Leveraging and Transferring Management Practices in Organizations
Thomaz Teodorovicz

Leveraging and Transferring Management Practices in Organizations

Dissertation submitted as a partial requirement to obtain the degree of Ph.D. in Business Economics at the Insper Institute of Education and Research.

Supervisor: Prof. Sérgio Giovanetti Lazzarini
Co-Supervisor: Prof. Sandro Cabral

São Paulo
2019
AKNOWLEDGEMENTS

Several individuals and organizations have helped me build this dissertation throughout my years in the PhD program. As these as certainly not few, I will not thank each one of them individually.

I thank my supervisors at Insper, Sérgio Lazzarini and Sandro Cabral, and my supervisor during my period as an International Visiting Research Scholars at the Rotman School of Management, Anita McGahan, for introducing me to the field of Strategic Management and for guiding my development as a strategy scholar. All of you showed me the meaning of “caring” and “nurturing” in both my academic and personal life. As a student, I thank you for the effort you put in my development. A lifetime would not be enough to learn all valuable lessons you three can teach. As a researcher, I thank you for guiding me in these early stages of my career as a strategy scholars. As a person, I can only thank you for your friendship and hope it will last for the many years to come.

I thank the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) for funding this dissertation under grants 2016/18423-3 and 2017/07423-5.

I thank the members of my Dissertation Committee for their insightful comments about my research project. Also, I thank the Insper Instituto de Ensino e Pesquisa for all the incredible research and development opportunities it has provided me since 2015 and for funding me during my first year as a PhD student.

I thank all the amazing friends I made before the PhD, during my PhD at Insper, and during my stay in Toronto. Every morning, afternoon, night, weekday, and weekend of this PhD were great because of all of you. I sincerely appreciate your friendship.

At last and certainly not least, I thank my family for the unconditional support during all professional and personal stages of my life. My parents, stepdad, sisters, aunts, uncles, cousins, grandmother, grandfather, have always been there for me. Without your support, this dissertation would certainly never come to fruition. Thank you all from the bottom of my heart.
ABSTRACT

Strategy focuses on explaining heterogeneous performance across agents, firms, and organizational arrangements. In the last couple of decades, a growing body of empirical research has started to study how heterogeneous adoption to management practices could be a main driver of performance differentials across and within organizations. In this dissertation, I intend to jointly advance these literatures while refining strategic management theory. In my first study, I theoretically argue and empirically verify that traditional resource-based and practice-based explanations of superior performance are intrinsically intertwined. I use data from over 9,000 public and private high schools in Brazil to show that if resources and practices both have a direct effect on performance, resource endowments also affect the adoption of superior management practices. In my second study, I explore how organizations could benefit from strategically leveraging the performance enhancing potential of management practices by investing in partners’ management capital. In a setting of a partnership with Base-of-the-Pyramid entrepreneurs, I use highly detailed data from a single firm to show that investing in partners’ management capital may both boost performance and increase partnership strength. I argue that such dual role for management capital transfer is due to a relational cue given by the firm to a resource-constrained partner. Finally, in my last study I continue studying strategies to leverage management practices by turning my focus to the relative performance of alternative methods to disseminate practices across organizational units. Using two field experiment with real managers from a real firm, I show how the credibility of the individual transferring a practice may be a double-edged sword: while it may enhance practice adoption, it may encourage the adoption of only a subset of practices associated with the source’s expertise. I also show that tacit transfer methods, i.e. methods allowing for interaction between individuals and personalization, outperform explicit transfer methods, i.e. methods without interaction and personalization, in terms of the transfer of previously unscripted knowledge content of a practices. In sum, in this dissertation I cover not only the effects of management practices on performance and actionable strategies to leverage their potential to create value, but I also do it so while proposing refinements and advances to strategic management theory.

Keywords: management practices, human capital, knowledge transfer, insider econometrics
SUMMARY

1 INTRODUCTION .............................................................................................................................................. 6

2 INTEGRATING RESOURCE-BASED AND PRACTICE-BASED EXPLANATIONS OF HETEROGEOUS PERFORMANCE: EVIDENCE FROM EDUCATION SERVICES ................................................................................................................ 13
   2.1 INTRODUCTION .............................................................................................................................................. 13
   2.2 THE COMPLEMENTARITY OF RESOURCE-BASED AND PRACTICE-BASED EXPLANATIONS OF HETEROGEOUS PERFORMANCE ................................................................................................. 16
   2.3 EMPIRICAL CONTEXT AND HYPOTHESES ................................................................................................. 18
   2.4 DATA AND METHODS ................................................................................................................................. 26
   2.5 RESULTS ....................................................................................................................................................... 35
   2.6 DISCUSSION ................................................................................................................................................ 42
   2.7 CONCLUSION .............................................................................................................................................. 44

3 PARTNERING WITH BASE-OF-THE-PYRAMID ENTREPRENEURS: THE DUAL ROLE OF MANAGERIAL CAPITAL TRANSFER .................................................................................................................. 45
   3.1 INTRODUCTION .............................................................................................................................................. 45
   3.2 ENTREPRENEURSHIP AT THE BOP AND HUMAN CAPITAL ........................................................................... 47
   3.3 PARTNERSHIPS AND MANAGEMENT TRAINING AT THE BOP ................................................................... 50
   3.4 DATA AND EMPIRICAL STRATEGY ............................................................................................................... 56
   3.5 RESULTS ....................................................................................................................................................... 64
   3.6 DISCUSSION ................................................................................................................................................ 74
   3.7 CONCLUDING REMARKS ............................................................................................................................ 77

4 EXPLICIT AND TACIT PRACTICE TRANSFER METHODS: EVIDENCE FROM TWO FIELD EXPERIMENTS ............................................................................................................................................ 78
   4.1 INTRODUCTION .............................................................................................................................................. 78
   4.2 MANAGEMENT PRACTICES AND KNOWLEDGE TRANSFER METHODS ...................................................... 81
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3 CONTEXT AND EXPERIMENTAL METHOD</td>
<td>88</td>
</tr>
<tr>
<td>4.4 DATA AND VARIABLES</td>
<td>97</td>
</tr>
<tr>
<td>4.5 RESULTS</td>
<td>102</td>
</tr>
<tr>
<td>4.6 DISCUSSION</td>
<td>120</td>
</tr>
<tr>
<td>4.7 CONCLUDING REMARKS</td>
<td>124</td>
</tr>
<tr>
<td>5 CONCLUSION</td>
<td>125</td>
</tr>
<tr>
<td>5.1 MAIN CONTRIBUTIONS</td>
<td>125</td>
</tr>
<tr>
<td>5.2 DIRECTION FOR FUTURE RESEARCH</td>
<td>128</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>130</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>145</td>
</tr>
</tbody>
</table>
1 INTRODUCTION

Strategy focuses on explaining heterogeneous performance across agents, firms, and organizational arrangements. Although past research in strategic management focused on exploring the role of environmental conditions and strategic interplay to explain performance heterogeneity, theoretical and empirical agendas have shifted towards a greater emphasis on firm-level drivers of performance disparity (McGahan and Porter 1997; Syverson 2011). Within this tradition, extant research has studied how aspects as human capital (Wang, He, and Mahoney 2009b; Coff 1997) and organizational learning (Argote and Ingram 2000; Szulanski 1996) affect firms’ abilities to create and capture value and increase performance in terms of increased productivity and higher profitability.

Recently, an emerging topic which has been heralded as a main driver of performance differentials across and within organizations is the adoption, transfer, and leverage of management practices (Bloom et al. 2012, 2014; Bromiley and Rau 2014). The study of heterogeneous management practices in strategic management has been influenced by Nelson and Winter’s definition of organizational routines (Nelson and Winter 1982) and Porter’s definition of organizational systems comprised of a set of complementary activities that reinforce one another (Porter 1996). In both cases, procedures, guidelines, and modes of action to articulate and implement organizational resources and processes are thought to be crucial to understand an organization’s performance. Since the early 2000s, nonetheless, a prominent and predominantly empirical literature in strategic management and organizational economics has investigated how heterogeneous adoption to a pool of management practices is an important driver of performance heterogeneity both across organizations and across subunits of the same organization (Bloom, Sadun, and Van Reenen 2012; Bromiley and Rau 2014; Ichniowski, Shaw, and Prennushi 1997; Shaw and Ichniowski 2013a). Cross-national studies found a positive influence of performance management, target-setting, human capital management, and other managerial practices both on the performance of manufacturing firms (Bloom et al. 2012) and in the context of public-oriented services as hospitals and schools (Bloom, Propper, et al. 2015; Bloom, Lemos, et al. 2015).

However, despite the growing body of research on the topic, organizations still fail to adopt practices which have been consistently associated with superior performance (Bloom et al. 2012) while also failing to transfer across its subunits those practices which have already been linked to
superior performance (Szulanski 1996; Argote and Ingram 2000). Further, despite some attempts to propose an economic model linking practice adoption to performance (Bloom, Sadun, and Van Reenen 2016), practice-based explanations of heterogeneous performance (Bromiley and Rau 2016a, 2016b) is yet to be coalesced with existing strategic management theory regardless of its orientation towards private or public value creation (Cabral et al. 2019). Such articulation is necessary as viewing management practices as technologies adopted by different firms (Bloom et al., 2016) provides a partial view of the causes of performance heterogeneity once the menu of management practices is endogenous to the resource endowments an organization possesses.

In the three chapters that follow, I assess how to leverage the potential of management practices across a broad range of organizations in terms of both private and public value creation. In doing so, I use existing theory about practice-based explanations of organizational performance (Bromiley and Rau 2014), strategic human capital theory (Riley, Michael, and Mahoney 2017), and knowledge transfer (Szulanski 1996; Argote and Ingram 2000; Szulanski, Ringov, and Jensen 2016; Argote and Fahrenkopf 2016). Further, when addressing socially-oriented contexts, I explore how the interplay between organizational resources and management practices affect both service beneficiaries and external service partners, potentially dialoguing with the current debates of stakeholder management theory (Barney 2018). Namely, I show how performance may also hinge on the set of practices an organization adopts to manage its relationship between with different types of external stakeholders (e.g. service beneficiaries, partners, etc.).

All three chapters encompass empirical studies employing econometric methods ranging from differences-in-differences to synthetic control and field experiments. Adopting these methods, with emphasis on conducting field experiments to develop strategy research, meets the need voiced in the Strategic Management Division Plenary Session at the 2018 AOM Annual Meeting, claiming that as the field of strategic management has historically emphasize theoretical contributions to empirical rigor, the applicability of the field in real world situations may suffer from the overload of unproven theories. In particular, chapters 3 and 4 use the approach known as

---

1 Private value is usually conceptualized as the difference in customer’s willingness to pay for a certain product/service minus the costs associated with its production (Brandenburger and Stuart 1996; Adner and Zemsky 2006). A recent literature has proposed that public value is a more convoluted concept than private value as it involves collective implications, an association with the process that gives rise to such value, and whose repercussions involve stakeholders not necessarily involved in the value creation process (Cabral et al, 2019). Here, I interpret the concept of public value as equivalent to the concept of social value proposed by Kivleniece and Quelin (Ilze Kivleniece and Quelin 2012) as the “new and appropriable benefits to society for which it directly – as consumers – or indirectly – as taxpayers – is able and prepared to pay”.

---
**insider econometrics**: a combination of in-depth knowledge of an organization’s day-to-day operations and the application of techniques from the econometrics of policy evaluation to highly detailed (and often unavailable) datasets from a single organization, to achieve causal interpretations about the phenomena of interest (Shaw and Ichniowski 2013b).

In chapter 2 – based on joint research with Sérgio Lazzarini, Sandro Cabral, and Leandro Nardi – we explore the theoretical interrelatedness of pre-existing resource endowments (e.g. human capital and technological resources) and management practices (e.g. routines and activities to manage internal operations and external stakeholders) as determinants of organizational performance. We develop two ideas. First, we propose that resources have a “practice-enabling role” of allowing organization to adopt performance-enhancing practices, i.e. while practice heterogeneous resource endowments creates different constraints to the selection of management practices. Second, the potential value of existing resources is a function of the prevailing (and endogenously-defined) practices characterizing an organization’s production function (Bloom, Sadun, and Van Reenen 2016). Thus, practices have a “value-enabling role” as the presence/absence of complementary practices affects the extent to which an organization can create value using resources.

Addressing a call to expand strategic management research to settings involving public and private actors (Cabral, Lazzarini, and Azevedo 2013; Mahoney, McGahan, and Pitelis 2009), we test the theoretical propositions using data from over 9,000 public and private high schools in Brazil. We show that internal operations and external stakeholder engagement practices are associated with superior performance in terms of student learning. Also, human capital, in the form of skilled teachers, promotes the adoption of performance-enhancing practices. Our empirical findings confirm that practices *along* with resource endowments explain heterogeneous performance and that resources influence performance *directly* and *indirectly*: distinct resource endowments will influence the propensity of an organization to adopt sets of practices. Thus, practice-based (Bromiley and Rau 2014) or resource-based (Peteraf 1993; Wernerfelt 1984; Barney 1991) explanations of superior performance are incomplete if either the practice-enabling role of resources or the value-enabling of practices are not explicit. Further, expanding research of

---

2 The “practice-enabling” role of resources is exemplified by cases where, for instance, an organization lacks skilled managers or technical systems to implement a complex practice as an incentive payment system. The “value-enabling” role of practices is exemplified by cases where such incentive payment system leads to increased performance by incentivizing skilled employees to achieve superior performance levels.
organizations whose value proposition entails the creation and distribution of value to external stakeholders (Klein et al. 2010; Mahoney, McGahan, and Pitelis 2009; McGahan, Zelner, and Barney 2013; Cabral et al. 2019), we find that resources and practices mediate the relationship between public or private forms and performance. This concern is particularly relevant considering that private firms have progressively promoted services with relevant social externalities, often via hybrid public-private arrangements (Baum and McGahan 2009; Boycko, Shleifer, and Vishny 1996; Cabral, Lazzarini, and Azevedo 2013).

Chapter 2 also indicates several ways in which we can further develop the study of heterogeneous practices. For instance, the proposed resource-practice linkage advanced in that Chapter adopts a short-term time frame (resource endowments are relatively fixed). A natural development is to study how organizations (could) adapt when prevailing practices limit the value-creation potential of existing resources. Indeed, such development partially motivates the literature on how the use of internal (Crook et al. 2008; Campbell, Coff, and Kryscynski 2012) and external (Riley, Michael, and Mahoney 2017) labor markets, as well as in-house training (Balmaceda 2005; M. Hoffman and Burks 2017) may increase the stock of management capital. In Chapter 3, I establish a dialogue with this literature by assessing the performance outcomes and underlying mechanisms of a strategy to mitigate the scarcity of management capital in a context which has drawn the attention of some management scholars over the recent years: a partnership between an established organization and Base-of-the-Pyramid (BoP) entrepreneurs.

As organizations have exhibited a growing interest in reaching out and developing entrepreneurial opportunities catering to BoP markets (Prahalad and Hart 2002), they have also adopted partnerships with local individuals (here called BoP entrepreneurs) as a supply chain strategy (Khalid and Seuring 2017; Sodhi and Tang 2014; Kistruck et al. 2011; An, Cho, and Tang 2015). A challenge from such partnerships is that BoP entrepreneurs seldom possess basic education, let alone management capital, to leverage performance (Bruton, Ketchen, and Ireland 2013; Bruhn, Karlan, and Schoar 2010; Bloom et al. 2012; Sutter, Bruton, and Chen 2018). In this context, organizations face a dilemma of whether to invest or not in transferring management knowledge to local partners. One the one hand, developing partners’ management capital could both increase private value capture and leverage impoverished individuals out of poverty (Sutter, Bruton, and Chen 2018). On the other hand, traditional strategic human capital theory dictates that firms should not make such investment in a generic form of human capital (Becker 1962; Bruhn,
Karlan, and Schoar 2010) and they would not necessarily capture the extra value created by it (Coff 1997, 1999; Frank and Obloj 2014a). Further, the inability to capture such value would be even greater in BoP setting, where partnerships often have a ‘fluid’/short-term feature (Hystra 2013). In chapter 3, I respectfully challenge the view that organizations should not invest in the formation of generic human capital (in particular, in the form of management capital) targeting their partners.

I partnered with SalesNow, a direct sales company targeting low and medium-to-low income markets. SalesNow sponsors a micro-entrepreneurship partnership program through which local individuals, often at the BoP, become ‘local managers’ of a team of other sales representatives. I use a training program targeting novice local managers and a highly detailed proprietary dataset encompassing local managers’ sales performance for over three years to estimate the value of the partnership and the effects of transferring management capital to BoP partners. Addressing a recent branch of literature in strategic human capital (Campbell, Coff, and Kryscynski 2012; Molloy and Barney 2015; Riley, Michael, and Mahoney 2017), the findings suggest a dual role of transferring general human capital in the form of management capital to BoP partners: (1) a first order effect of increasing partnership performance; and (2) a second order effect of prolonging, rather than reducing, the firm-entrepreneur partnership at the BoP. This dual role is interpreted as firm-sponsored managerial training acting as a relational signal of commitment, and of potential future gains, to the local partner (Baron and Kreps 2011; Wang, He, and Mahoney 2009b). These results advance prevailing literature in strategic human capital (Coff 1997) by suggesting that organizations can indeed capture value when transferring generic human capital to partners as such transfer may act as a relational signal to partners. As a result, other than the simple productivity gains associated with enhanced human capital, such transfer may prolong the partnership.

If the chapter 3 addresses the creation of management capital by means of general human capital training, it has not covered the dissemination firm-specific management capital as day-to-day practices believed to be associated with superior performance given an organization’s idiosyncratic production process. Indeed, the importance of practice transfer across subunits from a common organization is a topic that has explored by the literature on organizational learning (Dierickx and Cool 1989; Kogut and Zander 1992; Zander and Kogut 1995; Teece, Pisano, and Shuen 1997; Argote and Ingram 2000; Szulanski 1996; Szulanski, Ringov, and Jensen 2016;
Argote and Fahrenkopf 2016; Haas and Hansen 2007; Ocasio, Rhee, and Milner 2017). However, despite the advances of this literature, organizations still find it difficult to transfer practices and invest in unsuccessful practice transfer initiatives (Reus et al. 2009).

A partial explanation for failed practice transfer initiatives is that while there may be a potential (mis)fit between what practice is being transferred and how such transfer happens (Reus, Lamont, and Ellis 2016; Haas and Hansen 2005; Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017), developing causal evidence on the trade-offs across different, and often endogenous, practice transfer initiatives is challenging. In chapter 4, I address these challenges by partnering again with SalesNow and implementing exogenous changes in practice transfer methods. By means of two field experiments, I assess the relative performance of practice transfer methods in terms of their potential to transfer bundles of practices. The first experiment assesses whether a credible knowledge source (Szulanski 1996), i.e. an individual responsible for sending the practice who is perceived as knowledgeable about such practice, complements explicit transfer methods, i.e. methods involving little to no interaction and personalization in the transfer process (Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017). The second experiment addresses the performance of a tacit method, i.e. a method allowing for interaction between individuals and personalization in the transfer process (Szulanski, Ringov, and Jensen 2016), in terms of the transfer and adaptation of non-codified and unscripted practice components (Kostova 1999; Kostova and Roth 2002; Kostova and Zaheer 1999).

Results support that knowledge source credibility, although suggested by the previous literature as a factor that may promote knowledge dissemination (Szulanski 1996), may complement a transfer method for a subset of practices while undermining the transfer of practices detached from the credibility. Moreover, I empirically show that tacit practice transfer method allows for transferring knowledge content outside the codified scope of an explicit transfer initiative while leading to the adoption of a practice in previously unscripted manners, i.e. adaptation of a practice (Kostova 1999; Kostova and Roth 2002; Kostova and Zaheer 1999). These findings complement the literature on organizational learning by providing causal evidence of how the success of a practice transfer initiative depends on the fit between the knowledge content underlying the to-be-transferred practice and the method used to support the transfer process.

In sum, throughout chapter 2 through 4, I explore how management practices may leverage public and private value creation, as well as how to leverage management practices themselves in
an organization. Chapter 2 addresses a linkage between resources and practices in a context mainly dominated by a socially oriented activity (education). Chapter 3 incorporates organizational choice to leverage general human capital training as a mechanism to improve management practices and performance while also strengthening the relationship between an organization and its local partners at the BoP. Chapter 4 builds upon the literature on organization learning to address the challenges of leveraging firm-specific knowledge in form of and poorly disseminated practices. It focuses on understanding the relative effectiveness of alternative practice transfer methods within an organization. After the main three chapters, in the last chapter, I conclude this dissertation by summarizing the main contributions and suggesting directions for future research.
2 INTEGRATING RESOURCE-BASED AND PRACTICE-BASED EXPLANATIONS OF HETEROGENEOUS PERFORMANCE: EVIDENCE FROM EDUCATION SERVICES

2.1 INTRODUCTION

Strategy scholarship is essentially focused on studying the sources of heterogeneous performance across organizations (McGahan and Porter 1997; Rumelt 1991). Resource-based arguments have been widely used to explain organizational performance as a function of distinct endowments resources as human capital, organizational capabilities, technological resources, among others (Barney, Wright, and Ketchen 2001; Teece, Pisano, and Shuen 1997; Riley, Michael, and Mahoney 2017; Aral, Brynjolfsson, and Wu 2012). However, a recent literature has emphasized a distinct source of performance heterogeneity: the unequal adoption of management practices, i.e. procedures, guidelines, and modes of action to articulate resources and implement organizational processes (Bloom et al. 2012; Bromiley and Rau 2014). While resources roughly define what the company is capable of doing, practice adoption indicates what the firm effectively does. The emphasis on practices builds on early management work on organizational routines (Nelson and Winter 1982) and has more recently received attention in the economics literature (Bloom and Van Reenen 2007; Bloom et al. 2012). Although some practices are, in principle, observable, imitable, and even replicable across organizations, they seem to be imperfectly distributed across firms (Hackman and Wageman 1997; Bloom et al. 2012). For this reason, strategy scholars have recently renewed the research on practices as a key performance drivers (Bromiley and Rau 2014; Vermeulen 2017b).

In this paper, we argue that resource-based and practice-based arguments are intrinsically connected and that their joint articulation can improve our understanding of sources of superior performance. Our argument is twofold. First, even if practice adoption varies across organizations, heterogeneous access to strategic resources could explain organizational capacity to adopt a priori imitable practices. We claim that managerial discretion in selecting practices is constrained by

---

3 This Chapter is based on a paper coauthored with Sergio Lazzarini, Sandro Cabral, and Leandro Nardi.
4 Although we recognize that the term “practice” is mainly used as in the “strategy-as-practice” research (Jarzabkowski et al., 2016; Jarzabkowski and Spee, 2009), our work uses the term as linked to the “structured” practice perspective (Bloom et al. 2014).
existing resource endowments. For instance, even if human resource practices are widely available and well known, managers may lack the necessary skills or technical systems to implement them (R. Gibbons and Henderson 2012). Second, although the ability of an organization to change its strategic resources is limited in the short-run, the value of these existing resources can substantially change given the prevailing practices. For instance, imagine a school had an extremely competent administrative staff in terms of their potential to build relationships with local communities. This skill may lead to superior performance to the extent that the school staff could leverage their relationship-building abilities to raise school funds. However, imagine this school could adopt one out of two practices: open the school on the weekend to hold civic events, or close the school during every weekend to conduct cleaning and repairing activities. Although both practices may seem meritorious, one of them may better complement the existing relationship-building skills held by the administrative staff.

Therefore, differential practice adoption becomes a key variable conducive to superior performance, beyond the effect normally attributed to resource heterogeneity. In other words, in our proposed model, organizations may have superior performance not only because they have distinct resource endowments or practices, but also because organization-specific resources allow and do not limit these organizations to adopt superior, distinct practices. Along these lines, the existing ownership structure in the organization may influence managerial incentives and organizational design decisions (Brynjolfsson and Milgrom 2013) that can foster/hinder the adoption of performance-enhancing practices.

We propose a set of testable hypotheses examined in the context of education activities. We benefit from a rich dataset covering over 9,000 (public and private) high schools in Brazil with around 800,000 students. We build our hypotheses and empirical tests based on three conceptual blocks: (1) the relationship between practices and performance; (2) the connection between resources and practice adoption; and (3) how resources and ownership structure (public or private) jointly affect practice adoption. We show that the adoption of a set of practices associated with schools’ internal operations and engagement with external stakeholders leads to superior school performance, in terms of both student learning and willingness to pay for education services. Next, we find that the presence of human capital in the form of skilled teachers promotes the adoption of such performance-enhancing practices at the school level. We show how ownership structure also affects performance indirectly by influencing the propensity of managers to adopt superior
practices. If practice adoption provides a partial explanation for the relationship between ownership and performance (private organizations adopt practices that are more conducive to performance vis-à-vis their public counterparts), existing resource endowments can stimulate the adoption of superior practices even under weak incentive structures.

By viewing resources and practices as complementary sources of performance heterogeneity, our approach builds upon existing perspective on the role of practices (Bloom and Van Reenen 2007; Bromiley and Rau 2014; Bloom et al. 2012; Bloom, Sadun, and Van Reenen 2016) and provides important contributions to the literature. Our empirical results confirm that both practices and resource endowments are crucial in explaining heterogeneous performance, thus opening new research avenues to explain their interplay. Specifically, we argue and empirically demonstrate that resources influence performance directly and indirectly: distinct resource endowments, such as the presence of skilled teachers, not only explain superior performance but also greatly influence the propensity of an organization to adopt sets of valuable practices. Our results show that practice-based explanations of superior performance are incomplete if they ignore that heterogeneous resources may constrain the adoption of performance-enhancing practices. Conversely, resource-based explanations are incomplete if they neglect that resources may not only affect performance directly but also indirectly, by fostering valuable practice adoption.

Additionally, by exploring the interplay between ownership structure and practice adoption, our results unveil an alternative channel through which distinct organizational patterns can affect performance. We show that private schools, compared to public schools, are more likely to adopt performance-enhancing practices, possibility because of their higher-powered incentive systems and more autonomous decision rights (Baker, Gibbons, and Murphy 1999; Williamson 1999). However, the negative effect of public ownership is reduced in the presence of skilled teachers, thus suggesting that the enabling role of human capital; as a critical resource, human capital not only influences practice adoption but also enables an ownership structure to leverage its potential. Thus, practices and resources jointly explain inter-organizational performance differences that could be directly attributed to distinct organizational patterns. All in all, our work unveils a complex interplay between performance, practices, resources, and ownership structures.
2.2 THE COMPLEMENTARITY OF RESOURCE-BASED AND PRACTICE-BASED EXPLANATIONS OF HETEROGENEOUS PERFORMANCE

Resource-based explanations of organizational performance conceive the organization as a pool of diverse resources, capabilities, and processes managed towards achieving pre-specified productive ends (Wernerfelt 1984; Barney, Wright, and Ketchen 2001). Accordingly, performance heterogeneity results from organizations’ differential abilities to recombine and manage valuable and rare, tangible and intangible resources while creating barriers for competitors to access these resources via imitation or substitution (Wernerfelt 1984).

Practice-based explanations explore an alternative path to organizational performance. Since Nelson and Winter’s (1982) work on the relationship between organizational routines (repetitive patterns of actions) and organizational behavior, scholars have tried to open the black box of the organizational production function. In this view, the role of professional managers is to efficiently orchestrate the transformation of available resources into valuable outputs (Knott and McKelvey 1999). Each organization develops a production function linking inputs to outputs by means of idiosyncratic organizational routines resulting from managerial choices. These patterns of actions become an organization’s management practices (Knott 2001; Nelson and Winter 2002).

Besides the already established literature on organizational routines, a more recent literature explores observable actions and guidelines followed by managers. Organizational economists have examined the adoption of management practices across organizations and their role in explaining firm-level productivity. Findings linking the adoption of (potentially imitable) structured management practices to superior productivity have been prevalent in several countries and contexts (McKenzie and Woodruff 2017; Bloom et al. 2012, 2017; Bloom, Sadun, and Van Reenen 2016; Bloom et al. 2014; de Mel, McKenzie, and Woodruff 2014). For instance, Bloom, Sadun, and Van Reenen (2016) used a sample of over 11,000 firms in 34 countries to show that the adoption of certain organizational practices (such as planning and performance targets) accounts for up to a third of the difference in total factor productivity in the manufacturing sector across several countries.

Practices have also received renewed attention in strategy research. Bromiley and Rau (2014, 2016a) reinforced the centrality of practices by differentiating practice- from resource-based explanations of heterogeneous performance. Although resource attributes such as rarity and
inimitability partially explain sustained performance in the long run (Barney 1991; Wernerfelt 1984), practice-based explanations could be used to explain performance differentials more generally, even in the short term.

Moreover, even if structured practices involve potentially observable and imitable routines, their adoption is not homogenous across organizations due to a variety of reasons (Bromiley and Rau 2014, 2016a). Bounded rationality may preclude performance-maximizing practice adoption because managers may simply be unaware of all possible routine combinations that could lead to superior performance (Simon 1979). Further, organizational structures and systems could even block the creation a common understanding of what a practice means, thus hindering the adoption of certain practices (R. Gibbons and Henderson 2012; Helper and Henderson 2014). Vermeulen (2017b) has even argued that bad practices may prevail when it is mistakenly associated with success and their diffusion rate is sufficiently high.

We pursue a more integrative stance by combining resource- and practice-based explanations of performance heterogeneity. We argue that the stock of resources possessed by an organization determines the practices a manager can select. For instance, some practices could be directly dependent on the existing technological infrastructure, such as efficient productive resources or appropriate monitoring mechanisms (Pierce and Toffel 2013; Pierce, Snow, and McAfee 2015). Also, managers may have human capital constraints, thus exacerbating limitations to interpret, assimilate, and design practices (Powell 2016). The presence of superior information technology (Ray, Muhanna, and Barney 2005) and of trained personnel (Bromiley and Rau 2014) are examples of critical resources supporting certain routines. If key resources are fixed in the short term, their absence may force organizations to employ a more limited set of activities. In other words, if practice-based considerations are useful to explain short-term performance differentials, the presence (or absence) of accumulated resources affects an organization’s ability to adopt and benefit from management practices. Thus, resources partially explain why a restricted set of organizations are better equipped to adopt performance-enhancing practices.

Furthermore, emphasizing resources alone as sources of differential performance may miss an important indirect channel via their influence on practice adoption. Not only heterogeneous practice adoption can help explain critical differences in performance conditional on prevailing endowments, but also practices can also enhance a resource’s value. If, say, human capital improves decision-making and organizational adaptation, then its value could be even greater
under certain decision-making routines. Ultimately, we advance a more complete theoretical framework considering the complex interplay between resources and practices and the various channels through which they can influence organizational performance.

2.3 EMPIRICAL CONTEXT AND HYPOTHESES

Our previous argument proposing a potential complementarity between resource- and practice-based explanations of heterogeneous performance requires further operationalization in terms of testable propositions. Therefore, to more didactically explain our mechanisms and proposed effects, this chapter offers context-specific hypotheses based on our empirical setting: education services.

2.3.1 Heterogeneous organizational performance in education

How to increase the quality of schooling systems under resource constraints is a problem ever-present in academia and policy debates. Besides its relevance and potential impact on societal outcomes and economic productivity (Heckman 2000), the provision of educational services is a business involving not only public organizations (Ouchi 2006; Ouchi et al. 2005; Ouchi 2003; Meier and O’Toole 2003, 2002) but also private and often for-profit enterprises (Angrist et al. 2002; Fryer 2014). In this setting, we argue that secondary education is also suitable to study the effect of practices and resources for three main reasons. First, education institutions are highly heterogeneous in their observed performance (Ouchi et al. 2005; Ouchi 2006). Studies have assessed student learning as a fundamental outcome creating value to beneficiaries (students and their families). Variation in schools’ ability to foster learning increases beneficiaries’ (families) satisfaction with the education service, reflecting in greater willingness-to-pay for such a service (S. Gibbons and Machin 2003; Clapp, Nanda, and Ross 2008). Yet, if these beneficiaries value other practices adopted by the school (such as accountability and connection with families) beyond learning outcomes, then they should also be more willing to pay for services, which—for the group

---

5 It is common in the literature evaluating school performance to use scores on math and native language standardized exams as schools’ main performance indicators (Fryer 2014; Bloom, Lemos, et al. 2015).
of privately-owned schools—allows the schools to increase their tuition fees and potentially appropriate economic value.

Second, schools exhibit substantial heterogeneity in terms of their access to organizational resources (e.g. human capital, infrastructure, and even technological resources to support their day-to-day bureaucratic and pedagogical activities) and in terms of practices associated with the effectiveness of internal operations (e.g. organized schedule, existence of feedback meetings) and engagement of external stakeholders (e.g. outside-school visits and lectures, communication with parents/communities). Past research has explored the performance-enhancing effects of practices oriented at connecting schools with external stakeholders, such as parents and the external community (Henderson and Mapp 2002; Kraft and Rogers 2015; Ouchi et al. 2005). Ouchi (2006) also showed how decentralized allocation of decision rights has the potential to boost educational outcomes.

