1. *Introduction*

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ENTREPRENEURSHIP RESEARCH
AT THE UNIVERSITY OF MARYLAND:
2011 Summaries

The eight entrepreneurship research summaries presented here are drawn from over 50 current entrepreneurship research projects at the University of Maryland’s Robert H. Smith School of Business. Seventeen faculty and PhD students from five departments (Management; Finance; Marketing; Decision, Operations, and Information Technology; and Logistics, Business and Public Policy) contributed to the compendium.

The studies summarized herein were associated with the 2010 – 2011 Dingman Center for Entrepreneurship Research Luncheon and Award series, which is supported by the Dingman Center and the Management and Organization Department. The Dingman Center for Entrepreneurship is a top-tier institute that guides and supports entrepreneurship research and the creation of new community and student ventures. The center actively encourages a real-world business culture that innovatively bridges the theoretical with the practical. The management department is among the top 10 management departments in the US. It supports 54 faculty and 22 PhD students in teaching and researching business strategy, entrepreneurship, organizational behavior, and human resource management.

The purpose of the research luncheon series is to encourage and improve academic research about entrepreneurship and to support publishing in top-tier journals. Researchers present their current entrepreneurship research in the presence of Dingman-related practitioners. The subsequent interaction promotes the development of relevant research questions, theoretical grounding, and identification of data sources.

This compendium includes theory from multiple basic intellectual traditions: psychology, economics, sociology, and management. Research questions involve the search for understanding successful entrepreneurship and they include analysis of personal characteristics, social networks, innovation patterns, market behavior, and the forces behind financial decision making. The research questions are analyzed through interviews, surveys, archival data, and simulation. Taken together, the work reflects the high research energy of the Smith School of Business faculty and students, and it reveals the strong support of the Dingman Center for Entrepreneurship and the Smith School of Business’s leadership for economic development in the State of Maryland.

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WHO LEAVES, WHERE TO, AND WHY WORRY?: EMPLOYEE MOBILITY, ENTREPRENEURSHIP AND EFFECTS ON SOURCE FIRM PERFORMANCE

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Human assets often represent an organization’s key competency and source of competitive advantage, thus strategic management of human assets is critical particularly in knowledge intensive industries. However, translating human assets to sustainable competitive advantage is fraught with management dilemmas, given the obvious fact that employees “walk out the door each day, leaving some question about whether they will return” (Coff, 1997: 375). Employee mobility puts firms in the precarious position of not only losing their competitive advantage, but also enabling their competition given the transfer of the human assets to either established competitors or to “spin-outs” (i.e. entrepreneurial ventures created by ex-employees). In addition, the firm’s disadvantage may be amplified by the ability of the exiting employee to transfer or recreate the complementary assets that were important in value creation. Anecdotally, these issues resonate with the recent account of Google’s innovative steps in response to the “xoogler” phenomenon (xoogler, a contraction of “ex-Googler,” is pronounced “zoogler”): employees of Google leaving to join other firms or create start-ups (Fost, 2008). Google’s concern with employee entrepreneurship is due not just to the transfer of their own knowledge and experience, but also to employees’ heightened ability to convince colleagues best-suited to their new projects to join them, as well as to access venture funding through the xoogler network (Fost, 2008). Because employee mobility may lead to firm disadvantage, the following research questions are critical in the strategic management of human capital: What types of employees are most likely to leave, what types of firms are they most likely to join, and what are the competitive ramifications for the focal firm’s performance?

Theory and Hypotheses

To answer these questions, we develop our theoretical rationale for employee mobility and entrepreneurship decisions by drawing on Teece (1986) and the importance of complementary assets to value created by the core assets. In our context, the core asset refers to the human capital embodied in
the focal employee who is at risk of exit, while the complementary assets relate to the other human and non-human resources and capabilities (e.g. other employees, routines, opportunities, physical assets, intellectual property, etc.) that are provided by the firm for the creation of value. We posit that the relative bargaining power of the firm with the focal employee will be determined by the employee’s ability to recreate or transfer the complementary assets. This affects employees’ decisions to stay, create a new venture, or join another established firm. Further, we posit that each of these employee level decisions will have different competitive ramifications for the source firm’s performance.

