Unpacking Multi-Level Offshoring Consequences

Hiring Wages, Onshore Performance, and Public Sentiment

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My PhD journey ends here—a journey that was sometimes challenging, sometimes rewarding, but, all in all, tremendously enriching.

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As I reflect on the past few years in academia, I realize that the research environment taught me a lot about theories, endogeneity issues, selection bias, but it has also challenged me in finding a balance between work life and personal life; between reaching career goals, exploring the world, and spending quality time. I would like to thank my close family and friends for their support—Mulțumesc! Tak! Thank you! Last but not least, my heartfelt appreciation goes to my life partner for travelling the world by my side and encouraging me to follow my dreams.

Alina Grecu,
Copenhagen, 2022

Summary

Offshoring decisions (i.e., relocating business activities abroad) are made by multi-national corporations (MNCs), by small and medium-sized firms (SMEs), and by companies that operate in production- or knowledge-intensive sectors in either developed or emerging economies. Companies engage in offshoring decisions for various reasons, but ultimately to gain competitive advantage. Existing offshoring literature offers valuable insights, but there is still limited knowledge about the offshoring consequences that go beyond cost considerations. This thesis investigates whether there are consequences that can be attributed to company offshoring decisions at the i) employee level, ii) company level, and iii) public sentiment level. By combining different sources of data and theoretical logics from international business (IB), strategy, human capital, and economics, this thesis is an attempt to address existing research gaps in the international business literature.

The first study explores how companies with a history of offshoring attract their future employees by reasoning that the offshoring decisions send unintended signals about job insecurity to companies' onshore labor markets. The signaling effect implies that offshoring companies must pay higher salaries for new hires than non-offshoring companies. Based on a sample of matched managers and professionals hired by offshoring and non-offshoring companies, the results indicate a wage penalty for offshoring companies. These findings show that offshoring is not only challenging to implement for companies but also can entail consequences for the domestic labor market.

In the second study, theoretical mechanisms from the internal labor markets literature are integrated into financial performance models. Namely, this study investigates to what extent focusing on hiring more internally (i.e., redeploying existing resources) helps companies to

perform better in the onshore location after engaging in offshoring decisions. The main idea is that firm-specific human capital and information availability from internal labor markets will be particularly valuable for offshoring firms and particularly salient for those engaging in complex offshoring and those relocating R&D activities abroad. Using a 2009-2014 panel dataset containing financial, mobility, and offshoring information, the findings of this study contribute to the international business and human capital literature by fostering a debate on internal labor markets in the onshore location as sources of valuable human capital when firms need to make offshoring decisions.

The third study emphasizes that offshoring decisions is a topic attracting attention in international business research as well as a contentious topic in the public debate. As the public is an important actor when companies make decisions to internationalize, it is critical to understand the public sentiment about offshoring. To address this, the study relies on Twitter data and text analytics tools. This exploratory study finds that politicians trigger the debate and that sentiment regarding offshoring is rather negative, which is associated with higher levels of tweet popularity, but also that the extent to which a tweet is negative is related to other language characteristics. With populism on the rise, this study contributes to stakeholder theory and international business research by addressing the indirect effects of company offshoring decisions on political debates and public sentiment.

Resumé

Offshoring-beslutninger (dvs. flytning af forretningsaktiviteter til udlandet) træffes af multinationale selskaber (MNC'er) og af små og mellemstore virksomheder (SMV'er), af virksomheder, der opererer i produktions- eller videnintensive sektorer, i udviklede eller vækstøkonomier. Virksomheder engagerer sig i flytning af aktiviteter til andre lande af forskellige årsager, i sidste ende for at kunne opnå konkurrencefordele. Eksisterende offshoring-litteratur giver værdifuld indsigt, men der er stadig begrænset viden om de offshoring-konsekvenser, der rækker ud over omkostningsovervejelser. Dette speciale undersøger, om der er konsekvenser, der kan tilskrives virksomhedens offshoring-beslutninger på i) medarbejderniveau, ii) virksomhedsniveau og iii) offentligt stemningsniveau. Ved at kombinere forskellige datakilder og teoretiske logikker fra international business, strategi, human kapital og økonomi er afhandlingen et forsøg på at adressere eksisterende forskningshuller i den internationale erhvervslitteratur.

Den første studie undersøger, hvordan virksomheder med en historie med offshoring tiltrækker deres fremtidige medarbejdere, og ræsonnere, at offshoring-beslutninger sender utilsigtede signaler om jobusikkerhed til virksomheders onshore-arbejdsmarkeder. Signaleffekten indebærer, at offshoring-virksomheder skal betale højere løn for nyansættelser end ikke-offshoring-virksomheder. Baseret på en stikprøve af matchede ledere og fagfolk ansat af offshoring og ikke-offshoring virksomheder, viser resultaterne en løn straf for offshoring virksomheder. Disse resultater viser, at offshoring ikke kun er udfordrende at implementere for virksomhederne, men det kan også have konsekvenser for det indenlandske arbejdsmarked.

I den anden studie er teoretiske mekanismer fra den indre arbejdsmarkedslitteratur integreret i modeller om virksomhedernes' omsætning. Det undersøger nemlig, i hvor høj grad fokus på at ansætte flere medarbejder internt (dvs. omfordeling af flere eksisterende ressourcer) hjælper virksomheder med at præstere bedre på landstedet efter at have engageret sig i offshoring-beslutninger. Hovedtanken er, at virksomhedsspecifik menneskelig kapital og tilgængelighed af information fra interne arbejdsmarkeder vil være særlig værdifuld for offshoring-virksomheder og især fremtrædende for dem, der beskæftiger sig med kompleks offshoring og dem, der flytter Forskning & Udvikling aktiviteter til udlandet. Ved at bruge et paneldatasæt fra 2009-2014, der indeholder finansiel, mobilitets- og offshoring-information, bidrager resultaterne af denne undersøgelse til den internationale litteratur om erhvervslivet og menneskelig kapital ved at fremme en debat om indre arbejdsmarkeder som kilder til værdifuld menneskelig kapital, når virksomheder skal træffe offshoring-beslutninger.

Den tredje studie understreger, at virksomheders beslutninger om at flytte eksisterende forretningsaktiviteter og arbejdspladser fra et land til et andet er et emne, der tiltrækker opmærksomhed i international erhvervsforskning, men det er også et polariserende emne i samfundet. Da offentligheden er en vigtig aktør, når virksomheder træffer beslutninger om at internationalisere sig, er det faktisk afgørende at forstå offentlighedens holdning ift. offshoring emnet. For at løse dette er undersøgelsen afhængig af Twitter-data og tekstanalyseværktøjer. Denne undersøgelse finder, at offshoring-stemninger er ret negative, hvilket er forbundet med højere niveauer af tweet-popularitet, men også at omfanget af et tweet er negativt er relateret til andre sproglige egenskaber. Med populismen stigende, behandler denne undersøgelse de indirekte konsekvenser af virksomhedsoffshoring-beslutninger i de politiske diskussioner og følelsen mht. emnet i det offentlige rum.

Table of Contents

THESIS INTRODUCTION

Multinational corporations have benefited greatly from the decline in trade and investment barriers as well as by decreasing transport and communication costs. This has led to changes in how global value chains (GVCs) are coordinated and benefits in terms of access to cheaper labor and economies of scale (Jensen Ørberg & Pedersen, 2011). Offshoring strategies (i.e., relocation of business activities to foreign locations (Manning, 2014) have traditionally allowed firms to benefit from geographical locations' advantages and gain competitive advantage (Mudambi & Venzin, 2010b). Depending on the location characteristics, the literature distinguishes between concentrated and dispersed business activities, with offshoring being defined as the process of "relocating activities abroad" (Ørberg Jensen, Larsen, & Pedersen, 2013, p. 315) via wholly-owned subsidiaries (captive offshoring) or outsourcing partners (offshore outsourcing).

According to the classical theories of international business, the decision to offshore can come incrementally and gradually (Johanson & Vahlne, 1977), but companies can also decide to undergo more dynamic decisions by employing more complex settings (Vahlne & Johanson, 2017). Transaction cost economics arguments are the most commonly used logics for explaining relocation of business activities decisions (Williamson, 1981), together with the resource-based view (RBV), which is invoked to define what functions could be offshored so that the firm retains its valuable, rare, inimitable, and non-substitutable resources (Barney, 1991).[1]

As a phenomenon in international business research, offshoring has attracted considerable attention. This attention comes because the research focuses on understanding companies' drivers for engaging in such international activities (Kotabe & Mudambi, 2009; Mudambi, 2008). It also

[1] For an extensive literature review of the most used theoretical logics in the offshoring literature, see M. Mihalache & Mihalache, 2016.

seeks to understand the benefits of offshoring decisions (Bertrand & Bertrand, 2011; Doh, 2005; Doh et al., 2009; Mol et al., 2005) as well as the negative effects or hidden costs of such decisions (Larsen et al., 2013; Stringfellow et al., 2008).

Various studies have shown how relocating activities abroad can affect organizational learning (Jensen, 2009), tasks (Kumar et al., 2009), performance-related outcomes (Bertrand & Bertrand, 2011; Mol et al., 2005), or firm survival (Coucke & Sleuwaegen, 2008). Recent studies have indicated the existence of cost estimation errors when companies offshore (Larsen, 2016; Larsen et al., 2013). Among the hidden costs (i.e., unexpected costs) are cultural costs, costs of selecting a vendor, and coordination or knowledge transfer costs (for a review, see Larsen et al., 2013, p. 536). However, the extant literature shows that employees in the onshore location are critical for knowledge sharing (Betts et al., 2015; Maertz et al., 2010) and that restructuring firms face increasing employee turnover as their employees re-assess their career opportunities (T. W. Lee & Mitchell, 1994; Maertz et al., 2010) even when they are not subject to displacement (Maertz et al., 2010). The existing offshoring literature offers valuable insights, but there is still limited knowledge about the offshoring consequences that go beyond cost considerations or that integrate new theoretical logics (M. Mihalache & Mihalache, 2016).

Table 1 below summarizes the existing literature and findings by level of analysis, sub-themes, and whether—from a company perspective—the findings address outcomes that are positive or unintended/negative effects. Based on the literature, I identify and address in this thesis three main research gaps in the offshoring literature at the i) employee level, ii) company level, and iii) public level.

In terms of **employee**-level consequences, companies can choose to offshore more routine tasks, which implies a lower demand for these tasks and a higher demand for knowledge-intensive

jobs (Hummels et al., 2014). Another reason for offshoring is to gain advantage in the war for a qualified workforce and talent (Lewin et al., 2009a). No matter the reason for engaging in offshoring, there is also the risk that existing employee relations may be disrupted. For example, an offshoring decision may trigger feelings of job insecurity and issues with employee motivation (Geishecker et al., 2012; Zimmermann & Ravishankar, 2016). One of the few less investigated aspects is related to the extent to which prospective (non-existing) employees observe the offshoring signals and whether onshore labor markets are affected by post-offshoring events. More specifically, while the extant research has focused on the offshoring effects for the existing employees (onshore or offshore), an under-investigated aspect is the effect of company offshoring on external labor markets (i.e., when hiring new employees). **Chapter 1** of this thesis addresses this issue by integrating signaling theory into the unintended costs of offshoring literature to study the following research question: *To what extent do companies that engage in offshoring decisions pay higher wages to newly hired employees?*

At the **company** level is where most of the offshoring literature is concentrated. If traditionally this literature started by investigating positive financial (Größler et al., 2013) and performance-related outcomes (Bertrand & Bertrand, 2011; Mol et al., 2005), the more recent, novel perspectives focus on the implementation challenges (Dibbern et al., 2008; Kumar et al., 2009; Srikanth & Puranam, 2011; Stringfellow et al., 2008) or the unintended costs associated with offshoring decisions (Larsen, 2016b; Larsen et al., 2013). At this company level, the human capital perspective has also gained attention, primarily when investigating innovation-related outcomes (O. R. Mihalache et al., 2012). However, while both company- and employee-level studies offer valuable insights about offshoring and its effect on employees, there is a research gap related to the dynamics of the onshore labor markets when looking beyond jobs lost as a result of offshoring. In

fact, the offshoring literature finds positive (Coucke & Sleuwaegen, 2008), negative (Murray et al., 2005), or simply not significant (Lampel & Bhalla, 2011) results for the offshoring performance relationship. This inconsistency is addressed in **Chapter 2**, which argues that there ability to redeploy employees in the onshore location moderates this relationship. In particular, the research question that is addressed is *To what extent is offshoring companies' performance dependent on the degree of redeployability of human resources in the onshore location?*

Lastly, the offshoring literature is rich in macro-level findings about the socio-economic and spillover effects of company offshoring decisions (Castellani & Pieri, 2013; D'Agostino et al., 2013; Meyer & Sinani, 2009). Nonetheless, at the more macro or **public** level, this thesis identifies that, both theoretically and empirically, the offshoring literature lacks an answer to the research question *To what extent is a negative public sentiment around the topic of offshoring visible, and what are the characteristics of the tone of the discussions?* This lack of an answer is surprising, given the negative media attention surrounding offshoring, especially during political debates and the rise in populism (Foss et al., 2019; Mudambi, 2018a) and consumer animosity (Gineikiene & Diamantopoulos, 2017). To address this issue, **Chapter 3** is a novel, first-attempt (i.e., exploratory) study on the sentiments associated with offshoring in the public debate.

Table 1. Offshoring and its consequences: research gap and thesis articles positioning (adapted from Grecu et al., 2022).

LEVEL OF INVESTIGATION	Positive consequences		Negative consequences	
	Topic	*Indicative literature*	*Topic*	*Indicative literature*
Employee level	Skill composition 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
	Access to qualified workforce	Lewin et al., 2009	Employer reputation and hiring	**CHAPTER 1**
Firm level	Cost cutting and economies of scale	Größler et al., 2013; Jensen Ørberg & Pedersen, 2011	Cost-estimation errors	Larsen et al., 2013; Larsen, 2016
	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
	Innovation capabilities	Mihalache et al., 2012		
	Ability to redeploy resources	**CHAPTER 2**		
Public level	Socio-economic effects and spillovers	D'Agostino et al., 2013; Meyer & Sinani, 2009;	Task and job demand	Hummels et al., 2014;
			Rise in populism and consumer animosity	Mudambi, 2018; Gineikiene & Diamantopoulos, 2017
			Public sentiment	**CHAPTER 3**

THESIS STRUCTURE

Table 2 provides an overview of the status for each thesis paper in terms of publication status or conference acceptances, and the rest of this sub-section summarizes the topics, the addressed research questions, the research gaps, and the contribution of each of the three thesis chapters.

Table 2. Thesis paper status.

	Chapter 1	**Chapter 2**	**Chapter 3**
Title	Unintended signals: Why companies with a history of offshoring have to pay wage penalties for new hires	Which offshoring companies are more profitable? A panel study on resource redeployment and performance in the onshore location	Negative offshoring sentiments – An exploratory study using Twitter data
Broad research question	*To what extent do companies that engage in offshoring decisions pay higher wages to newly hired employees?*	*To what extent is offshoring companies' performance dependent on the degree of redeployability of human resources in the onshore location?*	*To what extent is a negative public sentiment around the topic of offshoring visible, and what are the characteristics of the tone of the discussions?*
Co-authors	Wolfgang Sofka, Marcus M. Larsen, Torben Pedersen	Wolfgang Sofka	-
Status	Published in Journal of International Business Studies	Accepted for presentation at Academy of Management, DRUID, and Academy of International Business	Accepted for presentation at Academy of Management and Academy of International Business

Chapter 1. Unintended signals: Why companies with a history of offshoring have to pay wage penalties for new hires

This thesis posits that at the *employee* level, newly hired employees are often neglected in the offshoring literature. The research question addressed in Chapter 1 is the following: *Compared to non-offshoring companies, to what extent do companies that engage in offshoring decisions pay higher wages to newly hired employees, and can a wage penalty be attributed to offshoring signals rather than company and employee heterogeneity?*

While prospective hires are usually not the focus of attention in the extant offshoring research, their role is crucial to ensure coordination and knowledge transfer between the onshore and the offshore location as much as it is in the case of remaining employees (Blomqvist et al., 2015; Maertz et al., 2010). The extant research in labor economics has explored how the wages of onshore employees are affected by offshoring (Hummels et al., 2014) and how offshoring survivors in the onshore location often feel that their job prospects are insecure (Geishecker et al., 2012). However, we lack a theoretical understanding of whether there are any consequences for companies' ability to hire following an offshoring event. To address this issue, this study theorizes about how companies with a history of offshoring are able to hire new employees.

Using signaling theory (Ross, 1977; Spence, 1973), the article integrates mechanisms from the offshoring literature into models of compensating wage differentials (Rosen, 1986; Smith, 1979). It is suggested that offshoring can be seen as an event that sends a negative signal of job insecurity to both existing (Geishecker et al., 2012) and prospective onshore employees and that the negative media attention[1] received by offshoring companies damages companies' attractiveness as employers. Prospective employees form expectations about potential employers

[1]E.g. Financial Times (2019), New York Times (2019), Reuters (2017), and Wall Street Journal (2016).

based on their strategies and actions and thus require higher wages to compensate for the job insecurity caused by offshoring.

Chapter 2. Which offshoring companies are more profitable? A panel study on resource redeployment and performance in the onshore location

At the *company* level, the offshoring literature provides rich findings; most of the literature focuses on the performance consequences for companies. However, strategy performance studies rarely integrate aspects of the strategic human capital literature. The research question in Chapter 2 is *To what extent are offshoring companies' performance outcomes dependent on the degree of redeployability of human resources in the onshore location?*

The ability of firms to redeploy employees between businesses and activities in which they create the most value for the firm is an important aspect in the strategic management literature (Dickler & Folta, 2020; Helfat & Eisenhardt, 2004). In the context of company offshoring decisions, assessing the redeployability of employees is of strategic importance for companies and decision-makers because employees may have important knowledge that will be essential for the offshoring implementation (Blomqvist et al., 2015; Srikanth & Puranam, 2011), and the firm may face substantial pressures from local unions or policymakers to redeploy as many existing employees as possible within the firm (Refslund, 2012). Therefore, offshoring provides a useful context to explore heterogeneity of firms in terms of the degree to which they can successfully redeploy employees. The study suggests that when engaging in offshoring, companies that have previously relied substantially on internal labor markets experience significantly more positive performance effects, and the performance effects are particularly strong when firms simultaneously offshore several activities, including R&D activities.

Chapter 3. Negative offshoring sentiments—An exploratory study using Twitter data

At the *macro* level, previous studies have investigated the economic or spillover effects at the country or region level. However, very often, offshoring becomes the topic for political debates, making it relevant to answer the following question: *To what extent is a negative public sentiment around the topic of offshoring visible, and what are the characteristics of the negative tone of the discussions?* Chapter 3 is an exploratory study and addresses this research question in the context of sentiments expressed on social media.

Offshoring decisions often become a topic for public debate and, when making decisions about offshoring, managers need to be aware of potential negative media coverage as it may hinder company performance (Jonsson & Buhr, 2011). From a stakeholder perspective, the public is also an actor expressing sentiments that can have an impact on media coverage, policymakers, and politicians (Yiu et al., 2021). Very often, offshoring companies are blamed for not being socially responsible when relocating jobs to foreign locations (Financial Times, 2019; New York Times, 2019; Reuters, 2017). The tone of the discussion is what also drives politicians to engage in promises of bringing offshored jobs back to the country (Wall Street Journal, 2016). I argue that such discussions are present also in online communities and investigate to what extent negative sentiments (and their language characteristics) become popular sentiments on social media.

