4.1. What has the crisis shown about Portuguese top managers?

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1. Motivation

One of the most striking features of the economic developments in Portugal in the last decades has been the slow productivity growth, even in the midst of the recent recovery cycle (see Banco de Portugal, 2017). Many empirical and theoretical studies have tried to explain the astounding differences in productivity between countries, and even within countries, between firms. One remarkable study by Bloom *et al.* (2016) attributes approximately 30% of these productivity differences to different management practices. Theorists have long modelled heterogeneous managerial characteristics that are associated to different levels of firm performance. More recently, the increasing availability of data has confirmed many of these results empirically.

Different management practices can be associated to different managerial styles, which can in turn be mapped into Chief Executive Officer's (CEO) characteristics. Indeed, many authors find a strong link between different observable CEO characteristics, such as educational attainment, experience or tenure and firm performance, in particular firm productivity. Another set of characteristics that may play a role are the unobservable ones, such as risk preferences, flexibility or drive for change. While it is more demanding to analyse the impact of such characteristics given their unobservable nature, their value may also vary under different circumstances. Specifically in times of uncertainty and crisis, some attributes might become more valuable. In this context, this column aims to exploit a unique matched employer-employee dataset and: 1) characterise the top managers in Portugal, drawing a clear portrait of their observable characteristics; 2) take a deeper look into the recent economic crisis and analyse whether newcomer CEOs were able to deliver and whether their intrinsic characteristics became more valuable under such extreme circumstances.

2. Data

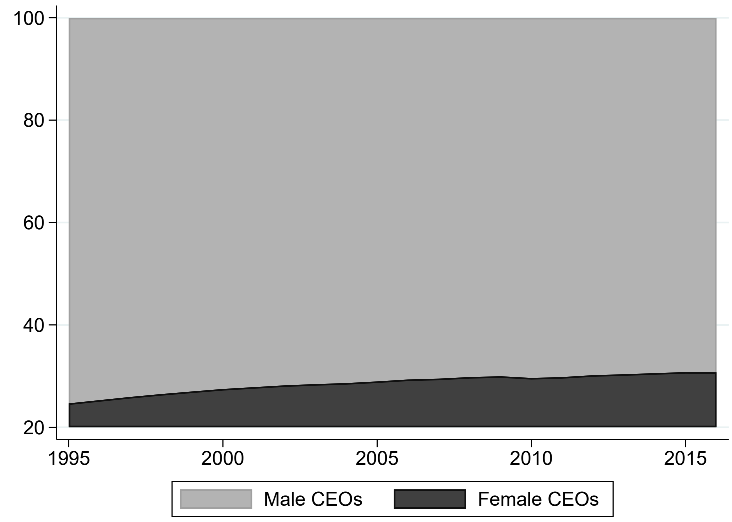
The analysis presented here draws on information from Quadros de Pessoal (QP) and Informação Empresarial Simplificada (IES). QP is a micro longitudinal dataset, collected by the Portuguese authorities, with matched employer-employee data that include all private firms and workers operating in Portugal between 1985 and 2016. The survey is mandatory for all establishments with wage-earners and contains information regarding the firm (including size, sales, capital) and the workers (including gender, age, schooling, hours worked and monthly earnings). Each worker is classified according to the National Classification of Occupations in QP, which allows us to identify those workers classified as chief executive officers. In addition, we draw on yearly data from IES for information regarding the firm's Gross Value Added (GVA). IES is the system through which corporations report mandatory information to the tax administration and the statistical authorities. Data is available from 2005 onwards, covering virtually the universe of Portuguese non-financial corporations.

3. Profile of a CEO in Portugal

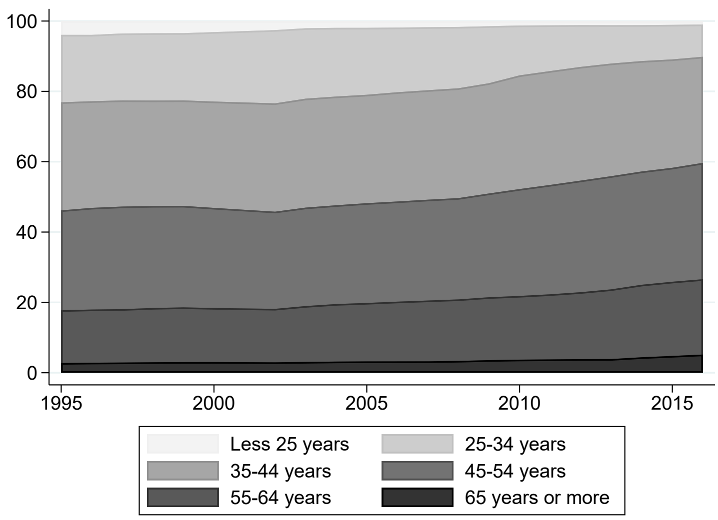
The share of female top managers has been increasing slowly in Portugal during the last decades, remaining at a fairly low level (Figure 32a). In 2016, females represent around 30% of the CEOs in the Portuguese labour market. The incidence of female CEOs is relatively homogeneous across firm sizes, while relatively higher amongst the younger age groups and amongst managers in the services sector.