**Who Leaves? Types of Human Assets and Propensity for Exit**

Employees with greater ability, proxied by higher earnings are more likely to have higher bargaining power because of their ability to transfer and replicate necessary complementary assets. They can credibly threaten to exit and transfer complementary resources and opportunities from a firm. However, they are less likely to actually exit, given their increased ability to appropriate value. Firms provide both pecuniary and nonpecuniary benefits to such employees to reduce turnover, which in turn increases their perceptions of distributive and procedural justice and creates a penalty for exiting. Thus, high-performing employees having enhanced ability to appropriate value and gain high earnings, reducing their desire to leave and incur the costs and risks of mobility. This leads to:

*Hypothesis 1. The relationship between earnings and the likelihood of employee mobility is negative.*

**Where to? Employee Moves to Spin-outs vs. Established Firms**

There are important differences between an employee moving to an established firm and employee entrepreneurship (spin-outs). Starting a new enterprise implies undertaking the risk of operating a new business, given the daunting statistic that over a third of new firms do not survive for five years. When contemplating spinning out, the challenges facing an employee relate to the creation of an organization that generates synergies between the necessary complementary assets. We posit that higher performers/earners are more likely to found start-ups than other employees. Higher performing individuals have greater ability to engage in entrepreneurship: first, the same individual characteristics underpin higher job performance and successful entrepreneurship. Second, high performers are more able to transfer or recreate complementary assets. In contrast, employees with lower earnings may be limited in their ability to replicate complementary assets effectively, causing them to likely move to established firms rather than to found start-ups. Third, it is easier to transfer or replicate the resources and opportunities to “new soil” than trying to graft them onto an existing organization. Existing
organizations may be characterized by complex internal networks, and the existing bureaucratic structure may retard the employee’s ability to recreate or transfer the complementary assets.

Differences in motives may also be salient to the choice of where employees go. Since high earners can appropriate most of the value they create, their motivation for exit could be twofold. First, they may believe they could generate or appropriate even more value outside their current firm because they see underexploited opportunities, poor fit with their skills, and other constraints at that firm. Second, high earners are likely to have diminishing marginal returns to pecuniary gain and may value nonpecuniary factors such as job satisfaction and autonomy more than low earners. Starting a new firm enables them to fulfill nonpecuniary aspirations better than moving to an existing firm with constraining norms. In sum, we expect employees with high earnings to be less likely to move, but if they do move, they are more likely to start new firms. Accordingly,

Hypothesis 2: Conditional on mobility, employees with greater earnings are more likely to join spin-outs than established firms.

Why Worry? Impact on Source Firm Performance

The competitive impact on the source firm of the loss of critical human assets is greater for employee movement to a spin-out than to an established firm. Spin-outs results in a greater replication and transfer of complementary assets, thus impacting the source firm more adversely than a move to an established firm. Employees who start a firm are more motivated and better able to transfer the necessary resources and capabilities. While employees who move to established firms have the relative luxury of leveraging the latter’s existing complementary assets, employee entrepreneurs need to re-create complementary assets. Further, employees are better able to transfer both human and nonhuman complementary assets to spin-outs than to established firms, given that spin-outs represent “new soil.” For example, it is easier to transfer supporting team members to a start-up than to an existing firm. Similarly, employees starting new firms can capitalize on their relationships with customers and cash in on their parent firm’s reputation, since brand loyalty is often connected to the employees rather than to the firms and customers may be more willing to follow the employees than to stay with the parent. Such transfers will have a larger negative impact on the source firm’s performance than transfers to established firms. Consequently,
Hypothesis 3. The adverse impact on source firm performance of employee mobility is greater for moves to spin-outs than moves to established firms.