THESIS DATA AND ANALYTICAL METHODS

In order to study the impact of company offshoring decisions on employee wages and company hiring patterns as well as on public sentiment, my thesis required complex empirical settings and advanced statistical analyses. The first paper takes a human capital hiring perspective and highlights the effects of company offshoring decisions on the wages of newly hired employees.

The second paper investigates the effects of offshoring and degree of resource redeployability on the onshore performance. Finally, the third paper looks at the public sentiment associated with offshoring (see Table 3 below for an overview of the thesis papers).

Table 3. Methodological overview.

	Chapter 1	**Chapter 2**	**Chapter 3**
Level	Employee	Company	Public
Topic	Offshoring and wages	Offshoring and internal labor markets	Public sentiment about offshoring
Data sources	GONe survey data matched with register employer-employee data	DST/Eurostat survey data matched with register employer-employee data	Social media: Twitter
Sample	All newly hired employees in surveyed companies	All surveyed offshoring companies	All public tweets containing "offshoring"
Country	Denmark	Denmark	-
Dependent variable	Hourly wages	Annual profits	Tweet popularity and negative emotions
Methods	Cross-sectional—Wage regressions with coarsened exact matching	Panel data—Fixed effects regressions	Cross-sectional—Text and sentiment analysis with fractional regressions

While the underlying area of research is within offshoring research, the different research questions in each chapter require different methodological approaches. Because in Chapter 1 and Chapter 2 the focus is on the employees and companies, I use employer-employee matched register data from Statistics Denmark linked to survey data collected through the Global Offshoring Network (GONe) survey, respectively a Danmarks Statistik (DST) survey. In Chapter 3, I use retrieved data from Twitter, and I conduct sentiment and text analysis using the Linguistic Inquiry and Word Count (LIWC) software; this approach was mandatory because

register data and survey data cannot capture public discourse. In the next paragraphs, I briefly describe the data sources used for the empirical analyses.

Statistics Denmark administrative data. The use of Statistics Denmark as a 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 information gathered through survey data can be directly merged (through unique company and employee identification numbers) with extensive Danish register data provided by Statistics Denmark. Labor market registers can be merged with company information registers and with other sources of information available for the entire population, including data points such as education, marital status, and employment status, among others. Among the available registers that can be used by researchers in Denmark, I use the following: FIRM (general firm statistics), FIRA (firm financial statistics), RAS (register-based labor force statistics), the Integrated Database for Labor Market Research (IDA), and/or UDDA (education statistics).

Survey data. Linking survey data to administrative register data presents a unique opportunity for research, especially on a subject (e.g., offshoring) that is linked to company-level outcomes while having direct implications at the employee level. Therefore, I use the following company surveys about offshoring: a GONe survey and a DST survey. The GONe (i.e., Global Operations Network, a research network of Scandinavian universities) collected data in 2011 and 2012 regarding companies' last offshoring implementations of Danish companies with more than 50 employees. Data was previously used in other research publications (e.g., Larsen et al., 2013). The DST/Eurostat survey was conducted to obtain an overview of whether Danish firms outsourced (domestically or internationally) any activities between 2009 and 2010. The survey

covered all Danish companies with 50 or more employees in the private sector, and the data was collected in 2011.[1]

Twitter data. Twitter is a social media platform where users post short texts. Thus, it is an excellent setting for sentiment analysis research and has begun to be recognized as an important research setting also for business research (Ciechanowski et al., 2020). To collect data from Twitter, researchers can use various software (e.g. Twitter Archiver) that run automatically and retrieve information based on certain conditions. In this particular case, the software only retrieved data if a tweet contained the word "offshoring," together with its affiliated replies and retweets.

[1] More details can be found at https://www.dst.dk/da/Statistik/dokumentation/statistikdokumentation/international-organisering-og-outsourcing

THESIS CONTRIBUTION

The identified research gaps (Table 1 above) could be a result of limited access to empirical data that can support multi-level research. For example, in order to study the effects of offshoring decisions on wages, surveys at the company level can be informative, but they do not capture individual-level heterogeneity. Conversely, register data can capture financial or wage information about companies and employees, but it does not capture company strategic decisions and restructuring events. This thesis emphasizes new findings by capturing the effects of company offshoring decisions through adequate and high-quality empirical data from combined data sources (i.e., survey and register data) and by collecting data through emerging data sources (e.g., Twitter datasets).

This thesis investigates whether there are consequences that can be attributed to company offshoring decisions in terms of i) Chapter 1: hiring wages, ii) Chapter 2: internal labor markets and company performance, and iii) Chapter 3: public sentiment. Together, the three articles contribute to international business literature and more specifically to offshoring research. By combining different sources of data and theoretical logics from international business, strategy, human capital, and economics, the thesis represents an attempt to address existing research gaps.

Chapter 1 investigates the wage consequences when hiring new employees. Compared to non-offshoring companies, the study finds that offshoring companies pay on average 3% to 7% higher wages when hiring. The findings of this study contribute to the literature on the unintended consequences of offshoring by emphasizing how companies' offshoring decisions affect their future ability to hire at home. This article advances our understanding of the adverse consequences of offshoring by emphasizing the labor market effects.

Chapter 2 takes a company-level perspective and looks at the onshore performance implications for offshoring companies, depending on their degree of resource redeployability. The results support the main hypothesis that when engaging in offshoring, companies that have previously relied substantially on internal labor markets experience significantly more positive performance effects, especially when firms offshore several activities or to multiple locations simultaneously and when firms offshore R&D activities. The findings of this article advance the existing research in three ways. First, the findings take into consideration the heterogeneity of a firm's ability to assess and conduct redeployment. Second, the findings provide a comprehensive theoretical model of how organizational hiring practices set the stage for the success or failure of offshoring. Finally, this paper fosters debate about the offshoring context, which can provide relevant insights into how firms become resilient by hiring employees from the local internal or external labor markets.

Chapter 3 addresses the consequences of company offshoring decisions for online public sentiment and finds that sentiment is, overall, rather negative in terms of tweets and replies around the topic of offshoring. This exploratory study fosters a debate about the role of public sentiment as an informal actor that can influence political decisions about the business context. This study highlights the importance of popular or political profiles in shaping public sentiment regarding IB decisions. In terms of implications for practice and given the public availability of the Twitter data, the model can help managers understand the public sentiment around the topic of offshoring in those areas/countries from which they intend to relocate and better determine the timing for offshoring decisions.

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CHAPTER 1 – Unintended signals: Why companies with a history of offshoring have to pay wage penalties for new hires*

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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.

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1. 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, 2016a). 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).

2. 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.

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	-

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.

3. 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[4] 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

[4] A research network of Scandinavian universities.

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.[5] 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.

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.[6] 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

[5] Turnover, total assets, annual results, industry, and location.
[6] Companies were only observed if they hired new employees.

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.

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).

4. 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.

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 exp. (Yrs)	15.677	(8.928)	15.606	(8.821)	15.848	(9.179)
Prev. income deciles	Yes	Yes	Yes	Yes	Yes	Yes
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. empl. 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**												

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.

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]
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]

	Model 1	Model 2:	Model 3	Model 4	Model 5	Model 6
Matching approach	**No matching**	**Basic**	**Advanced**	**Elevated**	**Restrictive**	**Highly restrictive**
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.

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.

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.

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).

5. 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[7] 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.

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

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

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.

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Appendix A. Positive and negative signals and company attractiveness

Signals	Indicative literature
Negative signals affect company attractiveness	
Negative publicity	Van Hoye & Lievens (2005); Cable & Turban (2003)
Negative word-of-mouth	Van Hoye & Lievens (2007)
Job stress risk	French & Dunlap (1998)
Unsafe working conditions	Cousineau, Lacroix, & Girard (1992); Dale-Olsen (2006); Deleire & Levy (2004)
Union bargaining power	Daniel & Sofer (1998)
Part-time or temporary contract	Bono & Weber (2008); Watson (2005)
Positive signals increase company attractiveness	
Social responsibility	Burbano (2016); Turban & Greening (1996);
Profitability and reputation	Turban and Greening (1996); Fombrun and Shanley (1990); Cable & Graham (2000)
Domestic ownership	Aitken, Harrison, & Lipsey (1996); Heyman, Sjöholm, & Gustavsson Tingvall (2007); van der Straaten, Pisani, & Kolk (2019)

Appendix B. Offshoring signals to the public

An important aspect of our theoretical reasoning is the notion that offshoring creates observable signals associated with the perception of a company's degree of job security. While prospective applicants may learn about offshoring activities of potential employers in various ways (such as through personal networks), the news media plays a central role in increasing the observability of the signal. To illustrate the signaling effect from news coverage, we download a recent, random sample of news articles from Factiva—a database containing articles from international newspapers, journals and trade magazines, covering 118 countries. We download a useful, illustrative sample of 100 articles by searching for the word "offshoring" within the subjects Labor/Personnel, General Labor Issues, and Workers Pay published online, between 2000 and 2014. Based on the text in these articles, we calculate a score for the *tone* of the entire text with the help of the Linguistic Inquiry and Word Count (LIWC) program. Similar automated content analyses have been used frequently in management research (Belderbos et al., 2017; Olsen et al., 2016). The score for tone is calculated with the help of an algorithm that is built so that the higher the number between 0 and 100, the more positive the tone. In our text sample, the score is 38.24, indicating a somewhat negative emotional tone, which reveals greater anxiety, sadness, or hostility (Pennebaker et al., 2015). Further, we use https://www.wordclouds.com/ to create a word cloud visualization based on the words being used and their weight (i.e., number of times it appears) in our text sample.

While this text cloud provides only an illustration, it indicates how frequently offshoring-related news articles relate to issues such as jobs, wages, costs, workers or unions. Overall, the illustrative exercise provides some confidence that offshoring activities of companies send job security related and often times negative signals to a broader news audience including labor markets.

Appendix C. Description of variables used in our estimations or matching specifications

Variable name	Description	Source
Offshoring (d)	Hired by a company that has offshored in the past 3 years	GONe
Exporter (d)	Hiring company has exporting experience	GONe
Cost leadership (d)	Cost leadership focus is higher than the sample mean (originally based on a 7-point Likert scale)	GONe
Domestic (d)	Dummy that identifies if the company is domestic	GONe
Hourly wages (ln)	Natural log of hourly wages for the newly hired employee	DST
College educated (d)	College education degree	DST
Female (d)	Gender	DST
TMT member (d)	Hired in a job as part of the top management team	DST
Work exp. (Years)	Number of years active in the labor market	DST
Occupation codes	2-digits code - Int. Standard Classification of Occupations (DK)	DST
Prev. income deciles	Dummies for the decile in which an individuals' past income	DST
Company age (years)	Number of years since the hiring company was founded	DST
Size dummies	Small, Medium, Large	DST
Workplace size	Number of employees	DST
Productivity	Company sales per employee	DST
Prior company avg. wages	Past 3 years average of hourly wages in the hiring company	DST
Industrial unemployment	Number of employees who transitioned to unemployment in each 6-digit industry in a given year	DST
Municipality unemployment (%)	Share of unemployed people by the municipality in which the employee lives.	DST
Sector dummies	Manufacturing, Construction, Trade & transport, Information & communication, Financial & insurance, Real estate, Other business services	DST
Region dummies	Capital region, Zealand, Southern Jutland, Central Jutland, Northern Jutland	DST
Year dummies	Years between 2000-2014	DST

DST = Danmarks Statistik register data; GONe = Global Operations Network survey data

Appendix D. Probit model estimations for conditioning variables

	Before matching, without CEM	After matching, without CEM
College educated(d)	0.130	0.001
	(0.022)	(0.033)
	[0.000]	[0.972]
Exporter(d)	0.944	-0.006
	(0.032)	(0.074)
	[0.000]	[0.939]
Productivity	0.000	0.000
	(0.000)	(0.000)
	[0.000]	[0.162]
Workplace size	0.001	-0.000
	(0.000)	(0.000)
	[0.000]	[0.278]
Occupation code	Yes	Yes
Previous income deciles	Yes	Yes
Region	Yes	Yes
Hiring year	Yes	Yes
Constant	-4.908	-0.175
	(0.581)	(0.859)
	[0.000]	[0.839]
Observations	27,900	7,971
Log-likelihood	-9466.416	-5443.499
McFadden's R-sq	0.438	0.000
Degrees of freedom	45	42
AIC	0.000	1.000

[a] *The dependent variable is the offshoring dummy;* [b] *Occupation code, previous income decile, region and hiring year are also balanced in the model on the right side; full table available from authors.*

Appendix E. Offshoring and new hires' sensitivity to job insecurity effect

	Model 1	Model 2
Offshoring (d)	0.068	0.049
	[0.000]	[0.000]
Bank debt (c)		0.000
		[0.001]
Offshoring (d) # Bank debt (c)		0.000
		[0.000]
With controls [d]	Yes	Yes
Constant	4.646	4.657
	[0.000]	[0.000]
N	7,971	7,971
R-squared	0.408	0.411

[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.

Appendix F. Propensity Score Matching (PSM) [a, b]

We repeat all steps of the matching approach and replace the CEM matching approach with PSM. PSM differs in the way matches are created, as it is based on the estimated probability to offshore, instead of comparable strata containing both treated (offshoring) and control firm new hires. The propensity score matching approach results in a matched sample, for which no weights are created for the subsequent wage regressions. We test both nearest neighbor propensity score matchings as well as caliper matchings (all matches are considered within a pre-selected propensity radius of the treated observations). All PSM-matched estimations support the presence of a significant wage penalty for offshoring firms, as hypothesized.

	No restrictions	neighbor(1), no replacement	neighbor(1), caliper(0.1), no replacement
Offshoring(d)	0.023	0.024	0.023
	(0.008)	(0.008)	(0.011)
	[0.005]	[0.004]	[0.032]
College educated(d)	0.114	0.115	0.131
	(0.006)	(0.007)	(0.010)
	[0.000]	[0.000]	[0.000]
Female (d)	-0.104	-0.092	-0.089
	(0.006)	(0.007)	(0.010)
	[0.000]	[0.000]	[0.000]
TMT member (d)	0.215	0.149	1.074
	(0.086)	(0.169)	(0.423)
	[0.013]	[0.378]	[0.011]
Work exp. (Years)	0.017	0.014	0.013
	(0.001)	(0.001)	(0.002)
	[0.000]	[0.000]	[0.000]
Work exp.^2	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
	[0.000]	[0.000]	[0.001]
Previous inc. deciles	Yes	Yes	Yes
Occupation codes	Yes	Yes	Yes
Prior firm avg. wages	0.000	0.001	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)
	[0.457]	[0.152]	[0.018]
Productivity	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
	[0.000]	[0.000]	[0.000]
Firm age (years)	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
	[0.285]	[0.755]	[0.719]
Exporter(d)	0.029	0.069	0.096
	(0.007)	(0.013)	(0.019)
	[0.000]	[0.000]	[0.000]
Domestic(d)	0.016	0.020	0.032
	(0.007)	(0.009)	(0.012)
	[0.018]	[0.027]	[0.006]
Cost leadership(d)	-0.016	-0.021	-0.024
	(0.007)	(0.009)	(0.011)
	[0.019]	[0.015]	[0.029]
Profitable (d)	-0.038	-0.058	-0.066
	(0.007)	(0.010)	(0.013)
	[0.000]	[0.000]	[0.000]
Main sector	Yes	Yes	Yes
Region	Yes	Yes	Yes
Hiring year	Yes	Yes	Yes
N	27,900	16,296	8,294
R-squared	0.453	0.455	0.450

[a] The dependent variable is Ln(hourly wage). [b] For each variable, the first line shows line the coefficient and the second line shows the p-value in brackets.

Appendix G. Consistency check with an Instrumental Variable Approach [a, b,c]

Given that Denmark is a geographically small country with advanced infrastructure in which all seaports can be reached, we use these time distances as the set of instruments in our instrumental variable regressions as proxies for transportation costs (i.e. the more time it takes to get from a company to a seaport, the higher the transportation costs). According to Danske Havne (i.e. the industry organization for Denmark's commercial ports), 80% of all Danish foreign trade goes via Danish ports. We make the decision to use multiple seaport distances because—based on the official statistics of international traffic in major Danish ports—seaport trade is quite diffuse in Denmark. For example, out of the five major seaports, Esbjerg is the least preferred option for trade with Sweden, but is by far the preferred option for trade with UK. Fredericia seaport and Aalborg seaports are more connected to USA than Aarhus, but Aarhus has more connections with African countries trade than Fredericia and Aalborg. In that sense, transportation costs between a company and a seaport in Denmark is not a decision of the shortest distance. Model 1 shows the first stage regression having offshoring as the dependent variable, and Model 2 shows the second stage wage regression. All control variables are identical and in line with the matching based approaches. The relevant tests indicate that the distance measures are exogenous and comply with the weak-instruments tests. More precisely, under the null hypothesis that the specified endogenous regressors can actually be treated as exogenous, the endogeneity test (i.e. the difference of two Sargan-Hansen statistics) shows that we cannot reject that distances to seaports are exogenous (p-value 0.392). We can reject the hypothesis that our instruments are weak because the F-statistic in the first stage regression is much higher than the critical values and the widely used ‘rule-of-thumb’ of values higher than 10 (Staiger & Stock, 1997). The Stock-Wright test rejects (p-value 0.000) the null hypothesis that the coefficients of the endogenous regressors in the structural equation are jointly equal to zero, and, in addition, that the overidentifying restrictions are valid. Therefore, offshoring can be assumed to be exogenous to the hiring and wages of the newly hired employees with the first stage model in place. Consistent with our matching approaches, we identify a significant wage penalty for offshoring companies.

	Model 1	Model 2
Offshoring(d)		0.104
		[0.026]
Travel time to Aarhus seaport (min.)	0.003	
	[0.000]	
Travel time Copenhagen seaport (min.)	-0.000	
	[0.177]	
Travel time Fredericia seaport (min.)	0.002	
	[0.000]	
Travel time to Aalborg seaport (min.)	-0.001	
	[0.000]	
Travel time to Esbjerg seaport (min.)	-0.004	
	[0.000]	
With controls [c]	Yes	Yes
Obs	27,900	27,900
F		299.960
R-sq.		0.451
Uncentered R-sq.		0.994
Centered R-sq.		0.451
Endogeneity test		0.733
Endogeneity test p-value		0.392
UnderId test (Kleibergen-Paap rk LM statistic)		95.419
UnderId p-value		0.000
Anderson-Rubin Wald F test		628.434
Anderson-Rubin F test p-value		0.000
Anderson-Rubin Wald Chi2 test		19.209
Anderson-Rubin Chi2 test p-value		0.000
Stock-Wright LM S statistic test		96.278
Stock-Wright LM S statistic p-value		0.000

[a] The dependent variable in first stage regressions is the offshoring dummy, the dependent variable in second stage regressions is Ln(hourly wage). [b] For each variable, the first line shows line the coefficient and the second line shows the p-value in brackets. [c] 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.

CHAPTER 2 – Which offshoring companies are more profitable? A panel study on resource redeployment and performance in the onshore location

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ABSTRACT

Firms engage in offshoring activities for various reasons, but ultimately, they want to increase profits and build competitive advantage. However, relocating jobs to foreign countries requires also restructuring the onshore location and balancing the trade-off between keeping existing employees and hiring new staff. By integrating theoretical mechanisms found in internal labor markets literature, we reason that firm-specific human capital and information availability from internal labor markets will be particularly valuable during and after offshoring events. We hypothesize that firms relying to a greater degree on internal labor markets in their onshore location perform better, and the effect is salient when firms engage in complex or R&D offshoring. To test our hypotheses, we used a 2009–2014 panel dataset of Danish offshoring companies containing employer–employee data and company financial information. We found support for our hypotheses and provide robustness tests confirming ours results are robust for not only within- and outside-the-group offshoring, but also for visible offshoring events. Additional analyses showed that large companies and those not a part of a foreign group benefit from offshoring and focusing on internal labor markets onshore. This paper contributes to the international business and human capital literature by fostering debate about internal labor markets as sources of valuable human capital for firms making offshoring decisions.

