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The Impact of Patient Capital on Job Quality, Investments and Firm Performance

Cross-Country Evidence on Long-Term Finance

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Preface

This Discussion Paper is part of DIE's research project "Preconditions for Sustainable Development: Social Cohesion in Africa". Social cohesion – or social solidarity – within societies is a key success factor for sustainable development in Africa. However, social cohesion is also particularly under pressure in African societies and other world regions. The DIE team aims at identifying patterns of social cohesion in Africa, analyses factors that influence the degree of social cohesion (or its absence) and identifies domestic and international policies that contribute to the creation and consolidation of social cohesion. The team addresses five issue areas:

1) Measuring social cohesion in African societies across countries;
2) Effects of tax systems and social policy on strengthening social cohesion in Africa;
3) Interdependence of financial systems design (small and medium-sized enterprises) and social cohesion;
4) Relevance of values, democracy and political institutions for social cohesion;
5) Influence of external peacebuilding, political institutions and individual attitudes on societal peace and social cohesion.

This research is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

We hope that DIE research will help to better understand the drivers of social cohesion and to formulate policies that contribute to cohesive societies worldwide.

Bonn, December 2020

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"Transformation of political (dis-)order"
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"Social cohesion in Africa".

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Bonn, December 2020 Christoph Sommer

Abstract

Despite its importance for development, long-term finance is particularly scarce in countries with lower income levels. This not only results in unrealised growth and employment creation at the national level and at the level of individual firms, but also undermines a broader shift towards better jobs. After all, many long-term investments comprise investments in labour that have the potential to contribute to improvements in the quality of jobs, through training to boost skill levels, the creation of more stable employment relationships, and the higher wages that result. This paper uses more than 17,000 firm-level observations from 73 mostly low- and middle-income countries between 2002 and 2009 to provide the first empirical evidence of the extent to which long-term finance affects the quality of jobs. Additionally, it looks into effects on investments and the performance of firms. The findings, based on inverse probability weighted regression adjustment, indicate that firms with long-term finance exhibit a share of permanent employees that is 0.9 percentage points higher, and train an additional 2.4 per cent of their production workers. The probability that firms invest in fixed assets or in innovations in their production process both increase by more than 5.5 percentage points, while employment and sales growth rises as well. The fact that the positive effects on job quality mostly disappear when defining long-term finance as loans with a maturity of more than one year instead of more than two years, underlines the importance of longer loan maturities for better jobs. Despite presenting favourable theoretical and descriptive arguments, it cannot be ruled out completely that unobservable variables affect the estimation of effect sizes.

Contents

Appendix tables

Appendix figures

Abbreviations

ATE	average treatment effect
CDF	cumulative distribution function
CI	conditional independence
DFIs	development finance institutions
ES	Enterprise Surveys
FDSD	Financial Development and Structure Database
GDP	gross domestic product
GDP pc	gross domestic product per capita
IPWRA	inverse probability weighted regression adjustment
LMICs	low- and middle-income countries
LTF	long-term finance
pp	percentage point
R&D	research and development
SMEs	small and medium-sized enterprises
WDI	World Development Indicators
WGI	Worldwide Governance Indicators

1 Introduction

Long-term finance is crucial for development both on the micro level, for firms and households, and on the macro level, for national economies. Loans with longer maturities, equity and other forms of long-term finance are typically used to realise projects that require capital commitment over a longer period of time and contribute substantially to productivity growth. Consequently, long-term finance increases economic growth both at the level of the firm (e.g. Caprio & Demirguc-Kunt, 1998) and at the national level (e.g. Aghion, Howitt, & Mayer-Foulkes, 2005). In addition, it decreases aggregate volatility, as long-term investments tend to be counter-cyclical (Aghion et al., 2005; Gutierrez, Karmali, & Sourrouille, 2018). Despite its importance for economic development, long-term finance is particularly scarce in low- and middle-income countries (LMICs), with the proportion of long-term finance increasing with national income levels (Demirgüç-Kunt, Peria, & Tressel, 2020; Fan, Titman, & Twite, 2012; World Bank, 2015). The limited availability of long-term finance has gained attention among researchers and policy-makers in the development field (Chen, Ganum, Liu, Martinez, & Peria, 2019; Demirgüç-Kunt et al., 2020; G20, 2013; Gutierrez et al., 2018; World Bank, 2015). It is also felt by firms, since constrained access to long-term loans impedes their operation and growth (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2008; Gutierrez et al., 2018). This not only results in situations of unrealised growth and missed opportunities for employment creation, but may also undermine a broader shift towards better job quality. After all, many long-term investments also comprise investments in labour through training, human capital accumulation and similar activities that positively affect skill development, wages and stability of employment relations. The availability of good jobs, in turn, has been argued to contribute to more cohesive societies (Wietzke, 2014; World Bank, 2012).

The study analyses to what extent long-term finance affects job quality, investments and firm performance. Long-term finance, or patient capital, is defined here as bank loans with a maturity of more than two years. Even though the focus on bank loans ignores equity and other potential sources of long-term finance, it can be expected to account for the vast majority of patient capital. In LMICs, in particular, non-bank sources for long-term finance are the exception (Martinez Peria & Schmukler, 2017) such that firms, irrespective of their size, mostly rely on banks to access long-term finance (Gutierrez et al., 2018). Furthermore, the two-year definition is preferred over the more commonly used one-year threshold, with the latter being considered in the robustness check. While the one-year definition is appealing due to data availability of this categorisation in balance sheets, reports and datasets (e.g. Gutierrez et al., 2018; Leon, 2018), such loans may fail to deliver the central function and quality of long-term finance. Loan durations slightly above one year do not necessarily remove rollover risk, since investments in long-term projects generally exhibit longer maturities. For loans to empower firms to pursue long-term growth strategies such as productivity-enhancing investments in capital (machinery, technology, etc.) and labour (training, human capital, etc.), a planning horizon longer than one year is generally required. Hence, I use loans with a duration of more than two years as a proxy for patient capital or long-term finance.

Along this line, the more than 17,000 firm-level observations from 73 mostly low- and middle-income countries are divided into a group with patient capital and a control group with short-term finance. Inverse probability weighted regression adjustment (IPWRA) is adopted, since this estimation strategy identifies treatment effects in observational data.

Reweighting based on the propensity scores achieves similarity and balance of (observable) covariates across treatment and control group. Despite theoretical arguments and descriptive statistics suggesting that firms with short- and long-term finance may not differ too much with regard to unobservable characteristics, it cannot be ruled out completely that unobservables introduce some bias. The findings indicate that patient capital is significantly and positively associated with job quality. The share of permanent employees is 0.9 percentage points higher for firms with long-term finance. Long-term finance is associated with increases in formal training such that an additional 2.4 per cent of production workers benefit from training. Average wages are also found to be higher but without being statistically significant. The fact that almost all of the positive effects on job quality disappear under the one-year definition of long-term finance underlines the importance of longer loan maturities for moving towards better jobs. Moreover, patient capital is significantly and positively associated with investments in that firms with long-term finance are 5.7 percentage points more likely to invest in fixed assets and 5.6 and 3.7 percentage points more likely to invest in process innovation or product innovation respectively. Firm performance tends to rise as well, reflected by a 0.77 percentage point higher employment growth rate (significant) and by a higher sales growth rate (insignificant).

This paper contributes to at least two strands of literature. First, my work adds to the nascent literature on the role of finance with regard to job quality, since it is the first study to empirically investigate the effect of loan maturity on job quality. While most studies on finance are concerned with the quantity of jobs created (e.g. Ayyagari, Juarros, Martinez Peria, & Singh, 2016), one notable exception is the work by Blanas, Seric, and Viegelahn (2019). They use firm-level data from 19 countries in Sub-Saharan Africa to show that foreign-owned firms tend to offer better-quality jobs. In particular, they find that foreign direct investment is associated with higher shares of permanent jobs, reduced likelihood of unpaid work, more training and higher wages. My analysis employs almost the same outcome variables, but differentiates finance along the maturity dimension instead of its origin. The significance of my study is to provide the first empirical evidence of how long-term finance affects the quality of jobs.

Second, this paper adds further evidence to the literature on the effect of long-term finance on investment by providing the first cross-country evidence from LMICs. Exploiting the financial crisis of 2007/08 as an exogenous shock to credit supply, several scholars found long-term finance to causally increase firms' investments and to decrease investment volatility in the US (Almeida, Campello, Laranjeira, & Weisbenner, 2012; Duchin, Ozbas, & Sensoy, 2010) and Belgium (Vermoesen, Deloof, & Laveren, 2013). Using the same setting, Duval, Hong, and Timmer (2020) confirm these findings in a cross-country analysis based on firm-level data from 15 high-income countries. So far, studies have been limited to high-income contexts, while for LMICs only correlational evidence for individual countries such as Ecuador (Jaramillo & Schiantarelli, 2002) or China (Li, Yue, & Zhao, 2009) exists. This study adds cross-country evidence from LMICs for the effect of patient capital on corporate investments.

Lastly, this paper contributes to the closely related literature on long-term finance and growth through additional cross-country evidence and new insights on the effects on SMEs. Within-country evidence points towards a positive relationship between long-term finance and firms' productivity and growth, which is attenuated or even reversed in the case of high shares of subsidised credit (Jaramillo & Schiantarelli, 2002; Schiantarelli & Sembenelli,

1997; Schiantarelli & Srivastava, 1997). No effect emerges for Chinese firms (Li et al., 2009), which may also be related to the adverse impact of subsidised credit. Cross-country studies find a positive relationship between long-term finance and growth based on country-level data (Tasic & Valev, 2008) and firm-level data (Demirgüç-Kunt & Maksimovic, 1998). In addition, long-term debt is found to reduce growth volatility (Demirgüç-Kunt, Horváth, & Huizinga, 2017). When focusing on SMEs, Léon (2020) finds no evidence that higher levels of long-term finance at the national level increase firm growth. He argues that long-term finance increases lending towards larger transparent firms (intensive margin), at the expense of unserved SMEs (extensive margin). The relevance of my paper is to complement his work by analysing the effect on SMEs *with* long-term finance (and in the main analysis, on firms with long-term finance in general). Léon (2020) used the share of long-term finance in the national private credit portfolio as a measure for availability of long-term loans in a particular country. My paper, however, identifies SMEs (or firms in general) that actually have a long-term loan and analyses whether they perform differently from SMEs (or firms) that rely on short-term finance alone. This complements the findings of Léon (2020) on potential trade-offs at the extensive margin with insights on the effects at the intensive margin in order to more fully understand the effects of patient capital on SME development and growth

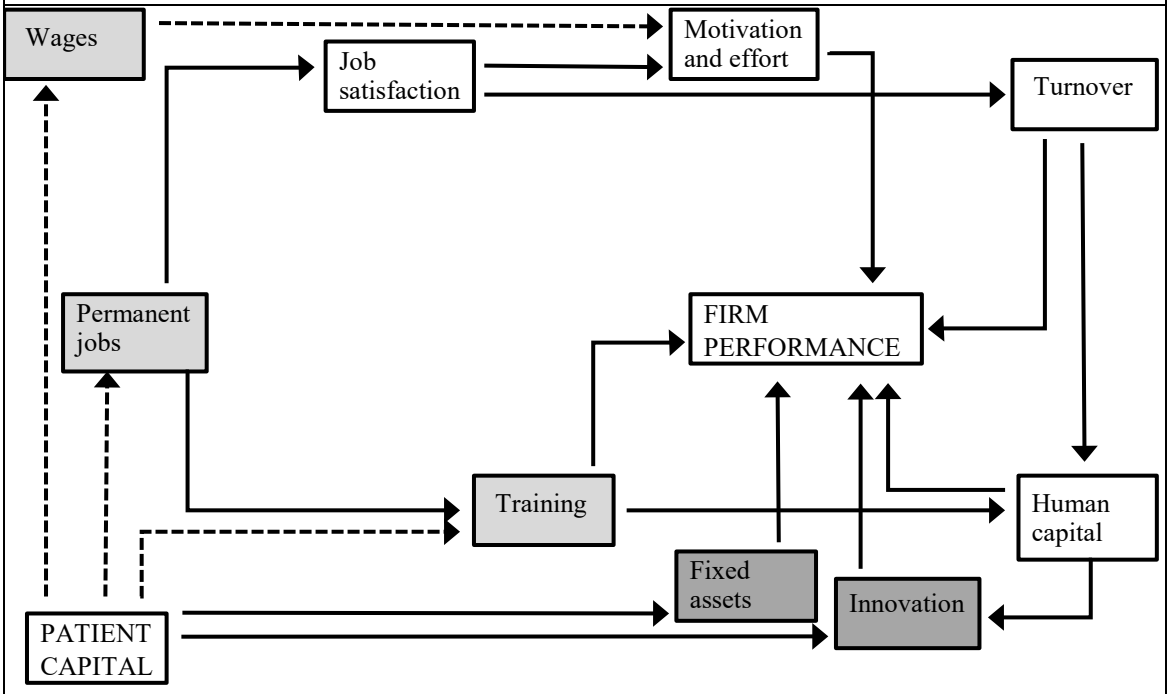
The rest of the paper is structured as follows. First, the conceptual framework introduces how long-term finance affects the performance of firms and job quality from a theoretical perspective. The following section describes the dataset, elaborating first on the definition and quality of the key explanatory variable, patient capital, and then on the outcome variables and controls. The method section outlines the estimation strategy, before the following section presents the baseline results and subsequent robustness checks. The last section concludes.

