UNINTENDED SIGNALS: WHY COMPANIES WITH A HISTORY OF OFFSHORING HAVE TO PAY WAGE PENALTIES FOR NEW HIRES

ALINA GRECU
Department of Strategy and Innovation
Copenhagen Business School
Kilevej 14A, 2000 Frederiksberg, Denmark
agr.si@cbs.dk, Tel. +4538153308

WOLFGANG SOFKA
Department of Strategy and Innovation
Copenhagen Business School
Kilevej 14A, 2000 Frederiksberg, Denmark
ws.si@cbs.dk, Tel:+4538152502
and
Strategy, International Business and Entrepreneurship Group (SIBE)
University of Liverpool, Management School
Chatham Street, L69 7ZH, United Kingdom

MARCUS M. LARSEN
Department of Strategy and Innovation
Copenhagen Business School
Kilevej 14A, 2000 Frederiksberg, Denmark
mml.si@cbs.dk, Tel:+4538155628
and
Department of Strategy and Entrepreneurship
BI Norwegian Business School
Nydalsveien 37, 0484 Oslo, Norway

TORBEN PEDERSEN
Department of Management and Technology
Bocconi University
Via Roberto Sarfatti, 25, 20100 Milano MI, Italy
torben.pedersen@unibocconi.it, Tel: +390258363614

Acknowledgements: The authors are grateful to the Editor and the two anonymous reviewers for their constructive comments during the reviewing process, but also to Ingo Weller and Ali Mohammadi for the generous feedback on a previous version of the paper, to Toke Reichstein for early empirical suggestions, and to the people who attended and shared their thoughts on earlier versions of this paper at Academy of International Business 2020, Academy of Management 2020, Aalto University (Dep. of Management Studies, International Business Unit), Copenhagen Business School (Dep. of Strategy and Innovation), and at a NORD-IB (Nordic Research School in International Business) session.

BIOGRAPHICAL SKETCH

Alina Grecu is a PhD Candidate in Economics and Management at the Department of Strategy and Innovation of Copenhagen Business School. In her research, she focuses on the impact of internationalization decisions on companies and employees.

Torben Pedersen is professor of International Business at the Bocconi University, Milan, Italy. His research interests is in the interface between strategy and international management and he has published over 150 articles, cases and books. He is Fellow of Academy of International Business, European International Business Academy and Strategic Management Society. He is one of the leaders of the MADE-research program.

Marcus M. Larsen is Professor (wsr) at Copenhagen Business School and Adjunct Professor at BI Norwegian Business School. His research interests include international business, strategy, and organizational design. His work has appeared in outlets such as Strategic Management Journal, Journal of International Business Studies, and Organization Science. He is currently leading the Carlsberg Foundation funded research project "The Firm in the Informal Economy".

Wolfgang Sofka is a Professor for Strategic and International Management at the Department of Strategy and Innovation of Copenhagen Business School. In his research, he focusses on how firms acquire knowledge and how they capture its economic value. He is especially interested in how these mechanisms are influenced by the internationalization of firms and markets.

UNINTENDED SIGNALS: WHY COMPANIES WITH A HISTORY OF OFFSHORING HAVE TO PAY WAGE PENALTIES FOR NEW HIRES

ABSTRACT

We explore how companies with a history of offshoring attract their future employees. We reason that offshoring decisions send unintended signals about job insecurity to companies' onshore labor markets. This signaling effect implies that offshoring companies must pay higher salaries for new hires than non-offshoring companies. We tested our predictions on a sample of 7,971 matched managers and professionals recently hired by offshoring and non-offshoring companies. Our results indicate a 3% to 7% wage penalty for offshoring companies. Thus, we conclude that not only is offshoring challenging to implement, but it can also entail a number of general ramifications for the domestic labor market.

Keywords: Offshoring, hiring, wage penalty, hidden costs, signaling theory.

INTRODUCTION

Offshoring is a business practice that has attracted considerable public and scholarly attention over the last two decades (Contractor et al., 2010; Mudambi, 2008; Steinberg et al., 2017). While widely pursued as a an effective strategy for reducing labor costs (Manning, 2014), the extant research suggests that many firms underestimate the actual costs of implementing offshoring activities in foreign locations (Larsen et al., 2013). For example, offshoring companies misjudge coordination and control costs (Dibbern et al., 2008; Srikanth & Puranam, 2011; Stringfellow et al., 2008), and cultural differences in foreign locations (Blomqvist et al., 2015). They also incorrectly estimate the cost of a successful implementation (Larsen, 2016). While researchers have primarily focused on outcomes for the offshored activity itself, we know less about the consequences for the domestic organization. This is surprising given the public attention such company actions receive in the media (e.g., Financial Times, 2019; New York Times, 2019; Reuters, 2017; Wall Street Journal, 2016).

In this article, we advance offshoring research by investigating whether a company's history of offshoring affects its ability to attract employees at home in the future. The importance of having highly qualified employees at home to coordinate and facilitate offshore activities is well-documented in the literature (Srikanth & Puranam, 2011; Zimmermann & Ravishankar, 2016). However, research on recruitment and strategic human capital suggests that prospective employees take many sources of information into account when assessing the attractiveness of a potential employer (Kryscynski et al., 2020; Ryan et al., 2000). Accordingly, there is a risk that firms may underestimate the signals they send to onshore labor markets when offshoring.

Theoretically, we place offshoring decisions into a broader context as unintended but consequential signals to onshore labor markets (Connelly et al., 2011; Spence, 2002). We reason that the perceived association between offshoring and job losses (Hummels et al., 2014; Maertz et al., 2010) creates signals that create doubts among prospective employees about job security in the offshoring company. Offshoring is an effective signal because it is widely observable in media coverage and shapes prospective employees' perceptions about their potential work environment. We hypothesize that to

financially compensate new hires for the perceived risk of joining an employer with comparatively lower job security (Rosen, 1986; Smith, 1979), offshoring firms need to pay a wage penalty (i.e., higher wages) compared with a reference group of firms with similar productivity levels hiring similar individuals for similar jobs in the domestic labor market.

We tested and found support for our wage penalty hypothesis using a dataset covering 7,971 newly hired employees in Denmark. We benefited from the combination of a survey targeting both offshoring and non-offshoring companies with their employment records drawn from Statistics Denmark's employer-employee register. The merged dataset provided rich information about the surveyed companies' offshoring activities and the employees they subsequently hire. Importantly, we obtained information on hiring wages for both offshoring and non-offshoring companies. We then employed a comprehensive estimation strategy that took into account that offshoring companies—and the individuals that they hire—are not randomly or exogenously assigned. We relied on coarsened exact matching (CEM) combined with Mincer-type wage regressions and undertook robustness analyses using propensity score matching techniques as well as instrumental-variable approaches to arrive at reliable, empirical results. Our results indicate that offshoring firms pay wage penalties in the range of 3% to 7% (depending on the stringency of the matching) when compared to non-offshoring firms hiring similar individuals for equivalent jobs.

Our research makes two contributions. First, we close gap in the literature on the unintended consequences of offshoring (Kotabe et al., 2008; Larsen et al., 2013; Stringfellow et al., 2008) by emphasizing how companies' offshoring decisions affect their future ability to hire at home. We find that the inability of a firm to anticipate the consequences of offshoring decisions is not narrowly confined to the offshoring context, but rather extends to its attractiveness on the domestic labor markets. We identify substantial wage penalties arising from offshoring signals in relation to future hires, which constitute a cost that should be factored into offshoring decisions. Second, unintended signals conveying negative information are an understudied aspect of signal theory (Connelly et al., 2011). We delineate the mechanisms through which offshoring sends inadvertent, yet effective signals to labor markets that may

undermine firms' abilities to attract qualified labor and, eventually, negatively affect their performance (Raffiee & Coff, 2016). This theoretical logic can serve as a basis for future studies exploring the performance heterogeneity of firms' internationalization decisions (e.g., Pisani et al., 2020).