Keywords: offshoring, internal labor markets, redeployment, firm-specific human capital.

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1. INTRODUCTION

The company behind the messaging app called WhatsApp is an example of one company that offshored its software development to Eastern Europe. While the offshore team focused on design and app development, their onshore engineers were focusing on customer support. This strategy helped the company scale up to rapidly become a global competitor (Albergotti et al., 2014). However, the mechanisms behind this company's financial performance and in the case of other similar offshoring examples are not always easy to empirically determine.

There is growing interest in offshoring among the general public, but much of the research has focused only on how it affects employment rather than looking at effects at the firm level (Grossman & Rossi-Hansberg, 2008; Hummels et al., 2014; Wright, 2014). Those studies that did investigate the link between offshoring and performance have presented inconsistent findings, with evidence of relationships between offshoring and financial performance being represented as positive (Coucke & Sleuwaegen, 2008), negative (Murray et al., 2005), or simply not significant (Lampel & Bhalla, 2011). In addition, although extensive research has focused on the impacts of offshoring for onshore employment, little is known about how employee dynamics in the onshore location affect the offshoring–performance relationship. In this paper, we suggest that benefitting from offshoring is not solely about offshoring, but also about how resources are redeployed.

The ability of firms to internally redeploy employees between businesses and activities in order to create the most value for the firm is central to theory on the performance effects of reorganizations (Dickler & Folta, 2020; Helfat & Eisenhardt, 2004). Redeploying employees when entering new businesses or leaving existing ones allows a firm to access a pool of human resources that is not available to competitors (Dickler & Folta, 2020). Implicit in this theoretical logic is the assumption that firms can reliably assess the specificity of their employees'

knowledge, skills, and abilities for short human capital (Ployhart & Moliterno, 2011), as well as the degree to which the employee can create value beyond their current function if they are redeployed and work with different customers, products, colleagues, or technologies, among other factors. This is a big assumption, because redeploying firms have to abstract from the employee's current observable specific tasks (e.g., serving long-term clients in a specific business) and extrapolate to more general human capital that can be valuable elsewhere in the firm, such as by attracting clients to new businesses or establishing customer management procedures.

The challenge for firms in assessing the redeployability of current employees is particularly salient when an organization offshores entire functions, such as planning to relocate entire existing functions like IT, HR, or payment services from one country to another (Contractor et al., 2010a; Mudambi & Venzin, 2010a). Hence, the basis of an employee's human capital being the tasks they performed in the offshored activities of the firm are no longer valid. Assessing the redeployability of employees when offshoring is of strategic importance because (a) many offshoring initiatives have the explicit goal of lowering labor costs (Größler et al., 2013; Kinkel, 2012), and therefore redeploying all the affected employees in the onshore location is not desirable; (b) some employees may have important knowledge that will be essential for the offshoring implementation (Blomqvist et al., 2015; Srikanth & Puranam, 2011); and (c) despite the fiscal realities, the firm may face substantial pressures from local unions or policymakers to redeploy as many existing employees as possible (Refslund, 2012). Given this conundrum, offshoring provides a useful context for exploring the heterogeneity of the firm and the degree to which they can successfully redeploy employees.

In this study, we argued that a firm's reliance on their internal labor market (i.e., routinely filling job vacancies with existing employee candidates) sets them apart when they offshore activities and can redeploy staff. For this purpose, our study included an integration of

theoretical mechanisms from the literature on internal labor markets (Bidwell & Keller, 2014) into models that explain the performance effects of offshoring based on human capital decisions (Srikanth & Puranam, 2011). We reason that internal labor markets provide more readily available information about the quality of work of various employees (Bidwell, 2011), which can make it easier for a firm that is offshoring functions to distinguish between employees who should be redeployed and those with limited value beyond the offshored function. Accordingly, we hypothesize that offshoring will have more successful performance effects when they rely to a greater degree on internal labor markets before offshoring a function. Further, we rely on differences in terms of offshored activities for isolating the redeployment mechanisms that are central to our theory. We reason that the information availability created by internal labor markets will be particularly valuable to a firm that is offshoring multiple activities simultaneously or when they offshore R&D activities that require employees to develop tacit knowledge that is difficult to observe and assess.

Our theoretical framework bridges two streams of research that have thus far remained largely disconnected. Research on offshoring has largely acknowledged the importance of skilled employees for the successful implementation of offshoring decisions (Blomqvist et al., 2015; Srikanth & Puranam, 2011). However, specifically where such employees can be found has remained ambiguous. Research into resource allocation has largely focused on a firm redeploying their financial (Busenbark et al., 2017; Coen & Maritan, 2010; Levinthal & Wu, 2010; Maritan & Lee, 2017) and human capital (Dickler & Folta, 2020) resources across businesses, but such studies usually assume, at least implicitly, that firms are largely homogeneous in the degree to which they can assess the redeployability of resources. By incorporating the construct of internal labor markets (Bidwell, 2011) in both research streams as a mechanism that prepares some firms to make better redeployment decisions than others, we

provide a more complete account of how the redeployment of human resources can help manage offshoring success.

To test our hypotheses, we constructed a unique panel dataset comprising 686 offshoring companies observed on an annual basis between 2009 and 2014 in Denmark. Because the survey covered the entire population (i.e., census survey) of companies with more than 50 employees, this subset of offshoring companies created a uniquely high-quality dataset. We then merged the survey data on firms' offshoring decisions with the Denmark employer–employee register data to track employment records and occupation changes of all employees. These data were used to establish the firm's internal labor market and relate both constructs to the firm's performance. The results support our primary hypothesis that companies substantially relying on internal labor markets for offshoring experience significantly more positive performance effects. In contrast, those relying on external labor markets experience fewer performance effects from offshoring. In-line with our theoretical logic for the information-revealing effects of internal labor markets, we found that performance effects were particularly strong if a firm offshored R&D and several other activities simultaneously.

Our findings advance the existing research in three ways. First, extant theory on the redeployment of human resources is incomplete if it does not take heterogeneity into consideration of a firm's ability to assess and conduct redeployment (Dickler & Folta, 2020). This shortcoming is consequential because firms might be better off developing capacities for redeployment before shifting employees between businesses and functions. We established internal labor markets as an antecedent of successful redeployment, but future research may explore broader sets of factors that enable some firms to make better redeployment decisions than others, such as the redeployment experience of entire firms or specific HR departments.

Second, the availability of skilled employees who can implement offshoring decisions is an important condition for implementing offshoring decisions (Srikanth & Puranam, 2011).

Within this theoretical logic, the knowledge and skills of individuals drive the success of offshoring. We reason that this theoretical angle is too narrow and that it has broader organizational underpinnings. Using our logic, internal labor markets change the availability of information about the presence of valuable human capital throughout the organization, which pays off when firms make decisions about redeploying employees whose jobs have been offshored. Hence, we provide a more comprehensive theoretical model of how organizational hiring practices set the stage for the success or failure of offshoring.

Finally, this paper fosters debate about the offshoring context, which can provide relevant insights into how firms become resilient by hiring employees from the local internal or external labor markets. International companies need to balance complex interdependencies within and between multiple host locations, but they also face challenges with internal hierarchies (Buckley, 2009). In this area of research, our study provides evidence regarding the contexts in which internal hiring can enhance the onshore performance of offshoring firms.

2. THEORY AND HYPOTHESES

We began by reviewing the existing research on redeployment of resources in general and internal labor markets for human resources in particular. Subsequently, we developed hypotheses by integrating the theoretical mechanisms underlying internal labor markets into models explaining the performance effects of offshoring and then exploring moderating factors.

Redeployment of human resources and internal labor markets

Resource allocation is a fundamental aspect of strategic management (Bower, 2017; Levinthal, 2017), encompassing both financial capital (Lovallo et al., 2020) and human resources (Dickler & Folta, 2020). Resource redeployment occurs when firms change the allocation of resources by, for example, shifting some resources from one business or activity to another one (Helfat & Eisenhardt, 2004). A central tenet of resource redeployment research is that the redeployment of resources within a firm can be more efficient than hiring from external labor markets during the human resource allocation process (Dickler & Folta, 2020). Most firms use internal labor markets to varying degrees, such as when they promote employees or move them laterally between jobs (Bidwell, 2011). However, this approach comes at the cost of not accessing an external pool of educated and experienced employees or those with new knowledge and ideas, which is often linked to innovation (Colombo et al., 2011; Mawdsley & Somaya, 2016).

When faced with hiring decisions, firms that rely on internal labor markets often see positive performance effects emerging via three main channels related to resource decomposability, suitability, and tradability (Anand et al., 2016). First, the social capital and working relationships developed within the company mean lower adjustment costs for employee integration, making the retention of internal human capital resources important for performance purposes (Collins & Clark, 2003; Shaw et al., 2005). Second, resource allocation decisions are more efficient when the decision-maker already knows the level of resource suitability or fit to

the needs of the organization (Bidwell, 2011; Bidwell & Keller, 2014). More specifically, in terms of human capital, uncertainty is at substantially lower levels in internal markets than external ones. Better decisions are made when there is less uncertainty about, for example, employees' skills and productivity (Spence, 1973). Third, internally redeployed employees possess at least some levels of firm-specific human capital (Becker, 1962) that firms can capture value from because it is not valuable to other firms in comparison with general human capital (Campbell et al., 2012). Conversely, hiring employees from external sources necessitates spending more for the new hire to learn firm-specific aspects, which means a longer period before the company can expect value from the new employee.

For the purposes of our reasoning, it is important to determine how a firm's reliance on internal labor markets affects the degree to which the value of human capital in various functions and departments is known across the organization. Central to our logic is the notion that repeated interactions in workplaces become embedded in personal relationships between employees (Granovetter, 1992; Nahapiet & Ghoshal, 1998). Relational embeddedness is a conduit that facilitates knowledge flows because employees learn to assess other employees as valuable knowledge sources in the firm and develop an understanding of the conditions under which knowledge is exchanged (Reagans et al., 2005). Relational embeddedness can also result in interpersonal trust throughout the organization (McAllister, 1995). We reason that firms relying heavily on internal labor markets will benefit from denser networks of relational embeddedness across functions, locations, and activities of the firm because employees are moving between them in their careers.

By creating denser networks of relational embeddedness in the firm, internal labor markets help alleviate two problems that are central to assessing the value of human capital in firms: incomplete information and specificity. Incomplete information problems occur because large parts of an individual's knowledge and skills are tacit in nature and only observable over

time. With time, employees accumulate human capital specific to the daily operations of the company, and some of the knowledge that is tacit is hard to codify and replicate (Molloy & Barney, 2015; Raffiee & Coff, 2016). Firms have more and better information about their current employees' knowledge than they do about external hires (Bidwell, 2011), but even within a firm, there are few individuals who can comprehensively judge and compare the human capital of different employees. This problem is reduced in firms that rely heavily on internal labor markets because they have many employees working in different departments, areas, and locations at different points in their careers. This allows them to observe a variety of colleagues and build repositories of knowledge about their qualities. Even if they do not observe each employee individually, they can draw from their professional network throughout the firm and solicit opinions.

Apart from solving imperfect information problems, firms that increasingly rely on internal labor markets will benefit from more accurate assessments of the degree of firm-specific human capital (Becker, 1962). When organizations have many employees who have worked in different functions and departments, they can differentiate individuals with human capital that is valuable for specific tasks, such as administering a procurement system, from human capital that is specific to the firm as a whole, such as someone designing companywide systems. They can render these judgements more reliably because they observe colleagues in various functions and can compare performance. We reason that these firm-level capacities created by internal labor markets pay off when a firm offshores activities and needs to decide which employees should be redeployed.

Offshoring, human resources, and company performance

Offshoring or shifting business functions to other countries can have positive implications in terms of company performance (Asmussen et al., 2016), firm survival (Mol et al., 2005) or

organizational innovation (Nieto & Rodríguez, 2011; O. R. Mihalache et al., 2012). Moreover, offshoring has been found to also exert effects at a more macro level in terms of productivity in the home region (Castellani & Pieri, 2013) or onshore employment (Tambe & Hitt, 2012). However, hidden costs can appear, which can have negative implications for success in implementing offshoring (Larsen, 2016b) and fostering debate about the tangible benefits of engaging in offshoring. Among those benefits are the ability to concentrate on core competencies, innovate, learn, and reduce transaction costs, but there is also an increased level of resilience (i.e., ability to switch from one supplier to another when external events create interference). On the negative side, offshoring decisions decouple highly interrelated activities, may result in high coordination costs, and can cause misalignment between suppliers' and the firm's interests in sharing tacit knowledge (Kotabe & Mudambi, 2009).

The offshoring literature has looked at the effects of offshoring on employment (Grossman & Rossi-Hansberg, 2008; Hummels et al., 2014; Wright, 2014), as well as the link between offshoring and performance (M. Mihalache & Mihalache, 2016). However, the findings are mixed and quite inconsistent, ranging from no relationship (Lampel & Bhalla, 2011), to a positive one (Coucke & Sleuwaegen, 2008), to negative performance outcomes (Murray et al., 2005). This issue calls for more research to disentangle the association of offshoring with positive performance outcomes by integrating aspects beyond offshoring strategy. For example, although extensive studies have focused on the effects of offshoring on onshore employment, little is known about how employee dynamics in the onshore location affect the offshoring–performance relationship. This is why, instead of testing the offshoring–performance relationship, we hypothesized that decisions in the onshore labor market (or the employee dynamics in the onshore location) will have a significant effect on performance after offshoring.

In the case of offshoring, the existing onshore location employees are needed in the integration process for knowledge sharing purposes and for a successful collaboration between

the onshore and offshore employees (Blomqvist et al., 2015; Srikanth & Puranam, 2011). Offshoring involves a certain degree of geographic distance, which can become a barrier to communication and knowledge sharing (Stringfellow et al., 2008). Also, it is crucial to the offshoring integration process that the firm not lose knowledge tacitness (Subramaniam & Venkatraman, 2001), defined as inimitable organizational knowledge embodied in individuals, groups, and social networks (Lewin et al., 2009b). Although knowledge spillovers due to employee mobility is sometimes unavoidable (Inkpen et al., 2018), the human capital resources of a firm engaging in offshoring decisions can still be valuable for the firm's remaining onshore activities, unlike in the case of subsidiary closures (Sofka et al., 2014).

Retaining explicit and tacit firm-specific human capital in-house is essential to offshoring integration processes (Luo et al., 2012). With a deep understanding for the conditions under which knowledge is exchanged (Reagans et al., 2005) in the firm and having already built interpersonal trust throughout the organization (McAllister, 1995), existing employees require fewer adjustment costs than externally hired ones. Moreover, in the case of internal labor markets, the decision-maker already knows the level of resource suitability (Bidwell, 2011; Bidwell & Keller, 2014). Finally, the firm-specific human capital possessed by existing employees (Becker, 1962) is less tradable than general human capital (Campbell et al., 2012). Thus, a reliance on internal labor markets increases a firm's ability to assess the decomposability, suitability, and tradability of human capital across their business functions.

Retaining such internal human capital resources is important for performance purposes (Collins & Clark, 2003; Shaw et al., 2005). Internal labor markets can help overcome issues of incomplete information because employees in the onshore location have abilities that are easily observed by the employer (Bidwell, 2011), and as already noted, they possess tacit knowledge that is difficult to codify or replicate (Molloy & Barney, 2015; Raffiee & Coff, 2016). Offshoring firms can rely on the pool of onshore employees with their already developed social

capital and lower adjustment costs for employee integration. Conversely, hiring employees from external sources brings higher costs for teaching them firm-specific aspects of the job, which also means a longer period before the company can expect value from new hires. We therefore hypothesized the following:

> *Hypothesis 1: Firms that rely heavily on internal labor markets experience more performance effects from offshoring in the onshore location than typical offshoring firms do.*

Offshoring heterogeneity: Complexity and knowledge intensity

We used heterogeneity in offshoring activities to isolate the effect that is central to Hypothesis 1. More specifically, we explored the conditions in which firms had previously heavily relied on internal labor market benefits when offshoring (i.e., when multiple activities were simultaneously offshored and numerous employees may be redeployed), as well as when knowledge-intensive R&D activities were offshored with staff who had tacit knowledge that is hard to assess for redeployment.

The decision to offshore can build incrementally and gradually (Johanson & Vahlne, 1977), but companies can also decide to undergo more complex actions described by the interdependencies of activities and departments and across multiple host locations. Offshoring more than one business function to multiple locations at once is arguably more complex than offshoring one activity to one location (i.e., to a new country). It is well-known that there are costs directly associated with spatial distance, such as travel costs for transportation and coordination across time zones (Buckley, 2011; Buckley & Ghauri, 2004; Johanson & Vahlne, 1977).

Connectivity or interdependence of tasks between onshore and offshore locations is required to enhance integration of the offshoring process (Luo et al., 2012). When firms make

offshoring decisions that are complex (e.g., those around combinations of business functions and locations), the level of interdependence between onshore and offshore locations is even greater. As offshoring complexity and interdependence increase, so does the need for increased knowledge transfer and information-processing capacity (Egelhoff, 1991). The onshore employees become unnecessary in dealing with complex offshoring settings requiring assured knowledge transfer (Srikanth & Puranam, 2011). Furthermore, complex offshoring settings also require organizational labor restructuring in the onshore location far beyond a single business function or department, and organizational labor restructuring decisions rely heavily on existing human capital resources and redeployment decisions (Dickler & Folta, 2020).

We argue that in the case of complex offshoring decisions, firms rely on internal labor markets to successfully integrate multiple business functions offshoring in one or more locations. As already mentioned, internal labor markets have the advantage of being helpful with overcoming imperfect information regarding human capital resource abilities and the degrees of firm-specific human capital (Becker, 1962). In the case of complex offshoring decisions, internal capital markets have the added advantage of not requiring additional costs for integrating human capital, which makes the decomposability of tasks and jobs easier as well (Anand et al., 2016). This also means that the explicit and tacit firm-specific human capital should remain onshore and in-house yet still be involved in the offshoring integration (Luo et al., 2012).

By using internal capital markets rather than hiring from external sources, offshoring firms can be expected to make better decisions about their human capital resources and how such resources can be best used in other functions. While employee mobility means that knowledge spillovers will occasionally be unavoidable (Inkpen et al., 2018), the human capital resources of firms engaging in offshoring decisions can remain valuable to the firm's remaining onshore activities, unlike with subsidiary closures (Sofka et al., 2014). This value can be

leveraged by firms engaging in complex offshoring settings by relying on the internal labor markets post-offshoring. We therefore made the following hypothesis:

> *Hypothesis 2: Firms that rely on internal labor markets experience better performance effects onshore than the average offshoring firm, and this effect is stronger when multiple activities are offshored simultaneously.*

Because offshoring initially emerged as a cost-cutting strategy (Kinkel, 2012) and was primarily adopted in manufacturing activities (Buckley, 2009), international sourcing of R&D activities used to be a relatively limited phenomenon (Haakonsson et al., 2013). Although R&D internationalization can help firms overcome talent shortages (Lewin et al., 2009b) and is beneficial for innovation performance (Kafouros et al., 2008; Nieto & Rodríguez, 2011), it is challenging to deploy innovation capabilities internationally. For example, a study by Lahiri (2010) found that intra-organizational links between units have significant impacts on whether geographic distribution of R&D can positively affect the quality of innovation.