In terms of age brackets, around 60% of the CEOs are aged between 35 and 54 years. Figure 32b shows that, as expected, the share of younger CEOs has been decreasing over time. It is expectable that this tendency prevails in the coming years, given the ageing prospects of the Portuguese labour force and the increasing levels of education that postpone entry into the labour market, and thus, promotion to top management positions. In terms of distribution across firms, the most notable difference can be observed in large firms, where there are fewer very young and very old CEOs as compared to other firms.

There has been a general increase in the average number of years of schooling in Portugal, which is also visible amongst CEOs, though to a lower extent, given that CEOs are on average older than other employees. Figure 33a compares educational attainment of CEOs with non-CEO employees in 2016, suggesting that CEOs have on average more years of schooling, mainly due to the larger share of college graduates. As expected, average education levels are highest



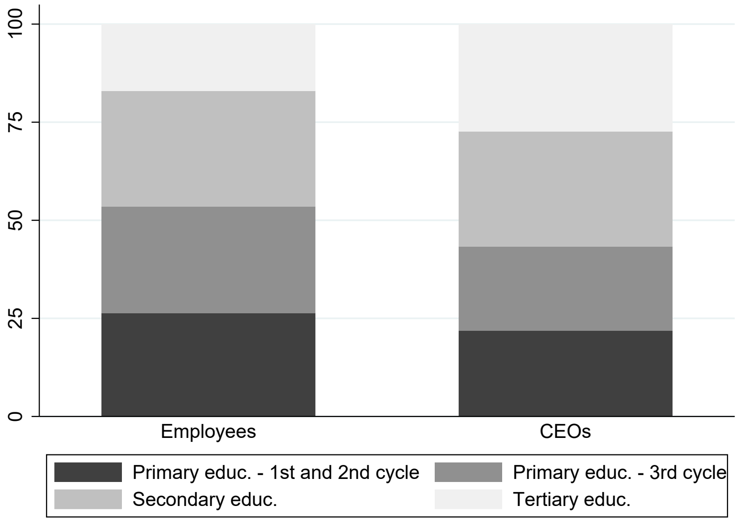
(a) Gender



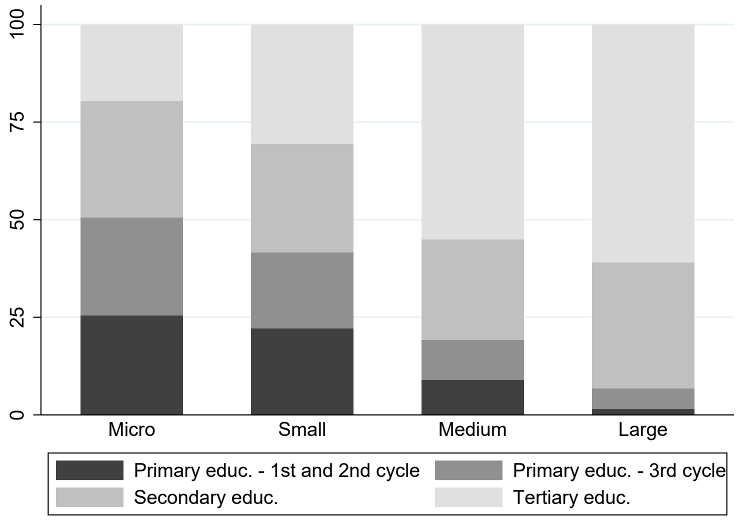
(b) Age brackets

Figure 32: Breakdown of CEOs by gender and age brackets (percentage)
Source: Quadros de Pessoal.

amongst the younger CEOs. With regard to the breakdown by firm size, there is a clear pattern that the larger the firms, and usually the responsibilities of the managers, the higher the average years of schooling of the CEO (Figure 33b). This is also true if we consider firms with some amount of foreign capital: more than 60% of the CEOs are college graduates and only around 5% have less than secondary education. Notwithstanding, it is worth mentioning that the vast majority of firms in Portugal are micro or small firms (with



(a) CEOs and other employees



(b) Breakdown by firm size

Figure 33: Breakdown of CEOs by educational attainment in 2016 (percentage)

Source: Quadros de Pessoal.

no foreign capital), so the share of CEOs with lower than secondary education is still notably large. Education is often used as an indicator for human capital or an individual's ability (see Barro and Lee, 2013), which are drivers of production and growth. Authors, such as Bloom and Van Reenen (2010), associate higher levels of education to better management practices and thus better results for the firm.