THEORY AND HYPOTHESIS

The unintended consequences of offshoring

Offshoring can be defined as the relocation of business activities to foreign locations (Manning, 2014). Together with access to new talent and market proximity, opportunities for cost arbitrage have traditionally been among the main drivers for offshoring (Größler et al., 2013; Kinkel, 2012). However, recent studies explore the adverse consequences of offshoring, and indicate the existence of "hidden" or "invisible" costs of relocating business activities abroad. Larsen et al. (2013) define hidden costs as "implementation costs that are not anticipated in the various stages of strategic decision making" (p. 534*)*. For example, firms may find that local labor costs increase beyond their expectations, and discover that offshoring operations require substantially more knowledge transfer, control, and supervision of production processes than originally anticipated (Larsen et al., 2013; Stringfellow et al., 2008).

The challenge of predicting the consequences of offshoring decisions accurately and comprehensively is well-documented (see Table 1 for a summary of the literature on offshoring's intended and unintended consequences). As Table 1 indicates, this extant research is incomplete in two meaningful ways. First, it assumes—at least implicitly—that the effects of offshoring are limited to the intended employment-related consequences (e.g., lowering wages or accessing new talent pools abroad). Second, it fails to deal with the fact that the unintended consequences are not limited to the firm's current employees but extend to future hires.

<<Insert Table 1 about here>>

Based on the assumptions of bounded rationality, unintended consequences—or so-called "post-decision" surprises (Harrison & March, 1984)—are typically conceived as affecting the efficiency with which specific offshoring activities can be implemented. We build on this research by exploring how offshoring decisions can produce unintended consequences for a company's domestic attractiveness as an

employer. In this respect, heterogeneous firm theories may suggest that productivity advantages can translate into employer attractiveness because productive companies can pay comparatively higher wages (Jovanovic, 1982; Redding, 2011). Relatedly, research in labor economics explores how the wages of onshore employees are affected by offshoring, with studies showing that knowledge-intensive jobs in the onshore location tend to receive higher wages (Hummels et al., 2014).

Unintended signaling effects of offshoring decisions to onshore labor markets

To understand the labor-market effect of companies' offshoring decisions, we draw on signaling theory. The basic concept behind signaling theory is that a signaler (e.g., person, product, or company) has some underlying qualities that the receiver interprets and uses to offer feedback to the signaler (Connelly et al., 2011). The recruitment literature, which uses signaling theory to explain how applicant attraction occurs, can be divided into two streams. The first stream focuses on employee-to-employer signals used by employers as proxies for unobserved "productive capabilities". It looks at educational achievements or the experiences of individuals (Spence, 1973). The second stream focuses on employer-to-employee signals and explores company-level signals. It analyzes how job-seekers perceive certain company characteristics as proxies for unobservable qualities (Ryan et al., 2000). The latter stream is of particular interest to our study in terms of the extent to which negative and positive company signals induce companies to pay higher or lower wages (for an overview of the literature, see Appendix A in the online supplementary materials). Prior research shows that there are positive signals (e.g., being a socially responsible company) that enable organizations to pay less and motivate employees to give up pecuniary benefits in return for non-pecuniary ones (Burbano, 2016). Conversely, negative signals can make employers look less attractive. For example, research finds that less-attractive employers seen as offering unsafe working conditions pay higher wage penalties (Cousineau et al., 1992; Dale-Olsen, 2006; Deleire & Levy, 2004).

We reason that offshoring decisions and the information that they reveal to labor markets can be regarded as unintentional signals that are not designed to communicate negative attributes of firms to specific audiences (Connelly et al., 2011). Unintentional signals are likely to occur because firms are often unaware of the information that their behavior and actions reveal (Spence, 2002). Given the inadvertent

nature of offshoring signals, the interpretation by the signal-receivers is central for our logic. Connelly et al. (2011) define receiver interpretation as "the process of translating signals into perceived meaning" (p. 54). This process depends on the strength of the signal and what the receiver infers from the signal (Branzei et al., 2004).

Signal strength matters for the interpretation of signals because receivers are selective in the degree to which they respond. This selection occurs through cognitive filters, such that weak signals might not be captured by potential receivers, adequately processed, or enter their decision making (Ilmola & Kuusi, 2006). While offshoring is an unintentional signal for domestic labor markets, it is strong in its potential to reach prospective employees because of its observability. Offshoring constitutes a major act of reorganization and offshoring decisions are often irreversible (Overby, 2003). While smaller organizational changes (e.g., in departmental structures) are likely to go unnoticed outside the firm, offshoring can result in substantial job losses or plant closures (Maertz et al., 2010). Given the magnitude of these consequences, offshoring decisions are more likely to enter public discussion (e.g., through union protests, as political talking points, or in media coverage; see also Appendix B for an illustration of the job-related issues appearing in news articles about offshoring). Hence, information about offshoring is easily accessible to potential applicants on job markets and likely to cross their cognitive filters.

The signal-interpretation process continues with receivers deciding on the meaning of the signal. In our context, prospective employees create a perception of the work environment of a potential employer based on the information that is available to them (Ehrhart & Ziegert, 2005). This perception may differ from the actual work environment, which would only be observable to a current employee with comprehensive and objective information. Instead, prospective employees make inferences from behavior that is observable to them (Srivastava, 2001). Rynes (1991) describes how applicants take cues from a firm's actions and make inferences that extend to the firm's general behaviors, which affect its perceived attractiveness as an employer (Turban & Greening, 1996). This perceived attractiveness can also be symbolic in the sense that prospective employees may not want to be associated with employers signaling undesirable qualities (Highhouse et al., 2007).

The interpretation of a signal is embedded in a set of collective beliefs about that signal (Connelly et al., 2011). From these collective beliefs, an environment is created in which individuals assign meaning to signals (Park & Mezias, 2005). In this regard, it is important for our reasoning to note that offshoring is typically associated with job insecurity in media coverage or political discussions, which can constitute collective beliefs. Accordingly, whether the focal firm intends to offshore more jobs in the future is irrelevant for the inference effect of an offshoring signal on prospective employees, as this intent is not observable. Instead, the interpretation of the offshoring signal depends on its association with frequently occurring job losses in other firms (Hummels et al., 2014; Maertz et al., 2010) well covered by the media. Given that job security is an important aspect for many prospective applicants on labor markets (Trevor & Nyberg, 2008), offshoring firms are at an attractiveness disadvantage relative to potential employers without an offshoring signal that might be interpreted as indicating lower job security.

Altogether, we argue that offshoring decisions send unintended, strong signals to prospective employees on labor markets that are easily observable in the media and political discourse. Prospective employees are likely to interpret offshoring as a signal of job insecurity with a potential employer given how closely it is associated with job losses within the collective beliefs of the society from where jobs are moved to foreign locations. In accepting employment with lower job security, prospective employees can expect comparatively higher salaries (Smith, 1979). Thus, the compensating differentials create a wage penalty for offshoring companies when compared with otherwise comparable employers hiring similar employees for the same type of jobs. This argument leads to our hypothesis:

Offshoring companies pay a wage penalty to newly hired employees compared to non-offshoring companies.

METHODS

Sample and data

We test our hypothesis on companies and employees in Denmark. Denmark is an appropriate setting for our study, as it is one of the least restrictive countries in Europe in terms of labor-market policies in terms of wage-setting flexibility (Bingley & Westergaard-Nielsen, 2003; Hummels et al., 2014; Sorensen &

Sorenson, 2007). We benefited from the opportunity to merge two sources of data, which allowed us to capture the influence of offshoring decisions on the wages of newly hired employees. More specifically, we combined a survey on company-level offshoring experiences with matched employer-employee register data.