When engaging in external knowledge sharing, the active exchange of knowledge through unique external sources improves diverse groups' performance (Cummings, 2004). However, offshoring involves a certain degree of geographic distance, which can become a barrier to communication and knowledge transfer (Stringfellow et al., 2008). The difficulties of transferring knowledge, particularly R&D-related knowledge, depends largely on its degree of tacitness (Subramaniam & Venkatraman, 2001). Tacit, inimitable, organizational knowledge embodied in individuals, groups, and social networks (Lewin et al., 2009b) is therefore crucial for firms to benefit from internationalizing R&D activities.

R&D offshoring decisions are also strongly tied to other business functions and are thus dependent on the internal abilities of the organization's employees (Nieto & Rodríguez, 2011). Hence, the ability to assess onshore employees' redeployability is crucial for a successful R&D

offshoring integration. When firms have experience with reassigning tasks and jobs to existing employees, the firm-specific human capital is not lost. Instead their human capital becomes even more valuable than the offshoring implementation and knowledge transfer activities (Stringfellow et al., 2008).

In the case of R&D offshoring, internal labor markets help with overcoming the problems of incomplete information and specificity because the known abilities of employees in the onshore location are readily known to the employer (Bidwell, 2011). By relying on internal labor markets during the offshoring of knowledge-intensive activities like R&D, firms can improve collaboration and knowledge transfer between the onshore and offshore employees (Blomqvist et al., 2015; Srikanth & Puranam, 2011). Better and more efficient knowledge transfer across globally dispersed activities should thus be expected to improve onshore–offshore processes, diminish hidden costs (Stringfellow et al., 2008), and ultimately have a positive effect on performance. We therefore hypothesized the following:

> *Hypothesis 3: Firms that focus on internal labor markets experience greater performance effects onshore than would an average offshoring firm, and this effect is stronger when firms offshore R&D activities.*

3. DATA AND METHODS

Data and the sample

Since 2007, Statistics Denmark has regularly conducted a large-scale survey about Danish firms' recent domestic and international outsourcing (i.e., offshoring) activities.[1] The survey data are high-quality and used for international reporting to the European Union's statistics office (Eurostat). The survey's results regarding firms with more than 50 employees spans industries and has a 97% response rate. The data are assessed to have high rates of accuracy because of the extensive guidance provided and follow-up from the national registries office. Based on this survey, we identified firms that relocated parts of their business activities from Denmark to a location in another country anytime during 2009–2011.

Because the survey is set in Denmark, the context of the importance of sampling companies with more than 50 employees must be given here. Over time, the share of companies with more than 50 employees in the total of active businesses in Denmark is quite stable at a level of 1–2%. However, these companies account for around 70% of the profits generated by all active businesses and employ about 60% of all full-time employees in the country (see Appendix A for more details[2]).

We linked the survey data to employer–employee matched data in order to track employment dynamics for the period during and after offshoring. The survey's registry contains data on 3,838 firms, of which 690 reported relocating some activities abroad. From the offshoring dataset, financial information was available for 686 offshoring companies, along with employee mobility information for 2009–2014. The analysis was conducted at the firm level and matched with the employer–employee registry to derive the aggregated data. This empirical

[1] Documentation about the DST survey can be retrieved from https://www.dst.dk/da/Statistik/dokumentation/statistikdokumentation/international-organisering-og-outsourcing

[2] Documentation about the general business statistics in Denmark can be retrieved from https://www.dst.dk/da/Statistik/dokumentation/statistikdokumentation/generel-firmastatistik

setting allowed us to track the employment records and occupation changes of all employees to establish internal labor markets and link any patterns to the firm's performance.

Measures

Dependent variable. The dependent variable for our regressions was the ordinary result taken from the annual statistical report (measured in millions of Danish krone [DKK]). The measure[1] refers to income from primary operations (revenue) and secondary operations (other operating income) after deducting costs. Costs refers to spending for consumption of goods and services in ordinary operations to pay wages and salaries, pension costs, other costs for social security, depreciation, write-downs of tangible and intangible fixed assets, and write-downs of current assets to the extent that they exceed normal write-downs. Although financial performance can be measured in various ways (Richard et al., 2009), profits gives a measure of the company's ability to control costs (Hammond & Slocum, 1996).

Explanatory variables. We began by identifying offshoring firms based on answers on the survey to the question *What functions did your enterprise outsource in the period from the beginning of 2009 to the end of 2011?* If a firm reported relocating at least one type of activity to a foreign country, it was defined as an offshoring firm. Next, the panel setting follows all offshoring companies across the full time period and the variable *offshoring (d)* took a value of 1 starting in 2012 if the company reported engaging in international relocation of activities and was otherwise assigned a null value.

For Hypothesis 1, we used registry data to differentiate between newly hired employees and a previous employment relationship. Based on a categorical variable that indicates a possible change of employment at the current workplace in relation to the previous year for an

[1] Available from https://www.dst.dk/da/TilSalg/Forskningsservice/Dokumentation/hoejkvalitetsvariable/firmastatistik/gf-rfep-1

individual employee, we counted the number of employees hired internally and how many were hired externally in each company. Internal hiring was defined as a change in an employment contract where the hiring company did not change. External hiring referred to employment changes where the employee joined a company in year t and had a different employment relationship in year $t - 1$. The dependent variable for the average percentage share of internally hired employees provides a view of the extent to which a company focused on internal hiring as a ratio of all employment changes. Technically, the variable is constructed by finding the average between the share of internal hires in year t and the share of internal hires in year $t - 1$. This ensured that the captured effect of the moderator incorporated a past focus (i.e., before offshoring) on internal hiring.

Hypotheses 2 and 3 introduced aspects related to the offshoring characteristics. Therefore, we relied on survey data. In terms of the type of business function, we differentiated between core and non-core functions based on answers to the question *Which functions has your enterprise sourced in the period from the beginning of 2009 to the end of 2011?* Respondents had answers choosing between core and non-core (i.e., distribution and logistics, marketing, ICT services, administrative, R&D, or other) functions. In order to distinguish between close-to-onshore and distant locations, we relied on answers to the question *Into which countries has your enterprise sourced functions in the period from the beginning of 2009 to the end of 2011?* Based on the responses to those two questions, we generated the *complex offshoring* variable. We defined simple offshoring as an event where one business function was offshored to a single location outside Denmark, and *complex offshoring* included all other possibilities (two or more functions to one country, one function to multiple locations, or multiple functions being offshored to multiple countries). The *R&D offshoring* measure was based on a question about the type of business function being offshored.

Control variables. It is well documented that the different experiences and sizes of firms is related to variations in the ability to attract new employees (Burton et al., 2018), which can in turn lead to an inability to balance resource reconfigurations. Thus, we wanted to control for any potential effects of *firm size* and *firm experience* on hiring decisions. We measured firm experience in number of years since the company was first established in Denmark. Firm size was measured in terms of a logarithm of number of employees.

Apart from the above-mentioned controls, other firm characteristics may be linked to performance outcomes. First, variables such as *exports* can be proxies for a firm's financial resources and brand, which may indicate their global presence. Second, other firm employee characteristics in the onshore location and whether there is the availability of an internal labor market may influence hiring decisions after offshoring. Therefore, we included firm aggregated measures *lagged employee turnover* (%) and *share of college-educated employees* (%). In order to capture multinationality, we included *share of Danish citizenship* (%) as a proxy for Danish companies' orientation toward English as a corporate language. In addition, we also controlled for the extent to which companies have the resources necessary for developing and training internal labor markets via a proxy variable measuring *share of HR employees* (%). A complete summary of the variables and their descriptions can be found in Appendix B.

Estimation approach

In order to explain performance variation in a panel dataset, we used fixed-effects regression models with the regression estimator (Wooldridge, 2002). All of the models included variables that are time-varying and year fixed effects. In order to test Hypotheses 2 and 3, we conducted sub-sample analyses on the group of offshoring companies. For consistency checks and

additional analyses, we used similar methods, with the exception of a matched sample model in Table 4.

Because there could be concerns regarding endogeneity when testing Hypothesis 1 in terms of which firms will choose to pursue an offshore strategy, which firms will focus on internal labor markets, and which firms will be more profitable, we employed a coarsened exact matching (CEM) technique (Iacus et al., 2012) as a consistency check. As conditioning variables, we used the industry, export experience (d), and productivity of the firm in the sample start year (i.e., 2009). We also used the most restrictive matching technique, k2k CEM. This ensured that we compared the offshoring companies group to a non-offshoring comprised of similar and equal-sized companies.

4. FINDINGS

Summary statistics

Among the surveyed companies, 9% of the observations came from offshoring firms. The offshoring companies sample spanned numerous industries, and Tables 1 and 2 show the descriptive statistics and pairwise correlations between the main variables.

The average observation was a company that had been in business for 27.4 years since founding, had a workforce in which 72.5% had a college education, and experienced a 20.6% employee turnover rate. In terms of performance, the average annual profit was around 60 million DKK. This group of companies promoted an average of 15 internal employees and hired 71 from external sources each year. A subset of the offshoring companies making up 17.1% engaged in offshoring R&D activities, and 37.2% engaged in complex offshoring settings. The average share of internally redeployed employees among the total of hired employees was 6.4%.

The purpose of this study was not to compare the financial performance of offshoring and non-offshoring companies, but rather to determine how performance is affected once companies engage in offshoring. Due to the availability of data, we also provide some summary statistics for the full sample (i.e., both offshoring and non-offshoring companies). Figures 1 illustrates the average profits for the treated (offshoring) and control (non-offshoring) companies in the survey sample across the panel years. Our review once again confirmed that, in general, firms that engage in offshoring are also those with more resources or better performance to begin with (Figure 1). It also confirmed that the average offshoring company sees increased profits even in the short-term after offshoring, while non-offshoring companies have relatively steady performance levels

Table 1. Descriptive Statistics (Offshoring Companies, 2009–2014 Panel)

Variable	Number of observations	Mean	Std. Dev.
Annual profit (millions, Danish krone)	3,434	59.479	636.002
Offshoring (d)	3,434	.6	.49
R&D offshoring	3,434	.171	.376
Complex offshoring	3,434	.372	.484
Average share internally hired	3,312	.064	.127
Average number of internally hired staff	3,434	15.132	110.222
Average number externally hired staff	3,434	71.368	560.739
Employee turnover t −1 (%)	3,434	.206	.127
Ln (number of employees)	3,434	4.674	1.235
Firm age (years)	3,434	27.351	17.895
Exports (in Danish krone)	3,434	3.371e+08	1.876e+09
College-educated employees (%)	3,434	.725	.155
Mean work experience (years)	3,434	19.603	4.629
HR employees (%)	3,434	.005	.01
Danish citizen employees (%)	3,434	.94	.076

Table 2. Pairwise Correlations (Offshoring Companies, 2009–2014 Panel)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Annual profit (mil. DKK)	1.000											
(2) Avg. Share internal hiring (%)	0.118	1.000										
(3) R&D offshoring (d)	0.019	-0.045	1.000									
(4) Complex offshoring (d)	0.051	0.116	0.016	1.000								
(5) Lagged employee turnover (%)	-0.063	0.076	-0.075	0.117	1.000							
(6) Ln(no. employees)	0.252	0.282	-0.079	0.098	-0.189	1.000						
(7) Firm age (years)	0.112	0.089	-0.024	-0.001	-0.111	0.192	1.000					
(8) Exports (DKK)	0.836	0.148	0.027	0.091	-0.086	0.361	0.119	1.000				
(9) Share College educ. (%)	0.033	0.003	-0.047	0.052	-0.215	-0.104	0.001	0.052	1.000			
(10) Avg. work exp. (years)	0.010	0.095	0.172	-0.070	-0.302	-0.095	0.219	0.008	0.289	1.000		
(11) HR empl. (%)	0.046	0.107	-0.138	0.085	0.013	0.128	0.060	0.064	0.185	-0.073	1.000	
(12) Danish citizenship (%)	0.010	0.069	0.080	-0.056	-0.109	0.003	0.093	0.005	0.114	0.444	-0.079	1.000

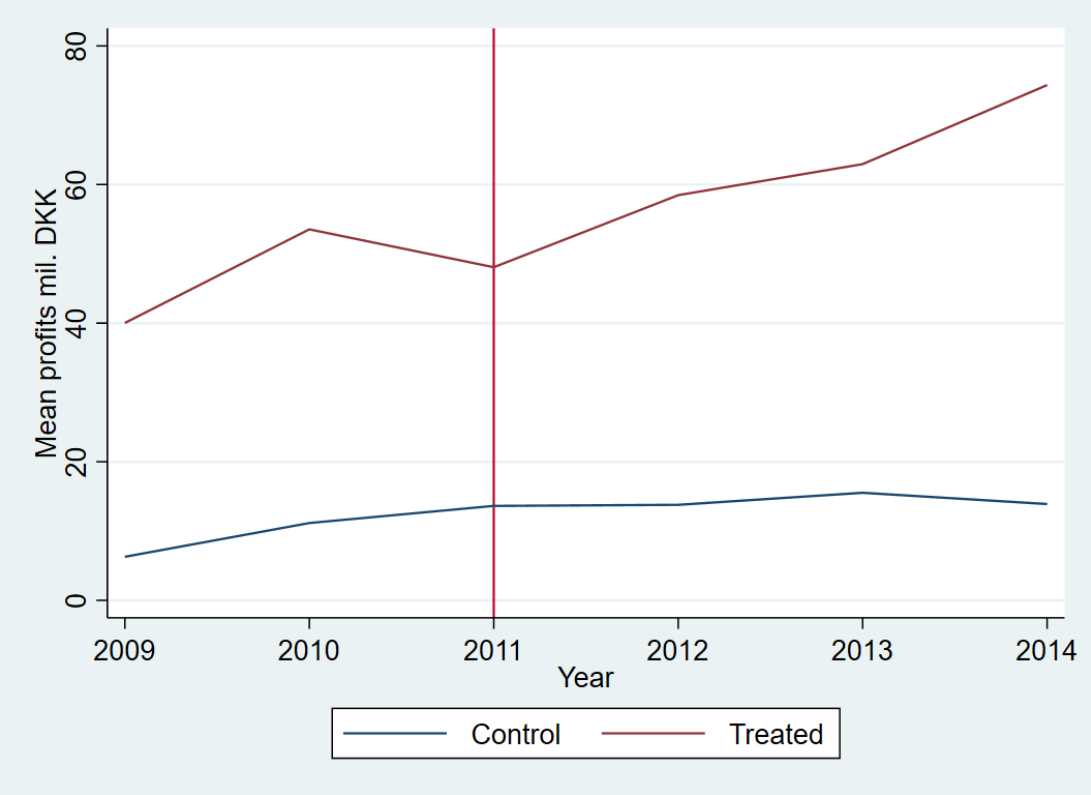

Figure 1. Yearly means of profits, by non-offshored (control) and offshored (treated) company

Hypotheses testing and marginal effects

Model 0 shown in Table 3 provides the coefficients of the regressions without including the interaction term. Because we did not theorize about the main effects between offshoring, degree of internal labor market, and performance, this model provides only a replication test. We did not find a significant effect on companies' profits when they decided to engage in offshoring ($\beta = -7.046$, $p = 0.553$). Focusing on internal labor markets also did not generally have a significant effect on a company's financial performance ($\beta = -5.589$, $p = 0.883$), but this effect did become statistically significant when the interaction between offshoring and the degree of reliance on an internal labor market was included ($\beta = -137.173$, $p < 0.01$), in Model 1. This suggests, that all else being equal, hiring internally more often is associated with lower profit

levels, consistent with studies in the literature on employee mobility that argue for the financial importance of hiring new staff from external sources (e.g., other firms or industries).

However, Model 1 testing the first hypothesis for the offshoring survey sample confirmed our expectation that, on average, hiring more employees internally when offshoring is associated with higher profit levels ($\beta = 198.316$, $p < 0.001$). To better understand the magnitude of the effects, we need to look at marginal effects. Figure 2 illustrates the interaction effects, where a move from 0 to a 10% greater focus on internal capital markets significantly increased the difference in profits between pre-offshoring and post-offshoring.

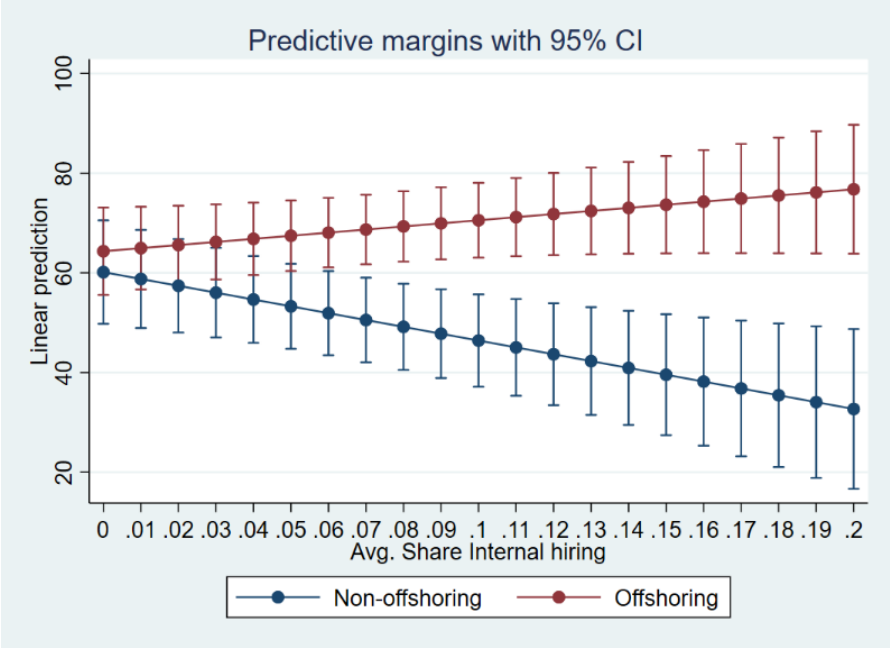

Figure 2. Interaction effects of offshoring firms' average share of internally hired employees on company profits[1]

For *Hypothesis 2* and *Hypothesis 3*, we employed the same type of fixed-effects panel regression, but this time, we compared coefficients of the main effects across the sub-samples

[1] To avoid any confusion, in Figure 3, the non-offshoring label refers to the period up to 2012, whereas the offshoring label refers to the panel time period when companies were engaged in implementing offshoring plans.

complex offshoring (Model 2) and R&D offshoring (Model 3). Here, we observed that the coefficients for the offshoring and internal hiring interaction terms were consistently higher and significant for both complex offshoring ($\beta = 460.329$, $p < 0.001$) and R&D offshoring ($\beta = 866.724$, $p < 0.001$) sub-samples. We also ran all of our hypotheses testing models using standardized variables and obtained similar results.

