12

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EUROSYSTEM

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Dream Jobs

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Abstract

Understanding why certain jobs are 'better' than others and what implications they have for a worker's career is clearly an important but still relatively unexplored question. We provide both a theoretical framework and a number of empirical results that help distinguishing 'good' from 'bad' jobs in terms of their impact on a worker's lifetime wage income profile through wage jumps occurring upon changing job ('static effects') or through increases in the wage growth rate ('dynamic effects'). We find that the distinction between internationally active firms and domestic firms is a meaningful empirical dividing line between employers providing 'good' and 'bad' jobs. First, in internationally active firms the experience-wage profile is much steeper than in domestic firms, especially for managers as opposed to blue-collar workers. Second, the higher lifetime wage income for managers in internationally active firms relies on the stronger accumulation of experience that these firms allow for and on the (almost) perfect portability of the accumulated dynamic wage gains to other firms. Static effects are instead much more important for blue-collar workers. Finally, the distinction between internationally active and domestic firms is relevant also at a more aggregate level to explain cross-sectional differences in wages among workers and spatial differences in average wages across regions within a country.

JEL: J30, M12, J62, F16

Keywords: Good Jobs; International Experience; Managers; Sorting; Wage Growth; Wage Premium.

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1. Introduction

"Most microeconomic research...focuses on individual behavior and decision-making: examples include the choice of schooling, responses to welfare programs and tax reforms, and decisions about marriage and family. Most people, however, if asked to identify the key to economic success, will say 'getting a good job.' "
David Card, Robert J. Lampman Memorial Lecture, 2013.

Understanding why certain jobs are better than others and what implications they have for workers' current and future career is clearly important. A large body of empirical research has focused on obtaining estimates for the return of experience and seniority (Dustmann and Meghir 2005), wage growth (Lagakos *et al.* 2018) and wage inequality (Song *et al.* 2018). It is, however, not straightforward to identify and separate 'good' from 'bad' jobs. For example, most people would agree that, for an IT specialist, working for Google does represent a 'good' job in the sense that it provides a vibrant work environment and can change a worker's entire career, thereby substantially affecting the worker's lifetime wage income. But evaluation might get more complex and debatable when considering other occupations or workplaces. Moreover, it is unclear whether the positive effect that a 'good' job has on lifetime wage income is mainly due to a static effect (i.e. a 'wage jump' upon taking the job) or to a dynamic effect (i.e. faster 'wage growth' after taking the job) and whether the benefits of a 'good' job, be they static or dynamic, are 'portable' or are lost when moving to another job. Finally, the distinction between 'good' and 'bad' jobs might not be the same for every worker, and might depend both on the occupation and the skill or ability of the worker.

The aim of this paper is to provide both a theoretical framework and a number of empirical results that draws the line between 'good' and 'bad' jobs for different types of workers in terms of static effects, dynamic effects, and their portability. In principle, as discussed by Clark (2005), the distinction between 'good' and 'bad' good job is highly multidimensional as it involves: pay (including basic benefits like health insurance, paid vacation, paid sick leave, or paid paternal leave); hours of work (including any mismatch between actual and desired hours); future prospects (self-reported promotion opportunities and job security); hard work (self-reported exhaustion, hard physical work, stress, and working in dangerous conditions); job content (self-reported interesting job, job helps other people, job is useful to society, and autonomy); and interpersonal relationships (with management and co-workers). In our theoretical model we collapse all these multifaceted aspects into three key dimensions: wage, experience and opportunities. In this respect, a 'good' job offers higher wage, more performance-enhancing experience and more opportunities to exploit such experience. It is, however, also associated with a more demanding and stressful environment. The tradeoff between these pros and cons depends on workers' characteristics in terms of ability and life circumstances ('ambition') that cannot be foreseen with certainty and affect the relevance of career development as a priority with respect to other considerations. To prepare

the ground for the empirical analysis, the model identifies 'good' and 'bad' jobs with 'good' and 'bad' employers. After all, as the previous Google example suggests, what most people have in mind when they refer to a 'good' job is, by and large, a 'good' employer.

The result is an imperfect sorting model in the spirit of De la Roca *et al.* (2020) where uncertainty operates based on the premise that the return to experience is higher for more able workers irrespective of the type of firm and disproportionately so in firms offering better career development. The model is consistent with several career paths. More specifically, it predicts that low ability workers work for 'bad' firms both in the junior and senior periods of their career. By contrast, high ability workers work for 'good' firms both as junior and as senior, unless they turn out to be 'unambitious', in which case they prefer a 'bad' firm as senior employer. Intermediate ability workers work for 'bad' ('good') firms as junior and 'good' ('bad') firms as senior if the advantage of working for 'good' firms is stronger in terms of opportunities as senior (experience as junior) than experience as junior (opportunities as senior). Yet, some of them end up in 'bad' firms both as junior and as senior if they turn out to be 'unambitious'.

The model highlights three fundamental issues for the empirical analysis. The first issue concerns the distinction between 'wage jump' and 'wage growth'. Wage jumps occur when workers move between 'bad' and 'good' firms, while changes in wage growth occur when workers start accumulating more or less valuable experience within 'bad' and 'good' firms. The second issue concerns the 'portability' of experience. In the model higher wage growth enjoyed by workers in 'good' firms stays with them when they move to 'bad' firms due to more valuable experience. We thus need to distinguish between experience that is potentially useful in other firms and experience that is specific to a given firm ('tenure'). The third issue concerns the complementarities among ability, experience and opportunities. In the model wage growth effects are stronger for better workers, which implies that workers are heterogeneous and sort across jobs. Yet sorting on ability, that will be measured by worker fixed effects in our empirical analysis, is imperfect because of the presence of factors ('ambition' in our model) that are unobservable to the econometrician. This implies that equally able workers could take different career paths so allowing to separately identify the role played by differences in experience and opportunities across firms on one side and differences in ability across workers on the other side.

Our empirical analysis exploits Portuguese matched employer-employee data (*Quadros the Pessoal*) over the period 1991-2006, along with firm-level trade and ownership data, allowing us, among other, to retrieve a comprehensive measure of remuneration, that we simply label wage, including basic remuneration, overtime remuneration, regular bonuses and allowances, and irregular bonuses and allowances. We focus on managers and their employers, while using blue-collar workers for comparison. In particular, we study 'young' managers who were at most 18 years old at the beginning of our sample period and whom we can thus follow during their entire career. As for the employers, we partition them according to their international status while also providing complementary

results based on size and hierarchical complexity partitioning. Specifically, we classify exporting, importing and foreign-owned firms as 'internationally active' and all other firms as 'domestic'. We then construct measures of managers' overall experience, international experience and domestic experience. The first measure corresponds to the standard measure of work experience used in the literature: years of potential experience computed as the number of years elapsed since a manager finished school. The second measure refers to the number of years in which a manager worked for internationally active firms. The third measure refers to the complement to international experience.

Both the premise and the predictions of our theoretical model find strong support in the data when we associate 'good' and 'bad' firms with internationally active and domestic firms respectively. In particular, the premise is consistent with two robust patterns. First, sales growth in internationally active firms is higher than in domestic firms. This result is robust to a number of controls — including firm age and size — and holds both in the full population sample and in the sub-sample of young managers and their employers. Moreover, sales growth is positively related to the 'stock' of international experience embodied in firms' management. Second, wage growth in internationally active firms is higher than in domestic firms, especially for managers. This result applies to both manufacturing and services firms, is robust to a number of controls, and holds both in the full population sample and in the sub-sample of young managers and their employers. These patterns are consistent with internationally active firms providing better experience and opportunities for managers as reflected in steeper sales growth for the former and steeper wage growth for the latter.

As for the model's predictions, we estimate a series of Mincerian wage equations and carefully deal with the issues of unobservables and selection. For our baseline results we employ a large set of covariates along with different combinations of fixed effects. We further report very similar results based on a more exogenous source of variation in the data, namely firm closure and job displacement, while establishing that our findings are robust to a large number of robustness checks: controlling for firm heterogeneity in terms of payment structures and, in particular, in the extent to which firms resort to performance pay schemes; allowing for different wage profiles for more or less educated managers; controlling for wage patterns dictated by on-the-job-search, wage bargaining and outside offers; accounting for career concerns models' dynamics; abstracting from the difference between experience and tenure in the firm; allowing tenure to have a different impact between internationally active and domestic firms; and adopting different functional forms for domestic and international experience.

Our empirical analysis consistently points towards the following results: (i) the wage premium of internationally active firms is driven by a higher return on international experience, as compared to domestic experience, rather than by wage jumps or worker selection; (ii) the higher return on international experience is substantial, stacking up to a 11-20 percent wage gap over 10 years; (iii) both domestic and international experience are fully portable across firms; (iv) one more

year of domestic or international experience is more valuable to better managers in both domestic and internationally active firms; (v) differences in international experience across managers explain a substantial portion of both the cross-sectional and spatial distributions of wages; (vi) the distinction between internationally active and domestic firms is more powerful in capturing the dynamics of managers' wages than the distinction between large and small firms or the distinction between firms with many or few hierarchical layers of management; (vii) when considering blue-collar workers, there is no evidence of a differential return between domestic and international experience while wage jumps are the main driver of the internationally active firms' wage premium.[1]

Result (vi) is consistent with popular rankings in which the best employers tend to be large multinational public companies.[2] It is also consistent with the findings of recent research at the intersection between international trade and management, according to which, besides being larger and more productive, internationally active firms pay higher wages (Bernard *et al.* 2007; Mayer and Ottaviano 2008) and are also more vibrant workplaces thanks to better management practices, managers with more diversified experience, and relationships, as buyer or sellers, with a larger and more diversified number of counterparts. For instance, Bloom *et al.* (2016), using original survey data on management practices on over 11,000 firms in 34 countries between 2004 and 2014, find that plants that belong to multinationals use management practices that are better than those of domestic firms. Bloom *et al.* (2018), using plant-level data for 485 Chinese firms in 1999-2008 and over 10,000 US firms in 2010, find that better managed firms are more likely to start exporting, export more to more destinations, use higher quality inputs and source inputs from more countries of origin. Mion and Opromolla (2014), using matched employer-employee and trade transaction data for Portuguese firms between 1995 and 2005, show that having a manager with previous export experience is a key driver of export performance.

Finally, we show that the distinction between internationally active and domestic firms is relevant not only to explain individual careers, but also at a more aggregate level. When studying cross-sectional differences in wages among managers, the explanatory power of international experience is comparable to that of overall experience and to the combined explanatory power of firm-level controls including size, age, and productivity. When studying spatial differences in average wages across Portuguese regions, we find a high correlation with the

1. In this respect our analysis expands upon Dustmann and Meghir (2005) by, among other, distinguishing between experience acquired when working for 'bad' and 'good' firms while at the same time quantifying the heterogeneity of the returns to both types of experience with respect to ability. Regarding the latter, Dustmann and Meghir (2005) allow for heterogeneous returns to experience by means of random coefficients and so they ultimately provide estimates of average (across workers) returns to experience.

2. See, for example, www.forbes.com/lists/worlds-best-employers or www.greatplacetowork.com/best-workplaces.

average international experience of local managers. A counterfactual experiment that eliminates differences in the share of overall experience corresponding to international experience across regions reduces the coefficient of variation of wages by 13 percent. This confirms that investigating the role of work experience (in particular its differential value across employers) and the determinants of life-cycle wage growth can improve our understanding of both the cross-sectional and spatial distributions of wages within a country (Song *et al.* 2018), of cross-country wage and income differences (Lagakos *et al.* 2018), and of the effects of active labor market programs aimed at enhancing the opportunities and abilities of both unemployed and less skilled workers (Dustmann and Meghir 2005).

The rest of the paper is organized as follows. Section 2 develops the theoretical model. Section 3 describes our dataset. Section 4 presents summary statistics and key data patterns. Sections 5 and 6 provide our firm-level and manager-level empirical results. Section 7 expands on the quantitative implications of our findings for both the cross-sectional and spatial distributions of wages. Section 8 concludes. Additional details about the data as well as a number of complementary Tables and Figures are reported in the Appendix.

2. A Simple Model of Job Mobility with Firm-Specific Experience and Heterogeneous-Ability Managers

This Section presents a simple model of worker sorting across firms offering different career development in the spirit of De la Roca *et al.* (2020). While for simplicity we will associate better career development with 'good' jobs and worse career development with 'bad' jobs, we will account for the fact that workers' career paths also depend on their observable ability and their unobservable ambition, with the latter blurring the sorting patterns dictated by the former.

We consider a continuum of risk-neutral workers with heterogeneous ability denoted by $\theta \in (0,1)$. Their career spans two periods, a junior period 1 and a senior period 2. In each period a worker chooses whether to work for one of two types of firms, labeled B ('bad') and G ('good'). Working for either type of firm has pros and cons. B-firms offer a less demanding ('stressful') environment, but also less rewarding career development due to fewer chances of gaining and exploiting performance-enhancing experience. G-firms offer more rewarding career development, but also a more stressful environment.

In the junior period, a worker faces a continuum of tasks. She succeeds in completing some of them and fails in completing others. The share of completed tasks is determined by her ability denoted by $\theta \in (0,1)$. Each completed tasks gives her a remuneration $w_1 > 0$ in the junior period as well as valuable experience that she can use to enhance her performance in the senior period. How much valuable experience the worker gains depends on the type of junior period employer. Using e_B and e_G to denote experience gained at a B-firm and a G-firm respectively, we capture the fact that the former offers fewer chances of gaining valuable experience

by assuming $0 < e_B < e_G < 1$. In her senior period, the worker has opportunities to exploit her previous experience to tackle more complex additional tasks based on the tasks she previously completed in the junior period. The probability that such opportunities arise depend on the type of senior period employer. Using o_B and o_G to denote the probability that opportunities arise in a B-firm and a G-firm respectively, we capture the fact that the former firm offers fewer chances of exploiting performance-enhancing experience by assuming $0 < o_B < o_G < 1$. When faced with a more complex task in the senior period, the probability of completing it is determined by experience, e_B or e_G, acquired by completing the corresponding simple task in the junior period. For each complex task completed the worker earns an additional remuneration $w_2 > 0$ as senior. In both periods, the worker faces a stress cost that depends on the type of employer. Using s_B and s_G to denote the cost associated with a B-firm and a G-firm respectively, we capture the fact that the former offers a less stressful environment by assuming $0 < s_B < s_G$. Hence, G-firms have an 'absolute advantage' in terms of offering and exploiting experience while F-firm have an 'absolute advantage' in terms of offering a less stressful environment.

The tradeoff between stress and career development depends on the worker's ability, but also on her ambition. We define ambition as the willingness to go the extra mile to complete more complex tasks as senior rather than settling for the ones already completed as junior. We model ambition as a binary random variable such that all workers are willing to go the extra mile ('ambitious') with probability $\lambda \in (0,1)$ and not willing to do so ('unambitious') with probability $1-\lambda$. This random variable is realized at the end of the junior period and is meant to capture (time-varying) life circumstances that may affect the relevance of career development as a priority with respect to other (un-modelled) considerations like family and recreation. Randomness implies that the sorting of workers with different ability across alternative career paths can only be partial as workers of the same ability may end up choosing different paths as long as they turn out to have a different ambition.

Based on these assumptions, the net career payoff that a junior worker of ability θ expects to obtain from working in a f-firm in her junior period and in a h-firm in her senior period is

$$U_{fh}(\theta) = -s_f + \theta w_1 + (1-\lambda)(-s_h + \theta w_1) + \lambda(-s_h + \theta w_1 + e_f o_h \theta w_2). \quad (1)$$

By working for a f-firm with $f \in \{B, G\}$ as junior, the worker incurs a stress cost s_f and completes a share θ of tasks with remuneration w_1 for each task completed. By working for a h-firm with $h \in \{B, G\}$ as senior, she incurs a stress cost s_h and earns remuneration w_1 for each simple tasks she completes again. If she is unambitious, this is all she earns. If she is ambitious, she faces with probability o_h the opportunity to perform an additional complex task for each of the θ simple tasks she completes. She succeeds in each of these complex tasks with probability equal to experience e_f acquired as junior in the f-firm. Senior success in each

complex task gives her an additional remuneration w_2. An important feature of net payoff (1) is that, while the cons of working for G-firm rather than a B-firm depend on neither ability nor ambition, the pros are amplified by both ability and ambition in the senior period. The return on experience $e_f o_h \theta w_2$ for $f \in \{B, G\}$ is higher for more able workers in both B- and G-firms, but disproportionately so in G-firms.

The career path of a worker of ability θ maximizing net payoff (1) can be characterized working backwards from the senior to the junior period. To avoid a useless proliferation of subcases, we focus on parameter configurations that allow the model to predict all career paths: BB, BG, GB and GG. When the worker makes her senior decision, her ambition has already been realized. If unambitious, the worker will always choose to work for a B-firm as, without the willingness to go the extra mile, both type of firms offer the same expected remuneration θw_1 but B-firms are less stressful ($s_B < s_G$). Otherwise, if ambitious, she will work for a given firm type if and only if that type offers higher return. This is determined not only by the worker's experience but also by its employer's type when junior. If the junior employer was a G-firm, the worker chooses a G-firm as senior employer for $\theta \geq \theta^S_{GG \succ GB}$ with

$$\theta^S_{GG \succ GB} \equiv \frac{s_G - s_B}{w_2 e_G (o_G - o_B)}.$$

If the junior employer was a B-firm, the worker chooses a G-firm as senior employer for $\theta \geq \theta^S_{BG \succ BB}$ with

$$\theta^S_{BG \succ BB} \equiv \frac{s_G - s_B}{w_2 e_B (o_G - o_B)},$$

where we have $\theta^S_{BG \succ BB} > \theta^S_{GG \succ GB}$ as higher ability is needed to justify employment for a G-firm with less experience ($e_B < e_G$).

Turning to the worker's decision in the junior period, two cases arise depending on whether the advantage of working for G-firms is stronger in terms of opportunities as senior ($e_B o_G - e_G o_B > 0$) or experience as junior ($e_G o_B - e_B o_G > 0$), in other words whether G-firms have a 'comparative advantage' in opportunities or experience. In the former case, path GB can be ruled out as $U_{GB}(\theta)$ is always smaller than $U_{BG}(\theta)$, while path BG is selected whenever $U_{BG}(\theta) > U_{BB}(\theta)$ and $U_{BG}(\theta) > U_{GG}(\theta)$ jointly hold. This happens for $\theta^J_{BG \succ BB} \leq \theta < \theta^J_{GG \succ BG}$ with

$$\theta^J_{BG \succ BB} \equiv \frac{s_G - s_B}{w_2 e_B (o_G - o_B)} \text{ and } \theta^J_{GG \succ BG} \equiv \frac{s_G - s_B}{\lambda w_2 o_G (e_G - e_B)} \qquad (2)$$

as long as G-firms' comparative advantage in opportunities is large enough.[3] Otherwise, paths BB and GG will be selected for $\theta < \theta^J_{BG\succ BB}$ and $\theta \geq \theta^J_{BG\succ BB}$ respectively. These junior choices based on θ are confirmed in the senior period if the worker turns out to be ambitious as we have $\theta^S_{GG\succ GB} < \theta^S_{BG\succ B,B} = \theta^J_{BG\succ BB}$. If as junior she chose a G-firm (B-firm) for her senior period given $\theta \geq \theta^J_{BG\succ BB}$ ($\theta < \theta^J_{BG\succ BB}$), then she must still be happy with that as senior given $\theta^S_{BG\succ BB} = \theta^J_{BG\succ BB}$. However, if the worker turns out to be unambitious, in the senior period her junior choices BG and GG are overturned to BB and GB respectively as, without the willingness to go the extra mile, the best senior employer is a B-firm irrespective of ability. By contrast, when G-firms have a comparative advantage in experience ($e_G o_B - e_B o_G > 0$), path GB cannot be ruled out as the comparison between $U_{GB}(\theta)$ and $U_{BG}(\theta)$ depends on the probability of willing to go the extra mile. In particular, $U_{GB}(\theta)$ is larger than $U_{BG}(\theta)$ whenever

$$\theta > \frac{1-\lambda}{\lambda} \frac{s_G - s_B}{w_2 \left(e_G o_B - e_B o_G\right)}. \tag{3}$$

This condition must be met for the model to generate all career paths when G-firms have a comparative advantage in experience. If it were not met, the worker would prefer BG to GB, but GB would always be dominated by either BB or GG: with a comparative advantage in experience rather than opportunities we cannot have $\theta^J_{BG\succ BB} < \theta^J_{GG\succ BG}$. Differently, when (3) holds, the worker prefers GB to BG, and she prefers GB also to BB and GG for $\theta^J_{GB\succ BB} < \theta \leq \theta^J_{GG\succ GB}$ with

$$\theta^J_{GB\succ BB} \equiv \frac{s_G - s_B}{\lambda w_2 o_B \left(e_G - e_B\right)} \text{ and } \theta^J_{GG\succ GB} \equiv \frac{s_G - s_B}{w_2 e_G \left(o_G - o_B\right)}$$

as long as G-firms' comparative advantage in experience is large enough.[4] Otherwise, paths BB and GG will be selected for $\theta < \theta^J_{GB\succ BB}$ and $\theta \geq \theta^J_{GG\succ GB}$ respectively. These junior choices based on θ are confirmed in the senior period if the worker turns out to be ambitious as we have $\theta^J_{GB\succ BB} < \theta^J_{GG\succ GB} = \theta^S_{GG\succ GB}$. If as junior she chose a G-firm (B-firm) for her senior period given $\theta \geq \theta^J_{GG\succ GB}$ ($\theta < \theta^J_{GG\succ GB}$), then she must still be happy with that as senior given $\theta^S_{GG\succ GB} = \theta^J_{GG\succ GB}$. However, if the worker turns out to be unambitious, her junior choice GG is changed to GB in the senior period: without the willingness to go the extra mile, the best senior employer is again a B-firm irrespective of ability.

3. The exact condition is $\left(\frac{o_G}{o_B} - 1\right) > \lambda \left(\frac{e_G}{e_B} - 1\right) \left[1 - \lambda \left(\frac{e_G}{e_B} - 1\right)\right]$. To allow the model to predict all career paths when G-firms have a comparative advantage in opportunities, we assume that this condition holds. If this were not the case, path BG would always be dominated by either BB or GG.

4. The exact condition is $\left(\frac{e_G}{e_B} - 1\right) > \left(\frac{o_G}{o_B} - 1\right) \left[\lambda - \left(\frac{o_G}{o_B} - 1\right)\right]$. To allow the model to predict all career paths when G-firms have a comparative advantage in experience, we assume that this condition holds. If this were not the case, path GB would always be dominated by either BB or GG.

To summarize, we have proposed a sorting model with uncertainty based on the premise that the return to experience is higher for more able workers irrespective of the type of firm and disproportionately so in firms offering better career development. The model is consistent with several career paths. More specifically, it predicts that low ability workers work for B-firms both in their junior and senior periods. At the same time, high ability workers work for G-firms both in their junior and senior periods, unless they turn out to be unambitious, in which case they prefer a B-firm as senior employer. Intermediate ability workers work for B-firms in the junior period and G-firms in their senior period if the advantage of working for G-firms is stronger in terms of opportunities as senior than experience as junior. Yet, some of them end up in B-firms also as senior if they turn out to be unambitious. Alternatively, intermediate ability workers work for G-firms in the junior period and B-firms in their senior period if the advantage of working for G-firms is stronger in terms of experience as junior than opportunities as senior.

We will later show that both the premise and the predictions of the model find strong support in our data. In doing so, it will be crucial to account for the fact that experience and opportunities may be more relevant for some tasks than for others. We will therefore distinguish between managers and blue-collar workers. It will also be crucial to give empirical substance to the notion of B-firms and G-firms. In this respect, we will show that international activity turns out to the a more powerful dividing line than other natural candidates such as firms' size and hierarchical structure.

3. Data Description

Our data set is built from two data sources: a matched employer-employee data set, and an international trade transaction-level data set. Overall, our data provides information on firms' characteristics—including their export and import activities and the degree of foreign-ownership—and workers' characteristics for the Portuguese economy—excluding public administration and defence, extra-territorial organizations and bodies, and some business and professional associations—for the years 1991-2006.[5] Employer-employee data come from Quadros de Pessoal (henceforth, QP), a data set made available by the Ministry of Employment of Portugal, drawing on a compulsory annual census of all firms in Portugal that employ at least one worker.[6] Currently, the data set collects data on about 350,000

5. We could have further considered data after 2006 at the cost of including the financial crisis period into the analysis. Ultimately, we decided to focus on a shorter but cleaner sample period.