The survey was collected by the Global Operations Network[1] in October 2011 using an online questionnaire with the purpose of understanding companies' offshoring activities. Consistent with our theoretical definition, offshoring was defined in the survey as the relocation of any activities from Denmark to a foreign location. The entire sample population consisted of Danish companies with more than 50 employees, regardless of industry (2,856 Danish companies), identified in a publicly available database of registered companies. The response rate for this online questionnaire was 24%. Non-response bias tests, based on secondary data from the same database, suggest that responding and non-responding companies were similar in terms of a variety of characteristics.[2] The respondents (typically CEOs, COOs, production managers, or HR managers) provided information on their strategies and their last offshoring implementation.

Through the survey data, we overcame some of the empirical challenges found in prior offshoring studies. First, we could reliably identify companies that were engaged in offshoring, instead of using proxies such as changes in imported goods (Horgos, 2009). Second, the survey contained information about offshoring characteristics, which is otherwise difficult to observe. Third, the information gathered through the survey could be directly merge (through unique company identification numbers) with extensive Danish register data provided by Statistics Denmark. The use of the Statistics Denmark data source for research published in leading management journals has increased (Grimpe et al., 2019; Kaiser et al., 2018) due to its completeness and richness (see Timmermans, 2010, for a description). The register data allowed us to identify a rich set of variables describing the education and employment experience of individuals, including their job functions and wages before and after taking on the new job.

[1] A research network of Scandinavian universities.
[2] Turnover, total assets, annual results, industry, and location.

We linked the survey information to employment data for the surveyed companies for the period between 2000 and 2014. This timeframe not only encapsulates the offshoring implementations captured by the survey, but also provides us with the opportunity to observe the employment records of companies and individuals.[3] Given that our hypothesis focuses on newly hired employees, each individual was only observed in their first year at a company, and we restricted our sample of hires after offshoring to three years. This ensured that our empirical sample included "treated" individuals that were hired in the period immediately after the offshoring implementation, so the effects could be attributed to offshoring. Furthermore, we chose to empirically test our hypothesis on occupation levels one, two, and three as defined by the Danish version of the International Standard Classification of Occupations (DISCO). These individuals were classified as having professional or managerial tasks, and have been the primary focus of other studies focused on hiring decisions and their outcomes (Distel et al., 2019; Sofka et al., 2021). We adopted this approach because managers and professionals hired for jobs that require extensive knowledge have strategic value (Raffiee & Coff, 2016).

Variables

Our dependent variable is the natural logarithm of hourly wage for a newly hired employee. Ideally, we would like to track the wage that an employee was offered in addition to any other job that he or she was considering. However, this information was not available. Instead, we assume that given suitable controls for job functions and regional boundaries, labor markets are efficient, which implies that the wage of the employee in the new job is the maximum that he or she could bargain for and the maximum that the hiring company was willing to pay. Given our set of control variables, higher wages for newly hired employees indicated a wage penalty paid by the hiring company.

The main independent variable in our model is a dummy variable indicating whether the newly hired employee was joining a company that had offshored in the previous three years. Accordingly, we had a matched group of employees newly hired by companies that had not offshored during that period.

[3] Companies were only observed if they hired new employees.

We included individual, company, and labor-market control variables in our regressions (see Appendix C in the online supplementary materials for an operationalization of all variables in our models). In terms of individual characteristics, human-capital theory identifies formal education and labor-market experience as key predictors of pay levels (Mincer & Polachek, 1974). In addition to individuals' skills and competencies, job-level characteristics and hierarchical levels also matter (Gerhart & Milkovich, 1990). Here, we used the occupation codes (DISCO 2-digit) and constructed a dummy variable based on the DISCO codes that took a value of one if the new employee was hired for a top-management position. We included a gender dummy, as previous studies have shown that females earned less than their male colleagues (Blau & Kahn, 2007; Frank, 1978).

Unobserved differences in employees' quality may lead to an overestimation of the wage penalties (Almeida, 2006), as quality might be related to individuals' abilities. Cognitive abilities are known to affect wages for skilled workers (Lindqvist & Vestman, 2011) but, unfortunately, such information is rarely available. Therefore, we addressed this issue of unobservable factors using income-decile variables for the individual's previous employment to account for any differences in quality among individuals that may have driven the wage penalties. This approach has also been used in other studies that explain wage differences among newly hired employees (Grimpe et al., 2019). The use of deciles has the advantage that absolute wage levels in previous jobs might capture industry- or company-specific labor-market conditions instead of differences in the quality of individuals.

In terms of company-level control variables, larger companies have been found to pay higher wages (Burton et al., 2018) and companies with higher wages self-select into export markets (Schank et al., 2008). In addition, heterogeneous firm theories suggest that there is a close link between trade and income (Redding, 2011), and that efficiency is learned over time (Jovanovic, 1982). Thus, as controls, we included company age, workplace size, productivity (sales/employee), and whether the company had export experience. Furthermore, we controlled for the presence of other signals being sent by the companies, which could indicate that they might share rents with their employees. Therefore, we included three other dummy variables: cost-leadership orientation, profitability, and ownership. In addition,

fluctuations in the external labor market may be associated with fluctuations in wages for newly hired employees (Galuscak et al., 2012) and certain geographical areas may offer more opportunities than others (Combes et al., 2011). Hence, we included the region, sector, and hiring year as controls in all of our regressions.

Empirical strategy

We tested our hypothesis by estimating Mincer-type wage regressions. However, given our empirical setting, we needed to consider potential biases from unobserved factors regarding the decision to offshore and company hiring. We tackled these issues by using matching techniques and we undertook robustness analyses using an instrumental-variable approach.

We used observational data for which there was no random assignment to the offshoring treatment. We addressed this issue by deploying a CEM technique, similar to other recent studies predicting wage differences (Grimpe et al., 2019). In this way, we could mimic an experimental setting by adjusting the weights of observations to make sure we compared similar control and treated groups (for more details, see Iacus et al., 2012). The goal of the CEM approach was to obtain weights for each observation so that treated observations (i.e., those individuals hired by companies with offshoring history) were no longer significantly different from the control group based on a set of conditioning variables after weights were applied.

We generated weights through various matching specifications. As conditioning variables in our matching procedures, we included a detailed, two-digit occupation code for the new job to ensure that both the treated and control group were hired for the same job function. We then added a broad set of individual-, company-, and regional-level variables. At the individual level, we conditioned a dummy variable on whether the employee completed a college education and his or her income decile in the previous job. In addition, we matched on the sizes of the hiring workplace and exporting experience, and we coarsened on company productivity. Finally, we precisely matched the region of the country and the year of the hiring event. As consistency checks, we employed different propensity score matching (PSM)

techniques as well as instrumental-variable regressions, which are recommended empirical tools for dealing with endogeneity in international business research (Reeb et al., 2012).

FINDINGS

Summary statistics

Our estimation sample consisted of 446 companies hiring at least one employee. Most of these companies (57.63%) operated in two industries: "trade and transport" and "manufacturing." Of the 446 companies, 32% were offshoring companies, approximately 70% of which reported that their last offshoring implementation took place in 2009, 2010, or 2011, and 24.4% were part of a foreign group. At the employee level, the final sample contained 27,900 employees hired by offshoring companies within three years of the offshoring event and by companies that reported no offshoring activity.

Table 2 shows descriptive statistics for newly hired employees in offshoring and non-offshoring companies. Post-offshoring, the offshoring companies paid in terms of hourly wages, on average, DKK 330 to newly hired employees, whereas companies without an offshoring history paid, on average, DKK 274. With an average of 16 years of experience, newly hired employees in offshoring companies did not differ from non-offshoring companies' new hires. However, employees hired by offshoring companies were more likely to have a college education and to have had higher compensation in their previous employment, and they joined exporting companies to a larger extent. Overall, the descriptive statistics indicated that matching or instrumental-variable approaches were warranted to isolate the effects of offshoring from other company/individual-level differences. Table 3 shows the correlations between the main variables in our estimation models. We inspected the variance inflation factors (VIF) for the main variables, and found no indications of multicollinearity with an average VIF of 1.19 and a maximum VIF of 1.56.