2 Conceptual framework

The effect of long-term finance on the performance of firms is ambiguous from a theoretical perspective. On the one hand, long-term debt is assumed to foster long-term investments, with high returns in the more distant future and positive effects on firms' long-term prospects. On the other hand, it is argued that long-term loans also trigger suboptimal actions, whereas short-term finance creates strong pressure for efficiency, profitability and (short-term) performance. The latter view describes short-term finance as a tool for lenders to discipline borrowers and minimise agency problems. The threat of liquidation curbs suboptimal investments and activities (Rajan, 1992) and credit rollovers inflict frequent renegotiations, pressuring borrowers towards efficiency and towards actions in the interest of the lenders (Calomiris & Kahn, 1991; Diamond & Rajan, 2001; Jeanne, 2009; Jensen, 1986). This results in short-term profit maximisation and positive (short-term) performance.[1]

[1] This may compromise the long-term performance and growth prospects of firms, as such short-termism may undermine more risky, long-term investments such as technology adoption, innovation and productivity growth. It may also undermine investment in a skilled labour force, with further negative effects on long-term performance of firms, as elaborated in the second half of this section.

Figure 1: Theory of change for patient capital



Note: Job quality variables are shaded in light grey, indicators for investments in dark grey. Solid arrows indicate causal relations, dashed arrows correlation.

Source: Author

The view that long-term finance benefits the performance of firms stresses the importance of maturity matching and rollover risk in decisions on productivity-enhancing, longer-term investments. As depicted in the lower half of Figure 1, patient capital facilitates investments in fixed assets and innovation. Long-term finance is preferred for investments with returns in the more distant future, such as R&D, technology adoption, fixed assets, equipment, human capital and similar investments, which are central to firms' productivity and growth prospects. Short-term finance, in contrast, is primarily used for working capital, such as payroll, inventory, and seasonal imbalances. This is known in the literature as maturity matching of assets and liabilities (Hart & Moore, 1995) and is observed for firms in both high-income countries (Rajan & Zingales, 1995) and low- and middle-income countries (LMICs) (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). Reliance on short-term debt for longer-term projects exposes firms to rollover risk – having to refinance in bad times when creditors may refuse to roll over credits or refinancing terms are detrimental to the borrower (Diamond, 1991; Diamond, 1993) and may lead to excessive liquidation of projects by the lender (Diamond, 1991). Rollover risk discourages profitable long-term investments with potentially adverse effects on firms' growth potential.[2] Firms forgo investments in more productive projects and technologies for the sake of investments with more immediate payoffs (Almeida et al., 2012; Caprio & Demirguc-Kunt, 1998; Milbradt

[2] Note that some economists argue that firms with good growth potentials should prefer to borrow short-term despite the rollover risk: first, because otherwise they benefit less from their investment since they have to share returns with their long-term lenders for a longer time (Myers, 1977); second, because in the context of asymmetric information the positive news allows for better financing terms when rolling over credits (Douglas W. Diamond, 1991). Yet this especially applies to high performers, while average firms are more likely to match maturities in the face of rollover risk – as described in the text.

& Oehmke, 2015). This is formalised by the theoretical model of Milbradt and Oehmke (2015), which builds on the assumptions that financing terms and investment decisions are interlinked and that financing frictions increase with maturity. They show that, in equilibrium, investments are inefficiently short-term and that economic growth is lowered and shocks are amplified.

Long-term loans also have the potential to improve job quality, which may subsequently improve firms' long-term prospects. While investments in highly profitable long-term projects generally include investments in physical capital such as fixed assets and equipment, it often comprises complementing investments in labour as well. New equipment, technology adoption and R&D, for instance, require staff training and accumulation of human capital. Hence, patient capital affects training, as depicted in Figure 1. More generally, as a positive side effect of investment in labour, the quality of jobs can be expected to rise, reflected, for instance, in skill development through training, higher wages and more stable employment relations. Investments in training and human capital, as necessary complements to capital investments, incentivise firms to reduce staff turnover in order to fully reap the returns on investment and to reduce skill drain. As shown in Figure 1, this should increase the share of permanent jobs within a firm and potentially even raises wages as a means of increasing the opportunity costs of switching jobs (which further increases employment stability). Existing theoretical arguments mostly underline the importance of stable employment relations for the performance of firms. Temporary employment generally raises job instability and uncertainty inside the firm, with negative effects on investment in training, internal cooperation and workers' motivations, which, in turn, harms long-term performance and growth (Blanchard & Landier, 2002). Findings from meta-analyses detail the pathways by which temporary contracts erode the performance of firms, as illustrated in Figure 1. Temporary workers exhibit significantly lower job satisfaction (Wilkin, 2013), which negatively influences performance (Judge, Thoresen, Bono, & Patton, 2001) and turnover (Tett & Meyer, 1993). Turnover directly depresses performance (Hancock, Allen, Bosco, McDaniel, & Pierce, 2013; Park & Shaw, 2013) and additionally triggers degradation of firm-specific skills as well as underinvestment in training so that decreasing human capital further aggravates the negative effect on the performance of firms (Crook, Todd, Combs, Woehr, & Ketchen Jr, 2011).

Based on the discussed theory, I expect long-term finance to improve job quality, as firms can pursue longer-term strategies with complementary investments in a stable and skilled workforce. Investments with a longer-term horizon, such as purchase of fixed assets or innovation activities, should also rise with the availability of longer-term finance. The effect on the performance of firms is ambiguous from a theoretical perspective but, given the expectations on investments in labour, physical capital and innovation, the performance of firms should increase as well.

3 Data

The data stem from World Bank's Enterprise Surveys (ES), with additional control variables from other World Bank databases, namely the World Development Indicators (WDI), Worldwide Governance Indicators (WGI) and the Financial Development and Structure Database based on Beck, Demirgüç-Kunt, and Levine (2000), Beck, Demirgüç-Kunt, and Levine (2010) and Čihák, Demirgüç-Kunt, Feyen, and Levine (2012). The strength of the ES are that they comprise nationally representative firm-level data from numerous countries with good coverage of LMICs and all sizes of firm. Only a few firms are sampled more than once, such that the data can be rather described as repeated cross-sections than unbalanced, firm-level panel data. Firms included in the ES need to be formally registered and generally number five or more employees. Most of the firms are from the manufacturing and services sectors, while agricultural and financial sectors have been completely excluded. A standardised questionnaire allows for cross-country comparisons. In this study, the dataset based on the old standardised questionnaire for the period 2002–2005 has been combined with the dataset based on the new standardised questionnaire used from 2006 onwards. It was verified that questions and variables are compatible across the old and the new questionnaire. This was cross-validated via ES panel datasets bridging the two periods of the old and new questionnaires, and by checking that variables are actually the same, correspond in their respective values and can thus be fused.[3] The only exception, where corresponding variables could not be found, is the share of production/nonproduction workers receiving training, since the old standardised questionnaire employed different subcategories (share of skilled/unskilled workers). Otherwise, the data-cleaning process underlined the data quality both with regard to internal consistency and missing values.

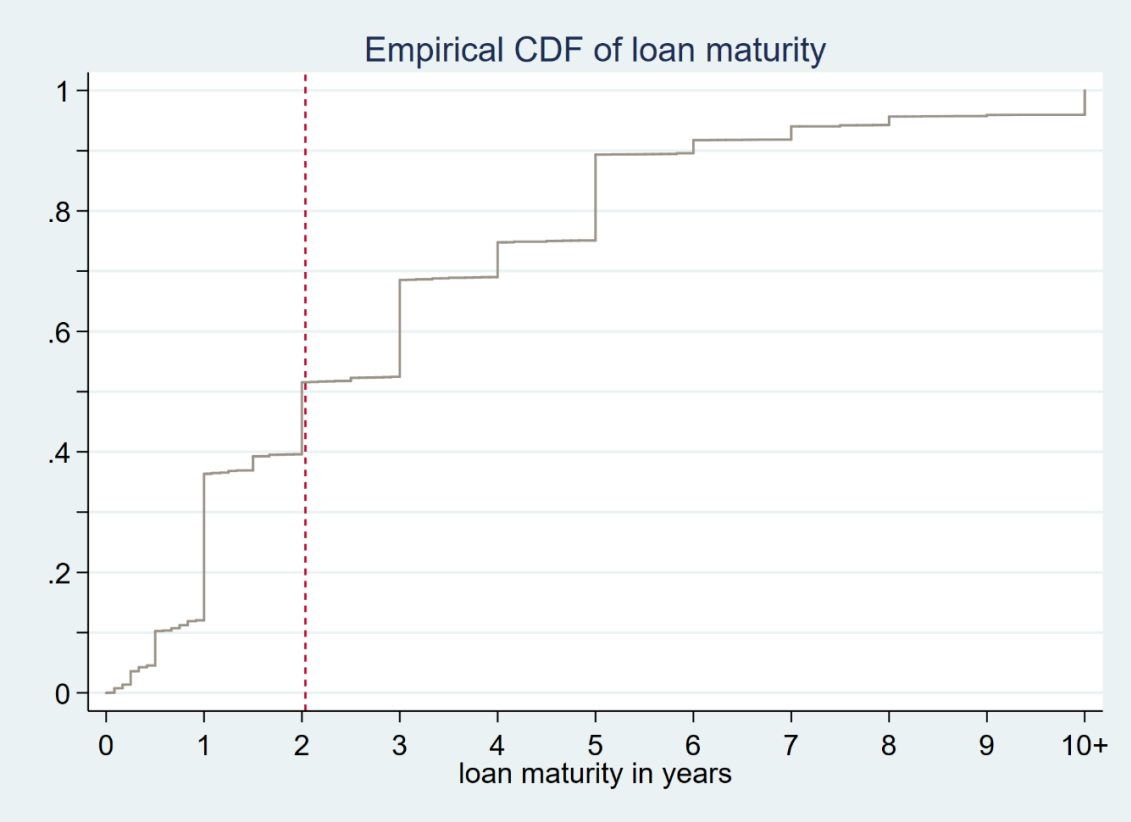
The key explanatory variable, patient capital, is based on the loan-maturity variable from the ES dataset. In the main analysis, all loans with a duration of more than two years are coded as patient capital. The robustness check also reports results when defining long-term as having a maturity of more than one year. The chosen two-year definition deviates from the more commonly used categorisation in balance sheets, reports and datasets based on the one-year threshold (e.g. Gutierrez et al., 2018; Leon, 2018)[4] since it is better suited to address my research question. Firms with long-term finance are more likely to be empowered to pursue long-term growth strategies such as productivity-enhancing investments in capital (machinery, technology, etc.) and labour (training, human capital, etc.). Those investments generally require a planning horizon beyond two years and in most cases this implies the need for respective planning security in the form of financing with similar timelines. Loans with shorter maturities, in contrast, are likely to create pressures

[3] For Albania, for instance, the panel data encompasses the years 2002, 2005, 2007, 2009 and 2013, and thus bridges the periods of the old and the new standardised questionnaire. Using the unique identifier for every observation (idstd), one can identify corresponding observations from the panel data and the old standardised or new standardised dataset respectively. This allows for a cross-validation of values and certification that variables from the old and the new standardised questionnaire measure the same thing and were fused correctly. Please note again, as indicated above, that the data hardly qualify as panel data: for Albania, only 188 out of the more than 1,000 firms have two or more observations.