6. Public administration and non-market services are excluded. Quadros de Pessoal has been used by, amongst others, Blanchard and Portugal (2001) to compare the U.S. and Portuguese labor markets in terms of unemployment duration and worker flows, Cabral and Mata (2003) to study the evolution of the firm size distribution, and Mion and Opromolla (2014) to show that the export experience acquired by managers in previous firms leads their current firm towards higher export performance and commands a sizeable wage premium for the manager.

firms and 3 million employees in each year. Reported data cover the firm itself, each of its plants, and each of its workers. Each firm and each worker entering the database are assigned a unique time-invariant identifying number,[7] which we use to follow firms and workers over time. Variables available in the data set include the firm's location, industry, date of creation, total employment, share capital, share of foreign-owned share capital, and sales. The worker-level data cover information on all personnel working for the reporting firms in a reference week in October of each year. Data include information on date of birth, date of hiring, education, occupation, earnings, and hours worked (normal and overtime). The information on earnings includes the basic remuneration, overtime remuneration, regular bonuses and allowances, and irregular bonuses and allowances. It does not include employers' contributions to social security.

The second data set includes all export and import transactions by firms that are located in Portugal, collected by Statistics Portugal on a monthly basis. These data include the value and quantity of internationally traded goods (i) between Portugal and other Member States of the EU (intra-EU trade) and (ii) by Portugal with non-EU countries (extra-EU trade). Data on extra-EU trade are collected from customs declarations, while data on intra-EU trade are collected through the Intrastat system, which, in 1993, replaced customs declarations as the source of trade statistics within the EU.[8] The same information is used for official statistics and, besides small adjustments, the merchandise trade transactions in our dataset aggregate to the official total exports and imports of Portugal. Each transaction record includes, among other information, the firm's tax identifier, an eight-digit Combined Nomenclature product code, the destination/origin country, the value of the transaction in euros, the quantity of transacted goods, and the relevant international commercial term. We use data on export and import transactions, aggregated at the firm-year level. These data, together with information on ownership, allows us to identify whether a firm is internationally active in year t, i.e., whether the firm exports and/or imports and/or is foreign owned in a given year.

7. The Ministry of Employment implements several checks to ensure that a firm that has already reported to the database is not assigned a different identification number. Similarly, each worker also has a unique identifier, based on a worker's social security number. The administrative nature of the data and their public availability at the workplace—as required by the law—imply a high degree of coverage and reliability. It is well known that employer-reported wage information is subject to less measurement error than worker-reported data. The public availability requirement facilitates the work of the services of the Ministry of Employment that monitor the compliance of firms with the law.

8. Statistics on trade between the Member States of the European Union are based on a European Parliament and Council Regulation (EC) No 638/2004 of 31 March 2004 and on the implementing Commission Regulation (EC) No 1982/2004 of 18 November 2004 which lay down or supplement the rules on methodology, thresholds and specific movements and one amending Commission regulation ((EC) No 1915/2005 on simplified quantity reporting). The Community's basic customs legislation is contained in the Customs Code (Council Regulation (EEC) No 2913/92) and the Code's implementing provisions (Commission Regulation (EEC) No 2454/93).

In Appendix A we describe in detail how we construct the sample that combines the matched employer-employee and international trade data. We consider in the analysis only single-job, full-time workers between 16 and 65 years old, working between 25 and 80 hours (base plus overtime) per week, and based in continental Portugal. For each worker in each year, we construct two measures of the hourly wage. The baseline measure is defined as the (log of the) sum of the basic remuneration, overtime remuneration, regular bonuses and allowances, and irregular bonuses and allowances, divided by the sum of the monthly normal and overtime hours of work. A second measure abstracts from performance-pay components: overtime and irregular bonuses and allowances.

The workers and firms sample so constructed, to which we refer to as the 'large sample', covers the bulk of the Portuguese economy (92% of overall revenue and 88% of overall employment in 2006) and is the one we use to derive Facts 1 and 2 below as well as some other specific results. In most of our analysis we instead focus on a restricted sample, to which we refer to as the 'young managers sample', comprising managers born in 1973 or later, i.e., that were at most 18 in our starting data year 1991, and their employing firms. The reason for this restriction is twofold. First, both our model and empirical analysis suggest that managers play a special role in the relationship between firm growth and wage growth. Second, focusing on young managers allows us to observe their full employment history and so reconstruct a comprehensive measure of past employment experience. Moreover, as in Dustmann and Meghir (2005), we focus on an age group where most of job mobility and lifecycle wage growth takes place.

In order to identify managers, we follow Caliendo *et al.* (2015) and Caliendo *et al.* (2020) and consider 4 types of occupations, using the hierarchical variable 'qualificação' available in the QP, corresponding to top management (category 3), middle management and team supervisors (category 2), highly-skilled and skilled professionals (category 1), and semi-skilled professionals to apprentices (category 0). We define a manager as a salary-receiving worker employed in occupations 3 or 2 at time t. Clearly a manager at time t could have been employed in the past in lower categories (1 or 0) although this is actually quite unfrequent in the data.

The young managers sample comprises 77,174 managers in between 18 and 33 years old and 26,431 employing firms. In some regressions we instead focus on a different restricted sample, to which we refer to as the 'young blue-collars sample', comprising blue-collars[9] born in 1973 or later and their employing firms. The young blue-collars sample comprises 180,468 blue-collars in between 18 and 33 years old and 53,552 employing firms.

9. We define a blue-collar as a salary-receiving worker employed in occupation 0 at time t

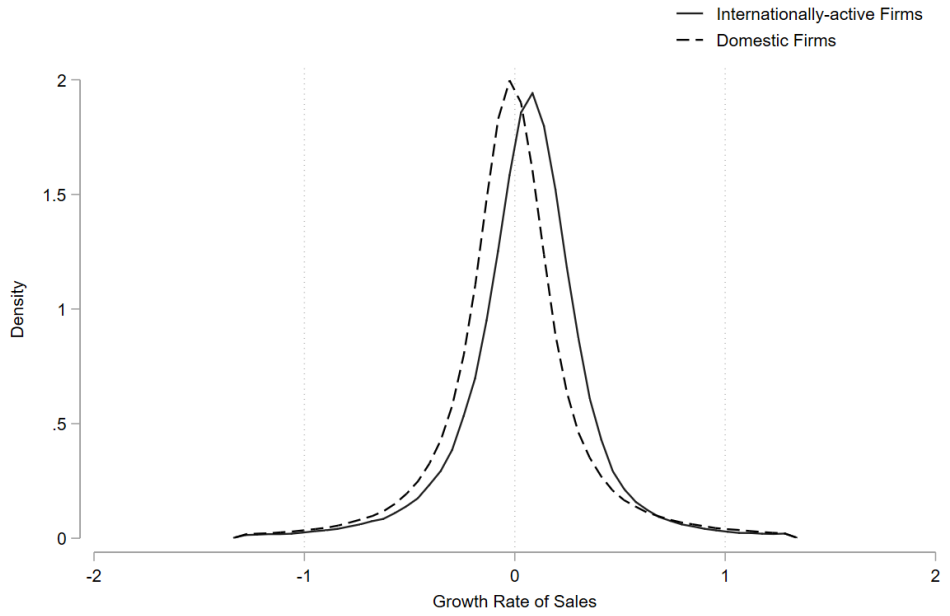

Figure 1: Growth Rate of Sales, Domestic vs. Internationally active Firms, Large Sample

Notes: This figure shows the distribution of the growth rate of sales for internationally active and domestic firms in the large sample obtained while controlling for firm size, age, location, industry, and year effects. More specifically, we regress the growth rate of sales, computed as the difference in sales between t and $t+1$ divided by the average sales in t and $t+1$, on the log of firm size (sales) in t, the log of the age of the firm in t, a set of year, region (NUTS III) and industry (1-digit NACE) dummies. Then we take the residuals, drop observations below (above) the bottom (top) 1 percent, and use them to construct the densities plotted in the figure.

4. Data Features

4.1. Two Key Facts

We report here evidence of two strong patterns in the data, that we label Facts 1 and 2, that are in line with some premises of our model, namely that internationally active firms ('good firms') offer a more rewarding career development and more chances of exploiting performance-enhancing experience, materializing in the data as steeper experience-wage profiles for managers and higher rates of sales growth for firms. Facts 1 and 2 are new with respect to the stylized facts provided by the applied trade literature. More specifically, the empirical trade literature (Bernard *et al.* 2012) provides very consistent evidence that firms involved in international trade are larger and pay higher wages. Facts 1 and 2 below instead draw a link between the internationally active status of a firm and the *growth* of sales and wages.

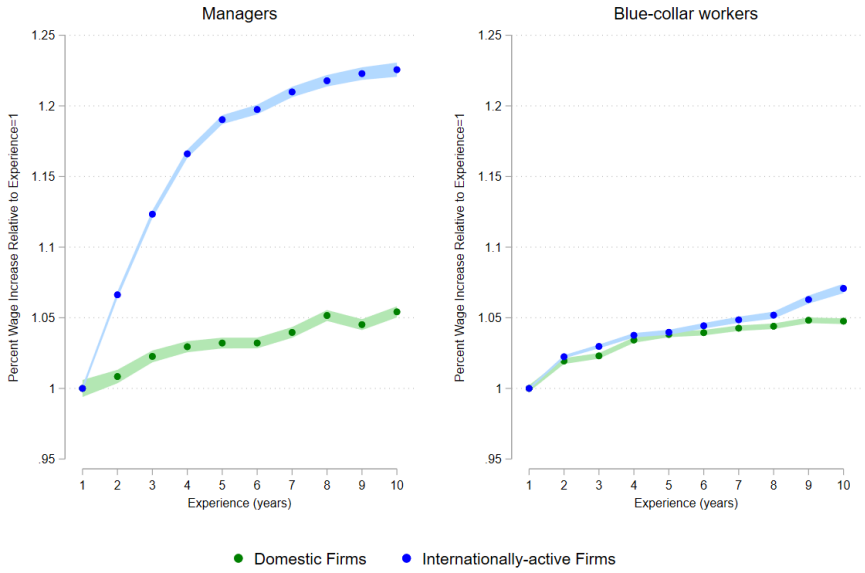

Figure 2: Experience-Wage Profiles in Domestic vs. Internationally active Firms, Managers and Blue-collar Workers, Large Sample

Notes: This figure shows experience-wage profiles for managers (left panel) and blue-collar workers (right panel) of domestic and internationally active firms in the large sample. To compute the experience-wage profiles, we first regress hourly wages against a full set of year, region (NUTS III) and industry (1-digit NACE) dummies. We then compute, for each type of firm, the average residual hourly wage by number of years of experience (up to 10). Finally, we compute the percentage wage increase relative to the case of one year of experience. The blue and green bands represent confidence intervals at the 95% level.

Figure 1 provides evidence obtained from the large sample of **Fact 1**: *Sales growth in internationally active firms is higher than in domestic firms.* More specifically, Figure 1 shows the distribution of the growth rate of sales for internationally active and domestic firms in the large sample obtained while controlling for firm size, age, location, industry, and year effects. Figure 1 clearly highlights an overall higher growth performance of internationally active firms with the difference between mean growth rates standing at 6.9%. Figure C-1 in Appendix C provides additional evidence of Fact 1 related to the young managers sample.

Figure 2 provides evidence obtained from the large sample of **Fact 2**: *Wage growth in internationally active firms is, particularly for managers, higher than in domestic firms.* More specifically, Figure 2 shows experience-wage profiles for managers (left panel) and blue-collar workers (right panel) of domestic and internationally active firms in the large sample. Such wage profiles are computed as the average residual hourly wage by number of years of experience (up to 10) obtained after controlling for year, industry and region effects, and are expressed

as a percentage increase relative to the case of one year of experience. Figures C-2 and C-3 in Appendix C further confirm this finding while providing a breakdown into manufacturing and services firms. At the same time, Figure C-4 in Appendix C provides additional evidence of Fact 2 related to the young managers sample.

4.2. Summary Statistics

Table 1 below provides some descriptive statistics, of both key manager-level and firm-level variables, related to the young managers sample and referring to the year 2006. The top panel of Table 1 reports the mean, standard deviation, min and max of some key manager-level variables as well as the number of observations. The (log) hourly wage is defined as the (log of the) sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Tenure instead refers to the number of years the manager has been working for the current employer while job mobility indicates the number of times (plus one) the manager has changed employer up to year t. We then construct the standard measure of work experience used in the literature—years of potential experience, that is, years elapsed since finishing school—and identify the subset of years in which the manager has worked for internationally active firms: we call the latter international experience and we define domestic experience as the complement to potential experience. Table 1 indicates, among other, that the mean tenure for young managers is below 4 years while the number of job changes varies between 0 and 8 with an average of 0.6. At the same time, domestic and international experience vary between 0 and 15 years with an average of 6.37 years for the former and 2.51 years for the latter.

The bottom panel of Table 1 reports the mean, standard deviation, min and max of some key firm-level variables as well as the number of observations. More specifically, size is firm log employment, productivity is log apparent labour productivity, the share of skilled workers is the share of a firm's workers (managers and non-managers) with 12 or more years of education, log firm age is the log of the age of the firm and internationally active is a dummy taking value one if the firm is involved in exporting and/or importing and/or is foreign owned and zero otherwise. In this respect, Table 1 indicates that 30% of firms are internationally active and so the remaining 70% are domestic. Appendix A provides more details on the construction of both manager-level and firm-level variables while Table C-1 in Appendix C provides the equivalent of Table 1 for the young blue-collars sample.

In order to get insights into what type of firms young managers end up working for, Table 2 describes the distribution of firms in the large sample for the year 2006 between firms with no managers and firms with managers; where the latter is further split into firms employing no manager belonging to the young managers sample ('No Young Manager') and firms employing at least one manager belonging to the young managers sample ('Some Young Managers'). Table 2 shows that, as in Mion and Opromolla (2014), most firms do not employ a manager. Yet firms

	Key Manager-level Variables				
	N. observ.	Mean	St.dev.	Min	Max
Log Hourly Wage	77,174	0.45	0.52	-1.64	2.29
Tenure	77,174	3.69	3.32	0.00	33.00
Job Mobility	77,174	1.60	0.88	1.00	9.00
Domestic Experience	77,174	6.37	3.67	0.00	15.00
International Experience	77,174	2.51	2.95	0.00	15.00
	Key Firm-level Variables				
	N. observ.	Mean	St.dev.	Min	Max
Size	26,431	2.59	1.37	0.00	9.64
Productivity	26,431	10.96	1.21	3.22	17.49
Log Firm Age	26,431	2.36	0.93	0.00	5.93
Share Skilled	26,431	0.22	0.28	0.00	1.00
Internationally Active	26,431	0.30	0.46	0.00	1.00

Table 1. Descriptive Statistics for the Young Managers Sample, Year 2006

Notes: Data refer to the young managers sample for the year 2006. Concerning manager-level variables, the (log) hourly wage is defined as the (log of the) sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Tenure refers to the number of years the manager has been working for the current employer while job mobility indicates the number of times (plus one) the manager has changed employer up to year t. Domestic experience is number of years the manager has worked in the past for domestic firms (including the current firm) while international experience is the number of years a manager has worked in the past for intentionally active firms (including the current firm). Moving to firm-level variables, size is firm log employment, productivity is log apparent labour productivity, the share of skilled workers is the share of a firm's workers (managers and non-managers) with 12 or more years of education, log firm age is the log of the age of the firm and internationally active is a dummy taking value one if the firm is involved in exporting and/or importing and/or is foreign owned and zero otherwise. See Appendix A for more details.

employing at least one manager account for the bulk of aggregate employment and revenue (70% of employment and 84% of revenue). At the same time, firms belonging to the smaller sample of firms employing young managers (representing 46% of aggregate employment and 69% of aggregate revenue) are present in all sectors of the economy albeit in somewhat different shares with respect to firms not employing any young manager.

Table 3 further shows for the 38,276 firms belonging to manufacturing, where numbers are more comparable across firms, average sales, employment and age as well as the share of internationally active firms broken down by firms with no managers and firms with managers; where the latter is further split into firms employing no manager belonging to the young managers sample ('No Young Manager'), firms whose managers all belong to the young managers sample ('All Young Managers') and firms in between the two ('Some But Not All Young

	Firms with Manager		No Manager	Overall Share	Overall Number
Industry	No Young Manager	Some Young Managers			
Agriculture	11.23	6.51	82.26	100.00	8,416
Fishing	29.36	11.01	59.63	100.00	109
Mining and Quarrying	27.77	14.95	57.28	100.00	749
Manufacturing	20.18	13.22	66.60	100.00	38,276
Electricity	19.61	55.56	24.84	100.00	153
Construction	18.34	10.64	71.01	100.00	33,882
Wholesale and Retail	16.67	9.74	73.59	100.00	73,780
Hotels and Restaurant	11.77	5.44	82.79	100.00	27,230
Transport and Communication	13.87	7.04	79.09	100.00	9,873
Financial Intermediation	20.24	19.91	59.85	100.00	1,823
Real Estate and Busin.	19.62	24.96	55.42	100.00	25,008
Public Adm., Education	13.59	25.03	61.38	100.00	14,080
Other	7.88	5.96	86.16	100.00	10,016
Total	16.44	12.13	71.44	100.00	243,395

Table 2. Firms, Managers and Young Managers, Year 2006

Notes: Data refer to the large sample for the year 2006. The Table reports the distribution of firms between firms with no managers and firms with managers; where the latter is further split into firms employing no manager belonging to the young managers sample ('No Young Manager') and firms employing at least one manager belonging to the young managers sample ('Some Young Managers').

	Firms with Manag.			No Manag.
	No Young Manager	All Young Managers	Some But Not All Young Managers	
Mean Sales	1,465,513	1,061,900	15,547,379	330,290
Mean Employment	22.37	16.41	93.26	6.90
Mean Age	18.45	12.43	23.05	13.77
Mean Int Act Status	0.38	0.35	0.76	0.11

Table 3. Firms, Managers and Young Managers, Year 2006, Manufacturing

Notes: Data refer to manufacturing firms in the large sample for the year 2006. The Table reports average sales (in euros), employment (number of workers) and age as well as the share of internationally active firms broken down by firms with no managers and firms with managers; where the latter is further split into firms employing no manager belonging to the young managers sample ('No Young Manager'), firms whose managers all belong to the young managers sample ('All Young Manager') and firms in between the two ('Some But Not All Young Managers').

Managers'). Table 3 shows that young managers can be found in relatively small and young firms comprising young managers only (that are overall comparable to firms with managers but no young managers), as well as in larger, older and more internationally active firms comprising both young managers and older managers.

5. Firm Growth and Managers' International Experience

It is a well established fact that firms involved in international trade are characterized by 'level premia' and in particular are larger and more productive (Bernard *et al.* 2012). At the same time, Fact 1 reported in Section 4 provides

fresh evidence about growth being also higher in internationally active firms. In this Section, we further show that firms grow more if employing managers with more experience and in particular more international experience. This is consistent with internationally active firms being characterized by stronger growth opportunities, that are best realized by more able/experienced managers, as suggested by our simple model.

Table 4 provides results for the large sample. The dependent variable is the growth rate of sales, computed as the difference in sales between t and $t+1$ divided by the average sales in t and $t+1$,[10] while the two key controls are firm size (log sales) in t and (the log of) firm age in t. In all regressions we include year, industry and region dummies while clustering standard errors at the firm-level. In this respect, the literature on firm's growth and the firm size distribution (Luttmer 2007) highlights the importance of firm age and size suggesting a negative sign in both cases. We confirm this for our data in column (1) of Table 4.[11] More specifically, both coefficients are around -0.05 indicating that, doubling size or age, decreases growth by about 5 percentage points. In column (2) we then add a dummy for internationally active firms and find these firms to grow substantially more (about 9%) than domestic firms.

In Table 5 we instead focus on firms belonging to the young managers sample. Columns (1) to (3) provide OLS estimation results including year, industry and region dummies while column (4) provides within estimation results including year dummies and firm fixed effects. Standard errors are clustered at the firm-level. Column (1) confirms for this sample that firm size and age are negatively related to firm growth,[12] while column (2) confirms that internationally active firms grow more than domestic firms. Columns (3) and (4) further indicate that growth is increasing in the total number of years of experience of the young managers employed by the firm (Total Experience) as well as in the share of this total experience gained in internationally active firms (Ratio International Experience). In particular, coefficients indicate that doubling total experience increases the growth rate by about 2 percentage points while the growth rate is about 3 percentage points higher if the share of total experience corresponding to international experience is one as opposed to zero.

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10. This growth rate measure is routinely used in the 'gross job creation - gross job destruction' literature to measure establishment-level employment changes (Davis and Haltiwanger 1992). It is also sometimes used in the international trade literature to decompose aggregate exports growth into the contribution of continuing firms, entrants, and exiters (Eaton *et al.* 2008). The growth rate measure is (i) symmetric around zero; (ii) it lies in the interval $[-2, 2]$; (iii) it is monotonically related to the conventional growth rate measure; (iv) it is approximately equal to the conventional growth rate measure for small growth rates. The benefit of computing the growth rate in this way is that (i) an x percent growth followed by a $-x$ percent growth brings back to the same level; (ii) sales values close to zero in the first year have a less extreme effect on the growth rate.

11. This regression is the one used to construct Figure 1.

12. This regression is the one used to construct Figure C-1 in Appendix C.

VARIABLES	(1) Baseline	(2) Inter. Active
Firm Sales (log)	-0.0427^a	-0.0504^a
	(0.0003)	(0.0004)
Firm Age (log)	-0.0535^a	-0.0540^a
	(0.0004)	(0.0004)
Int. Act. (0/1)		0.0905^a
		(0.0013)
Observations	1,449,544	1,449,544
R-squared	0.0538	0.0580
Year Region Industry Dummies	X	X
Estimation Method	OLS	OLS

Table 4. Growth Regressions, Large Sample

Notes: The dependent variable is the growth rate of sales, computed as the difference in sales between t and $t+1$ divided by the average sales in t and $t+1$. Column (1) is the baseline specification controlling for firm (log) sales and age in t. Column (2) introduces a dummy variable equal to 1 when the firm is internationally active. All specifications include year, industry (1-digit NACE), and region (NUTS III) dummies. Standard errors (in parenthesis) clustered at the firm level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1

These results are in line with the features of our simple model, and in particular suggest that internationally active firms are characterized by stronger growth opportunities that are best realized by more experienced/able managers, while at the same time underlying the importance of the distinction between domestic and international experience. In order to provide more compelling evidence of the relationship between firm growth and wage growth working through experience, and in particular international experience, as well as of other features of our model, in the next Section we consider manager-level regressions using wage as the dependent variable. This allows us to employ more controls and fixed effects as well as to draw on a more exogenous source of variation in the data (firm closures and related job displacement).

6. Experience-Wage Profiles of Managers and Blue-Collars Workers

It is a well established fact that firms involved in international trade are characterized by a higher level of wages (Bernard *et al.* 2012), and this is robust to controlling for sorting of better workers into such firms (Mion and Opromolla 2014). However, such higher level of wages might materialize in the data in two different ways: 1) because of wage jumps occurring when moving from a domestic to an internationally active firm (better opportunities in our model) and/or 2) because of a higher wage growth in internationally active as opposed to domestic firms (higher accumulation of performance-enhancing experience in our model). In

VARIABLES	(1) Baseline	(2) Int. Active	(3) Int. Experience	(4) Int. Experience FE
Firm Sales (log)	-0.0205^a	-0.0248^a	-0.0303^a	-0.3698^a
	(0.0010)	(0.0012)	(0.0013)	(0.0141)
Firm Age (log)	-0.0492^a	-0.0496^a	-0.0482^a	-0.0406^a
	(0.0018)	(0.0018)	(0.0018)	(0.0107)
Int. Act. (0/1)		0.0411^a	0.0296^a	0.0055
		(0.0038)	(0.0047)	(0.0082)
Total Experience (log)			0.0225^a	0.0220^a
			(0.0017)	(0.0036)
Ratio Int. Exp. (ratio)			0.0262^a	0.0315^b
			(0.0076)	(0.0159)
Observations	60,171	60,171	60,171	60,171
R-squared	0.0537	0.0558	0.0588	0.2661
Year Region Industry Dummies	X	X	X	
Firm FE				X
Year Dummies				X
Estimation Method	OLS	OLS	OLS	Within

Table 5. Growth Regressions, Young Managers Sample

Notes: The dependent variable is the growth rate of sales, computed as the difference in sales between t and $t+1$ divided by the average sales in t and $t+1$. Column (1) is the baseline specification controlling for firm (log) sales and age in t. Column (2) adds a dummy variable equal to 1 when the firm is internationally active. Column (3) further introduces the (log) total number of years of experience of the young managers employed by the firm as well as the share of this total experience gained in internationally active firms. Column (4) further adds firm fixed effects. All specifications, except column (4) where we consider only year dummies, include year, industry (1-digit NACE), and region (NUTS III) dummies. Standard errors (in parenthesis) clustered at the firm level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1

this light, Fact 2 reported in Section 4 points to the importance of the second channel by providing strong evidence that wage growth is higher in internationally active firms.