<<Insert Table 2 and Table 3 about here>>

Results using CEM models

We deployed a set of wage regressions with varying degrees of restrictiveness in the matching procedure to demonstrate the stability of results. Table 4 shows the results of the test of our hypothesis for different

matching specifications. All of the models support the hypothesis, as we find that wage penalties are paid by offshoring companies. Model 1 shows the results without any matching weights applied, resulting in the maximum sample of 27,900 newly hired individuals for which we predicted wages. In Model 2, we use CEM weights obtained through an exact-matching technique that includes the following as conditioning variables: occupation codes, company size type (i.e., small, medium, large), export experience, region, and year. In Model 3, we additionally match on college education, while, in Model 4, we add also employees' previous income deciles as a conditioning variable. This approach alleviates concerns about biases emerging from alternative explanation based on unobserved characteristics, such as individuals' abilities or the quality of the employee in his or her previous job. Model 5 includes workplace size instead of company size type as a conditioning variable, whereas Model 6 is even more complex and uses also productivity as a conditioning variable. By including company productivity as a conditioning variable, we also reduce potential concerns about biases emerging from efficiency concerns (Redding, 2011). Given the richness of the data, we obtained 7,971 comparable individuals after using the most restrictive matching approaches. This highly restrictive matched sample covers new hires in 361 companies (37% of which had a recent history of offshoring).

To assess the quality of the matching procedure, we applied probit estimations predicting the likelihood of selection into treatment (i.e., being hired by a company with an offshoring history). We included all conditioning variables as explanatory variables in these estimations (see Appendix D), which show that our treatment and control samples are balanced with regard to the offshoring treatment.

<<Insert Table 4 about here>>

Altogether, the specifications presented in Table 4 support our hypothesis. We find that offshoring companies pay, on average, higher hourly wages to newly hired employees. The effect in the most restrictive matching approach is economically substantial, as it implies a 7% (exp(0.068) - 1 = 0.070) wage penalty for companies with offshoring experience. As predicted, the wage penalties that offshoring firms must pay to attract new hires are substantial in magnitude even when the heterogeneity among companies, employees, and labor markets is considered.

To further test our mechanism, we examined whether the effect of company offshoring on the wages of newly hired employees varied significantly across groups of employees for whom job insecurity should be more salient. Empirically, we looked at newly hired employees' bank debt and tested whether offshoring companies needed to pay even higher wage penalties to newly hired employees with higher debt (as they are expected to highly value job and income security). Such within-group heterogeneity is likely to affect an individual's sensitivity to job insecurity but is unlikely to affect the wage setting of offshoring companies. Our expectation was confirmed, which implies that our research hypothesis was in line with the arguments about job insecurity (see the online Appendix E, Model 2).

Robustness analyses

We conducted a series of consistency checks by replacing the CEM approach with PSM techniques using the same set of variables (see Appendix F in the online supplementary materials). All of the PSM models supported our hypothesis, but the effect size with the most restrictive PSM technique was slightly smaller (i.e., 2.3%; $\exp(0.023) - 1 = 0.023$).

Furthermore, we provide results for additional regression specifications (including the CEM weights) in Table 5. First, we tested our hypothesis for the post-2008 period only (Model 7). Second, we checked whether the wage penalty had a dynamic structure, given that we looked at the wages after offshoring. Models 8a-8f in Table 5 show that there is no significant difference between the wages of new hires in offshoring and non-offshoring companies prior to the offshoring event, but that the wage penalty is salient after offshoring. This is consistent with our theoretical mechanism, as the strength of the offshoring signal increases only when that signal becomes known to the public and, consequently, prospective employees. Third, we found support for our findings by going beyond industry, time, and regional dummies and controlling for specific labor-market conditions (see Model 9 of Table 5). More specifically, job-security concerns might be particularly salient in industries and/or local labor markets where many jobs have been lost. Hence, we constructed two additional control variables: the number of employees losing their job in the six-digit industry code of the focal company, and the share of

unemployed people in the focal company's municipality (even more fine grained than regions). Even after controlling for these two factors, we still found a significant offshoring wage penalty.

<<Insert Table 5 about here>>

Lastly, we tested the reliability of the matching results by employing an instrumental-variable approach. In line with the trade literature, we identified transportation costs and distances to transportation points as suitable instruments for examining the effect of trade on income (Frankel & Romer, 1999). We calculated the travel time (i.e., how many minutes it took to drive the distance under normal traffic conditions; Weber & Péclat, 2017) from a company's municipality to the five biggest Danish seaports: Copenhagen, Aarhus, Fredericia, Aalborg, and Esbjerg. Denmark has multiple seaports used by companies to import and export goods internationally, and companies in the proximity of seaports have higher ex-ante opportunities to benefit from offshoring. At the same time, companies' geographical location with respect to seaports was unlikely to affect wages (i.e., the dependent variable of our hypothesized relationship). Model 1 in Online Appendix G shows the first-stage regression with offshoring as the dependent variable, and Model 2 shows the second-stage wage regression. The control variables were identical and in line with the matching-based approaches. In the second-stage regression, we found support for the wage penalty hypothesis. The effect of offshoring is significant and substantial in magnitude, corresponding to a wage penalty of around 10% (p-value: 0.026).

DISCUSSION AND CONCLUSION

Theoretical implications

This study makes important contributions to the extant literature along two dimensions. First, we contribute to the literature on the unintended consequences of offshoring (Larsen et al., 2013; Stringfellow et al., 2008) by emphasizing that companies' offshoring decisions affect their future ability to hire domestically. This is an important extension of the extant research, which has largely focused on the detrimental aspects of the actual implementation of an offshored activity. Our theorizing is not confined to a particular activity. Instead, it explores the consequences of offshoring for a company's future hiring.

Prior research on offshoring stresses the importance of having highly qualified domestic employees to coordinate and control the work conducted at offshore locations (Srikanth & Puranam, 2011; Zimmermann & Ravishankar, 2016). Moreover, the complex interdependencies between onshore and offshore locations require qualified employees who can facilitate efficient coordination and knowledge transfer. Yet, little is known about the consequences for firms' abilities to attract qualified employees after deciding to go offshore. We present a model that incorporates the unintended signaling effects of offshoring with compensating wage differentials for prospective employees. We theorize that offshoring sends negative, salient, and visible signals of job insecurity to prospective employees, and that this signal can explain wage differences between newly hired employees in offshoring firms and non-offshoring firms.

Our findings show that offshoring companies pay a 3% to 7% penalty when hiring. As such, we propose that domestic labor-market reactions to firms' offshoring decisions constitute company-wide "hidden costs" of offshoring (Larsen et al., 2013). Correspondingly, we contribute to extant research emphasizing the inability of decision makers to account for relevant cost considerations when offshoring. Therefore, this theoretical logic should be valuable for future studies exploring other important strategic internationalization decisions, such as the relocation of corporate headquarters (Birkinshaw et al., 2006) or the entry into political fragile markets (Witte et al., 2017).

Second, we contribute to the literature by delineating how unintended signaling effects that convey negative information may damage firms' attractiveness and, ultimately, their performance (Raffiee & Coff, 2016). While this is an understudied aspect of signal theory (Connelly et al., 2011), we tease out the mechanisms (i.e., signal observability and receiver inference) through which offshoring sends unintended, strong signals to labor markets, and how those signals result in wage penalties. By stressing how new information is interpreted after strategic decisions are made and their consequences are experienced (Harrison & March, 1984), we suggest that the offshoring decision, with its implications for hiring and wages in the onshore location, offers a particularly salient signal. These insights are important for research that seeks to understand performance heterogeneity in firms' internationalization efforts. For

example, many researchers have attempted to explain the relationship between a firm's multinationality and firm performance (e.g., Berry & Kaul, 2016; Lu & Beamish, 2004), although with mixed empirical success (Verbeke & Forootan, 2012). As traditional performance measures typically capture net effects of firms' internationalization (including offshoring) decisions, it becomes difficult to disentangle positive effects from counterproductive ones. Instead, we offer a model that illustrates how internationalization decisions can produce unforeseen consequences in the domestic labor markets that are only indirectly related to the directly observed outcomes of strategic decisions. Similar to our approach, future research could more systematically unravel the sources of performance heterogeneity based on visible internationalization decisions.