Third, schools are heterogeneous in their ownership traits. Although private schools usually cater to higher-income customers, even in more financially constrained segments we observe a plural combination of public schools, private schools with predominantly private funding, and private schools largely relying on governmental funding (OECD 2012). Importantly, these ownership forms vary in their ability to influence practice adoption. State-run schools typically employ lower-powered incentives (Williamson 1999): teachers and managers receive fixed wages and performance-based payments are not widely disseminated (Hanushek 2016). Furthermore, principals from state-run schools also face limited decision rights in environments with centralized management, especially concerning hiring, procurement, and spending policies. In contrast, private schools often have greater autonomy and employ higher-powered incentives: it is not necessarily uncommon for school staff to receive compensation tied to financial results or student learning (Ballou 2001). As we argue below, heterogeneity in organizational structures may create large variation in practice adoption, yielding schools to differ across a broad range of practices.
2.3.2 Hypotheses

Based on the context of educational services, Figure 2.1 depicts our general model, which represents hypotheses divided in three blocks: (1) the relationship between practices and performance; (2) the connection between resources and practice adoption; and (3) how resources and ownership jointly affect practice adoption.

Figure 2.1 - Hypotheses: schematic model

Source: the author.

2.3.2.1 Practice-adoption and organizational performance

Schools adopt a complex array of practices to improve student learning and increase willingness to pay for their services. We distinguish between two types of practices. First, a school must run effective internal operation affairs associated with managing teacher-student conflict, organizing schedules, evaluation systems, develop pedagogical plans, among others. Internal management practices have been the focus of recent studies examining the adoption of productivity-enhancing activities across organizations, where it was shown that effective practices leads to increase students’ performance (Bloom, Lemos, et al. 2015; Fryer 2014).

Second, schools are organizations in constant need of external engagement with key stakeholders. Recent works have discussed the interrelationship between stakeholders and organizations’ governance structure, ultimately affecting value creation and capture (Klein et al. 2017; Desai 2017; Barney 2018). In particular, collaboration with external stakeholders such as
customers, communities, and other groups grant access to valuable external information to solve organizational problems and boost value creation (Desai 2017; Choi and Wang 2009). Research has shown, for instance, that engaged parents affect student learning (Chevalier and Lanot 2002) and provide schools with guidance to improve their activities and performance (Ouchi 2006, 2003; Ouchi et al. 2005). Other external engagement practices in schools involve community events, special lectures with external speakers, and external visits to cultural sites, thus allowing schools to bring outside-school experiences to students as well as guarantee parental support to increase student motivation and, consequently, enhanced learning. Concisely, considering their enabling role on students’ performance we argue that both internal operations and external engagement practices foster value creation for beneficiaries of educational services. Therefore, we hypothesize:

Hypothesis 1a: Internal operations practices and external engagement practices positively affect the value created for beneficiaries (in terms of student learning).

Although increased student learning is arguably a benefit captured by beneficiaries (students and their families), to a certain extent by society at large (enhanced learning is associated with superior productivity), we argue that it also leads to some appropriation of economic value by (private) schools. The literature on value creation and appropriation has discussed how the ability of firms to create economic value not only depends on bargaining (Obloj and Sengul 2012), but also on customers’ willingness to pay (Brandenburger and Stuart 1996). If practices enhance educational performance, they should also increase parents’ willingness to pay (Gibbons and Machin, 2003; Clapp, Nanda, and Ross, 2008). However, we also posit that school practices positively affect willingness to pay beyond any effect from superior student learning. Oftentimes, parents interact with school teachers and staff, acting as external stakeholders to educational services. Thus, they may observe and value certain aspects of schools’ internal operations practices as signals of superior quality. In addition, teachers and schools may communicate with parents on topics such as students’ performance, conflicts between students or between students and school employees, and even incorporate them as active partners in school activities. Consistent with previous research underscoring the importance of managing stakeholder relations (Klein et al. 2017), we argue that these engagement practices could also increase value by increasing parents willingness to pay for school services.
In sum, school practices have two channels available to increase a school’s potential to create and capture value. First, if Hypothesis 1a holds (management practices increase school performance in terms of learning), then beneficiaries’ willingness to pay for a school’s services increases if they value increased learning. In such a case, private schools would be potentially able to charge higher fees to extract some of the additional value created by such learning. Thus, the first channel linking management practices to value capture is indirect: practices lead to a higher performance valued by beneficiaries, thus increasing their willingness to pay for school services and potentially allowing schools to charge higher fees. Nonetheless, we argue that management practices also have a direct relationship with value capture. Parents may derive a direct benefit from how such management practices increase service quality and how they perceive the quality of their interaction with schools, also directly increasing their willingness-to-pay. Note, however, that in our context only private schools directly capture such added economic value, as state-run schools are normally free-of-charge. Therefore:

**Hypothesis 1b:** The value created for beneficiaries (in terms of student learning) increases their willingness to pay and positively affects organizational-level value appropriation (school-level fees in the segment of private schools).

**Hypothesis 1c:** Internal operations practices and external engagement practices increase willingness to pay and positively affect value appropriation (school-level fees in the segment of private schools), even after controlling for the value created for beneficiaries (in terms of student learning).

2.3.2.2 Resources as enablers of superior practices

Heterogeneous practices are likely affected by heterogeneous resource endowments. We focus here on two main sets of resources: technological and human capital resources. First, we examine the role of *technological* resources associated to supporting activities (i.e. administrative IT resources). This type of resource enables organizational monitoring, planning, and control activities (Aral, Brynjolfsson, and Wu 2012), affecting the expected adoption of internal organizational and external engagement practices by schools. Research has long examined how
Technological resources can enhance firm-level performance (Mata, Fuerst, and Barney 1995). We however argue that one such channel through which these resources influence performance is by allowing organizations to adopt superior practices. Access to adequate support resources, such as administrative infrastructure and IT systems, ease the adoption of technological systems supporting school planning, analysis of overall student performance, and identification of areas requiring improvement. In contrast, the absence of a set of supporting physical resources is likely to constrain the set of practices that a school can adopt. For instance, without these resources, schools will be unable to efficiently plan their schedule and adopt monitoring systems to track both student and teacher performance. Indeed, previous work has confirmed that technological infrastructure facilitates the adoption and enhances the performance of myriad management practices (Aral, Brynjolfsson, & Wu, 2012). Thus:

_Hypothesis 2a: Enhanced technological support resources (availability of administrative IT resources) increase the propensity to adopt internal operations and external engagement practices._

Besides technological resources, _human capital_ is also expected to positively affect the adoption of superior practices (Wang, He, and Mahoney 2009b). Strategy scholars have underscored the importance of human capital in fostering organizational performance and potentially leading to competitive advantage (Barney and Wright 1998; Coff 1997; Campbell, Coff, and Kryscynski 2012). Even though knowledge is ultimately possessed by individual organizational members, their joint effect could enhance human capital at the organizational level, thus increasing organizational performance (Ployhart and Moliterno 2011). In our context, we consider that human capital to be the presence of well-prepared (by means of formal education and experience) teachers/school managers.

In general, empirical research has shown that skilled teachers and administrative staff positively affect student learning (Chetty and Friedman, 2014). However, we also propose that such human capital also promotes the adoption of superior internal operations and external engagement practices, for two main reasons. First, the very choice of what internal operation and external engagement practices should be adopted depends on managerial and pedagogical knowledge of the value-enhancing potential of these practices. Second, management practices may
exhibit complementarities with individual-level human capital (Brynjolfsson and Milgrom 2013). For instance, teachers and principals may need clear operational practices and scheduling to leverage their own human capital and transform it in greater performance (and potentially wages). Thus, even if some organizations initially do not adopt certain management practices, skilled individuals could exert pressure to change prevailing practices which hinder their performance and do not allow their human capital to be transformed into performance. Thus, we hypothesize:

**Hypothesis 2b**: Enhanced human capital (well-trained teachers and managers) increases the propensity to adopt internal operations practices and external engagement practices.

2.3.2.3 The interplay between ownership, resources, and practice-adoption

Given our specific empirical context, critical determinants of practice adoption are the organizational traits largely associated with a school’s ownership structure. Distinct ownership patterns usually affect managerial incentives and discretion (Brynjolfsson and Milgrom 2013). We thus argue that state-run and private schools will differ in their propensity to adopt internal operations and external engagement practices.

State ownership entails a broad organizational architecture marked by low-powered incentives, weak performance measurement, and low decision rights (Williamson 1999; Dixit 2002; Hart, Shleifer, and Vishny 1997). Given tenure policies, teachers inside the public system have job stability, seldom being accountable for poor performance (Hanushek 2011), and they tend also to be highly unionized (Andersen, Heinesen, and Pedersen 2014), limiting governments’ capacity to apply performance-based/promotion incentives (West and Mykerezi 2011). Finally, public school principals face limited decision rights, especially concerning hiring, procurement, and spending policies (Nielsen 2014).

In contrast, private ownership is associated with high-powered incentives, potentially stronger (individual) performance measurement, and decentralized decision rights (Williamson 1999). As private schools are more susceptible to market pressures, as they depend on monthly fees to keep up their activities (OECD 2012), whereas state-run schools receive revenues almost exclusively from the government, not only principals from private schools would have greater
flexibility, but they also are subject to stronger incentive systems than their public counterparts. In addition, hiring policies may vary at the school-level in a decentralized fashion and contract termination based on poor performance may occur. The features of private vs. public schools in our context are similar to the decentralized vs. centralized school districts studied by Ouchi (2006, 2003). Hence:

*Hypothesis 3: State ownership negatively influences the propensity to adopt internal operations practices and external engagement practices.*

Finally, we argue that the effect of ownership on the adoption of practices is highly dependent on a school’s existing resource endowments. Consider the effect of technological resources. Although state schools have low-powered incentives to adopt superior practices, the presence of technological resources allows public managers to more easily control internal processes and contact external stakeholders. In addition, the presence of those resources allows governments to more easily monitor student/teacher absenteeism, as well as perform data-driven decisions making by analyzing performance reports (Brynjolfsson and McElheran 2016). Given that state schools are relatively more constrained than private schools in their ability to promote these practices, we predict that the presence of superior technological resources will particularly benefit state-owned schools by promoting their adoption of internal and external practices.

We also expect that highly skilled human capital will moderate the link between public ownership and practice adoption for three reasons. First, skilled teachers and managers may have greater intrinsic motivation to perform, thus reducing the potential downside of low-powered incentives (Kreps 1997; Holmstrom and Milgrom 1994). Second, research has found that highly specialized, technical personnel dealing with interdependent tasks can induce norms of professionalism (Miller and Whitford 2016) and generate peer pressure (De Jong, Bijlsma-Frankema, and Cardinal 2014; Knez and Simester 2001), therefore inducing the adoption of practices even when incentives are scant. Third, skilled teachers and managers may want to adopt internal and external practices to optimize their time spent doing various activities within the school. Even if their salaries are poorly responsive to superior performance, improved planning and execution can avoid excessive effort or conflicts. Thus, we hypothesize:
Hypothesis 4a: Enhanced technological support resources attenuate the negative effect of state ownership on the adoption of internal operations practices and external engagement practices.

Hypothesis 4b: Enhanced human capital (well-trained teachers and managers) attenuates the negative effect of state ownership on the adoption of internal operations practices and external engagement practices.

2.4 DATA AND METHODS

2.4.1 Data

We focus our analysis on the context of secondary education in Brazil. We combine two publicly available datasets organized by the Anísio Teixeira National Institute for Educational Studies and Research Studies (INEP), a branch of the Brazilian Ministry of Education (MEC). First, we use the Brazilian Education Census, which contains yearly information on all students, schools, classes, and teachers registered in the Brazilian Ministry of Education for each calendar year since 2007. Second, we use a dataset with student-level test scores for the 2007 and 2008 versions of the Brazilian National High School Exam (ENEM), a standardized national test similar to the United States Scholastic Assessment Test (SAT). ENEM is a major standardized test in Brazil taken by students from both public and private schools and one in which students respond to a broad survey on several socioeconomic aspects, including their perception on schools’ practices for some edition. Our final sample comprises 830,321 students (676,448 from public and 153,873 from private schools) from over 9,495 schools (7,381 public and 2,114 private). We observe each student-school pair once (either in 2007 or 2008), rendering the dataset a pooled cross section at the student-level. In our main analyses, we employ separate methods considering either the student-year or the school-year pair as the unit of analysis.

---

6 We focus on the 2007 and 2008 editions because they contained the survey we use to operationalize internal operations and external engagement management practices at the school-level. Although the ENEM is not a mandatory exam, we argue that our sample size is large enough to have empirical relevance for the Brazilian context.
2.4.1.1 Performance variables

Following the literature on educational economics (Hanushek 1989) and public management (Meier and O’Toole 2003), we operationalize value created to beneficiaries of educational services as learning performance measured by student scores in a standardized exam. In particular, we use student test scores from the ENEM as this is the only exam in Brazil with a sizeable sample of students from both public and private schools, and it has already been used in the national and international literature on the determinants of school performance (Curi and Menezes Filho 2013; Bloom, Lemos, et al. 2015). We only consider student scores on the multiple-choice questions of the exam, with a final score ranging from 0 to 100. We disregard students with a zero/null score and those who are not in their graduating year. In our final sample, we standardize (within-year mean zero and standard deviation one) student test scores.

We also incorporate a financial performance measure reflecting the economic value appropriated by schools by means of the willingness to pay for school services. We operationalize this variable by using the annual fee charged by a subset of private schools in 2008 (in Brazilian reais). We use a secondary dataset from a previous study (Curi and Menezes Filho 2013) focused on private high schools in the city of São Paulo. Once we match this dataset with ours, we have a reduced dataset of 233 schools. We further contacted the Brazilian Economic Institute associated with the Getúlio Vargas Foundation (IBRE/FGV), a private institute responsible for computing a series of inflation indexes for the Brazilian economy, and received access to a 2008 dataset with school fees charged by 108 private high schools across seven different state capitals in Brazil. We were able to match 44 schools with our dataset, leading to a sample of 277 schools with fees, performance, and management information.

2.4.1.2 Internal operations management and external engagement practices

Our key variable of interest must reflect the internal operations and external engagement management practices of the schools. To construct this variable, we use a set of questions answered by ENEM test-takers in both 2007 and 2008 addressing their perception of several practices.

---

7 Arguably, these organizations are representative of the private high schools in Brazil, as IBRE/FGV uses such data to compute a nationally valid inflation index.
adopted by their respective schools. Most questions encompassed a 0-2 Likert scale perception on how well students ranked school practices (such as planning and conflict management) to other binary questions on the existence of certain practices (such as the organization of lectures with visiting speakers). Following a 5-step procedure described in the Appendix, we constructed a single index representing a school’s adherence to internal operations and external engagement management practices. For robustness purposes, we also computed two sub-indices corresponding to the adoption of internal operations and external engagement practices. Both our main management index as well as the sub-indexes for internal operations and external engagement practices presented high across-item and inter-respondent reliability (details in the Appendix).

2.4.1.3 Strategic human capital and administrative technological resources

Data on school-level human capital and administrative resources come from the 2007 and 2008 Brazilian Scholarly Census. To operationalize administrative technological resources, we use the quantity of computers used by school managers divided by the number of employees. This variable represents the extent to which school staff has access to technological resources to run their day-to-day operations (e.g. record-keeping and schedule organization).

Further, we used the proportion of teachers within a given high school holding a graduate certificate as a measure of human capital. We argue that this is a good measure of human capital for our purposes because past research has found that teachers possessing a higher educational background and qualifications was found to be strongly correlated with student achievement (Darling-Hammond 2000). We argue that the greater the stock of highly skilled teachers in a school, the higher the probability of superior internal operations and external engagement practices leading to an enhanced learning environment. In selected exercises, we use 2007 data on whether a public school’s principal was contracted through a selection process or by nomination/political appointment, as well as for how long has s/he worked as a principal in that school (data collected from the Prova Brasil national exam, a standardized exam undertaken by public elementary and middle schools). We have this data for, arguably, general and school-specific human capital for a restricted set of 2,072 public schools in our dataset. This information is only available for 2007.
2.4.1.4 Ownership variable

We use a dummy variable assuming 1 if the school is state-owned and 0 otherwise. Public schools in Brazil have the key characteristics discussed in our theory chapter: poor monitoring of managers, weak incentives, and low teacher accountability (Bloom, Lemos, et al. 2015).

2.4.1.5 Control variables

At the school-level, we control for the role of peer-effects in the education process by using a school’s share of enrolled graduating students taking ENEM and school size through total enrollments and high school enrollments (in the logarithmic form). We control for beneficiaries’ relative access to human capital by observing the student-teacher ratio at high school (in the natural logarithmic form). Further, we account for other physical resources: dummy variables indicating if the school has a science laboratory, a library, and a continuous variable capturing the ratio of computers to student per class (used in its logarithmic form).

At the student-level, we use information from the ENEM socioeconomic questionnaire we compute a student-level 0-10 scale socioeconomic index considering his/her parents’ education, family income, and household consumption patterns with a similar method as the one used to compute school-level management index (Eigenvalue tests indicated the existence of a single factor and the full questionnaire is available upon request.). In addition, we add dummies representing whether the student has always attended secondary school in the morning shift, if she/he is above 18 years old, as well as gender and race information.

Whenever we do not add city-level fixed effects, we use data from the Brazilian Institute of Geography and Statistics to control for several city-level socioeconomic variables such as mean, median, and 1st quartile household per capita income, illiteracy rate for those citizens aged 10 or below, proportion of household with inadequate sanitary conditions, and city population.
2.4.2 Empirical Strategy

To test our first hypothesis (H1a), we use a dataset of stacked cross sections (2007 and 2008), in which we observe each student (his/her performance and covariates) once (either on 2007 or 2008), and school-level practices, resources, ownership, and controls twice (2007 and 2008). We first estimate the following pooled ordinary least squares regression (POLS):

\[ y_{ijm} = \beta \text{prac}_j + \Gamma' \text{RES}_j + \text{town}_j + \Omega' \text{CST}_i + \Theta' \text{CSC}_j + \lambda d2008_i + \psi_m + \epsilon_{ijm}. \] (2.1)

For each student \( i \) enrolled in a school-year pair \( j \) in municipality \( m \),\(^8\) \( y_{ijm} \) is his/her standardized performance in ENEM, \( \text{prac}_j \) is the school-year internal operations and external engagement management practices index. \( \text{R}_j \) is a matrix with school-year human capital and technological resource variables, \( \text{own}_j \) is a dummy variable representing school-year ownership (state-owned=1, private=0). \( \text{CST}_i \) and \( \text{CSC}_j \) are matrices of student-level and school-level controls, respectively. Finally, we also add municipality \( (\psi_m) \) and year fixed-effects \( (d2008_i) \) and let \( \epsilon_{ij} \sim N(0, \sigma^2) \). Our main coefficients of interest are \( \beta \) and \( \Gamma' \).\(^9\)

To test H1b, we estimate a hedonic model at the school-level as an ordinary least squares regression of the logarithmic of the 2008 annual fee of all 233 private schools from the municipality of Sao Paulo. School fees are a function of all lagged school-level covariates from 2007. We add, as covariates, the mean of the lagged student-level covariates from 2007 (socioeconomic index and additional controls) to account for unobserved elements leading schools to attract high-income students. Finally, we regress fee on both internal operations and external engagement management practices and on the lagged standardized school-level mean score, controlling for a school’s expected learning. We replicate the estimates for the augmented dataset with fees from the IBRE/FGV database (accounting for city fixed-effects).

---

\(^8\) Considering our use of a pooled cross-section instead of a panel data analysis, to say that a student \( i \) enrolled in school \( e \) at year \( y \) is equivalent to saying that the student \( i \) is enrolled in a school-year pair \( j \), as our analysis does not account for school fixed-effects.

\(^9\) We do not account for school-level fixed effects because internal operations and external engagement management practices, as measured by our index, do not have sufficient time variation between 2007 and 2008 within the same school (correlation of 0.82) to support a panel analysis. On the appendix, we present an additional graphical robustness check verifying how school fixed effects are highly correlated with internal operations and external engagement management practices.
Hypotheses H2a and H2b explores the determinants of practice adoption. We use a two-year balanced panel dataset at the school level to explore the determinants of management practices. We rely on cross-section variation to identify our variables of interest. The general model is the following linear regression at the school-year level:

\[
prac_{jm} = \Gamma' RES_j + \tau' own_j + \Theta' CSC_j + \lambda d2008_j + \psi_m + u_{jm}, \tag{2.2}
\]

where the \( CSC_j \) accounts for the same variables as \( CSC_j \) and by the mean of student characteristics for each school-year pair. To verify heterogeneous effects across different ownership structures, we conduct split sample analyses for public and private schools and added interaction terms between ownership structure and our main resource variables of interest.

2.4.3 Addressing endogeneity concerns

We acknowledge that, especially in the performance regression, our POLS estimates might be biased due to both omitted variable bias and reverse causality. We address these problems in two complementary ways. In the main text, we use propensity score weighting to create a more balanced and comparable sample of students belonging to public and private schools. We run our model with regression weights to give higher weights to those students from private schools who are similar to those from public schools. We use a logit model to estimate the probability of a student attending a public school as a function of his/her socioeconomic controls and the municipality socioeconomic conditions, and use a 3-neighbor propensity score matching (with replacement) to compute student weights (Solon, Haider, and Wooldridge 2015).\(^\text{10}\) Further, in the appendix, we show the results of an instrumental variable approach (two-stage least squares estimation – 2SLS) to control for the potential endogeneity of internal operations and external engagement practices.

\(^{10}\) Results from matching are available upon request to the authors. In our weighted sample, we only consider public-school students whose matched private-school students has a difference in the estimated probability of attending a public schools of at most 5%. As we do not achieve full balance across all covariates, all variables used in the matching estimator are also included as control variables in the main estimates.
2.4.4 Descriptive statistics

Table 2.1 presents the descriptive statistics of our main variables. Figure 2.2 summarizes how performance and practice adoption varies across schools and ownership. Panel a) displays how private schools exhibit higher performance than their public counterparts do. Panel b) shows that despite private schools scoring practically two points higher in our practice adherence index, there are both private schools with a low and public schools with a high management index.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Students’ standardized performance (0-100 Score) (student-level)</td>
<td>51.730</td>
<td>17.246</td>
<td>42.450</td>
<td>15.504</td>
<td>70.214</td>
<td>14.985</td>
<td>47.543</td>
<td>14.799</td>
<td>59.069</td>
<td>15.604</td>
<td>38.654</td>
<td>12.735</td>
</tr>
<tr>
<td>Standardized score (student-level)</td>
<td>0.000</td>
<td>1.000</td>
<td>0.000</td>
<td>1.000</td>
<td>1.072</td>
<td>0.869</td>
<td>-0.243</td>
<td>0.858</td>
<td>1.072</td>
<td>1.006</td>
<td>-0.245</td>
<td>0.821</td>
</tr>
<tr>
<td>Socioeconomic index</td>
<td>3.111</td>
<td>1.490</td>
<td>3.261</td>
<td>1.479</td>
<td>4.964</td>
<td>1.505</td>
<td>2.691</td>
<td>1.121</td>
<td>5.074</td>
<td>1.510</td>
<td>2.848</td>
<td>1.116</td>
</tr>
<tr>
<td>Male</td>
<td>0.612</td>
<td>0.487</td>
<td>0.386</td>
<td>0.487</td>
<td>0.570</td>
<td>0.495</td>
<td>0.621</td>
<td>0.485</td>
<td>0.430</td>
<td>0.495</td>
<td>0.377</td>
<td>0.485</td>
</tr>
<tr>
<td>Non-white</td>
<td>0.459</td>
<td>0.498</td>
<td>0.457</td>
<td>0.498</td>
<td>0.277</td>
<td>0.447</td>
<td>0.500</td>
<td>0.500</td>
<td>0.269</td>
<td>0.443</td>
<td>0.500</td>
<td>0.500</td>
</tr>
<tr>
<td>Always studied in the morning shift</td>
<td>0.618</td>
<td>0.486</td>
<td>0.627</td>
<td>0.484</td>
<td>0.846</td>
<td>0.361</td>
<td>0.567</td>
<td>0.496</td>
<td>0.845</td>
<td>0.362</td>
<td>0.577</td>
<td>0.494</td>
</tr>
<tr>
<td>Age &gt; 18 years old</td>
<td>0.143</td>
<td>0.350</td>
<td>0.125</td>
<td>0.330</td>
<td>0.030</td>
<td>0.171</td>
<td>0.169</td>
<td>0.375</td>
<td>0.029</td>
<td>0.166</td>
<td>0.147</td>
<td>0.354</td>
</tr>
<tr>
<td>Studies in public school</td>
<td>0.815</td>
<td>0.388</td>
<td>0.814</td>
<td>0.389</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Score (school-level)</td>
<td>50.686</td>
<td>11.086</td>
<td>41.370</td>
<td>7.953</td>
<td>67.650</td>
<td>7.702</td>
<td>45.827</td>
<td>5.923</td>
<td>56.204</td>
<td>7.695</td>
<td>37.122</td>
<td>4.933</td>
</tr>
<tr>
<td>Standardized score (school-level)</td>
<td>0.000</td>
<td>1.000</td>
<td>0.000</td>
<td>1.000</td>
<td>1.522</td>
<td>0.697</td>
<td>-0.436</td>
<td>0.542</td>
<td>1.513</td>
<td>0.790</td>
<td>-0.433</td>
<td>0.514</td>
</tr>
<tr>
<td>Has a science lab</td>
<td>0.523</td>
<td>0.499</td>
<td>0.597</td>
<td>0.490</td>
<td>0.641</td>
<td>0.480</td>
<td>0.489</td>
<td>0.500</td>
<td>0.772</td>
<td>0.420</td>
<td>0.547</td>
<td>0.498</td>
</tr>
<tr>
<td>Has a library</td>
<td>0.920</td>
<td>0.272</td>
<td>0.941</td>
<td>0.235</td>
<td>0.867</td>
<td>0.340</td>
<td>0.935</td>
<td>0.246</td>
<td>0.932</td>
<td>0.252</td>
<td>0.944</td>
<td>0.230</td>
</tr>
<tr>
<td>ln(computer/classes)</td>
<td>-0.749</td>
<td>0.819</td>
<td>-0.659</td>
<td>0.788</td>
<td>-0.074</td>
<td>0.837</td>
<td>-0.943</td>
<td>0.703</td>
<td>-0.052</td>
<td>0.826</td>
<td>-0.833</td>
<td>0.683</td>
</tr>
<tr>
<td>ln(student/teacher)</td>
<td>-1.434</td>
<td>0.521</td>
<td>-1.378</td>
<td>0.480</td>
<td>-1.077</td>
<td>0.560</td>
<td>-1.536</td>
<td>0.461</td>
<td>-1.054</td>
<td>0.514</td>
<td>-1.470</td>
<td>0.427</td>
</tr>
<tr>
<td>ln(high school enrollments)</td>
<td>5.845</td>
<td>0.777</td>
<td>5.823</td>
<td>0.775</td>
<td>5.067</td>
<td>0.670</td>
<td>6.067</td>
<td>0.652</td>
<td>5.046</td>
<td>0.687</td>
<td>6.045</td>
<td>0.645</td>
</tr>
<tr>
<td>ln(overall enrollments)</td>
<td>6.759</td>
<td>0.636</td>
<td>6.747</td>
<td>0.638</td>
<td>6.269</td>
<td>0.752</td>
<td>6.900</td>
<td>0.520</td>
<td>6.277</td>
<td>0.771</td>
<td>6.881</td>
<td>0.522</td>
</tr>
<tr>
<td>Share of teachers with graduate certificate</td>
<td>0.247</td>
<td>0.258</td>
<td>0.358</td>
<td>0.258</td>
<td>0.239</td>
<td>0.205</td>
<td>0.249</td>
<td>0.271</td>
<td>0.340</td>
<td>0.222</td>
<td>0.363</td>
<td>0.267</td>
</tr>
<tr>
<td>Share of peers undertaking the ENEM</td>
<td>0.557</td>
<td>0.212</td>
<td>0.592</td>
<td>0.210</td>
<td>0.706</td>
<td>0.193</td>
<td>0.514</td>
<td>0.198</td>
<td>0.757</td>
<td>0.185</td>
<td>0.545</td>
<td>0.193</td>
</tr>
<tr>
<td>ln(PC/employee)</td>
<td>-2.675</td>
<td>0.747</td>
<td>-2.580</td>
<td>0.722</td>
<td>-1.950</td>
<td>0.642</td>
<td>-2.883</td>
<td>0.638</td>
<td>-1.877</td>
<td>0.625</td>
<td>-2.781</td>
<td>0.614</td>
</tr>
<tr>
<td>Observations (students)</td>
<td>406682</td>
<td>423639</td>
<td>75106</td>
<td>331576</td>
<td>78767</td>
<td>344872</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations (schools)</td>
<td>9495</td>
<td>9495</td>
<td>2114</td>
<td>7381</td>
<td>2114</td>
<td>7381</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 2.2 - Distribution of performance and management practices, by school ownership

a) School performance by ownership structure.

b) Internal operations and external engagement practice index by ownership structure.

Source: the author.
2.5 RESULTS

2.5.1 Management practices and performance

\textbf{Error! Reference source not found.} presents the results on the relationship between internal operations and external engagement management practices, human capital, administrative resources, and student performance. The results from \textbf{Error! Reference source not found.} support H1a, i.e. internal operations and external engagement practices have a positive effect on performance even after accounting for resources, ownership and additional controls. Columns 1 and 2 shows the results of a simple OLS model to explain student performance with and without our measure for adherence to internal operations and external engagement management practices. Internal operations and external engagement practices have a positive and statistically significant effect on expected performance. Students from schools increasing one point in our internal operations and external engagement management practices index school are expected to improve performance in 0.06\(\sigma\) (p<0.001), or close to one point in the ENEM exam. Another way to interpret these results is saying that a student from a school with maximum management score would display a performance 10 points higher out of 100 compared to a case he/she studied in a school with minimum management score. Column 5 displays the results of an OLS weighted by the probability of a student attending public school. After adding these controls, we found that most our results remain unchanged, with the positive effect a 1-point shift in our index increasing performance in 0.07\(\sigma\) (p<0.001). Surprisingly, after accounting for internal operations and external engagement practices, the positive effect of human capital loses statistical significance, although it remains positive, while the positive correlation of having greater access to technological administrative resources is still significant. We recognize that our results are correlational and should be interpreted as suggestive, rather than causal, evidence on the relationship between management practices and performance. Nonetheless, results still show the expected positive correlation supporting H1a.
### Table 2.2 - Determinants of performance and the role of internal operations and external engagement management practices

<table>
<thead>
<tr>
<th>Model</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Sample</td>
<td>All</td>
<td>All</td>
<td>Private</td>
<td>Public</td>
<td>All</td>
</tr>
<tr>
<td>Dependent Variable</td>
<td>Standardized Score on ENEM (Student-level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management index</td>
<td>0.063***</td>
<td>0.099***</td>
<td>0.039***</td>
<td>0.070***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.007)</td>
<td>(0.004)</td>
<td>(0.006)</td>
<td></td>
</tr>
<tr>
<td>Public school</td>
<td>-0.797***</td>
<td>-0.663***</td>
<td>-0.626***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.024)</td>
<td>(0.025)</td>
<td>(0.029)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic index</td>
<td>0.120***</td>
<td>0.117***</td>
<td>0.108***</td>
<td>0.110***</td>
<td>0.124***</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.003)</td>
<td>(0.001)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>ln(student/teacher)</td>
<td>0.002</td>
<td>0.003</td>
<td>0.186***</td>
<td>-0.110***</td>
<td>0.049*</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.014)</td>
<td>(0.020)</td>
<td>(0.015)</td>
<td>(0.026)</td>
</tr>
<tr>
<td>Proportion of teachers with a degree</td>
<td>0.069***</td>
<td>0.058***</td>
<td>-0.010</td>
<td>0.123***</td>
<td>0.029</td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.016)</td>
<td>(0.033)</td>
<td>(0.017)</td>
<td>(0.035)</td>
</tr>
<tr>
<td>ln(administrative computer/employees)</td>
<td>0.074***</td>
<td>0.058***</td>
<td>0.010</td>
<td>0.079***</td>
<td>0.031***</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.007)</td>
<td>(0.015)</td>
<td>(0.008)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Observations</td>
<td>830,321</td>
<td>830,321</td>
<td>153,873</td>
<td>676,448</td>
<td>779,121</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>City fixed effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>City-level socioeconomic controls</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Student-level socioeconomic controls</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School-level controls and peer effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

Notes: (1) Significance levels: * p-value<0.1; ** p-value<0.05; *** p-value<0.01. Standard errors clustered at the school-level and in parenthesis. (2) Socioeconomic controls are: dummies for student’s gender (male or female), ethnicity (white or non-white), age (older than 18 years old or not), whether the student studies in the night shift. School-level controls are: a dummy variable indicating whether the school has a science laboratory and another indicating whether the school has a library, log of school size (total enrollments) and high school size (high school enrollments), and log of the student computer/class ratio. Peer effects are the proportion of high school students in the school taking the ENEM exam.
Table 2.3 presents the results associated with H1b and H1c, that is, that private schools are potentially able to create (and potentially extract) value by adopting bundles of internal operations and external engagement management practices. From columns 1 to 6, we run exercises with our 233 schools sampled from the city of São Paulo (for which we have more detailed data). Column 7 adds other Brazilian schools from the IBRE/FGV database. These results show that schools are potentially able to capture value through internal operations and external engagement practices, even after accounting for resource availability and expected learning. Indeed, not only does past performance and socioeconomic conditions explain how high a school fee is (a one standard deviation increase in past score is associated with 12% higher annual fees, p<0.01), but also a one-point increase in our practices index yields an annual fee 3% higher (p<0.01). These results are robust whether we consider São Paulo schools or for the expanded sample with schools from other state capitals. Indeed, columns 6 and 7 show that lagged practices explain variation in annual fees even after controlling for a school’s past performance, supporting H1b and H1c.
### Table 2.3 – Practices and value created in private schools: hedonic price model

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample</strong></td>
<td>Base sample</td>
<td>Augmented sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized school-level mean score (2007)</td>
<td>0.476*** (0.033)</td>
<td>0.419*** (0.038)</td>
<td>0.147*** (0.045)</td>
<td>0.126*** (0.046)</td>
<td>0.129*** (0.042)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Index (2007)</td>
<td>0.165*** (0.021)</td>
<td>0.059*** (0.019)</td>
<td>0.043** (0.017)</td>
<td>0.031* (0.017)</td>
<td>0.029*** (0.015)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic index (2007)</td>
<td>0.386*** (0.034)</td>
<td>0.351*** (0.038)</td>
<td>0.338*** (0.038)</td>
<td>0.331*** (0.033)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(student/teacher) (2007)</td>
<td>0.061 (0.052)</td>
<td>0.043 (0.052)</td>
<td>0.042 (0.052)</td>
<td>0.033** (0.01)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of teachers with a degree (2007)</td>
<td>0.057 (0.123)</td>
<td>-0.015 (0.122)</td>
<td>0.013 (0.122)</td>
<td>0.0645 (0.044)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(administrative computers/employees) (2007)</td>
<td>0.007 (0.034)</td>
<td>0.011 (0.034)</td>
<td>0.007 (0.034)</td>
<td>-0.005 (0.011)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>277</td>
</tr>
<tr>
<td>Socioeconomic controls (2007)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>School-level controls and peer effects (2007)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>City fixed effects</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.469</td>
<td>0.214</td>
<td>0.487</td>
<td>0.643</td>
<td>0.650</td>
<td>0.654</td>
<td>0.7019</td>
</tr>
</tbody>
</table>

Notes: (1) Significance levels: * p-value<0.1; ** p-value<0.05; *** p-value<0.01. Standard errors on column (7) clustered at the city-level and in parenthesis.