In this Section, we tackle the issues of opportunities, experience, ability and portability more directly by estimating a number of manager-level wage regressions while employing several controls and fixed effects as well as drawing on a more exogenous source of variation in the data: firm closures and related job displacement. Our results suggest that managers employed by internationally active firms have higher wages because of a higher wage growth rather than because of wage jumps. At the same time, the portion of the wage related to the higher wage growth enjoyed in internationally active firms sticks with the manager when moving to other firms so lending support to the idea that it measures something that is valuable/portable to/across all firms. We also provide evidence that the returns on domestic and international experience are both higher for better managers while at the same time the difference between the two returns stacks up to a 11-20% wage gap after 10 years. Our results are robust to a variety of alternative specifications and robustness tests. In order to single out the specificities of managers we further analyze blue-collar workers and show that, contrary to managers, they earn higher wages in internationally active firms only because of wage jumps so suggesting that experience and learning play a modest role for these workers. Finally, our analysis

indicates that the distinction between internationally active and domestic firms is more powerful in capturing the dynamics of managers' wages than the distinction between large and small firms or the distinction between firms with many or few layers of management.

In what follows we use matched employer-employee data for Portugal (QP) and consider the time span 1991-2006 while de-trending (log) hourly wages, before any regressions, using industry-year pair dummies on the full set of workers in order to avoid potential compositional effects when comparing the return on different types of experience.

Each manager i is associated at time t to a unique current employing firm f. The key variables in our analysis are: (i) a dummy variable ($Int.\ Act_{ft}$) indicating whether a firm is internationally active in t (the firm exports and/or imports and/or is foreign owned) or not; (ii) the number of years ($Int.\ EXP_{it}$) a manager has worked in the past for intentionally active firms (including the current firm); (iii) the number of years ($Dom.\ EXP_{it}$) a manager has worked in the past for domestic firms (including the current firm). We also sometimes use overall experience ($Over.\ EXP_{it}$=$Int.\ EXP_{it}$+$Dom.\ EXP_{it}$).[13]

The starting wage equation we estimate (that we label OLS) is:

$$w_{it} = \beta_0 + \beta_1 Int.\ Act._{ft} + \beta_2 Over.\ EXP_{it} + \mathbf{I'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_r + \varepsilon_{it}, \quad (4)$$

where w_{it} is the de-trended (log) hourly wage of manager i in year t, $Int.\ Act_{ft}$ is the dummy indicating whether the employing firm f is internationally active in t or not, $Over.\ EXP_{it}$ is a manager's overall experience (domestic and international), and the vector $\mathbf{I_{it}}$ stands for manager i other time-varying observables: number of years of education, tenure in the firm and its square.[14] The vector $\mathbf{C_{ft}}$ refers to current employing firm observables: size (log employment), productivity (log apparent labour productivity), share of skilled workers,[15] and log firm age. Finally, η_r denotes firm location dummies (NUTS3 regions).

Equation (4) is our starting point and it serves the purpose of confirming whether the stylized fact that internationally active firms pay more holds in our data. More specifically, the dummy $Int.\ Act._{ft}$ captures any cross-sectional differences in the wages of domestic and internationally active firms and

13. All results in this Section refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010) methodology to deal with the various fixed effects we consider. The reported number of observations refers to the actual number of observations used by the estimation procedure while standard errors are clustered at the manager-level.

14. More specifically, since changes over time in the number of years of schooling are likely to mainly pick up measurement error rather than a genuine change in the number of years of education, we consider the mode of the distribution of the number of years of education for each manager. Therefore, number of years of education is a time-invariant variable in our analysis and will not be identified any more when considering manager fixed effects.

15. Share of a firm's workers (managers and non-managers) with 12 or more years of education.

corresponds to standard practice in the literature (Bernard *et al.* 1995; Frías *et al.* 2012).

6.1. Fixed Effects Specifications

Ability, International and Domestic Experience, Portability, and Job Mobility. We enrich (4) by adding manager fixed effects η_i, i.e., heterogeneity in ability across managers as in the model described in Section 2, as well as by introducing the distinction between domestic and international experience, i.e., variables capturing the differential impact on *wage growth* related to working one more year for a domestic or an internationally active firm, while also assessing whether these two types of experience are fully portable across firms as suggested by our model. We do this progressively by means of equations (5) to (7):

$$w_{it} = \beta_0 + \beta_1 Int.\,Act_{ft} + \mathbf{I'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_i + \varepsilon_{it}, \quad (5)$$

$$\begin{aligned} w_{it} &= \beta_0 + \beta_1 Int.\,Act_{ft} + \beta_2 Dom.\,EXP_{it} + \beta_3 Int.\,EXP_{it} \\ &+ \mathbf{I'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_i + \varepsilon_{it}, \end{aligned} \quad (6)$$

$$\begin{aligned} w_{it} &= \beta_0 + \beta_1 Int.\,Act_{ft} + \beta_2 Dom.\,EXP_{it} + \beta_3 Int.\,EXP_{it} + \beta_4 Dom.\,EXP_{it} \\ &* \quad Int.\,Act_{ft} + \beta_5 Int.\,EXP_{it} * Int.\,Act_{ft} + \mathbf{I'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_i + \varepsilon_{it}, \end{aligned} \quad (7)$$

where we drop location dummies, because their identification would rest on a small and noisy variation, and the reference category for interactions in equation (7) is represented by domestic firms, i.e., β_2 (β_3) in (7) is the value of a manager's domestic (international) experience when working for a domestic firm while $\beta_2 + \beta_4$ ($\beta_3 + \beta_5$) is the value of a manager's domestic (international) experience when working for an internationally active firm. Crucially, if β_4 and β_5 are zero and/or small compared to β_2 and β_3, which is what we consistently find across a range of specifications, it means that both domestic and international experience represent a wage component that is fully portable across firms. Furthermore, β_1 is now identified by: (i) managers remaining in the same firm with the employing firm changing internationally active status; (ii) managers moving from domestic to internationally active firms and vice-versa. Therefore, such parameter now better corresponds to those wage jumps related to differences in opportunities in our model. We refer to equation (5) as 'FE', to equation (6) as 'Type of experience' and to equation (7) as 'Portability'.

In order to better control for firm heterogeneity and single out wage patterns related to job mobility we further consider the following enrichment of (7):

$$\begin{aligned} w_{it} &= \beta_0 + \beta_1 Int.\,Act_{ft} + \beta_2 Dom.\,EXP_{it} + \beta_3 Int.\,EXP_{it} \\ &+ \beta_4 Dom.\,EXP_{it} * Int.\,Act_{ft} + \beta_5 Int.\,EXP_{it} * Int.\,Act_{ft} + \beta_6 Job.\,Mobil_{it} \\ &+ \beta_7 Job.\,Mobil_{it} * Int.\,Act_{ft} + \mathbf{I'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_i + \eta_f + \varepsilon_{it}, \end{aligned} \tag{8}$$

where η_f are firm fixed effects while $Job.\,Mobil_{it}$ is a job mobility dummy that we consider both alone as well as interacted with the internationally active status of the employing firm in t. More specifically, the way we constructed $Job.\,Mobil_{it}$ is such that each time a manager changes firm the dummy jumps up by an additional unit and so it broadly captures wage jumps occurring when managers move from one firm to another.[16] The additional interaction of $Job.\,Mobil_{it}$ with $Int.\,Act_{ft}$ further controls for differential wage jumps occurring whenever the new employing firm is internationally active. We label equation (8) 'Mobility & Firm FE'.

Selection on Unobservables and Heterogeneous Returns on Experience. We then consider more complex specifications aiming at better controlling for selection on unobservables as well as understanding whether and how returns on domestic and international experience are heterogeneous across managers. The first specification we consider, that we label 'Job-Spell FE', is:

$$\begin{aligned} w_{it} &= \beta_0 + \beta_1 Int.\,Act_{ft} + \beta_2 Dom.\,EXP_{it} + \beta_3 Int.\,EXP_{it} + \beta_4 Dom.\,EXP_{it} \\ &* \quad Int.\,Act_{ft} + \beta_5 Int.\,EXP_{it} * Int.\,Act_{ft} + \beta_6 Job.\,Mobil_{it} \\ &+ \beta_7 Job.\,Mobil_{it} * Int.\,Act_{ft} + \mathbf{I'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_{if} + \varepsilon_{it}, \end{aligned} \tag{9}$$

where rather than having separate firm and manager fixed effects as in (8), we allow for job-spell fixed effects η_{if}. Such specification thus allows to control for a wide range of potentially correlated unobservables (like distance) by having a match-specific fixed effect (Dustmann and Pereira 2008).[17] However, it also reduces the amount of variation and observations used for identification while not allowing to disentangle manager from firm FE.

Another specification we implement, that we label 'Individual Linear Trends', allows for both time-invariant and time-variant correlated unobservables. More

16. Given the presence of manager fixed effects, the dummy $Job.\,Mobil_{it}$ is indeed identified only by managers changing firms. For example, when considering (8) in first differences, the left hand side variable would be the wage change $w_{it} - w_{it-1}$ with $Job.\,Mobil_{it} - Job.\,Mobil_{it-1}$ being zero if the manager is employed by the same firm in $t-1$ and t and one if the manager moves to a new employing firm in t.

17. Bias could arise if distance between the manager and the firm is systematically correlated with observables and in particular with whether the firm is internationally active or not and with how much domestic and international experience the manager has. In this respect, the use of job-spell fixed effects η_{if} should minimize this issue.

specifically, we enrich (8) with manager-specific linear trends $\eta_{2i} * t$ that are estimated along with standard manager fixed effects η_{1i}. Indeed, it is reasonable to expect that idiosyncratic ability, skills and motivation affect wages while being reasonably invariant over time for a given manager. This is customary translated into manager fixed effects η_{1i} affecting the *level* of wages by acting as wage jumps. However, it is possible that ability, skills and motivation also affect wages' *growth* and we model this in a parsimonious way by means of manager-specific linear trends in wages $\eta_{2i} * t$. In particular, we consider the following model:

$$\begin{aligned} w_{it} &= \beta_0 + \beta_1 Int.\,Act_{ft} + \beta_2 Dom.\,EXP_{it} + \beta_3 Int.\,EXP_{it} + \beta_4 Dom.\,EXP_{it} \\ &* \quad Int.\,Act_{ft} + \beta_5 Int.\,EXP_{it} * Int.\,Act_{ft} + \beta_6 Job.\,Mobil_{it} \\ &+ \quad \beta_7 Job.\,Mobil_{it} * Int.\,Act_{ft} + \mathbf{\Gamma'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_{1i} + \eta_{2i} * t + \varepsilon_{it}, \quad (10) \end{aligned}$$

where we drop, with respect to (8), firm fixed effects because of identification issues.[18]

Finally, in order to assess whether and how returns on domestic and international experience are heterogeneous across managers, like suggested by our simple model, we consider a further enrichment of (8) that we label 'Heterogeneous Returns on Experience':

$$\begin{aligned} w_{it} &= \beta_0 + \beta_1 Int.\,Act_{ft} + \beta_2 Dom.\,EXP_{it} + \beta_3 Int.\,EXP_{it} + \beta_4 Dom.\,EXP_{it} \\ &* \quad Int.\,Act_{ft} + \beta_5 Int.\,EXP_{it} * Int.\,Act_{ft} + \beta_6 Job.\,Mobil_{it} \\ &+ \quad \beta_7 Job.\,Mobil_{it} * Int.\,Act_{ft} + \beta_8 Dom.\,EXP_{it} * \eta_i + \beta_9 Int.\,EXP_{it} \\ &* \quad \eta_i + \mathbf{\Gamma'_{it}\Gamma_I} + \mathbf{C'_{ft}\Gamma_C} + \eta_i + \eta_f + \varepsilon_{it}, \quad (11) \end{aligned}$$

where we interact manager fixed effects η_i with both domestic ($Dom.\,EXP_{it} * \eta_i$) and international ($Int.\,EXP_{it} * \eta_i$) experience.[19] More specifically, positive values of interaction coefficients β_8 and β_9 would indicate that one more year of domestic

18. Operationally, we apply time first-differences to (10) to get rid of standard fixed effects η_{1i} and estimate the time-differenced model, in which the manager-specific linear trend $\eta_{2i} * t$ becomes a simple fixed effect η_{2i} , via OLS with the he Stata user-written routine reghdfe. Once estimated parameters and fixed effects η_{2i} we then come back to the original model (10) and compute fixed effects η_{1i}. In order to get more reliable estimates of both η_{1i} and η_{2i} we further restrict the sample to managers with at least four observations.

19. In order to better separate manager and firm fixed effects we focus in estimations of (11) on young managers belonging to the largest connected group (Abowd *et al.* 2002). For sample consistency across specifications, we report in Table C-3 in Appendix C estimation results referring to specifications (4) to (8) obtained with the sample used for (11). Results are qualitatively, and to a large extent also quantitatively, identical to those reported in Table 8. Finally, in order to estimate (11), and in particular interaction coefficients β_8 and β_9, we build upon the iterative OLS procedure developed in De La Roca and Puga (2017) to which we refer the reader for further details.

	Domestic in t	Internationally Active in t	Total
Domestic in t-1	62.72	37.28	100.00
Internationally active in t-1	35.52	64.48	100.00
Total	49.43	50.57	100.00

Table 6. Low-Ability Managers that Change Employing Firm, Specification Mobility & Firm FE.

Notes: The above Table provides a transition matrix constructed using observed job changes between $t-1$ and t in the young managers sample over the period 1991-2006. Job changes are split into four different categories depending on whether the employing firm in $t-1$ is domestic or internationally active and on whether the (different) employing firm in t is domestic or internationally active. For example, the top-left cell indicates that 62.72% of managers that were employed in a domestic firm in $t-1$ and move to another firm in t actually move to a domestic firm while, for example, the first cell of the bottom row indicates that 49.43% of managers changing firm between $t-1$ and t end up in t in a domestic firm. The Table refers to low-ability managers, i.e, managers with fixed effects below the average. Fixed effects refer to the Mobility & Firm FE specification in column (5) of Table 8.

and/or international experience increases more the wage of more skilled/better manager as suggested by our model. Besides allowing investigating an interesting feature of our model, specification (11) also provides insights on how well fixed effects capture ability and skills. More specifically, if fixed effects were to entirely reflect idiosyncratic shocks unrelated to ability and skills one would expect the two interaction terms not to be significantly different from zero, i.e., the lack of any specific pattern related to the combined impact of experience and fixed effects.

Discussion. A few remarks are in order at this stage. First, the use of manager fixed effects purges parameters from time-invariant manager heterogeneity (our measure of ability) while the identifying variation is now across time for a given manager. Furthermore, if managers did not move across firms and/or firms did not change internationally active status, there would be little room for separating the impact on wage growth of one more year of experience from one more year of tenure within the firm. Indeed, in such a case there would not be in the data any two managers with the same years of tenure but with, for example, different years of international experience. However, in the data managers do move across firms, and in particular between domestic and internationally active firms, and firms change internationally active status so that domestic and international experience can be separately identified from tenure. In this respect, Tables 6 and 7 show that there is mobility of both low-ability (below average fixed effect) and high-ability (above average fixed effect) managers to and from internationally active and domestic firms. Furthermore, in line with the model outlined in Section 2, imperfect sorting is at work with high-ability managers being more likely than low-ability managers to end up in an internationally active firm when changing job.

Second, the fact that identification heavily relies on managers moving across firms raises more prominently the issue of selection, i.e., of the non-random

	Domestic in t	Internationally active in t	Total
Domestic in t-1	54.19	45.81	100.00
Internationally active in t-1	30.80	69.20	100.00
Total	40.89	59.11	100.00

Table 7. High-Ability Managers that Change Employing Firm, Specification Mobility & Firm FE.

Notes: The above Table provides a transition matrix constructed using observed job changes between $t-1$ and t in the young managers sample over the period 1991-2006. Job changes are split into four different categories depending on whether the employing firm in $t-1$ is domestic or internationally active and on whether the (different) employing firm in t is domestic or internationally active. For example, the top-left cell indicates that 54.19% of managers that were employed in a domestic firm in $t-1$ and move to another firm in t actually move to a domestic firm while, for example, the first cell of the bottom row indicates that 40.89% of managers changing firm between $t-1$ and t end up in t in a domestic firm. The Table refers to high-ability managers, i.e, managers with fixed effects above the average. Fixed effects refer to the Mobility & Firm FE specification in column (5) of Table 8.

matching between firms and managers. As discussed in Section 2, it is important to consider both selection on observables, which does not necessarily raise an issue of estimation bias, and selection on unobservables which is needed for identification and could be a source of bias that is minimized by having a large set of observables. As far as observable characteristics of the manager and the firm are concerned, in our empirical analysis we build upon a large set of covariates and various fixed effects.

In this respect, Tables 6 and 7 show that, although present, sorting on ability is imperfect. Furthermore, Figure 3 indicates that there is a substantial overlap in the support of the distributions of managers' ability, as measured by manager fixed effects obtained from (11), as well as managers' wages when comparing managers who change job with managers who do not change job.[20] More specifically, despite average wages (fixed effects) are 10.1% (9.7%) higher, and significantly so at the 1% level, for managers who change job there is a substantial common support, as well as a very similar shape, for both the outcome variable and the fixed effects so suggesting that our regression framework is capable to account for selection on ability.

Third, our model suggests that firm growth and managers' wage growth are related to each other through opportunities and experience with differences across firms and managers in opportunities and experience being accounted for by the distinction between internationally active and domestic firms. However, there are other channels linking firm growth to managers' wage growth like, for example, general bonus payments related to firm performance and growth. In order to

20. Figure C-5 in Appendix C provides very similar results related to estimations of equation (8).

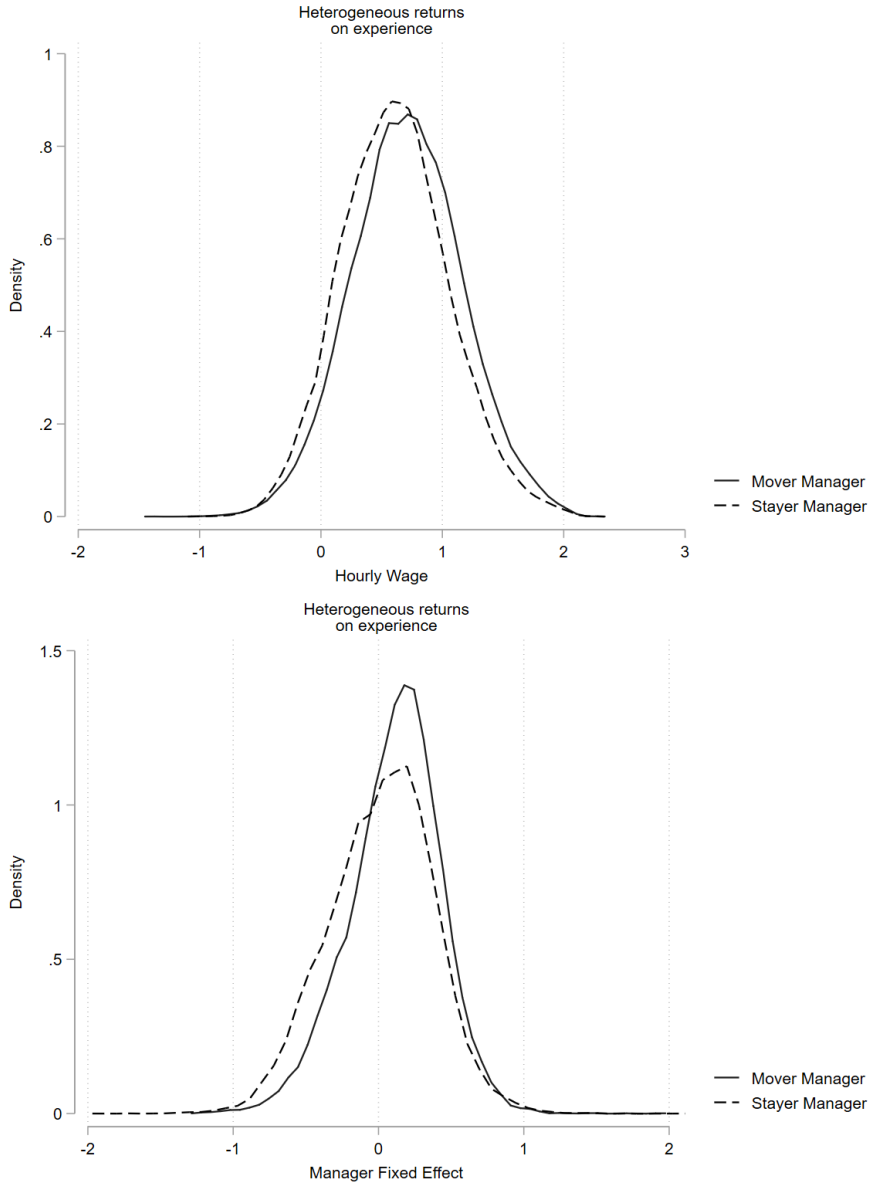

Figure 3: Wage and Fixed Effects of Movers and Stayers, Specification with Heterogeneous Returns on Experience

Notes: This figure shows the density of the hourly wage (left panel) and the fixed effects (right panel) for managers belonging to the young managers sample that change firm at least once ('movers') and for managers that always stay in the same firm ('stayers'). The sample considered is the one referring to the heterogeneous returns on experience specification in column (3) of Table 9.

account for such complementary channels we do consider in all of our regressions, and in particular in the group of firm-time controls C_{ft}, firm size as measured by employment as well as firm productivity. In this respect, with manager fixed effects, the coefficients related to the two controls are essentially identified by within-firm size and productivity *growth*[21] and so the value of, for example, one additional year of domestic and international experience is net of the wage change that can be related to overall within-firm growth in size and productivity.

Results. Table 8 reports estimations referring to the main covariates of equations (4) to (8) while additional details on control variables are reported in Table C-2 in Appendix C.[22] Column (1) of Table 8 refers to estimations of (4) and the key result stemming from this specification is that internationally active firms pay, conditional on our set of controls, about 12% higher wages than domestic firms so confirming previous evidence of a substantial wage premium related to firms involved in international trade (Bernard *et al.* 2012). When considering manager fixed effects in column (2) of Table 8, the coefficient of $Int.\,Act_{ft}$ is still strongly significant but drops considerably to about 3%. In this respect, column (1) of Table C-4 in Appendix C highlights how this drop is related to the presence of (imperfect) sorting of better managers into internationally active firms as measured by the positive correlation between manager fixed effects and the $Int.\,Act_{ft}$ dummy.

Columns (3) to (5) of Table 8 report results of equations (6) to (8). The first thing to highlight is that there is evidence of a significant differential return on domestic and international experience in all those specification of about 2%, i.e., one additional year of international experience increases the wage by about 2% more than one additional year of domestic experience.[23] Columns (4) and (5) of Table 8 further indicate, given the small and not always significant coefficients of the interactions between domestic and international experience with the $Int.\,Act_{ft}$ dummy, that the wage components related to both domestic and international experience are equally valued by domestic and internationally active firms, i.e., both types of experience are fully portable/valued across/by all firms. In particular, column (5) of Table 8 highlights how this result is robust to controlling for both firm fixed effects and job mobility patterns. Regarding the latter, our estimations do suggest that managers enjoy, on average, wage increases when moving from one

21. In (8) the coefficients related to firm size and productivity are, due to the additional presence of firm fixed effects, solely identified by within-firm size and productivity growth.

22. As far as control variables are concerned, Table C-2 in Appendix C shows that coefficients are in line with expectations. In particular, we find positive but diminishing returns on tenure, a positive return on education and sizeable positive premia related to firm productivity and (especially) size as well as to firm share of skilled workers. Finally, columns (1) to (4) of Table C-4 in Appendix C indicate that imperfect sorting of better managers into internationally active firms, as measured by the positive correlation between manager fixed effects and the $Int.\,Act_{ft}$ dummy, is present throughout manager fixed effects specifications.

23. In Table 8 $_{**}$ indicates that the coefficients of domestic and international experience are significantly different from each other at the 5% level.