Practical implications

Our results indicate that offshoring is associated with higher costs of hiring, which this has substantial implications for practice. Previous studies looking at company signals and wages find comparable wage penalties. For example, French and Dunlap (1998) find that a wage penalty of 3% to 10% can be attributed to the degree of mental stress in a company. As a reference, if we focus on the Danish occupational code DISCO 25 (i.e., work that requires knowledge on the highest level in IT and communication), a company without a offshoring history would typically pay a new hire an average salary[4] of approximately EUR 93,000 per year. Our model predicts that a similar company with a recent history of offshoring would pay a penalty ranging between 3% (EUR 2,790) and 7% (EUR 6,510) to a similar employee. Another perspective for comparison is the annual salary increase for this group of employees, which, according to the official statistics, corresponds to around 2% per year. All in all, the wage penalty for having offshored is substantial and not negligible for companies. Hence, our study can make managers aware that they need to counter offshoring signals in onshore labor markets if they want to be perceived as secure employers in the future. They may do so, for instance, by publicizing long-term career trajectories in the company.

[4] Salary by occupation code statistics (Danmarks Statistik, https://www.statistikbanken.dk/).

Limitations and future research

The results of our research should be assessed in light of its limitations. First, while we exploit unique data on the Danish labor market, we acknowledge that a cross-country comparison study could be a fruitful research path. The Danish welfare state, the country's level of technological development, and the widespread presence of unions may be particular contextual characteristics that allow prospective employees to access information and form perceptions based on observable signals. Building also on previous research on MNE wage premium (e.g. van der Straaten et al., 2019), future research could replicate our model in different empirical contexts. For example, as companies' offshoring patterns differ across the world, our model could be improved by controlling for type of country and welfare conditions.

Second, individual risk preferences, the type of offshoring, the offshoring destination, or how companies decide to organize their activities globally may play a role when prospective employees apply for jobs. We were unable to theorize about these aspects because a different empirical setting would have been needed. New-employee surveys or experiments may be fruitful empirical settings for advancing our understanding of the types of employees who favor job security over monetary benefits when they join a company with an offshoring history.

Lastly, our theoretical model introduces linkages among offshoring signals, negative publicity, company attractiveness, and wage differentials. Our empirical setting, while rich in information, does not allow us to identify companies' names, and then link the survey information to media reports or news coverage. Company name and reputation may also act as signals of employer quality (Fombrun & Shanley, 1990). Thus, qualitative studies can try to disentangle the impact of offshoring on how prospective employees perceive company attractiveness by studying the importance of such aspects. Future studies can also expand our model and theorize on the effects of compensating wage differentials on companies' decisions to increase or decrease the degree of internationalization. For example, future studies can analyze the impact of backshoring decisions on the wages of newly hired employees to understand whether "bringing jobs back" initiatives (Financial Times, 2019; New York Times, 2019) receive positive media attention and have a positive or negative effect on wages.

REFERENCES

Almeida, R. (2006). The labor market effects of foreign owned firms. *Journal of International Economics*, *72*, 75–96.

Berry, H., & Kaul, A. (2016). Replicating the multinationality-performance relationship: Is there an S-curve? *Strategic Management Journal*, *37*(11), 2275–2290.

Bertrand, O., & Bertrand, O. (2011). What goes around, comes around: Effects of offshore outsourcing on the export performance of firms. *Journal of International Business Studies*, *42*, 334–344.

Betts, S., Healy, W., Mir, R., & Vicari, V. (2015). The Impact of Offshoring on Organizational Commitment: Recruiting, Training, Retention and Ethical Concerns. *Journal of International Business Research*, *14*(2), 15–32.

Bingley, P., & Westergaard-Nielsen, N. (2003). Returns to tenure, firm-specific human capital and worker heterogeneity. *International Journal of Manpower*, *24*(7), 774–788.

Birkinshaw, J., Braunerhjelm, P., Holm, U., & Terjesen, S. (2006). Why do some multinational corporations relocate their headquarters overseas? *Strategic Management Journal*, *27*(7), 681–700.

Blau, F. D., & Kahn, L. M. (2007). The gender pay gap: Have women gone as far as they can? *Academy of Management Perspectives*, *21*(1), 7–23.

Blomqvist, M., Peterson, H., & Dhar-Bhattacharjee, S. (2015). "You Feel The Threat From Asia". Onshore Experiences of IT Offshoring To India. *Nordic Journal of Working Life Studies*, *5*(4), 41.

Branzei, O., Ursacki-Bryant, T. J., Vertinsky, I., & Zhang, W. (2004). The Formation of Green Strategies in Chinese Firms: Matching Corporate Environmental Responses and Individual Principles. *Strategic Management Journal*, *25*, 1075–1095.

Burbano, V. C. (2016). Social Responsibility Messages and Worker Wage Requirements: Field Experimental Evidence from Online Labor Marketplaces. *Organization Science*, *27*(4), 1010–1028.

Burton, M. D., Dahl, M. S., & Sorenson, O. (2018). Do Start-Ups Pay Less? *Industrial and Labor Relations Review*, *71*(5), 1179–1200.

Combes, P.-P., Duranton, G., & Gobillon, L. (2011). The identification of agglomeration economies. *Journal of Economic Geography*, *11*(2), 253–266.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling Theory: A Review and Assessment. *Journal of Management*, *37*(1), 39–67.

Contractor, F. J., Kumar, V., Kundu, S. K., & Pedersen, T. (2010). Reconceptualizing the firm in a world of outsourcing and offshoring: The organizational and geographical relocation of high-value company functions. *Journal of Management Studies*, *47*(8), 1417–1433.

Cousineau, J.-M., Lacroix, R., & Girard, A.-M. (1992). Occupational Hazard and Wage Compensating Differentials. *The Review of Economics and Statistics*, *74*(1), 166–169.

Dale-Olsen, H. (2006). Estimating Workers' Marginal Willingness to Pay for Safety using Linked Employer-Employee Data. *Economica*, *73*(289), 99–127.

Deleire, T., & Levy, H. (2004). Worker Sorting and the Risk of Death on the Job. *Journal of Labor Economics*, *22*(4), 925–953.

Demirbag, M., Mellahi, K., Sahadev, S., & Elliston, J. (2012). Employee service abandonment in offshore operations: A case study of a US multinational in India | Elsevier Enhanced Reader. *Journal of World Business*, *47*, 178–185.

Dibbern, J., Winkler, J., & Heinzl, A. (2008). Explaining variations in client extra costs between software projects offshored to India. *MIS Quarterly: Management Information Systems*, *32*(2), 333–366.

Distel, A. P., Sofka, W., de Faria, P., Preto, M. T., & Ribeiro, A. S. (2019). Dynamic capabilities for hire – How former host-country entrepreneurs as MNC subsidiary managers affect performance. *Journal of International Business Studies*, *(forthcoming)*.

Ehrhart, K. H., & Ziegert, J. C. (2005). Why Are Individuals Attracted to Organizations? *Journal of Management*, *31*(6), 901–9019.