[4] Note that sometimes there is further differentiation between short-term finance (up to one year), medium-term finance (1–5 years maturity) and long-term finance (more than 5 years). Interestingly, even when such categorisation is offered, the default for reversion to two categories is to lump together the two longer-term categories (i.e. the typical differentiation between up to one year maturity as short-term and one year plus as long-term).

for short-term profit maximisation, which may not allow firms to pursue such long-term growth strategies, with subsequent effects on job quality and the performance of firms. As a proxy for long-term finance, I use maturity of more than two years. About 49.8 per cent of firms in my sample have such a long-term loan, implying that slightly more than half of the firms rely on short-term finance. The distribution of loan maturities is illustrated by the empirical cumulative distribution function in Figure 2.

Figure 2: Empirical cumulative distribution function of loan maturity

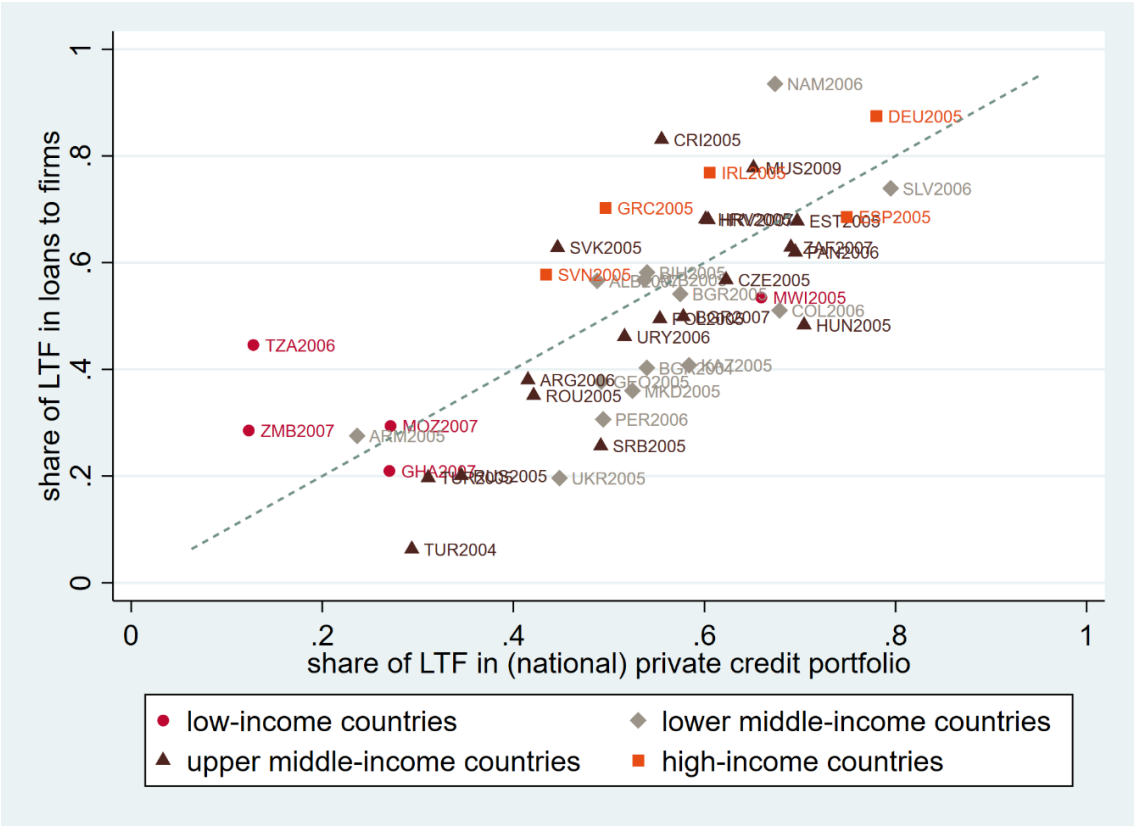


Source: Author based on data from Enterprise Surveys

Unfortunately, data on loan maturity are only available from 2002 to 2009, excluding 2008. Even though the variable was discontinued from 2010 onwards, its quality is very promising. First of all, the number of missing values is relatively small and amounts to less than 6.7 per cent over the 96 country-year couples included in this study (of course, these 6.7 per cent of observations with missing values for the key explanatory could not be included in the analysis). For comparison, another numerical variable that describes a loan characteristic and was continued in the ES, namely the value of required collateral, exhibits 8.3 per cent of missing values over the same sample. Moreover, the ES loan maturity variable is not taken at its face value, but merely used to create the patient capital dummy, which is one for firms with a loan of a duration of over two years. This dummy aligns very well with country-level data on maturities of the private credit portfolio. In Figure 3, ES data are aggregated to the country-year level as share of firms with long-term loans, and is plotted against the share of long-term finance in the private credit portfolio of the

corresponding country-year couple using the maturity data from Gutierrez et al. (2018).[5] Even though their dataset is the most comprehensive on national loan maturity structures, it covers only 43 of the 96 country-year couples from my sample. For these observations, the correlation amounts to r=0.77 and most data points fall into a relatively narrow band around the dotted diagonal. Even with perfect data quality, we would not expect the points to fall unto the diagonal. After all, the share of long-term finance in corporate lending would only perfectly mirror the respective share in the wider national credit portfolio if long-term finance was distributed equally between household and corporate lending. However, the fact that the shares of long-term finance for firms do not deviate too much from the share of long-term finance in the national private credit portfolio raises confidence in the loan duration variable of the ES and the patient capital variable derived from it. Figure 3 further illustrates the share of long-term finance for several country-year couples in my sample and reveals the tendency that availability of long-term finance increases with the national income level.

Figure 3: Share of long-term finance in corporate lending and private credit



Source: Author based on data from Enterprise Surveys

[5] Gutierrez et al. (2018) define long-term finance as having a maturity of more than one year. Although this differs from the definition of long-term finance that I applied to the ES data, the figures align very well, as depicted in Figure 3. It is noteworthy that the fit is worse when applying the definition of long-term finance as loans with more than one-year duration to the ES data (correlation coefficient r=0.66). The respective graph is provided as Figure A1 in the appendix. This provides further support for defining only loans with a duration of more than two years as long-term finance or patient capital.

The outcome variables also stem from the ES dataset and can be organised into the broader categories of job quality, investments and the performance of firms. It is challenging to adequately measure decent work and working condition, but this paper follows Blanas et al. (2019) and approximates job quality by indicators for the share of permanent employees, training and average wage. A higher share of permanent jobs take away the insecurity and pressures associated with temporary employment. Training contributes to skill development and reveals the firms' willingness to foster their employees. It is measured by a dummy indicating whether the firm offered formal training in the last fiscal year as well as by one variable for the share of production workers and one for the share of nonproduction workers that received such training. Lastly, better pay is associated with better jobs. The average wage is computed from the total labour costs divided by the number of employees. In order to make it comparable across countries, it is set in relation to the national GDP per capita.[6]

Investments are more immediate outcomes from accessing external finance and include, first, investment in machinery, vehicles, equipment, land or buildings, which are captured by a dummy for whether the firm purchased fixed assets. Second, they include investments in innovation measured by a dummy for whether new and/or significantly improved products were introduced over the last three fiscal years and a dummy for the respective equivalent for production processes. Less immediate outcomes are the performance of firms as reflected in employment and sales growth. The growth rates are derived as annual averages from employment and sales figures in the last fiscal year and three fiscal years ago following Léon (2020). Sales were deflated with the GDP deflator from the World Development Indicators (WDI), and both growth rates were computed in a manner to avoid the regression-to-the-mean effect described by Haltiwanger, Jarmin, and Miranda (2013).[7] Summary statistics are presented in Table 1 and indicate that the average share of permanent employees amounted to 88 per cent. The majority of firms (55%) offered training, of which roughly 22 per cent of production and nonproduction workers benefited. Average wage was slightly higher than GDP per capita but exhibits a lot of variance. About 70.5 per cent of firms purchased fixed assets and roughly half of the firms innovated and employment grew faster (5%) than sales (1.9%).

Firm-level characteristics are also from the ES database and correspond to the controls commonly used in the literature on firms' access to finance (e.g. Beck, Demirgüç-Kunt, & Maksimovic, 2008; Love & Martínez Pería, 2014). They encompass the size and age of firms, along with dummy variables for the manufacturing sector, exporters, foreign- and government-owned firms and firms with audited financial statements. As depicted in Table 1, the median firm has 38 employees and 14 years of age. Slightly fewer than half of the firms have patient capital, roughly two thirds belong to the manufacturing sector and fewer than a third export at least 10 per cent of their output. The majority of firms have audited financial statements and only 9 per cent are foreign-owned and 3 per cent government-owned. Firm characteristics disaggregated by treatment and control group are presented in Table 2. The choice of country-level controls is informed by the same literature and comprises inflation and GDP per capita. For the first step in the estimation (propensity score

[6] For the number of employees, temporary employees were converted into permanent, full-time equivalents. Furthermore, current GDP per capita in local currency was used from WDI since total labour costs from the ES database are also denominated in current local currency units.

[7] The regression-to-the-mean effect is avoided by dividing not by the initial value (sales/employees three fiscal years ago), but by the average of the initial value and last value (sales/employees in last fiscal year).

model of having patient capital, see method section), additional variables are included: private credit relative to GDP, measures for competition in the banking sector (bank concentration, bank overhead costs, net interest margin) and for quality of contract enforcement, property rights and the courts (rule of law) as well as GDP growth. Details on the definition and sources for all the variables are provided in Table A1 in the Appendix.

Table 1: Summary statistics

Variable	N	mean	sd	min	p50	max
Outcome variables						
Share of permanent employees	17,057	0.881	0.210	0	1	1
Training	14,554	0.548	0.498	0	1	1
Share of production workers trained	12,733	22.338	35.811	0	0	100
Share of nonproduction workers trained	12,730	21.983	35.678	0	0	100
Average wage	9,628	1.093	0.826	0.047	0.889	3.929
Fixed asset investments	13,438	0.706	0.456	0	1	1
Product innovation	13,691	0.504	0.500	0	1	1
Process innovation	13,192	0.490	0.500	0	0	1
Performance growth	14,797	4.997	12.242	-32.099	2.899	47.619
Sales growth	11,328	1.884	16.887	-55.552	0.473	61.364
Firm characteristics						
Patient capital	17,057	0.498	0.500	0	0	1
Firm size (employees)	17,057	188.459	1059.911	1	38	67,600
Age	17,057	20.314	18.183	1	14	201
Manufacturing	17,057	0.673	0.469	0	1	1
Exporter	17,057	0.289	0.453	0	0	1
Foreign-owned	17,057	0.092	0.289	0	0	1
Government-owned	17,057	0.039	0.193	0	0	1
Audited financial statement	17,057	0.561	0.496	0	1	1
Country-level variables						
GDP per capita	17,057	8,452.11	9,847.14	225.62	5,693.27	52,276.2
Inflation	17,057	7.734	5.634	-7.594	6.498	24.193
Private credit per GDP	17,057	44.314	32.816	4.179	32.633	143.365
Bank concentration	17,057	64.607	14.459	24.740	64.942	100.000
Bank overhead costs	17,057	4.251	3.176	0.883	3.789	25.081
Net interest margin	17,057	5.183	2.324	0.911	4.526	13.782
Rule of law	17,057	2.431	0.764	1.272	2.175	4.164
GDP growth	17,057	5.616	2.773	-3.979	5.445	18.333

Source: Author based on data from Enterprise Surveys

Some observations had to be removed prior to the analysis: first, country-year couples for which the World Bank databases do not provide data (missing values for country-level controls); second, observations from the ES database with missing values for outcome variables or firm characteristics (firm-level controls); third, the most extreme values for employment and sales growth as well as for average wage. The last step excluded the 1 per cent at the lower and upper end of employment and sales growth rates, as routinely done in literature. For average wage, the 10 per cent at the lower and upper end were dropped, since

the variable exhibited considerably more suspiciously low/high values that could not be rationalised by other characteristics observed. Lastly, countries with too few remaining observations (fewer than 20) and countries with only controls (or only treated) were removed before the estimation.[8] The final sample comprises 17,057 firms from 73 countries for the period of 2002 to 2009. [9] (For details of how observations are distributed across country-year couples, see Table A2 in the Appendix.) The sample is slightly tilted towards lower-middle-income countries (44% of observations) and upper-middle-income countries (33%), with fewer observations for low-income (13%) and high-income countries (10%).