VARIABLES	(1) OLS	(2) FE	(3) Type of Experience	(4) Portability	(5) Mobility & Firm FE
Int. Act. Firm (0/1)	0.1216^{a}	0.0314^{a}	0.0216^{a}	0.0409^{a}	0.0020
	(0.0027)	(0.0027)	(0.0028)	(0.0065)	(0.0058)
Experience (Yrs)	0.0204^{a}	0.0515^{a}			
	(0.0004)	(0.0009)			
Domestic Exp. (Yrs)			0.0428$^{a}_{**}$	0.0429$^{a}_{**}$	0.0326$^{a}_{**}$
			(0.0010)	(0.0010)	(0.0019)
International Exp. (Yrs)			0.0620$^{a}_{**}$	0.0663$^{a}_{**}$	0.0509$^{a}_{**}$
			(0.0011)	(0.0017)	(0.0021)
Dom. Exp. * Int. Act. Firm (Yrs)				-0.0024^{a}	-0.0007
				(0.0009)	(0.0008)
Int. Exp. * Int. Act. Firm (Yrs)				-0.0044^{a}	-0.0010
				(0.0015)	(0.0012)
Job Mobility (Dummy)					0.0603^{a}
					(0.0051)
Job Mobility * Int. Act. Firm (Dummy)					-0.0047
					(0.0030)
Observations	322,360	254,990	254,990	254,990	249,562
R-squared	0.3059	0.8767	0.8773	0.8774	0.9105
Manager-Year Controls	X	X	X	X	X
Firm-Year Controls	X	X	X	X	X
Region FE	X				
Manager FE		X	X	X	X
Firm FE					X
Estimation Method	OLS	OLS	OLS	OLS	OLS

Table 8. Wage Regressions, Simple Specifications, Main Covariates

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the OLS specification. The FE specification in column (2) includes manager fixed effects. Column (3) distinguishes between experience in domestic and internationally active firms. Column (4) allows the return on domestic and international experience to be different according to the international status of the firm. Column (5) features firm fixed effects while introducing a control for job changes both alone and interacted with the international status of the employing firm in t. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure. For example, in the case of manager fixed effects in column (2) the number of observations does not include managers for which only one observation is available. Such managers are instead included in the number of observations in column (1).

job to another raising their wage by about 6%. However, this has little impact on the differential return between domestic and international experience.

As far as the $Int.\,Act_{ft}$ dummy is concerned, the presence of both firm and manager fixed effects in column (5) of Table 8 means that the related coefficient is only identified by firms changing their internationally active status which is arguably a rather slim variation to exploit. Indeed, the coefficient of $Int.\,Act_{ft}$ is positive, small and not significant in column (5) of Table 8 while being positive,

significant and in between 2% to 4% in columns (2) to (4) where identification also comes from managers moving between domestic and internationally active firms. However, the key point we want to highlight here is that wage jumps enjoyed by managers when moving from domestic to internationally active firms represent at best (4%) two years of additional wage growth (2*2%) enjoyed when gaining experience in internationally active firms rather than in domestic firms. Therefore, in the space of a couple of years the main reason why managers are paid higher wages in internationally active firms is a higher wage growth, that sticks with the manager when moving to other firms, rather than a wage jump.

Columns (1) to (3) of Table 9 report estimation results for the main covariates of specifications (9) to (11) while additional details on control variables are reported in Table C-2 in Appendix C. Looking at columns (1) and (2) reveals that estimates are quite similar to those of specification (8). In particular, the difference between the returns on domestic and international experience remains around 2% and strongly significant. At the same time, when considering columns (1) to (3), the $Int.\,Act_{ft}$ dummy wage jump remains small while both domestic and international experience appear to be largely portable across domestic and internationally active firms. This suggests that our results are not particularly sensitive to the presence of richer forms of correlated unobserved heterogeneity.

Column (3) of Table 9 reports estimation results of our preferred specification, i.e., (11). The reasons why we consider (11) to be our preferred specification are twofold. First, the fact that results are very stable across specifications (8) to (10) reassures about potential bias coming from richer forms of correlated unobserved heterogeneity. Second, we see specification (11) as a substantial improvement over (8) because interaction term coefficients β_8 and β_9 are both strongly significant, and so is their difference,[24] and portrait a quite interesting pattern. Returns on domestic and international experience are in fact manager-specific in (11) and Figure 4 shows how such returns are related to manager fixed effects. More specifically, the left panel shows the return on international experience for a manager in an internationally active firm, and the return on domestic experience for a manager in a domestic firm, by manager fixed effect. The right panel instead shows the cumulative distribution of manager fixed effects. Figure 4 indicates that one more year of international experience is associated to a higher return than one more year of domestic experience across the whole distribution of manager fixed effects. Furthermore, in line with our model, one more year of domestic and/or international experience is more valuable to better/higher fixed effects managers. Moreover, the difference between the two returns grows with the manager fixed effects, i.e., it is small for managers with low fixed effects and becomes much bigger for higher fixed effects managers.

24. $_{**}$ indicates that the coefficients of the interactions of domestic experience with the manager FE and international experience with the manager FE are significantly different from each other at the 5% level.

VARIABLES	(1) Job-Spell FE	(2) Ind. Linear Trends	(3) Heter. Returns on Exper.
Int. Act. Firm (0/1)	0.0082	0.0415^{a}	0.0025
	(0.0058)	(0.0090)	(0.0033)
Domestic Exp. (Yrs)	0.0170$^{a}_{**}$	0.0353$^{a}_{**}$	0.0383$^{a}_{**}$
	(0.0054)	(0.0031)	(0.0003)
International Exp. (Yrs)	0.0363$^{a}_{**}$	0.0551$^{a}_{**}$	0.0507$^{a}_{**}$
	(0.0055)	(0.0040)	(0.0006)
Dom. Exp. * Int. Act. Firm (Yrs)	-0.0013	-0.0035^{a}	-0.0013^{a}
	(0.0008)	(0.0012)	(0.0004)
Int. Exp. * Int. Act. Firm (Yrs)	-0.0023^{c}	-0.0052^{a}	0.0001
	(0.0012)	(0.0016)	(0.0007)
Job Mobility (Dummy)	0.0590^{a}	0.0685^{a}	0.0550^{a}
	(0.0117)	(0.0067)	(0.0004)
Job Mobility * Int. Act. Firm (Dummy)	-0.0025	0.0081^{c}	-0.0049^{a}
	(0.0030)	(0.0044)	(0.0018)
Domestic Exp. * Manager FE (Yrs)			0.0118$^{a}_{**}$
			(0.0002)
International Exp. * Manager FE (Yrs)			0.0275$^{a}_{**}$
			(0.0004)
Observations	233,629	104,921	147,367
R-squared	0.9143	0.8719	0.9985
Manager-Year Controls	X	X	X
Firm-Year Controls	X	X	X
Manager FE		X	X
Firm FE			X
Individual Linear Trends		X	
Job-Spell FE	X		
Estimation Method	OLS	OLS	OLS

Table 9. Wage Regressions, More Complex Specifications, Main Covariates

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the Job-Spell FE specification using firm-manager FE instead of separate manager and firm FE. The Individual Linear Trends specification in column (2) includes both standard manager fixed effects as well as the interactions between separate manager fixed effects and a linear trend. The Heterogeneous Returns on Experience specification in column (3) instead uses manager and firm FE while adding two interaction terms of manager FE with domestic and international experience. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with the manager FE and international experience with the manager FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure.

In order to better understand the quantitative implications of the estimated coefficients from (11), we report in the left panel of Figure 5 the wage premium corresponding to a manager that is always employed by an internationally active firm with respect to an identical manager that is always employed by a domestic

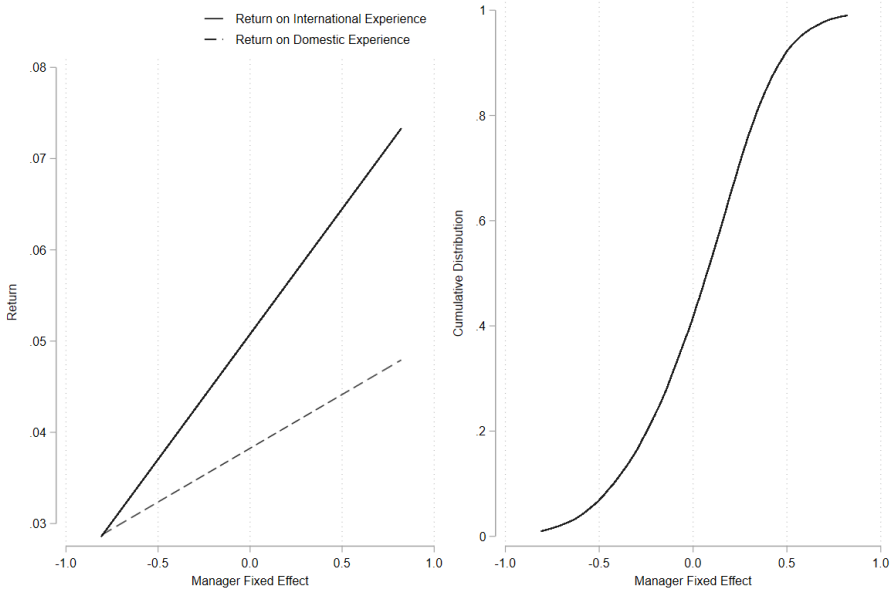

Figure 4: Returns on International and Domestic Experience by Manager Fixed Effect

Notes: This figure is based on specification (3) in Table 9. The left panel shows the return on international experience for a manager in an internationally active firm, and the return on domestic experience for a manager in a domestic firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in an internationally active firm ($Int.\,Act_{ft}$ dummy). The right panel shows the cumulative distribution of manager fixed effects, between the 1st and 99th percentiles.

firm, by number of years of employment (up to 10 years). In particular, in order to capture heterogeneity of returns across ability/fixed effects, we compute the wage premium for managers corresponding to the 25th, 50th, and 75th percentiles of the managers fixed effect distribution. As shown by the left panel of Figure 5, the premium increases with the ability of the manager stacking up over a 10 years horizon to a wage difference of about 10% to 17% which is quite substantial.

The right panel of Figure 5, which is constructed in the same way as the left panel but refers to blue-collar workers, delivers a very different message. More specifically, we estimate specification (11) using the young blue-collar workers sample and, based on the estimated coefficients reported in column (8) of Table C-5 in Appendix C, we compute the wage premium corresponding to a blue-collar worker that is always employed by an internationally active firm with respect to an identical blue-collar worker that is always employed by a domestic firm, by number of years of employment (up to 10 years). In particular, we compute the wage premium for a blue-collar worker corresponding to the 25th, 50th, and 75th percentiles of the blue-collar worker fixed effect distribution. In doing so, the right panel of Figure 5 reveals that there is basically no wage premium for blue-collar

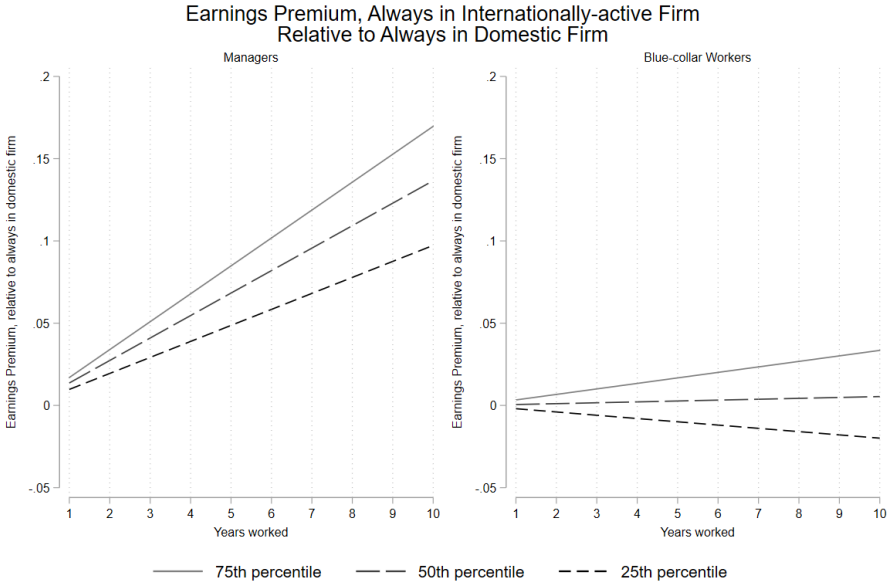

Figure 5: Wage Premium in Internationally active Firms vs. Domestic Firms, Managers and Blue-collar Workers

Notes: This figure is based on specification (3) in Table 9 (for managers) and specification (8) in Table C-5 in Appendix C (for blue-collar workers). The left panel shows the wage premium corresponding to a manager that is always employed by an internationally active firm with respect to an identical manager that is always employed by a domestic firm, by number of years of employment (up to 10 years). The premium does not include the static wage premium of working in an internationally active firm ($Int.\,Act_{ft}$ dummy). The panel shows the wage premium for three types of managers, corresponding to the 25th, 50th, and 75th percentiles of the manager fixed effect distribution of specification (3) in Table 9. The right panel of the figure is constructed in the same way but for blue-collar workers.

workers related to a differential value of domestic and international experience. At the same time, columns (1) to (8) of Table C-5 in Appendix C show evidence across specifications (4) to (11) of a consistently positive and significant wage jump (in between 2% and 5%) associated to moving from domestic to internationally active firms for blue-collar workers.

In sum, our analysis suggests that managers and blue-collar workers receive higher wages in internationally active firms because of very different mechanisms. Blue collar workers are paid more because of wage jumps occurring when moving from a domestic to an internationally active firm while managers are paid more because of a higher wage growth in internationally active firms that sticks with them when, eventually, moving to a domestic firm.

6.2. Firm Closures and Job Displacement

To strengthen the causality interpretation of our findings we consider here some more exogenous source of variation in the data: firm closures and related job displacement. Displaced workers have been used in many previous studies to control for selection due to unobserved heterogeneity.[25] In particular, in our analysis we first identify firm closures and the related group of displaced young managers and subsequently follow displaced young managers *only in the first job after displacement*.[26] Such job will be in either a domestic or an internationally active firm and, using data on the employment spell corresponding to the first job after displacement, we estimate specifications (8) and (11) while borrowing the corresponding manager and firm fixed effects from estimations of (8) and (11) on the whole sample of young managers.[27]

The left panel of Figure 6 displays the distributions of the fixed effects of displaced and non-displaced young managers corresponding to estimations of (11), while the right panel of Figure 6 focuses on the group of displaced young managers and provides the distribution of the fixed effects of those ending up, after displacement, in a domestic or an internationally active firm. The left panel of Figure 6 shows that the two distributions are extremely similar. In fact, there is only a small (and not statistically significant) average difference in fixed effects of 0.1% actually in favour of displaced managers. At the same time, the right panel of Figure 6 shows a very similar pattern when comparing displaced managers ending up in a domestic or an internationally active firm; with the former actually being characterized by a small (and not statistically significant) higher average fixed effect of 2%. In our displaced managers regressions we indeed focus on displaced managers only and compare the wage trajectories, in the first job after displacement, of those ending up in domestic vs internationally active firms.

Table 10 provides estimation results for key covariates of specifications (8) and (11) on the sample of displaced young managers. Information on additional controls is reported in Table C-6 in Appendix C. At the same time Figure 7, which is the equivalent of Figure 4 for displaced young managers, displays the returns on domestic and international experience by manager fixed effect (left panel) as well as the cumulative distribution of manager fixed effects (right panel). Finally Figure 8, which is the equivalent of Figure 5 for displaced young managers and displaced blue-collar workers, shows in the left (right) panel the wage premium

25. Examples include Kletzer (1989), Gibbons and Katz (1992) and Dustmann and Meghir (2005).

26. We consider a firm as closing in year t when the firm appears for the last time in *Quadros de Pessoal* in t and $t \leq 2006$. Given that we use data up to 2009, this implies that we use at least 3 years of data to verify that the firm has actually shut down and does not appear anymore in the matched employer-employee data set.

27. More specifically, we use estimated fixed effects η_i and η_f obtained from estimations of (8) and (11) on the sample of young managers as simple covariates, instead of treating them as fixed effects, in the estimations of (8) and (11) on the sample of displaced young managers.

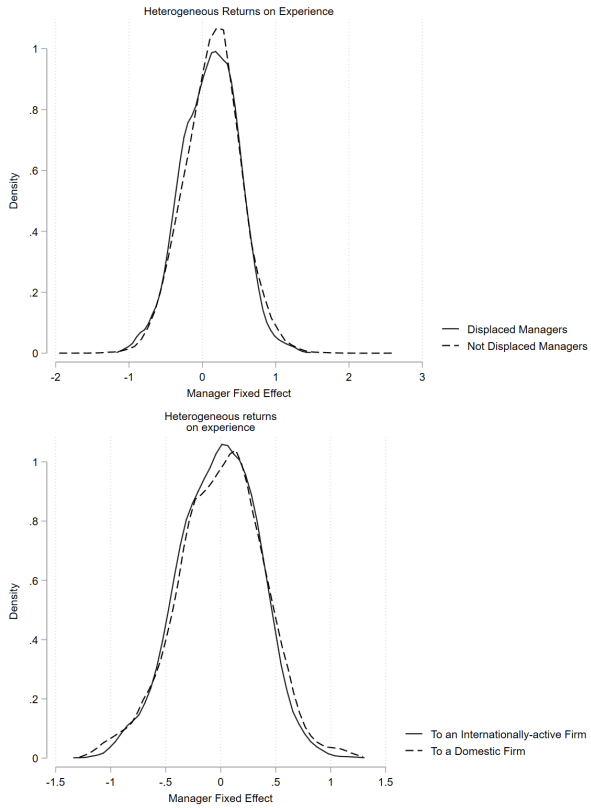

Figure 6: Fixed Effects of Displaced and non-Displaced Managers and Fixed Effects of Displaced Managers Ending up in a Domestic or an Internationally Active Firm, Specification with Heterogeneous Returns on Experience

Notes: The left panel of this figure shows the density of the fixed effects for managers belonging to the young managers sample that are displaced at least once ('Displaced Managers') and for managers that are never displaced ('Non-Displaced Managers'). The right panel instead shows the density of the fixed effects for displaced managers belonging to the young managers sample ending up in a domestic ('To a Domestic Firm') or an internationally active firm ('To an Internationally-active Firm'). The sample considered is the one referring to the heterogeneous returns on experience specification in column (3) of Table 9.

corresponding to a manager (blue-collar worker) that is always employed by an internationally active firm with respect to an identical manager (blue-collar worker) that is always employed by a domestic firm, by number of years of employment (up to 10 years). In particular we consider managers (blue-collar workers) corresponding to the 25th, 50th, and 75th percentiles of the managers (blue-collar workers) fixed effect distribution.

Inspection of Table 10 and Figures 7 and 8 reveals that all of the findings and patterns related the sample of young managers and blue-collar workers

VARIABLES	(1) Mobility & Firm FE	(2) Heter. Returns on Exper.
Int. Act. Firm (0/1)	0.0150	0.0210^{a}
	(0.0099)	(0.0069)
Domestic Exp. (Yrs)	0.0323^{a}_{**}	0.0453^{a}_{**}
	(0.0007)	(0.0010)
International Exp. (Yrs)	0.0506^{a}_{**}	0.0635^{a}_{**}
	(0.0013)	(0.0016)
Dom. Exp. * Int. Act. Firm (Yrs)	-0.0011	-0.0054^{a}
	(0.0012)	(0.0010)
Int. Exp. * Int. Act. Firm (Yrs)	-0.0042^{a}	-0.0045^{a}
	(0.0016)	(0.0017)
Domestic Exp. * Manager FE (Yrs)		0.0109^{a}_{**}
		(0.0006)
International Exp. * Manager FE (Yrs)		0.0280^{a}_{**}
		(0.0009)
Observations	6,783	3,868
R-squared	0.9248	0.9867
Manager-Year Controls	X	X
Firm-Year Controls	X	X
Manager FE	X	X
Firm FE	X	X
Estimation Method	OLS	OLS

Table 10. Wage Regressions, Key Covariates, Displaced Managers Sample

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the displaced managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) provides key covariates of the Mobility & Firm FE specification while column (2) provides key covariates of the Heterogeneous Returns on Experience specification. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with the manager FE and international experience with the manager FE) are significantly different from each other at the 5% level. Displaced managers are followed only in the first job after displacement and so the job mobility dummy and its interaction with the internationally active status dummy are not relevant. All results refer to OLS estimations while firm and manager fixed effects are borrowed from the estimations of the corresponding specifications on the sample of young managers. The reported number of observations refers to the actual number of observations used in the estimation.

carry through the sample of displaced young managers and blue-collar workers with strikingly similar magnitudes. In particular, one more year of international experience is associated to a higher return than one more year of domestic experience across the whole distribution of manager fixed effects. Furthermore, one more year of domestic and/or international experience is more valuable to better/higher fixed effects managers while the difference between the two returns grows with the manager fixed effects stacking up over a 10 years horizon to a sizable wage difference of about 11% to 20%. At the same, there seems to be a rather small, and sometimes not significant, wage jump related to moving between

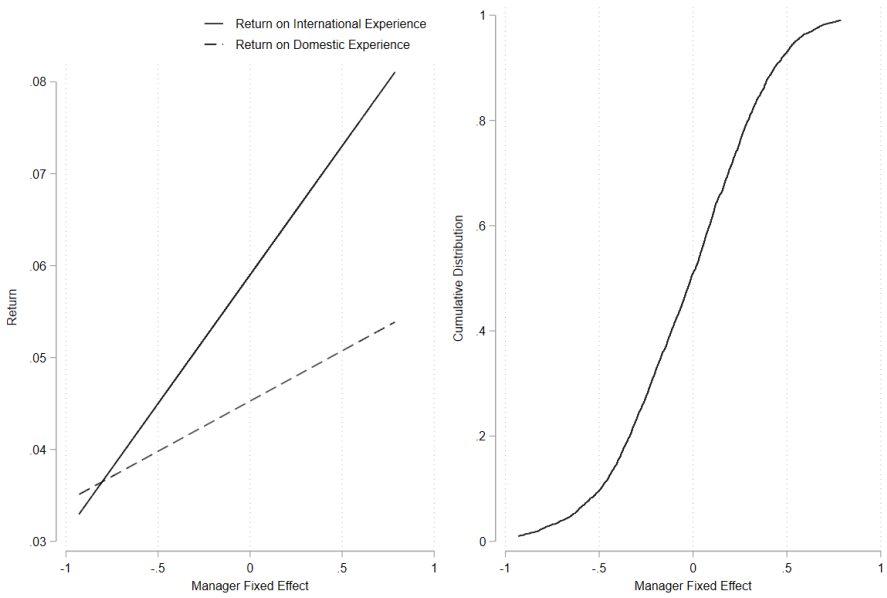

Figure 7: Returns on International and Domestic Experience by Manager Fixed Effect, Displaced Managers Sample

Notes: This figure is based on specification (2) in Table 10. The left panel shows the return on international experience for a manager in an internationally active firm, and the return on domestic experience for a manager in a domestic firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in an internationally active firm ($Int.\,Act_{ft}$ dummy). The right panel shows the cumulative distribution of fixed effects, between the 1st and 99th percentiles.

domestic and internationally active firms so indicating that the bulk of managers' wage differences between domestic and internationally active firms is related to the differential value of domestic and international experience. As for blue-collar workers, there is evidence of a modest difference in the returns of domestic and international experience for the most able workers only. Table C-7 in Appendix C shows that there is robust evidence across specifications of a sizeable and significant wage jump associated to moving between domestic and internationally active firms representing the bulk of blue-collar workers' wage differences between domestic and internationally active firms.

6.3. Robustness of Results

To provide further robustness to our results we consider several additional enriched versions of (11).