(2) All explanatory variables correspond to their 2007 observations. Socioeconomic controls are: proportion of male high school students, proportion of non-white high school students, proportion of high school students studying in the night shift, proportion of high school students who are more than 18 years old. School-level controls are: a dummy variable indicating whether the school has a science laboratory and another indicating whether the school has a library, log of school size (total enrollments) and high school size (high school enrollments), and log of the student computer/class ratio. We capture peer effects as the proportion of high school students in the school undertaking the ENEM exam.

(3) The base sample considers 233 private schools in the city of Sao Paulo whose 2008 annual fee we collected. The augmented sample adds IBRE/FGV data on the 2008 annual fees of 44 schools located across 7 state capitals in Brazil.
2.5.2 Determinants of practice adoption

Table 2.4 examines hypotheses H2a-H4b to understand the adoption of internal operations and external engagement practices. According to H2a and H2b, greater access to administrative technological resources and human capital should yield greater practice adoption. Column 1 supports these hypotheses as a one percent increase in the ratio of administrative computers per employee is expected to increase practice adoption by close to 0.2 points (p<0.01, supporting H2a). A one percent increase in the proportion of teachers with a university degree is associated with a 0.2-point increase in our practice index (p<0.01, supporting H2b).

To test H3 (state ownership is associated with less adoption of superior practices), and H4a and H4b (access to strategic resources attenuates the negative effect of state ownership on practice adoption), we verify the sign of the public ownership dummy. We employ a split sample exercise (columns 2 and 3), and we add interaction terms between ownership structure and our resources of interest (column 4). Our results lend support to H3 as public schools consistently adopt inferior practices than their private counterparts (see also figure 1). Our results, however, do not support H4a. If we consider our point-estimates in the split sample exercises, the differences are not statistically significant. However, when we add interacting terms (column 4), we find that public schools are less able to transform administrative technological resources into superior practices: even in resource-scarce environments, availability of technological resources does not necessarily correlate with practice adoption. We find evidence of a negative correlation in this aspect, potentially arising from public schools’ inefficiency in adopting practices despite the availability of more technological resources. However, the net effect of the presence of administrative technological resources remains positive regardless ownership structure.
Table 2.4 - Management practices as a function of resources and covariates

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Management Index</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1.379***</td>
<td>-1.713***</td>
<td>-0.389***</td>
<td>-0.760***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.073)</td>
<td>(0.167)</td>
<td>(0.040)</td>
<td>(0.039)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(student/teacher)</td>
<td>-0.029</td>
<td>0.183***</td>
<td>-0.183***</td>
<td>-0.065</td>
<td>-0.042</td>
<td>-0.010</td>
<td>-0.033*</td>
<td>0.012</td>
<td>-0.047</td>
<td></td>
</tr>
<tr>
<td>(0.032)</td>
<td>(0.053)</td>
<td>(0.040)</td>
<td>(0.057)</td>
<td>(0.062)</td>
<td>(0.017)</td>
<td>(0.017)</td>
<td>(0.029)</td>
<td>(0.037)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of teachers with graduate certificate</td>
<td>0.208***</td>
<td>0.037</td>
<td>0.097*</td>
<td>-0.043</td>
<td>0.197</td>
<td>0.086***</td>
<td>0.118***</td>
<td>0.004</td>
<td>0.120</td>
<td></td>
</tr>
<tr>
<td>(0.055)</td>
<td>(0.112)</td>
<td>(0.053)</td>
<td>(0.112)</td>
<td>(0.155)</td>
<td>(0.027)</td>
<td>(0.030)</td>
<td>(0.079)</td>
<td>(0.087)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(administrative computers/employees)</td>
<td>0.219***</td>
<td>0.189***</td>
<td>0.149***</td>
<td>0.332***</td>
<td>0.142***</td>
<td>0.096***</td>
<td>0.110***</td>
<td>0.068***</td>
<td>0.074***</td>
<td></td>
</tr>
<tr>
<td>(0.018)</td>
<td>(0.039)</td>
<td>(0.020)</td>
<td>(0.038)</td>
<td>(0.034)</td>
<td>(0.011)</td>
<td>(0.010)</td>
<td>(0.016)</td>
<td>(0.020)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public X ln(administrative computers/employees)</td>
<td>-0.173***</td>
<td>(0.045)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public X Proportion of teachers with a graduate degree</td>
<td>0.366***</td>
<td>(0.122)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public X ln(student/teacher)</td>
<td>0.089</td>
<td>(0.068)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal admitted through a selection process</td>
<td>0.115***</td>
<td>0.064***</td>
<td>0.064***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.035)</td>
<td>(0.018)</td>
<td>(0.020)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years as principal in this school: 2 - 4</td>
<td>0.127***</td>
<td>0.046**</td>
<td>0.076***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.039)</td>
<td>(0.023)</td>
<td>(0.021)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years as principal in this school: 5 - 10</td>
<td>0.205***</td>
<td>0.054**</td>
<td>0.127***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.040)</td>
<td>(0.021)</td>
<td>(0.023)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years as principal in this school: 11 - 15</td>
<td>0.128</td>
<td>-0.036</td>
<td>0.103**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.079)</td>
<td>(0.045)</td>
<td>(0.044)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years as principal in this school: More than 15</td>
<td>0.072</td>
<td>-0.050</td>
<td>0.068</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.084)</td>
<td>(0.038)</td>
<td>(0.049)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>18990</td>
<td>4228</td>
<td>14762</td>
<td>18990</td>
<td>4144</td>
<td>18990</td>
<td>18990</td>
<td>4144</td>
<td>4144</td>
<td></td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>City fixed effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Socioeconomic controls</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>School-level controls and peer effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.641</td>
<td>0.298</td>
<td>0.585</td>
<td>0.643</td>
<td>0.490</td>
<td>0.554</td>
<td>0.619</td>
<td>0.423</td>
<td>0.487</td>
<td></td>
</tr>
</tbody>
</table>

Notes: (1) Significance levels: * p-value<0.1; ** p-value<0.05; *** p-value<0.01. Standard errors clustered at the school-level and in parenthesis. (2) Socioeconomic controls are: proportion of male high school students, proportion of non-white high school students, proportion of high school students studying in the night shift, proportion of high school students who are more than 18 years old. School-level controls are: a dummy variable indicating whether the school has a science laboratory and another indicating whether the school has a library, log of school size (total enrollments) and high school size (high school enrollments), and log of the student computer/class ratio. Peer effects are the proportion of high school students in the school taking the ENEM exam.
As for the effect of human capital, columns (3) and (4) support H4b. Although human capital in private schools positively correlates with practice adoption, its effect is not statistically significant. This could imply that, on average, the stock of human capital in private schools has already reached a point where marginal gains from accumulating more skilled teachers leads to only small changes in practice adoption. On the other hand, we find the opposite effect in public state schools: access to human capital has a significant positive correlation with the adoption of superior practices, supporting H4b. Even if public schools have considerably less flexibility in pedagogical and internal operations policies, their ex ante level of practices or resource scarcity might be such that even in such a setting, small changes in practices suggested by individuals with high accumulated human capital could lead to great changes in managerial policies (as perceived by students). Indeed, human capital can possibility attenuate organizational constraints in the adoption of superior practices.

2.5.3 Additional analyses

Columns 5-9 from Table 2.4 provide additional results on the determinants of superior practice adoption. Column 5 reinforces the positive role of administrative resources even after controlling for human capital associated with the principal’s characteristics (further supporting H2a). We find that a public school whose principal went through a selection process (rather than being politically nominated) displays a higher likelihood of implementing internal operations and external engagement management practices (a boost of 0.12 point in the practice index, p < 0.001). Moreover, as a principal acquires more within-school experience, the expected potential to adopt internal operations and external engagement management practices increases (a 0.2-point shift in our practice index, p<0.001 for a principal with 5 to 10 years of within-school experience). Columns 6 to 9 display results on the adoption of internal operations practices and external engagement practices separately, finding similar effects as the main analysis.

In the appendix we conduct two additional robustness analyses on the effects of management on school performance. First, we verify that school-level fixed effects with respect to performance are highly correlated with our management index: schools with higher management index have, on average, higher average score across 2007 and 2008. Second, we employ an instrumental variable strategy to estimate how school management and performance
are related by using the average management score of potentially competing schools as an instrumental variable for own-school management. All these results corroborate our previous findings.

2.6 DISCUSSION

In this chapter, we contribute to the literature on resource-based (Barney 1991; Barney, Wright, and Ketchen 2001) and practice-based (Bromiley and Rau, 2014; Nelson and Winter, 1982, 2002) explanations of organizational performance by demonstrating that the adoption of practices is an additional channel through which resources enhance organizational outcomes. More importantly, the adoption of superior practices is a function of the resources a manager has at disposal in a way that resource constraints can shape the set of available practices to an organization.

Our contribution is particularly important and pioneer because it presents an alternative, and yet complementary, interpretation of the determinants of organizational outcomes. Although resource-based explanations tend to focus on the scarcity and immobility of resources leading to sustained performance heterogeneity (Barney 1991; Peteraf 1993), practice-based arguments suggest that firms may largely differ even if we consider activities and organizational recipes that are well-known and potentially transferrable (Bromiley and Rau 2014; Nelson and Winter 1982; Bloom and Van Reenen 2007). Here, we propose that the critical question is not whether some organizational routine is imitable or not, but what are the constraints to imitation and diffusion. Strategic resources, relatively fixed in the short term, can determine practice adoption, providing an alternative (and understudied) channel leading to performance heterogeneity.

On the one hand, our argument concurs with the importance of managerial capital and the adoption of (potentially imitable) management practices as already recognized by organizational economists (Bloom et al. 2012) and management scholars (Bromiley and Rau 2014). On the other hand, we also suggest that the menu of management practices is endogenous to prevailing resource endowments. Our conclusions approximate resource-based explanations of performance heterogeneity to the “practice-as-technology” literature (Bromiley and Rau 2014; Bloom, Sadun, and Van Reenen 2016) and the emergent literature on the determinants/evolution of practice adoption.
Furthermore, we contribute by bringing ownership structures into our theory. We theorize and find that even if some ownership forms might entail unfavorable decision rights and incentives to the adoption of superior practices, some resource endowments may create a countervailing effect. We show that public ownership is consistently associated with looser adoption of internal operations and external engagement practices, consistent with prevailing literature (Dixit 2002; Williamson 1999). However, we verify that superior levels of human capital attenuate the negative effect of public ownership. Accumulated resources moderate potentially undesirable effects spanning from organizational forms, thus adding to the literature focused on the comparison between distinct ownership forms (Cabral, Lazzarini, and Azevedo 2013; Hart, Shleifer, and Vishny 1997). We posit that resource-oriented policies to develop human capital in public organizations could circumvent issues associated with poor practice adoption.

Finally, we contribute to the emerging literature on strategic management and activities in the public domain (Klein et al. 2013; I. Kivleniece and Quelin 2012). By using educational services as our empirical setting, we reinforce the potential of studying socially purposeful services/products within strategy. By evaluating resource-based and practice-based explanations of performance heterogeneity in a context where performance does not necessarily entail financial gains, we help expand the domain of strategic management into the analysis of performance heterogeneity across public and private organizations, which has received increasing attention (Cabral, Lazzarini, and Azevedo 2013; Luo and Kaul 2019). Crucially, we argue and find empirical correlations supporting that the performance effect of public or private organizational forms occurs via a complex interplay between resources and practice adoption, thus addressing the recent calls for further understanding on the underlying mechanisms for value creation and value appropriation in the context of public organizations (Cabral et al. 2019).

As an initial attempt to combine resource-based and practice-based explanations for heterogeneous performance, our work has some limitations. First, although we focus on internal operations and external engagement practices in a school setting, our measures rely on students’ perceptions, which might be subject to biases derived from both poor judgment regarding school practices or self-selection of those students attending the standardized test (ENEM). Moreover, our performance variable ignores other aspects of service quality as retention and dropout rates. Although we attempted to address the endogeneity of management practices, there could be remaining unobservable factors affecting the link between practices and performance. In case some
parents are willing to incur the (potentially high) search costs of school managerial practices, they would arguably invest more in parental support.

Despite its limitations, our proposal to integrate resource- and practice-based arguments can stimulate new research to refine and expand our findings. Future research could explore organizational choice, resources, and practices in different contexts and a broader range of organizational forms. Opportunities arise to study the effect of other practices in other contexts, such as adherence to incentive systems and/or monitoring practices. Further research could also delve more deeply into the channels linking practices and resources. A promising line of research is on how practice adoption affects the creation and accumulation of resources. Accumulated learning from superior practice adoption, for instance, can enhance human capital and influence its inter-organizational mobility (Coff 1997), as the sheer value of organizational resources can depend on practices that are imperfectly distributed across firms. Thus, far from being an alternative framework to understand inter-organizational performance differences, practices can represent a novel mechanism affecting the allocation of strategic resources.

2.7 CONCLUSION

In this chapter, we coalesce resource-based and practice-based explanations of organizational performance into a joint framework to explain performance heterogeneity. We argue that while practices affect the extent through which organizations transform resources into performance, resource endowments affect the set of strategic practices potentially adopted by firms. We test our hypotheses in the context of secondary education. We find that practices affect performance beyond the direct effects of resources and that human capital stimulates the adoption of practices, creating value to beneficiaries and allowing schools to capture superior economic value. We show that if distinct organizational traits (e.g. public ownership) negatively affect the practice adoption, human capital might act as a countervailing force promoting superior practices. In sum, we show that resources and practices are intrinsically intertwined, and they fundamentally affect the performance implications of organizational traits.
PARTNERING WITH BASE-OF-THE-PYRAMID ENTREPRENEURS: THE DUAL ROLE OF MANAGERIAL CAPITAL TRANSFER

3.1 INTRODUCTION

Scholars have expressed a growing interest on the entrepreneurial potential of Base-of-the-Pyramid (BoP) markets, especially within emerging and developing economies (Prahalad and Hart 2002; Kistruck et al. 2011; Kistruck, Sutter, et al. 2013; Sutter, Kistruck, and Morris 2014; Bruton et al. 2013; Webb, Ireland, and Ketchen 2014). On the one hand, the BoP have a significant market potential worldwide (Hammond et al. 2007; Azevedo et al. 2015), BoP markets also hold entrepreneurial opportunities to leverage individuals out of poverty (Sutter, Bruton, and Chen 2018) and increase product/service coverage to vulnerable populations (Prahalad and Hart 2002; Kistruck, Sutter, et al. 2013). On the other hand, reaching out and developing enterprises at BoP markets can be challenging due to technical and cultural differences which distance the BoP setting from the expected behavior in wealthier markets (London et al. 2014; Kistruck, Beamish, et al. 2013). One mechanism used by large organizations to reach such markets is to incorporate BoP entrepreneurs in their supply chain (Sodhi and Tang 2014; Khalid and Seuring 2017). Microfranchising ventures (Kistruck et al. 2011), direct purchase from local farmers (An, Cho, and Tang 2015), and direct sales models (The Economist 2012) are only but few examples of how large organizations partner with BoP entrepreneurs to garnish resources, reach out markets, and create value for multiple stakeholders.

Nonetheless, engaging stakeholders from BoP markets involves several challenges amongst which there are high churning rates (Hystra 2013) and a critical supply-side constraints common to settings of vulnerable populations: the paucity of human capital (Chlioiva and Ringov 2017; Sutter, Kistruck, and Morris 2014). Stakeholders at the BoP seldom possess a large stock of general human capital, as basic education and managerial skills, which expectedly lead to higher productivity (Bruton, Ketchen, and Ireland 2013; Bruhn, Karlan, and Schoar 2010; Bloom et al. 2012; Sutter, Bruton, and Chen 2018). Although governments and nongovernmental agencies attempt to provide general business skills training to self-employed individuals at the BoP (Bruhn and Zia 2013; McKenzie 2017; Sutter, Bruton, and Chen 2018), results from these interventions are inconsistent (McKenzie and Woodruff 2014).
In this setting, a potential alternative would be for private firms to internalize the human capital development task when partnering with entrepreneurs at the BoP, supplanting voids in basic training that are not adequately provided by generic educational or training systems in the locality. For instance, an example of generic training would be to train partners in their communications abilities with potential customers or team members. However, received theories of strategic human capital would suggest that private firms would refrain from making these generic human capital investments in the first place. The potential fluid, short-term, nature of these relations at the BoP (Hystra 2013) and the hazard of not appropriating the gains from increasing their partners’ human capital (Becker 1962; Barney and Wright 1998; Wang, He, and Mahoney 2009a) would make firms refrain from investing in generic training policies targeting their BoP stakeholders. In this view, generic human capital development would generate positive externalities to other firms in the economy, including competitors, therefore reducing the appropriation incentives of the focal firm investing in generic training. In this Chapter, I respectfully challenge this view.

In this Chapter, I study whether and under which conditions a for-profit firm should invest in generic human capital development policies targeting BoP entrepreneurial partners. Particularly, I theoretically argue for and empirically assess the existence of a dual-role of firm-sponsored generic human capital development within a partnership at the BoP: increasing performance and prolonging the partnership. I benefitted from a highly detailed dataset from a for-profit firm which adopts a direct sales channel and a BoP entrepreneurial program to target middle- and base-of-the-pyramid market in emerging and developing countries. In 2015, the Brazilian branch of this company created an optional training program targeting local partners and encompassing a subset of generic managerial knowledge (importance of interpersonal communication skills and use of key performance indicators to manage activities). Quasi-experimental evidence based on detailed individual-level performance data from 42 sales campaigns between 2014 and 2016 suggests that generic managerial training yields performance gains for both the firm and BoP individuals. Moreover, trained individuals stay longer in the partnership, showing the dual role of generic training in a BoP setting. Finally, firm-specific human capital in the form of within-partnership experience negatively moderates the results. Results indicate that in the BoP setting, early generic training could be a desirable mechanism to transfer knowledge as partnerships could end before learning takes place.
In this Chapter, I contribute to the emerging literature in BoP markets by addressing the call to expand micro-oriented studies on the benefits of partnering with local stakeholders and transferring knowledge to the BoP (Sutter, Kistruck, and Morris 2014; Sutter, Bruton, and Chen 2018; Chliova and Ringov 2017). Besides estimating the potential effects of partnering with local entrepreneurs from BoP markets, I provide empirical support for firm-led managerial training as an alternative structure to create value for multiple stakeholders within a firm-entrepreneur partnership at the BoP. Further, I propose refinements to the recent literature on the business case for general human capital investment (Campbell, Coff, and Kryscynski 2012; Riley, Michael, and Mahoney 2017; Molloy and Barney 2015), which are especially critical in the context of BoP markets. The main contribution is to show a dual effect of a general human capital development policy under such setting: a first order effect of increasing partnership performance and a second order effect on prolonging the firm-entrepreneur partnership at the BoP. Such dual effect arises from the extreme resource scarcity at the BoP, which leads to both local entrepreneurs with high risk aversion to leaving a partnership where gains have been leveraged through training and a lack of complementary resources to explore newly acquired general skills elsewhere. Under this scenario, transferring general knowledge might increase performance and extend a partnership at the BoP.

3.2 ENTREPRENEURSHIP AT THE BOP AND HUMAN CAPITAL

Alleviating poverty at the BoP has been a central concern of governments, multilateral agencies, and philanthropists throughout the last half century (Sachs 2005). Nonetheless, although characterized by individuals living under severe financial distress, BoP communities hold a large economic potential. As a result, scholars have heralded how targeting the BoP market provides opportunities to yield economic returns whilst improving the living standards of vulnerable populations (Prahalad and Hart 2002; London 2009; Seelos and Mair 2007).

---

11 The precise definition of who is in the base-of-the-pyramid is not clear-cut. Some studies have suggested that the BoP comprises of individuals living with less than US$2.00/day (Prahalad and Hart 2002) or less than US$3.000/year (Hammond et al. 2007).

12 A 2007 world bank report estimated the BoP market to have a net worth at the BoP of US$ 5 trillion (Hammond et al. 2007) while a 2015 Inter-American Development Bank report estimated that a size of US$ 750 billion for BoP markets in Latin America and the Caribbean only (Azevedo et al. 2015).
There is a growing interest in using entrepreneurship as a mechanism to improve the lives of those individuals at the BoP (Kistruck, Beamish, et al. 2013; Bruton, Ketchen, and Ireland 2013; Sutter, Bruton, and Chen 2018). While entrepreneurship can increase the array of services/products available to BoP communities (Prahalad and Hart 2002; Kistruck, Beamish, et al. 2013; Kistruck, Sutter, et al. 2013), it also improves their wellbeing by providing a mechanism out of poverty for local individuals who can recognize and develop business opportunities at the BoP (Sutter, Bruton, and Chen 2018). Particularly, one channel to leverage entrepreneurship at the BoP is through partnerships with large organizations seeking to incorporate local entrepreneurs in their supply chain (Sodhi and Tang 2014; Khalid and Seuring 2017). Some successful examples of these BoP entrepreneurs are the microfranchising ventures (Kistruck et al. 2011), Walmart direct crop purchase from Chinese farmers (An, Cho, and Tang 2015), and the “Avon ladies” direct sales model (Scott et al. 2012) also adopted by other distribution partnerships at the BoP across the developing world (The Economist 2012).

The distinctive features of BoP markets, however, may undermine entrepreneurial ventures and firm-entrepreneur partnerships. Institutional constraints in the form of absent taken-for-granted institutional apparatus of developed economies (e.g. property rights, contractual enforcement, and even educational institutions), lead to a prominence of informal and unregistered economic activities in BoP settings (Webb et al. 2009; Kistruck et al. 2011). Informality thwarts entrepreneurial activities and long-term partnerships in BoP markets due to low sanctions to renege business promises (Mair and Marti 2009) and high agency costs (Kistruck et al. 2011; Kistruck, Sutter, et al. 2013). Moreover, despite demand side financial constraints (Seelos and Mair 2007), supply-side resource scarcity in BoP contexts appears as a shortage of local resources and capabilities for business development (Chliova and Ringov 2017). Indeed, individuals at the BoP often suffer from a lack of human capital and do not possess even basic abilities to manage a business (Banerjee and Duflo 2007; Webb et al. 2010).

Scholars herald how human capital in varied forms, from financial literacy to business skills, is crucial to explain performance heterogeneity (Riley, Michael, and Mahoney 2017; Crook et al. 2011; Bloom and Van Reenen 2010; Bruhn, Karlan, and Schoar 2010). Acquiring such capital is even more critical to entrepreneurs in emerging economies or at the BoP as resource constraints imposes a greater requirement for enhanced productivity while also facilitating integration with formal markets (Perez-Aleman 2011; Pietrobelli and Rabellotti 2006). Reflecting this concern, a
common practice in active labor market policies involves teaching business skills through training programs targeting potential entrepreneurs at the BoP (McKenzie and Woodruff 2017; McKenzie 2017; de Mel, McKenzie, and Woodruff 2014; McKenzie and Robalino 2010; Bruton, Ketchen, and Ireland 2013; Sutter, Bruton, and Chen 2018). Traditionally offered by governments or not-for-profit organization to unemployed individuals or microentrepreneurs at the BoP (McKenzie 2017), some of these training policies have yielded a positive impact on local entrepreneurs at the BoP (de Mel, McKenzie, and Woodruff 2014). However, when evaluating a larger sample of cases, the effect on profitability and revenues become inconsistent (McKenzie and Woodruff 2014) and the benefits of these policies, if any, have not consistently surpassed its costs (Blattman and Ralston 2015).13

An alternative possibility is for private firms to offer human capital development programs at the BoP seeking to boost its supply network. However, if such investment could benefit firms willing to partner with BoP entrepreneurs and create positive social change through subsidizing human capital formation in impoverished areas, the conditions upon which firms would find it beneficial to invest in generic training programs to compensate for the lack of basic skills (e.g. basic math or management abilities) is unknown. Therefore, there is a need to explore how such human capital development initiative targeting entrepreneurs at the BoP could work (Sutter, Kistruck, and Morris 2014).14 The next chapter argues that, contrary to the established understanding of strategic management literature on human capital, there is a business case for firm-sponsored generic human capital development policies in contexts of partnerships between firms and local entrepreneurs.

---

13 Several reasons could explain the inconsistence of these general training policies: from poorly designed training policies to the absence of complementary human capital (e.g. financial illiteracy, lack of initial resources to spur business growth, or even individual inability to find entrepreneurial opportunities (Alvarez and Barney 2014).

14 Using the strategic management literature on knowledge transfer (Winter and Szulanski 2001; Szulanski 1996), recent research on BoP entrepreneurship has explored the use of templates (a blueprint, or a procedural map, of working examples on how to apply certain knowledge) as a promising solution to transfer knowledge to impoverished entrepreneurs at the BoP (Sutter, Kistruck, and Morris 2014; Chliova and Ringov 2017).
3.3 PARTNERSHIPS AND MANAGEMENT TRAINING AT THE BOP

3.3.1 Firm performance and partnerships in BoP markets

Although early literature on the business opportunities at the BoP focused on its unexplored market potential and suggested that firms could cater to this market through mainly a demand-based low-price, low-margin, and high-volume strategy strategy (Prahalad and Hart 2002), this simplistic view was swiftly revamped by an understanding that BoP markets also require distinctive *supply-side strategies* (Simanis 2012; London and Hart 2004). Firms venturing in BoP markets face a host of distribution challenges associated with pervasive institutional voids (Khanna and Palepu 2000). Absence of formal institutions and consequent reliance on informality leads to a large cultural heterogeneity and even ‘mistrust’ towards outsiders at the BoP. This setting creates both an informational issue regarding how to access the informal networks to advertise products and services (London and Hart 2004) as well as a legitimacy and trustworthiness barrier to the novel products/services being provided (Kistruck and Beamish 2010). Moreover, the potentially high “last-mile” cost in areas where access to adequate infrastructure is scant also creates issues for larger product distribution and service provision (Sodhi and Tang 2014; Khalid and Seuring 2017).

Engaging BoP local entrepreneurs is an attractive solution to solve distribution problems. Knowing the community’s existing informal rules and social structure gives local entrepreneurs an informational advantage to reach out potential consumers at the BoP, as well as to co-create solutions to that unique community. Information-wise, local partners would be better suited to both understand the needs of a community or to develop market strategies to increase the capillarity of a supply chain network in potentially closed communities whose preferences are unknown. Further, such local knowledge would allow local partners to provide feedbacks to the partnering organization on how to improve their products and actions to better suit the tastes of local communities (Simanis, Hart, and Duke 2008; London and Hart 2004). Local stakeholders are also crucial to endorse products and services, harnessing trust and reducing barriers to consumption/adoptions (Kayser and Budinich 2015; Thurow 2013). Further, firm-entrepreneur partnerships create synergies when increasing local earnings (Kistruck, Beamish, et al. 2013; Kistruck et al. 2011), part of which can be spent on new products/services.
The barriers to a direct firm access to a BoP market and the advantages of partnering with a local entrepreneur drive the first hypothesis:

**Hypothesis 1 (H1): Establishing a partnership with a local entrepreneur at a BOP market increases performance at that focal BOP market.**

### 3.3.2 Partnerships in the BoP, performance, and management training

#### 3.3.2.1 Established view on incentives for firm-sponsored general training

When exploring the sources of performance heterogeneity across organizations, the strategic management literature often portrays human capital as key to achieve competitive advantage (Barney and Wright 1998; Wang, He, and Mahoney 2009a; Coff 1997). Since its inception, the concept of human capital has been divided in terms ‘general human capital’ and ‘firm-specific human capital’ (Becker 1962). Managerial knowledge, in the form of business skills as communication abilities, people management, financial analysis and planning, among others, encompasses a form of general human capital accruing productivity gains regardless of the specific firm/sector the individual creates a business or is employed (Bruhn, Karlan, and Schoar 2010). This is the underlying perception behind active labor market policies training microentrepreneurs in managerial training programs (Bruhn and Zia 2013; de Mel, McKenzie, and Woodruff 2014; McKenzie and Woodruff 2014; Sutter, Bruton, and Chen 2018).

Established strategic human capital literature advances that competitive advantage relies not on a firm’s access to (replicable) general human capital, but rather on its ability to accumulate firm-specific human capital (Barney and Wright 1998; Wang, He, and Mahoney 2009a; Hatch and Dyer 2004). Nonetheless, this creates an incentive conundrum: while individuals have incentives to invest in general abilities to mitigate the risk of holdup arising when idiosyncratic capital can be expropriated by the firm (Wang, He, and Mahoney 2009a) or to diversify the potential applications of these abilities (Wang and Barney 2006; Wang, He, and Mahoney 2009a), firms have incentives to invest in firm-specific human capital as a source of sustained competitive advantage (Crook et al. 2011; Mayer, Somaya, and Williamson 2012; Wang, He, and Mahoney 2009a; Wang and Barney 2006). Even if within-firm general human capital investments have been
associated with higher productivity (Ichniowski, Shaw, and Prennushi 1997; Sepúlveda 2010), firms do not necessarily capture the value from training individuals, since individuals may internalize the productivity gains from the additional human capital (Coff 1997). As appropriating economic value from generic investments in human capital is not trivial (Coff 1999, 1997; Frank and Obloj 2014b), firms have low incentives to provide general training.

Within BoP partnerships, management training would also not necessarily be optimal for firms. Institutional voids, informality, and human capital constraints lead to potentially short-term economic relationships at the BoP. If institutional voids and informality threaten business partnerships at the BoP by implying low sanctions to renege on business promises (Mair and Marti 2009) and high agency monitoring costs (Kistruck, Sutter, et al. 2013), they also entail low barriers to mobility to other entrepreneurial activities or to the informal labor market. Further, low gains imply low reservation wages at the BoP, enhancing individuals’ propensity to mobility on the face of marginally better outside options. Indeed, some organizations operating in BoP markets face yearly turnover rates of up to 80% regarding their local partnerships (Hystra 2013). If the duration of partnerships between firms and local entrepreneurs are expected to be ‘fluid’/temporary, why would firms invest in transferring managerial knowledge to BoP partners? Could they present an alternative to government-led or non-profit-led managerial trainings targeting BoP entrepreneurs?