Table 3. Main Results of Fixed-Effects Panel Regressions

Dependent variable = Profits (in millions Danish krone)	**(Model 0)**	**(Model 1)**	**(Model 2)**	**(Model 3)**
	Coefficient (standard error) [*p*-value]			
		Offshoring	***Complex offshoring***	***R&D offshoring***
Offshoring # Average share internally hired employees, %		**198.316***** **(49.551) [0.000]**	**460.329***** **(113.473) [0.000]**	**866.724***** **(222.145) [0.000]**
Offshoring	−7.046 (11.889) [0.553]	−17.982 (12.166) [0.140]	455.266 (887.170) [0.608]	−149.123 (139.621) [0.286]
Average share internally hired employees, %	−5.589 (38.027) [0.883]	−137.173** (50.187) [0.006]	−319.268** (114.834) [0.006]	−648.487** (219.071) [0.003]
Employee turnover $t-1$ (%)	−35.000 (36.784) [0.341]	−27.909 (36.721) [0.447]	−43.022 (92.024) [0.640]	90.257 (181.436) [0.619]
Ln (# employees)	−32.871* (14.194) [0.021]	−28.517* (14.195) [0.045]	−27.272 (35.149) [0.438]	11.676 (66.247) [0.860]
Firm age (years)	1.001 (1.493) [0.503]	1.034 (1.489) [0.488]	−123.223 (221.837) [0.579]	13.111 (38.755) [0.735]
Exports (DKK)	0.000*** (0.000) [0.000]	0.000*** (0.000) [0.000]	0.000*** (0.000) [0.000]	0.000*** (0.000) [0.000]
College-educated employees (%)	15.926 (76.810) [0.836]	22.013 (76.605) [0.774]	134.955 (193.498) [0.486]	206.369 (387.251) [0.594]
Mean work experience of employees (years)	−3.144 (3.142) [0.317]	−2.899 (3.134) [0.355]	−3.528 (8.182) [0.666]	2.055 (16.162) [0.899]
HR employees (%)	109.602 (564.022) [0.846]	60.295 (562.543) [0.915]	−209.561 (1344.081) [0.876]	−282.579 (2281.858) [0.902]
Danish citizen employees (%)	132.687 (126.769) [0.295]	120.634 (126.442) [0.340]	170.895 (323.913) [0.598]	185.862 (609.783) [0.761]
Year dummies	Yes	Yes	Yes	Yes
Observations, #	3312	3312	1207	550
Firms, #	686	686	254	116
Adjusted R^2	0.502	0.505	0.564	0.704
Overall model R^2	0.703	0.702	0.044	0.895

Notes: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Consistency checks

An emerging empirical concern is related to the fact that there is a possibility that companies that offshore perform better (and consequently that our interaction term coefficient shows this effect) because they are a selected sample of companies, more likely to hire internally. Table 4 provides an attempt to deal with endogeneity of the offshoring decision with the help of time-varying instrumental variables[12]. According to Vella and Verbeek (1999), empirical models can control for self-selection bias by replacing the independent variable of concern with an instrumental variable that is expected to be correlated with the variable itself but uncorrelated with the error term in the main equation, or by including a selection-bias correcting factor. We choose to employ an Instrumental variable approach.

In this study, we suggest that the average work experience of the employees at the industry level could be associated with the decision to offshore and a higher ability to retain employees, but that this aspect should arguably not be related to the performance outcomes (and especially profits) of the company. Although one could argue that other instruments may be more relevant, we provide a first attempt in dealing with the concerning issue of endogeneity by using the two stage Stata module for fixed-effects regressions with endogenous regressors (Schaffer, 2020). Model 10a shows the first stage regression having offshoring as the dependent variable, and Model 10b shows the second stage performance regression. All control variables are identical and panel data specifications as in Model 1 (i.e., main model). The relevant tests indicate that the instrumental variable positively associated with the decision to engage in offshoring and is exogenous. More precisely, under the null hypothesis that the specified endogenous regressors can actually be treated as exogenous, the endogeneity test (i.e., the difference of two Sargan-Hansen statistics) shows that we cannot reject that industry average

[12] While Grecu et al., (2022) uses distances to seaports in Denmark as instruments for predicting the offshoring decision, the panel data setting in this study does not allow using a similar approach.

work experience is exogenous (p-value 0.774). In addition, we can reject the hypothesis that our instruments are weak because the F-statistic in the first stage regression is much higher than 10 (Staiger & Stock, 1997). The Kleibergen-Paap LM statistic is an underidentification test checking whether the instruments are relevant. The p-value is < 0.001, so we reject the null hypothesis that my model is underidentified by using this instrumental variable approach. Therefore, offshoring (i.e., going from non-offshoring to offshoring in the panel dataset) can be assumed to be an exogenous decision when predicting profits with the first stage model in place. Consistent with the model without instrumental variable, we observe slightly lower coefficients for variables of interest, but very similar effects.

Table 4. Results with Instrumental Variable approach

	Main model (Model 1)	**Instrumental variable approach**	
		First stage (Model 10a)	Second-stage (Model 10b)
Offshoring (d)	−17.982		-14.451
	[0.140]		[0.255]
Avg. Share Internal hiring	−137.173	-0.878	-146.643
	[0.006]	[0.000]	[0.005]
Offshoring # Average share internally hired employees, %	198.316	1.733	197.558
	[0.000]	[0.000]	[0.000]
Survey industry avg. work exp. [a]	-	0.437	
		[0.000]	
Controls[b]	Yes	Yes	Yes
Observations, #		3306	3306
F			368.934
Adjusted R^2			0.608
Endogeneity test			0.083
Endogeneity test p-value			0.774
UnderId test (Kleibergen-Paap rk LM statistic)			982.580
UnderId p-value			0.000

Notes: [a] The instrument variable is calculated at the industry level for every year of the panel. [b] Controls: Employee turnover t − 1 as percentage; Ln, number of employees; firm's age in years; exports in Danish krone; percentage of college-educated employees; mean work experience of all employees, in years; percentage share of Danish citizen employees; share of HR employees.

Table 5 contains various consistency tests for the interaction term. Model 4a and Model 4b show the coefficients of the interaction between engaging in offshoring and focusing on internal labor markets for captive offshoring (i.e., jobs relocated outside the group), in comparison to international sourcing (i.e., outside the group). We observed that the interaction is significant for both sub-samples, with a slightly higher coefficient in the case of companies relocating business activities outside their own group ($\beta = 263.815$, $p < 0.001$). This is again consistent with our reasoning that firm-specific human capital should be redeployed internally in order to capture benefits from offshoring decisions, especially when knowledge is to be transferred to business units outside of the company (i.e., international sourcing). However, the effect is also present for captive offshoring types of firms (Model 4a), indicating that even when business activities are relocated within the same group or with a multinational enterprise, internal labor markets are important for exploiting the benefits of engaging in offshoring decisions. Model 5 is a test on a sub-sample of offshoring firms that engage in visible offshoring events (i.e., firms that lost more jobs than the average for the surveyed firms due to offshoring). The coefficient for the offshoring and internal hiring interaction term was positive and significant ($\beta = 492.989$, $p < 0.05$).

As additional consistency checks, we ran fixed-effects panel regressions on the full sample of surveyed companies. First, we tested our predictions on a matched sample of companies: 679 offshoring and 679 non-offshoring companies (see Appendix C for an illustration of the matching procedure). Model 6 in Table 4 showed consistent effects for the main hypothesis even when including the non-offshoring companies' financial information and labor market dynamics in the tested sample. Although outside the scope of this study, the CEM sample provides evidence for the fact that similar non-offshoring companies are not able to benefit from internal labor markets in the same manner as offshoring companies. This is consistent with our reasoning that companies are able to benefit financially from offshoring only

when redeploying resources internally in the onshore location. Finally, we ran two more models on the full sample of offshoring and non-offshoring companies. Model 7 used a sales measure as a dependent variable rather than profits in order to capture performance. We also run the profits regressions on the full sample of companies. Those engaging in offshoring after 2012 and focusing on internal labor markets had more sales, but the results were only partially significant ($p < 0.05$). Model 8 is another version of testing the significance of the interaction term, but where the independent variable was the lagged share of internal hiring in the prior year rather than the average from the prior two years. The effects were consistent ($\beta = 143.895$, $p < 0.001$).

Table 5. Consistency Checks—Fixed-Effects Panel Regressions

	Only offshoring companies Coefficient [*p*-value]			***Offshoring and non-offshoring companies*** Coefficient [*p*-value]		
	(Model 4a) ***Inside group***	(Model 4b) ***Outside group***	(Model 5) ***Visible offshoring***	(Model 6) ***CEM matched***	(Model 7) ***Full sample***	(Model 8) ***Full sample***
Dependent variable	***Profits (million Danish krone)***	***Profits (million Danish krone)***	***Profits (million Danish krone)***	***Profits (million Danish krone)***	***Sales (million Danish krone)***	***Profits (million Danish krone)***
Offshoring # Average share internally hired employees, %	142.150** [0.003]	263.815** [0.002]	492.989** [0.004]	**177.747*** **[0.000]**	142.173 [0.064]	
Offshoring	−3.998 [0.740]	−56.653 [0.249]	444.576 [0.711]	−8.989 [0.213]	−3.928 [0.766]	−4.017 [0.379]
Average share internally hired	−106.782* [0.033]	−182.798* [0.025]	−340.794 [0.066]	−70.500** [0.007]	−66.886 [0.055]	−25.970** [0.002]
Lagged share of internally hired						143.895*** [0.000]
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations, #	1546	1766	674	6579	18394	18669
Firms, #	323	363	140	1358	3838	3845
Adjusted R^2	−0.233	0.627	0.557	0.343	0.063	0.002
Overall model R^2	0.002	0.773	0.053	0.623	0.529	0.451

Notes: [a] Controls: Employee turnover $t-1$ as percentage; Ln, number of employees; firm's age in years; exports in Danish krone; percentage of college-educated employees; mean work experience of all employees, in years; percentage share of Danish citizen employees; share of HR employees.
CEM = Coarsened exact matching
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Additional analyses: company size and group ownership

In Table 6, we provide a set of tests and further analyses, that may be fruitful approaches for future research.

Multinational corporations often engage in relocation of activities from one country to another, so in Models 7a and 7b we attempted to determine whether our results would hold for companies that are not part of a foreign group. The underlying idea is that being part of a foreign group may have implications for profit in the onshore location. However, what we observed was that our arguments are particularly relevant for companies that are not part of a foreign group. By excluding foreign-owned companies, we found that focusing on internal labor markets when offshoring had a consistent positive and significant effect on onshore profits ($\beta = 261.823$, $p < 0.001$). At the same time, we noticed that in this restricted sample, the effect of engaging in offshoring (up to the 2012 cutoff in our panel) was a partially negative association with profits ($\beta = 34.221$, $p < 0.01$) with company profits in the onshore location. Meanwhile, in the foreign-owned sub-sample (Model 7b), the years during and post-offshoring were associated with highly statistically significant and positive effects on profits ($\beta = 791.274$, $p < 0.001$) and non-significant effects for the interaction term ($p = 0.175$). These two models indicate that benefitting from offshoring is easier for companies that are part of a foreign group, because they do not need more focus on internal labor markets in the onshore location in order to increase profits. In the case of companies that are not part of a foreign group, benefitting from offshoring decisions is more challenging and requires internally redeploying more employees.

Models 8a and 8b provide sub-sample analyses by company size. Although we controlled for the size of the company in all of our regressions, when we excluded large companies (> 250 employees in Denmark) from the sample, the interaction term between offshoring and focusing on internal labor markets no longer had a significant effect on profits

($\beta = 2.348$, $p = 0.744$). When looking at large companies only, the effect was highly positive and significant ($\beta = 653.452$, $p < 0.01$), indicating that these companies receive tremendous financial benefit from focusing on their internal labor markets in this context. We also looked at company size through the measure of number of subsidiaries in the onshore location and found similar results in Models 9a and 9b. The interaction term was no longer statistically significant ($p = 0.510$) for those offshoring companies with just one subsidiary or legal entity in Denmark, but the effect was highly positive and significant for companies with more than one subsidiary in the onshore location ($\beta = 332.472$, $p < 0.001$).

Table 6. Additional Analyses

DV = Profits *(million Danish krone)*	**(Model 7a)**	**(Model 7b)**	**(Model 8a)**	**(Model 8b)**	**(Model 9a)**	**(Model 9b)**
	Coefficient [p-value]					
	Foreign groups excluded	***Only foreign groups***	***Large companies excluded***	***Only large companies***	***Multiple subsidiaries***	***Multiple subsidiaries excluded***
Offshoring # Average share internally hired employees, %	261.823*** [0.001]	34.329 [0.175]	2.348 [0.744]	653.452** [0.002]	332.472*** [0.001]	−14.462 [0.510]
Offshoring	−34.221* [0.044]	791.274*** [0.000]	2.605 [0.526]	−44.814 [0.502]	−38.739 [0.169]	1.642 [0.792]
Average share internal hires	−225.820** [0.003]	−5.523 [0.828]	−9.982 [0.146]	−407.709 [0.095]	−232.073* [0.016]	17.754 [0.298]
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations, #	2133	1179	2625	687	1487	1825
Firms, #	436	250	572	177	353	420
Adjusted R^2	0.547	−0.129	−0.259	0.489	0.494	−0.232
Overall model R^2	0.710	0.003	0.033	0.679	0.704	0.148

Notes: [a] Controls: Employee turnover $t-1$ as percentage; Ln, number of employees; firm age in years; exports in Danish krone, percentage college-educated employees; mean work experience of all employees in years; percentage Danish citizen employees; percentage HR employees.
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

5. DISCUSSION AND CONCLUSION

This paper presented our study focusing on the context in which firms decide to relocate activities (and thus, jobs) to foreign locations and how internal labor markets and the types of offshoring decisions made influence the firm's onshore performance. We argue that the reliance of firms on internal labor markets in the past, such as by frequently filling job vacancies with internal candidates, sets those firms apart when they offshore certain activities and redeploy staff. For this reason, we integrated theoretical mechanisms from the literature on internal labor markets (Bidwell & Keller, 2014) into models explaining the performance effects of offshoring based on human capital decisions (Srikanth & Puranam, 2011). Our reasoning is that internal labor markets create information about the quality of various employees that is thus more readily available (Bidwell, 2011), and that face is particularly valuable when firms engage in complex offshoring or offshore R&D activities in which employees develop types of tacit knowledge that are difficult to observe and assess.

As an empirical setting, we chose a panel dataset containing financial, mobility, and offshoring information for all companies operating in Denmark that have more than 50 employees. This dataset made it possible to track the employment records and occupation changes of all the firms' employees, which was employed to establish internal labor markets and investigate their relationship to the firm's performance over time. The results support our primary hypothesis that when engaging in offshoring, companies that previously relied substantially on internal labor markets experience significantly more positive performance effects. In line with our theoretical logic about the information-revealing effects of internal labor markets, we found that the performance effects are particularly strong when a firm opts to simultaneously offshore several activities or to multiple locations, as well as when a firm offshores R&D activities.

We conducted various robustness tests, such as distinguishing between offshoring within the enterprise group and offshoring outside the enterprise group. The study showed that the financial gains from offshoring were higher for offshoring companies that focused more on internal hiring when relocating activities outside the group than for those offshoring inside the enterprise group. This is consistent with our reasoning that firm-specific human capital should be redeployed internally to capture benefits from offshoring decisions, especially when knowledge is to be transferred to business units outside of the company (i.e., international sourcing). Our findings are also robust for firms that engage in visible offshoring events (i.e., where the number of jobs lost due to offshoring was higher than the average of the surveyed firms), showing that companies can overcome potential reputational challenges by more frequently hiring internally in the onshore location. This situation arises with actions that provoke, for example, negative public sentiment, such as when companies relocate jobs to foreign countries (Grecu, 2022).

With our additional analyses, we foster a debate about the validity of our results across different types of offshoring companies. Specifically, we show that benefitting from offshoring is much easier for companies that are part of a foreign group because they do not need to keep a focus on internal labor markets in the onshore location in order to increase profits. For companies that are not part of a foreign group, benefitting from offshoring decisions is more challenging and requires redeploying more employees internally. We then showed that when looking at large companies, the effect is highly positive and significant, whereas when we exclude very large companies, the effect is no longer present. This indicates that among companies considering offshoring, only relatively large firms can benefit financially by focusing on internal labor markets in Denmark.

Theoretical implications

This study provides new evidence regarding the circumstances when an internal labor market and internal reconfigurations can boost the performance of offshoring companies. By linking survey data on the offshoring implementations of Danish firms with registry data, we contribute to the existing literature in three ways.

First, extant theory on the redeployment of human resources is incomplete when it does not incorporate heterogeneity into considerations of a firm's ability to assess and conduct redeployment (Dickler & Folta, 2020). This shortcoming is consequential because firms might be better off developing capacities for redeployment before shifting employees between businesses and functions. We suggest that international relocation decisions are profitable when companies focus more on internal hiring in the onshore location, as this is where firm-specific human capital is found, and establish that internal labor markets are an antecedent of successful redeployment.

Second, the availability of skilled employees who can implement offshoring decisions is an important condition for their success (Srikanth & Puranam, 2011). Within this theoretical logic, knowledge and skills of individuals drive the success of offshoring. We reason that this theoretical angle is too narrow and has broader organizational underpinnings. Within our logic, internal labor markets change the availability of information about the presence of valuable human capital throughout the organization, which pays off when firms are making decisions about redeploying employees whose jobs have been offshored. Hence, we offer a more comprehensive theoretical model for how organizational hiring practices set the stage for the success or failure of offshoring. Although financial performance can be measured in various ways by looking at profits (Richard et al., 2009), this study highlights the effectiveness aspect of offshoring firms' actions. Financial performance is related to managers and shareholders, and thus a measure of legitimacy of actions (Mitchell et al., 1997).

Finally, this paper fosters debate about the offshoring context, which may provide relevant insights into how firms become resilient by hiring employees from their local internal or external labor markets. International companies need to balance complex interdependencies within and between multiple host locations, but they also face internal hierarchy challenges (Buckley, 2009). In this area of research, our study provides evidence for the contexts in which internal or external hiring can enhance or hinder the onshore performance of offshoring companies.

Managerial implications

In terms of practical implications, this study sheds light on the implications of offshoring decisions in terms of knowledge transfer and human capital needs, helping managers become more aware of the hiring needs associated with different types of offshoring decisions.

First, we found that with all things being equal, redeploying 1% more employees internally while offshoring was tied to significant positive effects on profits. If before offshoring, our fixed-effects regressions predicted profits below 60 million DKK for a company redeploying 10% of their employees internally, shortly after offshoring, the increased share of internally redeployed employees was associated with levels of profits significantly higher than 60 million DKK. The results are relevant if we compare our predictions with the general business statistics in Denmark between 2009 and 2014. For example, we can see in Appendix D that there were 4,021 companies in Denmark with 50+ employees in 2013. For our survey, we observed 686 of these companies in the same year (i.e., 2013; post-offshoring). In Denmark, companies with more than 50 employees paid full-time wages to 1,461,083 employees and accounted for 94.616 million DKK in profit generated by the end of 2013 (see Appendix D for full period statistics). Although we cannot generate these official statistics through offshoring characteristics, we can argue that being able to increase profits from one year to another by even

5–10 million DKK makes a significant impact in terms of market share, given that the profit per Danish company in 2013 was at a level of 23.53 million DKK (94.616 million DKK from 4,021 companies).

Second, we showed that the ability to redeploy existing human capital in the onshore location is essential when engaging in offshoring decisions. If, for example, a company with 100 employees decides to offshore and lay off 10 employees, then we would advise that, when looking at internal changes, they should ensure the share of internally redeployed employees increase from one year to the next in order to benefit from the offshoring decision. This aspect requires managers to be prepared and able to retain and upskill or retrain their existing employees, so that they fit in new positions in the onshore location.