1. We drop those components of the salary that are linked to performance pay. This is because internationally active firms might be using those components

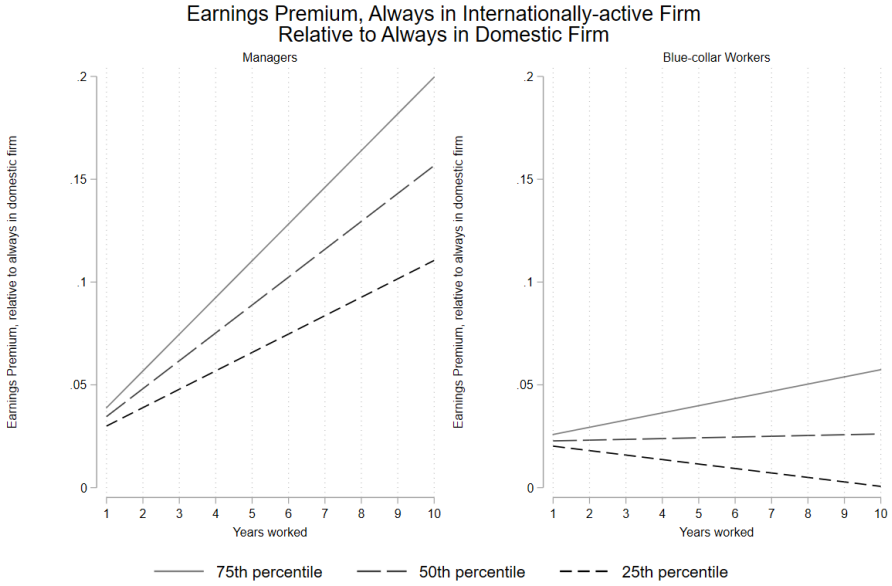

Figure 8: Wage Premium in Internationally active Firms vs. Domestic Firms, Managers and Blue-collar Workers, Displaced Managers and Displaced Blue-collar Workers Samples

Notes: This figure is based on specification (2) in Table 10 and the equivalent specification estimated on the displaced blue-collar workers sample. The left panel shows the wage premium for a manager that is always employed by an internationally active firm with respect to an identical manager that is always employed by a domestic firm, by number of years of employment (up to 10 years). The premium does not include the static wage premium of working in an internationally active firm ($Int.Act_{ft}$ dummy). The panel shows the wage premium for three types of managers, corresponding to the 25th, 50th, and 75th percentiles of the manager fixed effect distribution of specification (2) in Table 10. The right panel is constructed in the same way but for blue-collar workers.

more prominently than domestic firms while in our underlying framework in Section 2 we have made the assumption that domestic and internationally active firms use such components equally.

2. We add to the regressions interaction variables between education and experience (both domestic and international) in order to control for the different wage profiles of more or less educated managers. For example, this allows for managers going through University education, and so starting their career later, to have higher returns on experience (both domestic and international).
3. We consider a number of variables that proxy for the bargaining position of a manager and the related wage patterns driven by on-the-job-search and outside offers. Indeed the labour economics literature, and in particular on-the-job search models like Postel-Vinay and Robin (2002), highlight the importance of the characteristics of both the current and perspective employers (size and productivity), as well as the current wage, to determine whether

a worker/manager will actually change employer as well as the wage in the new job. In particular, the larger and more productive the initial firm is, and the lower the initial salary is, the higher is the expected wage growth for a worker/manager whether he moves to another firm or not. Controlling for the wage and the characteristics of the firm the manager was working for in $t-1$ (as well as for the characteristics of the firm the manager works in t who are already in our regressions) should thus fully capture wage patterns dictated by job searching, job hopping and outside offers. In this respect, we thus add to our regressions log employment and productivity of the firm the manager was working for in $t-1$ as well as log wage in $t-1$. More specifically, we construct those variables in such a way that, once time-differencing our wage equation, they enter in levels, i.e., the *level* of log employment and productivity of the firm the manager was working for in $t-1$, as well as the *level* of log wage in $t-1$, affect the wage *change* between $t-1$ and t: $w_{it} - w_{it-1}$.

4. We control for career concerns models dynamics and in particular for the fact that young managers could be initially paid less in internationally active firms in the prospect of a faster career (Gibbons and Murphy 1992). To this end, we construct a dummy variable indicating whether a manager is 25 years old or younger and consider both this dummy alone as well as interacted with the international active status of the employing firm.
5. We show that our results are robust to dropping tenure in the firm and its square as well as to interacting those tenure variables with the internationally active firm dummy.
6. We show that our results are robust to introducing both domestic and international experience square.

Figure 9 provides key highlights of our findings while Table C-8 in Appendix C provides detailed regression results. In particular, Figure 9 displays the returns on international and domestic experience, by manager fixed effect, obtained from the above described enrichments of equation (11). As can be appreciated from Figure 9, the return on international experience is indeed higher than the return on domestic experience, across basically the whole fixed effects range, in all seven cases. At the same time, Table C-8 in Appendix C does indicate that most of the issues leading us to consider enriched versions of equation (11) find some support in the data. For example, it is indeed the case that the wage profiles of more or less educated managers are quite different and that the bargaining position of a manager, and the related wage patterns driven by on-the-job-search and outside offers, are important determinants of wage changes. More specifically, the more productive the firm the manager was working for in $t-1$, and the lower the wage of the manager in $t-1$, the higher will be the increase in the wage between $t-1$ and t.

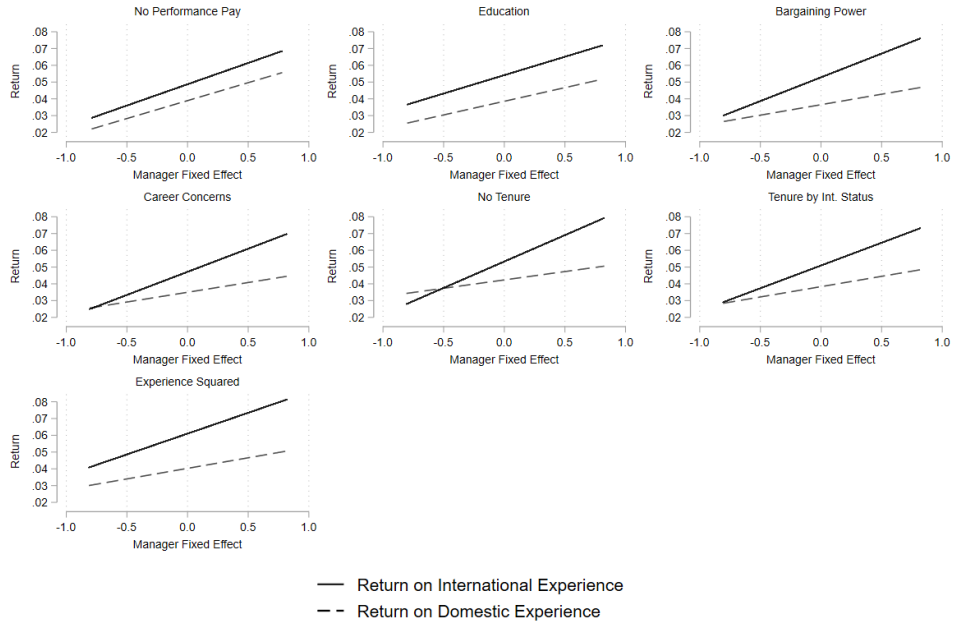

Figure 9: Returns on International and Domestic Experience by Manager Fixed Effect, Additional Specifications with Heterogeneous Returns on Experience

Notes: This figure is based on enriched heterogeneous returns on experience specifications reported in columns (1) through (7) in Table C-8 in Appendix C. Each panel shows the return on international experience for a manager in an internationally active firm, and the return on domestic experience for a manager in a domestic firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in an internationally active firm ($Int.\ Act_{ft}$ dummy).

6.4. Alternative Dividing Lines between Good and Bad Jobs

We provide here evidence that the distinction between internationally active and domestic firms is more powerful in capturing the dynamics of managers' wages across different firms than the distinction between large and small firms or the distinction between firms with many or few layers of management.

The first step in this direction is to replicate some of our results while drawing the dividing line between good and bad firms according to firm size (big and small firms) as well as according to the number of layers of management (high-layer and low-layer firms).[28] This is accomplished by Figure 10, and related Tables C-9 and C-10 in Appendix C, for the number of management layers, as well as by Figure

28. A firm is considered big if it employs 50 or more workers. A firm is considered a high-layer firm, in a given year, if the firm has 3 layers of management. Layers are defined as in Caliendo *et al.* (2020). See Appendix A for more details.

11, and related Tables C-11 and C-12 in Appendix C, for firm size. By comparing those set of results with those emerging from the distinction between domestic and internationally active firms it appears that, overall, results are very similar although sometimes less stark. In particular, it is still the case that, for managers, the returns on experience in large or high-layer firms are higher than the returns on experience in small or low-layer firms across the whole fixed effects distribution, leading to an increasing earning premium over time reaching about 2-6% (4-12%) over a period of 10 years. At the same time, static wage jump gains for managers are either absent or small compared to returns on experience, while they are important for blue-collar workers who don't seem to face differential returns on high-layer vs low-layer firms experience or big vs small firms experience.

The second step of our analysis instead consists in running a horse race between the different ways of drawing the dividing line between good and bad firms. This is accomplished by Figure 12, and related regressions Table C-13 in Appendix C, for the horse race between the internationally active status and the number of management layers, as well as by Figure 13, and related regressions Table C-14 in Appendix C, for the horse-race between the internationally active status and size. For example, in Figure 12 the top left (top right) panel shows the returns on low-layer firms and high-layer firms experience, for a manager in a domestic (internationally active) firm, by manager fixed effect. The bottom left (bottom right) panel instead shows the returns on domestic and international experience, for a manager in a low-layer (high-layer) firm, by manager fixed effect. In a symmetric way, in Figure 13 the top left (top right) panel shows the returns on small firms and large firms experience, for a manager in a domestic (internationally active) firm, by manager fixed effect. The bottom left (bottom right) panel instead shows the returns on domestic and international experience, for a manager in a small (big) firm, by manager fixed effect.

In this respect, Figures 12 and 13 provide evidence that the distinction between domestic and international experience, and the higher return associated to the latter, are not much affected by whether the current employing firm is small or big or by whether the current employing firm has a low or a high number of management layers. By contrast, the distinction between small or low-layer firms experience and high-layer or big firms experience, and the higher return associated to the latter, is quite fragile in that, depending on whether the current employing firm is domestic or internationally active, patterns might be much weaker or reversed.

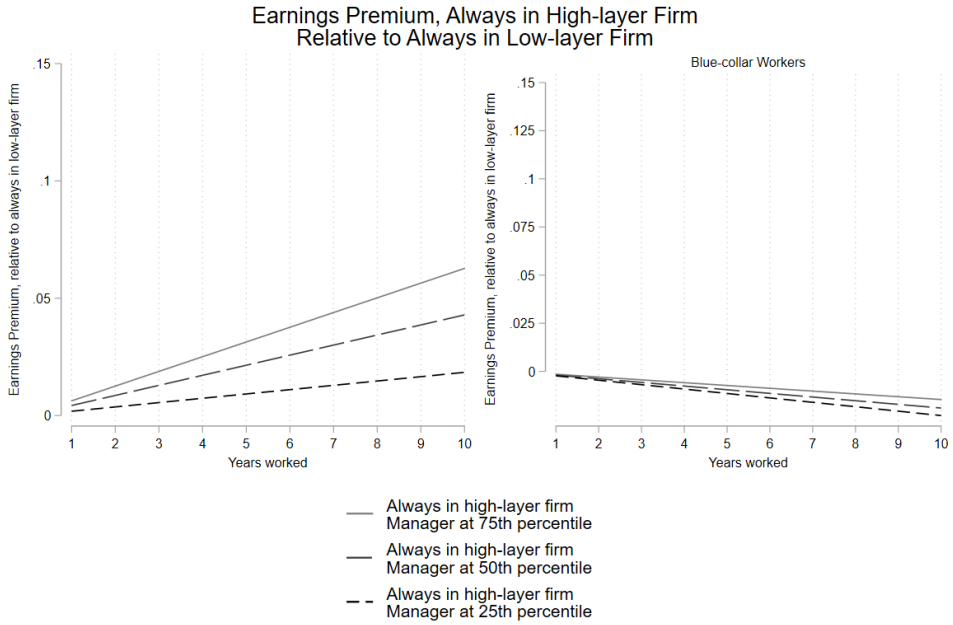

Figure 10: Wage Premium in High-Layer Firms vs. Low-Layer Firms, Managers and Blue-collar Workers

Notes: This figure is based on specification (8) in Table C-9 (for managers) and specification (8) in Table C-10 (for blue-collar workers). Both Tables are provided in Appendix C. The left panel shows the wage premium for a manager that is always employed by a high-layer firm with respect to an identical manager that is always employed by a low-layer firm, by number of years of employment (up to 10 years). The premium does not include the static wage premium of working in a high-layer firm (high-layer firm status dummy). The panel shows the wage premium for three types of managers, corresponding to the 25th, 50th, and 75th percentiles of the manager fixed effect distribution of specification (8) in Table C-9. The right panel of the figure is constructed in the same way but for blue-collar workers.

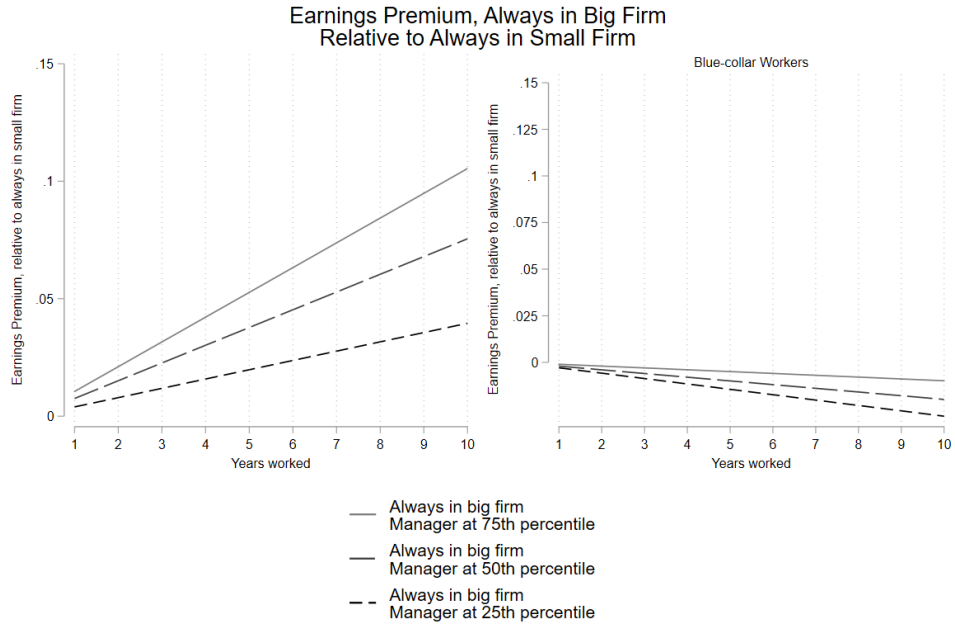

Figure 11: Wage Premium in Big Firms vs. Small Firms, Managers and Blue-collar Workers

Notes: This figure is based on specification (8) in Table C-11 (for managers) and specification (8) in Table C-12 (for blue-collar workers). Both Tables are provided in Appendix C. The left panel shows the wage premium for a manager that is always employed by a big firm with respect to an identical manager that is always employed by a small firm, by number of years of employment (up to 10 years). The premium does not include the static wage premium of working in a big firm (big firm status dummy). The panel shows the wage premium for three types of managers, corresponding to the 25th, 50th, and 75th percentiles of the manager fixed effect distribution of specification (8) in Table C-11. The right panel of the figure is constructed in the same way but for blue-collar workers.

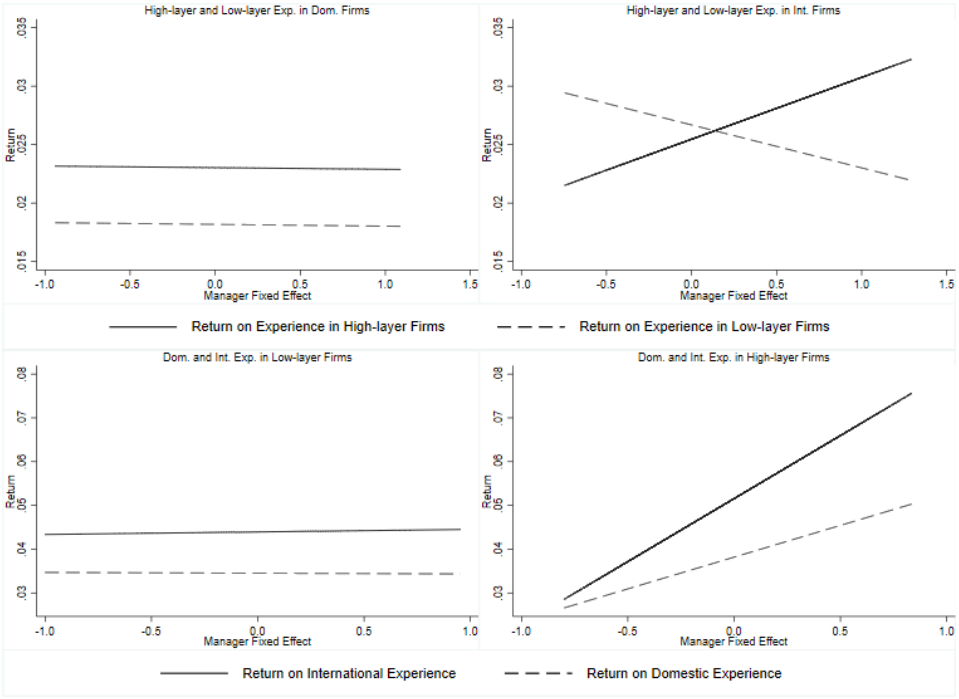

Figure 12: Returns on International and Domestic Experience vs. Return on High-Layer Firms and Low-Layer Firms Experience

Notes: This figure is based on specifications (1) through (4) in Table C-14 in Appendix C. The top left (top right) panel shows the returns on low-layer firms and high-layer firms experience for a manager in a domestic (internationally active) firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in a high-layer firm (high-layer firm status dummy). The bottom left (bottom right) panel shows the returns on domestic and international experience for a manager in a low-layer (high-layer) firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in an internationally active firm ($Int.\ Act_{ft}$ dummy).

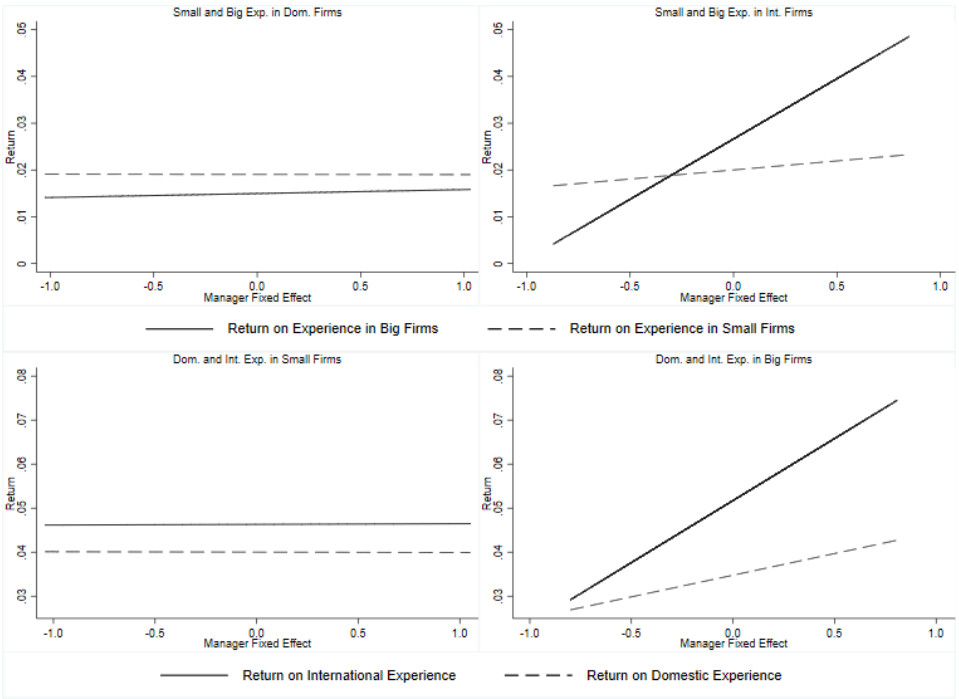

Figure 13: Returns on International and Domestic Experience vs. Return on Big Firms and Small Firms Experience

Notes: This figure is based on specifications (1) through (4) in Table C-13 in Appendix C. The top left (top right) panel shows the returns on small firms and big firms experience for a manager in a domestic (internationally active) firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in a big firm (big firm status dummy). The bottom left (bottom right) panel shows the returns on domestic and international experience for a manager in a small (big) firm, by manager fixed effect, between the 1st and 99th percentiles. The returns do not include the static wage premium of working in an internationally active firm ($Int.\ Act_{ft}$ dummy).

7. Quantitative Implications: Cross-sectional and Spatial Distributions of Wages

In this Section we provide evidence that the distinction between domestic and international experience has a number of far reaching quantitative implications for both the cross-sectional and spatial distributions of wages.

7.1. A Simple Variance Decomposition

Showing that coefficients are significant and/or sizeable for certain groups of managers and workers does not necessarily mean that the patterns we uncover from the data are 'important' in that they explain a substantial portion of cross-sectional differences in wages. In order to show that the distinction between domestic and international experience is 'important' we thus perform here a variance decomposition analysis. We do so for the specification in equation (8) where we now consider in the regression overall experience and international experience, instead of domestic experience and international experience. We report estimation highlights in Table C-15 in Appendix C. In particular, we take the last year of the data (2006) and, while multiplying each covariate by the corresponding estimated coefficient, we compute the standard deviation of:

1. w_{it}: dependent variable.
2. Worker-level controls: overall experience, tenure and its square as well as the job mobility dummy and its interaction with the internationally active status of the firm.
3. Firm-level controls: firm size, productivity, age and share of skilled workers.
4. Int. Exp. & IA dummies: international experience as well as the internationally active status dummy and its interactions with overall and international experience.
5. $\hat{\eta}_i + \hat{\eta}_f$: manager and firm fixed effects.
6. $\hat{\varepsilon}_{it}$: residuals.

In this respect, results in Table 11 show that the standard deviation associated to the Int. Exp. & IA dummies component is sizeable (0.052), with the bulk of the effect coming from international experience (0.056), corresponding to about two thirds of the standard deviation in wages that can be attributed to firm-level controls and to 55% of the of the standard deviation in wages that can be attributed to overall experience. Furthermore, given our focus on young managers and the fact that young managers in our sample are at most 33 years old, we believe those numbers in the wider population would attribute more importance to international experience. Indeed, when focusing in Table 12 on managers aged 30 or over, which are still quite young by any metric, we find that the gap between the standard deviation in wages that can be attributed to overall experience and international experience narrows substantially. The extent of the narrowing is such that it makes us conjecture that, at some age threshold, it actually becomes more

important to know how many years of international experience managers have, as opposed to the number of years of overall experience, in order to understand differences in their wages.

Component		St. Dev.
w_{it}		0.504
Worker-level controls		0.125
of which	Overall Exper.	0.102
Firm-level controls		0.087
Int. Exp. & IA dummies		0.052
of which	Internat. Exper.	0.056
$\hat{\eta}_i + \hat{\eta}_f$		0.462
$\hat{\varepsilon}_{it}$		0.141

Table 11. Standard deviation of the various components of the estimated equation (8): overall experience vs international experience

Notes: This Table provides a variance decomposition analysis based on estimations of equation (8), where overall experience and international experience are used as covariates instead of domestic experience and international experience. For each covariate, we compute the product of the covariate and the corresponding estimated coefficient. We then group the product of covariates and coefficients into groups/components and provide the standard deviation of each component corresponding to the year 2006.

7.2. Spatial Wage Inequality

Portugal is characterized, like most countries, by strong regional differences in wages and incomes. For example, the left panel of Figure 14 shows the average regional hourly wage of managers, belonging to our young managers sample, across NUTS III regions in Portugal for the year 2006. The ratio of the highest, corresponding to the 'Grande Lisboa' region, to the lowest, corresponding to the 'Pinhal Interior Sul' region, average regional wage is almost two while the overall coefficient of variation in the data is 0.329. The middle panel of Figure 14 instead shows the average regional number of years of overall experience of managers in our sample, and clearly highlights how regional variation in overall experience is both quite limited, ranging from a minimum of 8.37 to a maximum of 9.93, and quite unrelated to differences in wages (the correlation is actually negative at -0.270). However, the regional share of years of overall experience corresponding to international experience, provided in the right panel of Figure 14, does vary considerably across space, ranging from a minimum of 9% to a maximum of 39%, and is correlated to differences in wages (a positive correlation of 0.635). In order to get insights into the quantitative importance of international experience, and

Component		St. Dev.
w_{it}		0.514
Worker-level controls		0.100
of which	Overall Exper.	0.075
Firm-level contr.		0.088
Int. Exp. & IA dummies		0.059
of which	Internat. Exper.	0.062
$\hat{\eta}_i + \hat{\eta}_f$		0.484
$\hat{\varepsilon}_{it}$		0.146

Table 12. Standard deviation of the various components of the estimated equation (8): overall experience vs international experience. Managers aged 30 and over

Notes: This Table provides a variance decomposition analysis based on estimations of equation (8), where overall experience and international experience are used as covariates instead of domestic experience and international experience. For each covariate, we compute the product of the covariate and the corresponding estimated coefficient. We then group the product of covariates and coefficients into groups/components and provide the standard deviation of each component corresponding to the year 2006 and to managers aged 30 or older.

the higher return associated to it, for the spatial distribution of wages we perform the following counterfactual experiment. More specifically, we reallocate years of domestic and international experience across individual managers in such a way to keep the overall sum constant, while at the same time equalizing the share of overall experience corresponding to international experience across regions in Portugal. We then compute counterfactual wages for managers in 2006 and compare the regional coefficients of variation of the observed and counterfactual wages. In doing so we find that, eliminating differences in the share of international experience across regions, would substantially reduce spatial inequalities in wages for Portugal by bringing down the coefficient of variation by 12.6%.