3.3.2.2 A dual purpose of general training in BoP partnerships

Human capital is a scarce resource at the BoP. Impoverished individuals from in that segment seldom have had access to professional opportunities extending those of local microentrepreneurship (Kistruck et al. 2011). When organizations actively attempt to establish a partnership with local individuals to gain access to BoP markets, they face a widespread difficulty in finding partners with professional experience. Managerial capital, as a type of general human capital, holds the potential to leverage one’s productivity in their end activities (Bruhn, Karlan, and Schoar 2010; Bloom et al. 2013; Sutter, Bruton, and Chen 2018). Therefore, in BoP settings, the scarcity of training in managerial abilities constraints the ability of the focal firm to benefit from partnerships with local stakeholders. However, firm-sponsored transfer of managerial knowledge to BoP entrepreneurs are expected to yield productivity gains as these individuals likely had no previous access to such knowledge. We then hypothesize:
Hypothesis 2 (H2): Transferring managerial knowledge to local partners increases the performance of a firm-local entrepreneur partnership in BOP markets.

Even if hypothesis 2 were true, increasing the productivity of the firm-local entrepreneur partnership is not enough to provide a business case for firm-led managerial training at the BoP. Even if generic training increases performance, the focal firm may not be able to appropriate private gains from this investment, given the nonspecific nature of the newly developed human capital (Wang and Barney 2006). However, more recent research on strategic human capital has started to address this matter differently (Riley, Michael, and Mahoney 2017; Raffie and Coff 2016). Generally, authors have argued that both aspects related with the demand for an individual’s services and with the individual’s supply of own services might circumvent mobility after general human capital acquisition and thus concluding that even general human capital might lead to competitive advantage.

On the supply side, individuals must incur search and adjustment costs associated with job hunting, search for new business partnerships, or even starting new venture (Hatch and Dyer 2004). On the demand side, managerial training implies considering the existence of (marginally) more profitable outside options post-training for the potentially trained individuals. If in a frictionless market the additional productivity spanning from the acquired managerial training would yield higher outside options. Nonetheless, in a market with frictions, other firms might be unable to value the managerial training provided by the partner firm, to determine the actual content of the training or, even if they could, to verify the extent of knowledge apprehended by the individual. Further, an individual’s ability to transport his/her own productivity to a new arrangement is also a cause of uncertainty (Riley, Michael, and Mahoney 2017). Finally, as on-the-job trainings are likely never completely general or firm-specific (Lazear 2009; Becker 1962), other firms would still have to consider which part of the managerial training is relevant to their context, and value it accordingly.

The BoP environments further magnifies supply and demand side features circumventing individual’s mobility after a (general) managerial training. The same reason leading managerial training to have an expected positive effect on the BoP, ex ante human capital scarcity, also leads individuals to have fewer outside options the BoP relationship. On the one hand, individual receiving a selected stock of managerial capital could enjoy complementarities (Brynjolfsson and Milgrom 2013) with other resources which have been shown to have a positive effect on both
productivity and the economic valuation of firms’ training policies (Wright, Coff, and Moliterno 2014; Riley, Michael, and Mahoney 2017). On the other hand, entrepreneurs at the BoP not only have a short stock of other business abilities, experience, and information (London and Hart 2004; Kistruck et al. 2011) that could readily leverage their training-acquired skills towards other activities, but institutional voids also at the BoP could imply lack of access to credit to start a new venture.

Moreover, and associated with the idea of complementarity, training-provided general managerial skills do not necessarily entail that the local entrepreneur does not also increase the degree to which his set of abilities is firm-specific. Lazear (2009) proposed that firm-specific human capital could be understood through the lenses of weighted combination of general skills. According to this view, all skills and abilities (e.g. communication skills, financial literacy, etc.) are inherently general. What distinguishes general from firm-specific capital is the weights different firms to each skill and ability in their production process. Therefore, given the lack of ex ante human capital within the BoP, if a firm provides a general training encompassing a knowledge which is tightly coupled to the activities it expects from its local partner, the local entrepreneur might boost abilities whose weight is greater on the training firm than on potential outside options. Thus, the general ability only might even become an actual firm-specific asset and yield a greater economic value within the partnership (e.g. increasing communication skills for local entrepreneurs in charge of recruiting salespeople).

The degree of individual risk aversion in BoP environments could also lead trained individuals to prolong the firm-entrepreneur partnership. As argued by Chliova and Ringov (Chliova and Ringov 2017), one wrong choice of investment in by BoP entrepreneurs in the context of extreme resource scarcity may be highly detrimental to their survival. Therefore, once a firm transfers knowledge to a local entrepreneur, the decision to leave the partnership entail risks which could preclude their mobility vis-à-vis the default choice of continuing the partnership and capturing (some of) the additional economic value yielded from the acquired managerial capital. Not only that risk could be enough to undermine mobility, but the local entrepreneur might also be uncertain to the extent to which the knowledge transferred through the training is applicable to other business opportunities or settings (Coff and Raffie 2015; Raffie and Coff 2016). Especially as BoP entrepreneurs have few professional experience and information, the (mis)perception of firm-specificity associated with a general managerial knowledge taught within the context of a
partnership might reduce their willingness to renege from the partnership. A last point associated with risk aversion is that if the managerial training is viewed as a relational signal of a firm’s commitment with its local partner (Baron and Kreps 2011; Wang, He, and Mahoney 2009a), a highly risk averse entrepreneur could prolong its partnership on the hopes of receiving further training investments or accrue more value from the business partnership. Finally, if the managerial training is relatively cheap when compared to the value appropriated with short-term higher productivity, then there is also a case for firms to invest in managerial training in BoP markets (Riley, Michael, and Mahoney 2017).

A new strand of strategic human capital literature has heralded that firm’s investment in general human capital might also entail a successful business practice due to the existing frictions to individual’s mobility across firms and enterprises. Further, in the BoP settings, the extreme resource scarcity leading to a potential lack of complementary resources to explore the acquired knowledge for other activities and a high degree of risk aversion would lead to managerial training to prolongs firm-entrepreneur partnership in BoP markets, even if this market is characterized by highly volatile business relationships. Thus, we hypothesize:

**Hypothesis 3 (H3):** Transferring managerial knowledge to local partners increases the expected duration of a firm-entrepreneur service partnership in BoP markets.

Finally, our last set of hypotheses attempts to moderate the effect of managerial training on partnership-oriented expected outcomes by evaluating the extent to which local entrepreneurs already possess firm-specific human capital. Although managerial training provides a general set of skills which could boost productivity regardless of the context, these skills are not only acquired through formal training. Indeed, if the lack of previous professional experience is one reason why managerial training boost BoP entrepreneurs’ productivity, on-the-job-learning is a substitute mechanism to formal training. One should expect that human capital will be heterogeneous across partners. Some partners may have already developed a local relationship with the focal firm, thus increasing their stock of firm-specific human capital. Therefore, I argue that such firm-specific training is a substitute for generic human capital development in management knowledge because for a subset of such local entrepreneurs, managerial skills may have already accrued through on-the-job learning. Therefore, we hypothesize that the stock of firm-specific human capital a local
entrepreneur has within the partnership negatively moderates the effect of managerial training on both expected productivity and duration of a firm-entrepreneur partnership within the BoP.

*Hypothesis 4a (H4a): The stock of firm-specific human capital held by the BOP entrepreneur negatively moderates the effect of transferring managerial knowledge focused on the BOP entrepreneur service tasks on the potential value created by the firm-BOP entrepreneur service partnership.*

*Hypothesis 4b (H4b): The stock of firm-specific human capital held by the BOP entrepreneur negatively moderates the effect of transferring managerial knowledge focused on the BOP entrepreneur service tasks on the expected duration of a firm-BOP entrepreneur service partnership.*

3.4 DATA AND EMPIRICAL STRATEGY

3.4.1 Empirical context

This research uses the setting of a micro-entrepreneurship program and an associated managerial training program sponsored by the Brazilian subsidiary of a large multinational firm. Due to a confidentiality agreement, the company shall be referred as *SalesNow company*. SalesNow uses a direct sales channel to distribute a broad range of products (e.g. housing utensils, clothes, and hygiene products, among others). In 2016, the firm had a network of more than one million sales representatives in Brazil, who purchase and re-sell SalesNow’s products in their local markets. Although the company has a diversified product portfolio and caters several socioeconomic segments, within-company interviews revealed their main target market to be low-income and middle-to-low-income populations.

Catering base-of-the-pyramid markets entails managerial concerns for SalesNow. A weak attachment between sales representatives and the company implies an 80% yearly churning rate, closely following other direct sales settings (Hystra, 2013). Further, whilst reaching close to 70% of all 5,565 municipalities in Brazil, most of which are far away from large urban centers, their network coverage also encompasses impoverished regions even within urban districts. The breadth of coverage, as well as the heterogeneous conditions of local, often impoverished, markets poses another difficulty on reaching existing and attracting new sales representatives. As these sales
representatives are central to the company’s distribution strategy, reducing their number decreases overall revenues and profitability.

To solve managerial predicaments in local markets, SalesNow sponsors a ‘local manager’ micro-entrepreneurship program. This program offers the possibility for a subset of existing sales representatives, often from the BoP,\textsuperscript{15} to become ‘local managers’ of a team of sales representatives. These local managers are responsible for a host of activities as recruiting new sales representatives, assisting/incentivizing existing sales representatives, ‘bridging’ information from the company to the local market (e.g. product brochures, sales strategies, among others). According to the program rules, local managers’ revenue is strictly associated with payment rule involving sales, number-of-sales-orders, and recruitment targets. Local managers’ gains are strictly increasing sales. Moreover, managers have discretion on how to perform their tasks: focusing on the intensive (higher average order) or extensive (recruiting more sales representatives) margins.

At any point in time, the company plans to support from 12,000 to 14,000 local managers. Nonetheless, the relationship between firm and local managers often does not last. From 2014 to 2016, close to 40,000 individuals have joined the program at some point due to the yearly turnover rate of close to 100% yearly. After joining the program 36% of all individuals leave within 4 months and 75% leave within the year. This program is an unstable business partnership between a firm interested in accessing BoP markets (SalesNow) and local entrepreneurs (local managers).

Understanding that local managers lacked the capabilities to conduct their sales and prospection activities, SalesNow launched an optional training program in mid-2015. Training consisted of a mix between two coaching sessions with a regional sales manager (SalesNow’s employee) and two online training session covering basic business skills for their day-to-day activities. The company segmented the content of such training program based on the experience and achievement levels of each ‘local manager’. Particularly training to entry-level local managers encompassed two major topics: (1) interpersonal communication; and (2) use of performance data to manage their activities. This level encompassed close to six hours of training (two one-hour coaching sessions, a one-hour ‘on-practice’ session, and close to three hours of online material). Indeed, even if examples within the training program pertained to the direct sales’ setting (e.g. the training used a standard firm-provided team report to teach the usefulness of tracking performance

\textsuperscript{15} From 2014 to 2016, close to 40\% of all local managers had at most elementary education, and only 12\% had college degrees. Further, 40\% of these individuals lived in regions with a per capita income lower than one minimum wage.
indicators), their contents embedded early-level local managers with general communication skills and a data-driven management mindset, both useful abilities to other occupations or enterprises. Thus, the training focused on general managerial skills coupled with the partnership activities.

This research setting provides a fruitful context to study firm-entrepreneur partnerships in BoP markets and firm-led managerial knowledge transfer to BoP entrepreneurs. First, if the breadth of activity from SalesNow in Brazil yields this partnership to be of paramount importance to the company’s supply chain, the observed performance of each local entrepreneur is substantially heterogeneous, indicating room for learning. Further, not only did the socioeconomic conditions surrounding ‘local managers’ implied an inherent human capital scarcity (low median educational background), but individuals pursued the training after being having accumulated a heterogeneous stock of firm-specific human capital, opening space for both managerial training to affect performance and survival, but also to verify heterogeneous effects based on pre-existing on-the-job learning of general skills. Third, although the training policy focused on general managerial skills, they were tightly coupled with the spirit of the partnership: to boost recruitment and team management. Finally, not only do high churning rates indicate the presence of ‘fluid’/temporary firm-entrepreneur partnerships, but they were also a concern for the focal firm, based on our informal conversations with company managers. Thus, the research had both theoretical but practical importance to the involved parties.

3.4.2 Datasets and Main Variables

3.4.2.1 Datasets

SalesNow provided individual-level dataset for all individuals who were ‘local managers’ between 2014 and 2016. This data encompasses performance indicators for each team of sales representatives, each of which can be under the supervision of a ‘local manager’, for a period of 57 sales campaigns from 2014 to 2016. The company granted access to all training material and a list of each local manager who finished the early-stage training, as well as the dates. Further, the dataset has socioeconomic information on local managers’ educational level, age, and address when they first joined the program.
To complement the firm-provided dataset, this research uses both open-access and restricted administrative datasets. Using local managers’ reported addresses, each local manager was mapped into one of the more than 320,000 census tracts used by the Brazilian Institute of Geography and Statistics to collect socioeconomic information for the 2010 Population Census. This research uses the 2010 Brazilian Population Census to capture the socioeconomic local conditions surrounding each local manager.\(^\text{16}\) Finally, this research uses the Brazilian Ministry of Labor’s employer-employee matched dataset (RAIS) for the periods between 2014 and 2016 to verify local managers who held formal employment positions prior joining the local manager program or while acting as such.\(^\text{17}\)

3.4.2.2 Dependent Variables

Hypotheses 1, 2, and 4a have performance as its main dependent variables. Regarding performance, the analysis relies on two different aspects of firm-entrepreneur partnership. As a measure of sales performance, the analysis uses the aggregate gross sales from the local manager’s team at each sales campaign (normalized so that at each sales campaign the mean sales performance receives value zero and the distribution has standard deviation equals to one). The use of the aggregate gross sales instead of using the value of an average order (sales divided by the number of sales representatives) reflect the company’s ambiguity regarding a focus on the intensive or extensive margin. In addition, we also use the data on local manager’s gross gains at each sales campaign (again normalized to have within-campaign mean equals to zero and standard deviation equals to one), representing the amount SalesNow paid the local manager at that campaign. Hypotheses 3 and 4b addresses partnership survival as the main dependent variable. This paper uses dummy variables receiving value one (1) if the individual remains within the local manager program after ‘\(T\)’ sales campaigns, and zero (0) otherwise.

\(^{16}\) Close to 90% of all local managers were assigned to a census tract. The information for the remaining 10% were considered as equal to the mean values at his/her municipality.

\(^{17}\) Under a privacy agreement with the Ministry of Labor, this dataset allows the researcher to verify individual’s previous employment in the formal market by matching individual based on the social insurance numbers (mandatorily provided to the company if individuals want to become sales representatives or local managers). Indeed, the RAIS dataset confirmed the prevalence of informality within ‘local managers’, as more than 50% of all local manager have never had a formal labor contract between 2014 and 2016.
3.4.2.3 Main Independent Variables

Hypothesis 1 states that the presence of a firm-entrepreneur partnership with the BoP market increases firm performance. In our setting, a firm-entrepreneur partnership represents the presence of a ‘local manager’ at a team of sales representatives. Nonetheless, the relationship between sales representatives (and sales teams) and the company are not tied to the presence of a local manager. There is a subset of teams never losing a local manager throughout our sample period (around 25%), whereas the remaining sales teams lose a local manager at least once from 2014 to 2016. Further, at each sales campaign and conditional on the sales team having a local manager in the previous period, close to 3% of these sales teams lose their local managers.

When a local manager decides to leave the program, three things may happen with the sales representatives from his/her assigned team: (1) a sales team may be under temporary supervision of a regional manager (SalesNow’s employee) until a new local manager is assigned; (2) a new ‘local manager’ might be immediately assigned to the new team; or (3) sales representatives might migrate to another existing team. Although the company did not disclose data at the sales representative level, this study observes whether the company maintained the team as active, as well as if the team has an assigned ‘local manager’ at each sales campaign. This research assumes that teams who maintained their codes as valid after the leave of the ‘local manager’ were either temporarily assigned to the regional manager or immediately received a new ‘local manager’. Given that assumption, the main variable used to test hypothesis 1 is a dummy variable receiving value one (1) when an existing team has an assigned local manager, and zero (0) otherwise.

Hypotheses 2 to 4b addresses firm-transfer of general human capital to local managers. The main explanatory variable to represent such transfer is a dummy variable receiving one (1) after a local manager finished the entry-level training encompassing interpersonal communication and use of performance data to manage a team, and zero (0) otherwise. In all empirical exercises addressing hypotheses 2 to 4b, the research limits itself to those local managers who are still under an ‘entry’ level in the company’s ‘local manager’ program.

Finally, the last independent variable of interest pertains to hypotheses 4a and 4b, the amount of accumulated firm-specific human capital. This paper uses a local manager’s within-
partnership experience (number of previous sales campaigns as a local manager) to represent firm-specific human capital. We benefit from the fact that local managers, even at the ‘entry level’, vary in the number of previous sales campaigns they have accumulated by the time they undertake the training. Since the training policy was exogenous to the presence of existing local managers at the time of its implementation, both local managers with low experience and high experience were able to undertake the training simultaneously.

3.4.2.4 Control variables

This research uses control variables to perform a matching procedure between trained and untrained individual to select observably comparable treatment and control groups (as explained in the next subchapter). To account for local manager’s BoP features, the research uses the following socioeconomic information regarding their census tract of residence: income per capita, illiteracy rate across households’ main provider, and share of households with per capita income below a quarter of a minimum wage. The analysis also considers local manager’s educational level (elementary, secondary, or tertiary education). Lastly, at the local manager level, the research uses information on the number of pre-training period that the local manager had a formal employment contract with any company.

To account for the socioeconomic characteristics surrounding the local manager, the research also considers the mean level of the above-defined socioeconomic variables at the level of the local manager’s municipality, while also considering conditions of the local labor market by computing the yearly growth rate on the number of formal employment contracts. Finally, the research also accounts for a categorical variable representing how SalesNow classifies the region each team is located (team’s urban profile): countryside, metropolitan area, or state capital.

3.4.3 Empirical Strategy

To address hypothesis 1, on the effect of having a firm-entrepreneur partnership at local markets, this research employs a synthetic control method (Abadie, Diamond, and Hainmueller 2010; Kreif et al. 2016). SalesNow’s local manager program provides an adequate setting to evaluate the effect of having such partnership. First, the company shared data on the historical
performance of all teams of sales representatives, each associated with a catchment area. Second, the researchers observe a set of ‘stable’ partnerships to use as a donor pool of never-treated units and a set of teams whose local manager leaves the program after a longer period. As in Kreif et al (2016), we estimate a separate synthetic control for each treated unit and report the average effects across all cases. Under this setting, the synthetic control method uses the pre-treatment information on both the treated unit and ‘donor pool’ to create a ‘synthetic’ unit matching the pre-treatment behavior of the treated unit though a weighted sum of donor units.

The synthetic control method is applied separately to a subset of local teams which lose their local manager after one year (19 sales periods) and which remained without a local manager for at least 5 sales periods. The donor pool for each sales team in the treatment pool consists of 100 sales teams with a local manager throughout the entire 24 sales campaigns (19 pre-exit and 5 post-exit) and with the closest sales performance with respect to the treated unit.

To test hypotheses 2 to 4b, the research combines propensity score matching (Imbens 2004) and differences-in-differences (Imbens and Wooldridge 2009). The 3-1 nearest-neighbor propensity score matching to find, for each ‘entry-level’ local manager who undertook within-firm training (treated), a group of at most three control managers who did not undertake training but whose pre-treatment performance and control variables are like that of the trained local manager. The research uses past performance to match treated and untreated sales executives to mitigate the effect of self-selection bias on ex post training performance (Chabé-Ferret 2015).¹⁸ In the matched sample, we estimate equation (3.1), a differences-in-differences, to test hypothesis 2:

\[ y_{it} = \delta T_{it} + \mu_i + \tau_t + \epsilon_{it}, \]  

(3.1)

where \( y_{it} \) is one of the performance variables (standardized team size, standardized gross sales, or standardized gross gains) for local manager \( i \) at period \( t \). \( T_{it} \) is a dummy variable receiving value one \( (3.1) \) if \( i \) had received training by period \( t \). \( \mu_i \) and \( \tau_t \) are local manager and time-window fixed

¹⁸ These exercises were replicated considering performance on 3-pre-treatment-period window and a 6-pre-treatment-period window. Both cases are reported. The propensity score matching considered all control variables described in the previous subchapter, pre-treatment standardized gross sales, gross gains, and team size, as well as quadratic terms for the continuous variables. The research also conduct robustness checks to verify the sensitivity to changes in the pre-treatment windows and number of neighbors used in the matching algorithm.
effects. Time windows are centralized on the period that the treated unit received the training program. Here, \( \delta \) is the average performance effect of participating in the training policy.

We further verified the pre-trend assumption and the dynamics of the effects using equation (3.2), where the analysis allows treatment effects to vary for each lagged period before treatment and \( m \) leads after treatment, while \( T_{ij} \) is a dummy variable receiving value 1 if individual \( i \) is on the treatment group and the time window is \( j \).

\[
y_{it} = \sum_{j=-q}^{m} \delta_j T_{ij} + \mu_i + \tau_t + \epsilon_{it} \tag{3.2}
\]

To test hypothesis 4a, the research uses equation (3.3), which allows the treatment effect to vary based on local manager’s initial stock of firm-specific human capital (\( F_i \)):

\[
y_{it} = \delta T_{it} + \theta(T_{it} \times F_i) + \mu_i + \tau_t + \epsilon_{it} \tag{3.3}
\]

To test hypotheses 3 and 4b, we estimate linear probability models (equations 3.4 and 3.5) within the matched sample to assess the probability of a local manager remaining in the program after \( \tau \) sales periods (represented by a dummy variable \( A_i(\tau) \)).

\[
A_i(\tau) = \delta T_i + X_i \beta + \epsilon_i \tag{3.4}
\]

\[
A_i(\tau) = \gamma T_i + \theta(T_i \times F_i) + X_i \beta + \epsilon_i \tag{3.5}
\]

In the above equations, \( T_i \) is a dummy variable representing whether the individual was treated or not, \( F_i \) is the initial level of firm-specific human capital the individual possessed pre-treatment period, and \( X_i \) is the set of control variables used in the matching procedure and evaluated at the period preceding the treatment group receiving training.
3.5 RESULTS

Figure 3.1 presents descriptive statistics on the effects of losing/gaining a local manager on sales team performance. Panel A shows the mean standardized sales performance of sales teams on the 11 campaigns preceding the exit of a local manager and the five sales campaigns after the loss of the existing local manager, conditional on not finding another sales manager during these next five campaigns. Sales teams losing their local managers present a pre-exit decreasing trend in sales performance, which accentuate after the loss of the local manager. Panel B shows the effect of a local manager entry. After a local manager entry, performance sharply increases during the next two sales campaigns before levelling off.

Although Figure 3.1 displays a decreasing trend after the exit of a local manager and a positive shock after the entry of a local manager, teams losing local managers might be self-selected (pre-exit downward trend on Panel A). To tackle this issue, we constructed synthetic controls for the 336 sales teams, which had 19 sequential sales campaigns before the exit of the local manager and 5 post-campaigns with the same local manager. Using as a donor pool the set of the 100 sales teams with closest sales performance in the 19-pre-sales period, we constructed a synthetic control for each such sales team. Out of those, we were able to find 221 sales teams where the synthetic team had a good fit with the pre-exit treatment sales team.\(^\text{19}\)

Figure 3.2 presents the mean treatment and synthetic control groups (panel A), as well as the distribution of these effects (Panel B). What we observe is that there is an immediate drop in performance of almost 1/3 on the value of sales, which increase further the longer the sales team remains without a local manager. On Panel B, we show that the effect concentrated around a loss of 5,000 BRL, accounting for the 33% loss in performance. These results support our first hypothesis on the benefits of having a local manager.

\(^{19}\) The following criteria defined a “good fit”: root-mean squared error below 10% and absolute difference in the sales campaign immediately preceding the exit of the local manager below 10%).
Figure 3.1 - Entry and exit of local managers and sales teams’ sales performance

Panel A – Standardized sales and exit of a local manager

Panel B – Standardized sales and entry of a local manager

Source: the author
Figure 3.2 - Effect of losing a local manager on sales performance

Panel A – Effect of the exit of a local manager on sales performance

Panel B – Distribution of the effect of the exit of a local managers (post-exit)

Source: the authors.
Table 3.1 provides the descriptive statistics for the matched treatment and control samples for the immediately preceding sales period before treatment in the treated and respective control groups. Columns 1-4 show the descriptive statistics for a matched sample considering a 3-window-before-treatment matching. These columns consider treated local managers (and their matched control group) with at least 3 previous campaigns of experience (total of 526 matched treated local managers). Columns 5-8 are analogous, but considering the subsample constructed using information from 6 windows prior treatment, thus using a restricting sample of treated and control local managers to a group with at least 6 previous campaigns of experience before treatment (total of 279 matched treated local managers). Regardless of the matched sample, these early-level local managers have a below-average performance on performance variables, displaying average performance of -0.6 sd. on gross sales and -0.4 sd. on gross gains. Local managers reside in poor census tracts (average household has an income per capita of 1.25 minimum wages), are uneducated (around 75% had no college education) and operate in poor markets outside state capitals (average household in their municipalities has an income per capita of 1.24 minimum wages). Column 4 and column 8 show that the matching procedure resulted in treated and control groups of local managers who are statistically undistinguishable in past performance, own socioeconomic characteristics, and regional characteristics.
### Table 3.1 - Descriptive statistics in matched sample

<table>
<thead>
<tr>
<th>Sample</th>
<th>Matched sample considering 3 back-windows</th>
<th>Matched sample considering 6 back-windows</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (pooled)</td>
<td>Mean (trained)</td>
</tr>
<tr>
<td>Local manager's performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross sales (standardized)</td>
<td>-0.601</td>
<td>-0.596</td>
</tr>
<tr>
<td>Gross gains (standardized)</td>
<td>-0.406</td>
<td>-0.408</td>
</tr>
<tr>
<td>Team size (standardized)</td>
<td>-0.631</td>
<td>-0.625</td>
</tr>
<tr>
<td>Local manager's characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within-firm experience (in sales campaigns)</td>
<td>12.414</td>
<td>12.534</td>
</tr>
<tr>
<td>Income per capita in 2010 BRL 000s (census tract)</td>
<td>0.653</td>
<td>0.657</td>
</tr>
<tr>
<td>Literacy rate from household's head (census tract)</td>
<td>89.7%</td>
<td>89.7%</td>
</tr>
<tr>
<td>Proportion of house with income lower than 1/4 minimum wage (census tract)</td>
<td>8.0%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Educational Background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some primary education</td>
<td>28.7%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Some secondary education</td>
<td>53.7%</td>
<td>54.2%</td>
</tr>
<tr>
<td>Some tertiary education</td>
<td>17.6%</td>
<td>17.5%</td>
</tr>
<tr>
<td>Regional characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income per capita in 2010 BRL 000s (municipality)</td>
<td>0.630</td>
<td>0.629</td>
</tr>
<tr>
<td>Literacy rate from household's head (municipality)</td>
<td>87.7%</td>
<td>87.7%</td>
</tr>
<tr>
<td>Proportion of house with income lower than 1/4 minimum wage (municipality)</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Yearly growth rate in formal employment (municipality)</td>
<td>-3.0%</td>
<td>-2.9%</td>
</tr>
<tr>
<td>Urban profile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State capital</td>
<td>16.1%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Metropolitan area</td>
<td>42.3%</td>
<td>42.2%</td>
</tr>
<tr>
<td>Countryside</td>
<td>41.6%</td>
<td>41.6%</td>
</tr>
<tr>
<td>Individuals (unweighted)</td>
<td>2052</td>
<td>526</td>
</tr>
</tbody>
</table>
Table 3.2 tests hypotheses 2 and 4a. Columns 1-4 display the effect on sales performance while columns 5-8 display the effect on local managers’ gains. Panel A supports the hypothesis 2’s prediction. It shows that, on average, transferring generic human capital (in the form of personal communication skills and use of data to manage performance) the BoP partnership performance. Considering columns 1, 2, 5 and 6, which display analyses with a larger sample of local managers with at least 3 pre-treatment sales campaigns, gross sales and gains increase by 0.035sd and 0.11sd, respectively (p<0.001). For this sub-group, this represents a mean increase of 5.5% and 24% on gross sales and individual gains when compared to the pre-treatment sales campaign. When considering a smaller sample of local managers which greater stock of firm-specific human capital (at least 6 pre-treatment sales campaigns), the average effect remains positive and statistically significant in the short term (when considering up to 3 sales campaigns after the training took place – columns 3 and 7).

Figure 3.3 supports the matching and differences-in-differences assumption by showing that all lagged estimates from equation (2) are undistinguishable from zero. Further, it shows the dynamics of transferring generic knowledge to local managers in the BoP setting. Considering the 3-back-window matched sample, the effects last for up to a year after the local manager received the training (19 sales campaigns). Results using the 6-back-window matched sample, however, show that the effect of training are positive and statistically significant in the short run. Assuming individual fixed effects and pre-treatment matching explain the selection-into-training, these results indicate that SalesNow’s generic training has a greater effect on local managers with low within-partnership experience. These results anticipate our test of hypothesis 4a.

---

20 Survival selection bias is likely against these findings, as one would expect that the ‘best’ untrained managers would survive in the control group. One could also argue that the best local managers may find different occupations and those who remain in the control group are the ‘worst’ partners. Additional analyses showed that treated and control groups do not differ in their probability of attaining a formal employment status training.
### Table 3.2 - General Human Capital Transfer and Performance

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross sales (standardized by sales campaign)</td>
<td>0.033*</td>
<td>0.035*</td>
<td>0.022‡</td>
<td>0.020</td>
<td>0.110*</td>
<td>0.105*</td>
<td>0.062†</td>
<td>0.052‡</td>
</tr>
<tr>
<td>(standardized by sales campaign)</td>
<td>[0.009]</td>
<td>[0.010]</td>
<td>[0.013]</td>
<td>[0.015]</td>
<td>[0.020]</td>
<td>[0.021]</td>
<td>[0.029]</td>
<td>[0.030]</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.772</td>
<td>0.763</td>
<td>0.742</td>
<td>0.728</td>
<td>0.509</td>
<td>0.493</td>
<td>0.400</td>
<td>0.408</td>
</tr>
</tbody>
</table>

#### Panel A: Average Treatment Effect on the Treated (ATT)

| Received training | 0.033* | 0.035* | 0.022‡ | 0.020 | 0.110* | 0.105* | 0.062† | 0.052‡ |
| (standardized by sales campaign) | [0.009] | [0.010] | [0.013] | [0.015] | [0.020] | [0.021] | [0.029] | [0.030] |
| Adjusted R-squared | 0.772 | 0.763 | 0.742 | 0.728 | 0.509 | 0.493 | 0.400 | 0.408 |

#### Panel B: Heterogeneous effects by pre-existing partnership duration

| Received Training X Baseline partnership duration | -0.001† | -0.001* | -0.002* | -0.002* | 0.002† | 0.001 | 0.002 | 0.001 |
| (standardized by sales campaign) | [0.000] | [0.000] | [0.001] | [0.001] | [0.001] | [0.001] | [0.001] | [0.001] |
| Adjusted R-squared | 0.773 | 0.764 | 0.743 | 0.729 | 0.509 | 0.493 | 0.400 | 0.408 |

| Individual FE | Y | Y | Y | Y | Y | Y | Y | Y |
| Sales Campaign FE | Y | Y | Y | Y | Y | Y | Y | Y |
| Window FE | Y | Y | Y | Y | Y | Y | Y | Y |
| Back Windows | 3 | 3 | 6 | 6 | 3 | 3 | 6 | 6 |
| Front Windows | 3 | 6 | 3 | 6 | 3 | 6 | 3 | 6 |
| Individual-period observations | 13624 | 17963 | 10463 | 12781 | 13624 | 17963 | 10463 | 12781 |
| Individuals (unweighted) | 2052 | 2052 | 1084 | 1084 | 2052 | 2052 | 1084 | 1084 |
| Treated individuals | 526 | 526 | 279 | 279 | 526 | 526 | 279 | 279 |
| Mean weighted dep. variable at baseline | -0.601 | -0.601 | -0.601 | -0.601 | -0.454 | -0.601 | -0.601 | -0.542 |

Note: * p<.01; † p<.05; and ‡ p<.1. All standard errors are clustered at the individual-level. All estimates employ a differences-in-differences method where each column varies the periods considered in the back and front-window of analysis. Due to churning, all estimates present are balanced with respect to the pre-treatment period and unbalanced after the treatment period. Estimates consider a sample selected through a 3-1 nearest-neighbor matching procedure and are weighted by the times each control unit appeared within the same treatment period. The matching procedure is further described in the appendix.
Figure 3.3 - Effect dynamics – sales performance, individual gains, and generic human capital transfer

Panel A - Matching and sample based on 3 periods before treatment

Panel B - Matching and sample based on 6 periods before treatment

Source: the author.
Panel B on Table 3.2 supports hypothesis 4a: local manager’s stock of firm-specific human capital might be a substitute for firm-provided generic human capital in a BoP relationship. Baseline stock of firm-specific human capital negatively moderates the effect of receiving training on sales performance (though maintain the effect as positive for individuals with are trained having at most 46 sales campaigns within the partnership, which means that the partnership lasted more than three years). A firm-specific human capital equivalent to one year of partnership (19 pre-training periods) cuts by half the effect of the training on gross sales and size of active team.