Empirical Setting, Methodology and Results

We examine our research questions in the empirical context of the legal services industry—a professional services sector where human assets are critical for the creation and appropriation of value. Using data derived from a custom extract of the Longitudinal Employer-Household Dynamics (LEHD) Project used at the U.S. Census Research Data Centers, we test our predictions about who leaves, where they go, and the impact of the mobility events on source firm performance. We find support for our hypotheses. Higher-income earners are less likely to be mobile: controlling for other observable characteristics such as race, education, gender, and tenure, there is a 35 percent decline in mobility of a person who earns $300,000 per year relative to a person who makes $100,000 per year. However, if higher income earners do leave, they are more likely to be involved in founding a spin-out firm: for individuals with characteristics as described above, there is a 31 percent increase in the likelihood of employee entrepreneurship when the earnings are $300,000 a year as opposed to $100,000 a year. At the firm level, we find that employee moves to a spin-out have a larger adverse impact on source firm performance than moves to established firms, even after controlling for observable employee quality differences. Specifically, although employee exit to an established firm is not associated with a change in source firm performance, an exit to a spin-out adversely impacts the source firm’s revenue per employee by $269, which translates to a $22,865 loss for an average-sized firm (which is 85 employees). We also find that the adverse impact of employee entrepreneurship on source firm performance increases with employee earnings. While exits to new ventures of employees who earn less than $100,000 do not have a significant impact on parent firm performance, but exits of those in higher pay classes have a significant and negative impact that can reach over a million dollars a year.

Conclusions and Contributions

We contribute to the literature on strategic human capital management and entrepreneurship. We augment the understanding of how employees and employers generate and appropriate value and the extent to which complementary assets may affect each party’s bargaining power vis-à-vis the other. Our research also connects strategy’s knowledge-based view and research on knowledge spillovers through employee mobility and employee entrepreneurship by simultaneously examining both the determinants and the effects of knowledge transfer through employee moves to established firms
versus employee entrepreneurship. Thus, our research suggests that strategic management of complementary assets may help mitigate the potentially negative performance consequences of moves, and also enable firms to assess the differential likelihood of moves to rivals versus to spin-outs. Further, in keeping with the concept of creative destruction, we explicitly capture the destruction of source firm value wrought by the creation of spin-outs. Given the greater pressures on source firms resulting from employee movement to spin-outs versus established firms, firm turnover due to new venture creation may be more harmful to the source firm than mobility among already existing firms.

In terms of managerial implications, our study provides managers with the insight that an early identification of employees that are able to convince other employees to leave, and replicate networks at new ventures is critical for sustained long term performance. Further, the most valuable employees appear to be the ones most likely to move to entrepreneurial firms. Given the greater negative impact of employee entrepreneurship on source firms relative to employee moves to established firms, firms should tailor their micro level human capital strategies to reduce spin-out generation more than traditional employee mobility. To avoid the loss of those who generate the most value, managers need to identify and assess which employees are most able to replicate or transfer a firm’s complementary assets and then strengthen their incentives to stay, or weaken their ability to replicate the complementary assets.

REFERENCES
THE EFFECT OF RELATIVE COMPENSATION DISPERSION OF FIRMS ON THE MOBILITY AND ENTREPRENEURSHIP OF EXTREME PERFORMERS

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Abstract
We explore the strategic implications of firm compensation dispersion on the heterogeneous turnover outcomes of employee mobility and entrepreneurship. We theorize that employees seek compensation systems that provide the greatest rewards for their level of performance, and thus individuals’ turnover decisions are affected by the interaction of individual performance with the firm’s compensation dispersion relative to its competitors. We test our theory using linked employer-employee data from the legal services industry. We find that individuals with extreme high performance are less likely to leave firms that offer higher compensation dispersion than competitors, however, if they do leave these employers, they are more likely to create new ventures. In contrast, employees with extreme low performance are more likely to leave firms with more compensation dispersion than competitors, and these individuals are less likely to engage in new venture creation.