4 Method

In order to identify causal effects of patient capital on job quality, investments in fixed assets and innovation as well as on the performance of firms, one needs to control for confounding characteristics of the firm and the country-specific political and economic context. Accurate estimation would ideally build on random assignment of patient capital to firms in order to ensure balanced characteristics between treated firms (d_i=1, i.e. with patient capital) and untreated firms (d_i=0, i.e. with short-term finance). In my context of observational data from ES, selection bias may occur, as observable and unobservable characteristics affect both the likelihood of receiving treatment and the outcome variables. The chosen inverse probability weighted regression adjustment (IPWRA) model identifies treatment effects in observational data by reweighting based on the propensity scores (Imbens & Wooldridge, 2009). More weight is given to observations that were unlikely to receive treatment (or respectively likely to receive treatment), but ended up in the treatment group (or respectively in the control group). As a consequence, balancing between treated and untreated observations and some quasi-random distribution of treatment and control is achieved.

Even though IPWRA only balances according to observable variables, theoretical arguments and descriptive statistics suggest that unobservables may not differ too much across the two groups. Since only observable covariates can be included in the estimation of the propensity scores, unobservables may still introduce endogeneity problems when estimating the effects of long-term finance (e.g. Caprio & Demirguc-Kunt, 1998; Léon, 2020). This means that for unbiased estimation, unobservable variables need to be correlated with the observables such that the balancing properties extend to the unobservables as well (or need to be balanced already). By definition, the conditions of unobservable variables cannot be tested. However, there are theoretical and descriptive arguments indicating that treatment and control may not differ too much with regard to unobservables. One commonly discussed unobserved confounder in the context of (long-term) finance and the performance of firms is the quality of firms' management (World Bank, 2015). The theoretical literature suggests that the quality of the firm – which includes the unobservable quality of the management –

[8] Results are very similar when countries with too few observations are not removed. Note that for some outcome variables, the estimation strategy requires dropping at least some of these cases (e.g. due to too low propensity scores). This also motivated the exclusion of countries with too few observations.

[9] Note that the sample size varies in accordance with the data availability of the outcome variable of interest. The biggest sample in the baseline analysis is realised for the share of permanent employees with 17,057 firms from 73 countries, the smallest sample of 9,228 firms for the share of nonproduction workers that received formal training. The smallest country coverage with 53 countries materialises for average wage. The number of included firms and countries are presented in the respective output tables.

does not necessarily allow for conclusions on the respective loan maturities. Of course, firms need to surpass a certain quality threshold to access external finance and the threshold is probably higher for long-term loans. Yet the pool of applicants for short- and long-term finance might not be too different, according to economic theory. The decision whether to borrow short- or long-term depends on the firms' needs arising from maturity matching and rollover risk (e.g. Graham & Harvey, 2001). The quality of the management could be related to the demand for long-term finance, since better managers may see and create more long-term investment opportunities and would thus – if they should opt to match maturities – demand more long-term finance. However, it is further argued that firms with good growth potential – which is probably associated with good-quality management – are best-suited to short-term borrowing. The reason for this is that high-growth firms will benefit less from their investment if they have to share returns with their lenders for a longer time (Myers, 1977); firms with good growth potential will also benefit from short-term loans in the context of asymmetric information even for long-term investments, as positive news on their growth will lead to better financing terms when rolling over credits Diamond, 1991). Taken together, the theoretical arguments support the notion that firms applying for patient finance are not necessarily of much better (observed and unobserved) quality than firms applying for short-term finance. Hence, even though financial institutions probably cherry-pick good-quality firms for long-term loans, there are also high-quality firms among the applicants for short-term finance that will subsequently receive loans with short maturities.

This notion is underscored by descriptive statistics in Table 2. Panel A compares firms with short-term finance to firms with patient capital, along with some observable key characteristics such as the age and size of the firms, the experience of managers and the like. The maturity groups are not that different. When comparing the means via t-tests, there is no statistically significant difference for half of the variables, one is marginally significant (age) and three exhibit statistically significant differences on the 1 per cent and 5 per cent levels (government-owned, audited financial statements and experience of manager). When using a measure that is not influenced by the sample size, the standardised mean difference (Austin, 2011), only audited financial statements is found to be significantly different, while all other variables stay below the value of 0.1 commonly used in literature for significant differences. Furthermore, it is noteworthy that the minor difference in experience of manager is in favour of firms with short-term finance. In short, firms with short- and long-term difference are not too different with regard to observables. In line with the theoretical arguments, however, stark differences emerge when comparing firms with loans to the group of firms without loans, as depicted in Panel B of Table 2: except for foreign-owned, all differences are highly significant in the t-test and substantial. (Also, for the standardised mean difference all except for size and foreign-owned have a value above 0.1.) Assuming that differences exhibit similar patterns for unobservables, the descriptive statistics suggest that the endogeneity problem is much stronger when estimating the effect of finance (i.e. comparing firms with and without loans as, for example, in Ayyagari et al. (2016)) than for estimation of the effect of long-term finance (i.e. comparing firms with long-term finance to those with short-term finance, as done here).

Table 2: Firm characteristics by different external finance situations

	Panel A: firms without/with patient capital (firms without patient capital do have short-term loans)				Panel B: firms without/with loan			
	mean (without)	mean (with)	mean diff (t-test)	Stand. mean diff	mean (without)	mean (with)	mean diff (t-test)	Stand. mean diff
Size (employees)	181.342	195.620	-14.277	0.01	76.774	197.169	-120.395***	0.03
Age	20.050	20.581	-0.531*	0.03	18.152	21.295	-3.143***	0.19
Manufacturing	0.675	0.672	0.004	-0.01	0.551	0.615	-0.063***	0.13
Exporter	0.286	0.291	-0.005	0.01	0.161	0.283	-0.121***	0.30
Foreign-owned	0.093	0.091	0.002	-0.01	0.084	0.085	-0.001	0.00
Government-owned	0.043	0.034	0.009***	-0.05	0.007	0.024	-0.017***	0.14
Audited financial statements	0.523	0.598	-0.075***	0.15	0.441	0.593	-0.152***	0.31
Experience of manager	15.728	14.905	0.823***	-0.07	16.770	18.425	-1.655***	0.14

* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Author based on data from Enterprise Surveys

Based on the outlined theoretical and descriptive considerations, balancing observables via IPWRA should suffice in this context to get good estimates for the effect sizes. First, propensity scores $\hat{p}_{ict} = \Pr(d_{ict} = 1 \mid X_i, Z_{c,t-1}, \gamma_c, \gamma_t)$ for firm *i* in country *c* and year *t* are estimated based on the following propensity score model with probit specification:

$$d_{ict} = \gamma_c + \gamma_t + \beta_1 X_{it} + \beta_2 Z_{c,t-1} + \upsilon_{ict} \quad (1)$$

The dummy variable d_{ict} captures treatment and equals one for firms with a loan of more than two years' maturity. The vector X_{it} comprises firm characteristics and the vector $Z_{c,t-1}$ country characteristics. Country fixed effects (γ_c) and time fixed effects (γ_t) control for unobservable differences between countries and years respectively, which includes (close to) time-invariant effects such as institutional quality, economic shocks and similar confounders on the country- or year-level.

The propensity scores $\hat{p}_{ict}$ are used to compute weights according to $w_i = d_i/p_i + (1 - d_i)/(1 - p_i)$. The formula implies that observations are weighted by their inverse probability. Weights of $1/p_i$ are used for firms with patient capital and $1/(1 - p_i)$ for firms without. The weights are employed in the conditional mean model:

$$y_{ict} = \gamma_c + \gamma_t + \beta_1 U_{it} + \beta_2 V_{c.t-1} + \varepsilon_{ict} \quad (2)$$

The outcome variable y_{ict} is a variable capturing either job quality (share of permanent jobs, training, average wage), investments (fixed assets, product innovation, process innovation) or the performance of firms (employment or sales growth). In case of a binary outcome variable, the probit specification has been used. The vectors of firm characteristics (U_{it}) and country-level controls ($V_{c,t-1}$) differ slightly from the ones in the treatment model (X_{it}, $Z_{c,t-1}$). An overview of the variables included in the propensity score model (1) and the

conditional mean model (2), along with definitions and data sources, is provided in Table A1 in the Appendix (and a brief overview given in the data section). As in the propensity score model, country-level controls are lagged since for most outcome variables (e.g. investments, expansion of output and workforce, etc.) decisions are likely to be taken with some lead time and to be therefore based on developments from the previous period. Analogous to the propensity score model, country and time fixed effects (γ_c, γ_t) are inserted. The conditional mean model is estimated separately for the treatment and the control group using the estimated propensity scores $\widehat{w}_i = d_i/\hat{p}_i + (1 - d_i)/(1 - \hat{p}_i)$. The average treatment effect (ATE) is then computed as the average difference between the predicted outcomes of the treatment and the control group.

One compelling feature of the IPWRA estimates is that they are doubly robust, as derived by Wooldridge (2007). This means that misspecification of either the propensity score model or the conditional mean model still results in consistency of the ATE estimates. Consistent estimation further depends on the conditional independence (CI) assumption and the overlap assumption. The CI assumption is also known as unconfoundedness and constitutes that treatment is independent of potential outcomes $y(1)_{ict}$ and $y(0)_{ict}$ after controlling for observables: $(y(1)_{ict}, y(0)_{ict}) \perp d_i \mid X_i, Z_{c,t-1}, \gamma_c, \gamma_t$. Stated less technically, this means that beyond the observed covariates no other (unobserved) characteristics affects both treatment and outcome. Imbens and Wooldridge (2009) emphasise that this strong assumption is quite controversial, even though it underlies every multiple regression approach. In Section 5, it is shown that the CI is met for observables, as covariates are balanced between the treatment and control group after weighting (see Table 3). The second assumption is known as overlap assumption: $0 < \Pr(d_i = 1 \mid X_i = x) < 1$, for all x. It constitutes that every observation must have a positive probability of receiving any of the two treatments d_i=1 and d_i=0. Figure 4 in Section 5 shows that this assumption holds.

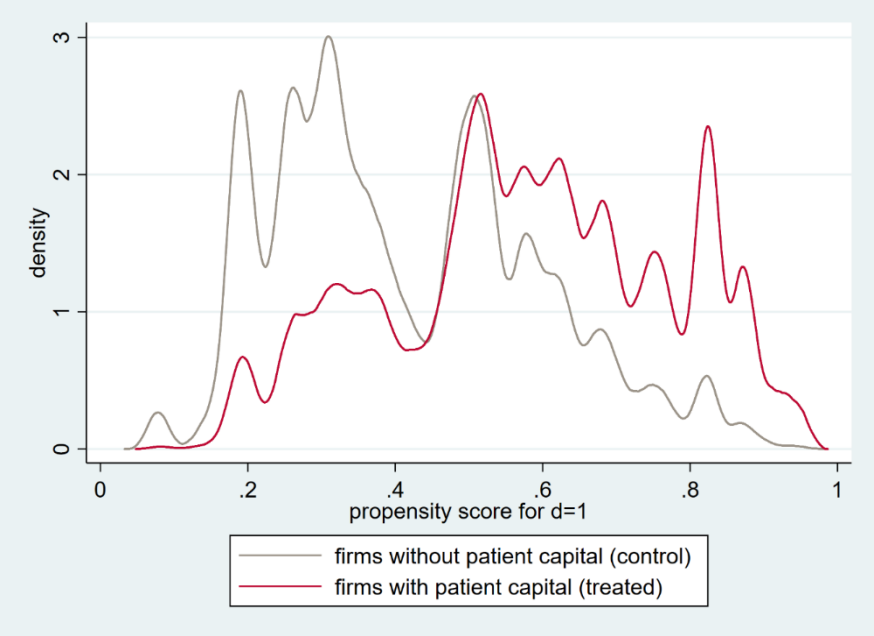
5 Results

As outlined in the previous section, IPWRA addresses non-random treatment allocation by balancing the covariates. Table 3 presents the standardised differences of the means and the variance ratios for all covariates before and after reweighting. It underlines the similarity of control and treatment groups. Almost all standardised differences are moved closer to zero and almost all variance ratios closer to one. Balancing has been achieved, since none of the reweighted covariates deviates more than 0.1 from these targeted values. Since the analysis comprises ten different outcome variables, and propensity scores are estimated based on the sample of the respective outcome variable and therefore differ, only the results for the variable with the largest sample (share of permanent employees) are depicted here as an example. Balancing results are equally good for the other outcome variables, as reported in Tables A3–A11 in the Appendix. This is in support of the conditional independence assumption.