Table 3.3 displays the results of estimating equation (4) (panel A) and equation (5) (panel B) on the effect of firm-sponsored generical human capital development on the survival of a BoP partnership. Table 3.3 shows the average difference in probability of a local manager remaining in the partnership after 1, 6, 12, and 18 sales campaigns. A trained individual in the 3-back-window matched sample has a probability 11% higher of remaining within the partnership after 6 sales campaigns, with the difference lasting up until 18 sales campaigns (one year), though reducing in magnitude to 6.7%. When accounting for managers in the 6-back-window matched sample, the effect appears in the short/medium term, though it fades away close to the one-year mark. Further, Panel B shows that baseline firm-specific human capital has a negative moderating effect on partnership survival, though most estimates have a non-statistically significant moderating effect of baseline firm-specific human capital on probability of partnership survival. These results provide support for hypothesis 3, i.e. firm-sponsored generic training increases the expected duration of a partnership between firm and a local entrepreneur at a BoP market. However, the empirical evidence provides only weak support for hypothesis 4b, that the stock of firm-specific human capital negatively moderates the effect of the generic training on partnership survival.
Table 3.3 - General Human Capital Transfer and Partnership Duration at the BOP

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Received training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.061*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[0.009]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel A: Average Treatment Effect on the Treated (ATT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received Training</td>
<td>0.065*</td>
<td>0.133*</td>
<td>0.108*</td>
<td>0.092*</td>
<td>0.067*</td>
<td>0.051</td>
<td>0.051</td>
<td>-0.006</td>
</tr>
<tr>
<td>[0.010]</td>
<td>[0.026]</td>
<td>[0.031]</td>
<td>[0.028]</td>
<td>[0.014]</td>
<td>[0.044]</td>
<td>[0.047]</td>
<td>[0.044]</td>
<td></td>
</tr>
<tr>
<td>Panel B: Heterogeneous effects by pre-existing partnership duration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received Training X Baseline partnership duration</td>
<td>-0.000</td>
<td>-0.002‡</td>
<td>-0.002</td>
<td>-0.002</td>
<td>-0.000</td>
<td>0.001</td>
<td>0.000</td>
<td>0.001</td>
</tr>
<tr>
<td>[0.000]</td>
<td>[0.001]</td>
<td>[0.002]</td>
<td>[0.002]</td>
<td>[0.000]</td>
<td>[0.002]</td>
<td>[0.002]</td>
<td>[0.002]</td>
<td></td>
</tr>
<tr>
<td>Local manager's baseline performance</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Local manager's baseline characteristics</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Regional characteristics</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Baseline period</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Back Windows</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Individuals (unweighted)</td>
<td>2052</td>
<td>2052</td>
<td>2052</td>
<td>2052</td>
<td>1084</td>
<td>1084</td>
<td>1084</td>
<td>1084</td>
</tr>
<tr>
<td>Treated individuals</td>
<td>526</td>
<td>526</td>
<td>526</td>
<td>526</td>
<td>279</td>
<td>279</td>
<td>279</td>
<td>279</td>
</tr>
</tbody>
</table>

Note: * p<0.001; † p<0.05; and ‡ p<0.1. All standard errors are clustered at the individual-level. All estimates employ a differences-in-differences method where each column varies the periods considered in the back and front-window of analysis. Estimates consider a sample selected through a 3-1 nearest-neighbor matching procedure and are weighted by the times each control unit appeared within the same treatment period. The matching procedure is further described in the appendix.
3.6 DISCUSSION

3.6.1 Contributions

In opposition to the established and consistent with the more recent strategic human capital literature, this study finds empirical support for firm-sponsored investment in general human capital within BoP markets. Specifically, as BoP entrepreneurs partnering with a large organization receive general human capital in the form of firm-sponsored training in managerial skills, not only performance increases, but the partnership also remains active for longer regardless the expected ‘fluid’/short-term nature of relationships within this BoP setting. Thus, firm-sponsored generic human capital transfer within the contexts of extreme human capital scarcity portrays a dual role: (1) it increases the local entrepreneur’s performance by endowing human capital; and (2) contrary to the expectation in contexts of highly mobile and fluid partnerships, it strengthens the tie between a large organization and local partners at BoP markets.

Subsequent analyses for moderating effects suggest that regardless of the ‘generic’ content of a firm training policy, on-the-job learning might also grant individual with the required knowledge to increase their task productivity. Local partner’s firm-specific human capital, in the form of previous within-partnership experience, negatively moderated the effect of generic human capital transfer through training. These findings support two complementary views on the role of firm-led investment in generic human capital at the BoP. First, these results are in accordance with the definition of firm-specific human capital as a weighted sum of generic human capital (Lazear, 2009). Indeed, providing generic skills tightly coupled with the activities a firm expects from its local partners not only increases the partnership overall performance, but it also reduces the likelihood of terminating the partnership. This would suggest that such generic skills are more valued at the focal company. In either case, a generic skill yields performance gains which remains within the firm-entrepreneur partnership. Second, it suggests that as a strategic policy, firm-sponsored generic business skill training within BoP settings anticipates a potentially lengthy process of on-the-job learning that leads to increased performance.

In this Chapter, my main contribution is to explain how a private firm may have incentives to invest in generic human capital (in the form of managerial knowledge) even in a highly fluid relationship at the BoP. I propose that such firm-sponsored knowledge transfer has a dual role of
both increasing within-partnership productivity and prolonging the partnership. This mechanism makes several contributions to the literature BoP enterprises and strategic human capital. First, it contributes to the BoP literature by addressing the call on micro-oriented research on the BoP and on knowledge transfer mechanisms in human capital scarce environments (Kistruck et al, 2014). Although the literature has explored the use and benefits of templates within BoP settings (Kistruck et al, 2014; Chliova et al., 2017), this paper argues that conditions at the BoP (e.g. high risk aversion and lack of complementary resources by local entrepreneurs) also creates a business case for firm-driven investments in generic human capital. Thus, a second contribution is to connect the recent literature on the benefits of both generic and firm-specific investment in human capital (Riley, Michael, and Mahoney, 2016) with the literature of BoP enterprises. Firm-sponsored generic human capital provides a win-win alternative in contexts of firm-entrepreneur partnership at the BoP due to its dual role of circumventing the performance implications of human capital paucity and increasing the attachment between firm and the local entrepreneur. Third, by supporting a business case of firm-led generic training at the BoP, the results also suggest a private-based solution to a potential ineffectiveness of government- and nonprofit-led training initiative in impoverished areas in emerging and developing economies (McKenzie and Woodruf, 2017). Not only this paper shows that incorporating local entrepreneurs within their supply chain might yield benefits on its own, but it also shows that firm-sponsored human capital transfer to BoP partners may benefit the firm while creating a potential social benefit in emerging and developing economies.

3.6.2 Limitations and suggestions for future research

Our study also has limitations that encourage further investigation in the topic of how firms manage and develop stakeholder relations at the BoP. First, this study remains limited to a single company. Different training contents or different settings where the firm reaches a BoP market through different programs might pose different challenges to the transfer of generic human capital. More specifically, in our setting, the entrepreneurial activity under study did not exist in the absence of the training firm. However, in different contexts, firms might want to partner with local entrepreneurs whose business activities are independent of the entrant firm. This could pose
additional challenges to the generic knowledge transfer. An exciting topic for future research is to understand whether reciprocity and fairness might lead to firm-entrepreneur attachment.

The econometric strategy poses another potential limitation. SalesNow’s training program is optional and individuals self-select into training. Although this research used extensive past-performance data, socioeconomic covariates, and econometric techniques to account for such self-selection, there might still be a concern that trained and untrained individuals received a temporary and unobserved shock correlated with their probability of undertaking the training program and with their ex post performance. Although interviews with company employees, including the former CEO, indicated that motivation hardly changes once past performance is accounted for, this remains a limitation. Future research would benefit from conducting randomized training within the contexts of firm-entrepreneur partnerships.

A third limitation refers to the moderating effect of ex ante stock in firm-specific human capital. In this setting, generic training might be a substitute for on-the-job learning, thus resulting the negative effect of firm-specific and generic human capital. Nonetheless, scholars could further scrutinize the dynamic and complex relationship between generic and firm-specific training, observing how their degree of complementarity and substitutability vary over time. In such case, generic training might complement firm-specific human capital. Therefore, future research endeavors could explore the boundary conditions of when the transfer of generic human capital substitutes or complements pre-existing firm-specific human capital.
3.7 CONCLUDING REMARKS

This study examines the effect of general human capital transfer on a firm-entrepreneur partnership at BoP markets using highly detailed individual data of an entrepreneurship program supported by a large direct sales company in an emerging market (Brazil) and of firm-provided managerial training. The study assesses a dual benefit of firm-sponsored transfer of generic human capital in firm-entrepreneur partnerships at the BoP: increased partnership performance and survival. Further, results suggest that generic training might substitute a lengthy process of on-the-job learning in a BoP setting. This result is especially useful as high expected churning rates would imply local entrepreneurs might never reach the point of increasing their human capital due to the ‘fluid’/temporary nature of firm-entrepreneur relationships in this context. Firm-sponsored generic might thus be a private-based alternative to provide human capital for microentrepreneurs.
4 EXPLICIT AND TACIT PRACTICE TRANSFER METHODS: EVIDENCE FROM TWO FIELD EXPERIMENTS

4.1 INTRODUCTION

Strategic management scholars have been long interested in the relationship between knowledge resources, organizational learning, and superior organizational performance (Dierickx and Cool 1989; Kogut and Zander 1992; Teece, Pisano, and Shuen 1997; Argote and Ingram 2000; Szulanski 1996; Zander and Kogut 1995). In particular, a growing body of research shows how the (limited) diffusion of management practices shapes differences in performance both across organizations (Bloom et al. 2012; Bromiley and Rau 2014; Nelson and Winter 1982; Teece, Pisano, and Shuen 1997) and within organizations (Szulanski 1996; Haas and Hansen 2007). These empirical findings support an extensive literature that suggests that the ability of an organization to disseminate valuable practices across its subunits could lead to performance gains (Darr, Argote, and Epple 1995; Argote and Ingram 2000; Dierickx and Cool 1989; Argote and Miron-Spektor 2011; Szulanski 1996).

However, despite the advances on the knowledge transfer literature (Szulanski, Ringov, and Jensen 2016; Winter et al. 2012; Argote and Fahrenkopf 2016; Haas and Hansen 2007; Darr, Argote, and Epple 1995; Argote, McEvily, and Reagans 2003; Argote and Ingram 2000; Haas and Hansen 2005; Szulanski 1996; Szulanski and Jensen 2006), organizations still find it difficult to transfer practices and end up investing in unsuccessful practice transfer initiatives (Reus et al. 2009; Reus, Lamont, and Ellis 2016). A potential explanation for this phenomenon is that the subset of practices that can be successfully transferred varies based on the (mis)fit between what practice is being transferred and how such transfer happens (Reus, Lamont, and Ellis 2016; Haas and Hansen 2005, 2007; Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017). For instance, a firm may try to disseminate methods on how to strengthen the relationship with local partners through either a written manual or informal visits in a coaching program. Ultimately, using a written manual may lead to failure, as codified information may not grant insight on how to manage a pool of heterogeneous local partners. In contrast, coaching could increase the probability of a successful transfer if the interaction between the individual transmitting the knowledge (source) and the one receiving it (receiver) leads to personalized directions of how to
manage multiple local partners (Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017). Another explanation is that practice transfer is often an endogenous process. Agents with common interests meet to transfer a practice (Haas, Criscuolo, and George 2015) and organizations choose transfer methods based on perceptions about practices. For instance, organizations may choose an online repository to transfer practices deemed simple and choose training to transfer practices perceived as complex. For these reasons, establishing a causal link between transfer methods, practices, and the effectiveness of transfer initiatives has been challenging.

In this paper, I address these challenges by implementing exogeneous changes in practice transfer methods in a real organization. I partnered with a direct sales company (SalesNow) to conduct two field experiments aimed at assessing the extent to which different facets of transfer methods affect the successful dissemination of a set of practices. The first experiment was focused on identifying the effect of explicit transfer methods, methods involving little to no interaction and personalization between knowledge receiver and source, on the successful transfer dissemination of a set of practices. More specifically, I test the hypothesis that the efficacy of practice transfer varies given the credibility of the knowledge source, defined as the extent to which a source is perceived as knowledgeable and trustworthy about a certain practice (Szulanski 1996; Szulanski and Lee 2017). Arguably, credibility affects the effectiveness of the practice transfer as it may increase the receptiveness of the receiver to a new practice (Szulanski 1996). Geographically dispersed managers were randomly assigned to one of three groups: 1) a group that received information on to-be-disseminated practices through an basic explicit transfer method (a text-message information dissemination program); 2) a group that received information on to-be-disseminated practices through an explicit transfer method referred by credible knowledge sources (a video-message program featuring firm’s recognized specialists); or 3) a placebo group.

In the second experiment, I compare an explicit method to a tacit method, i.e. a method allowing for interaction between individuals and personalization in the transfer process. In particular, I test the hypothesis that personalization and interaction between the individual sending and the one receiving the practice lead to a more effective transfer of non-codified and unscripted practice components. I also examined if tacit transfer methods allowed for a local change (i.e. adaptation) on how individual adopt a practice vis-à-vis how adoption was dictated by the organization (Kostova and Zaheer 1999; Kostova and Roth 2002). Empirically, I randomly assigned other geographically dispersed managers to either one of three groups: 1) a group that
received information on practices through the basic explicit method used in the first experiment; 2) a group that received information on practices through a tacit transfer method: an interactive videoconference training module followed by a short on-site coaching session; or 3) a placebo group.

By using exogeneous changes on practice transfer initiatives, my results disentangle two main effects of how distinct practice-transfer method pairs may lead to heterogeneous practice adoption. First, I verify that knowledge source credibility, although suggested by the previous literature as a factor that may promote knowledge dissemination (Szulanski 1996), may affect practice transfer in two opposing directions when used in combination with an explicit transfer method to transfer bundles of practices. If source credibility will complement the transfer method for a subset of practices whose source credibility is recognized, it will also undermine the transfer of practices not associated with such credibility as receivers focus adoption on the first set of practices. Second, I show that a tacit practice transfer method allows for transferring knowledge content outside the codified scope of an explicit transfer initiative. Arguably, through interaction with the knowledge source, receivers adopt potentially more complex aspects of a practice. Further, I also show that a tacit transfer method also leads to the adoption of a practice in previously unscripted manners. This result suggests that tacit methods creates room for adapting the practice being transferred. Thus, this paper mainly contributes to the literature on knowledge transfer (Haas and Hansen 2005, 2007; Argote and Miron-Spektor 2011; Argote and Fahrenkopf 2016; Szulanski 1996; Szulanski, Ringov, and Jensen 2016; Ocasio, Rhee, and Milner 2017), while also potentially leading to insights to the literature on practice-based explanations of heterogeneous performance (Bromiley and Rau 2014; Bloom et al. 2012).

Finally, this paper also advances the literature on technological communication channels and organizational learning (Alavi and Leidner 2001; G. C. Kane and Alavi 2007; Haas and Hansen 2005, 2007; Haas, Criscuolo, and George 2015; Ocasio, Laamanen, and Vaara 2018). Both experimental settings rely on transfer methods enabled by technological advances: explicit transfer methods were based on a branch of development economics that uses text-message programs in areas such as healthcare management and education (Cortes et al. 2018; Doss et al. 2018; York and Loeb 2018; Karasz, Eiden, and Bogan 2013; Hall, Cole-Lewis, and Bernhardt 2015), while the tacit transfer method used videoconference technology.
4.2 MANAGEMENT PRACTICES AND KNOWLEDGE TRANSFER METHODS

4.2.1 Knowledge, Practices, and Transfer

Strategy scholars have long heralded how an organization’s abilities to generate, disseminate, and leverage knowledge resources towards core activities are relevant to achieve superior performance levels (Dierickx and Cool 1989; Kogut and Zander 1992; Teece, Pisano, and Shuen 1997; Argote and Ingram 2000; Szulanski 1996; Zander and Kogut 1995). Indeed, a key task of managers is to accumulate, apply, and internally disseminate valuable knowledge that can be used to reach the productive objective of an organization (Hansen, Nohria, and Tierney 1999; Nickerson and Zenger 2004; Wernerfelt 1984; Teece, Pisano, and Shuen 1997).

One of the most critical knowledge assets an organization possesses, and which is subject to some extent to managerial discretion, is the set of organizational routines it adopts (Nelson and Winter 1982; Teece, Pisano, and Shuen 1997). Each organization develops idiosyncratic production functions linking inputs to outputs by means of prevailing organizational routines (Knott 2001; Nelson and Winter 2002). These patterns of actions embody a portion of an organization’s managerial knowledge assets and represent its bundle of “management practices”. Managerial knowledge, in the form of planning, people management, and team engagement activities, among other skills encompass a form of human capital that may accrue productivity gains to an organization (Bruhn and Zia 2013; Bruhn, Karlan, and Schoar 2010; Bloom et al. 2012).21

As a manifestation of knowledge, practices have a deeper relationship with the concepts of explicit and tacit knowledge (Nonaka 1994; Polanyi 1966; Szulanski, Ringov, and Jensen 2016). One the one hand, explicit knowledge is a type of knowledge that can be codified and transmitted in a systematic language (Polanyi 1966; Nonaka 1994). Examples of explicit knowledge are programming codes, datasets, and even written guidelines of mechanical processes. On the other hand, tacit knowledge is a subtler type of knowledge dwelling in personal experience. A knowledge’s tacitness comes from the extent to which it is rooted in action and how difficult it is

---

21 Indeed, the expected management-performance relationship is the underlying motivation of active labor market policies aimed at disseminating managerial knowledge to microentrepreneurs (Bruhn and Zia 2013; Bruhn, Karlan, and Schoar 2017; McKenzie and Woodruff 2014).
to articulate in writing (Nonaka 1994; Szulanski, Ringov, and Jensen 2016). Indeed, tacit knowledge has been recognized as a potentially important strategic resource (Kogut and Zander 1992; Rivkin 2001). Examples of tacit knowledge include the know-how of how to interact socially with local partners or even how to conduct planning activities for highly idiosyncratic contexts, such as salespeople catering to different customer segments.

Although a prominent stream of empirical research has found that heterogeneous adherence to management practices could be a major driver of performance differentials across countries and organizations (Bloom et al. 2012; McKenzie and Woodruff 2017; Bloom et al. 2014), adoption of certain practices has been found to be heterogeneous not only across organizations, but, more interestingly, also across subunits (branches, departments, or even managers) within the same organization (Szulanski 1996). A plethora of reasons for heterogenous practice adoption has been proposed: from managers’ bounded rationality (Simon 1979; Vermeulen 2017a) to organizational features precluding adoption (R. Gibbons and Henderson 2012; Helper and Henderson 2014). However, the continuous change in communication channels and interaction patterns across agents within an organization has pushed the organization learning literature to continue the research agenda on a particular topic underlying heterogeneity in practice adoption: the determinants of (un)successful intra-organization practice transfer (Argote and Ingram 2000; Argote and Miron-Spektor 2011; Argote and Fahrenkopf 2016; Szulanski 1996; Szulanski, Ringov, and Jensen 2016; Hansen, Nohria, and Tierney 1999).

4.2.2 **Practice Transfer Methods**

It is not uncommon for organizations to not know all that they know (Szulanski 1996; von Hippel and Tyre 1995). As a result, the ability to transfer and (partially) replicate practices, activities, and routines that may provide superior performance practices across subunits (teams, departments, plants) may lead to superior competitive advantage (Argote and Ingram 2000). Despite the potential vital role of organizational capacity to share and apply knowledge and practices across subunits (Kogut and Zander 1992; Teece, Pisano, and Shuen 1997), the conditions leading to a successful practice transfer still warrant debate (Rivkin 2001; Haas and Hansen 2007; Szulanski, Ringov, and Jensen 2016; Argote and Fahrenkopf, 2016).
Research has proposed that organizations still make poor investment decisions in knowledge management techniques (Reus et al. 2009). As a result, characteristics of the transfer method have drawn research attention. Some examples of practice transfers methods which have already been stressed in the literature are workshops and meetings (Darr, Argote, and Epple 1995), codified documents and datasets (Hansen 1999; Hansen, Nohria, and Tierney 1999), personnel transfers and visits (Almeida and Kogut 1999). Particularly, research has shown that the adequacy of the knowledge-method fit and strategy-method fit (Haas and Hansen 2005, 2007; Hansen and Lovas 2004; Hansen 1999; Szulanski, Ringov, and Jensen 2016) imply that the chosen dissemination method may affect the extent to which practices and knowledge get transferred as well as their performance repercussions.

One dimension in which practice transfer methods differ and that has been suggested to explain the failure or success of a transfer endeavor is the suitability of a transfer method in terms of their capacity to transfer explicit or tacit knowledge (Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017). On the one side of the spectrum, a tacit practice transfer method has features suitable to the transfer of tacit – experienced and non-codifiable – knowledge. Particularly, these features are: interaction between knowledge source and recipient, personalized communication, observation of the practice in use by the recipient, and experience of the practice by the recipient (Szulanski, Ringov, and Jensen 2016). On the opposite side of the spectrum, an explicit practice transfer method comprises of codifiable and standardized communication without interaction amongst knowledge sender and receivers. As its name indicates, an explicit transfer method is associated with the transfer of explicit knowledge. An example of a tacit transfer method is informal visits, through which peers attempt to pass along experience and practices to colleagues. Examples of tacit transfer methods are company’s manuals and newsletters describing newly developed or implemented practices by a business unit (Szulanski and Lee 2017). Several transfer methods, e.g. the use of online forums (Haas, Criscuolo, and George 2015) and brief encounters (Sandvik et al. 2019), lie in between these extreme cases as they may allow for restricted interaction, personalization, observation, and experience of the practice (Szulanski and Lee 2017).

---

22 Szulanski and co-authors (2016) used the term “tacit knowledge affordance” to name the extent to which a method allows for the transfer of tacit knowledge through interaction, personalization, observation, and experience of the to-be-transferred practice.
4.2.3 Explicit Practices Transfer Methods and Source’s Credibility

Even though all explicit transfer methods share the common characteristic of affording little to no interaction and personalization during the transfer process, alternative explicit methods may vary in other features which could potentially ameliorate (or even improve) practice transfer. The *stickiness* of a practice – that is the extent to which its transfer is difficult within and across organizations – has been proposed as a root cause of why practice transfer attempts may fail (Szulanski 1996). Indeed, stickiness has been associated with the characteristics of the practice, of the knowledge source, of the knowledge recipient, and of the surrounding context where knowledge transfer takes place (Argote and Miron-Spektor 2011; Szulanski 1996; Szulanski and Lee 2017).\(^{23}\)

One such aspect which has been suggested to increase stickiness in a transfer initiative is the absence of knowledge source’s *credibility* (Szulanski 1996; Szulanski and Lee 2017; Walton 1976). Understood as the extent to which a source is knowledgeable and trustworthy (Szulanski and Lee, 2017), credibility of the knowledge source is responsible to make the recipient more open and receptive to a new, previously unadopted, practice (Perry 2001; Hovland and Weiss 1951). Indeed, as knowledge receivers may increase their motivation to take part into knowledge exchange based on clues of the transfer’s worth (Kane, 2010; Rhee, 2016), credibility may signal that adhering to the proposed practice is worthwhile and thus draws receivers’ attention to the adoption of such practices. As a result, coupling a credible knowledge source to an explicit transfer method could increase the amount of information passed on and ease the transfer process (Tsai and Ghoshal 1998).

\(^{23}\) Characteristics of the knowledge leading to stickiness includes the extent to which individuals understand the relationships between the adoption of a practice and its expected outcomes is a barrier to diffusion (Szulanski 1996; Szulanski 2000; King 2007), or whether a practice involve the interdependence of several elements i.e. its complexity (Zhao and Anand 2009, 2013). Further, practices may also vary in their “unproveness” when they lack a historical record of success. This condition may hinder difficulty as it would decrease receivers’ motivation to adopt a practice (Szulanski 1996). Characteristics of the members involved in the knowledge transfer are crucial to its success (Argote and Fahrenkopf 2016; Szulanski 1996). While recipients of knowledge may lack motivation (Menon and Pfeffer 2003) or even retractive and absorptive capacity (Cohen and Levinthal 1990; Szulanski 2000), sources of knowledge may also lack incentives to transfer practices (Zander and Kogut 1995). Further, characteristics of the context where practice transfer takes place as the features of the social network where transfer is expected to take place (Argote, McEvily, and Reagans 2003) and how arduous the relationship between sender and receiver is, i.e. the level of “intimacy” and cost of repeated interactions to transfer the practice (Szulanski 1996; Winter et al. 2012).
In initiatives attempting to transfer multiple practices, a credible knowledge source may also reduce the stickiness of those practices for which the source’s credibility is recognized. In a world where agents have bounded rationality/limited cognitive capacity, their focus of attention may be limited when subject to multiple issues (Ocasio, 1997; Simon, 1947; Kahneman, 1973). In a practice transfer process, transfer is expected to be successful only if its underlying knowledge gain receiver’s attention. Such attention leads to enhanced engagement in both internal thoughts and considerations about how to incorporate and apply the transferred knowledge (Kahneman 1973; Ocasio 2011; Ocasio, Rhee, and Milner 2017). If knowledge receivers may be selective on the subset of practices on which they focus their attention when subject to a transfer initiative involving bundles of practices, and if different practice transfer methods vary in the extent to which they capture receiver’s attention to different subsets of those practices, one would expect that practice adoption would vary across those different transfer methods. As a result, knowledge source’s credibility with respect to a practice should reduce the stickiness of such practice in a transfer initiative.

However, while coupling a credible knowledge source to a(n) (explicit) transfer method reduces stickiness to certain practices, it may also increase the stickiness for other practices being transferred. The reason why credibility may undermine practice transfer is analogous to the reason why it may ease transfer. In a world with boundedly rational individuals, an initiative involving the transfer of multiple practices may lead knowledge receivers to select aspects of the transfer process on which to focus their attention (Hansen and Haas 2001; Ocasio, Rhee, and Milner 2017; A. J. Hoffman and Ocasio 2001). Thus, receivers may go through an inherent process where practices compete for their attention and that ultimately results in the selection of a subset of practices they will attempt to adopt. In the case of coupling a credible knowledge source to an explicit transfer method, receivers will focus their attention on those practices supported by the knowledge source over the remaining practices not supported by a credible source.\(^{24}\)

This logic on source’s credibility amidst the transfer of several practices leads to the following hypotheses:

\(^{24}\) Indeed, empirical research has demonstrated that attention allocated to knowledge inputs is driven by aspects as the fit between knowledge and expertise (Haas, Criscuolo, and George 2015), the saliency of the knowledge relative to others (Bouquet and Birkinshaw 2008), and knowledge demonstrability (A. A. Kane 2010).
Hypothesis 1a (H1a): All else constant, when transferring sets of practices, an explicit transfer method will be more effective in transferring a practice in the presence of a credible knowledge source for that specific practice.

Hypothesis 1b (H1b): All else constant, when transferring sets of practices, an explicit transfer method will be less effective in transferring a practice in the presence of a credible knowledge source for other practices being transferred.

4.2.4 Tacit and Explicit Practice Transfer Methods

Now I consider explicit transfer practice methods and their relative effectiveness when compared to explicit transfer methods. Previous research has argued that tacit practice transfer can be more effective than explicit practice transfer depending on the type of knowledge being transferred (Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017). First, I propose that practices sharply differ in terms of their underlying components. Namely, while some practices being transferred rely mainly on explicit knowledge and are directly codified in a transfer method (e.g. a manual explicitly saying that a person should define a priority list every start of the month), other practices have a more tacit, non-codified, nature which is not necessarily codified in a transfer method (e.g. the same manual does not necessarily say how a person would define their priorities nor how to allocate them throughout the month). As a result, on the one hand, explicit transfer methods – which do not allow for the interaction, personalization, observation, or experience of the practice being transferred – would not be relatively more efficient in transferring codified content instead of content that is not explicitly codified in the transfer method itself (Alavi and Leidner 2001; Gupta and Govindarajan 2000). On the other hand, as a tacit transfer method allows for the interaction between source and receiver, the source could pass along her/his own non-codified experience and thus “go off script” when transferring a practice (e.g. a trainer using her/his own background to complement the script of a training course with unique examples and applicable tips). This logic leads to hypothesis H2a:

Hypothesis 2a (H2a): All else constant, a tacit transfer method will be more effective than an explicit transfer method in terms of transferring non-codified and unscripted components of a practice transfer initiative.
I also argue that tacit and explicit practice transfer methods differ in how they allow for adaptation (Kostova and Zaheer 1999; Kostova 1999; Kostova and Roth 2002). I use the term adaptation to define the use of a practice (e.g. use a management tool and define a schedule of activities for an entire month in the first week of the month) in a qualitatively different manner than the one prescribed by the transfer initiative (e.g. use the same management tool to continuously update your schedule throughout the entire sales campaign, instead of simply following the recommendation of setting a plan in the first week of the month).

By the absence of interaction in an explicit transfer method, adapting a practice depends on the receiver’s own abilities to adjust the practice to meet its local goals. A tacit method, however, by allowing interaction and personalization, may lead source and receiver to discuss and share thoughts on how to adapt a scripted content to the reality of the knowledge receiver. This would be specially the case if the source, which is responsible for passing the practice along, has some personal inclinations on how to best adopt the practice. If that is the case, biases of the individual acting as the knowledge source pile up with receiver’s own inclinations to adapt a practice. In the end, the final practice adopted by the receiver after a tacit practice transfer method would account for both receiver’s and source’s biases plus the extent to which their interaction allowed for the transfer of previously unscripted component of the practice. As a result, I expect that a tacit transfer method will allow for greater adaptation when compared to the codified and scripted practice to-be-transferred by an organization vis-à-vis an explicit transfer method. Thus, I hypothesize:

_Hypothesis 2b (H2b): All else constant, a practice transferred through a tacit transfer method will allow a higher degree of adaptation than an explicit practice transfer method._
4.3 CONTEXT AND EXPERIMENTAL METHOD

To assess hypotheses H1a-H2b, I conducted two different field experiments with a group of 804 geographically dispersed managers from the Brazilian branch of a direct sales multinational company. Both experiments were implemented during the same period and with separate groups of managers. These experiments comprised a unified project lasting from March 2018 to May 2019, from pre-planning stages to the end of operational implementation and data collection.

4.3.1 SalesNow and the Demand for a Practice Transfer Initiative

“SalesNow” is the Brazilian branch of a multinational company producing and commercializing hygiene, cosmetics, and a broad range of housing utensils, clothing, and electronics.\(^{25}\) SalesNow adopts a direct sales commercial model and incorporates close to 1,000,000 sales representatives annually to reach approximately 3,000 municipalities in Brazil (out of 5,565). To cater such large and geographically dispersed network of supply partners, SalesNow subdivides Brazil in several levels of contiguous geographic regions. Roughly, SalesNow partitions Brazil in 807 territories, named “geographic zones”. Each geographic zone is supervised by a single zone manager acting, which is both the last intra-company position in the commercial chain and the immediate point of contact between SalesNow and local partners/sales representatives. Figure 4.1 depicts the structure of SalesNow’s sales department.\(^{26}\)

---

\(^{25}\) The real name of the company is protected by a confidentiality agreement.

\(^{26}\) The 807 zone managers are well-educated women (85% of them have a college degree, with 7% having also an MBA or some post-graduate education). The average zone manager is 39 years old, has worked in SalesNow for 7 years (though not necessarily as a zone manager), and manages 14 to 15 partnerships with local managers.
Figure 4.1 - Representation of SalesNow's commercial structure

Note: Triangles represent local partners within a SalesNow's entrepreneurship program through which a regular sales representative starts managing and recruiting other sales representatives in return for a share of the total sales for that group of sales representatives. Not all teams below a zone manager must have a Manager Partner. Circles filled in black represents sales representatives. zone managers may have a varied number of teams and sales representatives to manage. Both experiments affected individuals at the “zone manager” hierarchical position, i.e. the first point of contact between SalesNow and its local partners.
In early 2018, a downward trend in sales performance was experienced (sales dropped 8% in the previous year) and the realization that the company lacked a systematic understanding of how zone managers conducted their activities instigated SalesNow to develop a smartphone management app to assist zone managers in planning their activities. The main function of the management app was to serve as an interactive agenda and activity checklist to guide zone managers’ activities. In every sales campaign, SalesNow automatically marks in the app the main expected activities following a recommended template of phase, although zone managers were free to update dates and schedule personalized activities. SalesNow divide a sales campaign in three phases: the "Planning" phase (business days 1-6 of a benchmark sales campaign of 15 business days, or the first 40% of the Sales Campaign duration), a "Sales/Field" phase (days 7-12, or 40% to 80% of the sales campaign time length), and a "Final Push/Financial Closure" phase corresponding to the last 3 business days of the sales campaign. Furthermore, the management app also has a secondary functionality and allows zone managers to access key performance indicators (e.g. net sales, recruitments, etc.), a task previously only available through a laptop/computer application. Figure 4.2 exemplifies the display of the management app.