Limitations and future research

This study is not without limitations. First, our research addressed the immediate or short-term effects immediately following an offshoring event of hiring internally based on performance onshore. By studying this in a panel setting, we overcame many of the challenges of cross-sectional research. However, future studies may focus on the more long-term effects of offshoring decisions, and perhaps more interestingly, on the waves of offshoring decisions in a company over time. We established internal labor markets as an antecedent of successful redeployment, but future research may explore broader sets of factors that enable some firms to make better redeployment decisions than others, such as redeployment experience within an entire firm or specific HR departments.

Second, this study did not make a distinction between different types of job ads and where job openings were posted for different offshoring firms. We only observed changes in employment relations and whether the employees joined from internal or external sources.

Therefore, a potentially fruitful qualitative research topic could be going beyond the end result and observing more closely the matching process (e.g., via post-offshoring online job ads).

Third, offshoring decisions and selections for hiring may be affected by unobserved characteristics (e.g., institutional factors) or by the context. For example, companies from large emerging economies may be an interesting research context because such companies often lack ownership advantages and make internationalization decisions for different reasons than firms in developed countries (Alvstam et al., 2020; Ramamurti, 2012). In that light, this study aimed to foster debate and encourage future research using data from other countries or contexts in order to test whether our findings are generalizable to other contexts.

Fourth, we showed that companies can benefit from offshoring by focusing on internal labor markets in the onshore location, and that these results are particularly salient for companies that are not part of a foreign group. However, we also show that it is mainly the large offshoring companies that benefit financially by focusing on internal labor markets when moving jobs abroad out of Denmark. Future research can address these aspects in more detail and theorize about potential explanations for these findings.

Finally, although merging survey data to registry data had many advantages, our findings are limited to the nature of the registry data being collected and reported once a year. This means that we cover only employment changes taking place from one year to another, and we cannot capture employee mobility taking place during any year until the reporting date. Therefore, observational studies for shorter time periods may be fruitful for capturing even more hiring dynamics in offshoring companies.

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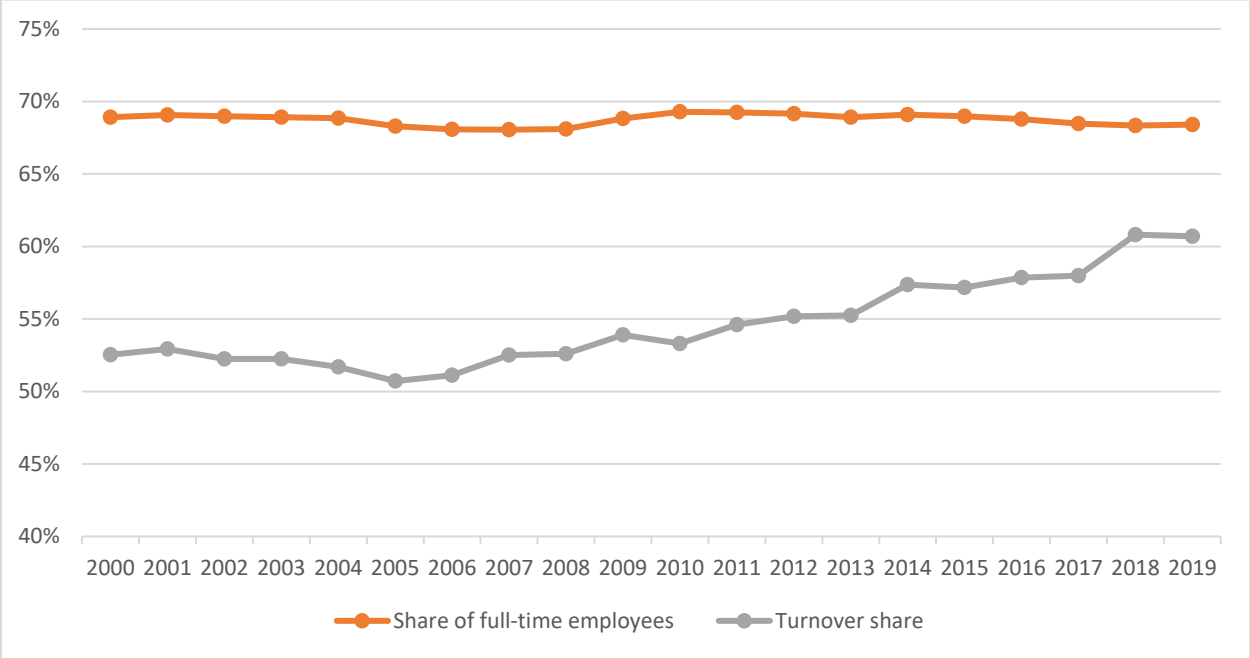
Appendix A – Importance of companies with 50+ employees in total business statistics



Source: Generated based on official statistics by Statistics Denmark

Appendix B - Variable description

Variable	Description	Source
Annual profit (mil. DKK)	Income from the primary operation (revenue) and the secondary operation (other operating income) after deducting costs. Amounts in mil. DKK.	Register data
Avg. Share internal hiring (%)	Average share of employees hired via internal sources in year t and year t-1	Register data
No. internally hired	Employees hired via internal sources	Register data
No. externally hired	Employees hired via external sources	Register data
Offshoring (d)	Dummy variable identifying whether company engaged in offshoring (0 = No, 1 = Yes)	Survey data
Core offshoring (d)	Dummy variable identifying whether company engaged in core-offshoring (0 = No, 1 = Yes)	Survey data
Complex offshoring (d)	Dummy variable identifying whether company engaged in core-offshoring (0 = No, 1 = Yes)	Survey data
Employee turnover$_{t-1}$ (%)	Share of employees leaving company in prior year.	Register data
Ln(No. employees)	Natural logarithm of number of employees	Register data
Firm age (years)	Number of years since the company was established	Register data
Exports (DKK)	Sales from exports. Amounts in DKK	Register data
Coll. educ. employees (%)	Share of college educated employees	Register data
HR employees (%)	Share of HR employees	Register data
Danish citizenship (%)	Share of Danish citizens	Register data

Appendix C – Coarsened Exact Matching k2k illustration

Industry	**Exporting experience**	**Company productivity**	**Offshoring** **Non-offshoring**
Manufacturing	No	Strata 1	…
		Strata 2	…
		…	…
	Yes	Strata 1	…
		Strata 2	…
		…	…
Building and construction	No	Strata 1	…
		Strata 2	…
		…	…
	Yes	Strata 1	…
		Strata 2	…
		…	…
Trade and transport	No	Strata 1	…
		Strata 2	…
		…	…
	Yes	Strata 1	…
		Strata 2	…
		…	…
….	…	…	…
		TOTAL	**679 offshoring companies = 679 non-offshoring companies**

Appendix D – Business statistics in Denmark (2009 – 2014)

	2009	2010	2011	2012	2013	2014
No. firms	4152	3929	4031	4057	4021	4134
No. full-time employees	1502288	1482118	1477785	1471007	1461083	1488819
Revenue (mio kr.)	1619105	1667141	1816442	1923440	1945976	2055679
Profit (mio kr.)	31374	83196	76990	81427	94616	..

Source: Generated based on official statistics by Statistics Denmark

CHAPTER 3 – Negative offshoring sentiments: An exploratory study using Twitter data

ALINA GRECU

ABSTRACT

The negative consequences of company offshoring decisions can quickly become a contentious topic in public debate. I rely on Twitter data and text analytics tools to trace the public sentiment in the public debate about offshoring during the 2020 US presidential campaign. When looking at the most popular tweets in the offshoring debate, it seems that they started mainly as responses to political statements. I further explore the association between the degree of negative emotions, language characteristics and tweet popularity. The analysis shows that offshoring sentiments are rather negative, which is associated with higher levels of tweet popularity, but also that the extent to which a tweet is negative is related to other language characteristics. With populism on the rise, this study addresses public sentiment and the political implications of company offshoring decisions and brings a novel stakeholder perspective on offshoring to the international business literature.

***Keywords*:** offshoring, public sentiment, politics, stakeholder theory.

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1. INTRODUCTION

"*Democratic presidential nominee Joe Biden is proposing a 10% tax penalty on companies that move operations overseas and a 10% tax credit for companies that create jobs in the U.S.*"

(Bloomberg, 2020)

In the heat of political campaigns, news stories like this can trigger political and public debate. International business research has approached company offshoring decisions (i.e., the relocation of business operations to another country) from different perspectives. Various studies look at antecedents and opportunities (Contractor et al., 2010b; O. R. Mihalache et al., 2012; Mudambi & Venzin, 2010a; Zimmermann & Ravishankar, 2016), whereas others focus on the implementation challenges (Kotabe & Mudambi, 2009) and unintended costs (Dibbern et al., 2008; Larsen, 2016; Larsen et al., 2013) associated with decisions to offshore. Large parts of the existing literature acknowledge that offshoring decisions are often controversial for a firm's onshore stakeholders, but the patterns by which the negative sentiment emerges remain largely understudied in the extant research. Although populism is rising in many parts of the world and from both ends of the political spectrum (Mudambi, 2018b), the public perception consequences related to companies' offshoring decisions are rarely discussed by international business researchers.

From a stakeholder theory perspective, the public is an important actor, and the expressed public sentiment can have an impact on companies (Yiu et al., 2021). Individual stakeholders can exercise collective pressure using social media platforms, and depending on the tone of the discussion between individual stakeholders, certain company decisions may receive more or less attention in the online public sphere. Understanding whether and when strategic activities such as

offshoring are mentioned by politicians and elicit negative public sentiment could help companies avoid reputational damage. Thus, it is important to trace public sentiment, and platforms like Twitter make it possible to conduct such studies.

Given the limited international business (IB) theoretical foundation in the public sentiment area, I began to open the black box of public offshoring sentiment by exploratively uncovering (a) when negative tweets about offshoring gained the most traction in the public discourse and (b) which linguistic features characterized negative sentiments. I used a Twitter dataset of 5,456 tweets and replies and LIWC (Linguistic Inquiry and Word Count) software to generate scores for the tone of the discussion. Twitter is a social media platform developed for microblogging and social networking, and it allows the retrieval of data for research purposes. In this study, I found that the sentiment of the tweets on the topic of offshoring were negative overall and that such negative views were associated with higher levels of popularity. Given the availability of public information about the profiles/tweeters and the order of reaction, I also found that the tone of the discussion was driven by a few popular profiles reacting to other media (news articles) headlines, highlighting the importance of the structure and sequence of tweets when analyzing public sentiment. In addition, the study highlights the political presence in the online discussion sphere, as it is mainly consists of reactions to politicians' statements that trigger public reactions. Furthermore, the quantitative analyses show that language characteristics, such as a higher percentage of words focusing on the *past* and *social* concerns, were associated with higher levels of negative word use in the tweets about offshoring, whereas tweets with more cognitive process words were associated with lower levels of negative emotions. These findings highlight the opportunity that is available through natural language processing studies to identify predictors of offshoring sentiments.

This study is a first exploratory attempt to advance theory on the political consequences of offshoring and the role of politicians in the debate about offshoring. The findings have important research and practice implications. First, the study explored public sentiment in the context of offshoring and its politically driven public debate. Therefore, its main contribution is to the international business literature, and more specifically to offshoring and stakeholder theories. The exploratory analysis suggests that the negative consequences of offshoring are overrepresented in the public debate since the IB offshoring literature mainly emphasizes the positive consequences for companies. One important implication of this is that, in the offshoring context, the politically driven negative public debate plays an endogenous role in shaping the negative outcome of a strategic decision, which may contribute to societal gain overall. Second, the study facilitates a debate about the role of public sentiment as an informal actor that can influence political decisions about the business context. This study highlights the importance of popular or political profiles in shaping public sentiment about IB decisions. Thus, the study informs the offshoring literature about the timing of offshoring decisions by accounting for the stakeholder perspective. Arguably, it may not be optimal to engage in offshoring when there is a more intense focus on what politicians say and argue (e.g., during political campaigns).

In terms of implications for practice—and given the public availability of Twitter data—the model can help managers understand the public sentiment around the topic of offshoring in the areas/countries they intend to relocate from and better determine the timing for offshoring decisions. In addition, public sentiment does not solely represent the tone of messages between individuals; these individuals are also prospective employees or stakeholders for the focal (offshoring) companies. Thus, the findings of this study encourage managers to consider political and corporate image consequences when making offshoring decisions.

2. BACKGROUND

The public as a company stakeholder

"*The importance of firm-stakeholder relationships is gaining increasing attention. Although a theory of the drivers and consequences of stakeholder pressure has been developing, it focuses on pressures from organized stakeholders such as shareholders, NGOs, and activists, and does not incorporate the emerging possibility that individual voices may matter.*" (Kim & Youm, 2017, p. 2599)

Although the role of politics for multinational enterprises (MNEs) is recognized in IB research, much of the research on IB and politics has focused on entry modes and government negotiations rather than on the importance of governments and government decisions to MNEs (Rodriguez et al., 2006). Individual voices can affect policies on various topics (D. Lee et al., 2004), so public sentiment is part of the civic dialogue, regardless of whether it is in the online or offline sphere. Given the importance of the public as a stakeholder or actor, it is surprising that the investigation of public sentiment has not received more attention in the international business literature (Yiu et al., 2021).

While the media plays an essential part in shaping public attention (Gamache & McNamara, 2019), individual voices can also direct the tone of public debates and influence formal institutions. Individual stakeholders can exercise collective pressure using social network tools. Thus, depending on the tone of the discussion between individual stakeholders, certain company decisions may receive more attention in the public sphere. In order to remain globally competitive, firms need to receive support from various external stakeholders (Durand & Vergne, 2015; Vergne, 2012),

including the public, and they will try to avoid negative media coverage and disapproval or criticism of their business activities.

Management and strategy research has long argued that firms look for cues, signals, or feedback from external stakeholders when making strategic decisions (Gamache & McNamara, 2019). Positive cues have reputational benefits (Lungeanu et al., 2018), but when negative media coverage affects perceptions of the firm, this results in reputational penalties (Durand & Vergne, 2015). Therefore, the tone of the media coverage is important (Shipilov et al., 2019), and it can have a significant impact at different levels for firms' operations. At the performance level, research shows that when the tone is negative toward the actions of firms, it can lead to a loss of revenues (Jonsson & Buhr, 2011), CEO dismissal (Bednar, 2012), business divestments (Durand & Vergne, 2015), poor employee motivation (Korn & Einwiller, 2013), and enhancement of the reputations of rivals (Paruchuri et al., 2019). In terms of investments, companies can be affected by local and international media coverage. For example, it has been shown that customers' negative messages have a significant influence on analyst stock recommendations (Kim & Youm, 2017). Yiu et al. (2021) find that the host country's public sentiment toward foreign ownership has an influence on the acquirer–target relationship.

Expressed public sentiment can impact political decisions and initiatives (D. Lee et al., 2004). Individual stakeholders can exercise collective pressure using social media platforms, and depending on the tone of the discussion between individual stakeholders, certain company decisions may attract more or less attention in the (online) public sphere. Moreover, language characteristics can work as salient proxies in the evaluation of the tone of individual stakeholders' collective voices. Understanding whether and when activities such as offshoring are mentioned by politicians and trigger negative public sentiment could help companies to avoid reputational damage. Thus, it

is important to trace public sentiment and public debates about sensitive issues, such as company offshoring decisions and the political initiatives that hinder or help companies to make such decisions.

Company offshoring decisions and public sentiments

Offshoring decisions (i.e., relocation of business activities from a home country to a foreign country) are strategic actions taken by companies for various reasons, from cost cutting and efficiency seeking to market and talent access. Different types of sourcing strategies (for a classification, see Mudambi, 2008, p.701) allow firms to benefit from the advantages of geographical locations to gain a competitive advantage (Mudambi & Venzin, 2010b). However, offshoring decisions (i.e., relocation of existing business activities abroad) may trigger public reactions, often leading to labor union protests (Computerworld, 2016; Finextra, 2008; Guardian, 2021).

Opportunities for cost arbitration have traditionally been among the main drivers of offshoring (Größler et al., 2013; Kinkel, 2012). However, recent studies have begun to explore the adverse consequences of offshoring and indicate the existence of "hidden" or "invisible" costs. As examples, recent studies highlight unexpected consequences related to culture, vendor selection, coordination, or knowledge transfer (Larsen et al., 2013; Stringfellow et al., 2008) as well as major consequences for local employment and labor markets (Hummels et al., 2014). Although offshoring is a strategic decision for companies in the long term, often improving companies' chances of survival (Coucke & Sleuwaegen, 2008) and having positive performance implications (Mol et al., 2005), the associated negative costs (i.e., job losses) for society are often more visible. It is well

documented that offshoring decreases the demand for employees performing routine, non-complex tasks (Hummels et al., 2014), accompanied by increases in job loss fears, as employees feel that their job prospects are insecure (Geishecker et al., 2012).

Firms' offshoring decisions often attract negative media attention (New York Times, 2019), mainly because a disaggregation of global value chains hurts low-skilled workers in developed countries (Hummels et al., 2014), and this has been exacerbated by the rise in populism (Mudambi, 2018b). Thus, negative media coverage is not only a tool for revealing firms' behavior but also elicits public negative emotions associated with such firm actions. For example, job loss fears are important for company employees, but they can also become also a concern for labor unions (Refslund, 2012) and politicians.

Opinions and sentiments can quickly trigger collective pressure in the online and offline worlds (Tian et al., 2021), and there is a growing interest in understanding the relationship between international businesses and societal concerns (Rodriguez et al., 2006). Nevertheless, while technology and transportation advancements may provide opportunities to increase trade and globalization, political initiatives may determine whether firms can take advantage of these opportunities (Witt, 2019). Hence, understanding the relationship between public sentiment and national politics on various topics (including offshoring) can help international business and political science researchers to advance the knowledge on the effects of globalization or de-globalization on international businesses.

Negative emotions are a commonly used construct in management research (Shipilov et al., 2019) because "how people react may say a lot about how they cope with the event and the extent to which the event plays a role in the future" (Tausczik & Pennebaker, 2010, p. 32). In the context of offshoring, politicians make promises to bring offshored jobs back to the country for the purpose of

winning elections, while labor unions have often responded with protests (Refslund, 2012) or publicly blamed offshoring companies for not being socially responsible when relocating jobs to foreign locations. This type of politics is arising in many parts of the world and from both ends of the political spectrum (Mudambi, 2018b), so companies need to be aware of the potentially negative public sentiment associated with internationalization decisions.

Given the focus on the negative consequences for employees in onshore locations, I expected that views characterized by a high degree of negative emotion words would be more popular and that certain language characteristics would be associated with lower or higher levels of negative emotions. Social media platforms such as Twitter enable researchers to track public sentiment and better understand the heterogeneity of the discussion on various topics, including the extent to which politicians trigger positive or negative sentiments around topics such as offshoring. Moreover, text analysis tools allow researchers to delve into the language characteristics of the messages and interpret the online context of the messages or views about a topic.

3. METHODS

Empirical approach

This study used *passive netnography*[13] as a research method for collecting primary data about public sentiment regarding the topic of offshoring. Netnography is an observational form of internet-based research that is increasingly used for studies in, among others, the fields of business, economics, marketing, sociology, and information systems (Bengry-Howell et al., 2011; Janta et al., 2012), with the purpose of generating rich, detailed representations of online experiences (Costello et al., 2017).

According to Kozinets (2010), netnography platforms (i.e., sites from which data are collected) should be relevant, active, interactive, substantial, and heterogeneous, and the following steps should be followed in the data collection process: research planning, entry into the online space, data collection, data interpretation, ethical standards, and research representation. Although most studies follow these recommendations, others have applied adapted versions. For example, some have argued that the public nature of online spaces does not require seeking informed consent (Janta, Lugosi, Brown, et al., 2012). I retrieved data from Twitter—a public social platform—but did not include any actual tweet examples from collected data in my analyses (Williams et al., 2017)[14].