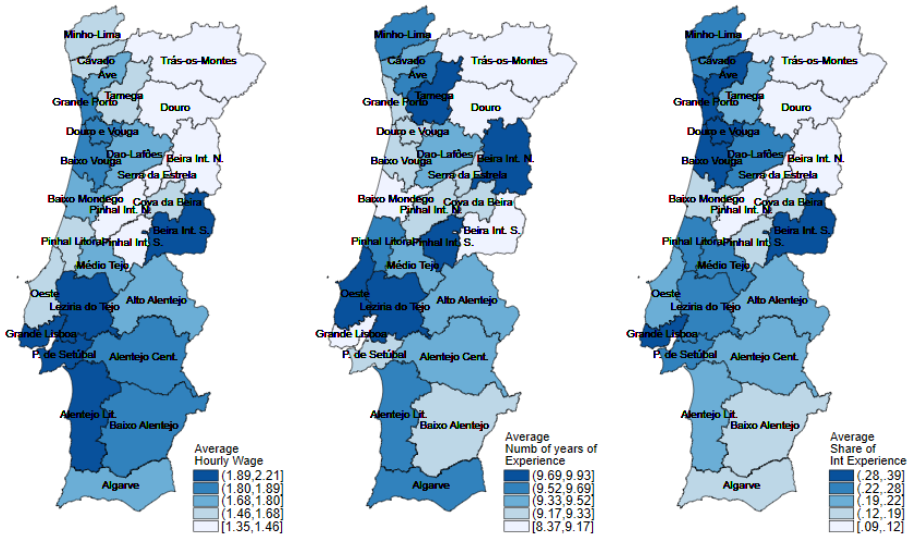

Figure 14: Hourly wage, number of years of overall experience and share of international experience across NUTS III regions

Notes: The left panel of this map shows the average regional hourly wage of managers across NUTS III regions in Portugal. The middle panel instead shows the average regional number of years of experience of managers while the right panel provides the region-level share of years of experience corresponding to international experience. The legend at the bottom of each panel provides a correspondence between colours and the class intervals (based on quintiles) corresponding to each variable. Observations refer to the year 2006 for the sample of young managers used in the specification in column (5) of Table 8: Mobility & Firm FE.

8. Conclusions

Understanding why certain jobs are 'better' than others and what implications they have for a worker's career is an important but still relatively unexplored question. We have provided both a theoretical framework and a number of empirical results that help distinguishing 'good' from 'bad' jobs in terms of their impact on a worker's lifetime wage income profile through wage jumps occurring upon changing job ('static effects') or through increases in the wage growth rate ('dynamic effects').

In doing so, exploiting Portuguese matched employer-employee data, we have shown that the distinction between internationally active firms and domestic firms is a meaningful empirical dividing line between employers providing 'good' and 'bad' jobs. First, in internationally active firms the experience-wage profile is much steeper than in domestic firms, especially for managers as opposed to blue-collar workers. Second, the higher lifetime wage income for managers in internationally active firms relies on the stronger accumulation of valuable experience that these

firms allow for and on the (almost) perfect portability of the accumulated dynamic wage gains to other firms. Static effects are instead much more important for blue-collar workers. In this respect it would be interesting, as a further research avenue, to better understand how experience accumulated within firms materialises and where exactly it comes from. A natural hypothesis is that workers learn from coworkers, with better coworkers being better learners, while some coworkers are more important than others for learning, and those coworkers are more frequently found in internationally active firms (Jarosch *et al.* 2019).

We have also highlighted that the distinction between internationally active and domestic firms is relevant at the aggregate level to explain cross-sectional differences in wages among workers and spatial differences in average wages across regions within a country. Another natural direction of future research would be to extend the analysis to countries other than Portugal. This could help shed new light on the sources of divergent firm dynamics across countries (especially between developed and developing ones) in process efficiency, quality and ability to penetrate home and foreign markets, which have been shown to drive a substantial part of cross-country differences in aggregate productivity (Hsieh and Klenow 2014).

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Appendix: Additional Details about Data, Tables and Figures

The analysis relies on two major datasets: an international trade dataset at the transaction-level, and a matched employer-employee dataset, both for Portugal covering the period 1991-2006. We describe each of the two datasets in the main text. Here we provide more details on how we construct the combined sample used in the analysis, and we provide the definitions of the key variables employed in the analysis.

Appendix A: Combined dataset, data processing, and regression sample

In order to combine the trade and matched employer-employee data we start from the workers' module of the latter. Each worker in *Quadros de Pessoal* (QP) has a unique, time-invariant, identifier based on her social security number. We drop from the sample a minority of workers with an invalid social security number and with multiple jobs. If a worker is employed in a particular year, we observe the corresponding firm identifier for that year. Since worker-level variables are missing in 2001, we assign a firm to workers in 2001 in the following way: if a worker is employed by firm A in 2002 and the year in which the worker had been hired (by firm A) is before 2001 or is 2001, then we assign the worker to firm A in 2001 as well; for all other workers, we repeat the procedure using 2003. In case neither 2002 nor 2003 allow us to assign a firm to a worker in 2001, we leave the information as missing.
We then merge the firm-level module of QP, as well as firm-year trade information computed via the international trade dataset, by means of the firm identifier. In the trade dataset, we restrict the sample to transactions registered as sales as opposed to returns, transfers of goods without transfer of ownership, and work done. We then compute total exports and imports aggregating the data at the firm-year level. We then select observations according to both firm-level and worker-level characteristics. First, as in Cardoso and Portugal (2005), we account for sectoral and geographical specificities of Portugal by restricting the sample to include only firms based in continental Portugal while excluding 'Badly defined activities', 'Extra-territorial organizations and bodies', 'Public administration and defense', 'Business and professional associations', and 'Other social and related community services'. The location of the firm is measured according to the NUTS III regional disaggregation. This includes Alentejo Central, Alentejo Litoral, Algarve, Alto Alentejo, Ave, Baixo Alentejo, Baixo Mondego, Baixo Vouga, Beira Int. N., Beira Int. S., Cova da Beira, Cávaado, Dão-Lafões, Douro, Douro e Vouga, Grande Lisboa, Grande Porto, Leziria do Tejo, Minho-Lima, Médio Tejo, Oeste, P. de Setúbal, Pinhal Int. N., Pinhal Int. S., Pinhal Litoral, Serra da Estrela, Tamega, and Trás-os-Montes. We also drop from the sample all firms that were founded before 1600. Concerning workers, we consider only single-job, full-time workers between

16 and 65 years old, and working between 25 and 80 hours (base plus overtime) per week. In the analysis we further restrict the sample to workers between 18 and 33 years old, in order to observe their full working history. We construct two measures of the hourly wage. The baseline measure is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. A second measure abstracts from performance-pay components: overtime and irregularly paid supplements. To control for outliers, we apply a trimming based on the baseline hourly wage and eliminate 0.5 percent of the observations on both extremes of the distribution.

Largest Connected Group Sample We replicate a number of regressions of our analysis using a more restricted sample that is common to all specifications. We build such a sample by taking the sample of the specification 'Mobility & Firm FE' and including only the largest connected group (Abowd *et al.* 2002) using the stata ado file *group2hdfe*.

Appendix B: Key variables and definitions

Some concepts are recurring in the explanation of a majority of the Tables and Figures. We describe them here.

Tenure
QP includes a variable that records the year in which the worker started working in a given firm (admission year). In order to avoid measurement error we first construct a robust version of the year of admission by computing the mode for each worker-firm pair. Ties are broken by picking the minimum year of admission. Then tenure is computed as the difference between the current year and the constructed year of admission.

Age and Education
QP includes a variable that records the year in which the worker was born. In order to avoid measurement error we first construct a robust version of the birth year by computing the mode for each worker. Ties are broken by picking the minimum birth year. Then age is computed as the difference between the current year and the birth year. QP also include information on the degrees (or partial degrees) obtained by each worker in a given year. We thank Anabela Carneiro for providing us with the conversion table between education categories and number of years of schooling. In our analysis we consider the mode of the distribution of the number of years of education for each manager. Indeed, there is likely to be a fair amount of measurement error related to this variable and so changes over time are likely to mainly pick up such measurement error rather than a genuine change in the

number of years of education.

Experience Experience is defined as age minus the number of years of education minus 6 for workers with 12 or more years of education, and as age minus 18 for workers with less than 12 years of education. We replace experience to missing for a few cases in which it is negative (e.g. when a person starts working before finishing to study).

Internationally Active Firm Status and International (vs. Domestic) Experience
A firm is considered internationally active in a given year if either exports are strictly positive, or imports are strictly positive, or the firm is foreign owned. A firm is considered foreign-owned in a given year if the share of equity that is foreign-owned is higher than 50 percent. We compute a worker international experience in a given year as the number of years the worker has been employed by internationally active firms. To make the information on international experience and experience consistent we do the following: First, we replace international experience to missing whenever experience is missing. Second, we replace international experience to experience whenever the former is higher than the latter. Finally, we build domestic experience as the difference between experience and international experience.

High-Layer Firm Status and High-Layer (vs. Low-Layer) Firms Experience
A firm is considered a high-layer firm (low-layer), in a given year, if the firm has 3 layers (less than 3 layers) of management. Layers of management are defined as in Caliendo *et al.* (2020). In the matched employer-employee data set, each worker has to be assigned to a category following a (compulsory) classification of workers defined by the Portuguese law (see Table B.1 and Mion and Opromolla (2014)). Such classification is based on the tasks performed and skill requirements, and each category can be considered as a level in a hierarchy defined in terms of increasing responsibility and task complexity. On the basis of the hierarchical classification, and taking into consideration the actual wage distribution, we partition the available categories into occupations. We assign 'Top executives (top management)' to occupation 3; 'Intermediary executives (middle management)' and 'Supervisors, team leaders' to occupation 2; 'Higher-skilled professionals' and some 'Skilled professionals' to occupation 1; and the remaining employees, including 'Skilled professionals', 'Semi-skilled professional', 'Non-skilled professionals', and 'Apprenticeship' to occupation 0. A firm reporting c occupational categories will be said to have $L = c - 1$ layers of management: hence, in our data we will have firms spanning from 0 to 3 layers of management (Caliendo *et al.* 2020). In terms of layers within a firm we do not keep track of the specific occupational categories but simply rank them. Hence a firm with occupational categories 2 and 0 will have 1 layer of management, and its organization will consist of a layer 0 corresponding to some skilled and non-skilled professionals, and a layer 1 corresponding to intermediary executives and supervisors. We compute a worker high-layer experience

in a given year as the number of years the worker has been employed by a high-layer firm (including the current employer). To make the information on high-layer experience and experience consistent we do the following: First, we replace high-layer experience to missing whenever experience is missing. Second, we replace high-layer experience to experience whenever the former is higher than the latter. Finally, we build low-layer experience as the difference between experience and high-layer experience.

Big Firm Status and Big (vs. Small) Firms Experience
A firm is considered big if it employs 50 or more workers. We compute a worker big firm experience in a given year as the number of years the worker has been employed by a big firm (including the current employer). To make the information on big firm experience and experience consistent we do the following: First, we replace big firm experience to missing whenever experience is missing. Second, we replace big firm experience to experience whenever the former is higher than the latter. Finally, we build small firm experience as the difference between experience and big firm experience.

Managers and Blue-collar Workers
We identify managers and blue-collar workers using the same classification used to construct occupations and layers (see above and Table B.1). This classification is based on the tasks performed and skill requirements, and each category can be considered as a level in a hierarchy defined in terms of increasing responsibility and task complexity. We identify managers as those workers belonging to one of the top three 1-digit categories: 'Top executives (top management)', 'Intermediary executives (middle management)' and 'Supervisors, team leaders'. We identify blue-collar workers as those workers belonging to either, 'Semi-skilled professionals', or 'Non-skilled professionals'.

Normal Working Hours
Number of paid hours in October corresponding to the normal working period. Paid absences from work are included (e.g. holidays, illness, accident).

Overtime Hours
Overtime is time worked in October in addition to hours worked during the normal working period, both during working days and during holidays.

Basic Remuneration
The gross amount, before deduction of taxes and social security contributions, in cash or in kind, paid regularly in October and corresponding to the normal working period.

Overtime Remuneration
The gross amount, before deduction of taxes and social security contributions, in

cash or in kind, paid in October and corresponding to the overtime hours.

Regular Bonuses and Allowances
Gross amount paid regularly, on a monthly basis, to employees for a particular time period, as is the case with food, job, housing or transport allowance, bounty or seniority payments, performance-related pay, diligence bonus, compensation for arduous, dangerous or dirty work, night or shift differential. It does not include retroactive payments, compensations, Christmas or other vacation bonuses that were paid in October.

Irregular Bonuses and Allowances
Gross amount paid on an irregular basis, that is not on a monthly basis, to employees for a particular time period, such as profit sharing, stock options or other incentive bonuses and other non-periodical payments. It includes retroactive payments, compensations, Christmas or other vacation bonuses that were paid in October.

Appendix C: High-dimensional fixed effects

All specifications in the paper are estimated with OLS. With large data sets, estimation of a linear regression model with two or more high-dimensional fixed effects poses some computational challenges (Abowd *et al.* 1999). However, the exact least-square solution to this problem can be found using an algorithm, based on the 'zigzag' or full Gauss-Seidel algorithm, proposed by Guimarães and Portugal (2010). We use, for our estimations, the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s algorithm. The main advantage of this routine is the ability to fit linear regression models with two or more high-dimensional fixed effects under minimal memory requirements. Moreover, the routine provides standard errors correctly adjusted for the presence of the fixed effects. We apply the reghdfe routine setting the convergence criterion for the iteration method to 0.001.

Level	Tasks	Skills
1. Top executives (top management)	Definition of the firm general policy or consulting on the organization of the firm; strategic planning; creation or adaptation of technical, scientific and administrative methods or processes	Knowledge of management and coordination of firm's fundamental activities; knowledge of management and coordination of the fundamental activities in the field to which the individual is assigned and that requires the study and research of high responsibility and technical level problems
2. Intermediary executives (middle management)	Organization and adaptation of the guidelines established by the superiors and directly linked with the executive work	Technical and professional qualifications directed to executive, research, and management work
3. Supervisors, team leaders	Orientation of teams, as directed by the superiors, but requiring the knowledge of action processes	Complete professional qualification with a specialization
4. Higher-skilled professionals	Tasks requiring a high technical value and defined in general terms by the superiors	Complete professional qualification with a specialization adding to theoretical and applied knowledge
5. Skilled professionals	Complex or delicate tasks, usually not repetitive, and defined by the superiors	Complete professional qualification implying theoretical and applied knowledge
6. Semi-skilled professionals	Well defined tasks, mainly manual or mechanical (no intellectual work) with low complexity, usually routine and sometimes repetitive	Professional qualification in a limited field or practical and elementary professional knowledge
7. Non-skilled professionals	Simple tasks and totally determined	Practical knowledge and easily acquired in a short time
8. Apprentices, interns, trainees	Apprenticeship	

Table B.1. Classification of Workers According to Tasks and Skills

Notes: Decreto Lei 121/78 of July 2nd (Lima and Pereira, 2003)

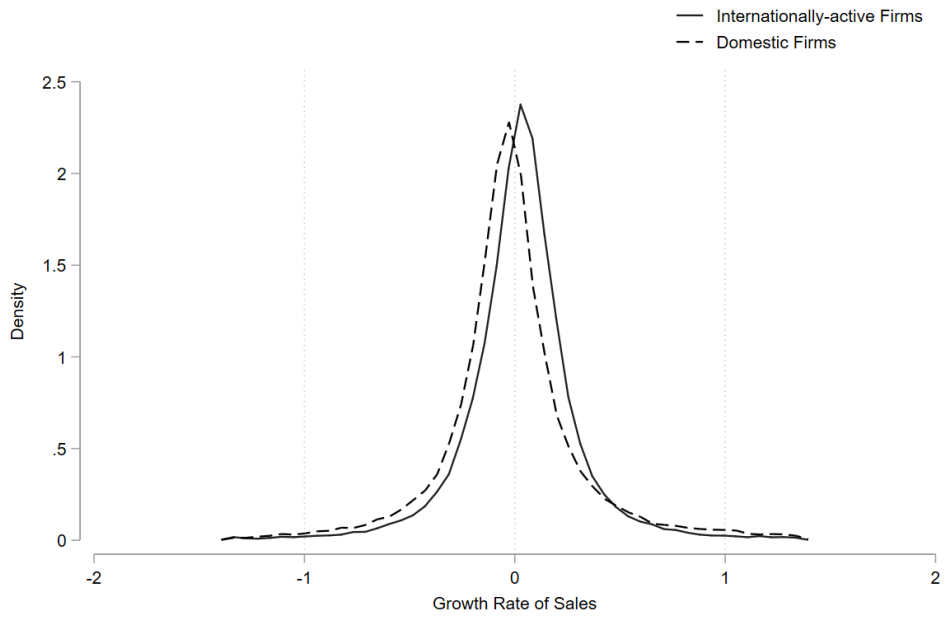

Figure C-1: Growth Rate of Sales, Domestic vs. Internationally active Firms, Young Managers Sample

Notes: This figure shows the distribution of the growth rates of sales for internationally active and domestic firms in the young managers sample obtained while controlling for firm size, age, location, industry, and year effects. More specifically, we regress the growth rate of sales, computed as the difference in sales between t and $t+1$ divided by the average sales in t and $t+1$, on the log of firm size (sales) in t, the log of the age of the firm in t, a set of year, region (NUTS III) and industry (1-digit NACE) dummies. Then we take the residuals, drop observations below (above) the bottom (top) 1 percent, and use them to construct the densities plotted in the figure.

Appendix B: Additional Tables and Figures

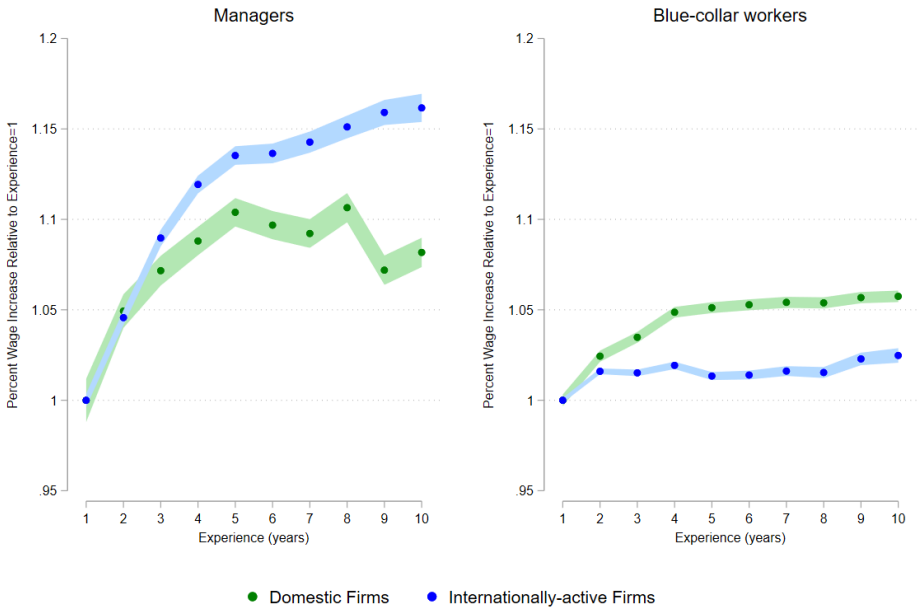

Figure C-2: Experience-wage Profiles in the Manufacturing Sector, Domestic vs. Internationally active Firms, Managers and Blue-collars Workers, Large Sample

Notes: This figure shows experience-wage profiles for managers (left panel) and blue-collar workers (right panel) of domestic and internationally active firms in the manufacturing sector. To compute the experience-wage profiles, we first regress hourly wages against a full set of year, region (NUTS III), and 1-digit NACE industry dummies. We then compute, for each type of firm, the average residual hourly wage by number of years of experience (up to 10). Finally, we compute the percentage wage increase relative to the case of one year of experience. The blue and green bands represent confidence intervals at the 95% level.

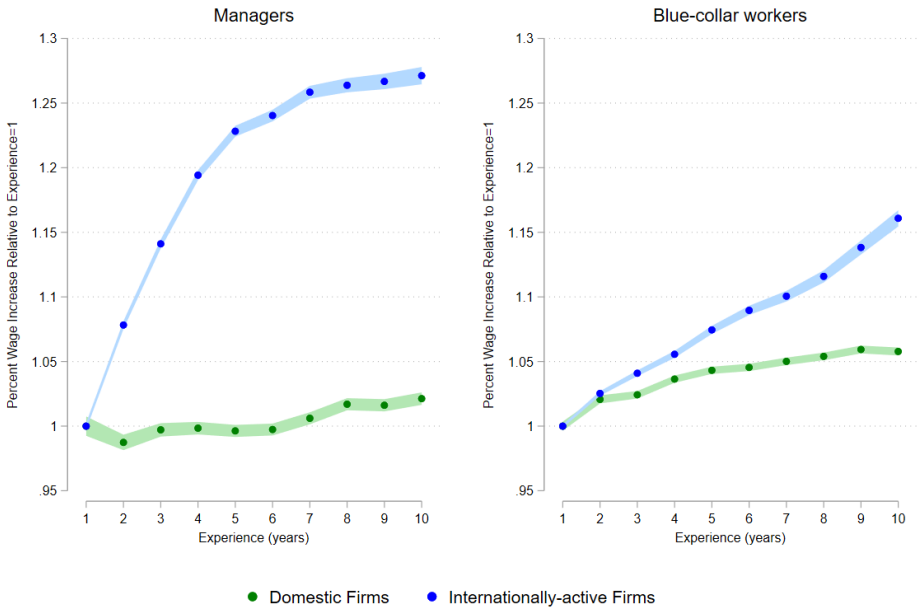

Figure C-3: Experience-wage Profiles in the Services Sector, Domestic vs. Internationally active Firms, Managers and Blue-collars Workers, Large Sample

Notes: This figure shows experience-wage profiles for managers (left panel) and blue-collar workers (right panel) of domestic and internationally active firms in the services sector. To compute the experience-wage profiles, we first regress hourly wages against a full set of year, region (NUTS III), and 1-digit NACE industry dummies. We then compute, for each type of firm, the average residual hourly wage by number of years of experience (up to 10). Finally, we compute the percentage wage increase relative to the case of one year of experience. The blue and green bands represent confidence intervals at the 95% level.

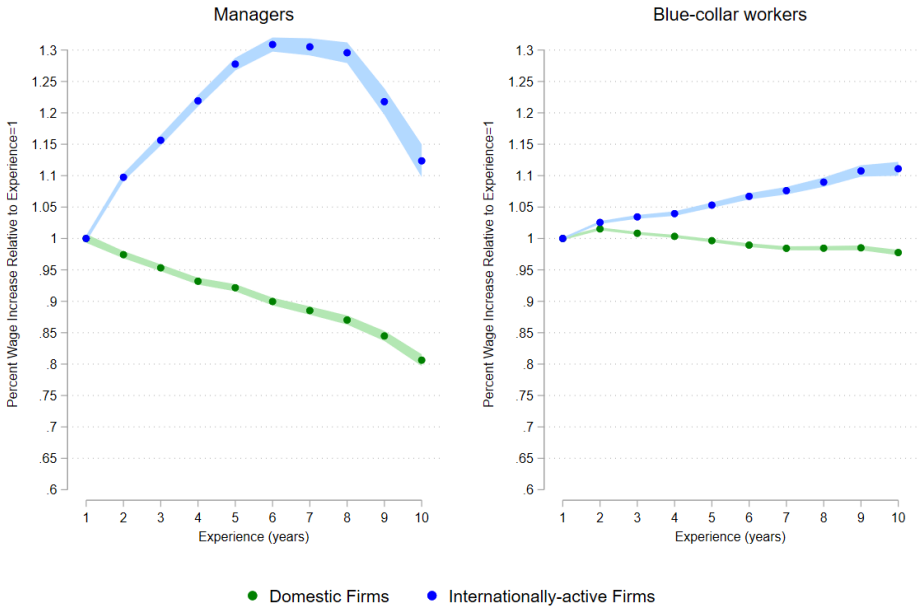

Figure C-4: Experience-Wage Profiles in Domestic vs. Internationally active Firms, Managers and Blue-collar Workers, Young Managers Sample

Notes: This figure shows experience-wage profiles for managers (left panel) and blue-collar workers (right panel) of domestic and internationally active firms in the young managers sample. To compute the experience-wage profiles, we first regress hourly wages against a full set of year, region (NUTS III) and industry (1-digit NACE) dummies. We then compute, for each type of firm, the average residual hourly wage by number of years of experience (up to 10). Finally, we compute the percentage wage increase relative to the case of one year of experience. The blue and green bands represent confidence intervals at the 95% level.