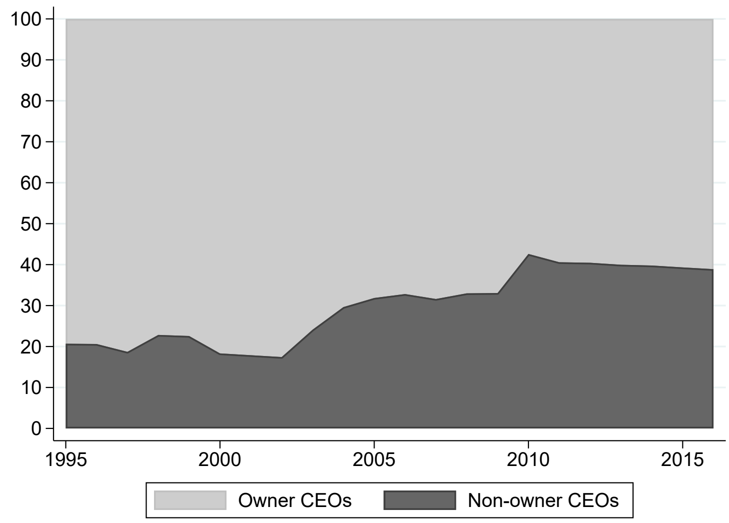
With respect to tenure, several scholars have argued that the impact of CEO tenure on firm performance can be described as an inverted U (see Hambrick and Fukutomi, 1991; Luo *et al.*, 2013). With time, as CEOs become myopic, risk-averse and overly wedded to early formulas, tenure starts to hurt firm performance (Henderson *et al.*, 2006). In Portugal, the average tenure at the firm in 2016 was around 11 years. However, in larger firms tenure tends to be much higher at the firm, and lower at the job. In other words, larger firms seem to have a higher CEO turnover rate, but a higher proportion of internal promotions - which explains the higher years of experience at the firm.

While traditionally ability was often associated to education or to acquired experience, more recently it has been linked to a diversified experience. According to Kevin Murphy (2004), Custódio *et al.* (2013) and Kaplan *et al.* (2012), who compare generalist and specialist CEOs, the former are associated with better firm performance. In this regard, we can consider previous experience from other sectors of activity. While around 50% of the CEOs in 2016 have worked previously in at least 2 different sectors of activity, only 10% have worked in more than 2 sectors. On average, CEOs with higher levels of education are also those that have a more generalist experience.

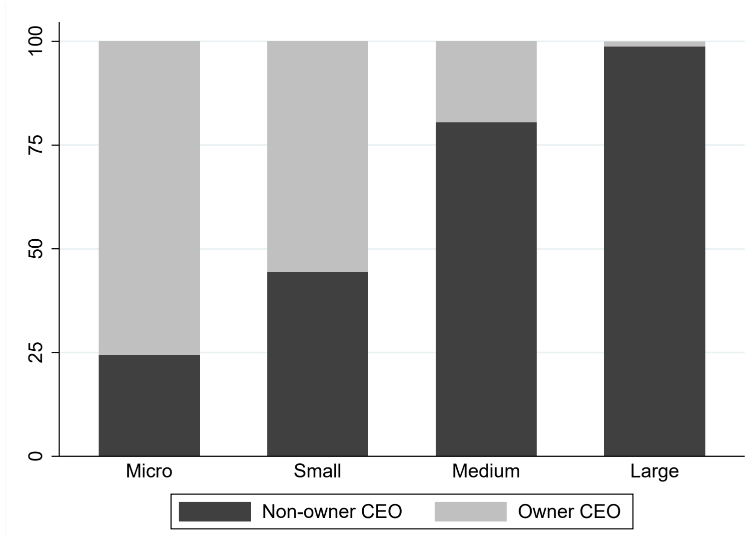
Finally, another defining feature of the Portuguese CEO market is the share of CEOs who are simultaneously owners of the firms. The share of owner CEOs has decreased over the last decades, reaching approximately 60% in 2016, of which close to 80% are in charge of micro-firms. It is noticeable that there seems to be two level shifts in the share of owner CEOs around the periods of economic crisis, namely in 2003 and during the more recent economic and financial crisis (Figure 34a). Figure 34b shows the breakdown of owner/non-owner CEOs by firm size and, as expectable, only 1% of the large firms are managed by their owners. Fabisik *et al.* (2018) find that firms with more managerial ownership are worth less. Bloom and Van Reenen (2010) find that family firms managed by a family member present usually a much lower performance than firms managed externally. Similarly, firms managed by their founder also present worse results.