Introduction
Strategy researchers increasingly view managers as generators and appropriators of rent (Castanias & Helfat, 1991, 2001; Coff, 1999). Given the threat of employee exit, firms employ various strategies in order to allow rent-generating employees to appropriate enough value so that they stay with the firm (Adner & Helfat, 2003; Coff, 1997), thus permitting these individuals to obtain the best returns to their talents (Campbell, Ganco, Franco & Agarwal, 2010). Accordingly, this line of work implicitly envisions a competition among firms for the services of employees who differ in their individual performance (Gardner, 2005; Harris & Helfat, 1998). Surprisingly, however, much of this research stream has deemphasized the impact that competitors’ strategies for attracting and retaining talent will have on the focal firm’s efforts to keep its employees. Additionally, entrepreneurial organizations, key competitors in the market for strategic human capital (Elfénbein, Hamilton & Zenger, 2010; Groysberg, Nanda & Prats, 2009), have been neglected in most examinations of rent appropriation and talent retention. Importantly, the literature on employee entrepreneurship (Agarwal,
Echambadi, Franco and Sarkar, 2004; Phillips, 2002) is also silent on the effect that firm rent allocation strategies may have on the likelihood of heterogenous employees spinning out to create new ventures that compete with their parent.

In this study, we seek to address these gaps by examining how the firm’s rent allocation strategy—relative to its competitors— influences the mobility and entrepreneurship decisions of employees who vary in individual performance. In examining rent allocation, we focus on the firm’s compensation dispersion, which is the variation in pay offered to the firm’s employees. We link individual performance heterogeneity to compensation dispersion heterogeneity and determine the effect of their interactions on employees’ mobility or entrepreneurship. Given our dual focus on individual- and firm-level characteristics, we draw upon work in labor economics, human resource (HR) management, and strategy for hypotheses development. We test our hypotheses using unique and comprehensive data drawn from the U.S. Census Bureau’s Longitudinal Establishment Household Database (LEHD).

Our study hypothesizes and shows that high-performing workers are less likely to leave firms with more dispersed compensation relative to the firm’s competitors, and, conditional on mobility, high performers are more likely to form new firms than join existing ones. For low-performing employees, the contrast is true: we hypothesize and show that low-performing employees are more likely to leave firms with more dispersed compensation relative to competitors but, conditional on mobility, less likely to form new firms.

**Hypotheses**

Our study first examines how the interaction between individual performance and the firm’s compensation dispersion relative to its competitors affects the likelihood that the employee will exit the organization. Relying on the idea that high performers prefer more compensation dispersion due because greater compensation dispersion allows them access to greater extreme rewards (Zenger, 1992) and more favorable social comparisons (Festinger, 1954), while low performers prefer flatter compensation structures because of their lack of motivation or ability to compete for extreme rewards, we make the following two predictions:

**Hypothesis 1.** The probability that high performers will exit is lower for firms with higher compensation dispersion relative to competing organizations.

**Hypothesis 2.** The probability that low performers will exit is greater for firms with higher compensation dispersion relative to competing organizations.

Next, we examine whether these individuals join entrepreneurial startups upon exiting their
former firms. We argue that entrepreneurship may become more attractive for high performers as
the compensation dispersion of their firm increases because entrepreneurship allows these
employees to earn performance-based rewards over and above what can be offered by existing
firms. On the other hand, low performers will be less likely to enter entrepreneurship when leaving
firms with higher compensation dispersion, because entrepreneurship will require these employees
to work “without a net,” and they can likely find less risky employment in an established firm with
flatter compensation dispersion.

Hypothesis 3. Conditional on mobility, the probability that high performers form new ventures is
greater for firms with higher compensation dispersion relative to competing organizations.

Hypothesis 4. Conditional on mobility, the probability that low performers form new ventures is
lower for firms with higher compensation dispersion relative to competing organizations.