Financial Times. (2019). *How can America bring back manufacturing jobs? FT readers respond*. Financial Times. https://www.ft.com

Fombrun, C., & Shanley, M. (1990). What's in a Name? Reputation Building and Corporate Strategy. *The*

Academy of Management Journal, *33*(2), 233–258.
Frank, R. H. (1978). Why women earn less: The theory and estimation of differential over qualification. *The American Economic Review*, *68*(3), 360–373.
Frankel, J. A., & Romer, D. (1999). Does trade cause growth? *American Economic Review*, *89*(3), 379–399.
French, M. T., & Dunlap, L. J. (1998). Compensating wage differentials for job stress. *Applied Economics*, *30*(8), 1067–1075.
Galuscak, K., Keeney, M., Nicolitsas, D., Smets, F., Strzelecki, P., & Vodopivec, M. (2012). The determination of wages of newly hired employees: Survey evidence on internal versus external factors. *Labour Economics*, *19*(5), 802–812.
Geishecker, I. (2008). The impact of international outsourcing on individual employment security: A micro-level analysis. *Labour Economics*, *15*(3), 291–314.
Gerhart, B., & Milkovich, G. T. (1990). Organizational Differences In Managerial Compensation And Financial Performance. *Academy of Management Journal*, *33*(4), 663–691.
Grimpe, C., Kaiser, U., & Sofka, W. (2019). Signaling valuable human capital: Advocacy group work experience and its effect on employee pay in innovative firms. *Strategic Management Journal*, *40*(4), 685–710.
Größler, A., Timenes Laugen, B., Arkader, R., & Fleury, A. (2013). Differences in outsourcing strategies between firms in emerging and in developed markets. *International Journal of Operations & Production Management*, *33*(3), 296–321.
Harrison, J. R., & March, J. G. (1984). Decision Making and Postdecision Surprises. In *Quarterly* (Vol. 29, Issue 1).
Highhouse, S., Thornbury, E. E., & Little, I. S. (2007). Social-identity functions of attraction to organizations. *Organizational Behavior and Human Decision Processes*, *103*(1), 134–146.
Horgos, D. (2009). Labor market effects of international outsourcing: How measurement matters. *International Review of Economics and Finance*, *18*(4), 611–623.
Hummels, D., Jørgensen, R., Munch, J., & Xiang, C. (2014). The wage effects of offshoring: Evidence from Danish matched worker-firm data. *American Economic Review*, *104*(6), 1597–1629.
Iacus, S. M., King, G., & Porro, G. (2012). Causal Inference without Balance Checking: Coarsened Exact Matching. *Political Analysis*, *20*(1), 1–24.
Ilmola, L., & Kuusi, O. (2006). Filters of weak signals hinder foresight: Monitoring weak signals efficiently in corporate decision-making. *Futures*, *38*, 908–924.
Jensen Ørberg, P., & Pedersen, T. (2011). The Economic Geography of Offshoring: The Fit between Activities and Local Context. *Journal of Management Studies*, *48*(2), 352–372.
Jovanovic, B. (1982). Selection and the Evolution of Industry. *Econometrica*, *50*(3), 670.
Kaiser, U., Kongsted, H. C., Laursen, K., & Ejsing, A.-K. (2018). Experience matters: The role of academic scientist mobility for industrial innovation. *Strategic Management Journal*, *39*, 1935–1958.
Kinkel, S. (2012). Trends in production relocation and backshoring activities. *International Journal of Operations & Production Management*, *32*(6), 696–720.
Kotabe, M., Mol, M. J., & Ketkar, S. (2008). An evolutionary stage model of outsourcing and competence destruction: a triad comparison of the consumer electronics industry. *Management International Review*, *48*(1), 65–93.
Kotabe, M., & Mudambi, R. (2009). Global Sourcing and Value Creation: Opportunities and Challenges. *Journal of International Management*, *15*, 121–125.
Kryscynski, D., Coff, R., & Campbell, B. (2020). Charting a path between firm-specific incentives and human capital-based competitive advantage. *Strategic Management Journal*, (forthcoming).
Kumar, K., Van Fenema, P. C., Ann Von Glinow, M., & Van Fenema, P. C. (2009). Offshoring and the global distribution of work: Implications for task interdependence theory and practice. *Journal of International Business Studies*, *40*, 642–667.
Larsen, M. M. (2016). Failing to estimate the costs of offshoring: A study on process performance.

International Business Review, *25*, 307–318.
Larsen, M. M., Manning, S., & Pedersen, T. (2013). Uncovering the hidden costs of offshoring: The interplay of complexity, organizational design, and experience. *Strategic Management Journal*, *34*, 533–552.
Lewin, A. Y., Massini, S., & Peeters, C. (2009). Why are companies offshoring innovation the emerging global race for talent. *Journal of International Business Studies*, *40*, 901–925.
Lindqvist, E., & Vestman, R. (2011). The labor market returns to cognitive and noncognitive ability: Evidence from the Swedish enlistment. *American Economic Journal: Applied Economics*, *3*, 101–128.
Lu, J. W., & Beamish, P. W. (2004). International diversification and firm performance: The S-curve hypothesis. *Academy of Management Journal*, *47*(4), 598–609.
Maertz, C. P., Wiley, J. W., LeRouge, C., & Campion, M. A. (2010). Downsizing Effects on Survivors: Layoffs, Offshoring, and Outsourcing. *Industrial Relations*, *49*(2), 275–285.
Manning, S. (2014). Mitigate, tolerate or relocate? Offshoring challenges, strategic imperatives and resource constraints. *Journal of World Business*, *49*, 522–535.
Mincer, J., & Polachek, S. (1974). Family Investments in Human Capital: Earnings of Women. *Journal of Political Economy*, *82*(2), 76–108.
Mol, M. J., van Tulder, R. J. M., & Beije, P. R. (2005). Antecedents and performance consequences of international outsourcing. *International Business Review*, *14*, 599–617.
Mudambi, R. (2008). Location, control and innovation in knowledge-intensive industries. *Journal of Economic Geography*, *8*, 699–725.
Murray, J. Y., Kotabe, M., & Zhou, J. N. (2005). Strategic alliance-based sourcing and market performance: Evidence from foreign firms operating in China. *Journal of International Business Studies*, *36*(2), 187–208.
New York Times. (2019). *Trump's Push to Bring Back Jobs to U.S. Shows Limited Results*. The New York Times. https://www.nytimes.com
Overby, S. (2003). The Hidden Costs of Offshore Outsourcing. *CIO Magazine*.
Park, N. K., & Mezias, J. M. (2005). Before and after the Technology Sector Crash: The Effect of Environmental Munificence on Stock Market Response to Alliances of E-Commerce Firms. *Strategic Management Journal*, *26*(11), 987–1007.
Pisani, N., Garcia-Bernardo, J., & Heemskerk, E. (2020). Does it pay to be a multinational? A large-sample, cross-national replication assessing the multinationality–performance relationship. *Strategic Management Journal*, *41*(1), 152–172.
Raffiee, J., & Coff, R. (2016). Micro-Foundations of Firm-Specific Human Capital: When Do Employees Perceive Their Skills to be Firm-Specific? *Academy of Management Journal*, *59*(3), 766–790.
Redding, S. J. (2011). Theories of heterogeneous firms and trade. *Annual Review of Economics*, *3*, 77–105.
Reeb, D., Sakakibara, M., & Mahmood, I. P. (2012). From the editors: Endogeneity in international business research. *Journal of International Business Studies*, *43*(3), 211–218.
Reuters. (2017). *Trump to seek jobs advice from firms that offshore U.S. work*. Reuters. https://www.reuters.com
Rosen, S. (1986). The theory of equalizing differences. In O. Ashenfelter & R. Layard (Eds.), *Handbook of Labor Economics* (Volume I, pp. 641–692). Elsevier Science Publishers.
Ryan, A. M., Sacco, J. M., McFarland, L. A., & Kriska, S. D. (2000). Applicant self-selection: Correlates of withdrawal from a multiple hurdle process. *Journal of Applied Psychology*, *85*(2), 163–179.
Rynes, S. L. (1991). Recruitment, Job Choice, and Post-Hire Consequences: A Call for New Research Directions. In M. Dunnette & L. Howe (Eds.), *Handbook of Industrial and Organizational Psychology*. Consulting Psychologists Press.
Schank, T., Schnabel, C., & Wagner, J. (2008). *Higher Wages in Exporting Firms: Self-Selection, Export Effect, or Both? First Evidence from German Linked Employer-Employee Data* (No. 3359; IZA Discussion Paper).

