66	.	.		0.18		
Manager education		Tertiary			Below tertiary							
	213	4.74	0.09	84	2.93	3.37*	.	.		0.12		

Notes: OLS regression with variable ihsprof as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C10. Labour Productivity ('000 EUR Wins) – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	197	11.65	0.74	72	40.96	-5.53	52	45.27	38.471***	0.51	0.00	0.00
Number of staff		1–3			Up to 6			More than 6				
	97	17.39	-2.30	124	25.55	1.46	102	27.01	17.88**	0.60	0.02	0.06
Firm age		0–3 years			4–9 years			10+ years				
	17	24.43	-7.63	191	21.97	6.10	115	26.14	6.52	0.10	0.14	0.96
Broad sector categories		Manufacturing			Construction			Services				
	75	23.75	0.35	58	29.55	9.85	190	21.67	6.27	0.39	0.43	0.72
Firm location		Abidjan			Rest of the country							
	205	26.52	5.51	118	19.27	5.53	.	.		1.00		
Manager education		Tertiary			Below tertiary							
	228	25.35	7.986*	93	18.67	1.81	.	.		0.39		

Notes: OLS regression with variable prod_labour_wins5 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C11. IHS Labour Productivity – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	197	2.62	-0.00	72	3.70	-0.01	52	4.17	1.11***	0.99	0.00	0.01
Number of staff		1–3			Up to 6			More than 6				
	95	2.69	0.10	124	3.25	0.09	102	3.34	0.45	0.98	0.39	0.35
Firm age		0–3 years			4–9 years			10+ years				
	16	3.70	-1.41***	190	2.99	0.24	115	3.24	.406*	0.00	0.00	0.59
Broad sector categories		Manufacturing			Construction			Services				
	75	3.09	-0.03	58	3.37	0.44	188	3.05	0.23	0.32	0.47	0.62
Firm location		Abidjan			Rest of the country							
	203	3.33	-0.02	118	2.79	.596**	.	.		0.06		
Manager education		Tertiary			Below tertiary							
	226	3.27	0.18	93	2.67	0.42	.	.		0.50		

Notes: OLS regression with variable prl as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C12. Capital Productivity ('000 EUR Wins) – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	187	0.91	-0.02	62	0.69	-0.01	36	0.19	1.256**	0.99	0.06	0.11
Number of staff		1–3			Up to 6			More than 6				
	88	1.04	0.15	113	0.80	-0.04	86	0.39	0.50	0.73	0.54	0.29
Firm age		0–3 years			4–9 years			10+ years				
	17	0.58	-0.24	176	0.67	0.25	94	0.89	0.12	0.69	0.78	0.78
Broad sector categories		Manufacturing			Construction			Services				
	68	0.65	0.63	50	0.31	0.64	169	0.91	-0.14	0.99	0.12	0.18
Firm location		Abidjan			Rest of the country							
	182	0.70	0.30	105	0.80	-0.02	.	.		0.46		
Manager education		Tertiary			Below tertiary							
	203	0.81	0.00	82	0.52	0.59	.	.		0.24		

Notes: OLS regression with variable prod_capital_wins5 as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C13. IHS Capital Productivity – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	176	0.52	-0.09	57	0.40	-0.17	36	-0.04	0.71	0.83	0.12	0.13
Number of staff		1–3			Up to 6			More than 6				
	80	0.52	0.09	108	0.45	-0.10	82	0.23	0.16	0.66	0.86	0.46
Firm age		0–3 years			4–9 years			10+ years				
	16	-0.01	-0.81	164	0.37	0.18	90	0.53	-0.10	0.41	0.56	0.37
Broad sector categories		Manufacturing			Construction			Services				
	64	0.38	.43**	49	0.16	0.35	157	0.50	-0.23	0.86	0.04	0.19
Firm location		Abidjan			Rest of the country							
	167	0.30	0.11	103	0.54	-0.09	.	.		0.52		
Manager education		Tertiary			Below tertiary							
	190	0.45	-0.12	79	0.26	0.39	.	.		0.16		

Notes: OLS regression with variable prc as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C14. Number of Staff – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	855	3.99	0.23	323	4.94	1.993*	216	9.26	-0.98	0.12	0.33	0.06
Number of staff		1–3			Up to 6			More than 6				
	429	2.76	0.36	543	4.25	0.95	434	8.19	-0.18	0.46	0.52	0.23
Firm age		0–3 years			4–9 years			10+ years				
	76	3.23	2.52	828	4.92	0.53	498	5.46	-0.06	0.45	0.33	0.36
Broad sector categories		Manufacturing			Construction			Services				
	317	5.61	-0.32	262	5.09	0.81	827	4.72	0.61	0.19	0.26	0.81
Firm location		Abidjan			Rest of the country							
	917	5.24	0.27	489	4.68	.738**	.	.		0.49		
Manager education		Tertiary			Below tertiary							
	1006	5.16	0.36	392	4.63	0.59	.	.		0.73		