4. CEOs and firm productivity in times of crisis

While the impact of certain characteristics on firm performance might be stable over time, other characteristics might change their value added depending on the circumstances. For instance under extreme circumstances, such as a major economic crisis, the framework under



(a) Owner CEOs across time



(b) Breakdown by firm size

Figure 34: Breakdown of CEOs by ownership, over time and by firm size (2016, percentage)

Source: Quadros de Pessoal.

which firms operate changes drastically and the capacity to innovate and abandon old management practices becomes specially valuable. However, little research has been done to investigate these kind of changes.

In a recent paper (Sazedj *et al.*, 2018), we argue that, during normal times, there is a trade-off in the choice between a newcomer and an experienced insider. A newcomer – that is, a recent external hire –

may bring innovative and bold initiatives to the management of the firm, but will start with a knowledge deficit and will need time to reap the benefits of learning by doing. On the other hand, an experienced insider already masters business as usual, but might find it difficult to abandon settled management practices when challenging circumstances arise, and may fall prey to the so called experience trap. Firms choose their CEOs along the tenure-origin locus, so as to maximize the net value of their inter-temporal performance, for a given set of expectations about the future. However, when unexpected circumstances, such as a major crisis, do materialize, the ex-post optimal mix of CEO characteristics changes. Now, old management practices and strategies may be insufficient to innovate and generate growth, while taking risks and adopting creative solutions becomes more valuable.

In this study, we estimate the impact of newcomer CEOs on productivity during the economic and financial assistance program in Portugal. We focus on a period of serious economic downturn, unexpected and unprecedented in nature, reach and magnitude, and exogenous to firms, and make it the basis of the identification strategy. The depth and unexpected nature of the crisis precluded preemptive actions on the part of firms, including anticipatory CEO hires. The great majority of firms did not change CEO before the onset of the crisis. We consider having a newcomer in office when the crisis hit as an exogenous event, and use this to disentangle the impact on firm productivity from other, correlated, unobservable factors.

Using a difference-in-differences estimation summarized in Figure 35a, we are able to identify: i) the common productivity downturn for all firms, in terms of GVA per worker; ii) the ex-ante productivity gap between firms run by newcomer and non-newcomers; and iii) the additional gap specific to the crisis period. Our main finding is that firms run by newcomers outperform other firms during the crisis period, irrespective of whether we are analysing the sample of non-owner CEOs or owners. Additionally, we find no significant productivity gap in the period prior to the crisis, suggesting that unobservable differences between newcomers and other CEOs, such as risk preferences or different incentives, play a minor role during normal times, when conducting business as usual is sufficient and innovative management practices are not key.

As an additional robustness test, we use a nearest-neighbour matching estimator to address sample selection bias concerns. Ideally, we would compare a firm's productivity during the crisis if run by a newcomer with the same firm's productivity under the alternative that it had not appointed a newcomer CEO. The counter-factual is not observable though, and we thus construct a hypothetical counter-factual by estimating a first-stage probit regression of the likelihood that a firm appoints a newcomer using observable pre-crisis firm and CEO characteristics. We then obtain a propensity score based on the predicted probabilities. Finally, we use the outcome of the nearest neighbour to obtain the unobserved counter-factual.