Smith, R. S. (1979). Compensating Wage Differentials And Public Policy: A Review. *Industrial and Labor Relations Review*, *32*(3), 339–352.
Sofka, W., Grimpe, C., & Kaiser, U. (2021). Understanding the unwritten rules of the game: Government work experience and salary premiums in foreign MNC subsidiaries. *Journal of International Business Studies*, *(forthcoming)*.
Sorensen, J. B., & Sorenson, O. (2007). Corporate Demography and Income Inequality. *American Sociological Review*, *72*, 766–783.
Spence, M. (1973). Job Market Signaling. *Quarterly Journal of Economics*, *87*(3), 355–374.
Spence, M. (2002). Signaling in retrospect and the informational structure of markets. In *American Economic Review* (Vol. 92, Issue 3, pp. 434–459).
Srikanth, K., & Puranam, P. (2011). Integrating Distributed Work: Comparing Task Design, Communication, and Tacit Coordination Mechanisms. *Strategic Management Journal*, *32*(8), 849–875.
Srivastava, J. (2001). The Role of Inferences in Sequential Bargaining with One-Sided Incomplete Information: Some Experimental Evidence. *Organizational Behavior and Human Decision Processes*, *85*(1), 166–187.
Stringfellow, A., Teagarden, M. B., & Nie, W. (2008). Invisible costs in offshoring services work. *Journal of Operations Management*, *26*, 164–179.
Tambe, P., & Hitt, L. M. (2012). Now IT's Personal: Offshoring and the Shifting Skill Composition of the U.S. Information Technology Workforce. *Management Science*, *58*(4), 678–695.
Timmermans, B. (2010). *The Danish Integrated Database for Labor Market Research: Towards Demystification for the English Speaking Audience* (No. 10–16; DRUID Working Paper).
Trevor, C. O., & Nyberg, A. J. (2008). Keeping Your Headcount When All About You Are Losing Theirs: Downsizing, Voluntary Turnover Rates, and The Moderating Role of HR Practices. *Academy of Management Journal*, *51*(2), 259–276.
Turban, D. B., & Greening, D. W. (1996). Corporate Social Performance And Organizational Attractiveness To Prospective Employees. *Academy of Management Journal*, *40*(3), 658–672.
van der Straaten, K., Pisani, N., & Kolk, A. (2019). Unraveling the MNE wage premium. *Journal of International Business Studies*, (forthcoming).
Verbeke, A., & Forootan, M. Z. (2012). How Good are Multinationality-Performance (M-P) Empirical Studies? *Global Strategy Journal*, *2*(4), 332–344.
Wall Street Journal. (2016). *Donald Trump Warns of Penalties If U.S. Firms Take Jobs Abroad*. WSJ. https://www.wsj.com
Weber, S., & Péclat, M. (2017). A simple command to calculate travel distance and travel time. *Stata Journal*, *17*(4), 962–971.
Witte, C. T., Burger, M. J., Ianchovichina, E. I., & Pennings, E. (2017). Dodging bullets: The heterogeneous effect of political violence on greenfield FDI. *Journal of International Business Studies*, *48*(7), 862–892.
Wright, G. C. (2014). Revisiting the employment impact of offshoring. *European Economic Review*, *66*, 63–83.
Zimmermann, A., & Ravishankar, M. N. (2016). A systems perspective on offshoring strategy and motivational drivers amongst onshore and offshore employees. *Journal of World Business*, *51*, 548–567.

TABLES

Table 1. Intended and unintended offshoring consequences

		Intended consequences		Unintended consequences	
		Topic	*Indicative literature*	*Topic*	*Indicative literature*
Firm level	Financial	Cost cutting and economies of scale	Größler et al., 2013; Jensen Ørberg & Pedersen, 2011	Cost-estimation errors	Larsen et al., 2013; Larsen, 2016
	Strategic	Performance and competitive advantage	Bertrand & Bertrand, 2011; Kotabe & Mudambi, 2009; Mol et al., 2005; Mudambi, 2008; Murray et al., 2005	Control, coordination and knowledge transfer issues	Dibbern et al., 2008; Kumar et al., 2009; Srikanth & Puranam, 2011; Stringfellow et al., 2008
Employee level	Existing	Skill composition, employment, and wages	Hummels et al., 2014; Tambe & Hitt, 2012; Wright, 2014	Turnover, motivation and job insecurity	Betts et al., 2015; Demirbag et al., 2012; Geishecker, 2008; Zimmermann & Ravishankar, 2016
	New	Access to a qualified workforce	Lewin et al., 2009	Employer reputation and hiring	-

Table 2. Descriptive statistics

	Newly hired employees		Employees hired in non-offshoring companies		Employees hired in offshoring companies	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Hourly wage (DKK)	289.915	(383.762)	273.491	(373.493)	329.728	(404.851)
Offshoring(d)	0.292	(0.455)	0.000	(0.000)	1.000	(0.000)
College educated(d)	0.488	(0.500)	0.438	(0.496)	0.609	(0.488)
Female (d)	0.386	(0.487)	0.358	(0.480)	0.454	(0.498)
TMT member (d)	0.102	(0.303)	0.121	(0.326)	0.057	(0.233)
Work experience (Years)	15.677	(8.928)	15.606	(8.821)	15.848	(9.179)
Prev. inc. 1st decile	0.107	(0.310)	0.108	(0.311)	0.106	(0.307)
Prev. inc. 2nd decile	0.058	(0.233)	0.060	(0.238)	0.051	(0.219)
Prev. inc. 3rd decile	0.094	(0.292)	0.095	(0.294)	0.091	(0.287)
Prev. inc. 4th decile	0.065	(0.247)	0.072	(0.259)	0.049	(0.217)
Prev. inc. 5th decile	0.046	(0.209)	0.054	(0.226)	0.027	(0.162)
Prev. inc. 6th decile	0.049	(0.216)	0.058	(0.234)	0.027	(0.162)
Prev. inc. 7th decile	0.068	(0.252)	0.076	(0.265)	0.049	(0.216)
Prev. inc. 8th decile	0.100	(0.299)	0.104	(0.305)	0.090	(0.286)
Prev. inc. 9th decile	0.158	(0.365)	0.148	(0.355)	0.182	(0.386)
Prev. inc. 10th decile	0.255	(0.436)	0.225	(0.417)	0.329	(0.470)
Firm age (years)	30.128	(24.633)	23.550	(19.885)	46.074	(27.569)
Exporter(d)	0.732	(0.443)	0.639	(0.480)	0.958	(0.201)
Prior firm avg. wages	254.839	(101.500)	248.110	(113.874)	271.151	(58.877)
No. employees workplace	567.974	(867.294)	297.219	(401.876)	1224.327	(1255.286)
Productivity	1991.727	(2336.152)	1792.036	(2356.035)	2475.811	(2213.834)
Profitable (d)	0.837	(0.369)	0.824	(0.381)	0.869	(0.337)
Cost leadership(d)	0.302	(0.459)	0.362	(0.481)	0.158	(0.365)
Domestic(d)	0.763	(0.425)	0.734	(0.442)	0.834	(0.372)
Agr., mining and quarrying	0.007	(0.084)	0.004	(0.065)	0.014	(0.117)
Manufacturing	0.244	(0.430)	0.101	(0.302)	0.591	(0.492)
Construction	0.101	(0.301)	0.142	(0.349)	0.001	(0.027)
Trade and transport	0.212	(0.409)	0.274	(0.446)	0.060	(0.238)
Information and communication	0.147	(0.354)	0.166	(0.372)	0.102	(0.302)
Financial and insurance	0.003	(0.056)	0.004	(0.065)	0.000	(0.016)
Real estate	0.017	(0.128)	0.022	(0.147)	0.004	(0.060)
Other business services	0.268	(0.443)	0.284	(0.451)	0.229	(0.420)
Public admin., educ., and health	0.001	(0.024)	0.001	(0.028)	0.000	(0.000)
Arts, entertainment, and other services	0.001	(0.022)	0.001	(0.027)	0.000	(0.000)
Northern region	0.068	(0.252)	0.086	(0.281)	0.023	(0.149)
Central region	0.215	(0.411)	0.217	(0.412)	0.208	(0.406)
Southern region	0.121	(0.326)	0.117	(0.322)	0.129	(0.335)
Capital region	0.568	(0.495)	0.545	(0.498)	0.623	(0.485)
Zealand area	0.029	(0.169)	0.034	(0.182)	0.017	(0.129)
Observations	**27,900**		**19,752**		**8,148**	