Notes: OLS regression with variable emp as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

Table C15. Log Number of Staff – Heterogeneity

	(1)			(2)			(3)			P-value		
	N	CM	ITT	N	CM	ITT	N	CM	ITT	(1) = (2)	(1) = (3)	(2) = (3)
Size (annual revenue, CFA)		Micro (<=30 m)			Small (30m–150 m)			Medium (150 m+)				
	855	1.19	0.04	323	1.43	.189*	216	2.08	-.209*	0.21	0.09	0.01
Number of staff		1–3			Up to 6			More than 6				
	429	0.90	0.01	543	1.33	0.07	434	1.91	-0.01	0.60	0.90	0.54
Firm age		0–3 years			4–9 years			10+ years				
	76	1.04	0.15	828	1.38	0.03	498	1.44	0.02	0.66	0.64	0.93
Broad sector categories		Manufacturing			Construction			Services				
	317	1.50	-0.09	262	1.28	0.18	827	1.36	0.03	0.06	0.27	0.26
Firm location		Abidjan			Rest of the country							
	917	1.42	-0.03	489	1.32	.14**	.	.		0.07		
Manager education		Tertiary			Below tertiary							
	1006	1.40	-0.01	392	1.34	0.11	.	.		0.25		

Notes: OLS regression with variable lemp as dependent variable. Each row reports the results of one regression where assignment to treatment is interacted with the categories of the heterogeneity dimension indicated on the left. N reports the total number of observations in the respective category (treatment and control), and CM is the mean value of the dependent variable at endline in the control group in the respective category. ITT is the intention-to-treat effect for firms in the respective category and is calculated the sum of the coefficients of assignment to treatment and the interaction term. Regressions include controls for the lagged dependent variable and strata. The p-values in the rightmost column(s) indicate whether ITTs differ significantly between categories. Significance is based on robust Huber/White standard errors (not reported here). Significance: *** p<.01, ** p<.05, * p<.1.

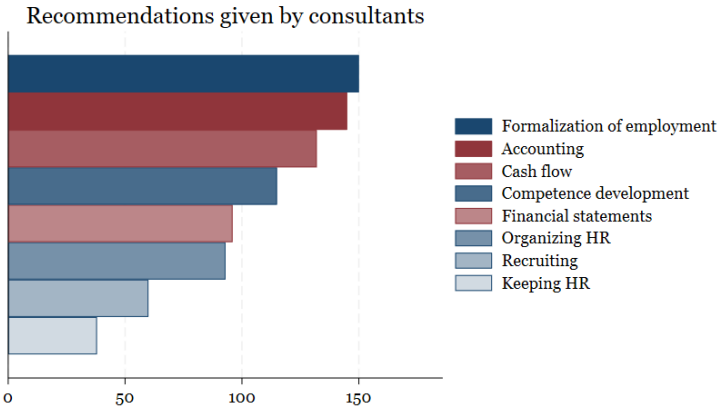
Appendix D: Other Supplementary Material

Recommendations Received

We have data from the online questionnaire documenting SME visits for 235 firms, where recommendations were recorded for 179 firms. We treat recommendations for treatment-group firms without any recorded recommendations as missing rather than zero. The rationale behind this approach is that the consulting firms did not fill in the questionnaire for all firms (leaving out those they never visited), and that the part of the questionnaire on "recommendations" was not filled in in some cases.

Consulting firm 1 recorded recommendations for 26 firms.
Consulting firm 2 recorded recommendations for 37 firms.
Consulting firm 3 recorded recommendations for 39 firms.
Consulting firm 4 recorded recommendations for 38 firms.
Consulting firm 5 recorded recommendations for 39 firms.

The following graph gives an overview of the areas in which firms received recommendations. The most common area for recommendations was the formalization of labor (chiefly, contracts and social security), followed by recommendations pertaining to accounting and cash flow management.