[13] Depending on the degree to which the researcher participates in the online discussion, netnographic studies range from non-participatory/passive to participatory active/approaches (Costello et al., 2017)

[14] Although the study would benefit from integrating actual tweet messages, the lack of internationally recognized research guidelines in the area is a clear limitation.

The research question of this studyexplorative, and thus it constitutes an attempt to develop an initial understanding of a phenomenon. Therefore, I focused on the first instance of the descriptive statistics of the data. However, to get an idea about the association between negative emotions and examine popularity and language characteristics, I conducted a sentiment analysis and ran tests using fractional regression models[15]. Complementing netnography with other forms of research can help confirm or reject the positions identified via the netnography steps (e.g., Gilchrist & Ravenscroft, 2011).

With the help of descriptive statistics and text analyses, this study aimed to capture characteristics of the public sentiment on the topic of offshoring. The first part of the findings provides a contextual description of the collected tweets, focusing on the descriptive statistics of the retrieved data. More specifically, I provide a description of the political context that was driving the discussion on offshoring at the time of data collection by identifying the chronological order of the most popular tweets and analyzing their characteristics. Then, I employ quantitative methods to provide an overview of the pool of collected tweets and replies related to the topic of offshoring, using a text analysis lens. Since the first part is a qualitative assessment and only the most popular tweets are discussed, the second part is quantitative in nature and focuses on associations between the constructs of negative emotions, tweet popularity, and language characteristics. Sentiment analysis is a quantitative method commonly used to assess written texts and to understand people's feelings or attitudes about organizations, events, or brands (Agarwal & Bhattacharyya, 2005; Pang & Lee, 2008). This method has recently started to gain attention among international business researchers as well (Yiu et al., 2021).

[15] Because the negative emotions variable is fractional in nature, I used fractional regression models, as recommended by business researchers (Wulff & Villadsen, 2020).

Twitter as a data source

Management researchers have applied text analysis in various ways and to different types of text (e.g., public texts to study disapproval of organizations based on media reports; Vergne, 2012). In terms of sources of text data, tapping into online datasets is crucial because such data reflect people's online portraits and often have the power to change their beliefs and behaviors.

Twitter is a social media platform where users post short texts, thus representing an excellent setting for sentiment analysis research (e.g., Sharma et al., 2020). While it is particularly popular in the United States, the platform has more than 200 million monetizable active users globally (Statista, 2021). Twitter has become an important research setting for business research as well (Ciechanowski et al., 2020). For example, Sharma et al. (2020) relies on Twitter data to analyze the issues faced by the firms and the strategies adopted at the beginning of the COVID-19 pandemic. Others Twitter studies have analyzed tweets in relation to riots (Procter et al., 2013), social changes (Oh et al., 2015), natural disasters (Lachlan et al., 2016), health issues (Cassa et al., 2013; Chew & Eysenbach, 2010; Scanfeld et al., 2010), or responses to political initiatives (Davis et al., 2017). Such analyses are not only relevant for research; collecting data in real time, over a period of time and quickly (as opposed to surveys) constitutes a real advantage when urgent political decisions need to be made. For researchers, the main advantage of using Twitter data for academic research is that it may be possible to retrieve data faster than through a survey. Twitter allows researchers to retrieve data for research purposes for free by applying for Search Application Programming Interface (API) access[16]. Although as part of creating a Twitter profile and posting messages on this platform users consent that their information may be collected and used by third

[16] See more details about access at https://developer.twitter.com/en.

parties, legal and ethical issues related to informed consent are the main challenge of using such data for research (Williams et al., 2017).

Data collection and measures

For my analyses, I used Twitter Archiver (Ciechanowski et al., 2020) software for collecting data from Twitter. I collected daily data by retrieving all the messages posted between 22/09/2020 and 09/11/2020 on the topic of offshoring. The time period for collecting the tweets coincides with part of the US election campaign period and presidential candidate Joe Biden's announcement that he planned to support businesses that create jobs in the US and levy tax penalties on companies that offshore (Bloomberg, 2020). Although this is a short time period, the sample i) captures immediate discussions on the topic of offshoring, and ii) it links the discussion directly to political decisions that may affect companies in the future.

Twitter Archiver automatically retrieves information based on certain conditions. In this case, the software only retrieved data if a tweet contained the word "offshoring" together with its affiliated replies and retweets. Next, I used LIWC software to generate various text scores. LIWC is a text analysis program with dictionaries developed by psychologists and researchers that counts words and groups them into categories (Pennebaker et al., 2015; Tausczik & Pennebaker, 2010).

I assessed tweet popularity with the help of retrieved information on the number of times a tweet was liked by Twitter users via the favorites button. Negative emotion (%) represents the percentage of words in the tweet that are found in the LIWC dictionary related to negative emotions. This is a well-established measure in strategy research (Shipilov et al., 2019). The variable negative emotion (%) is measured as a proportion and is automatically generated by the LIWC software.

In the discussion of the results, I provide more details about the relevance of the three constructs and why these are relevant in the offshoring debate[17]. The three chosen constructs, *Cognitive*, *Past*, and *Social*, are less commonly used in business research but are often used in psychology research and by text analysis researchers, such as Tausczik and Pennebaker (2010). *Cognitive* is calculated as the percentage of words in the tweet that are found in the LIWC dictionary related to cognitive processes, including subcategories such as insight or causation. *Social* refers to the percentage of words in the tweet that are found in the LIWC dictionary related to social concerns, and *Past* is a measure of the share of words in the tweet that are found in the LIWC dictionary related to past-oriented words. In order to explain public sentiment through text analysis of Twitter data, several factors must be considered. I included *Word Count*, a traditional text analysis variable that controls for the length of the text being analyzed, as well as various variables related to the specificity of the online platform. Namely, I accounted for tweet characteristics, such as *Tweet Link (d)* and *Favorites*, as well as for Twitter profile characteristics, such as *Profile Followers*, *Profile Follows*, *Profile Age (Days)*, and *Profile Website (d).* A short description of these measures is provided in Table 1.

[17] A potential fruitful research opportunity is to conduct studies that account for other language characteristics in combination/comparison with other data sources; however, this is beyond the scope of this study.

Table 1. Variable description

Variable	Description	Source
Tone	*Tone* puts negative and positive emotion-related words into a single summary variable; the algorithm is built so that the higher the number, the more positive the tone.	LIWC
Negative emotion (%)	Percentage of words in the tweet that are found in the LIWC dictionary related to negative emotions (e.g., hurt, ugly, nasty)	LIWC
Cognitive (%)	Percentage of words in the tweet that are found in the LIWC dictionary related to cognitive processes, including subcategories such as insight and causation (e.g., cause, effect, hence)	LIWC
Social (%)	Percentage of words in the tweet that are found in the LIWC dictionary related to social concern (e.g., talk, us, friend)	LIWC
Past (%)	Percentage of words in the tweet that are found in the LIWC dictionary related to past-oriented words (e.g., went, ran, had)	LIWC
# Word Count	Number of words in the tweet text	LIWC
Tweet Link (d)	Dummy variable taking the value of 1 if the tweet text includes a link	Twitter Archiver
Favorites	Number of "likes"	Twitter Archiver
# Profile Followers,	Number of followers	Twitter Archiver
# Profile Follows	Number of profiles followed	Twitter Archiver
Profile Age (Days)	The age of the profile	Twitter Archiver
Profile Website (d)	Dummy variable taking the value of 1 if the Twitter profile has a website reference in the profile description	Twitter Archiver

4. FINDINGS AND DISCUSSION

The aim of this study was to uncover (a) when negative tweets about offshoring gained the most traction in the public debate and (b) which linguistic features characterized negative sentiment. The remainder of this section is structured as follows. First, I inspect and illustrate the features of the collected data by looking at summary statistics, profile locations and age since Twitter account creation. In order to understand Twitter public sentiment in the offshoring context it is important to provide some details about what drives the discussion. Consequently, in the second part of this section I describe the most common words used in the debate and examine characteristics of the most liked tweets by looking at the debate chronologically. In the last part of this section, I explore the linguistic patterns of the tweets by looking at associations between language characteristics and the degree of negative emotions.

Summary statistics

Table 2 and Table 3 present the descriptive statistics and correlations for the main variables used in the sentiment analyses. In the sample of tweets about offshoring, 43.4% of the text messages were initiated messages, whereas 56.6% were replies to existing tweets. The profiles engaging in the discussion about offshoring were active, on average, 2,288 days on Twitter and followed 1,570 other Twitter accounts. Some of them (35%) also added a website link to their profile, and the average profile popularity was 42,179 followers. In terms of the tweets being posted, the average length was 34 words, with 42% of them containing external links. The tone of the discussions was rather negative (43.42 out of 100), and the negative emotion words ranged between 0% and 33% of the tweeted text. A tweet (tweet or reply) received 2.2 favorites or likes on average.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.
Reply (d)	5456	.566	.496
Negative emotion (%)	5456	1.979	3.003
Past (%)	5456	2.354	3.283
Cognitive (%)	5456	8.284	6.574
Social (%)	5456	6.491	6.902
# Words	5456	33.622	17.035
Tweet link (d)	5456	.421	.494
Profile Age (days)	5456	2287.953	1532.86
Profile website (d)	5456	.354	.478
# Favorites	5456	2.188	58.369
# Followers	5456	42179.13	1249735.6
# Follows	5456	1569.932	3940.134

Table 3. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Negative emotion (%)	1.000									
(2) Past (%)	0.067	1.000								
(3) Cognitive (%)	-0.023	0.108	1.000							
(4) Social (%)	0.048	0.040	0.024	1.000						
(5) # Words	0.108	0.161	0.152	0.068	1.000					
(6) Tweet link (d)	-0.126	-0.050	-0.107	-0.067	-0.209	1.000				
(7) Profile Age	-0.012	0.044	0.072	-0.084	0.061	0.109	1.000			
(8) Profile website	-0.052	-0.061	0.011	-0.062	-0.051	0.256	0.244	1.000		
(9) # Followers	-0.019	0.004	-0.015	-0.015	-0.004	0.009	0.041	0.044	1.000	
(10) # Follows	-0.004	0.044	0.017	-0.025	-0.032	0.100	0.165	0.110	-0.002	1.000

The retrieved Twitter dataset allows extracting the location of the user posting the tweet. However, not all users choose to share their locations. For the users that did share their location, I imported those locations into Google Maps and created a map of tweet locations (see Figure 2 below). As can be observed, the collected data contain tweets from profiles around the globe, but some regions are more active in the discussion than others, including North America and Europe[18].

Figure 2. Location of Twitter profiles generated via Twitter Archiver and Google Maps

The retrieved tweets had linked profiles, which allowed me to retrieve the age of the Twitter profile (i.e., year when the profile was created) at the time of data collection. Although this does not say anything about the age of the people who posted tweets in the offshoring debate, it does say

[18] Twitter is banned in China, Iran, and North Korea

something about the type of profiles that were active in this discussion. Figure 3 shows the distribution of the Twitter profiles of certain ages (minimum: less than a year; maximum: 14 years). Interestingly, both newer and older profiles tweeted, retweeted, or replied in the offshoring debate.

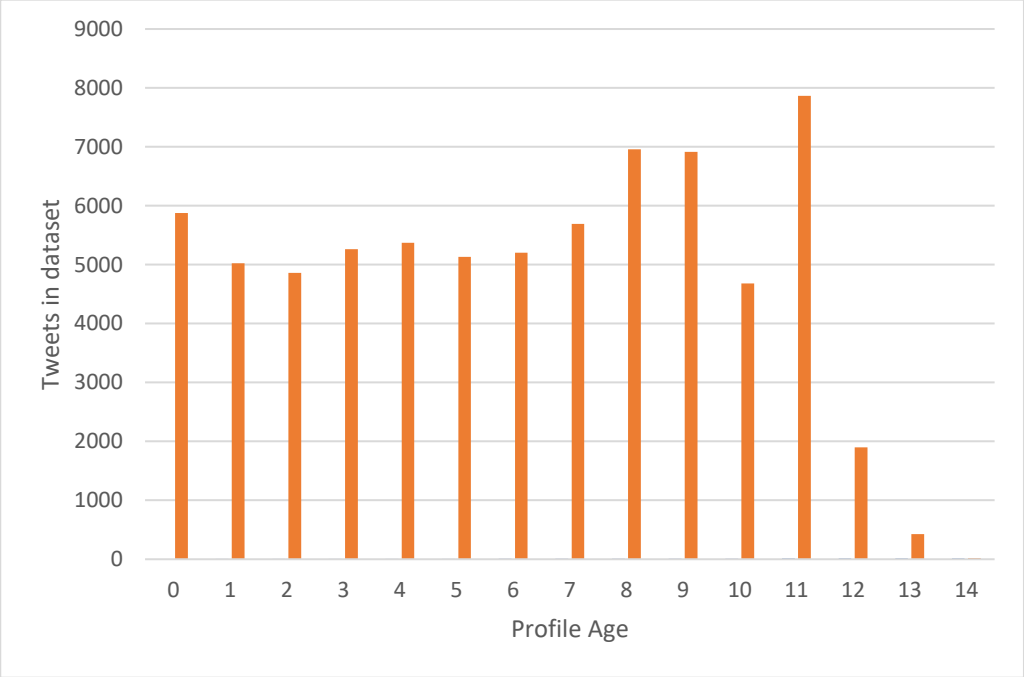

Figure 3. Number of tweets in the dataset by profile age (years)

Commonly used words and most liked tweets

Figure 4 illustrates the most commonly used words by people who engaged in the Twitter conversation on offshoring in my sample (generated using https://www.wordclouds.com). This illustration was created by generating a ranking of the words in the tweets or reply text messages, and the higher the word's position in the ranking, the more visible it is in the illustration. It is clear from the figure that although I collected tweets from all over the world, the most commonly used words around the topic of offshoring were "jobs," "Trump," "Biden," "manufacturing," and

"American." That said, the collected sample is biased towards US reactions and sentiments about offshoring, but most importantly, the sample of tweets also captures a political debate.

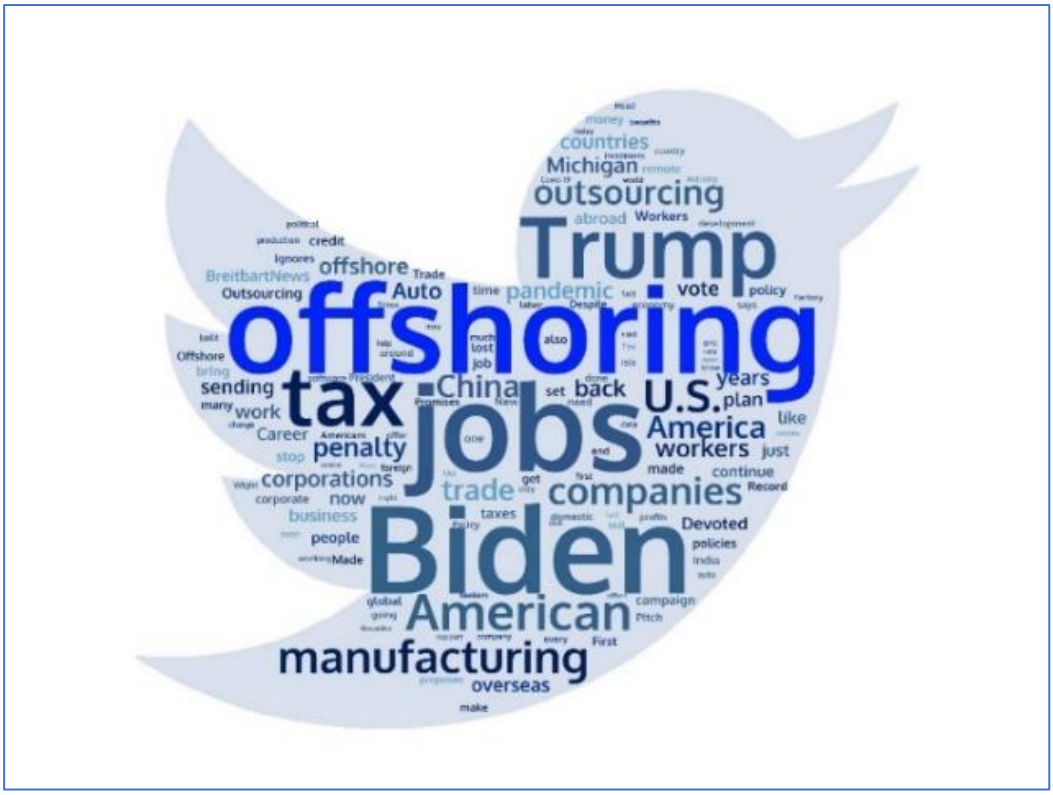

Figure 4. Twitter and offshoring – Commonly used words

The time period for collecting the tweets, related retweets, and replies coincides with the US election campaign period and presidential candidate Joe Biden's announcement that he planned to support businesses that create jobs in the US and impose tax penalties on companies that offshore (Bloomberg, 2020). This announcement came on 09/09/2020, and Joe Biden—then the Democratic presidential nominee—made the following claims during various interviews and speeches:

"*His [Donald Trump] 2017 tax bill slashed taxes on companies that sent production and jobs overseas. Those corporations then make huge profits by shipping these foreign-made products back to the United States to sell to American consumers. […] Look what his tax cut did, the multibillion-*

dollar, trillion-dollar tax cut that went mainly to the very wealthy and to corporate America. What did it do? They got a reward for offshoring jobs." (The Washington Post, 2020)

The Twitter data collected in this paper were retrieved shortly after Joe Biden's announcement and thus capture reactions to this initiative. The first highly liked or popular tweet was on 23/09/2020, followed by a tweet from a verified account of the presidential candidate Donald Trump on 23/10/2020. The latter tweet also contained a link to the above-mentioned Washington Post article analyzing Joe Biden's declarations about Donald Trump's tax cut initiatives. However, this article concludes that the allegations are "*half true*" and that the concerns raised by Joe Biden are "*worth paying attention to, but he cannot express them with such certainty*" (The Washington Post, 2020).

Two weeks later, two other tweets become popular. The first one was from a non-presidential candidate on 26/10/2020 (hereafter *Tweet 1*) and on 29/10/2020, president Donald Trump posts a message (hereafter *Tweet 2*), which is by far the most re-tweeted and liked post in the collected pool of tweets. However, both Tweet 1 and Tweet 2 and the following conversation generated by these tweets is worth looking at more closely because they portray two different political choices and views. When examining the profiles that retweeted Tweet 1 and Tweet 2, two differences are clear. Tweet 2's retweeters tended to be profiles that were newer on the platform than Tweet 1 retweeters' profiles, but Tweet 1's retweeters had more followers on average than the profiles retweeting Tweet 2. Among those retweeting, some mentioned websites on their profiles. Without differentiating between the types of websites mentioned, in general, these profiles were older on the platform and had more followers than those without a website. However, Tweet 2's retweeters had a slightly higher probability of mentioning a website on their profiles than Tweet 1's retweeters.

While technology and transportation advancements may provide opportunities to increase trade and globalization, political initiatives may determine whether firms can take advantage of these opportunities (Witt, 2019). Political statements have the potential to spread quickly considering the attention that is given to such statements, especially during election time. When multiple sides of the political spectrum are sending consistent negative signals on a certain issue, there is a high chance that the discussion will move toward the political initiatives and how they can be more restrictive to solve an issue on which the sides agree.