Table 3. Correlations for main variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	Offshoring(d)	1.00												
(2)	College educated(d)	0.16	1.00											
(3)	Female (d)	0.09	-0.01	1.00										
(4)	TMT member (d)	-0.09	-0.01	-0.12	1.00									
(5)	Work experience (Years)	0.01	-0.14	-0.06	0.14	1.00								
(6)	Firm age (years)	0.42	0.05	0.12	-0.04	0.04	1.00							
(7)	Exporter(d)	0.33	0.11	-0.01	-0.05	0.01	0.22	1.00						
(8)	Prior firm avg. wages	0.10	0.14	-0.05	-0.05	-0.01	0.01	0.04	1.00					
(9)	No. empl. workplace	0.49	0.10	0.14	-0.08	-0.02	0.46	0.18	-0.02	1.00				
(10)	Productivity	0.13	0.02	-0.00	0.01	0.02	0.21	0.17	0.22	0.04	1.00			
(11)	Profitable (d)	0.06	0.03	0.06	-0.04	-0.03	0.08	0.05	-0.11	0.14	0.05	1.00		
(12)	Cost leadership(d)	-0.20	-0.04	-0.04	0.04	-0.03	-0.09	-0.16	-0.01	-0.21	-0.05	-0.16	1.00	
(13)	Domestic(d)	0.11	-0.02	0.04	-0.01	0.03	0.16	-0.03	-0.07	0.17	-0.11	-0.03	0.11	1.00
	Observations	**27,900**												

Table 4. Wage regression results obtained through different CEM matching specifications[a, b, c]

	Model 1	Model 2:	Model 3	Model 4	Model 5	Model 6
Matching approach	No matching	Basic	Advanced	Elevated	Restrictive	Highly restrictive
Offshoring(d)	0.023	0.032	0.041	0.047	0.067	0.068
	(0.008)	(0.008)	(0.008)	(0.011)	(0.011)	(0.011)
	[0.005]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
College educated(d)	0.114	0.120	0.124	0.116	0.129	0.129
	(0.006)	(0.007)	(0.008)	(0.010)	(0.012)	(0.012)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Female (d)	-0.104	-0.093	-0.097	-0.111	-0.098	-0.100
	(0.006)	(0.007)	(0.008)	(0.010)	(0.011)	(0.012)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
TMT member (d)	0.215	0.852	0.811	0.925	0.829	0.842
	(0.086)	(0.050)	(0.056)	(0.076)	(0.067)	(0.068)
	[0.013]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Work experience (Years)	0.017	0.009	0.008	0.007	0.013	0.013
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]
Work experience^2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	[0.000]	[0.130]	[0.801]	[0.937]	[0.046]	[0.035]
Previous income deciles	Yes	Yes	Yes	Yes	Yes	Yes
Occupation codes	Yes	Yes	Yes	Yes	Yes	Yes
Prior firm avg. wages	0.000	0.001	0.001	0.001	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Workplace size	-0.000	-0.000	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	[0.457]	[0.084]	[0.231]	[0.249]	[0.000]	[0.000]

	Model 1	Model 2:	Model 3	Model 4	Model 5	Model 6
Matching approach	**No matching**	**Basic**	**Advanced**	**Elevated**	**Restrictive**	**Highly restrictive**
Productivity	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	[0.000]	[0.000]	[0.000]	[0.022]	[0.189]	[0.344]
Firm age (years)	-0.000	0.000	-0.000	-0.000	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	[0.285]	[0.775]	[0.944]	[0.463]	[0.003]	[0.005]
Exporter(d)	0.029	0.052	0.065	0.096	0.061	0.067
	(0.007)	(0.020)	(0.021)	(0.030)	(0.027)	(0.028)
	[0.000]	[0.012]	[0.002]	[0.001]	[0.022]	[0.016]
Domestic(d)	0.016	0.002	-0.000	0.018	0.012	0.011
	(0.007)	(0.009)	(0.010)	(0.012)	(0.013)	(0.013)
	[0.018]	[0.817]	[0.973]	[0.146]	[0.323]	[0.373]
Cost leadership(d)	-0.016	-0.022	-0.021	-0.022	0.003	0.002
	(0.007)	(0.009)	(0.010)	(0.012)	(0.012)	(0.012)
	[0.019]	[0.019]	[0.030]	[0.076]	[0.820]	[0.885]
Profitable (d)	-0.038	-0.083	-0.087	-0.097	-0.102	-0.096
	(0.007)	(0.011)	(0.012)	(0.015)	(0.015)	(0.015)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Main sector	Yes	Yes	Yes	Yes	Yes	Yes
Hiring year	Yes	Yes	Yes	Yes	Yes	Yes
Region	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4.617	4.498	4.519	4.747	4.726	4.646
	(0.048)	(0.169)	(0.173)	(0.268)	(0.309)	(0.320)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
N	27,900	14,867	13,863	7,971	8,114	7,971
R-squared	0.453	0.439	0.437	0.440	0.411	0.408

[a] The dependent variable is Ln(hourly wage). [b] For each variable, the coefficient is shown on the first line; the SE is in parentheses on the second line; and the p-value is in brackets on the third line. [c] All models contain CEM weights except Model 1.

Table 5. Consistency check analyses for the main effect[a, b, c]

	Model 7	**Model 8a**	**Model 8b**	**Model 8c**	**Model 8d**	**Model 8e**	**Model 8f**	**Model 9**
	Post-2008 sample	CEM matched t-3	CEM matched t-2	CEM matched t-1	CEM matched t+1	CEM matched t+2	CEM matched t+3	Additional lb. market controls
Offshoring(d)	0.057	-0.015	-0.004	0.014	0.053	0.069	0.086	0.068
	[0.000]	[0.316]	[0.784]	[0.428]	[0.006]	[0.000]	[0.000]	[0.000]
No. unemployed (industry & year)								0.000
								[0.742]
Share unemployed (by municipality & year)								-2.617
								[0.002]
With controls[d]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4.892	4.719	4.798	4.903	4.989	4.437	4.720	4.708
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
N	6,921	3,810	3,482	2,899	2,809	3,157	3,663	7,971
R-squared	0.449	0.440	0.435	0.467	0.450	0.409	0.398	0.408

[a] The dependent variable is Ln(hourly wage). [b] All models include CEM weights with conditioning variables as in Model 6, Table 4. [c] For each variable, the first line shows line the coefficient and the second line shows the p-value in brackets. [d] Individual-level control variables: college educated (d), female (d), TMT member (d), work experience (years), work experience^2, previous income decile dummies, two-digit occupation codes, hiring year dummies. Firm-level control variables: prior firm average wage, workplace size, productivity, firm age (years), exporter(d), domestic(d), cost leadership(d), profitable (d), region dummies, sector dummies.