Table 3: Covariate balance before and after propensity score weighting (for share of permanent employment)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0583	-0.0018	1.0156	1.0157
Age	0.0589	0.0002	0.9587	0.9397
Manufacturing	-0.0076	0.0009	1.0056	0.9993
Exporter	0.0109	-0.0076	1.0102	0.9932
Foreign-owned	-0.0066	-0.0087	0.9816	0.9764
Government-owned	-0.0475	0.0021	0.7956	1.0101
Audited financial statement	0.1516	-0.0033	0.9635	1.0009
Log of GDP pc	0.2625	0.0008	1.2302	1.0012
Inflation	-0.3296	-0.0017	0.6855	0.9928
GDP growth	-0.4385	0.0007	0.8356	0.9984
Private credit per GDP	0.2818	0.0010	1.0844	1.0027
Bank concentration	0.0021	-0.0008	0.9821	0.9995
Bank overhead costs	-0.2969	-0.0001	0.6826	0.9977
Net interest margin	-0.3334	-0.0005	0.9366	1.0043
Rule of law	0.3717	0.0003	1.4062	1.0035
Source: Author based on data from Enterprise Surveys				

To show that the overlap assumption has been met, Figure 4 visualises the estimated propensity scores by treatment and control group for the case that firms have patient capital (d_i=1); the figure shows, as an example, the estimated propensity scores for the sample of the outcome variable share of permanent employees. Over the whole range of realised values, we have positive values for both treated and controls, which is in favour of the overlap assumption. The same holds for the other nine outcome variables, as depicted in Figures A2 and A3 in the Appendix. Moreover, the propensity score model seems to be specified reasonably well, as it generally assigns treated firms higher propensity scores for having patient capital, which is reflected by the curve of treated firms being skewed to the right and the curve of the controls being skewed to the left.

Figure 4: Propensity scores by treatment status (for share of permanent employees)



Source: Author based on data from Enterprise Surveys

5.1 Results for job quality

The baseline ATEs for the job-quality variables are reported in Table 4. Long-term finance positively affects all of the indicators, but not all of the effects are statistically significant. Patient capital significantly increases the share of permanent employees (p=0.019, column 1) and the share of production workers receiving training (p=0.009, column 3). The effects are insignificant for the training dummy (p=0.487, column 2), the share of nonproduction workers with training (p=0.314, column 4) and for average wage (p=0.264, column 5).

Table 4: Baseline ATE of patient capital on job quality

		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production worker trained	Share of nonproduction worker trained	Average wage
ATE	0.00899**	0.00639	0.0169***	0.00617	0.0296
	(0.00383)	(0.00920)	(0.00654)	(0.00613)	(0.0265)
Observations	17,057	14,520	10,737	9,228	9,591
Countries	73	71	70	70	53

Standard errors in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Author based on data from Enterprise Surveys

Patient capital is found to reduce the use of temporary jobs and to increase permanent jobs within the firm. In firms with short-term finance, 87.5 per cent of employees enjoy a permanent contract. The ATE states that long-term finance raises the share of permanent employees by 0.9 percentage points. In addition, having loans with a long duration makes firms more likely to offer formal training to their employees. An additional 1.7 per cent of production workers receive training over the average of 28 per cent that are trained in firms with short-term credits. Effects on training are likely to be underestimated since the respective variables in the ES database can be described as flow variables. Instead of measuring the number or share of production workers who were ever trained (i.e. stock variable), for instance, it captures which share was trained in the last fiscal year (flow variable). While it can be expected that patient capital is used to increase the human capital stock of the firm, the investments in training often complement investments in physical capital and thus probably take place in the year that the loan is taken out or the year after. It is less likely that the firms keep investing in physical capital and labour over the whole loan duration period. The underestimation is only an issue for the training indicators as the share of permanent employees and the average wage are actually stock variables. This is underlined by the following consideration. For simplicity we assume that there is a positive effect of patient capital on the average wage and the proportion of workers with unlimited contracts, and that the effect is realised in the period in which the long-term loan is taken out. This means that once the firm gains access to patient capital, the average wage and the share of permanent employees rises. Since the variables can be expected to remain at this alleviated level, it does not matter when we measure the impact of long-term finance: in the year of the loan or several periods after. Note that the variables should stay at the higher level for at least two reasons. First, because of the theoretical arguments discussed in the conceptual framework that patient capital allows firms to invest in a stable and skilled workforce and that firms can only fully benefit from the human capital investments when binding their employees long-term. This implies offering permanent positions and increasing the incentives to stay by paying higher wages. Second, from a more practical perspective, it might be argued that these impacts are only meaningful if they endure over time. To see whether the effects indeed persist over time and do not change, the stock variables are included in the analysis that corrects for the flow-variable problem.

Table 5 presents the ATEs estimates based on the subsample, only including treated firms that received their long-term loan in the reporting year or the year before. Since this procedure addressed the underestimation of flow variables, the effects of patient capital on the training variables (flow variables) increase substantially and exhibit smaller p-values. Patient capital is estimated to significantly raise the share of production workers receiving training by 2.4 percentage points (p=0.003, column 3). The effect size for the training dummy (column 2) doubles compared to the estimate based on the whole sample: The probability that the firm offers formal training is now 1.3 percentage points higher. All the same, it is not significant (p=0.182) and neither is the effect on the share of nonproduction workers receiving training (p=0.258, column 4).

Table 5: ATE of patient capital on job quality (recent long-term borrowers)					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00813*	0.0128	0.0243***	0.00774	0.0271
	(0.00463)	(0.00959)	(0.00816)	(0.00685)	(0.0275)
Observations	13,013	10,937	8,158	6,949	7,468
Countries	72	68	66	65	51
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

As discussed above, the time when the effect is measured should be irrelevant for stock variables as long as the effect of patient capital does not disappear over time. In line with this theoretical argument, the estimates for the two stock variables, share of permanent employees (column 1) and average wage (column 5), are very similar for the whole sample (Table 4) and the subsample that only includes recent long-term borrowers (Table 5). This suggests that long-term finance increases the share of permanent employees and average wages *permanently*. As a consequence, the ATE estimates based on the whole sample are preferred for the stock variables as the subsample estimates are less precise and less significant due to the smaller sample size.

5.2 Results for investments and firm performance

Table 6 presents the baseline IPWRA estimates for the ATEs on investments and firm performance. The effects on investments are positive and mostly significant. Long-term finance significantly increases the probability that firms invest in fixed assets (p=0.070, column 1) and in new production processes (p=0.024, column 2). The effect on investment in product innovation is positive as well, but insignificant (p=0.172, column 3). The effects on firm performance, in contrast, are mixed and highly insignificant. It is positive for employment growth (column 4), but negative for sales growth (column 5).

Table 6: Baseline ATEs of patient capital on investments and firm performance					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0177* (0.00976)	0.0251** (0.0112)	0.0144 (0.0105)	0.0984 (0.252)	-0.236 (0.369)
Observations Countries	13,422 66	13,158 65	13,657 66	14,797 71	11,328 66
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Even for the statistically significant findings, effect sizes are relatively small. The likelihood of investing in fixed assets rises by 1.8 percentage points and for process innovation by 2.5 percentage points. Given that 69.5 per cent of firms with short-term finance (i.e. controls) purchased fixed assets and that 48 per cent of firms innovated their production process, the changes are quite modest. One reason might be that the variables for investments and firm performance in the ES database suffer from the underestimation of flow variables discussed above. The variable for fixed assets, for instance, is a dummy for whether the firm purchased fixed assets in the last fiscal year (flow variable) and does not capture the capital stock of the firm (i.e. stock variable). Analogous to the training variables above, it is argued that patient capital does increase the capital stock of the firm, but investments in fixed assets are likely to be realised in the year that the loan is taken out or the year after, and are less likely to be spread evenly over the whole loan duration period. The same applies to investments in product and process innovation. The argumentation also carries over to employment and sales growth, but is a little more complicated. Recall that growth rates are computed from the figures of the last fiscal year (t-1) and three fiscal years ago (t-3). For simplicity, it is assumed for now that the loan was taken out in the last fiscal year. This means that in the year that the loan was taken out (t-1) and in the first year after (t), employment and sales are compared to figures prior to the patient capital injection and potential investments based on this long-term loan (i.e. t-3 and t-2). We should expect that in this setting there is a boost to sales and probably also to employment. After all, classical economic theory suggests that increasing capital levels make the input factor labour more productive and valuable. However, the situation is different when looking at performance indicators the second year after uptake of the long-term loan (t+1) or even later (t+2 etc.). In this setting, the "three fiscal years ago" refers to t-1 (or respectively t, etc.), the period that the loan was taken out (had been taken out a year ago), which probably means that sales and employment figures had gone up already due to investments and activities financed with the long-term loan. In short, if there is an effect on employment and sales growth due to patient capital, we need to look for it in firms that have taken out the long-term loan recently (i.e. last fiscal year or two fiscal years ago).

In response to the flow-variable issue, Table 7 reports ATEs estimated from a subsample. For treated firms, only borrowers are included that have taken out the long-term loan recently (i.e. in the reporting year or the year before). This increases effect sizes substantially such that all investment variables are significant at the 1 per cent level ($p=0.000$ for fixed assets and process innovation, $p=0.008$ for product innovation). The effect on employment growth now is also significant ($p=0.023$, column 4), while the effect on sales growth is still insignificant ($p=0.183$, column 5) but becomes positive. So, when accounting for the fact that the outcome variables are flow variables, the effect sizes also become economically significant. Patient capital raises the likelihood of investments in fixed assets by 5.7 percentage points (column 1) and by 5.6 and 3.7 percentage points for process innovation (column 2) and product innovation (column 3) respectively. The employment growth rate increases by 0.77 percentage points due to long-term finance. Even though the increase in sales growth amounts to 0.67 percentage points, the effect is insignificant.

Table 7: ATE of patient capital on investments and firm performance (recent long-term borrowers)					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0572***	0.0556***	0.0372***	0.773**	0.665
	(0.0134)	(0.0128)	(0.0141)	(0.340)	(0.499)
Observations	10,441	9,894	10,351	11,179	8,710
Countries	65	60	62	69	63
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

5.3 Robustness checks

Results are robust to changes on different dimensions. This includes alternative specifications of the propensity score model and the conditional mean model, subsample analyses restricted to LMICs or small and medium-sized enterprises (SMEs), or to the period before the financial crisis of 2007/08, and different definitions for long-term finance. The robustness checks are performed for the baselines (i.e. based on the whole sample) even though the preferred estimation for the flow variables only includes treated firms that recently took out their long-term loan. The main reason for this decision is that the majority of checks are associated with reductions in the sample size and, therefore, starting off with the largest (still meaningful) sample seems desirable. It was confirmed that similar results emerge for the subsample of recent long-term borrowers.

First, robustness to the introduction of additional control variables into the regression equations was tested. The propensity score model was augmented by an additional variable of the structure of the banking sector, namely the share of foreign banks from the Financial Development and Structure Database. This might help to predict access to patient capital, as foreign banks may bring more long-term finance into the national private credit portfolio. In addition, all of the variables included in the propensity score model are also plugged into the conditional mean model to more fully account for the national political and economic environment. As reported in Tables A12 and A13 in the Appendix, the results for effect sizes and significance levels carry over. In a second approach, all country-level controls were dropped, and instead of country fixed effects and time fixed effects, survey fixed effects were included (i.e. fixed effects for the country-year couples). This alternative econometric approach is sometimes used in the literature on firms' access to finance as main specification (e.g. Léon, 2020) or alternative specification (e.g. Ayyagari et al., 2016). Results are presented in Tables 14 and A15 in the Appendix. They are also very similar to the baseline with respect to effect sizes and statistical significance.