	Key Worker-level Variables				
	N. observ.	Mean	St.dev.	Min	Max
Log Hourly Wage	180,468	-0.25	0.31	-1.64	2.02
Tenure	180,468	3.29	3.59	0.00	32.00
Job Mobility	180,468	1.65	0.93	1.00	10.00
Domestic Experience	180,468	6.58	4.12	0.00	15.00
International Experience	180,468	2.17	2.95	0.00	15.00

	Key Firm-level Variables				
	N. observ.	Mean	St.dev.	Min	Max
Size	53,552	2.20	1.26	0.00	9.64
Productivity	53,552	10.68	1.07	3.22	17.49
Log Firm Age	53,552	2.37	0.89	0.00	5.94
Share Skilled	53,552	0.05	0.13	0.00	1.00
Internationally Active	53,552	0.21	0.40	0.00	1.00

Table C-1. Descriptive Statistics for the Young Blue-Collars Sample, Year 2006

Notes: Data refer to the young blue-collars sample for the year 2006. Concerning blue-collar worker-level variables, the (log) hourly wage is defined as the (log of the) sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Tenure refers to the number of years the blue-collar worker has been working for the current employer while job mobility indicates the number of times (plus one) the blue-collar worker has changed employer up to year t. Domestic experience is number of years a blue-collar worker has worked in the past for domestic firms (including the current firm) while international experience is the number of years a blue-collar worker has worked in the past for intentionally active firms (including the current firm). Moving to firm-level variables, size is firm log employment, productivity is log apparent labour productivity, the share of skilled workers is the share of a firm's workers (managers and non-managers) with 12 or more years of education, log firm age is the log of the age of the firm and internationally active is a dummy taking value one if the firm is involved in exporting and/or importing and/or is foreign owned and zero otherwise. See Appendix A for more details.

VARIABLES	(1) OLS	(2) FE	(3) Type of Experience	(4) Portability	(5) Mobility & Firm FE	(6) Job-Spell FE	(7) Ind. Linear Trends	(8) Heter. Returns on Exper.
Tenure (Yrs)	0.0109[a]	0.0052[a]	0.0045[a]	0.0045[a]	0.0173[a]	0.0319[a]	0.0168[a]	0.0172[a]
	(0.0013)	(0.0011)	(0.0011)	(0.0011)	(0.0018)	(0.0054)	(0.0025)	(0.0005)
Tenure Sq. (Yrs)	-0.0005[a]	-0.0015[a]	-0.0016[a]	-0.0016[a]	-0.0017[a]	-0.0017[a]	-0.0016[a]	-0.0015[a]
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0001)
Education (Yrs)	0.0512[a]							
	(0.0004)							
Firm Size (log)	0.0457[a]	0.0339[a]	0.0342[a]	0.0340[a]	0.0427[a]	0.0531[a]	0.0329[a]	0.0286[a]
	(0.0007)	(0.0017)	(0.0017)	(0.0017)	(0.0031)	(0.0031)	(0.0025)	(0.0020)
App. Labor Productivity (log)	0.0385[a]	0.0132[a]	0.0125[a]	0.0125[a]	0.0071[a]	0.0075[a]	0.0071[a]	0.0042[a]
	(0.0010)	(0.0011)	(0.0011)	(0.0011)	(0.0010)	(0.0010)	(0.0013)	(0.0009)
Firm Age (log)	0.0130[a]	-0.0020	-0.0018	-0.0019	-0.0188[a]	-0.0154[a]	0.0114[a]	-0.0271[a]
	(0.0013)	(0.0021)	(0.0021)	(0.0021)	(0.0031)	(0.0030)	(0.0030)	(0.0020)
Share of Skilled Workers	-0.0008	0.0079[b]	0.0078[b]	0.0080[b]	0.0292[a]	0.0274[a]	-0.0033	0.0514[a]
	(0.0039)	(0.0038)	(0.0038)	(0.0038)	(0.0034)	(0.0032)	(0.0061)	(0.0038)
Observations	322,360	254,990	254,990	254,990	249,562	233,629	104,921	147,367
R-squared	0.3059	0.8767	0.8773	0.8774	0.9105	0.9143	0.8719	0.9985
Manager-Year Controls	X	X	X	X	X	X	X	X
Firm-Year Controls	X	X	X	X	X	X	X	X
Region FE	X							
Manager FE		X	X	X	X		X	X
Firm FE					X			X
Individual Linear Trends							X	
Job-Spell FE						X		
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Notes: Additional controls to the regressions of Tables 8 and 9. Standard errors (in parenthesis) are clustered at the manager level. [a] p<0.01, [b] p<0.05, [c] p<0.1.

Table C-2. Wage Regressions, Controls

VARIABLES	(1) OLS	(2) FE	(3) Type of Experience	(4) Portability	(5) Mobility & Firm FE
Int. Act. Firm (0/1)	0.1788[a]	0.0367[a]	0.0290[a]	0.0566[a]	0.0002
	(0.0041)	(0.0034)	(0.0035)	(0.0081)	(0.0066)
Experience (Yrs)	0.0274[a]	0.0580[a]			
	(0.0007)	(0.0011)			
Domestic Exp. (Yrs)			0.0497[a]**	0.0510[a]**	0.0409[a]**
			(0.0013)	(0.0014)	(0.0020)
International Exp. (Yrs)			0.0654[a]**	0.0691[a]**	0.0540[a]**
			(0.0013)	(0.0021)	(0.0022)
Dom. Exp. * Int. Act. Firm (Yrs)				-0.0046[a]	-0.0009
				(0.0012)	(0.0010)
Int. Exp. * Int. Act. Firm (Yrs)				-0.0034[c]	0.0004
				(0.0018)	(0.0013)
Job Mobility (Dummy)					0.0540[a]
					(0.0050)
Job Mobility * Int. Act. Firm (Dummy)					-0.0035
					(0.0034)
Observations	147,367	147,367	147,367	147,367	147,367
R-squared	0.1760	0.8414	0.8418	0.8419	0.8901
Manager-Year Controls	X	X	X	X	X
Firm-Year Controls	X	X	X	X	X
Region FE	X				
Manager FE		X	X	X	X
Firm FE					X
Estimation Method	OLS	OLS	OLS	OLS	OLS

Notes: This table replicates the specifications of Table 8 using a more restricted sample obtained as the intersection of the sample of specification (5) in Table 8 and the largest connected group (using the Stata ado-file *group2hdfe*). Standard errors (in parenthesis) are clustered at the manager level. [a] p<0.01, [b] p<0.05, [c] p<0.1. ** indicates that the coefficients of domestic and international experience are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects.

Table C-3. Wage Regressions, Simple Specifications, Main Covariates, Largest Connected Group

VARIABLES	(1) FE	(2) Type of Experience	(3) Portability	(4) Mobility & Firm FE	(5) Ind. Linear Trends	(6) Heter. Returns on Exper.
Int. Act. Firm (0/1)	0.1876[a]	0.1359[a]	0.1286[a]	0.1146[a]	0.0792[a]	0.0131[a]
	(0.0031)	(0.0031)	(0.0031)	(0.0030)	(0.0054)	(0.0035)
Constant	-0.1023[a]	-0.0741[a]	-0.0701[a]	-0.0631[a]	-0.2130[a]	0.0371[a]
	(0.0024)	(0.0023)	(0.0023)	(0.0023)	(0.0045)	(0.0031)
Observations	254,990	254,990	254,990	249,562	104,921	147,367
R-squared	0.0412	0.0227	0.0204	0.0177	0.0059	0.0003

Notes: The dependent variable is the estimated manager fixed effect from the corresponding specifications of Tables 8 and 9. Standard errors (in parenthesis) are clustered at the manager level. [a] p<0.01, [b] p<0.05, [c] p<0.1.

Table C-4. Manager Fixed Effects Regressions

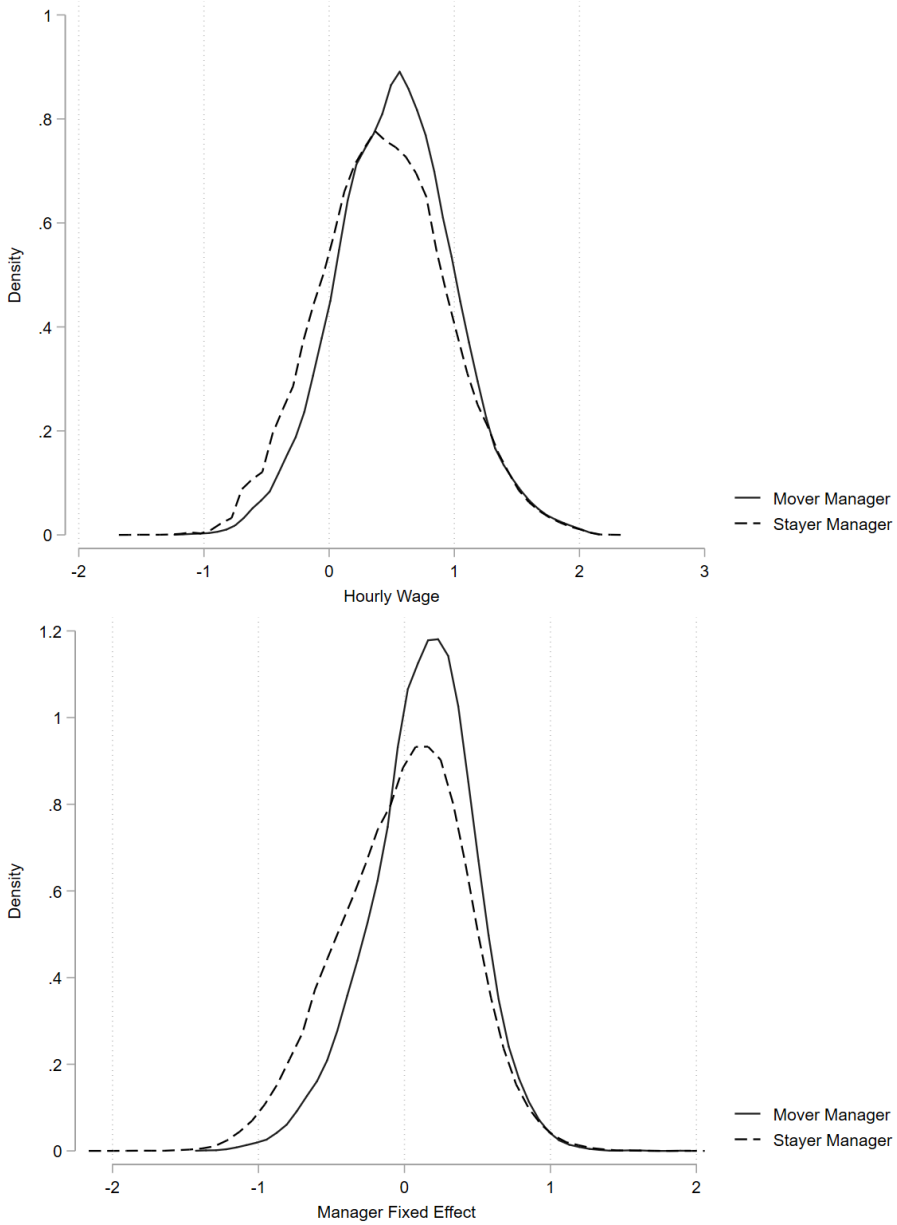

Figure C-5: Wage and Fixed Effects of Movers and Stayers, Specification Mobility & Firm FE

Notes: This figure shows the density of the hourly wage (left panel) and the fixed effects (right panel) for managers belonging to the young managers sample that change firm at least once ('movers') and for managers that always stay in the same firm ('stayers'). The sample considered is the one referring to the Mobility & Firm FE specification in column (5) of Table 8.

VARIABLES	(1) OLS	(2) FE	(3) Type of Experience	(4) Portability	(5) Mobility & Firm FE	(6) Job-Spell FE	(7) Ind. Linear Trends	(8) Heter. Returns on Exper.
Int. Act. Firm (0/1)	0.0411^{a}	0.0344^{a}	0.0335^{a}	0.0551^{a}	0.0230^{a}	0.0248^{a}	0.0447^{a}	0.0235^{a}
	(0.0009)	(0.0013)	(0.0013)	(0.0025)	(0.0025)	(0.0028)	(0.0040)	(0.0013)
Experience (Yrs)	0.0035^{a}	0.0044^{a}						
	(0.0001)	(0.0002)						
Domestic Exp. (Yrs)			0.0036$^{a}_{**}$	0.0045$^{a}_{**}$	0.0012^{b}	0.0066^{a}	-0.0014^{c} **	0.0009$^{a}_{**}$
			(0.0002)	(0.0002)	(0.0006)	(0.0016)	(0.0008)	(0.0001)
International Exp. (Yrs)			0.0057$^{a}_{**}$	0.0087$^{a}_{**}$	0.0019^{b}	0.0077^{a}	0.0041$^{a}_{**}$	0.0019$^{a}_{**}$
			(0.0004)	(0.0006)	(0.0008)	(0.0018)	(0.0013)	(0.0002)
Dom. Exp. * Int. Act. Firm (Yrs)				-0.0040^{a}	-0.0031^{a}	-0.0033^{a}	-0.0039^{a}	-0.0035^{a}
				(0.0003)	(0.0003)	(0.0004)	(0.0005)	(0.0001)
Int. Exp. * Int. Act. Firm (Yrs)				-0.0023^{a}	-0.0004	-0.0006	-0.0011	-0.0002
				(0.0006)	(0.0006)	(0.0007)	(0.0008)	(0.0002)
Job Mobility (Dummy)					0.0077^{a}	0.0020	0.0209^{a}	
					(0.0017)	(0.0041)	(0.0027)	
Job Mobility * Int. Act. Firm (Dummy)					-0.0023^{c}	-0.0040^{a}	0.0093^{a}	
					(0.0012)	(0.0013)	(0.0018)	
Domestic Exp. * Worker FE (Yrs)								0.0032$^{a}_{**}$
								(0.0002)
International Exp. * Worker FE (Yrs)								0.0262$^{a}_{**}$
								(0.0004)
Observations	1,241,198	963,851	963,851	963,851	937,485	840,396	425,150	735,542
R-squared	0.1542	0.7173	0.7173	0.7174	0.7865	0.7923	0.6655	0.9988
Worker-Year Controls	X	X	X	X	X	X		
Firm-Year Controls	X	X	X	X	X	X	X	X
Region FE	X							
Worker FE		X	X	X	X		X	
Firm FE					X			X
Individual Linear Trends							X	
Job-Spell FE						X		
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young blue-collars sample. Worker-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the OLS specification. The FE specification in column (2) includes worker fixed effects. Column (3) distinguishes between experience in domestic and internationally active firms. Column (4) allows the return on domestic and international experience to be different according to the international status of the firm. Column (5) features firm fixed effects while introducing a control for job changes both alone and interacted with the international status of the employing firm in t. Column (6) reports the Job-Spell FE specification using firm-worker FE instead of separate worker and firm FE. The Individual Linear Trends specification in column (7) includes both standard worker fixed effects as well as the interactions between separate worker fixed effects and a linear trend. The Heterogeneous Returns on Experience specification in column (8) instead uses worker and firm FE while adding two interaction terms of worker FE with domestic and international experience. Standard errors (in parenthesis) are clustered at the worker level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with worker FE and international experience with worker FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure. For example, in the case of worker fixed effects in column (2) the number of observations does not include workers for which only one observation is available. Such workers are instead included in the number of observations in column (1).

Table C-5. Wage Regressions, Main Covariates, Blue-collar Workers

VARIABLES	(1) Mobility & Firm FE	(2) Heter. Returns on Exper.
Tenure (Yrs)	0.0123^{a}	0.0119^{a}
	(0.0021)	(0.0010)
Tenure Sq. (Yrs)	-0.0014^{a}	-0.0016^{a}
	(0.0002)	(0.0001)
Firm Size (log)	0.0455^{a}	0.0275^{a}
	(0.0006)	(0.0007)
App. Labor Productivity (log)	0.0066^{a}	0.0023^{b}
	(0.0012)	(0.0010)
Firm Age (log)	-0.0207^{a}	-0.0296^{a}
	(0.0014)	(0.0012)
Share of Skilled Workers	0.0321^{a}	0.0518^{a}
	(0.0036)	(0.0038)
Observations	6,783	3,868
R-squared	0.9248	0.9867
Manager-Year Controls	X	X
Firm-Year Controls	X	X
Manager FE	X	X
Firm FE	X	X
Estimation Method	OLS	OLS

Notes: Additional controls to the regressions of Table 10. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1.

Table C-6. Wage Regressions, Controls, Displaced Managers Sample

VARIABLES	(1) Mobility & Firm FE	(2) Heter. Returns on Exper.
Int. Act. Firm (0/1)	0.0258^{a}	0.0224^{a}
	(0.0036)	(0.0002)
Domestic Exp. (Yrs)	0.0008^{a}	0.0015^{a}
	(0.0002)	(0.0000)
International Exp. (Yrs)	0.0021^{a}	0.0032^{a}
	(0.0005)	(0.0001)
Dom. Exp. * Int. Act. Firm (Yrs)	-0.0028^{a}	-0.0035^{a}
	(0.0003)	(0.0000)
Int. Exp. * Int. Act. Firm (Yrs)	-0.0006	-0.0005^{a}
	(0.0007)	(0.0001)
Domestic Exp. * Worker FE (Yrs)		0.0026^{a}
		(0.0000)
International Exp. * Worker FE (Yrs)		0.0250^{a}
		(0.0001)
Observations	29,934	22,292
R-squared	0.8034	0.9995
Worker-Year Controls	X	X
Firm-Year Controls	X	X
Worker FE	X	X
Firm FE	X	X
Estimation Method	OLS	OLS

Table C-7. Wage Regressions, Key Covariates, Displaced Blue-Collar Workers Sample

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the displaced blue-collar workers sample. Worker-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) provides key covariates of the Mobility & Firm FE specification while column (2) provides key covariates of the Heterogeneous Returns on Experience specification. Standard errors (in parenthesis) are clustered at the worker level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with the worker FE and international experience with the worker FE) are significantly different from each other at the 5% level. Displaced blue-collar workers are followed only in the first job after displacement and so the job mobility dummy and its interaction with the internationally active status dummy are not relevant. All results refer to OLS estimations while firm and worker fixed effects are borrowed from the estimations of the corresponding specifications on the sample of young blue-collar workers. The reported number of observations refers to the actual number of observations used in the estimation.

VARIABLES	(1) No Performance Pay	(2) Education	(3) Bargaining Power	(4) Career Concerns	(5) No Tenure	(6) Tenure by Firm Status	(7) Experience Squared
Int. Act. Firm (0/1)	-0.0056^{b}	-0.0003	-0.0036	0.0019	0.0100^{a}	-0.0021	-0.0027
	(0.0027)	(0.0033)	(0.0033)	(0.0038)	(0.0033)	(0.0035)	(0.0045)
Domestic Exp. (Yrs)	0.0389$^{a}_{**}$	0.0401$^{a}_{**}$	0.0365$^{a}_{**}$	0.0350$^{a}_{**}$	0.0423$^{a}_{**}$	0.0383$^{a}_{**}$	0.0498$^{a}_{**}$
	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0011)
International Exp. (Yrs)	0.0467$^{a}_{**}$	0.0303$^{a}_{**}$	0.0525$^{a}_{**}$	0.0470$^{a}_{**}$	0.0536$^{a}_{**}$	0.0504$^{a}_{**}$	0.0668$^{a}_{**}$
	(0.0005)	(0.0008)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0013)
Dom. Exp. * Int. Act. Firm (Yrs)	-0.0006^{b}	-0.0009^{a}	-0.0003	-0.0010^{b}	-0.0025^{a}	-0.0013^{a}	-0.0012
	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0012)
Int. Exp. * Int. Act. Firm (Yrs)	0.0019^{a}	0.0006	0.0003	0.0002	-0.0003	0.0005	0.0019
	(0.0006)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0015)
Job Mobility (Dummy)	0.0574^{a}	0.0519^{a}	0.0494^{a}	0.0524^{a}	0.0484^{a}	0.0548^{a}	0.0482^{a}
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Job Mobility * Int. Act. Firm (Dummy)	-0.0024^{c}	-0.0057^{a}	-0.0044^{b}	-0.0049^{a}	-0.0066^{a}	-0.0046^{b}	-0.0030
	(0.0014)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Domestic Exp. * Manager FE (Yrs)	0.0214$^{a}_{**}$	0.0163$^{a}_{**}$	0.0125$^{a}_{**}$	0.0116$^{a}_{**}$	0.0100$^{a}_{**}$	0.0123$^{a}_{**}$	0.0126$^{a}_{**}$
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
International Exp. * Manager FE (Yrs)	0.0254$^{a}_{**}$	0.0219$^{a}_{**}$	0.0283$^{a}_{**}$	0.0276$^{a}_{**}$	0.0315$^{a}_{**}$	0.0271$^{a}_{**}$	0.0248$^{a}_{**}$
	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Domestic Exp. * Education (Yrs)		-0.0001^{a}					
		(0.0000)					
International Exp. * Education (Yrs)		0.0015^{a}					
		(0.0000)					
Firm Size t-1 (log)			0.0009				
			(0.0014)				
App. Labor Productivity t-1 (log)			0.0132^{a}				
			(0.0011)				
Hourly Wage t-1 (log)			-0.0316^{a}				
			(0.0023)				
Age up to 25 (0/1)				-0.0391^{a}			
				(0.0026)			
Age up to 25 * Int. Act. Firm (0/1)				-0.0031			
				(0.0031)			
Tenure * Int. Act. Firm (Yrs)						0.0037^{a}	
						(0.0012)	
Ten. Sq. * Int. Act. Firm (Yrs)						-0.0005^{a}	
						(0.0001)	
Domestic Exp. Squared							-0.0009^{a}
							(0.0001)
International Exp. Squared							-0.0022^{a}
							(0.0002)
Dom. Exp. Sq. * Int. Act. Firm (Yrs)							-0.0002^{a}
							(0.0001)
Int.Exp. Sq. * Int. Act. Firm (Yrs)							0.0003
							(0.0002)
Observations	147,367	147,367	147,367	147,367	147,367	147,367	147,367
R-squared	0.9989	0.9985	0.9984	0.9985	0.9983	0.9984	0.9986
Manager-Year Controls	X	X	X	X	X	X	X
Firm-Year Controls	X	X	X	X	X	X	X
Manager FE	X	X	X	X	X	X	X
Firm FE	X	X	X	X	X	X	X
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Table C-8. Wage Regressions, Main Covariates, Additional Specifications with Heterogeneous Returns

Notes: This table proposes a number of extensions of the heterogeneous returns specification of column (3) of Table 9. The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined, in all specification except that of column (1), as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. In column (1), the hourly wage does not include those components that depends on performance: overtime and irregularly paid supplements. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) excludes any performance-pay component from the hourly wage. The specification in column (2) allows for the return on domestic and international experience to be heterogeneous according to the education level of the worker. Column (3) controls for measures of bargaining power indicated by wage bargaining models (Postel-Vinay and Robin 2002). Column (4) addresses the possibility that internationally active firms might offer lower initial wages in the prospect of a faster career (Gibbons and Murphy 1992) by including a dummy for managers younger than 25 years old, as well as its interaction with the international status of the firm. Column (5) does not include the tenure controls. Column (6) allows the return on tenure to be different in domestic and internationally active firms. Column (7) includes a quadratic in domestic and international experience. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with manager FE and international experience with manager FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure.