The app first went live in September 2018. Although immediate take-up was high (over 90% of all zone managers), SalesNow was worried that zone managers would not use the app in the planning stages, especially after the initial adoption hype. Thus, SalesNow planning team decided that they needed to disseminate and reinforce the practice of using the management app to plan activities and check them throughout the planning stages of a sales campaign.
Figure 4.2 – SalesNow’s management app for smartphones.

a) Initial screen

b) Schedule screen

c) Basic performance look-up screen

Beyond the management app, SalesNow training department was interested in disseminating other practices to facilitate zone managers’ activities. From July to early October 2018, 34 sales managers were interviewed on the hope of collecting interesting day-to-day management tips to be disseminated along with the use of the management app. Through (phone) interviews, SalesNow and I collected potential management and day-to-day practices that could improve sales performance from 34 zone managers. After going over interview outcomes with the communication, training, planning, and supply chain departments, SalesNow and I decided to also transfer, to zone managers, a set of 12 practices defined using information collected through interviews and rounds of discussion with SalesNow training and operational department.  

The demand for disseminating the use of the management app and transfer management and day-to-day practices to zone managers presented a research opportunity to test the relative performance of alternative practice transfer methods. Disseminating the practice of using the management app allowed for a case in which the organizational understanding of the practice (use of the management app) could entail the transfer of a more explicit content (e.g. using the app to simply check and follow activities during the planning phase) and the transfer of a more complex knowledge content with arguably higher levels of tacitness (e.g. how to use the secondary functionalities in the app, use the app during several phases of a sales campaign, etc.). Further, both the practices collected during the interviews and the geographic dispersion of zone managers across widely varying regions could open room for local adaptation. 

---

27 Zone managers were asked about potentially beneficial day-to-day practices covering 6 areas (planning, developing local managers, engaging local managers, relationship management with local managers, use of performance indicators, and self-development). Interviews were recorded and, after being transcribed, SalesNow’s planning, sales, and training departments selected 12 practices to be transferred to zone managers. Using the new planning app was markedly present in some of interviews. For more information on the interviews, please contact the author.

28 SalesNow’s sales structure facilitates the use of an experimental method. Zone managers are geographically dispersed in Brazil and have activities mostly comprised of field work with their team’s local managers and sales representatives, which are independent from other zone managers.
4.3.2 Experimental Design

The experimental design considers a firm-defined partition of geographic zones: 516 zone managers which had never had access to a field trainer program sponsored by SalesNow; another 288 zone managers with access to an outsourced field trainer who conducted on-site visits and videoconference-assisted trainings to develop zone manager in activities focused on team engagement, recruitment, and development. Using such partitions, I designed two experiments, one in each partition. Experiment 1 tests hypotheses H1a and H1b on the potential complementarity of knowledge source’s credibility and an explicit transfer method. Experiment 2 uses the field trainer to test hypotheses H2a and H2b on the relative performance of tacit and explicit transfer methods.

Within each experiment, I used pre-intervention sales data and covariates that account for regional characteristics by sales campaign to predict sales performance for one sales campaign for each geographic zone. Within each experiment, I ranked geographic zones in ascending order of the predicted sales level. I then grouped geographic zones in triplets such that the 3 geographic zones with the lowest predicted sales within each experiment formed triplet 1, zones ranking 4th, 5th, and 6th formed triplet 2, and so on. The final sample consists of 516 geographic zones (and 172 triplets) in experiment 1 and 288 geographic zones (and 96 triplets) in experiment 2.

Figure 4.3 summarizes the experimental design. In both experiments, I randomly assigned zones to one out of the three potential treatment arms. Placebo groups received text messages with general content (e.g. “fun-facts” about SalesNow) and unrelated with the management app or the management and day-to-day practices. Below I detail the content of each potential treatment arm in each experiment.

---

29 Further details on the random assignment process and the process to rank geographic zones are available upon request to the author.
Figure 4.3 – Division of experiments and assignment of managers to control/treatment groups

Note: SalesNow has originally 807 managers. As the randomization technique first grouped managers in triplets with similar predicted sales revenue at the end of the program, the two managers with the highest predicted sales and without access to a field trainer, as well as the one manager with the highest predicted sales and with access to the field trainer were left out of the intervention.
4.3.3 **Experiment 1: Credible Knowledge Source as a Complement to an Explicit Transfer Method**

The first experiment compares the relative efficacy of two technological explicit transfer methods in disseminating the use of the management app and transferring knowledge related to day-to-day practices to SalesNow’s zone managers. Neither method allowed interaction between source and receiver, personalization, practice observation, or personal experience. The main difference between these methods was the use of a credible knowledge source in one of them.

*Base Explicit Transfer Methods: text message practice transfer program*

With the diminishing costs of communication technologies, a branch of the development economics literature explores the potential of inexpensive technology to achieve social policy goals. One such mechanism is the use of mobile text-messaging interventions designed to change the behavior of individuals. These often inexpensive communication methods have been successfully used in areas as personal healthcare (e.g. self-management of potential diseases, incentivizing physical activities, smoking cessation) and education (e.g. mentorship programs for college enrollment, teaching parents on home practices to foster early childhood development) (Cortes et al. 2018; Doss et al. 2018; York and Loeb 2018; Karasz, Eiden, and Bogan 2013; Hall, Cole-Lewis, and Bernhardt 2015). I adapted the text message program used in the educational context (York and Loeb 2018) to a practice transfer method for SalesNow.

Zone managers in the base explicit transfer group received three text messages per week. The first text message, always sent on Mondays, informed and described the management and day-to-day practice of the week. These messages were important to raise awareness of the week’s topic and transfer the (standard) practice. The second message, always on Wednesdays, suggested a hands-on activity based on that practice. Finally, the third text message, always sent on Fridays, reinforced the practice and contained a second, potentially more advanced, tip on how to adopt the practice. The use of SalesNow’s planning app was suggested in several of the text messages.³⁰

*Explicit Transfer Method with a Credible Knowledge: video message practice transfer program*

Zone managers under this treatment received two short videos (20-40 seconds long) per week. On Tuesdays, the video presented the week’s practice while also presenting a

---

³⁰ The content of the messages cannot be disclosed due to a confidentiality agreement signed between SalesNow and myself.
complementary hands-on activity. On Thursdays, zone managers received another video with a short reminder of the practice and with the potentially more advanced tip on how to adopt the practice. The video script contained the same text as the text messages. Every week, the same practice transferred through the text message program was also disseminated through the video program. Arguably, the knowledge content of both explicit transfer methods was the same.

The key difference between the text-message and the video-message programs was in the fact that each video message portrayed one person who was responsible for reading the script and appearing in the footage. Two strategic staff took turns for the weekly videos. The first person was employed in the area responsible for the development of the management app and for accompanying the suggested zone manager’s suggested planning template. This person was responsible for presenting the management app for all zone managers when it was first launched in a live (and mandatory) event in September 2018. The second person was an employee who worked in SalesNow’s training/development department. This person went to the field with zone managers to assess matters related to the company’s training policies. The image of both individuals is the main characteristic awarding a complementary credibility feature to the knowledge source: both individuals were well-known by zone managers as specialists in training activities and, more importantly, in planning and the use of the management app.

4.3.4 Experiment 2: – Explicit versus Tacit Transfer Method

In Experiment 2, I maintained the text-message program as the base explicit practice transfer method in one of the three treatment arms. The other treatment arm was replaced by a tacit transfer method using the presence of field trainers for such geographic zones.

*Tacit Transfer Method: videoconference training module and field coaching*

The tacit transfer method was a live videoconference training session and a field visit to verify how zone managers performed their activities. The project team developed a 40min-1h training material following the same content as the explicit transfer methods.31 The videoconference module lasted from 40 minutes to one hour and allowed for live chat and

---

31 After developing the material, the project team and I had two videoconference sessions with Field Trainers and SalesNow’s training department to train Field Trainers on the content of the training module. Although Field Trainers were explicitly oriented to transfer the practices within the training material, the project team specifically allowed off-script interactions and personalization, reinforcing the potential for the transfer of tacit knowledge.
interaction between managers and trainers. Also, trainers conducted an informal visit to zone managers to solve remaining doubts and follow-up on how to adopt the practices. It is important to mention that all zones with Field Trainers had already received training before this project started, meaning that any effect of experiment 2 is conditional on previous training (which is absent in Experiment 1). As a result, I test for the marginal increase in practice adoption in terms of the use of the management app and day-to-day practices after zone managers had already received fieldwork training with field trainers.

Both experiments started in the last week of November of 2018. For the tacit transfer method, the videoconference trainings were scheduled between December and January, but Field Trainers received training by mid-November, enabling them to start disseminating the practices to zones in the tacit treatment arm by late November. A detailed timeline is available in the Appendix.

4.4 DATA AND VARIABLES

4.4.1 Datasets

I used four proprietary datasets in this study, associated with the interventions implemented in my experimental design. For confidentiality reasons, all datasets were identified only at the geographic zone level rather than at the zone manager level. This means that the unit of observation I explore is the geographic zone rather than the zone manager. 32

The first dataset contains information on the adoption of the main practice (use of the management app). This dataset contains highly detailed information on the interactions with the management app. More specifically, for every time a zone manager opened the app (what we call an “access”), I observe the day such access happened, the time (in seconds) the manager spent browsing within app, and a measure of the intensity of app use: the amount of bytes the person uploaded in the app during that access. SalesNow granted me access to app information for two months before the intervention started (roughly 3 pre-treatment sales campaigns) and for 4 months after the intervention started (roughly 4 while-in-treatment and 2 post-treatment sales campaigns).

32 Offline talks with SalesNow’s managers reassured me that it is not common for zone managers to switch zones. However, some zone managers take leaves of absence or maternity leaves which I cannot track. Therefore, all observations and results consider the geographic zone as the level of interest.
I collapsed this dataset to zone-sales campaign level, resulting in a panel dataset with 804 zones over 9 sales campaigns (7,236 observations).

The second dataset contains the responses of zone managers to a baseline and an _ex post_ survey (implemented in October/2018 and April/2019, respectively) to measure self-perception on the extent to which they adopted the secondary day-to-day practices the initiative wished to transfer. Due to a company request to create a short survey, the final survey instrument consisted of 17 questions on practices in the areas of planning, development, engagement, and relationship management. Each survey had a response rate close to 60% (534 and 507 respondents out of 807 zones in the baseline and _ex post_ waves, respectively), which was well-balanced across treatment groups in both experiments. The survey dataset is an unbalanced panel of two periods as some zone managers answered only the first wave while other answered exclusively the second wave. I have a balanced panel of two periods for 371 zones whose acting zone manager responded both the first and second survey waves. The survey dataset comprised 534 pre-treatment observations and 507 post-treatment observations (1041 observations, in total) on the transfer of selected day-to-day management practices.

The third dataset contained the fixed-in-time socioeconomic characteristics of the geographic zone and basic pre-intervention characteristics of zone managers (experience in the organization – in days – and educational background). Finally, the fourth dataset is a panel dataset at the zone-sales campaign level containing information on the sales performance, extent of market capture, average order, and number of orders. This dataset was used to perform the random assignment of zones to treatment arms. The organization further extended the data to up to 5 sales campaigns after interventions started (capturing one sales campaign after the program ended). This dataset will only be used in the chapter about additional results.

---

33 The translated survey instrument is in the Appendix.
34 Respondents from both baseline and _ex post_ survey presented slightly superior sales performance when compared to non-respondents, though such difference was homogenous across all treatment arms in both experiment.
4.4.2 Main Variables

To assess the effect of the different transfer methods on practice adoption, I constructed practice transfer variables following two of the four types of such variables as categorized by Argote and Fahrenkopf (2016). I use the management app dataset to construct dependent variables capturing changes in actual practice/routine experience by the treated units. The second set of variables is based on the practice survey and entails to create survey-based measures of practice adoption.

4.4.2.1 Dependent Variables Measuring the Effectiveness of Practice Adoption: Management App

In line with my hypotheses, I used dependent variables that measure the effectiveness of practice adoption in terms of both the extent of adoption as codified in the distinct and exogenously manipulated transfer methods and of forms of practice adoption not codified in the transfer method. Using the management app dataset, the first dependent variable represents the extent of codified adoption of a practice codified in the transfer methods: the time (in seconds) using the app during a sales campaign to operationalize the extension of practice transfer. As the main practice entailed use of the management app, this measure resonates with the previous literature on measuring the attention an individual allocates to certain practice and/or activity (Hansen and Haas 2001).

If the extension of practice adoption measures a passive form of adopting a practice, which arguably does not carry a large proportion of tacit knowledge and was codified in the transfer methods, transferring the know-how of how to use the management app in a more active and interactive way (e.g. using other functionalities other than the agenda, actively searching for and inputting information, etc.) would arguably embed a larger proportion of tacit component while also not being scripted and codified in the transfer methods developed in both experiments. Following this logic, I use the intensity of the interaction with the management app in terms of the uploaded bytes per second as a measure of non-codified and unscripted practice transfer.

Finally, to assess the potential adaption in using the management app, I consider that all transfer methods emphasized using the app during the planning stages of sales campaigns (first 40% of its period). Thus, using the day of each access in the management app and the start and
end dataset of each sales campaign, I constructed observable variables of local adaptation based on which phase of the sales campaign zone managers increased their adoption of the management app both in terms of its codified (time using the app) or non-codified (intensity of interaction) adoption. The variables are the extent of time used and of intensity of interaction by each phase of the sales campaign (planning, operations, and “last-push” phases). A signal that zone managers locally adapted the knowledge content of the practice would be if practice adoption concentrated outside the planning phase of sales campaigns.

4.4.2.2 Dependent Variables Measuring the Adoption of Types of Practice Adoption: Survey

Although the previous dependent variables measure different facets of a practice adoption (namely, the codified or uncodified adoption), they all relate with the adoption of the management app and do not necessarily measure the adoption of the other practices associated with team engagement, team development, relationship with partners, etc. To address hypothesis H1b on the effect of credibility based on the different types of practices, I use the survey conducted with zone managers before and after the experiment to construct measures of practice adoption to several types of practices.

To construct such measures, I follow a similar approach as that used to measure management practices in the U.S. Management and Operational Practices Survey (Bloom et al. 2019). Due to the constraint on the length of the survey, each question should be interpreted as a dimension of adherence to the practices disseminated through the different transfer methods. Each question has five alternative and each alternative were scores in a normalized fashion to range from 0 to 1 in 0.25 intervals. A score of 1 means that such option represents what the project team and I interpret as the practice as disseminated through the transfer methods, while 0 would be the most dissimilar alternative to what one would expect if all to-be transferred practices were adopted. Given the different areas of each question, we standardized the scores of each question, computed the simple average of the standardized scores for questions within each topic (planning, development, engagement, relationship management, and use of data) and then standardized the final score by each topic. In unreported results we used the simple average of questions within the same topic and the results hold. Thus, we use a practice adoption index for each of the practice topics as the survey-based dependent variables.
4.4.2.3 Independent and Control Variables

The main independent variables are related with the exogeneous changes introduced by each randomly assigned transfer method. In experiment 1, whenever comparing treatment groups (basal explicit transfer method and explicit transfer method with a credible source) to the placebo group, I use *dummy variables with value one when the zone manager belongs to the treatment group being evaluated, and zero otherwise*, a *period dummy variable taking value one for sales campaigns after the treatment had already started, and zero otherwise*, and *the interaction term between the treatment and the period dummies*. When comparing both treatment groups with each other, the dummy variable takes value one for zone managers assigned to the explicit transfer method with a credible source. In experiment 2, the main independent variables are analogous, but replacing the explicit transfer method with a credible source by the tacit transfer method.

As both experiment result in exogeneous shocks to treated units, control variables only increase the statistical power of the estimates, without affecting point-estimates. Although most specifications use period and zone fixed-effects, in robustness checks we add the following time-invariant control variables: baseline experience (in years) of the zone manager at the sales zone one month prior the start of the intervention, a dummy variables representing the formal education of the zone manager at the sales zone one month prior the start of the intervention (less than college, college, or graduate school), mean 2017 income for the main municipality in the sales zone (in minimum wages), mean 2017 annual market potential for hygiene products for the main municipality in the sales zone (in thousands of Brazilian "Reais"), dummy variables representing sales zone's urban profile (capital, metropolitan area, or countryside), and a dummy variable representing the sales zone's region in Brazil (south or north region).
4.5 RESULTS

4.5.1 Experiment 1: Knowledge Source Credibility in Explicit Transfer Methods

4.5.1.1 Balancing Checks and Descriptive Statistics

Table 4.1 shows the descriptive statistics for the first experiment. It displays balancing tests for dependent and independent variables across the placebo, base explicit and explicit with a credible source groups for the sales campaign immediately preceding the start of the practice transfer intervention. Columns [4] to [6] show the p-value of a t-statistics checking for the equality of means between each combination of the treatment arms. The same is true for categorical variables (baseline manager experience, zone’s urban profile and region), but I employed a chi-squared test for equality of frequencies. Columns [7] to [9] show the p-value of a Kolmogorov-Smirnov test for equality of distribution across each pair of treatment arms for all continuous variables. We notice that the only pre-treatment differences in means are in the extension of (codified) practice adoption (around 15% lower for the group subject to the explicit with credible source method in comparison with the other groups) and on the local annual market potential (around 5% higher in the placebo group). Nonetheless, columns [7] to [9] show that there is no statistically significant difference on the distribution of the extension of (passive) practice adoption across the group, although the difference maintains for local annual market potential.

Pre-treatment, zone managers spent, on average, between 485 and 582 seconds browsing the management app and uploaded 99 to 115 bytes per second of use. The mean zone managers across groups captures almost 6% of all sales potential in that market. All standardized survey-based practice measures are balanced and close to zero. These practices were standardized considering all surveyed individuals (including those from zones in experiment 2). From 44% to 49% of all zones’ representative municipality is on the countryside and only 19% to 26% are a state capital. Manager’s mean baseline experience in the company is close 7 years.

4.5.1.2 Results on the Effectiveness of Practice Adoption: Management App
Table 4.2 reports the main results testing for the effect of both base and explicit with credibility transfer methods on the extension of practice adoption. Columns [1] and [2] compare the base explicit method (treated) with the placebo group (control); columns [3] and [4] compares the explicit method with a credible source (treated) with the placebo group (control); and columns [5] and [6] compares the explicit method with a credible source (treated) with the base explicit method (control). Panel A reports the effects of each treatment on the extension of (codified) practice adoption, while Panel B provides a robustness and uses the dependent variable as the intensity of interactive (non-codified) practice adoption. Odd columns estimate the treatment effect without control variables, while even columns add period and zone fixed effects.

Overall, the results on panel A supports hypothesis H1a. The extension of (codified) practice adoption increased by 21% (+111 seconds using the management app per sales campaign) from the mean baseline when comparing zone managers partaking the transfer method with a credible source (analyst from the planning/management app group) via-à-vis the placebo group. We also observe a mean increase of 14% (+75 seconds using the management app per sales campaign) when comparing both explicit transfer methods. Further, comparing the base explicit method with the placebo yielded a mean increase of 6%, though not statistically significant, in codified practice adoption (+36 seconds using the management app per sales campaign). Further, results from panel B suggests that neither explicit transfer method affected the non-codified aspects of practice adoption (the intensity of interaction with the management app).
Table 4.1 – Descriptive of experiment 1: characteristics of the management zones, one sales campaign before the program started.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (Pre-Treatment Sales Campaign)</td>
<td>Mean Comparison (p-value)</td>
<td>Distribution Comparison (p-value)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Basic Explicit</td>
<td>Credible Explicit</td>
<td>[2]-[1]</td>
<td>[3]-[1]</td>
<td>[3]-[2]</td>
<td>[2]-[1]</td>
<td>[3]-[1]</td>
<td>[3]-[2]</td>
<td></td>
</tr>
<tr>
<td>Extension of Practice adoption (passive use) - Seconds in app.</td>
<td>582.70</td>
<td>553.93</td>
<td>485.12</td>
<td>0.55</td>
<td>0.04</td>
<td>0.09</td>
<td>0.71</td>
<td>0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>Intensity of Practice adoption (interactive use) - Bytes per second</td>
<td>115.26</td>
<td>101.80</td>
<td>99.31</td>
<td>0.43</td>
<td>0.32</td>
<td>0.74</td>
<td>0.30</td>
<td>0.71</td>
<td>0.62</td>
</tr>
<tr>
<td><strong>Main Practice - Adoption of the Management App</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structured Planning</td>
<td>-0.09</td>
<td>-0.12</td>
<td>-0.09</td>
<td>0.84</td>
<td>0.78</td>
<td>0.23</td>
<td>0.71</td>
<td>0.90</td>
<td>0.91</td>
</tr>
<tr>
<td>Engagement</td>
<td>-0.09</td>
<td>-0.02</td>
<td>-0.11</td>
<td>0.84</td>
<td>0.77</td>
<td>0.46</td>
<td>0.80</td>
<td>0.90</td>
<td>0.46</td>
</tr>
<tr>
<td>Development</td>
<td>-0.14</td>
<td>-0.26</td>
<td>-0.25</td>
<td>0.35</td>
<td>0.31</td>
<td>0.99</td>
<td>0.40</td>
<td>0.44</td>
<td>0.75</td>
</tr>
<tr>
<td>Relational</td>
<td>-0.05</td>
<td>-0.25</td>
<td>-0.15</td>
<td>0.69</td>
<td>0.66</td>
<td>0.35</td>
<td>0.36</td>
<td>0.74</td>
<td>0.86</td>
</tr>
<tr>
<td><strong>Secondary Practices - Survey-based measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structured Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relational</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Financial Performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(Sales)</td>
<td>12.38</td>
<td>12.37</td>
<td>12.37</td>
<td>0.33</td>
<td>0.33</td>
<td>1.00</td>
<td>0.62</td>
<td>0.62</td>
<td>0.71</td>
</tr>
<tr>
<td>Market Capture (Sales/campaign market potential)</td>
<td>5.84</td>
<td>5.97</td>
<td>5.92</td>
<td>0.52</td>
<td>0.65</td>
<td>0.79</td>
<td>0.30</td>
<td>0.53</td>
<td>0.53</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local average wage in 2017 (in minimum wages)</td>
<td>4.71</td>
<td>4.74</td>
<td>4.40</td>
<td>0.88</td>
<td>0.14</td>
<td>0.14</td>
<td>0.87</td>
<td>0.12</td>
<td>0.20</td>
</tr>
<tr>
<td>Local annual market potential (in millions of BRLs)</td>
<td>88.87</td>
<td>84.53</td>
<td>84.78</td>
<td>0.00</td>
<td>0.19</td>
<td>0.94</td>
<td>0.03</td>
<td>0.12</td>
<td>0.93</td>
</tr>
<tr>
<td>Zone manager experience (baseline manager)</td>
<td>6.83</td>
<td>7.54</td>
<td>7.92</td>
<td>0.21</td>
<td>0.04</td>
<td>0.55</td>
<td>0.53</td>
<td>0.30</td>
<td>0.53</td>
</tr>
<tr>
<td>Zone manager w/o college degree (pre-treatment)</td>
<td>0.15</td>
<td>0.13</td>
<td>0.12</td>
<td>0.25</td>
<td>0.70</td>
<td>0.10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zone manager with college degree(pre-treatment)</td>
<td>0.80</td>
<td>0.77</td>
<td>0.84</td>
<td>0.25</td>
<td>0.70</td>
<td>0.10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zone manager with graduate degree (pre-treatment)</td>
<td>0.05</td>
<td>0.10</td>
<td>0.04</td>
<td>0.25</td>
<td>0.70</td>
<td>0.10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>State capital</td>
<td>0.19</td>
<td>0.26</td>
<td>0.23</td>
<td>0.21</td>
<td>0.20</td>
<td>0.56</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Metropolitan region of a state capital</td>
<td>0.36</td>
<td>0.30</td>
<td>0.27</td>
<td>0.21</td>
<td>0.20</td>
<td>0.56</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Countryside</td>
<td>0.45</td>
<td>0.44</td>
<td>0.49</td>
<td>0.21</td>
<td>0.20</td>
<td>0.56</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>South/Southeast/Mid-West region</td>
<td>0.63</td>
<td>0.55</td>
<td>0.63</td>
<td>0.13</td>
<td>1.00</td>
<td>0.13</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>North/Northeast region</td>
<td>0.37</td>
<td>0.45</td>
<td>0.37</td>
<td>0.13</td>
<td>1.00</td>
<td>0.13</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Observations (w/o survey)</td>
<td>172</td>
<td>172</td>
<td>172</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Observations (survey)</td>
<td>109</td>
<td>111</td>
<td>120</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: The mean comparison of continuous variables uses the t-statistic. The mean comparison of categorical variables (variables with empty fields on columns [7]-[9]) considers a chi-squared test on the frequency of each category's occurrence. The distribution comparison for is the the Kolmogorov-Smirnov statistic.
Table 4.2 – Results of experiment 1: the effect of base explicit transfer and explicit transfer methods with a credible source on passive and interactive practice adoption.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Placebo x Basic Explicit Mechanism</th>
<th>Placebo x Credible Explicit Mechanism</th>
<th>Basic x Credible Explicit Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A – Passive Practice Adoption</strong> (seconds using the management app)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention-to-Treat Effect (DiD)</td>
<td>36.290</td>
<td>36.290</td>
<td>111.374***</td>
</tr>
<tr>
<td>[43.627]</td>
<td>[43.670]</td>
<td>[41.934]</td>
<td>[41.975]</td>
</tr>
<tr>
<td>Baseline Practice Adoption</td>
<td>568.317</td>
<td>568.317</td>
<td>533.910</td>
</tr>
<tr>
<td>% effects over mean baseline</td>
<td>6%</td>
<td>6%</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Panel B - Interactive Practice Adoption</strong> (entered bytes per second in the management app)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[8.381]</td>
<td>[8.389]</td>
<td>[8.044]</td>
<td>[8.052]</td>
</tr>
<tr>
<td>Baseline Practice Adoption</td>
<td>108.526</td>
<td>108.526</td>
<td>107.285</td>
</tr>
<tr>
<td>% effects over mean baseline</td>
<td>12%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Observations</td>
<td>3096</td>
<td>3096</td>
<td>3096</td>
</tr>
<tr>
<td>Sales Campaigns</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Zones</td>
<td>344</td>
<td>344</td>
<td>344</td>
</tr>
<tr>
<td>Group Dummy</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Post Dummy</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Window FE</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Zone FE</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: [1] Standard errors clustered at the sales zone level. Significance levels: ***p-value < 0.01, **p-value < 0.05, *p-value < 0.1. [2] Results consider a strongly balanced panel sample of sales zones during nine sales campaigns. Each time window represents a sales campaign as defined by SalesNow company. Windows are normalized so that period zero is the first sales campaign after the treatment started in the treatment groups. If the treatment started in the middle of a sales campaign for some sales zone, results assume that the treatment dummy variable takes value 1 if treatment started during the first 20% of the sales campaign duration. [3] The Placebo group received placebo text messages. The base explicit group is the first treatment group, receiving a text-message program on to-be disseminated practices without reference to the source of the practice. The referred explicit group is the second treatment group, receiving a video-message program on to-be disseminated practices such that featured two administrative staff known for their relationship with SalesNow’s management app, planning activities, and training. [4] All treatment effects are Intention-to-Treat Effects estimated using a Differences-in-Differences model. It was not possible to track whether managers opened and read(watched) the text-message(video-message) during the intervention.
Figure 4.4 provides tests the dynamic effects of both explicit practice transfer methods when compared to the placebo group. Panel A confirms that even the base explicit transfer method was also able to alter the routine of zone managers, as they used the management app more often for up to 4 sales campaigns after the intervention started. However, by the end of the early treatment periods, when the messages were not related with planning or the use of the management app, the effect fade. On the other hand, Panel B shows that the effect of the explicit transfer method with a credible source for all entire treatment periods and for up to two sales campaigns after the program had already ended. These findings support H1a.

As an additional robustness check, Table 4.3 estimates the intention-to-treat effects separately for the extension of practice adoption across the three different phases of the sales campaign: planning (panel A), Operation/Fieldwork (panel B), and Final-Push (panel C). Indeed, we verify that most the estimated effects are driven precisely by the extensive use of the transferred practice on the planning phase of the campaign, signaling there was not much local adaptation, on average, by zone manager.
Figure 4.4 – The dynamics of explicit practice adoption using non-sponsored, and sponsored explicit practice transfer methods (experiment 1)

Panel A – Placebo versus Base explicit practice transfer method

Panel B – Placebo versus explicit practice transfer method with credible source

Notes: the coefficients in the graphs are from an interaction between a treatment group dummy and a post period dummy, controlling for zone and window fixed effects. The plot presents the pointwise estimate of the effect of base explicit practice transfer (panel A) and the effect of referred explicit practice transfer (panel B) with 90% confidence intervals. All groups (placebo, non-sponsored explicit transfer method, and sponsored explicit transfer method) do not have access to a field trainer to train them on day-to-day field activities. For the full table of coefficients, please contact the author.
Table 4.3 – Results of experiment 1: expected timing of practice use, base explicit transfer method and explicit transfer method with a credible source.

<table>
<thead>
<tr>
<th>Comparison Groups</th>
<th>Dependent Variable</th>
<th>Passive Practice Adoption (seconds using the management app)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Placebo x Basic Explicit Mechanism</td>
<td>Placebo x Credible Explicit Mechanism</td>
</tr>
<tr>
<td>Panel A - Planning Phase (0-40% of the sales campaign duration)</td>
<td>Impact on adoption</td>
<td>19.898</td>
</tr>
<tr>
<td></td>
<td>Impact on adoption</td>
<td>[18.675]</td>
</tr>
<tr>
<td>Panel B - Sales/Field Phase (40-80% of the sales campaign duration)</td>
<td>Impact on adoption</td>
<td>9.507</td>
</tr>
<tr>
<td></td>
<td>Impact on adoption</td>
<td>[16.354]</td>
</tr>
<tr>
<td>Panel C - &quot;Final Push&quot; Phase (80-100% of the sales campaign duration)</td>
<td>Impact on adoption</td>
<td>0.359</td>
</tr>
<tr>
<td></td>
<td>Impact on adoption</td>
<td>[17.160]</td>
</tr>
<tr>
<td>Observations</td>
<td>3096</td>
<td>3096</td>
</tr>
<tr>
<td>Sales Campaigns</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Zones</td>
<td>344</td>
<td>344</td>
</tr>
<tr>
<td>Window FE</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Zone FE</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Notes: [1] Standard errors clustered at the sales zone level. Significance levels: ***p-value < 0.01, **p-value < 0.05, *p-value < 0.1.
[2] Results consider a strongly balanced panel sample of sales zones during nine sales campaigns. Each time window represents a sales campaign as defined by SalesNow company. Windows are normalized so that period zero is the first sales campaign after the treatment started in the treatment groups. If the treatment started in the middle of a sales campaign for some sales zone, results assume that the treatment dummy variable takes value 1 if treatment started during the first 20% of the sales campaign duration.
[3] The Placebo group received placebo text messages. The basic explicit group is the first treatment group, receiving a text-message program on to-be disseminated practices without reference to the source of the practice. The referred explicit group is the second treatment group, receiving a video-message program on to-be disseminated practices such that featured two administrative staff known for their relationship with SalesNow's management app, planning activities, and training.
[4] All treatment effects are Intention-to-Treat Effects estimated using a Differences-in-Differences model. It was not possible to track whether managers opened and read/watched the text-message/video-message during the intervention.
[5] SalesNow strongly recommends, though does not strictly enforce, a sponsored activity schedule for zone managers divided in three phases: the "Planning" phase (business days 1-6 of a benchmark sales campaign of 15 business days, or the first 40% of the Sales Campaign duration), a "Sales/Field" phase (days 7-12, or from 40% to 80% of the sales campaign time length), and a "Final Push/Financial Closure" phase corresponding to the last 3 business days of the sales campaign. This table considers such definition when computing the results for panels A through C, respectively.
4.5.1.3 Results on the Adoption of Types of Practice Adoption: Survey

Table 4.4 shows the intention-to-treat effects using the practice adoption indexes for each topic of practices. In odd columns, I use all survey responses to estimate a differences-in-differences model in an unbalanced panel using only group and a post-treatment dummies, as well as control variables at the geographic zone level. In even columns I use only the sample of geographic zones whose acting zone managers answered both the baseline and ex post survey.