Furthermore, it was ruled out that baseline effects were mainly driven by either high-income countries or large firms through subsample analyses. High-income countries may affect estimation, since the level of development of financial markets and the availability of longer-term finance may differ from the context of LMICs, which could alter the strength

of the effects or the structural impact of patient capital. Yet very similar effect sizes and significance levels emerge for LMICs (see Tables A16 and A17 in the Appendix). The only difference materialises for employment growth, where the sign changes from positive to negative. Yet this change can be rather attributed to the fact that the effect was small and insignificant before (0.098pp, p=0.696), and now is even smaller in absolute terms and highly insignificant (-0.048pp, p=0.857). In a second robustness check, large firms were dropped, since they enjoy better access to long-term finance, and patient capital may play a different role for them. The results from the main analysis mostly carry over to the subsample of SMEs both with respect to effect sizes and statistical significance, as indicated in Tables A18 and A19 in the Appendix. One negligible difference is the change in sign from positive to negative for the training dummy as it used to be small and insignificant for the whole sample (0.64pp, p=0.487), and is even smaller and highly insignificant in the subsample (-0.09pp, p=0.935). The effect on investments in fixed assets, however, changes considerably. The size of the effect almost doubles from 1.8 percentage points to 3.4 percentage points, with statistical significance increasing accordingly from p=0.070 to p=0.001. Yet, this different effect for SMEs could not be confirmed when looking at the preferred specification for flow variables. When restricting the treated firms to borrowers who only took out their long-term loan recently, the effect for the SME subsample (0.0638, p=0.003) is not much different from that of the whole sample (0.0572, p=0.000). Third and last, I find no differences for the subsample restricted to the period before the financial crisis (Tables A20 and A21 in the Appendix).

Lastly, the changes for alternative definitions of patient capital were explored. When defining long-term finance as loans with a maturity of more than one year, as is often done in balance sheets and subsequently in maturity datasets (e.g. Gutierrez et al., 2018; Leon, 2018), the findings from the main analysis can only partially be replicated (see Table A22 and A23 in the Appendix). For the outcome variables on investment and firm performance, effects sizes and statistical significance show only a few differences: the effect size of sales performance is much smaller and that of investment in fixed assets much larger and also more significant (p=0.015 instead of p=0.070), whereas investment in process innovation loses its significance (p=0.123 instead of p=0.024). The results, however, change considerably when looking at the job quality variables. The effect sizes of the three training indicators are much smaller and all insignificant now. The general attenuation of effects towards zero is particularly pronounced for the share of nonproduction workers trained and for average wage. Both exhibit a negative sign now and high insignificance (p=0.938 and p=0.903 respectively). The share of permanent employees is the only variable for which the effect size is somewhat similar, although even for this variable the significance is much lower for the one-year threshold (p=0.063 instead of p=0.009). Overall, it seems that effects for investments and firm performance are not too different when the definition of patient capital is altered. However, under the more short-term definition, almost all of the positive effects of patient capital on the job quality variables no longer materialise. Findings point in the same direction when moving the definition towards the three-year threshold. Effect sizes are generally estimated less precisely due to the decreasing number of firms with such patient capital (i.e. significance decreases), but effects for job quality indicators tend to be slightly higher, while effect sizes for investment and firm performance tend to be comparable to the baseline results of the two-year threshold (see Tables A24 and A25 in the appendix). The robustness check thus provides suggestive evidence that patient capital is particularly important for moving towards better jobs. This is not too surprising, given that loans with shorter maturities provide the average firm less security within which to lay plans to build up a stable and skilled workforce.

6 Conclusions

From a theoretical perspective, the effect of long-term finance on the performance of firms is ambiguous. Empirical evidence from the micro and macro level favours the notion that patient capital fosters investments, productivity and growth. Using firm-level data from 73 mostly low- and middle-income countries, this study provides further empirical support thereof. More importantly, it also analyses the effects on job quality. After all, many of the long-term investments, such as R&D, technology adoption and fixed assets, require complementary investments in labour, such as human capital accumulation, staff training and the like. Consequently, patient capital allows firms to pursue more long-term growth strategies, which includes investments in a stable and skilled workforce. This may contribute to better jobs, characterised by training and skill development, higher wages and more stable employment relations. Improved quality of jobs is not only a valuable goal in itself, but more broadly available good jobs also contribute to more cohesive societies (Wietzke, 2014; World Bank, 2012).

The findings indicate that patient capital has indeed a positive effect on job quality. It is associated with a significant increase in the share of permanent jobs by 0.9 percentage points. Patient capital is also positively associated with formal training: an additional 2.4 per cent of production workers receive training in firms with long-term finance. The effect on average wages is positive but not significant. That fact that the effects on job quality disappear when defining patient capital as finance with a maturity of more than one year instead of using the preferred two-year threshold underlines the importance of longer-term finance in creating good jobs. Furthermore, significant and positive effects on investments and firm performance materialise. Patient capital is associated with increasing the likelihood of firms investing in fixed assets by 5.7 percentage points and by 5.6 and 3.7 percentage points for investments in process innovation and product innovation respectively. The average annual employment growth rate tends to increase by 0.77 percentage points, while the effect on the other indicator for firm performance, average annual sales growth, is positive but insignificant. Even though presented theoretical and descriptive arguments are favourable, endogeneity problems from unobservable variables cannot be ruled out completely in the estimation of the effect sizes.

The results reveal that long-term finance helps to promote both employment creation and the quality of jobs. Yet additional deliberations and trade-offs need to be considered before adopting a policy agenda committed to promoting long-term finance. First, it has to be noted that it may require additional reforms and time. Markets generally require good legal infrastructure, a stable economic and political environment and functioning banking and stock markets to provide patient capital. Development finance institutions (DFIs) can play an important role in developing markets for long-term finance, but must not repeat the failures of subsidised lending from the last millennium. Second, not all firms need long-term finance, and long-term finance is more likely to go to more transparent, larger firms. This could result in a trade-off, as described by Léon (2020), that more lending with longer maturity goes to larger firms (intensive margin) at the expense of reaching more firms, in particular smaller and younger firms, with short-term finance (extensive margin). More research is needed to better understand the role of long-term finance. This refers both to exploring its relationship to job quality more thoroughly by using panel data or other means to control for unobservable firm characteristics, and the need to shed more light on the question of how to integrate reforms for long-term finance into the broader context of financial system development.

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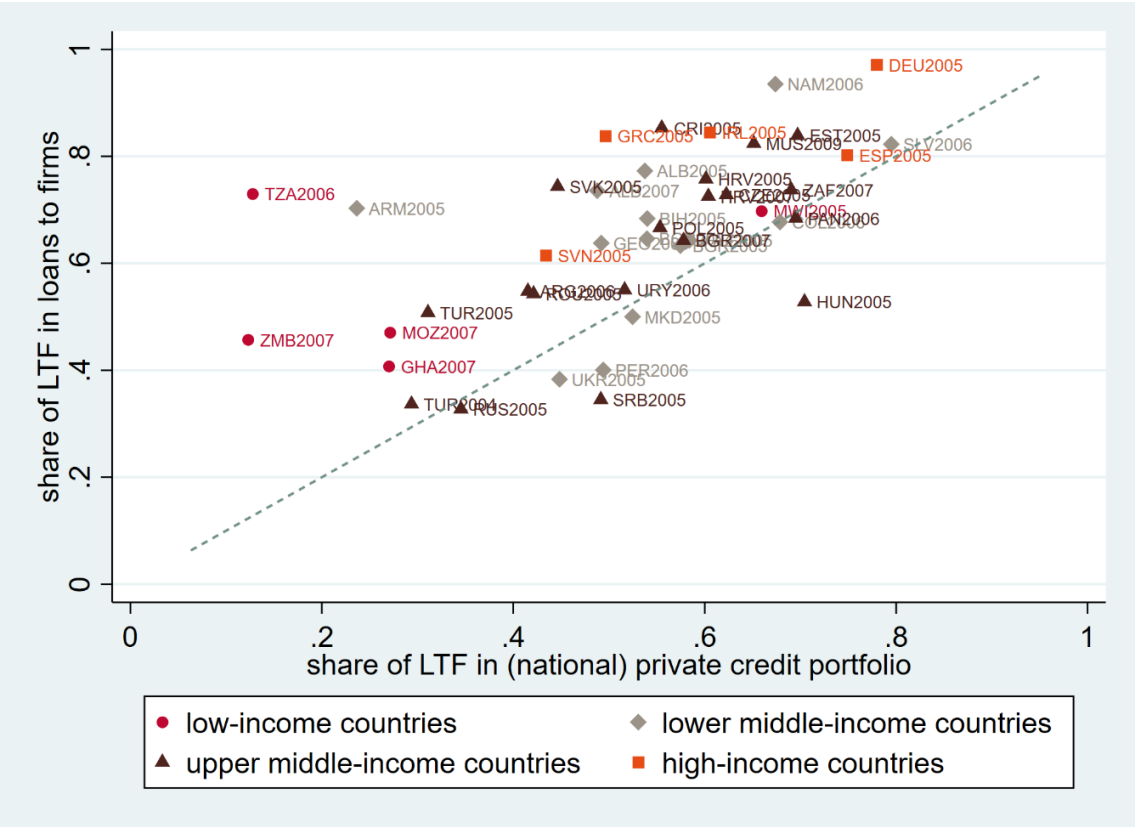
Appendix

Comparing share of long-term finance in ES data and national maturity data

Figure A1: Share of long-term finance (LTF) in corporate lending (>1 year maturity) and in private credit



Source: Author

Overview of included variables

Table A1: Description of variables and data sources	
Variable	**Description and data source**
Patient capital	Dummy variable equal to one if firm has a loan with more than two years of maturity; from World Bank Enterprise Surveys (ES)
Outcome variables	
Share of permanent employees	Number of permanent, full-time employees relative to firm size (employees); from ES
Training	Dummy variable equal to one if employees received formal training; from ES
Share of production workers trained	Share of production workers that received formal training; from ES
Share of nonproduction workers trained	Share of nonproduction workers that received formal training; from ES
Average wage	Average wage, i.e. total labour costs divided by firm size (employees); from ES
Investment in fixed assets	Dummy variable equal to one if firm has purchased fixed assets in the last fiscal year; from ES
Product innovation	Dummy variable equal to one if firm has introduced a new product over the last three years; from ES
Process innovation	Dummy variable equal to one if firm has introduced a new or significantly improved process over the last three years; from ES
Employment growth	Average annual growth rate of permanent and full-time employees over the last three fiscal years; from ES
Sales growth	Average annual growth rate of total sales over the last three fiscal years (deflated by the GDP deflator); from ES
Firm characteristics	
Firm size (employees)	Number of full-time employees (temporary, full-time employees are converted into permanent, full-time equivalents using the average length of temporary, full-time employment); from ES
Firm age	Age of firm (in years); from ES
Manufacturing	Dummy variable equal to one if firm is in the manufacturing sector;[10] from ES
Exporters	Dummy variable equal to one if at least 10% of firm's output are exported (directly or indirectly); from ES
Foreign-owned	Dummy variable equal to one if firm is owned to 50% or more by foreign organisations; from ES
Government-owned	Dummy variable equal to one if firm is owned to 50% or more by the government; from ES
Audited financial statements^{+}	Dummy variable equal to one if firm's financial statements are checked and certified by an external auditor; from ES

Table A1 (cont.): Description of variables and data sources	
Country-level variables	
Inflation	Annual growth rate of the GDP deflator; from Word Bank's World Development Indicators (WDI)
GDP per capita	Gross domestic product per capita (in constant US dollars); from WDI
GDP growth[+]	Annual growth rate of GDP at market prices of constant local currency; from WDI
Private credit per GDP[+]	Domestic credit to the private sector as % of the GDP; from the Financial Development and Structure Dataset (FDSD)
Bank concentration[+]	Share of bank assets held by the three largest banks; from FDSD
Bank overhead costs[+]	Banks' overhead costs as a share of their total assets; from FDSD
Net interest margin[+]	Banks' net interest revenue relative to their interest-bearing assets; from FDSD
[Share of foreign banks]	Number of foreign banks relative to the number of total banks; from FDSD
Rule of law[+]	Captures, amongst other things, the quality of contract enforcement, property rights, the police, and the courts; from World Bank's Worldwide Governance Indicators
[+]	These variables are only included in the treatment model.
[.]	Variables in squared brackets are only included in the robustness check.
Source: Author (source of variable as listed in the right column)	

[10] The manufacturing dummy was constructed from the ISIC codes provided in the ES data. To reduce the amount of missings, additional information was used from a meta-variable (indicating the use of the manufacturing questionnaire).