VARIABLES	(1) OLS	(2) FE	(3) Type of Experience	(4) Portability	(5) Mobility & Firm FE	(6) Job-Spell FE	(7) Ind. Linear Trends	(8) Heter. Returns on Exper.
High-layer Firm (0/1)	0.0793^{a}	0.0037	-0.0124^{a}	-0.0093^{a}	-0.0213^{a}	-0.0148^{a}	-0.0278^{a}	-0.0339^{a}
	(0.0027)	(0.0024)	(0.0026)	(0.0031)	(0.0039)	(0.0038)	(0.0061)	(0.0030)
Experience (Yrs)	0.0206^{a}	0.0515^{a}						
	(0.0004)	(0.0009)						
Low-layer Exp. (Yrs)			0.0337$^{a}_{**}$	0.0332$^{a}_{**}$	0.0147^{a}	0.0093^{a}	0.0182^{a}	0.0249$^{a}_{**}$
			(0.0009)	(0.0009)	(0.0011)	(0.0011)	(0.0027)	(0.0003)
High-layer Exp. (Yrs)			0.0418$^{a}_{**}$	0.0488$^{a}_{**}$	0.0163^{a}	0.0100^{a}	0.0235^{a}	0.0214$^{a}_{**}$
			(0.0011)	(0.0026)	(0.0026)	(0.0027)	(0.0054)	(0.0013)
Low-layer Exp. * High-layer Firm (Yrs)				0.0004	-0.0011	-0.0022^{b}	0.0097^{a}	-0.0003
				(0.0009)	(0.0010)	(0.0010)	(0.0025)	(0.0003)
High-layer Exp. * High-layer Firm (Yrs)				-0.0079^{a}	0.0043^{c}	0.0041	0.0054	0.0044^{a}
				(0.0026)	(0.0026)	(0.0026)	(0.0046)	(0.0013)
Job Mobility (Dummy)					0.1151^{a}	0.0956^{a}	0.0850^{a}	
					(0.0049)	(0.0099)	(0.0087)	
Job Mobility * High-layer Firm (Dummy)					-0.0130^{a}	-0.0093^{a}	0.0023	
					(0.0034)	(0.0033)	(0.0058)	
High-layer Exp. * Manager FE (Yrs)								0.0052$^{a}_{**}$
								(0.0007)
Low-layer Exp. * Manager FE (Yrs)								-0.0034$^{a}_{**}$
								(0.0003)
Observations	322,360	254,990	254,990	254,990	194,542	180,277	54,856	114,522
R-squared	0.3001	0.8765	0.8738	0.8738	0.9152	0.9188	0.7668	1.0000
Manager-Year Controls	X	X	X	X	X	X		
Firm-Year Controls	X	X	X	X	X	X	X	X
Region FE	X							
Manager FE		X	X	X	X		X	
Firm FE					X			X
Individual Linear Trends							X	
Job-Spell FE						X		
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Table C-9. Wage Regressions, Main Covariates, Managers, High-Layer and Low-Layer Experience

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the OLS specification. The FE specification in column (2) includes manager fixed effects. Column (3) distinguishes between experience in low-layer and high-layer firms. Column (4) allows the return on low-layer and high-layer experience to be different according to the high-layer status of the firm. Column (5) features firm fixed effects while introducing a control for job changes both alone and interacted with the high-layer status of the employing firm in t. Column (6) reports the Job-Spell FE specification using firm-manager FE instead of separate manager and firm FE. The Individual Linear Trends specification in column (7) includes both standard manager fixed effects as well as the interactions between separate manager fixed effects and a linear trend. The Heterogeneous Returns on Experience specification in column (8) instead uses manager and firm FE while adding two interaction terms of manager FE with low-layer and high-layer experience. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of low-layer and high-layer experience (or the coefficients of the interactions of low-layer experience with manager FE and high-layer experience with manager FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure. For example, in the case of manager fixed effects in column (2) the number of observations does not include managers for which only one observation is available. Such managers are instead included in the number of observations in column (1).

VARIABLES	(1) OLS	(2) FE	(3) Type of Experience	(4) Portability	(5) Mobility & Firm FE	(6) Job-Spell FE	(7) Ind. Linear Trends	(8) Heter. Returns on Exper.
High-layer Firm (0/1)	0.0503^{a}	0.0158^{a}	0.0114^{a}	0.0147^{a}	0.0042^{a}	0.0059^{a}	0.0067^{a}	0.0045^{a}
	(0.0010)	(0.0011)	(0.0011)	(0.0013)	(0.0016)	(0.0016)	(0.0025)	(0.0010)
Experience (Yrs)	0.0029^{a}	0.0039^{a}						
	(0.0001)	(0.0002)						
Low-layer Exp. (Yrs)			0.0035^{a}	0.0040^{a}	0.0031^{a}	0.0025^{a}	0.0011$_{**}$	0.0034$^{a}_{**}$
			(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0007)	(0.0001)
High-layer Exp. (Yrs)			0.0042^{a}	0.0023^{b}	0.0018^{c}	0.0015	-0.0031$^{c}_{**}$	0.0013$^{a}_{**}$
			(0.0005)	(0.0009)	(0.0009)	(0.0011)	(0.0016)	(0.0004)
Low-layer Exp. * High-layer Firm (Yrs)				-0.0036^{a}	-0.0042^{a}	-0.0051^{a}	-0.0021^{b}	-0.0046^{a}
				(0.0004)	(0.0004)	(0.0005)	(0.0010)	(0.0001)
High-layer Exp. * High-layer Firm (Yrs)				0.0035^{a}	-0.0003	-0.0010	0.0057^{a}	0.0002
				(0.0010)	(0.0010)	(0.0011)	(0.0015)	(0.0005)
Job Mobility (Dummy)					0.0038^{a}	0.0137^{a}	0.0121^{a}	
					(0.0014)	(0.0029)	(0.0032)	
Job Mobility * High-layer Firm (Dummy))					-0.0012	0.0006	0.0083^{a}	
					(0.0014)	(0.0014)	(0.0022)	
High-layer Exp. * Worker FE (Yrs)								0.0005$_{**}$
								(0.0008)
Low-layer Exp. * Worker FE (Yrs)								-0.0029$^{a}_{**}$
								(0.0002)
Observations	1,241,198	963,851	963,851	963,851	770,237	681,697	275,522	607,517
R-squared	0.1548	0.7169	0.7170	0.7171	0.7905	0.7951	0.5129	1.0000
Worker-Year Controls	X	X	X	X	X	X		
Firm-Year Controls	X	X	X	X	X	X	X	X
Region FE	X							
Worker FE		X	X	X	X		X	
Firm FE					X			X
Individual Linear Trends							X	
Job-Spell FE						X		
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Table C-10. Wage Regressions, Main Covariates, Blue-Collar Workers, High-Layer and Low-Layer Experience

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young blue-collars sample. Worker-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the OLS specification. The FE specification in column (2) includes worker fixed effects. Column (3) distinguishes between experience in low-layer and high-layer firms. Column (4) allows the return on low-layer and high-layer experience to be different according to the high-layer status of the firm. Column (5) features firm fixed effects while introducing a control for job changes both alone and interacted with the high-layer status of the employing firm in t. Column (6) reports the Job-Spell FE specification using firm-worker FE instead of separate worker and firm FE. The Individual Linear Trends specification in column (7) includes both standard worker fixed effects as well as the interactions between separate worker fixed effects and a linear trend. The Heterogeneous Returns on Experience specification in column (8) instead uses worker and firm FE while adding two interaction terms of worker FE with low-layer and high-layer experience. Standard errors (in parenthesis) are clustered at the worker level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of low-layer and high-layer experience (or the coefficients of the interactions of low-layer experience with worker FE and high-layer experience with worker FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure. For example, in the case of worker fixed effects in column (2) the number of observations does not include workers for which only one observation is available. Such workers are instead included in the number of observations in column (1).

VARIABLES	(1) First Model	(2) Worker FE	(3) Type of Experience	(4) Portability	(5) Firm FE Job Mobility	(6) Job-Spell FE	(7) Individual Linear Trends	(8) Heterogeneous returns on experience
Big Firm (0/1)	0.1269^{a}	0.0265^{a}	-0.0175^{a}	-0.0364^{a}	0.0018	0.0101	-0.0028	0.0399^{a}
	(0.0038)	(0.0053)	(0.0065)	(0.0092)	(0.0092)	(0.0097)	(0.0145)	(0.0051)
Experience (Yrs)	0.0212^{a}	0.0518^{a}						
	(0.0004)	(0.0010)						
Small Exp. (Yrs)			0.0357$^{a}_{**}$	0.0341$^{a}_{**}$	0.0121$^{a}_{**}$	-0.0005$_{**}$	0.0167$^{a}_{**}$	0.0226$^{a}_{**}$
			(0.0010)	(0.0011)	(0.0014)	(0.0016)	(0.0025)	(0.0004)
Big Exp. (Yrs)			0.0507$^{a}_{**}$	0.0548$^{a}_{**}$	0.0236$^{a}_{**}$	0.0110$^{a}_{**}$	0.0328$^{a}_{**}$	0.0298$^{a}_{**}$
			(0.0011)	(0.0026)	(0.0028)	(0.0031)	(0.0041)	(0.0009)
Small Exp. * Big Firm (Yrs)				0.0101^{a}	0.0022	-0.0024	0.0081^{b}	-0.0032^{a}
				(0.0019)	(0.0019)	(0.0021)	(0.0037)	(0.0004)
Big Exp. * Big Firm (Yrs)				-0.0061^{b}	0.0021	0.0017	0.0006	-0.0006
				(0.0026)	(0.0027)	(0.0029)	(0.0039)	(0.0010)
Job Mobility (Dummy)					0.1076^{a}	0.1015^{a}	0.0921^{a}	
					(0.0053)	(0.0103)	(0.0074)	
Job Mobility * Big Firm (Dummy)					-0.0126^{a}	-0.0048	-0.0212^{a}	
					(0.0036)	(0.0035)	(0.0061)	
Big Exp. * Manager FE (Yrs)								0.0188$^{a}_{**}$
								(0.0004)
Small Exp. * Manager FE (Yrs)								0.0050$^{a}_{**}$
								(0.0002)
Observations	268,894	199,982	199,982	199,982	194,542	180,277	54,625	111,199
R-squared	0.3047	0.8807	0.8795	0.8795	0.9154	0.9189	0.8336	0.9994
Manager-Year Controls	X	X	X	X	X	X		
Firm-Year Controls	X	X	X	X	X	X	X	X
Region FE	X							
Manager FE		X	X	X	X		X	
Firm FE					X			X
Individual Linear Trends							X	
Job-Spell FE						X		
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Table C-11. Wage Regressions, Main Covariates, Managers, Big and Small Firm Experience

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the OLS specification. The FE specification in column (2) includes manager fixed effects. Column (3) distinguishes between experience in small and big firms. Column (4) allows the return on small and big firm experience to be different according to the size status of the firm. Column (5) features firm fixed effects while introducing a control for job changes both alone and interacted with the size status of the employing firm in t. Column (6) reports the Job-Spell FE specification using firm-manager FE instead of separate manager and firm FE. The Individual Linear Trends specification in column (7) includes both standard manager fixed effects as well as the interactions between separate manager fixed effects and a linear trend. The Heterogeneous Returns on Experience specification in column (8) instead uses manager and firm FE while adding two interaction terms of manager FE with small and big experience. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of small and big firm experience (or the coefficients of the interactions of small firm experience with manager FE and big firm experience with manager FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure. For example, in the case of manager fixed effects in column (2) the number of observations does not include managers for which only one observation is available. Such managers are instead included in the number of observations in column (1).

VARIABLES	(1) First Model	(2) Worker FE	(3) Type of Experience	(4) Portability	(5) Firm FE Job Mobility	(6) Job-Spell FE	(7) Individual Linear Trends	(8) Heterogeneous returns on experience
Big Firm (0/1)	0.0334^{a}	0.0311^{a}	0.0273^{a}	0.0435^{a}	0.0254^{a}	0.0270^{a}	0.0290^{a}	0.0242^{a}
	(0.0012)	(0.0021)	(0.0024)	(0.0030)	(0.0035)	(0.0039)	(0.0055)	(0.0017)
Experience (Yrs)	0.0030^{a}	0.0042^{a}						
	(0.0001)	(0.0002)						
Small Exp. (Yrs)			0.0044^{a}	0.0053^{a}	0.0042^{a}	0.0048^{a}	0.0015^{b} $_{**}$	0.0038^{a}
			(0.0003)	(0.0003)	(0.0004)	(0.0006)	(0.0007)	(0.0001)
Big Exp. (Yrs)			0.0037^{a}	0.0060^{a}	0.0033^{a}	0.0056^{a}	0.0048^{a} $_{**}$	0.0032^{a}
			(0.0004)	(0.0008)	(0.0009)	(0.0012)	(0.0013)	(0.0003)
Small Exp. * Big Firm (Yrs)				-0.0064^{a}	-0.0068^{a}	-0.0084^{a}	-0.0049^{a}	-0.0068^{a}
				(0.0006)	(0.0006)	(0.0008)	(0.0012)	(0.0001)
Big Exp. * Big Firm (Yrs)				-0.0012	-0.0011	-0.0027^{b}	0.0026^{b}	-0.0013^{a}
				(0.0008)	(0.0009)	(0.0012)	(0.0013)	(0.0003)
Job Mobility (Dummy)					0.0045^{a}	0.0108^{a}	0.0190^{a}	
					(0.0015)	(0.0031)	(0.0027)	
Job Mobility * Big Firm (Dummy)					-0.0056^{a}	-0.0037^{b}	0.0003	
					(0.0014)	(0.0015)	(0.0023)	
Big Exp. * Worker FE (Yrs)								0.0117^{a} $_{**}$
								(0.0005)
Small Exp. * Worker FE (Yrs)								0.0034^{a} $_{**}$
								(0.0002)
Observations	1,083,858	796,461	796,461	796,461	770,237	681,697	285,875	596,033
R-squared	0.1464	0.7171	0.7171	0.7173	0.7906	0.7952	0.6119	0.9997
Worker-Year Controls	X	X	X	X	X	X		
Firm-Year Controls	X	X	X	X	X	X	X	X
Region FE	X							
Worker FE		X	X	X	X		X	
Firm FE					X			X
Individual Linear Trends							X	
Job-Spell FE						X		
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Table C-12. Wage Regressions, Main Covariates, Blue-Collar Workers, Big and Small Firm Experience

Notes: The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young blue-collars sample. Worker-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) reports the OLS specification. The FE specification in column (2) includes worker fixed effects. Column (3) distinguishes between experience in small and big firms. Column (4) allows the return on small and big firm experience to be different according to the size status of the firm. Column (5) features firm fixed effects while introducing a control for job changes both alone and interacted with the size status of the employing firm in t. Column (6) reports the Job-Spell FE specification using firm-worker FE instead of separate worker and firm FE. The Individual Linear Trends specification in column (7) includes both standard worker fixed effects as well as the interactions between separate worker fixed effects and a linear trend. The Heterogeneous Returns on Experience specification in column (8) instead uses worker and firm FE while adding two interaction terms of worker FE with small and big experience. Standard errors (in parenthesis) are clustered at the worker level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of small and big firm experience (or the coefficients of the interactions of small firm experience with worker FE and big firm experience with worker FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure. For example, in the case of worker fixed effects in column (2) the number of observations does not include worker for which only one observation is available. Such workers are instead included in the number of observations in column (1).

VARIABLES	(1) Int. Exp. Low-L. Firms	(2) Int. Exp. High-L. Firms	(3) High-L. Exp. Dom. Firms	(4) High-L. Exp. Int. Firms
Int. Act. Firm (0/1)	0.0369^{a}	-0.0219^{a}		
	(0.0049)	(0.0041)		
Domestic Exp. (Yrs)	0.0345$^{a}_{**}$	0.0382$^{a}_{**}$		
	(0.0003)	(0.0004)		
International Exp. (Yrs)	0.0466$^{a}_{**}$	0.0509$^{a}_{**}$		
	(0.0008)	(0.0007)		
Dom. Exp. * Int. Act. Firm (Yrs)	-0.0034^{a}	0.0003		
	(0.0006)	(0.0004)		
Int. Exp. * Int. Act. Firm (Yrs)	-0.0026^{a}	0.0007		
	(0.0010)	(0.0007)		
Domestic Exp. * Manager FE (Yrs)	-0.0002	0.0145$^{a}_{**}$		
	(0.0003)	(0.0002)		
International Exp. * Manager FE (Yrs)	0.0006	0.0288$^{a}_{**}$		
	(0.0006)	(0.0004)		
Job Mobility (Dummy)	0.0551^{a}	0.0583^{a}	0.0761^{a}	0.1106^{a}
	(0.0006)	(0.0004)	(0.0008)	(0.0006)
Job Mobility * Int. Act. Firm (Dummy)	-0.0189^{a}	0.0037^{c}		
	(0.0026)	(0.0020)		
Job Mobility * High-layer Firm (Dummy)			-0.0089^{a}	-0.0096^{a}
			(0.0029)	(0.0022)
High-layer Firm (0/1)			-0.0119^{a}	-0.0376^{a}
			(0.0045)	(0.0038)
Low-layer Exp. (Yrs)			0.0182$^{a}_{**}$	0.0267$^{a}_{**}$
			(0.0003)	(0.0004)
High-layer Exp. (Yrs)			0.0240$^{a}_{**}$	0.0214$^{a}_{**}$
			(0.0015)	(0.0016)
Low-layer Exp. * High-layer Firm (Yrs)			0.0003	-0.0018^{a}
			(0.0004)	(0.0004)
High-layer Exp. * High-layer Firm (Yrs)			-0.0010	0.0041^{b}
			(0.0015)	(0.0016)
Low-layer Exp. * Manager FE (Yrs)			-0.0002	-0.0037$^{a}_{**}$
			(0.0003)	(0.0003)
High-layer Exp. * Manager FE (Yrs)			-0.0001	0.0053$^{a}_{**}$
			(0.0011)	(0.0007)
Observations	37,950	108,715	33,268	80,847
R-squared	1.0000	0.9982	1.0000	1.0000
Manager-Year Controls	X	X	X	X
Firm-Year Controls	X	X	X	X
Manager FE	X	X	X	X
Firm FE	X	X	X	X
Estimation Method	OLS	OLS	OLS	OLS

Table C-13. Wage Regressions, Main Covariates, International Experience vs. High-Layer Experience, Horse-Race

Notes: This table proposes some variants of the heterogeneous returns specification of column (3) of Table 9. The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) compares the returns on domestic and international experience in the sub-sample of young managers employed by low-layer firms. Column (2) compares the returns on domestic and international experience in the sub-sample of young managers employed by high-layer firms. Column (3) compares the returns on low-layer firms and high-layer firms experience in the sub-sample of young managers employed by domestic firms. Column (4) compares the returns on low-layer firms and high-layer firms experience in the sub-sample of young managers employed by internationally active firms. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with the manager FE and international experience with the manager FE) are significantly different from each other at the 5% level. $_{**}$ also indicates that the coefficients of low-layer firms and high-layer firms experience (or the coefficients of the interactions of low-layer firms experience with the manager FE and high-layer firms experience with the manager FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure.

VARIABLES	(1) Inter. Exp. Small Firms	(2) Inter. Exp. Big Firms	(3) Big Exp. Domestic Firms	(4) Big Exp Inter. Firms
Int. Act. Firm (0/1)	0.0326^{a}	-0.0082^{b}		
	(0.0062)	(0.0038)		
Domestic Exp. (Yrs)	0.0400$^{a}_{**}$	0.0348$^{a}_{**}$		
	(0.0004)	(0.0003)		
International Exp. (Yrs)	0.0570$^{a}_{**}$	0.0505$^{a}_{**}$		
	(0.0010)	(0.0007)		
Dom. Exp. * Int. Act. Firm (Yrs)	-0.0041^{a}	0.0007^{c}		
	(0.0007)	(0.0004)		
Int. Exp. * Int. Act. Firm (Yrs)	-0.0107^{a}	0.0012^{c}		
	(0.0013)	(0.0007)		
Domestic Exp. * Manager FE (Yrs)	-0.0001	0.0098$^{a}_{**}$		
	(0.0003)	(0.0002)		
International Exp. * Manager FE (Yrs)	0.0001	0.0282$^{a}_{**}$		
	(0.0009)	(0.0004)		
Job Mobility (Dummy)	0.0592^{a}	0.0546^{a}	0.0787^{a}	0.1019^{a}
	(0.0006)	(0.0004)	(0.0007)	(0.0005)
Job Mobility * Int. Act. Firm (Dummy)	-0.0121^{a}	0.0003		
	(0.0030)	(0.0019)		
Job Mobility * Big Firm (Dummy)			-0.0195^{a}	-0.0069^{a}
			(0.0023)	(0.0020)
Big Firm (0/1)			0.0229^{a}	0.0614^{a}
			(0.0060)	(0.0064)
Small Experience (Yrs)			0.0191^{a}	0.0200$^{a}_{**}$
			(0.0004)	(0.0005)
Big Experience (Yrs)			0.0178^{a}	0.0296$^{a}_{**}$
			(0.0008)	(0.0010)
Small Experience * Big Firm (Yrs)			-0.0026^{a}	0.0014^{a}
			(0.0004)	(0.0005)
Big Experience * Big Firm (Yrs)			-0.0028^{a}	-0.0030^{a}
			(0.0008)	(0.0010)
Small Exp. * Manager FE (Yrs)			-0.0000	0.0039$^{a}_{**}$
			(0.0003)	(0.0002)
Big Exp. * Manager FE (Yrs)			0.0008^{c}	0.0258$^{a}_{**}$
			(0.0005)	(0.0004)
Observations	30,839	116,265	42,238	104,719
R-squared	1.0000	0.9984	1.0000	0.9989
Manager-Year Controls	X	X	X	X
Firm-Year Controls	X	X	X	X
Manager FE	X	X	X	X
Firm FE	X	X	X	X
Estimation Method	OLS	OLS	OLS	OLS

Table C-14. Wage Regressions, Main Covariates, International Experience vs. Big Experience, Horse-Race

Notes: This table proposes some variants of the heterogeneous returns specification of column (3) of Table 9. The dependent variable is the (log) hourly wage, detrended using a full set of year dummies interacted with 1-digit sector dummies. The hourly wage is defined as the sum of the monthly base wage (gross pay for normal hours of work), overtime, regularly and irregularly paid supplements, divided by the sum of the monthly normal and overtime hours of work. Regressions are run on the young managers sample. Manager-year controls include number of years of education as well as tenure in the firm and its square. Firm-year controls include firm size (log employment), productivity (log apparent labour productivity), share of skilled workers and log firm age. Column (1) compares the returns on domestic and international experience in the sub-sample of young managers employed by small firms. Column (2) compares the returns on domestic and international experience in the sub-sample of young managers employed by big firms. Column (3) compares the returns on small firms and big firms experience in the sub-sample of young managers employed by domestic firms. Column (4) compares the returns on small firms and big firms experience in the sub-sample of young managers employed by internationally active firms. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. $_{**}$ indicates that the coefficients of domestic and international experience (or the coefficients of the interactions of domestic experience with the manager FE and international experience with the manager FE) are significantly different from each other at the 5% level. $_{**}$ also indicates that the coefficients of small firms and big firms experience (or the coefficients of the interactions of small firms experience with the manager FE and big firms experience with the manager FE) are significantly different from each other at the 5% level. All results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure.

VARIABLES	(1) Mobility & Firm FE
Int. Act. Firm (0/1)	0.0018
	(0.0057)
Overall Exp. (Yrs)	0.0329^{a}
	(0.0019)
International Exp. (Yrs)	0.0184^{a}
	(0.0015)
Over. Exp. * Int. Act. Firm (Yrs)	-0.0006
	(0.0008)
Int. Exp. * Int. Act. Firm (Yrs)	-0.0004
	(0.0013)
Job Mobility (Dummy)	0.0599^{a}
	(0.0051)
Job Mobility * Int. Act. Firm (Dummy)	-0.0046
	(0.0030)
Observations	249,562
R-squared	0.9107
Manager-Year Controls	X
Firm-Year Controls	X
Manager FE	X
Firm FE	X
Estimation Method	OLS

Table C-15. Wage Regressions, Main Covariates, Overall Experience and International Experience

Notes: Estimations refer to the same sample used in column (5) of Table 8 as well as to a very similar specification in which, rather than considering domestic and international experience, we consider overall experience and international experience. Standard errors (in parenthesis) are clustered at the manager level. ^{a} p<0.01, ^{b} p<0.05, ^{c} p<0.1. Results refer to OLS estimations obtained with the Stata user-written routine reghdfe implementing Guimarães and Portugal (2010)'s methodology to deal with high-dimensional fixed effects. The reported number of observations refers to the actual number of observations used by the estimation procedure.

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