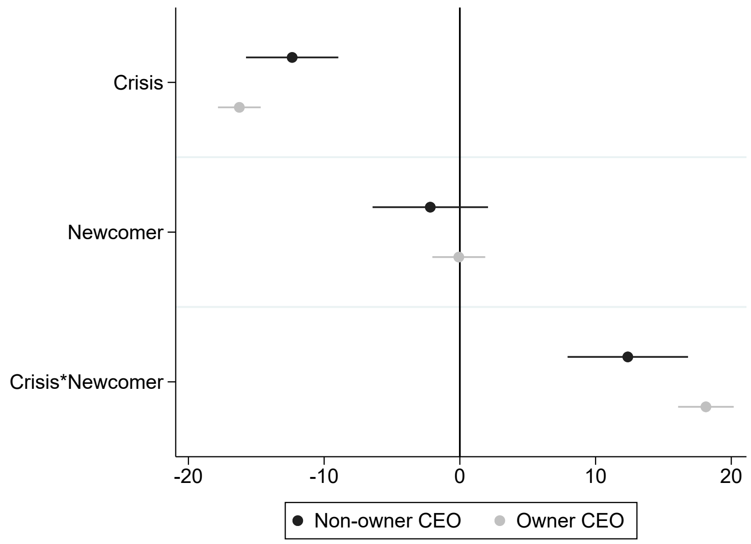
We consider three indicators of productivity, namely: apparent labour productivity, measured as GVA and sales per worker, and GVA per unit sold. We then compare the performance of each firm run by a newcomer, during the crisis, with the previously constructed counter-factual based on the most similar firm. Overall, we document higher productivity levels in firms managed by newcomer CEOs during the crisis (see Figure 35b). Specifically, firms which are apparently equal ex-ante experience between 6 and 10% higher GVA per worker during the crisis if directed by a newcomer CEO. This figure rises to 8-13% when productivity is measured in terms of sales per worker. Finally, we also conclude that firms managed by newcomers generated more value per unit sold during the crisis, than otherwise similar firms in the control group, thus pointing towards significant efficiency gains. These figures are both statistically and economically significant.

5. Final remarks

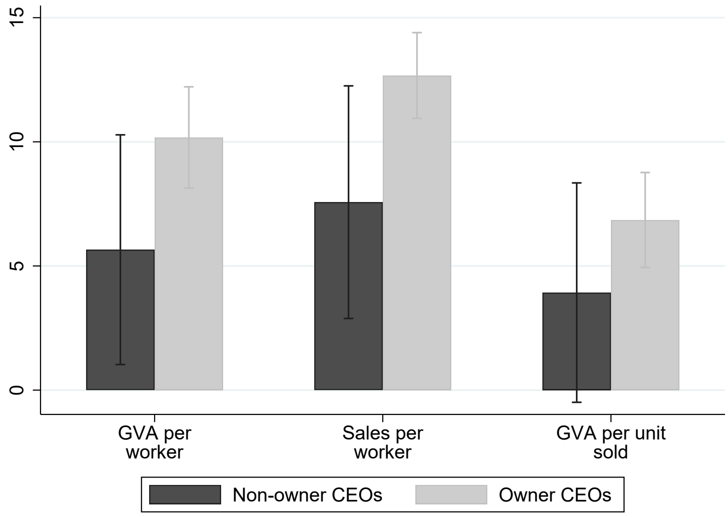
CEOs play a key role in defining the strategies of a firm and therefore, impact significantly a firm's performance and productivity.

This Section suggests that CEOs in Portugal have still fairly low levels of education, so one promising avenue to increase firm productivity is through credible policies that improve the education system, turning it more adequate to the current market and technological changes in progress. Additionally, the high share of owner CEOs and the average high tenure also suggest that firms haven't been able to completely adapt to the changing market, implying that there is room for a more efficient reallocation of CEO skills to firms.

Aside from these key observable characteristics, there are a set of unobservable attributes that can make a difference in times of crisis, despite not playing a major role during normal times. More specifically, we argue that newcomer CEOs present a significant advantage in managing firms during difficult times, regardless of their relative knowledge deficit regarding the firm. Our results question traditional definitions of human capital based on seniority and tenure, suggesting that accumulated experience in the firm is not key in periods of economic distress, when compared to a newcomer CEO´s flexibility, adaptability and willingness to take risks and innovate.



(a) Difference-in-differences estimation



(b) Propensity Score Match estimation

Figure 35: Newcomers and firm productivity (percentage)

Note: Dots and bars stand for the estimated coefficients and the lines represent the 95% confidence intervals. In the first figure the dots represent i) the common productivity downturn for all firms, in terms of GVA per worker (crisis); ii) the ex-ante productivity gap between firms run by newcomer and non-newcomers (newcomer); and iii) the additional gap specific to the crisis period (crisis*newcomer).
Source: Quadros de Pessoal

Future research should focus on understanding the management practices of newcomer CEOs and assess ways to facilitate transitions in top management positions as crises arise or, more generally, to design the appropriate incentives to make CEOs follow the best management practices at all times.

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