Looking at the short messages posted in response to the popular Tweets 1 and 2, it can be seen that popular views on offshoring came from individuals with different political views. The tone of these popular tweets was rather negative, mainly as a reaction to political statements. In the US debate on offshoring during the presidential campaign in 2020, it seems that both conservatives and democrats accused each other of not having done enough to keep jobs from being offshored. Regardless of the political view, it seems that popular opinions tended to be negative about offshoring jobs from the US to other locations. Nevertheless, since both presidential candidates engaged in the public debate, it is hard to imagine that their statements did not play a role in the debate. In fact, the most liked tweets were direct or indirect reactions from profiles with many followers who were reacting to other media (news articles) headlines, highlighting the importance of the context when analyzing public sentiment.

Negative emotions and tweet popularity

Next, I explore whether negative emotion words predict the popularity of a tweet in the tweet subsamples (excl. Replies). Model 1 in Table 4 shows the results of the regression analysis (by fitting an Ordinary Least Squares model) on a dependent variable called *FavoritesTweet* (i.e., the

number of times someone “likes” a tweet) and several other control variables. The number of words (i.e., length of a tweet) and number of followers/follows had a significant and positive effect on tweet popularity. Interestingly, profile age had a partially significant (p=0.014) negative impact on tweet popularity. Model 2 also includes the measure of negative emotion words. The effect was significant (p=0.082), and this model predicts that an increase of 10 (e.g., going from 0% negative words to 10%) in the proportion of negative words in a tweet will increase the tweet popularity by 20 “likes.” The R-squared of Model 2 was slightly higher than that of Model 1, indicating that the inclusion of the negative emotion variable helped to better predict the popularity of tweets on the topic of offshoring. Furthermore, with Model 3, I explored whether tweet popularity measured by the number of retweets was affected by the level of negative emotions (Table 4). I did not find significant evidence that negative emotions had a significant influence on the number of retweets as a measure of popularity. However, the number of retweets is not necessarily a good measure of sentiment popularity since Twitter introduced its retweet button for another purpose. Namely, while this button can be used to share tweets, it does not mean that the person retweeting agrees with the written text.

This exploratory analysis suggests that the negative consequences of offshoring were overrepresented in the public debate. If we look strictly at the political initiatives driven by the negative sentiments toward company offshoring decisions, they are simplified and focused on taxing profits. However, the IB literature findings are mixed and inconsistent with regard to the causality between offshoring and financial profits, ranging from no relationship (Lampel & Bhalla, 2011), to a positive one (Coucke & Sleuwaegen, 2008), to negative performance outcomes (Murray et al., 2005). In addition, there are few studies in the IB offshoring literature on the negative

consequences of company offshoring decisions for society[19], while the positive outcomes have received far more research attention, for example, firm survival (Mol et al., 2005), organizational innovation (Nieto & Rodríguez, 2011; O. R. Mihalache et al., 2012), and productivity in the home region (Castellani & Pieri, 2013). One important take-away of this study is that in the offshoring context, the politically driven negative public debate played an endogenous role in shaping the negative outcome of a strategic decision, which might contribute

to an overall benefit to society.

Table 4. Negative emotions and tweet popularity

	Model 1	**Model 2**	**Model 3**
Dependent variable	# Favorites	# Favorites	# Retweets
# Words	0.076**	0.073**	0.023**
	[0.004]	[0.004]	[0.007]
Tweet link (d)	-1.484	-1.446	-0.174
	[0.117]	[0.121]	[0.613]
# Followers	0.000***	0.000***	0.000***
	[0.000]	[0.000]	[0.000]
# Follows	0.000*	0.000*	0.000**
	[0.011]	[0.011]	[0.003]
Profile Age (days)	-0.001*	-0.001*	-0.000
	[0.014]	[0.013]	[0.051]
Profile website (d)	0.524	0.552	0.632
	[0.562]	[0.538]	[0.071]
Negative emotions		18.869	3.721
		[0.082]	[0.338]
N observations	2369	2369	2369
R^2	0.854	0.855	0.809
Note: 1st line coefficient, 2nd line p-value			

[19] Exceptions are trade studies (e.g., Hummels et al., 2014) highlighting the lower demand for routine tasks and higher demand for knowledge-intensive tasks in onshore locations and the hidden costs literature (e.g., Larsen, 2016) on the unforeseen challenges companies experience when making offshoring decisions.

Negative emotions and language characteristics

Given how widely companies' offshoring decisions are discussed in the media and politics (Financial Times, 2019; New York Times, 2019; Reuters, 2017; Wall Street Journal, 2016) and thus their potential to shape the public perceptions about a company, closer scrutiny of the characteristics of negative public sentiment is important. This section of the study approaches the study of negative emotions from a language characteristics perspective. Specifically, I look at variables that capture language characteristics, such as focus on the past, social concerns, and cognitive processes. The three constructs are generated based on text analyses, as it is well known that words can reflect personality and a variety of social and psychological processes (Pennebaker et al., 2014). By exploring the rich Twitter dataset, I provide clarifications on the three concepts and conduct statistical analyses to measure the association between them and the overall degree of negative emotions in a tweet.

Focus on past. Based on the same assumption that words can reflect social and psychological processes (Pennebaker et al., 2014), I found that a mix of past tense verbs and references to past events had an influence on the public sentiment related to offshoring. A focus on past tense words such as "had" or "was" often indicated stigma associated with an event. Stigma is a recognized construct in strategy research (Bednar, 2012) because past corporate failures have image consequences for companies (Wiesenfeld et al., 2008), and stigmatized industries experience divestments (Durand & Vergne, 2015). The stigma diffusion process takes time, and similarly, in the case of offshoring, the actors need to talk/write about past experiences or events in order to express stigma. I argue that the more individuals have a past-oriented mindset, the less likely it is

that they will approach the debate on offshoring from a broad perspective that considers both short-term and long-term effects.

Social concerns. The second concept relevant to the debate about offshoring and the public sentiment around it is the use of words related to social concerns. Social concerns can range from situations such as green spaces in a city to more complex topics like climate change. People make inferences about how such things affect people and society and how big the problem is. Often, such debates lead to political discussions and protests if enough people resonate with the cause. One such example is offshoring and the fear that more people will lose their jobs. Losing a job means losing a source of income, which can lead to further financial and personal problems. Such feelings are easy to resonate with, so those affected, their friends and families, and ultimately society may resonate with this problem and seek to find who is to blame for it. In this case, profit-maximizing companies can easily become the target of blame.

Cognitive processes words. Previous studies have found that cognitive processes are reflected in the content of language and words used. Certain words are related to causality; people use them to send messages about events and provide explanations (Pennebaker & Francis, 1996). In the context of offshoring, I argue that when the individuals' language signals a thorough thought process, then the negative sentiments are less pronounced. Companies' decisions to offshore also have benefits for society. First, relocating jobs from within the national borders of a country to another country can have positive performance effects: companies are able to focus and specialize onshore, innovate, and to thrive and create more jobs. Second, jobs are being created in other countries, helping to increase the quality of life in those areas. Thus, it can be argued that there are positive outcomes, both for the onshore and offshore locations. However, such positive effects may

be overlooked in the short term without an informed perspective on the topic of offshoring. As a consequence, the negative public sentiment that companies are leaving people without jobs in a country for the sake of their own profits is a short-term consequences seen in society, which causes people to react.

Model 4 in Table 5 shows the regression model results, with control variables only. On average, the number of words was significantly associated with higher levels of negative emotions, while the number of followers or follows did not have a statistically significant effect. However, a Tweet accompanied by a link was, on average, associated with lower levels of negative emotions in the tweet text. Models 5, 6, and 7 show the results of the base model by nesting language characteristics variables that capture *public sentiment characteristics*, such as focus on the *past*, *social* concerns, and *cognitive* processes.

Based on these preliminary analyses, it seems that tweets with more cognitive process words were associated with lower levels of negative emotion (p=0.000), while a higher percentage of past (p=0.001) and social words (p=0.020) was associated with higher levels of negative word use in the tweets about offshoring.

In the full model (Model 7), a one-unit increase in cognitive process words was associated with 0.6% fewer negative words; meanwhile, a one-unit increase in past words increased the percentage of negative words by 1%, and an increase in social words was associated with a 0.3% increase in the use of negative emotion words. Overall, Model 7 (full-model) had a pseudo R-squared of 0.008, which is higher than the pseudo R-squared of 0.006 for Model 4 (i.e., only with

controls), indicating that the variables *Cognitive*, *Social*, and *Past* improved the empirical model and the prediction of negative word use in relation to offshoring[20].

Table 5. Negative emotions and other language characteristics

DV=Negative emotions (%)	**Model 4**	**Model 5**	**Model 6**	**Model 7**
# Words	0.003***	0.003***	0.003***	0.003***
	[0.000]	[0.000]	[0.000]	[0.000]
	(0.001)	(0.001)	(0.001)	(0.001)
Tweet link (d)	-0.138***	-0.137***	-0.136***	-0.144***
	[0.000]	[0.000]	[0.000]	[0.000]
	(0.019)	(0.019)	(0.019)	(0.019)
# Followers	-0.000	-0.000	-0.000	-0.000
	[0.190]	[0.178]	[0.182]	[0.179]
	(0.000)	(0.000)	(0.000)	(0.000)
# Follows	0.000	0.000	0.000	0.000
	[0.307]	[0.429]	[0.423]	[0.426]
	(0.000)	(0.000)	(0.000)	(0.000)
Profile age (days)	0.000	-0.000	0.000	0.000
	[0.910]	[0.983]	[0.851]	[0.716]
	(0.000)	(0.000)	(0.000)	(0.000)
Profile website (d)	-0.022	-0.018	-0.017	-0.014
	[0.244]	[0.353]	[0.386]	[0.459]
	(0.019)	(0.019)	(0.019)	(0.019)
Past (%)		0.009**	0.009**	0.010***
		[0.001]	[0.002]	[0.000]
		(0.003)	(0.003)	(0.003)
Social (%)			0.003*	0.003*
			[0.020]	[0.015]
			(0.001)	(0.001)
Cognitive (%)				-0.006***
				[0.000]
				(0.002)
Number of observations	5,456	5,456	5,456	5,456
Pseudo R^2	0.006	0.007	0.007	0.008

Note: 1st line coefficient, 2nd line p-value, 3rd line SEs

[20] For consistency purposes, I looked at the subsample differences between tweet texts that were initiated by users and those tweet texts that were replies to an existing text and found consistent results. All three concepts (Cognitive, Past, and Social) behaved similarly in predicting negative emotions as in the full sample, but in the tweets subsample the effects were more salient.

5. CONCLUSION

Firm offshoring decisions often attract negative media attention (New York Times, 2019), mainly because a disaggregation of global value chains hurts low-skilled workers in developed countries (Hummels et al., 2014), complemented by a rise in populism (Mudambi, 2018b). Individual voices can affect policies related to various issues (Lee et al., 2004), and thus public sentiment, whether in the online or offline sphere, is part of the civic dialogue. Given the importance of the public as a stakeholder or actor, it is surprising that the investigation of public sentiment in the international business literatures has not more attention (Yiu et al., 2021). Political statements have the potential to spread quickly considering the attention they are given, especially during election time. When multiple sides of the political spectrum are sending consistent negative signals on a certain issue, there is a high chance that the discussion will move toward the political initiatives and how they can be more restrictive to solve an issue on which the sides agree. Thus, understanding the relationship between public sentiment and national politics related to various topics (including offshoring) could support international business and political science research, advancing the knowledge of the effects of globalization or de-globalization on international businesses.

This study looked at the public sentiment associated with offshoring and examined when negative emotions are more salient in public debates. I used a Twitter dataset of 5,456 tweets and replies and LIWC software to generate scores for the tone of the discussion and the variables of interest (negative emotions, social concerns, past focus, and cognitive processes). I found that the sentiment was rather negative in tweets and replies on the topic of offshoring. Given the availability of public information about the profiles/tweeters and the order of reaction, I also found that the tone of the discussion was driven by a few popular profiles reacting to other media (news articles) headlines, highlighting the importance of the context when analyzing

public sentiment. Moreover, the extent to which tweets were negative increased with higher levels of focus on past and social issues but decreased the more cognitive processes were involved. Specifically, a tweet containing more cognitive process words was associated with lower levels of negative emotion on average, whereas a higher focus on past and social words was associated with a higher level of negative word use in tweets about offshoring. While there is only anecdotal evidence that offshoring is perceived negatively by the public, this study assessed the extent to which negative public sentiment is visible in public conversations and explored whether certain language characteristics can predict the tendency toward negative public sentiment.

Theoretical and managerial implications

The findings of this study have important research and practice implications. This study is a first exploratory attempt to advance theory on the political consequences of offshoring and the role of politicians in the debate about offshoring. Therefore, its main contribution is to the international business literature, and more specifically to offshoring and stakeholder theories. First, the exploratory analysis suggests that the negative consequences of offshoring have been overrepresented in the public debate, as the IB offshoring literature mainly emphasizes the positive consequences for companies. One important implication is that, in the offshoring context, the politically driven negative public debate plays an endogenous role in shaping the negative outcome of a strategic decision that may benefit society overall. Second, the study suggests the role of public sentiment as an informal actor that can influence political decisions about the business context. The findings highlight the importance of popular or political Twitter profiles in shaping public sentiment about IB decisions. Thus, the study provides important information about the timing of offshoring decisions by accounting for the stakeholder

perspective. Arguably, it may not be optimal to engage in offshoring when there is an intense focus on what politicians are saying and arguing (e.g., during political campaigns).

In terms of implications for practice—and given the public availability of the Twitter data—the model can help managers understand the public sentiment-related language characteristics of the topic of offshoring in the areas/countries they intend to relocate from and optimize the timing of their offshoring decisions. In addition, public sentiment does not only represent the tone of messages between individuals; these individuals are also prospective employees or stakeholders for the focal (offshoring) companies. Thus, the results of this study encourage managers to consider the political and corporate image consequences of offshoring decisions.

Limitations and future research

This study is not without limitations. First, it was conducted in a highly salient setting (i.e., US election, where offshoring was at the center of debate) for a short period of time to quickly identify initial patterns exploratively. In order to obtain a better understanding of the debate around this topic, broader studies are required. In addition, the collected tweets were from across the globe[21], but the manner in which the data were collected did not allow identifying the locations of all users, and this could represent be a fruitful research opportunity. The users' location could be essential for determining, for example, whether the public sentiment in countries that "receive" offshoring (e.g., India) is more positive than that in countries in which companies engage extensively in offshoring activities.

Second, the platform is a space for online discussions and thus does not include individuals who choose not to have a Twitter account, those who do not have internet access,

[21] With a few exceptions where Twitter is banned (e.g., China, Iran, North Korea)

and those who choose not to make their (positive or negative) opinions public. In that sense, anonymous surveys better serve the purpose of identifying sentiments or intentions, but they do not allow the observation of a discussion network. Future research could address the issue of sample self-selection and study the differences across various online platforms (e.g., Facebook versus Twitter) or between an online platform debate and a non-public debate forum.

Third, some of the measures used were constructed based on intuition or by borrowing from other studies rather than on solid theoretical arguments from the international business field. This was due to a lack of previous studies on this topic. For example, the popularity measures favorites and retweets are static measures extracted at one point in time (i.e., data extraction). If researchers followed the same data collection approach, the retrieved popularity data might look slightly different in the future. A simple retweet may have suddenly increased the number of times a tweet was liked or retweeted. Therefore, future research could study public sentiment about offshoring more longitudinally or using different measures for popularity.

Forth, LIWC was used for text analysis in this study. Although text analysis tools and dictionaries have been developed and used by many psychologists and experts, a concern with these measures is that they capture categories of words rather than meanings of entire sentences/tweets. For example, the use of metaphors could play an important role in business communication (Jacobsen & Stea, 2019). Future studies could use, for example, language experts to validate whether LIWC dictionaries correctly categorize a tweet as having negative connotations.

Finally, it was beyond the scope of this study to identify categories of users and investigate their networks or the way conversations threads start and end. Network studies could provide a more fine-grained analysis of the way public sentiment circulates, the influential users,

and the communication patterns. Linking external information (e.g., company websites and stock market reactions) to company Twitter accounts could help researchers study the manner in which users react to or engage with company accounts to express positive or negative feelings toward their offshoring decisions.

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THESIS CONCLUSION

Globalization and digitalization developments have pushed firms to rethink their strategies and consider offshoring routine business activities for cost-saving reasons as well as for more complex and knowledge-intensive activities, such as innovation in a race for talent, in order to gain competitive advantage. The existing offshoring literature offers valuable insights, but there is still limited knowledge about the offshoring consequences that go beyond cost considerations or that integrate new theoretical logics. The three articles in this thesis contribute to the international business literature; what specifically links them is their shared contribution to offshoring research. By combining different sources of data and borrowing from international business, strategy, human capital, economics, and stakeholder theory logics, the thesis is an attempt to address the multi-level offshoring effects.

Chapter 1 investigates the wage consequences when hiring new employees after engaging in offshoring decisions and finds that offshoring companies pay higher wages when hiring. Chapter 2 takes a company-level perspective and looks at the onshore performance implications for offshoring companies, depending on their degree of resource redeployability. The findings of this second study highlight the financial importance of focusing on internal hiring or redeployment, especially when companies engage in R&D offshoring or complex offshoring settings. Chapter 3 addresses the consequences of company offshoring decisions for online public sentiment and finds that sentiment is overall rather negative in tweets and replies around the topic of offshoring.

All in all, the thesis attempts to challenge existing findings in the offshoring literature and to inspire international business researchers to think about the effects of offshoring from different angles. Looking forward, the research agenda is far from complete. Although the thesis takes a first step in uncovering multi-level effects, one hopes that it raises even more interesting research questions.

THESIS LIMITATIONS AND FUTURE RESEARCH

This thesis should be assessed considering its limitations. While each article contains in-depth descriptions of context and its limitations, this section discusses the general limitations in terms of the empirical context and topic addressed.

First, there is room for improvement in terms of defining what constitutes an offshoring decision. In this respect, future research should address the fact that past and future offshoring decisions are not independent from each other. This requires census surveys combined with various other sources of data as well as long-term analyses of drivers and consequences for company offshoring decisions at different levels of investigation.

Second, the thesis introduces linkages among offshoring signals, negative publicity, company attractiveness, wage differentials, and company hiring decisions post-offshoring. The empirical setting, while rich in information, does not allow for identification of companies' names along with linking the survey information to media reports or news coverage. Future studies can also expand the models in this thesis and theorize on the response effects post-offshoring to increase or decrease the degree of internationalization.

Third, and mainly in relation to Chapters 1 and 2, while the Danish labor market data linked to surveys on offshoring is quite a unique approach, cross-country comparisons are needed. The Danish welfare state, the country's level of technological development, and the widespread presence of unions may be contextual characteristics that allow companies and employees to make certain types of decisions.

Fourth, throughout the thesis I refer to the idea that offshoring decisions are viewed in a negative manner, while acknowledging that there are also benefits for companies. To really understand how negatively offshoring can be perceived, I exploit publicly available data from Twitter. However, the time period for which the data is collected is short, and because Twitter

users are known to be a certain category of individuals, the findings may not be generalizable across other online platforms. Linking external information (e.g., company websites and stock market reactions) to company Twitter accounts could help researchers study the manner in which users react to or engage with company accounts to express positive or negative feelings toward their offshoring decisions.

Lastly, future research should also uncover how firms benefit from geographically dispersed value chains and leverage location advantages while maintaining resilience in terms of managing certain types of situations (e.g., nationalistic trade policies, pandemics, transport blockages, and scarcity of raw materials, among others).

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