Overview of observations across country-year couples

Table A2: Distribution of observations by country and year

Country	2002	2003	2004	2005	2006	2007	2009	Total
Albania				88		106		194
Argentina					376			376
Armenia				138				138
Belarus				105				105
Benin			42					42
Bolivia					262			262
Bosnia and Herzegovina				98				98
Botswana					94			94
Brazil		558						558
Bulgaria			144	109		375		628
Burundi					61			61
Chile			497		492			989
China		771						771
Colombia					666			666
Costa Rica				136				136
Croatia				132		404		536
Czech Republic				81				81
Ecuador		229			325			554
Egypt			103					103
El Salvador		260			372			632
Estonia				87				87
Georgia				69				69
Germany				520				520
Ghana						81		81
Greece				111				111
Guatemala		193			201			394
Guyana			43					43
Honduras		224			190			414
Hungary				269				269
Indonesia		98						98
Ireland				264				264
Kazakhstan				238				238
Korea, Rep.				240				240
Kyrgyz Republic		24		74				98
Latvia				96				96
Lithuania			63	85				148
North Macedonia				50				50
Madagascar				47			66	113
Malawi				43				43
Mali		33				30		63
Mauritania					28			28
Mauritius				79			108	187
Mexico					110			110
Moldova		56		137				193
Morocco			336					336
Mozambique						34		34
Namibia					77			77

Table A2 (cont.):	**Distribution of observations by country and year**							
Country	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2009**	**Total**
Nicaragua		196			174			370
Oman		85						85
Panama					171			171
Paraguay					239			239
Peru	44				382			426
Philippines		96						96
Poland		30		297				327
Portugal				103				103
Romania				245				245
Russia				174				174
Rwanda					64			64
Senegal		79				61		140
Serbia		48		113				161
Slovak Republic				78				78
Slovenia				135				135
South Africa						194		194
Spain				334				334
Sri Lanka			155					155
Swaziland					57			57
Tanzania					74			74
Turkey			95	447				542
Uganda		38			86			124
Ukraine				214				214
Uruguay					169			169
Vietnam				813				813
Zambia	69					70		139
Total	113	3,018	1,478	6,249	4,670	1,355	174	17,057
Source: Author based on ES data								

Balancing results for the other nine outcome variables

Table A3: Covariate balance before and after propensity score weighting (for training)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0534	-0.0057	1.0058	1.0091
Age	0.0726	-0.0003	0.9485	0.9473
Manufacturing	-0.0100	-0.0021	1.0124	1.0026
Exporter	0.0194	-0.0126	1.0159	0.9903
Foreign-owned	-0.0063	-0.0166	0.9822	0.9558
Government-owned	-0.0488	0.0026	0.8059	1.0114
Audited fin. statement	0.1582	-0.0040	0.9632	1.0011
Log of GDP pc	0.2758	0.0019	1.2363	1.0015
Inflation	-0.3632	-0.0006	0.6679	0.9929
GDP growth	-0.4696	0.0005	0.8295	0.9990
Private credit per GDP	0.2756	0.0012	1.0730	1.0027
Bank concentration	-0.0083	-0.0003	0.9704	1.0001
Bank overhead costs	-0.2896	0.0000	0.6925	0.9965
Net interest margin	-0.3459	-0.0007	0.9483	1.0042
Rule of law	0.3933	0.0011	1.4020	1.0044
Source: Author based on data from Enterprise Surveys				

Table A4: Covariate balance before and after propensity score weighting (for share of production worker trained)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0934	0.0048	0.9317	0.9705
Age	0.0333	0.0077	0.9107	0.9280
Manufacturing	0.0027	0.0059	0.9965	0.9923
Exporter	-0.0227	-0.0123	0.9804	0.9897
Foreign-owned	-0.0091	-0.0134	0.9727	0.9612
Government-owned	-0.0534	0.0026	0.7536	1.0137
Audited fin. statement	0.1518	-0.0005	0.9937	1.0000
Log of GDP pc	0.2165	0.0025	1.1315	1.0001
Inflation	-0.4548	-0.0032	0.6968	0.9924
GDP growth	-0.4707	0.0000	0.8108	1.0013
Private credit per GDP	0.3901	0.0026	1.4516	1.0052
Bank concentration	-0.0282	-0.0017	0.9428	0.9974
Bank overhead costs	-0.3269	-0.0012	0.6885	0.9939
Net interest margin	-0.3764	-0.0011	0.8806	1.0031
Rule of law	0.3339	0.0007	1.3411	1.0048
Source: Author based on data from Enterprise Surveys				

Table A5: Covariate balance before and after propensity score weighting (for share of nonproduction worker trained)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0801	0.0054	0.9262	0.9541
Age	0.0248	0.0098	0.9124	0.9315
Manufacturing	0.0087	0.0063	0.9882	0.9913
Exporter	-0.0297	-0.0115	0.9730	0.9899
Foreign-owned	-0.0128	-0.0147	0.9605	0.9565
Government-owned	-0.0268	0.0043	0.8391	1.0286
Audited fin. statement	0.1597	0.0004	0.9897	1.0000
Log of GDP pc	0.1720	0.0020	1.1954	1.0008
Inflation	-0.4709	-0.0043	0.6821	0.9905
GDP growth	-0.4564	-0.0014	0.8118	1.0026
Private credit per GDP	0.4228	0.0031	1.4383	1.0045
Bank concentration	0.0137	-0.0011	0.9011	0.9971
Bank overhead costs	-0.3713	-0.0018	0.6999	0.9927
Net interest margin	-0.4124	-0.0018	0.9115	1.0041
Rule of law	0.3234	0.0008	1.3541	1.0048
Source: Author based on data from Enterprise Surveys				

Table A6: Covariate balance before and after propensity score weighting (for average wage)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0048	-0.0006	0.9701	1.0012
Age	0.0112	0.0062	0.9284	0.9127
Manufacturing	0.0253	0.0057	0.9750	0.9944
Exporter	0.0043	-0.0081	1.0040	0.9927
Foreign-owned	0.0183	-0.0055	1.0620	0.9824
Government-owned	-0.0439	-0.0010	0.7721	0.9943
Audited fin. statement	0.1728	0.0003	0.9957	1.0000
Log of GDP pc	0.1255	0.0017	0.8912	0.9960
Inflation	-0.2878	0.0017	0.7981	1.0011
GDP growth	-0.3066	0.0006	0.6647	0.9989
Private credit per GDP	0.2785	0.0007	1.1585	1.0033
Bank concentration	-0.0784	-0.0002	1.0242	1.0017
Bank overhead costs	-0.2489	0.0011	0.7413	0.9995
Net interest margin	-0.2574	-0.0008	0.7577	1.0008
Rule of law	0.1796	0.0018	1.0881	1.0035
Source: Author based on data from Enterprise Surveys				

Table A7: Covariate balance before and after propensity score weighting (for investment in fixed assets)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0181	-0.0005	0.9863	1.0228
Age	0.0443	0.0040	0.9565	0.9326
Manufacturing	0.0753	0.0036	0.9259	0.9964
Exporter	0.0437	-0.0063	1.0404	0.9945
Foreign-owned	0.0166	-0.0076	1.0481	0.9794
Government-owned	-0.0498	-0.0034	0.7845	0.9838
Audited fin. statement	0.1440	-0.0011	0.9670	1.0003
Log of GDP pc	0.1181	0.0006	0.9619	0.9979
Inflation	-0.2083	0.0007	0.7633	1.0025
GDP growth	-0.3737	0.0005	0.7748	0.9952
Private credit per GDP	0.1280	-0.0004	0.8135	1.0006
Bank concentration	-0.0455	-0.0008	1.0101	0.9976
Bank overhead costs	-0.2100	0.0002	0.6328	0.9934
Net interest margin	-0.2257	-0.0001	0.7708	0.9986
Rule of law	0.2439	0.0004	1.1604	1.0013
Source: Author based on data from Enterprise Surveys				

Table A8: Covariate balance before and after propensity score weighting (for investment in process innovation)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0775	-0.0051	1.0283	1.0229
Age	0.0948	-0.0027	0.9573	0.9588
Manufacturing	-0.0460	-0.0020	1.0548	1.0023
Exporter	0.0013	-0.0126	1.0011	0.9897
Foreign-owned	-0.0037	-0.0178	0.9892	0.9521
Government-owned	-0.0457	0.0047	0.8237	1.0201
Audited fin. statement	0.1611	-0.0041	0.9693	1.0009
Log of GDP pc	0.2946	0.0008	1.2929	1.0018
Inflation	-0.3799	-0.0010	0.6952	0.9882
GDP growth	-0.5066	-0.0003	0.8602	1.0026
Private credit per GDP	0.2814	0.0003	1.0535	1.0013
Bank concentration	0.0064	0.0000	1.0058	1.0017
Bank overhead costs	-0.2899	0.0008	0.7127	0.9942
Net interest margin	-0.3223	-0.0005	1.0135	1.0052
Rule of law	0.3985	0.0007	1.4363	1.0033
Source: Author based on data from Enterprise Surveys				

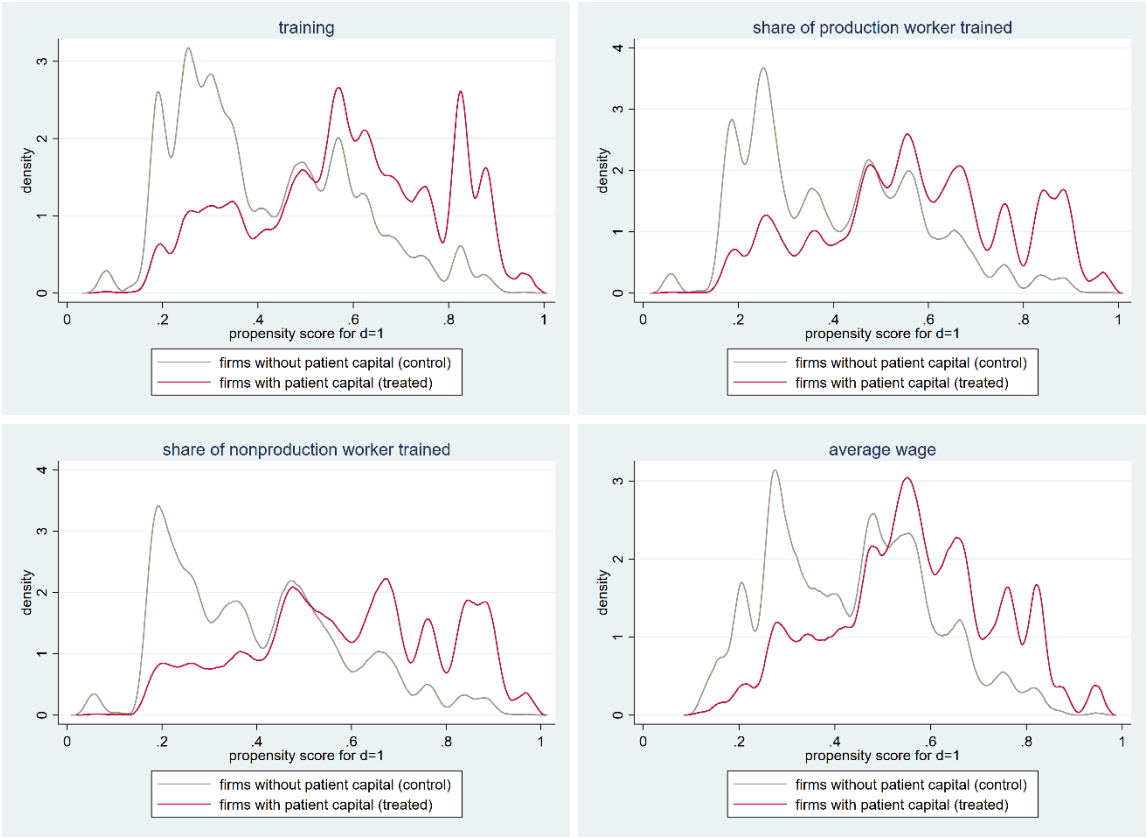
Table A9: Covariate balance before and after propensity score weighting (for investment in product innovation)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0773	-0.0040	1.0306	1.0279
Age	0.0969	-0.0011	0.9644	0.9596
Manufacturing	-0.0433	-0.0016	1.0442	1.0016
Exporter	0.0031	-0.0129	1.0027	0.9891
Foreign-owned	-0.0040	-0.0162	0.9883	0.9553
Government-owned	-0.0430	0.0047	0.8309	1.0204
Audited fin. statement	0.1623	-0.0021	0.9677	1.0005
Log of GDP pc	0.2899	0.0005	1.2884	1.0001
Inflation	-0.3711	0.0005	0.6870	0.9991
GDP growth	-0.4910	-0.0002	0.8516	1.0037
Private credit per GDP	0.2823	-0.0003	1.0592	1.0002
Bank concentration	0.0025	-0.0004	1.0175	0.9987
Bank overhead costs	-0.2871	0.0006	0.7206	0.9955
Net interest margin	-0.3188	0.0004	1.0139	1.0017
Rule of law	0.3877	-0.0001	1.4352	1.0025
Source: Author based on data from Enterprise Surveys				