As hypothesized in H1a, the effects on adherence to planning and team development practices were larger for the explicit transfer method using credible sources, precisely, from the planning and team development department. Further, while the base explicit practice transfer method was able to transfer knowledge on relationship management practices (i.e. manager takes notes about local managers’ personal life, manager reports issues in the relationship with the local partner while also discussing how to avoid facing the same problem again), the explicit transfer method with a credible source (on planning and training) was not successful in transferring such practice. These results support H1b, that credibility may hinder practice adoption in an initiative to transfer several practices for those practices the knowledge source’s credibility is not recognized. This interpretation was confirmed by meetings with company staff, where they suggested that the credible sponsor “focused” the attention of practice receivers on those practices their credibility was recognized. This finding thus confirms that credibility, although suggested as beneficial in previous work (Szulanski 1996; Szulanski and Lee 2017), can have a potential negative effect: a mismatch between the credible sponsor and the practice being transferred (e.g. a sponsor from the planning department attempting to transfer a practice about relationship management) could be inefficient when compared to a simple explicit practice transfer. Thus, the results further reinforce the literature on potential negative effects of knowledge source’s credibility (Allen and Stiff 1989; Tarcan Kumkale and Albarracín 2004).
Table 4.4 – Results of experiment 1: the effect of base explicit transfer method and explicit transfer method with a credible source on self-reported adherence to sponsored practices.

<table>
<thead>
<tr>
<th>Mean Adherence to Practices in: (Adherence to practices proposed by SalesNow)</th>
<th>Planning</th>
<th>Development</th>
<th>Relational</th>
<th>Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>All</td>
<td>Balanced</td>
<td>All</td>
<td>Balanced</td>
</tr>
<tr>
<td>Base Explicit Method x Placebo</td>
<td>0.069</td>
<td>0.226</td>
<td>0.249</td>
<td>0.362*</td>
</tr>
<tr>
<td></td>
<td>[0.195]</td>
<td>[0.194]</td>
<td>[0.205]</td>
<td>[0.209]</td>
</tr>
<tr>
<td>Explicit Method with Credible Source x Placebo</td>
<td>0.232</td>
<td>0.312*</td>
<td>0.513**</td>
<td>0.564***</td>
</tr>
<tr>
<td></td>
<td>[0.196]</td>
<td>[0.185]</td>
<td>[0.208]</td>
<td>[0.206]</td>
</tr>
<tr>
<td>Observations</td>
<td>439</td>
<td>310</td>
<td>438</td>
<td>310</td>
</tr>
</tbody>
</table>

Notes: [1] White-Huber standard errors robust to heteroskedasticity. Significance levels: ***p-value < 0.01, **p-value < 0.05, *p-value < 0.1.
[2] Odd columns consider an unbalanced sample of all survey respondents in control and treatment groups. Even columns consider only a balanced sample of zones with survey responses both before and after the implementation of the program.
[3] The Placebo group received placebo text messages. The base explicit group is the first treatment group, receiving a text-message program on to-be disseminated practices without reference to the source of the practice. The referred explicit group is the second treatment group, receiving a video-message program on to-be disseminated practices such that featured two administrative staff known for their relationship with SalesNow’s management app, planning activities, and training.
[4] All treatment effects are Intention-to-Treat Effects estimated using a Differences-in-Differences model. It was not possible to track whether managers opened and read/watched the text-message/video-message during the intervention.
[5] Control variables are: baseline experience (in years) of the zone manager at the sales zone one month prior the start of the intervention, a dummy variables representing the formal education of the zone manager at the sales zone one month prior the start of the intervention (less than college, college, or graduate school), mean 2017 income for the main municipality in the sales zone (in minimum wages), mean 2017 annual market potential for hygiene products for the main municipality in the sales zone (in thousands of Brazilian "Reais"), dummy variables representing sales zone’s urban profile (capital, metropolitan area, or countryside), and a dummy variable representing the sales zone’s region in Brazil (south or north region).

In sum, these results support my two first hypotheses. First, when transferring bundles of practices, using a credible knowledge source may reduce the stickiness of a subset of practices and increase the effectiveness of an explicit transfer method for those practices the credibility is recognized for. Second, and perhaps more interestingly, such credibility may focus the attention of receivers on a subset of practices and thus hinder the transfer of practices for which the knowledge source is not credible for.
4.5.2 Experiment 2: Tacit versus Explicit Transfer Methods

4.5.2.1 Balancing Checks and Descriptive Statistics

Table 4.5 shows the descriptive statistics and tests for the balancing in dependent and independent variables across the placebo, base explicit and tacit transfer methods for the sales campaign immediately preceding the start of the practice transfer intervention. The table follows the same format as Table 4.1. Again, the balancing property seems to hold for most variables, both when comparing mean/frequency levels and when comparing the distribution of continuous variables. Two exceptions are the planning index and the market capture, both being lower for the placebo group. We attempt to control for these differences by using differences-in-differences estimates and in some specifications using zone-level fixed effects to account for fixed unobservable factors of each zone. Both the extent of (passive) practice adoption and the intensity of (active) practice transfer are balanced.

Pre-treatment, zone managers in the second experiment spent around 435 seconds browsing the management app by sales campaign, also uploading close to 100 bytes per second of use. The mean zone managers across groups captures close to 5% of all sales potential in that market. In experiment 2, the countryside is less representative in comparison to experiment 1: close to 37% of zones’ most representative municipalities are on the countryside (against 45% in experiment 1). Manager’s mean baseline experience is also close to 7 years in the company.
Table 4.5 - Characteristics of the management zones, one sales campaign before the program started (experiment 2).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean (Pre-Treatment Sales Campaign)</strong></td>
<td>Control</td>
<td>Base Explicit Mech.</td>
<td>Tacit Mech.</td>
<td>[2]-[1]</td>
<td>[3]-[1]</td>
<td>[3]-[2]</td>
<td>[2]-[1]</td>
<td>[3]-[1]</td>
<td>[3]-[2]</td>
</tr>
<tr>
<td><strong>Mean Comparison (p-value)</strong></td>
<td>431.44</td>
<td>434.76</td>
<td>438.01</td>
<td>0.95</td>
<td>0.91</td>
<td>0.96</td>
<td>0.67</td>
<td>0.96</td>
<td>0.26</td>
</tr>
<tr>
<td><strong>Distribution Comparison (p-value)</strong></td>
<td>98.06</td>
<td>101.39</td>
<td>100.44</td>
<td>0.73</td>
<td>0.81</td>
<td>0.92</td>
<td>0.34</td>
<td>0.89</td>
<td>0.14</td>
</tr>
</tbody>
</table>

**Main Practice - Adoption of the Management App**
- Extension of Practice adoption (passive use) - Seconds in app.
  - Control: 431.44
  - Base: 434.76
  - Tacit: 438.01
  - Comparison: 0.95
  - p-value: 0.91
  - 95% CI: 0.96
  - 90% CI: 0.67
  - 90% CI: 0.96

- Intensity of Practice adoption (interactive use) - Bytes per second
  - Control: 98.06
  - Base: 101.39
  - Tacit: 100.44
  - Comparison: 0.73
  - p-value: 0.81
  - 95% CI: 0.92
  - 90% CI: 0.34
  - 90% CI: 0.89

**Secondary Practices - Survey-based measures**
- Structured Planning
  - Control: -0.32
  - Base: -0.09
  - Tacit: 0.18
  - Comparison: 0.59
  - p-value: 0.02
  - 95% CI: 0.06
  - 90% CI: 0.65

- Engagement
  - Control: -0.11
  - Base: -0.14
  - Tacit: -0.11
  - Comparison: 0.77
  - p-value: 0.87
  - 95% CI: 0.40
  - 90% CI: 1.00

- Development
  - Control: -0.03
  - Base: -0.14
  - Tacit: -0.22
  - Comparison: 0.44
  - p-value: 0.39
  - 95% CI: 0.30
  - 90% CI: 0.91

- Relational
  - Control: 0.04
  - Base: -0.25
  - Tacit: -0.16
  - Comparison: 0.15
  - p-value: 0.40
  - 95% CI: 0.66
  - 90% CI: 0.12

**Financial Performance**
- Ln(Sales)
  - Control: 12.39
  - Base: 12.37
  - Tacit: 12.40
  - Comparison: 0.16
  - p-value: 0.60
  - 95% CI: 0.03
  - 90% CI: 0.26
  - 90% CI: 0.79

- Market Capture (Sales/campaign market potential)
  - Control: 6.02
  - Base: 5.55
  - Tacit: 5.77
  - Comparison: 0.10
  - p-value: 0.34
  - 95% CI: 0.40
  - 90% CI: 0.26
  - 90% CI: 0.44

**Control variables**
- Local average wage in 2017 (in minimum wages)
  - Control: 4.76
  - Base: 4.96
  - Tacit: 5.02
  - Comparison: 0.55
  - p-value: 0.46
  - 95% CI: 0.86
  - 90% CI: 0.55
  - 90% CI: 0.14

- Local annual market potential (in millions of BRLs)
  - Control: 87.70
  - Base: 99.58
  - Tacit: 92.58
  - Comparison: 0.00
  - p-value: 0.44
  - 95% CI: 0.00
  - 90% CI: 0.19
  - 90% CI: 0.60

- Zone manager experience (baseline manager)
  - Control: 6.95
  - Base: 7.00
  - Tacit: 6.58
  - Comparison: 0.95
  - p-value: 0.64
  - 95% CI: 0.61
  - 90% CI: 1.00
  - 90% CI: 0.96

- Zone manager w/o college degree (pre-treatment)
  - Control: 0.17
  - Base: 0.13
  - Tacit: 0.11
  - Comparison: 0.20
  - p-value: 0.32
  - 95% CI: 0.85
  - 90% CI: -
  - 90% CI: -

- Zone manager with college degree (pre-treatment)
  - Control: 0.71
  - Base: 0.81
  - Tacit: 0.80
  - Comparison: 0.20
  - p-value: 0.32
  - 95% CI: 0.85
  - 90% CI: -
  - 90% CI: -

- Zone manager with graduate degree (pre-treatment)
  - Control: 0.13
  - Base: 0.06
  - Tacit: 0.08
  - Comparison: 0.20
  - p-value: 0.32
  - 95% CI: 0.85
  - 90% CI: -
  - 90% CI: -

- State capital
  - Control: 0.25
  - Base: 0.28
  - Tacit: 0.33
  - Comparison: 0.88
  - p-value: 0.29
  - 95% CI: 0.45
  - 90% CI: -
  - 90% CI: -

- Metropolitan region of a state capital
  - Control: 0.38
  - Base: 0.36
  - Tacit: 0.28
  - Comparison: 0.88
  - p-value: 0.29
  - 95% CI: 0.45
  - 90% CI: -
  - 90% CI: -

- Countryside
  - Control: 0.38
  - Base: 0.35
  - Tacit: 0.39
  - Comparison: 0.88
  - p-value: 0.29
  - 95% CI: 0.45
  - 90% CI: -
  - 90% CI: -

- South/Southeast/Mid-West region
  - Control: 0.66
  - Base: 0.68
  - Tacit: 0.70
  - Comparison: 0.76
  - p-value: 0.54
  - 95% CI: 0.76
  - 90% CI: -
  - 90% CI: -

- North/Northeast region
  - Control: 0.34
  - Base: 0.32
  - Tacit: 0.30
  - Comparison: 0.76
  - p-value: 0.54
  - 95% CI: 0.76
  - 90% CI: -
  - 90% CI: -

**Notes:** The mean comparison of continuous variables uses the t-statistic. The mean comparison of categorical variables (variables with empty fields on columns [7]-[9]) considers a chi-squared test on the frequency of each category's occurrence. The distribution comparison for is the the Kolmogorov Smirnov statistic.
4.5.2.2 Results on the Effectiveness of Practice Adoption: Management App

The main results testing hypotheses H2a and H2b are in tables 4.6 and 4.7. Both tables have the same structure as tables 4.2 and 4.3, respectively. Panel A from table 4.6 shows that neither explicit nor tacit practice transfer methods were successful in affecting the extension of practice adoption with neither the explicit nor the tacit practice adoption mechanism conditional on the zone managers having already interacted with field trainers previously. This might suggest that the 288 geographic zones selected by SalesNow to receive the field trainer are less prone to use the management app or that previous interactions with the field trainer was enough to leverage the most extensive use as possible of the management app. Unfortunately, the management app and the field trainer both entered around the same period in the 288 zones from experiment 2, undermining tests to filter the effect of each on these zones when compared to zones without the field trainer.

However, panel B in Table 4.6 offers suggestive evidence supporting H2a, i.e. that tacit transfer methods allow for the transfer of components of the practice which were not codified and scripted in the transfer methods. The tacit transfer method increased by 20% (when compared to the mean baseline) the amount of bytes zone managers uploaded in the management app by second. This suggests that zone managers are using the management app more intensively, arguably conducting active search of performance indicators (in such cases, the zone managers had to interact with the app as the main screen presented the schedule rather than performance indicators). Such active adoption suggests that field trainers were potentially able to teach zone managers how to interact with the app in a different fashion than simply checking the agenda and pre-provided planning. Further, the difference between such intensive and interactive adoption across zone managers in the tacit and explicit method groups (although we lose statistical significance). Figure 4.5 shows the estimates of a dynamic differences-in-differences model. The explicit transfer method does not reach significance in either post-treatment sales campaign, whereas the experience with the field trained led to an increasing interaction with the app, until the last sales campaign where it leveled off to zero. This suggests that such type of tacit transfer (one-shot training and coaching session) might have had only a short-term effect. Overall, these results support H2a.
Table 4.6 - Results of experiment 2: the effect of base explicit transfer and tacit transfer methods on passive and interactive practice adoption.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Placebo x Explicit Mechanism</th>
<th>Placebo x Tacit Mechanism</th>
<th>Explicit x Tacit Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Panel A – Passive Practice Adoption (seconds using the management app)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline Practice Adoption</td>
<td>433.099</td>
<td>433.099</td>
<td>434.724</td>
</tr>
<tr>
<td>% effects over mean baseline</td>
<td>-5%</td>
<td>-5%</td>
<td>-5%</td>
</tr>
<tr>
<td>Panel B - Interactive Practice Adoption (entered bytes per second in the management app)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline Practice Adoption</td>
<td>99.724</td>
<td>99.724</td>
<td>99.249</td>
</tr>
<tr>
<td>% effects over mean baseline</td>
<td>6%</td>
<td>6%</td>
<td>20%</td>
</tr>
<tr>
<td>Observations</td>
<td>1728</td>
<td>1728</td>
<td>1728</td>
</tr>
<tr>
<td>Sales Campaigns</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Zones</td>
<td>192</td>
<td>192</td>
<td>192</td>
</tr>
<tr>
<td>Group Dummy</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Post Dummy</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Window FE</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Zone FE</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: [1] Standard errors clustered at the sales zone level. Significance levels: ***p-value < 0.01, **p-value < 0.05, *p-value < 0.1.

[2] Results consider a strongly balanced panel sample of sales zones during nine sales campaigns. Each time window represents a sales campaign as defined by SalesNow company. Windows are normalized so that period zero is the first sales campaign after the treatment started in the treatment groups. If the treatment started in the middle of a sales campaign for some sales zone, results assume that the treatment dummy variable takes value 1 if treatment started during the first 20% of the sales campaign duration.

[3] The Placebo group received placebo text messages. The explicit group is the first treatment group, receiving a text-message program on-to-be disseminated practices without reference to the source of the practice. The tacit group is the third type of treatment group, receiving a 1-hour live videoconference training module and coaching on the field on-to-be disseminated practices with a field trainer. This field trainer was originally focused on field activities (mainly retention/recruitment of sales representatives).

[4] All treatment effects are Intention-to-Treat Effects estimated using a Differences-in-Differences model. It was not possible to track whether managers opened and read(watched) the text-message(video-message) during the intervention.
Figure 4.5 – The dynamics of tacit practice adoption using explicit and tacit practice transfer method (experiment 2)
Panel A – Placebo versus Explicit practice transfer method

Panel B – Placebo versus Tacit practice transfer method

Notes: the coefficients in the graphs are from an interaction between a treatment group dummy and a post period dummy, controlling for zone and window fixed effects. The plot presents the pointwise estimate of the effect of base explicit practice transfer (panel A) and the effect of the tacit practice transfer method (panel B) with 90% confidence intervals. All groups (placebo, non-sponsored explicit transfer method, and tacit transfer method) had already access to a field trainer to train them on day-to-day field activities before the experiment started. For the full table of coefficients, please contact the author.
Table 4.7 shows results testing hypothesis H2b. Although all transfer methods applied in this research have explicitly associated the management app as a tool to be used during the planning stages of the campaign, panels A and C suggest the presence of local adaption. The effects on the intensity of practice adoption increased in the later stages of sales campaigns, during the “final push” phase, instead of during the planning phase. This implies that not only did the transfer of the practice involved a more tacit component, but it also led to an adaptation of how the practice would be applied locally. Based on personal visits to SalesNow and meetings with their personnel, results from Tables 6 and 7 indicate that the tacit transfer method increased the use of the management app in the secondary functionalities, mainly on the search of key performance indicators close to the end of the sales campaign. This strategy of practice adoption would benefit zone managers whose sales targets had not been met by then. Active searching in the app for such information could help them to verify which teams had not met the targets until them and then prompt action. This result thus supports hypothesis H2b: the tacit transfer method allowed for greater adaptation of practice adoption, as indicated by the increase adoption of the management app in the later stages of sales campaigns, rather than on the early stages (as proposed by the practice transfer initiative).
### Table 4.7 – Results of experiment 2: expected timing of practice use, base explicit transfer method and tacit transfer method.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Placebo x Explicit Mechanism</th>
<th>Placebo x Tacit Mechanism</th>
<th>Explicit x Tacit Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Practice Adoption (entered bytes per second in the management app)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel A - Planning Phase (0-40% of the sales campaign duration)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact on adoption</td>
<td>1.610 (13.203)</td>
<td>1.640 (12.431)</td>
<td>0.030 (12.275)</td>
</tr>
<tr>
<td>Panel B - Sales/Field Phase (40-80% of the sales campaign duration)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel C - &quot;Final Push&quot; Phase (80-100% of the sales campaign duration)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact on adoption</td>
<td>-15.716 (15.628)</td>
<td>45.533** (18.103)</td>
<td>61.249*** (17.434)</td>
</tr>
<tr>
<td>Observations</td>
<td>1728</td>
<td>1728</td>
<td>1728</td>
</tr>
<tr>
<td>Sales Campaigns</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Zones</td>
<td>172</td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>Window FE</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Zone FE</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Notes: [1] Standard errors clustered at the sales zone level. Significance levels: ***p-value < 0.01, **p-value < 0.05, *p-value < 0.1.
[2] Results consider a strongly balanced panel sample of sales zones during nine sales campaigns. Each time window represents a sales campaign as defined by SalesNow company. Windows are normalized so that period zero is the first sales campaign after the treatment started in the treatment groups. If the treatment started in the middle of a sales campaign for some sales zone, results assume that the treatment dummy variable takes value 1 if treatment started during the first 20% of the sales campaign duration.
[3] The Placebo group received placebo text messages. The explicit group is the first treatment group, receiving a text-message program on-to-be disseminated practices without reference to the source of the practice. The tacit group is the third type of treatment group, receiving a 1-hour live videoconference training module and coaching on the field on-to-be disseminated practices with a field trainer. This field trainer was originally focused on field activities (mainly retention/recruitment of sales representatives).
[4] All treatment effects are Intention-to-Treat Effects estimated using a Differences-in-Differences model. It was not possible to track whether managers opened and read/watched the text-message/video-message during the intervention.
[5] SalesNow strongly recommends, though does not strictly enforces, a sponsored activity schedule for zone managers divided in three phases: the "Planning" phase (business days 1-6 of a benchmark sales campaign of 15 business days, or the first 40% of the Sales Campaign duration), a "Sales/Field" phase (days 7-12, or from 40% to 80% of the sales campaign time length), and a "Final Push/Financial Closure" phase corresponding to the last 3 business days of the sales campaign. This table considers such definition when computing the results for panels A through C, respectively.
4.5.2.3 Results on the Adoption of Types of Practice Adoption: Survey

Table 4.8 presents the data on the effect of explicit and tacit mechanisms on survey-based measures of practice adoption. The structure mirrors that of Table 4. Columns [1] and [2] provides an additional support to H2b: tacit practice transfer decreased the extent to which zone managers followed the transferred planning-oriented day-to-day practices (average effect of 0.58 and 0.72 standard deviations in the adoption index, both statistically significant). This suggests that information passed by the field training during the training or coaching changed the potential substance of the to-be-transferred planning practice. This result is also found in the explicit practice transfer (though weakly). This congruence suggests that previous interactive experiences with field trainers might have been conflicting with the planning practices transferred in the experiment. Further, columns [5] and [6] show that both explicit and tacit practice mechanisms were able to transfer practices associated with management the relationship with the zone manager.35

In sum, these results confirm hypotheses H2a and H2b that not only a tacit transfer method allows for the transfer of previously unscripted, and non-codified, facets of a practice, but also that transfer methods affording for interaction and personalization may lead receivers to adapt a practice.

35 Indeed, one can interpret the results from experiment 2 as a robustness to the findings from experiment 1 on the detrimental effects of a credible knowledge source. The only treatment scenario across both experiments where there was no effect on the relational practices was on the explicit transfer method with a credible knowledge source (associated with planning and training activities).
Table 4.8 - Results of experiment 2: the effect of base explicit transfer method and tacit transfer method on self-reported adherence to sponsored practices.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>Planning</td>
<td>Team Development</td>
<td>Relational</td>
<td>Team Engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Explicit Method x Placebo</td>
<td>-0.404</td>
<td>-0.454*</td>
<td>0.121</td>
<td>-0.208</td>
<td>0.460*</td>
<td>0.418*</td>
<td>-0.021</td>
<td>-0.010</td>
</tr>
<tr>
<td>x Placebo</td>
<td>[0.268]</td>
<td>[0.252]</td>
<td>[0.256]</td>
<td>[0.267]</td>
<td>[0.259]</td>
<td>[0.246]</td>
<td>[0.244]</td>
<td>[0.210]</td>
</tr>
<tr>
<td>Observations</td>
<td>254</td>
<td>184</td>
<td>254</td>
<td>184</td>
<td>254</td>
<td>184</td>
<td>254</td>
<td>184</td>
</tr>
<tr>
<td>Tacit Method x Placebo</td>
<td>-0.584**</td>
<td>-0.724***</td>
<td>0.114</td>
<td>0.017</td>
<td>0.385</td>
<td>0.604**</td>
<td>0.136</td>
<td>0.144</td>
</tr>
<tr>
<td>x Placebo</td>
<td>[0.246]</td>
<td>[0.212]</td>
<td>[0.254]</td>
<td>[0.255]</td>
<td>[0.262]</td>
<td>[0.247]</td>
<td>[0.232]</td>
<td>[0.203]</td>
</tr>
<tr>
<td>Observations</td>
<td>258</td>
<td>194</td>
<td>258</td>
<td>194</td>
<td>258</td>
<td>194</td>
<td>258</td>
<td>194</td>
</tr>
<tr>
<td>Group Dummy</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Post Dummy</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Control Variables</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Window FE</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Zone FE</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

Notes: [1] White-Huber standard errors robust to heteroskedasticity. Significance levels: ***p-value < 0.01, **p-value < 0.05, *p-value < 0.1.
[2] Odd columns consider an unbalanced sample of all survey respondents in control and treatment groups. Even columns consider only a balanced sample of zones with survey responses both before and after the implementation of the program.
[3] The Placebo group received placebo text messages. The explicit group is the first treatment group, receiving a text-message program on to-be disseminated practices without reference to the source of the practice. The tacit group is the third type of treatment group, receiving a 1-hour live videoconference training module and coaching on the field on to-be disseminated practices with a field trainer. This field trainer was originally focused on field activities (mainly retention/recruitment of sales representatives).
[4] All treatment effects are Intention-to-Treat Effects estimated using a Differences-in-Differences model. It was not possible to track whether managers opened and read/watched the text-message/video-message during the intervention.
[5] Control variables are: baseline experience (in years) of the zone manager at the sales zone one month prior the start of the intervention, a dummy variables representing the formal education of the zone manager at the sales zone one month prior the start of the intervention (less than college, college, or graduate school), mean 2017 income for the main municipality in the sales zone (in minimum wages), mean 2017 annual market potential for hygiene products for the main municipality in the sales zone (in thousands of Brazilian "Reais"), dummy variables representing sales zone's urban profile (capital, metropolitan area, or countryside), and a dummy variable representing the sales zone's region in Brazil (south or north region).
4.6 DISCUSSION

4.6.1 Contributions

This study advances the current literature on intra-organization practice transfer (Szulanski 1996; Szulanski and Lee 2017; Argote and Fahrenkopf 2016) by proposing that an effective practice transfer initiative depends on the match between a transfer method and the knowledge content of a practice. I advance that coupling an additional facet (in this paper, knowledge source credibility) to an explicit transfer method may sometimes bolster and other times undermine practice transfer. I also propose that a tacit transfer method allows afford for the transfer of aspects previously unscripted by the organization promoting the transfer. Empirically, I introduced separate and exogenous changes in the methods used to transfer different types of practices. Using two field experiments with real managers and an actual company, I disentangled the effects of the choice of the transfer method from the effects of alternative transfer methods. This is important because it offers causal evidence on the expected outcomes and potential trade-offs of alternative practice transfer methods while addressing how complementary facts of an explicit transfer method may have unintended consequences for practice transfer.

Addressing the agenda on the understanding of how organizations can effectively transfer practices, my main findings are twofold. First, I show that explicit transfer methods attempting to transfer the same pool of practices may have differing performance in terms of successful transfer given the extent to which the knowledge receiver recognizes the knowledge source as a credible source of the information. Given the limitations associated with the transfer of explicit knowledge (Szulanski, Ringov, and Jensen 2016; Szulanski and Lee 2017), explicit methods can be improved with additional information stressing the reliability of the source. Using a credible source, however, is a double-edged sword. Much like firms in information markets may signal quality and reputation by focusing on a few selected information products (Hansen and Haas 2001) and individuals with bounded rationality focus their attention and engagement on a subset of activities and objectives (Ocasio 1997, 2011), using a credible source focuses the attention of knowledge receivers on those practices such credibility is recognized. As a result, in a transfer involving a knowledge source with limited credibility in terms of the share of practices she/he ought to transfer may be a drawback. In such cases, receivers may focus adoption on a subset of practices,
undermining the adoption of other practices. Such finding shows how nuanced even explicit transfer methods which do not allow for any type of interaction, personalization, observation, or experience can be.

Second, I find that the use of a tacit transfer methods (Szulanski, Ringov, and Jensen 2016) may not only outperform an explicit transfer method in terms of disseminating previously non-codified components of a practice transfer, but the same interactive process involved in a tacit transfer may also lead to local adaptation in practice adoption (Kostova and Zaheer 1999; Kostova and Roth 2002). As a result, organizations choosing to disseminate practices through tacit transfer methods may end up with an even larger heterogeneity in practice adoption as the personalized and interactive process of a tacit transfer method may lead individual to locally adapt practices. This result bears implications for practitioners as the literature has shown that while local adaptation may be important to avoid a misfit between an environment and a newly transferred practice (Reus, Lamont, and Ellis 2016) there are also conditions were accurate replication of centrally-sponsored practices (e.g. following an activity template) may imply in superior performance (Winter and Szulanski 2001; Jensen and Szulanski 2007).

Finally, this paper also addresses a recurring call for the study of how technological advances and different communication channels affect organizational opportunities to manage and transfer knowledge within an organization (Galbraith 1990; Markus 1994; Alavi and Leidner 2001; G. C. Kane and Alavi 2007; Haas and Hansen 2005, 2007; Ocasio, Laamanen, and Vaara 2018; Ocasio, Rhee, and Milner 2017). By drawing on the experience of new development policies targeting education and healthcare improvements at a low cost (Cortes et al. 2018; Doss et al. 2018; York and Loeb 2018; Karasz, Eiden, and Bogan 2013; Hall, Cole-Lewis, and Bernhardt 2015), this research shows that decreased communication costs may offer opportunities for organizations to employ practice transfer methods to increase knowledge flows within an organization, even in cases where sources, receivers, or even the practice-transfer method pair are not self-selected.

4.6.2 Limitations and Suggestions for Future Research

Despite its potential contributions, this research has limitations. The first limitation is that when comparing the role of a credible knowledge source as a potential complementary feature of an explicit transfer method, the research team changed the medias through which the knowledge
was transferred. The simple fact that video messages involve a different action by receivers than a text message (watching vs. reading) may already affect the performance outcomes in terms of practice transfer. Although an ideal experiment would also keep the media constant (e.g. use of a video with a “neutral” individual vs. video with a credible individual), budget constraints and within-organization policies did not allow me to create such conditions. Nonetheless, the project team and I attempted to keep the information passed along through text messages as closely aligned to those passed through video messages with a credible individual, as well as to produce short-enough videos so that the time spent reading the text message would not be significantly lower than the time spent watching the video. Indeed, developing and evaluating future field experiments with a more specific change in only one feature of the practice transfer method may be able to pinpoint more precisely for is potential complementarity in transferring practices. Indeed, a research question which remains unaddressed by existing research is the extent to which several characteristics of the transfer method itself may complement or substitute one another (in terms of the success of a practice transfer) for given practice-transfer method pairs. Research exploring these complementarity/substitutability conditions would be welcomed from both a theoretical and practical standpoint.

Second, although the tacit transfer method in the second field experiment allowed for interaction and personalization, such experience was limited due to either the distance between field trainer and manager when in the teleconference or due to the limited number of hours in their face-to-face session. Indeed, this work does not explore the extent to which unlimited (or at least a longer interactive period) would affect the local adaptation of knowledge being transferred. It is possible that adaptation happened precisely because their interaction was limited and thus miscommunication led managers to adopt practices which were not well-aligned with what the organization intended to sponsor. Indeed, decoupling the effects from partial adoption due to active local adaptation versus partial adoption due to limited communication is another intriguing research area. For instance, understanding the extent to which regular knowledge flows with coworkers affect one’s adoption of centrally organized practice transfers is another research question of interest. An interesting research direction would be on how individuals’ interactions with coworkers moderate practice adoption of heterogeneous tacit and explicit transfer methods.

A third limitation of our work is on the variables operationalizing practice adoption. Although information on the use of the management app associated practice adoption with
observable behavior, the practice of “using the management app during the planning stages” was loosely defined by the company and could warrant both efficient use (actively plan activities based on schedule) or inefficient use (simply browse the application without a focus during the planning stage). Our measure and practice definition cannot capture these nuances of practice adoption. Further, the survey-based instrument to capture adherence to practice adoption is constrained by the fact that the company enforced it to be a short instrument that was supposed to capture several practices at once. As a result, each item is almost associated with a single practice, undermining reliability tests of multi-scored factors. Although I qualitatively defined with the company how to score each response in accordance with what the interventions intended to transfer, conducted both within-question standardization as well as a robustness checks with raw mean scores, as well as verified that results are relatively consistent if we use the routine-base measure or the survey-based measure, the survey-based measures of practice adoption remain limited.

Finally, a common limitation of single-firm studies is the extent to which findings are generalizable to other settings, despite its internal validity. As a result, future research exploring similar research questions on practice transfer methods in other contexts would be important to reinforce, advance, or even disprove results in this paper.
4.7 CONCLUDING REMARKS

In this chapter, I explore the relative effectiveness of alternative practice transfer methods in transferring practices within an organization. Using two experiments in a real world organization, I find that although knowledge source’s credibility may complement explicit practice transfer methods (e.g. manual, guidebooks, text/video message programs) for practices associated with such credibility, as knowledge receivers perceive source’s credibility to be associated with a subset of practices, they may not engage in the adoption of the other practices the transfer initiative wished to disseminate. I also find that that tacit transfer methods not only allow for the transfer of previously non-codified and unscripted facets of a practice, but they also may lead to local adaptation of the practice being transferred. By isolating the causal mechanisms at work when transferring intra-organization practices, these results inform scholars interested in understanding the effects of alternative transfer methods. Results also have practical implications for practitioners by shedding light on the trade-offs between alternative methods to transfer practices within their organizations.
5 CONCLUSION

Since its inception as a field of management scholarship, strategic management research has produced a wide body of literature focused on understanding the major drivers of performance differentials across and within organizations (McGahan and Porter 1997; Mahoney and McGahan 2007; Mcgahan 2007). One topic which has drawn the attention of strategy scholars since Nelson and Winter’s study on organization routines (Nelson and Winter 1982) and Porter’s proposition on how the complementarity of activities within an organizational systems may lead to superior performance (Porter 1996) is the study of management practices in organizations. The last couple of decades, in particular, has witnessed a rising interest in one such driver of superior performance: the adoption of management practices, and its empirical examination within and across firms (Bloom et al. 2012; Bromiley and Rau 2014; Sadun, Bloom, and Van Reenen 2017; Syverson 2011; R. Gibbons and Henderson 2013; Szulanski 1996). In this dissertation, I have argued that, despite such growing body of literature studying how heterogeneous adoption of management practices predicts performance differences across and within firms, there remains a large set of research opportunities aimed at coalescing empirical findings with strategic management theory. Further, the choice of varying empirical contexts attempts to generalize the findings to organizations targeting private (Brandenburger and Stuart 1996) or public value creation (Cabral et al. 2019). The three core chapters of this dissertation represent three articles with a joint missing of addressing these opportunities and whose main contributions and findings are summarized below.