List of Recommendations Included in Each Category

Financial Statements

— Establish financial statements
— Update financial statements

— Certify financial statements
— Submit financial statements to tax authorities
— Work with an accredited management center
— Work with a management consultant
— Recruit an accountant
— Use accounting software
— Other (financial statements)

Accounting

— Set up general accounting
— Set up digital accounting tool
— Train accountant
— Recruit an accountant
— Work with management center or consultant
— Set up associated current account
— Set up cost accounting
— Take inventory of fixed assets
— Other (accounting)

Cash Flow

— Setting up a cash flow monitoring system
— Setting up cash management tools
— Drawing up a cash flow budget
— Drawing up a budget plan
— Setting up management dashboards

Formalization of Labor

— Making written contracts for employees
— Revalue salaries at the minimum wage
— Declare employees to the Social Security (CNPS)
— Provide public or private medical coverage for employees
— Provide safety equipment to employees
— Formalization of labor: other recommendation(s)

Recruiting

— Official job advertisement
— Set up a selection process with defined criteria

— Other (recruiting)

Competence Development

— Internal training(s)
— External training(s)
— Study & exchange trips
— Other (competence development)

Keeping HR

— Revaluing salaries
— Granting all types of leave to employees
— Promote social dialogue
— Establish a peaceful social atmosphere between the workers and management
— Encourage internal promotion of employees
— Other (keeping HR)

Organizing HR

— Developing an organizational chart
— Creating job descriptions for each employee
— Getting to know the interprofessional collective agreement
— Brief training on the collective agreement

Webinar Topics and Attendance

#	Webinar topic	No. of firms
1	Associated current account	37
2	Banking tools for SMEs	44
3	Employee motivation	77
4	Fixed asset inventory	6
5	Goal-oriented work and motivation	46
6	Management dashboards	10
7	Negotiation technique & managerial efficiency	97
8	Principles & mechanisms of taxation	40
9	Procedures manual	18
10	Social security	40
11	Stock management	43
12	Treasury management	47
13	Work contracts	21

Access to Online Platform

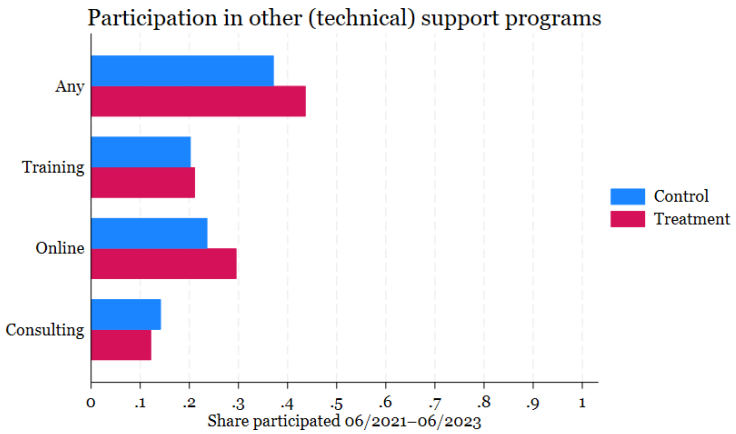
	Treatment		Control			
	N	Mean	N	Mean	Difference	p-value
Ever accessed platform	229	0.240	157	0.242	-0.002	0.967
If accessed: hours spent	55	7.200	38	4.512	2.688	0.410
If not accessed: why						
Unaware	152	0.599	103	0.612	-0.013	0.836
No time	152	0.178	103	0.214	-0.036	0.476
No interest	152	0.105	103	0.068	0.037	0.309
Connection / no computer	152	0.059	103	0.068	-0.009	0.778
Lack of IT skills	152	0.059	103	0.039	0.020	0.470

Participation in Other Programs

We asked respondents whether they had participated in other support programs between 6/2021 and 6/2023 (the two-year period following the PAP-PME program). While the question was about programs other than the PAP-PME, some respondents still mentioned their participation in the PAP-PME or parts of it, such as the webinar series. The data were cleaned to disregard mentions of the PAP-PME.

We conduct t-tests to see whether participation in other programs was balanced between the treatment and control groups. While the treatment group are somewhat more likely to report having participated in any program, driven by online formats, the differences are not statistically significant. Overall, roughly 40 percent of the sample report having participated in any program, with 24-30 percent mentioning online formats, 20 percent in-person training, and 12-14 percent consulting.

	Treatment		Control			
	N	Mean	N	Mean	Difference	p-value
Any program	213	0.437	148	0.372	0.065	0.218
Training	213	0.211	148	0.203	0.009	0.844
Online	213	0.296	148	0.236	0.059	0.214
Consulting	213	0.122	148	0.142	-0.020	0.583



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