Table A10: Covariate balance before and after propensity score weighting (for employment growth)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0380	-0.0026	1.0144	1.0018
Age	0.0654	-0.0016	0.9331	0.9481
Manufacturing	0.0052	0.0012	0.9964	0.9991
Exporter	0.0047	-0.0051	1.0042	0.9955
Foreign-owned	-0.0017	-0.0066	0.9952	0.9817
Government-owned	-0.0502	0.0052	0.7500	1.0302
Audited fin. statement	0.1692	-0.0025	0.9669	1.0006
Log of GDP pc	0.2529	0.0015	1.2052	1.0002
Inflation	-0.4062	-0.0022	0.7060	0.9918
GDP growth	-0.4207	0.0008	0.8083	0.9975
Private credit per GDP	0.4203	0.0017	1.4204	1.0035
Bank concentration	0.0043	-0.0007	0.9458	1.0004
Bank overhead costs	-0.3684	-0.0009	0.6935	0.9998
Net interest margin	-0.3831	-0.0008	0.9315	1.0039
Rule of law	0.3653	0.0009	1.3469	1.0026
Source: Author based on data from Enterprise Surveys				

Table A11: Covariate balance before and after propensity score weighting (for sales growth)				
	Standardised differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Firm size (employees)	-0.0189	0.0018	0.9725	1.0334
Age	0.0640	0.0068	0.8934	0.9226
Manufacturing	0.0983	0.0049	0.9116	0.9954
Exporter	0.0755	-0.0056	1.0707	0.9951
Foreign-owned	0.0033	0.0018	1.0093	1.0049
Government-owned	-0.0543	-0.0030	0.7883	0.9872
Audited fin. statement	0.1279	0.0004	0.9657	0.9999
Log of GDP pc	0.1723	0.0008	0.9881	0.9988
Inflation	-0.1730	0.0015	0.7435	1.0073
GDP growth	-0.3770	0.0012	0.7917	0.9973
Private credit per GDP	0.1053	-0.0005	0.8031	1.0013
Bank concentration	-0.0351	-0.0006	1.0169	0.9982
Bank overhead costs	-0.1853	0.0004	0.6403	0.9979
Net interest margin	-0.1993	0.0009	0.7985	0.9989
Rule of law	0.2848	-0.0007	1.1598	1.0004
Source: Author based on data from Enterprise Surveys				

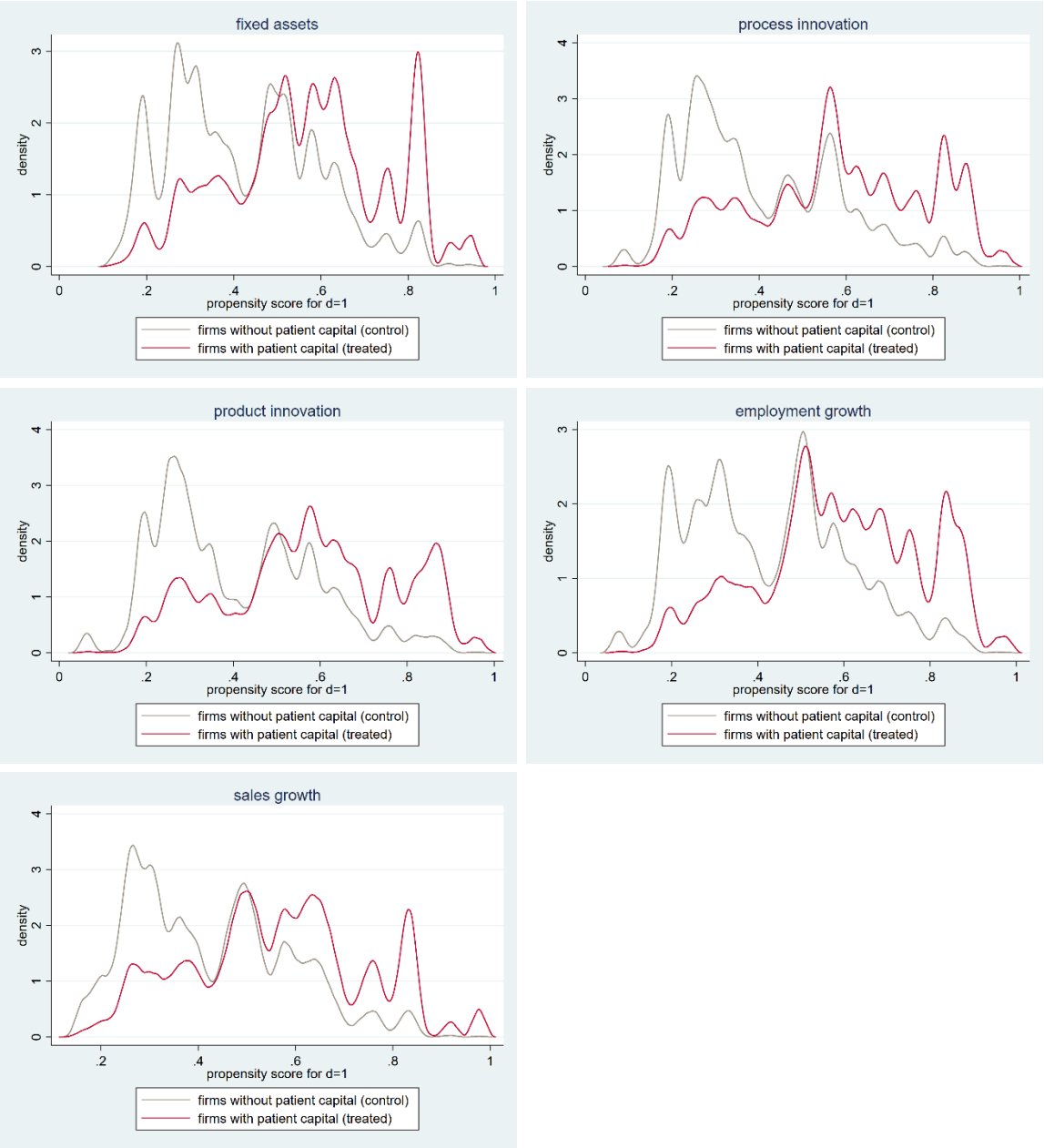
Overlap plots for the other nine outcome variables

Figure A2: Propensity scores by treatment status (for job quality indicators)



Source: Author based on data from Enterprise Surveys

Figure A3: Propensity scores by treatment status (for investment and firm performance indicators)



Source: Author based on data from Enterprise Surveys

Robustness check: ATE for additional controls

Table A12: Baseline ATE of patient capital on job quality (additional controls)					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00860**	0.00716	0.0178***	0.00632	0.0284
	(0.00386)	(0.00936)	(0.00664)	(0.00623)	(0.0269)
Observations	16,769	14,232	10,464	9,018	9,400
Countries	71	69	68	68	52
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A13: ATEs of patient capital on investments and firm performance (additional controls)					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0177*	0.0266**	0.0125	0.0825	-0.262
	(0.00987)	(0.0112)	(0.0105)	(0.251)	(0.371)
Observations	13,223	12,870	13,369	14,529	11,083
Countries	64	63	64	69	64
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Robustness check: ATE for survey fixed effects

Table A14: Baseline ATE of patient capital on job quality (survey fixed effects)					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00911**	0.00601	0.0170***	0.00600	0.0284
	(0.00383)	(0.00922)	(0.00653)	(0.00612)	(0.0264)
Observations	17,057	14,520	10,737	9,228	9,591
Countries	73	71	70	70	53
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A15: ATEs of patient capital on investments and firm performance (survey fixed effects)					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0175*	0.0234**	0.0144	0.105	-0.258
	(0.00976)	(0.0112)	(0.0106)	(0.253)	(0.368)
Observations	13,422	13,158	13,657	14,797	11,328
Countries	66	65	66	71	66
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Robustness check: ATE for LMICs subsample

Table A16: Baseline ATE of patient capital on job quality (LMICs subsample)					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00835**	0.00762	0.0177**	0.00593	0.0270
	(0.00409)	(0.0102)	(0.00698)	(0.00668)	(0.0266)
Observations	15,350	12,909	9,930	8,458	9,468
Countries	66	64	63	63	52
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A17: ATEs of patient capital on investments and firm performance (LMICs subsample)					
	investments			firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0172*	0.0227*	0.0169	-0.0482	-0.269
	(0.00985)	(0.0120)	(0.0114)	(0.268)	(0.371)
Observations	13,300	11,456	11,950	13,111	11,203
Countries	65	58	59	64	65
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Robustness check: ATE for SME subsample

Table A18: Baseline ATE of patient capital on job quality (SME subsample)					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.0113**	-0.000894	0.0135**	0.00139	0.0322
	(0.00484)	(0.0110)	(0.00661)	(0.00600)	(0.0276)
Observations	12,082	10,082	7,931	7,052	6,974
Countries	73	70	66	66	51
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A19: ATEs of patient capital on investments and firm performance (SME subsample)					
	investments			firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0335***	0.0222*	0.0176	0.0672	-0.314
	(0.0105)	(0.0133)	(0.0125)	(0.246)	(0.453)
Observations	9,288	9,114	9,521	10,751	7,672
Countries	64	64	65	71	63
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Robustness check: ATE for subsample before the financial crisis 2007/08

Table A20: Baseline ATE of patient capital on job quality (subsample before financial crisis)					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00926**	0.00644	0.0197***	0.00642	0.0201
	(0.00411)	(0.00949)	(0.00657)	(0.00662)	(0.0291)
Observations	15,528	13,475	9,768	8,266	8,358
Countries	70	68	66	66	48
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A21: ATEs of patient capital on investments and firm performance (subsample before financial crisis)					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0179*	0.0251**	0.0144	0.155	-0.333
	(0.0105)	(0.0112)	(0.0105)	(0.273)	(0.402)
Observations	11,898	13,158	13,657	13,402	10,085
Countries	63	65	66	68	62
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Robustness check: Alternative definition of patient capital (>1 year maturity)

Table A22: ATEs of patient capital (>1 year maturity) on job quality					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00941*	0.00225	0.00842	-0.000452	-0.00339
	(0.00506)	(0.0114)	(0.00755)	(0.00576)	(0.0278)
Observations	17,057	14,478	10,665	9,156	9,591
Countries	73	70	68	68	53
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A23: ATEs of patient capital (>1 year maturity) on investments and firm performance					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0298**	0.0213	0.0110	0.162	-0.0600
	(0.0123)	(0.0140)	(0.0111)	(0.267)	(0.425)
Observations	13,422	13,158	13,615	14,797	11,286
Countries	66	65	65	71	65
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Robustness check: Alternative definition of patient capital (>3 years maturity)

Table A24: ATEs of patient capital (>3 years maturity) on job quality					
		Training			
	(1)	(2)	(3)	(4)	(5)
	Share of permanent employees	Training	Share of production workers trained	Share of nonproduction workers trained	Average wage
ATE	0.00946	0.0163	0.0241***	0.00876	0.0179
	(0.00691)	(0.0104)	(0.00746)	(0.00615)	(0.0240)
Observations	17,057	14,520	10,737	9,228	9,591
Countries	73	71	70	70	53
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

Table A25: ATEs of patient capital (>3 years maturity) on investments and firm performance					
	Investments			Firm performance	
	(1)	(2)	(3)	(4)	(5)
	Fixed assets	Process innovation	Product innovation	Employment growth	Sales growth
ATE	0.0120	0.0230	0.0110	-0.0528	-0.172
	(0.0129)	(0.0167)	(0.0116)	(0.269)	(0.294)
Observations	13,422	13,158	13,657	14,797	11,328
Countries	66	65	66	71	66
Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01					
Source: Author based on data from Enterprise Surveys					

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