5.1 MAIN CONTRIBUTIONS

In my first article (chapter 2), based on joint work with Sérgio Lazzarini, Sandro Cabral, and Leandro Nardi, I theoretically argue and empirically verify that resource- and practice-based explanations of heterogenous performance are essentially intertwined. The core argument is that while the resources a manager has at disposal influence the set of practices an organization can (endogenously) select, once those practices are in place, they affect how much value an organization can create using its prevailing resources. I use highly detailed data from the performance and beneficiaries’ perspectives about management practices for over 9,000 public
and private high schools in Brazil to confirm the direct role of resources and management practices on performance and the indirect effect of resources on performance through its practice-enabling role.

The arguments put forward in chapter 2 coalesce prevailing explanations of performance heterogeneity focused on the scarcity and immobility of resources (Wernerfelt 1984, 1995; Peteraf 1993; Bryson, Ackermann, and Eden 2007) with recent arguments on the predictive power of imitable and potentially transferrable activities and routines in terms of performance (Bloom et al. 2012; Bromiley and Rau 2014; Sadun, Bloom, and Van Reenen 2017). Thus, chapter 2 has an academic implication by suggesting that strategic management scholars should care less about whether some organizational routine is imitable or not, but rather focus on what are the constraints to imitation and diffusion. Further, by conducting the analysis on schools with different organizational forms (public and private), I both show that strategic human capital may attenuate low incentives for the adoption of superior management practices in public organizations (Dixit 2002; Williamson 1999). This finding contributes to the emerging literature on strategic management and activities on the public interest (Cabral, Lazzarini, and Azevedo 2013; Mahoney, McGahan, and Pitelis 2009; P. G. Klein et al. 2013) by underscoring the importance of expanding strategic management research to a context where performance does not necessarily entail financial gains, but rather the production of a socially-oriented service.

In my second study (chapter 3), I contribute to the established literature on strategic human capital literature by proposing that investing in partners’ generic human capital, in the form of management training, can lead to further value capture and creation by the investing firm. I use the empirical setting of partnerships at the BoP to show that such investment may act as a relational cue valued by the partner. As a result, in such context of human capital scarcity, firm-sponsored generic human capital transfer both increases the local entrepreneur’s performance by endowing human capital; and, contrary to the expectation in contexts of highly mobile and fluid partnerships, strengthens the tie between a large organization and local partners at BoP markets. The findings on chapter 3 contribute to the literature in BoP enterprises and strategic human capital. First, it contributes to the BoP literature by addressing the call on micro-oriented research on the BoP and on knowledge transfer mechanisms in human capital scarce environments (Kistruck et al, 2014). This study argues that conditions at the BoP (e.g. high-risk aversion and lack of complementary resources by local entrepreneurs) also creates a business case for firm-driven investments in
generic human capital. As a result, this study connects the recent literature on the benefits of both generic and firm-specific investment in human capital (Riley, Michael, and Mahoney, 2016) with the literature of BoP enterprises.

Finally, in my last study (chapter 4) I go beyond strategies to leverage management practices through general human capital creation to explore how organization may be more effective in disseminating existing practices across its subunits. Based on the literature of intra-organization knowledge transfer (Argote and Ingram 2000; Szulanski 1996; Szulanski and Lee 2017; Ocasio, Rhee, and Milner 2017), I conducted two field experiments to create exogenous variation on practice transfer initiatives to test two main theoretical predictions. First, I confirm a trade-off of using a credible knowledge source (Szulanski 1996; Szulanski and Lee 2017): credibility may enhance adherence to practices associated with the knowledge source’s credibility while undermining adherence to the remaining practices. I argue this phenomenon is explained by an (potentially suboptimal) excessive focus on a subgroup of practices (Ocasio 2011; Ocasio, Rhee, and Milner 2017). Second, transfer methods allowing for the interaction (and potential personalization) between individuals sending and receiving the practice outperforms an explicit method in terms of disseminating previously non-codified components of a practice. Both findings from chapter 4 hold academic implications by offering causal evidence on an often endogenous process while advancing the literature on the relative merits and channels through which transfer methods work (Szulanski 1996; Szulanski and Lee 2017; Argote and Fahrenkopf 2016). Further, I address the recurring call of studying how technological advances and different communication channels affect organizational opportunities to manage and transfer knowledge within an organization (Galbraith 1990; Markus 1994; Alavi and Leidner 2001; G. C. Kane and Alavi 2007; Haas and Hansen 2005, 2007; Ocasio, Laamanen, and Vaara 2018; Ocasio, Rhee, and Milner 2017).

Throughout the chapters, I have relied on varied theoretical backgrounds, ranging from resource-oriented strategy research (Wernerfelt 1984, 1995; Peteraf 1993; Bryson, Ackermann, and Eden 2007), strategic human capital theory (Coff 1997; Coff and Kryscynski 2011; Wang, He, and Mahoney 2009a), and organizational learning (Argote and Ingram 2000; Szulanski 1996; Szulanski and Lee 2017; Ocasio, Rhee, and Milner 2017; Kogut and Zander 1992; Zander and Kogut 1995). In Chapter 2, I argue for a greater articulation between traditional resource-based explanations of superior performance and practice-oriented research. In Chapter 3 I explore how
organizations could benefit from strategically leveraging the performance enhancing potential of management practices by investing in partners’ management capital. Finally, I continue studying strategies to leverage management practices in chapter 4 by turning my focus to the relative performance of alternative methods to disseminate practices across organizational units. As a result, in this dissertation I cover not only the effects of management practices on performance and actionable strategies to leverage their potential to create value, but I also do it so while proposing refinements and advances to strategic management theory.

5.2 DIRECTIONS FOR FUTURE RESEARCH

Despite the above-reported contributions from this dissertation, I believe that this dissertation is more of a first step to inspire new research in a potentially prominent area of strategic management than settling how management practices should be incorporated in strategic management theory. As a result, directions for future research are plenty as I will limit myself to comment some few opportunities.

First, although the first study touches on a potential interplay between organizational forms, practices, and resources as predictors of performance, our setting is limited to only public and private organizations. A natural extension would be for future research to explore how the alternative ownership structures (e.g. family firms, publicly traded companies, etc.) moderate both the value-enabling role of practices and the practice-enabling role of resources. An interesting research question could address a potential nonlinear relationship between the strength of an incentive system on capacity to leverage the practice-enabling role of resources. Specifically, an hypothesis is that if an incentive system is too strong and practice adoption is not immediate, managers would choose to allocate resources in suboptimal practices that boost performance in the short term but compromise long-term outcomes.

Another interesting line for future research could explore the dynamics of the relationship between practice adoption and resources. Accumulated learning from superior practice adoption, for instance, can enhance human capital and influence its inter-organizational mobility (Coff 1997), as the sheer value of organizational resources can depend on practices that are imperfectly distributed across firms. Thus, far from being an alternative framework to understand inter-organizational performance differences, practices can represent a novel mechanism affecting the
allocation of strategic resources. Understanding the dynamics of the complementarity and substitutability of generic and firm-specific *ex ante* human capital when investing in employee or partner’s management capital is also of interest. In particular, the literature would benefit from a theoretical model to understand the conditions upon which the previous stock of human capital could complement or substitute for firms’ investment in management capital.

Another opportunity for future research entails digging deeper into how the features of intra-organization knowledge transfer affect the effectiveness of a practice transfer methods. A research question which remains unaddressed by existing research is the extent to which several characteristics of the transfer method itself may complement or substitute one another (in terms of the success of a practice transfer) for given practice-transfer method pairs. Further, understanding the role of the timing of the transfer method also warrants for new research (Szulanski, Ringov, and Jensen 2016).

Several empirical research questions also remain: to what extent do regular knowledge flows with coworkers affect one’s adoption of centrally organized practice transfers? How do individuals’ interactions with coworkers moderate practice adoption of heterogeneous tacit and explicit transfer methods? How can organizations leverage the usage of artificial intelligence to smooth the process of practice transfer? All these questions represent possibilities for exciting new research unpacking mechanisms though which management practices can be of strategic value by inducing substantial performance heterogeneity across and within organizations.
REFERENCES


D.C.


Brynjolfsson, Erik, and Kristina McElheran. 2016. “The Rapid Adoption of Data-Driven Decision-


Mair, Johanna, and Ignasi Marti. 2009. “Entrepreneurship in and around Institutional Voids: A


144

https://doi.org/10.1016/j.econedurev.2010.07.007.
APPENDIX

A1. EDUCATION DATASETS (CHAPTER 2)

Prior to undertaking ENEM, students answer a far-reaching questionnaire addressing both individual socioeconomic aspects and the characteristics of the schools they attended. Although the questionnaire has changed over the years, the 2007 and 2008 editions adopted a questionnaire with a unique, and yet unexplored, group of questions on students’ perceptions regarding a series of school-level practices (to be described in detail later). This dataset has created a singular opportunity to study the role of management practices in school performance, as well as in the determinants of these practices.

The second dataset we used is the Brazilian School Census. Conducted by INEP/MEC, the Scholarly Census is the most relevant and encompassing annual dataset regarding basic education in Brazil. Its format has changed since 2007 and now follows each school, student, and teacher in a panel dataset with information on the school location (municipality), infrastructure and resources, enrollments, classes per grade, teacher characteristics, and more. We used both the 2007 and 2008 censuses to recover a series of school-level resources and other characteristics (described below).

To construct our working sample, we consider only students with valid scores, in their last year of high school, who are at most 25 years old, and who answered the socioeconomic questionnaire fully. We consider only schools with a sufficient pool of test-takers (10 students), with at least 10 students answering the questions on school practices on the ENEM socioeconomic questionnaire and whose infrastructure and resources information were within the scholarly census for 2007 and 2008.
A2. CONSTRUCTION OF THE MANAGEMENT INDEX AND RELIABILITY MEASURES (CHAPTER 2)

Although few works have explored management practices in educational settings (Bloom, Lemos, et al. 2015; Meier et al. 2014; Ouchi et al. 2005; Ouchi 2003, 2006), these studies have operationalized practices by means of interviews with school principals in which they answered the extent to which schools adopted a given practice. We pursue an alternative path of analyzing adopted practices through the lenses of educational service beneficiaries. Instead of assuming *ex ante* which particular set of practices are “desirable” (Bloom, Lemos, et al. 2015), rather we operationalize schools’ adherence to our hypothesized internal operations and external engagement management practices by gauging how students perceive the adoption of a host of factors associated with school management. More specifically, we assume that each school has a continuous latent characteristic corresponding to the adherence to internal operations and external engagement management practices. Further, we assume that the probability of a student giving a higher score to a school feature (such as quality of conflict management or schedule organization) is increasing in a schools’ adoption of internal operations and external engagement practices. We use these assumptions to create factors associated with the “adherence to internal operations and external engagement practices”. Even if we observe disagreement in how students score each component on the questionnaire, schools with a stricter adoption of internal operations and external engagement management practices are expected to have a higher share of students giving higher scores to each feature.

Using the questions portrayed in table A1, we conducted a 5-step procedure to operationalize a variable representing adherence to internal operations and external engagement management practices. First, we considered only schools which in both 2007 and 2008 had at least 10 graduating students responding all questions in Table 1. Second, we normalized the questions so that zero would represent the least, and one the highest score possible (i.e. we transformed questions from a 0-2 Likert scale to a 0 – 0.5 – 1 scale). Third, we averaged out the responses of all students from the same school for each individual question. Fourth, we conducted a factor analysis for 2007 and 2008 separately. 36 Eigenvalue tests indicated the existence of a unique factor regardless of the

---

36 Although we computed different factor loadings for each year, they were stable across 2007 and 2008. These loadings are available upon request to the authors.
qualitative distinction between within-school and outside-school orientation of each practice. Our interpretation is that these internal and external practices are, per se, highly complementary. For instance, engaging with parents is expected to enhance the ability of teachers to adjust their pedagogical activities (Ouchi 2003). Fifth, we normalized the results to a 0-10 scale, with the maximum result yielding 10, whereas the least yielded 0. The resulting product is a 0-10 index on the adherence to internal operations and external engagement practices, which we use in our empirical exercises. We also followed the same steps to compute the individual internal operations practices index and the external engagement practices index.

Table A1 - Questionnaire on internal operations management (IM) and external engagement (EE) practices

<table>
<thead>
<tr>
<th>Management-related question</th>
<th>Potential answers (ranging from 0 to 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well would you rank your school's...</td>
<td></td>
</tr>
<tr>
<td>overall administration? (IM)</td>
<td></td>
</tr>
<tr>
<td>class and schedule organization? (IM)</td>
<td></td>
</tr>
<tr>
<td>organization and support in solving between-student conflicts? (IM)</td>
<td></td>
</tr>
<tr>
<td>organization and support in solving conflicts between teachers and students? (IM)</td>
<td></td>
</tr>
<tr>
<td>respect between school staff and students? (IM)</td>
<td></td>
</tr>
<tr>
<td>attention and respect provided by school staff? (IM)</td>
<td></td>
</tr>
<tr>
<td>capacity to evaluate learning? (IM)</td>
<td></td>
</tr>
<tr>
<td>initiative to promote excursions and environmental studies? (EE)</td>
<td></td>
</tr>
<tr>
<td>Does your school organize...</td>
<td></td>
</tr>
<tr>
<td>science and/or cultural fairs? (EE)</td>
<td></td>
</tr>
<tr>
<td>out-of-class lectures and debates? (EE)</td>
<td></td>
</tr>
<tr>
<td>excursions and trips? (EE)</td>
<td></td>
</tr>
<tr>
<td>0: No</td>
<td></td>
</tr>
<tr>
<td>1: Yes</td>
<td></td>
</tr>
</tbody>
</table>

We computed two types of internal reliability tests for all practice-related indexes. First, we tested across-item reliability considering whether items associated with each index denoted a common latent construct. Using the students’ mean response for each item within an index, we computed Cronbach’s alpha for each index separately for the 2007 and 2008 samples. Our results indicate that all indexes have strong within-construct internal reliability (α(2007)=0.82 and α(2008)=0.82 for the combined practice index, α(2007)=0.95 and α(2008)=0.95 for the internal operations management practice index, and α(2007)=0.74 and α(2008)=0.76 for the external stakeholder engagement index). Second, we tested for inter-student reliability for each practice construct, i.e. the extent to which an index constructed with ratings from students from the same school rate is consistent. We computed one-way random effects and group-averaged intra-cluster correlations for students’ mean normalized (0-1) response to all items within our indexes. We
found strong internal reliability for an index using responses from all sampled students for a given school (ICC(1,k,2007)=0.92 and ICC(1,k,2008)=0.92 for the mean response across all practice items, ICC(1,k,2007)=0.88 and ICC(1,k,2008)=0.88 for the mean response across all internal operations practice items, and ICC(1,k,2007)=0.92 and ICC(1,k,2008)=0.92 for the mean response across all external stakeholders engagement practice items).
A3. ROBUSTNESS CHECK: PERFORMANCE AND MANAGEMENT PRACTICES

(CHAPTER 2)

Figure A1 presents a graphical robustness exercise on the motivating hypothesis (practices leading to performance - H1a), especially to justify the absence of school fixed-effects in our main specifications from Error! Reference source not found.. Figure A1 displays the correlation between estimated schools’ fixed effects in a regression similar to the POLS estimate used to estimate the effect of management practices on school performance, but without accounting for internal operations and external engagement management practices. In both A1 (a) and A1 (b) we observe that not only are schools’ management practices positively correlated with a schools’ fixed effect on performance, but also that such a correlation is indifferent to the school ownership structure.

Figure A1 - School fixed effects and Management Index

a) Full sample

b) By ownership structure

Source: the author.
A4. ROBUSTNESS CHECK: INSTRUMENTAL VARIABLE APPROACH (CHAPTER 2)

Inspired by the industrial organization literature (Nevo 2000) we use the mean internal operations and external engagement practices index for all other schools within the same geographic market and within the same ownership structure as the school in question as an instrument for each school’s internal operations and external engagement management index. We define a school’s geographic market by using a radius of 20km centered at each school and limited by the municipality’s borders. Every other school within 20km of the school in question, the same municipality and with the same ownership structure is considered as a competitor.\(^{37}\)

In the 2SLS estimation we consider students in schools with at least 10 other competing schools in the same geographic market, arguably restricting estimates to those private schools facing a degree of competitive pressure that (arguably) incentivizes them to adopt performance-enhancing practices.\(^{38}\) Public schools within the same state system, however, ultimately respond to the directives of a common Secretary of Education. Thus, these state-run schools are subject to similar state-mandated pedagogical requirements, common accountability processes, and state oversight, potentially leading to similar managerial practices. We also argue that a student’s performance is uncorrelated with competing schools’ management practices after we condition on all covariates and on a school’s management practices. This instrument would be invalid either a principal from a high-performing school could strategically affect competing schools’ management practices to attract high-potential students or families knew all competing schools’ management practices prior student enrollment. We believe this is unlikely, as this would require managers and parents to incur in (arguably high) search costs to observe competing schools’ practices within the geographic market.

---

\(^{37}\) We conducted tests with radius of 5km, 10km, 15km, 20km, and all other schools within the same municipality. Results were similar for all these cases.

\(^{38}\) Research in the Brazilian context has shown that private schools respond to competition when there is a shock of consumer-oriented information (Camargo et al. 2017).
Table A2 - Determinants of performance and the role of internal operations and external engagement management practices

<table>
<thead>
<tr>
<th>Model</th>
<th>(1) 2SLS</th>
<th>(2) Weighted 2SLS</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Sample</td>
<td>All</td>
<td>Private</td>
<td>Public</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent Variable</td>
<td>Standardized Score on ENEM (Student-level)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management index</td>
<td>0.039*** (0.012)</td>
<td>0.202** (0.082)</td>
<td>0.031*** (0.012)</td>
<td>0.099* (0.057)</td>
</tr>
<tr>
<td>Public school</td>
<td>-0.664*** (0.048)</td>
<td>-0.487*** (0.150)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic index</td>
<td>0.120*** (0.003)</td>
<td>0.088*** (0.013)</td>
<td>0.119*** (0.003)</td>
<td>0.154*** (0.015)</td>
</tr>
<tr>
<td>ln(student/teacher)</td>
<td>-0.017 (0.023)</td>
<td>0.155** (0.061)</td>
<td>-0.129*** (0.023)</td>
<td>0.126** (0.050)</td>
</tr>
<tr>
<td>Proportion of teachers with a degree</td>
<td>0.047* (0.024)</td>
<td>-0.038 (0.057)</td>
<td>0.071*** (0.023)</td>
<td>-0.103 (0.086)</td>
</tr>
<tr>
<td>ln(administrative computer/employees)</td>
<td>0.096*** (0.012)</td>
<td>-0.029 (0.045)</td>
<td>0.096*** (0.012)</td>
<td>0.070*** (0.036)</td>
</tr>
</tbody>
</table>

Panel B - Summarized 1st Stage

| Mean competitor's management index (same ownership within 20km radius) | 0.549*** (0.032) | 0.429*** (0.071) | 0.568*** (0.035) | 0.472*** (0.064) |
| Public school | -2.329*** (0.069) | -2.275*** (0.082) |  |
| F-statistic of excluded instrument in corresponding first stage | 498,999 | 14,882 | 491,843 | 46,422 |
| Observations | 332,927 | 68,480 | 264,447 | 282,596 |
| Year fixed effects | YES | YES | YES | YES |
| City fixed effects | NO | NO | NO | NO |
| City-level socioeconomic controls | YES | YES | YES | YES |
| Student-level socioeconomic controls | YES | YES | YES | YES |
| School-level controls and peer effects | YES | YES | YES | YES |

Notes: (1) Significance levels: * p-value<0.1; ** p-value<0.05; *** p-value<0.01. Standard errors clustered at the school-level and in parenthesis.
(2) Socioeconomic controls are: dummies for student’s gender (male or female), ethnicity (white or non-white), age (older than 18 years old or not), whether the student studies in the night shift.
School-level controls are: a dummy variable indicating whether the school has a science laboratory and another indicating whether the school has a library, log of school size (total enrollments) and high school size (high school enrollments), and log of the student computer/class ratio. Peer effects are the proportion of high school students in the school taking the ENEM exam.

Table A2 shows the results of our 2SLS estimates using competitors’ management as an instrument for own-management. Panel B indicates that the F-statistics of the excluded instrument is higher than 10 for all 2SLS estimations, indicating that our instrument satisfies the

---

39 Sample size decreases because: 1) our matching procedure implied keeping only public (private) school students with a private (public) school student match with similar estimated probability of attending public school (difference of at most 5% between the treatment and control student); and 2) we maintain only schools with at least 10 competing schools within the “20-km market radius”.
correlation requirement. Column 1 predicts that a 1-point increase in our management index increases the expected performance by 0.04σ (p<0.01). Nonetheless, when we compare students from private schools with a similar background with those from public ones (column 4), we found that expected performance increases practically 0.1σ (p<0.01, representing higher performance 1.7 test-score points out of 100) for a one-point increase in our index of adherence to internal operations and external engagement practices. Indeed, columns 5 and 6 suggest a heterogeneous effect of internal operations and external engagement management practices on the performance given a school’s ownership. While students from private schools benefit close to a 0.2σ gain in performance (3.4 test-score points out of 100) from a one-point increase in our practice index, students from public schools receive an expected impact of 0.03σ.
Phase 0: Pre-Analysis

Phase 0 encompassed the initial analysis of several key performance indicators to assess managers who were high- and low-achievers. In such analysis, the project team grouped zones according to their urban profile (state capital, metropolitan area, or countryside), socioeconomic condition (low-, medium-, or high-income areas), and region (Northern and Southern states). Within each group (of a total of 17), the project team ranked Managers based on the share of market value they were able to capture per Local Manager (i.e. total sales divided by the hygiene/cosmetic market potential in that Geographic Zone per Local Manager).

Source: the author.

40 To define such clusters, I relied on a company-provided dataset describing the regional characteristics of each Geographic Zone which the Sales Department uses in their internal analyses. Robustness checks verified that the company’s definition of low-, medium-, and high-income areas represent closely a division of regions in socioeconomic terciles using the 2010 Brazilian Census Data. Further, the company suggested the definition of Northern and Southern Zones following internal expertise regarding the market characteristics.
Phase 1: Practice Elicitation

Within-cluster ranking provided the foundations for Phase 1: eliciting practices to be disseminated. Starting in Jul 2017, SalesNow and I developed and applied an interview protocol to each cluster’s top-two zone managers (34 interviews total). Interactions with SalesNow’s managers and analysts resulted in an interview protocol encompassing 6 aspects of zone managers’ campaign-to-campaign operations:

1- Activity Planning;
2- Engaging/Incentivizing Local Managers;
3- Developing/Training Local Managers;
4- Relationship Management with Local Managers;
5- Use of Performance Indicators; and
6- Self-Development.

For each such area, the interviewer first explained the purpose of the project (to elicit practices and construct a training material to be shared with all zone managers in Brazil). Then, interviewees were asked three questions. First, they answered how they saw the role of the zone manager in performing such tasks. Second, they answered which activities and practices related with the topic of interest they actively adopted within a sales campaign. Finally, they were asked for “tips” on “best-practices” they felt could benefit other zone managers across Brazil. All 34 interviews were recorded and later transcribed by Research Assistants. Out of 54 recommended practices gathered through interviews, SalesNow’s training department and the project team selected 12 practices (two within each area) to be disseminated. As part of Phase 1, I developed a baseline survey to measure Local Manager’s adherence of each Local Manager to the selected practices. The survey had a close to 60% response rate when implemented in mid-October 2018.

Phase 2: Defining Practice Transfer Mechanisms

Phase 2 encompassed defining the mechanisms to transfer the 12 practices across SalesNow’s Managers. As mentioned in previous subchapter, 289 out of the 807 Geographic Zones had access to Field Trainers responsible for conducting online live trainings and on-site
visits/consulting activities since mid-September. These 289 Zones were incomparable to the remaining 518 Zones, they opened an opportunity to use a tacit practice transfer method. As a result, the project created two separate experiments, Experiment 1 catering the 518 zone managers with no access to Field Trainers and Experiment 2 catering the remaining 289 zone managers supported by Field Trainers. Both experiments 1 and 2 started in late-November 2018 and ended in late-February 2019, resulting in three-month-long interventions.

*Phase 3: Random Assignment*

Within each experiment, the research team used a simple sales prediction regression model based on the previous 19 sales campaigns and covariates (market potential, region’s socioeconomic characteristics, and urban profile) to predict sales in the first sales campaign after the intervention had already ended. Within each triplet, managers were randomly assigned to one out of three groups: for experiment 1, either a placebo, a base explicit transfer, or an explicit transfer method with a credible knowledge source; for experiment 2, either a placebo, an explicit transfer, or a tacit transfer method. 41

*Phase 4: Implementation and Final Data Collection*

Implementation started on the last week of November/2018 and continued until the last week of February 2019, a time-window during which zone managers did not have their quarterly presentational meeting. One month after the intervention ended (April 2019), the research team conducted a second survey to capture adherence to the disseminated practices.

---

41 Whenever the number of Geographic Zones within an Experiment-Cluster pair had a count of Zones which was not a multiple of three, the remaining Zones were bundled and randomly allocated to one of the three conditions.
## Table A3 – Survey Instrument

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Score (adherence to sponsored practice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My planning follows a <strong>VERY SIMILAR</strong> sequence of activities as the one suggested by SalesNow, with <strong>ALMOST NO SIGNIFICANT CHANGES</strong>.</td>
<td>0.75</td>
</tr>
<tr>
<td>My planning follows a <strong>SIMILAR</strong> sequence of activities as the one suggested by SalesNow, with <strong>FEW SIGNIFICANT CHANGES</strong>.</td>
<td>1</td>
</tr>
<tr>
<td>My planning follows a <strong>MORE OR LESS LIKE</strong> the sequence of activities as the one suggested by SalesNow, with <strong>SOME SIGNIFICANT CHANGES</strong>.</td>
<td>0.5</td>
</tr>
<tr>
<td>My planning follows a <strong>DIFFERENT</strong> the sequence of activities as the one suggested by SalesNow, with <strong>SIGNIFICANT CHANGES</strong>.</td>
<td>0.25</td>
</tr>
<tr>
<td>My planning follows a <strong>VERY DIFFERENT</strong> the sequence of activities as the one suggested by SalesNow, with <strong>VERY SIGNIFICANT CHANGES</strong>.</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Score (adherence to sponsored practice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>defined <strong>ENTIRELY</strong> by SalesNOW.</td>
<td>0.5</td>
</tr>
<tr>
<td>defined <strong>ALMOST ENTIRELY</strong> by SalesNow. I am responsible for a SMALL portion of my planning.</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>PARTIALLY</strong> defined by SalesNow and <strong>PARTIALLY</strong> defined by me.</td>
<td>1</td>
</tr>
<tr>
<td>defined <strong>ALMOST ENTIRELY</strong> by me. SalesNOW is responsible for a SMALL portion of my planning.</td>
<td>0.25</td>
</tr>
<tr>
<td>defined <strong>ENTIRELY</strong> by me.</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Score (adherence to sponsored practice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost none</td>
<td>0</td>
</tr>
<tr>
<td>Less than half</td>
<td>0.25</td>
</tr>
<tr>
<td>Approximately half</td>
<td>0.5</td>
</tr>
<tr>
<td>More than half</td>
<td>0.75</td>
</tr>
<tr>
<td>Almost all</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Score (adherence to sponsored practice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a <strong>COMPLETELY GENERAL PLANNING</strong> which is valid for all Local Managers.</td>
<td>0</td>
</tr>
<tr>
<td>I have a <strong>MORE GENERAL THAN PERSONALIZED PLANNING</strong> for the Local Managers.</td>
<td>0.25</td>
</tr>
<tr>
<td>I have a <strong>PLANNING WHICH BALANCES GENERAL AND PERSONALIZED ACTIVITIES</strong> for the Local Managers.</td>
<td>0.5</td>
</tr>
<tr>
<td>I have a <strong>MORE PERSONALIZED THAN GENRAL PLANNING</strong> for the Local Managers.</td>
<td>0.75</td>
</tr>
<tr>
<td>I have a <strong>COMPLETELY PERSONALIZED PLANNING</strong> for each Local Manager.</td>
<td>1</td>
</tr>
<tr>
<td>Question</td>
<td>Alternatives</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td></td>
</tr>
<tr>
<td>In a sales campaign, how many Local Managers do you meet in person (field activities, feedback meetings, etc.)?</td>
<td>Almost none</td>
</tr>
<tr>
<td></td>
<td>Less than half</td>
</tr>
<tr>
<td></td>
<td>Approximately half</td>
</tr>
<tr>
<td></td>
<td>More than half</td>
</tr>
<tr>
<td></td>
<td>Almost all</td>
</tr>
<tr>
<td>Which of the following alternatives best describes how the Local Manager from your geographic zone conduct their activities?</td>
<td>They engage in almost no interaction amongst themselves.</td>
</tr>
<tr>
<td></td>
<td>They engage in limited no interaction amongst themselves.</td>
</tr>
<tr>
<td></td>
<td>They engage in relatively frequent interaction amongst themselves.</td>
</tr>
<tr>
<td></td>
<td>They frequently interact amongst themselves.</td>
</tr>
<tr>
<td></td>
<td>They conduct their activities almost in an integrated manner.</td>
</tr>
<tr>
<td>Which of the following alternatives best describes your strategy to use performance indicators before Local Managers?</td>
<td>I do not take any action regarding Local Managers with the best performance indicators.</td>
</tr>
<tr>
<td></td>
<td>I contact Local Managers with the best performance indicators and congratulate them in a private manner.</td>
</tr>
<tr>
<td></td>
<td>I contact Local Managers with the best performance indicators and congratulate them before the entire team.</td>
</tr>
<tr>
<td></td>
<td>I contact Local Managers with the best performance indicators, congratulate, and give them a prize/gift before the entire team.</td>
</tr>
</tbody>
</table>
### Table A3 (cont.) – Survey Instrument

<table>
<thead>
<tr>
<th>Question</th>
<th>Alternatives</th>
<th>Score (adherence to sponsored practice)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With how many Local Managers do you exchange INDIVIDUAL MESSAGES about her/his difficulties/performance?</td>
<td>Almost none</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Less than half</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>Approximately half</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>More than half</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Almost all</td>
<td>1</td>
</tr>
<tr>
<td>Which of the following best described your strategy to communicate tips and development opportunities to Local Managers?</td>
<td>I provide GENERAL/NON-PERSONALIZED tips/opportunities to all Local Managers.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>I provide tips/opportunities which are MORE GENERAL and LESS PERSONALIZED to Local Managers</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>I balance GENERAL and PERSONALIZED tips/opportunities.</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>I provide tips/opportunities which are LESS GENERAL and MORE PERSONALIZED to Local Managers</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>I provide PERSONALIZED tips/opportunities to each Local Managers</td>
<td>1</td>
</tr>
<tr>
<td>Which of the following best described your strategy to give feedback to Local Managers?</td>
<td>I provide GENERAL/NON-PERSONALIZED feedback to all Local Managers.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>I provide feedback which is MORE GENERAL and LESS PERSONALIZED to Local Managers</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>I balance GENERAL and PERSONALIZED feedbacks.</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>I provide feedback which is LESS GENERAL and MORE PERSONALIZED to Local Managers</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>I provide PERSONALIZED feedback to each Local Managers</td>
<td>1</td>
</tr>
<tr>
<td>Question</td>
<td>Alternatives</td>
<td>Score (adherence to sponsored practice)</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td><strong>Relationship Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which of the following alternatives best describes your relationship with Local Managers?</td>
<td>My relationship with Local Managers is STRICTLY FORMAL.</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>My relationship with Local Managers is FORMAL.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>My relationship with Local Managers is MORE OR LESS FORMAL.</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>My relationship with Local Managers is INFORMAL.</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>My relationship with Local Managers is STRICTLY INFORMAL.</td>
<td>0</td>
</tr>
<tr>
<td>In any given sales campaign, how many Local Managers do you systematically get in touch with to get updates on their personal lives?</td>
<td>Almost none</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Less than half</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>Approximately half</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>More than half</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Almost all</td>
<td>1</td>
</tr>
<tr>
<td>Which alternative best describes how you communicate with a Local Manager about a problem in the relationship between the two of you?</td>
<td>I wait for the Local Manager to perceive the problem by herself.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and try to cover the problem in a very subtle manner.</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and cover the problem in a very direct manner.</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and cover the problem in a very direct manner and explore potential solutions to solve it.</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and cover the problem in a very direct manner, explore potential solutions to solve it, and propose to think about ways to avoid repeating the same problem.</td>
<td>1</td>
</tr>
<tr>
<td>Which alternative best describes how you communicate with a Local Manager about a problem in the way the Local Manager conducts her/his activities?</td>
<td>I wait for the Local Manager to perceive the problem by herself.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and try to cover the problem in a very subtle manner.</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and cover the problem in a very direct manner.</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and cover the problem in a very direct manner and explore potential solutions to solve it.</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>I talk with the Local Manager and cover the problem in a very direct manner, explore potential solutions to solve it, and propose to think about ways to avoid repeating the same problem.</td>
<td>1</td>
</tr>
</tbody>
</table>