Data

We examine these hypotheses in the context of legal services, an ideal context for our study
because it is economically important (Bureau of Economic Analysis, 2008), has rich variation in
individual performance and firm compensation structures (Malos & Campion, 1995), and a high
incidence of both employee mobility and entrepreneurship (Campbell et al., 2010). We obtain our data
from a custom data extract of the Longitudinal Employer-Household Dynamics (LEHD) Project
available at the Census Research Data Centers. The data cover over 10 years and 10 large states. The
LEHD Project provides a linked employer-employee data base built using the Unemployment
Insurance filings that are mandatory in this industry. As a result, the data cover the entire universe of
firms and employees within the legal services industry in the ten states of coverage during the time
period covered by our extract. Each observation in the data includes a worker identifier, firm
identifier, quarterly earnings, and individual demographics for each quarter in the data.

The comprehensive nature of the data allows us to measure compensation dispersion using all
of a firm’s employees and facilitates our identification of extreme performers since we have a
universal reference set of employees in the industry. In addition, we are able to link parent and
progeny firms across time and clearly identify new firm creation.

Results and Conclusion

We find statistically and economically significant results consistent with each of our
hypotheses. A one standard deviation increase in the firm’s compensation dispersion (as measured by
the Gini coefficient) decreases the probability of high performer exit by 16% while increasing the probability of low performer exit by 5.5%. On the other hand, a one standard deviation increase in the firm’s compensation dispersion increases the probability of high performer entrepreneurship (conditional on exit) by 6.1% while decreasing the probability of low performer entrepreneurship (conditional on exit) by 3.5%.

In undertaking this study of micro and macro determinants of employee mobility and entrepreneurship, we contribute to multiple research streams addressing strategic human capital. Most importantly, we contribute to entrepreneurship theory and practice by systematically comparing the decision to form an entrepreneurial venture with the entire set of options that individuals have, including staying at a current organization or moving to an alternative established firm, and connecting this decision with the incentives administered by potential entrepreneur’s current employer. Forming a new organization appears to be a rent appropriation mechanism that differs from mobility to an established firm. Crucially, our finding that high performing managers in firms with disperse compensation structures are likely to join new organizations where their pay may be lower at least initially (Campbell, 2010) indicates the importance of both pecuniary and nonpecuniary rents in the calculus of high ability managers who join new firms.

**Key References** (others available from authors)


ENTREPRENEURIAL ADAPTATION: A PROCESS APPROACH

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Abstract

This work contributes to the entrepreneurship literature by advancing a dynamic model of adaptation. The presented model specifies how entrepreneurs regulate motivational and cognitive processes in order to explore and exploit opportunities in a complex, novel environment, and accounts for how performance feedback impacts future regulatory efforts. I suggest that training can enable entrepreneurs to better engage in cognitive and motivational processes that improve adaptation to environmental changes.

Self-Regulation and Adaptation: A Process

Adapting to changing or novel environments is crucial for entrepreneurs. As they begin new ventures or attempt to cope with changing market dynamics, entrepreneurs must be able to adapt to be successful. While researchers and managers have both become more interested in understanding what enables entrepreneurs to successfully adapt to such environments, the nature of adaptability is still in question. There has been no consensus on exactly what adaptation is. For example, adaptation has been defined as a latent variable (Verbruggen & Sels, 2008), behavior (Ashford, 1986; Pulakos et al., 2000), an outcome (Burke et al. 2006; Kozlowski et al., 2001) and a process (Bell & Kozlowski, 2008). Furthermore, adaptation is closely related to other concepts such as innovation, learning, creativity, and far transfer (e.g., Burke et al., 2006), and adaptation is a multi-dimensional phenomenon that involves multiple constructs. There are also multiple methodological difficulties inherent in studying adaptation that have made it difficult to understand. Foremost is the need to incorporate the element of time, which requires longitudinal analysis (Pitariu & Ployhart, 2009).

The purpose of this research is to propose a self-regulatory model of adaptation that explains how cognitive and motivational pathways enable entrepreneurs to explore and exploit resources in their environments. This framework positions adaptation as a process in which entrepreneurs engage in order to successfully create new ventures, or grow ventures that are in a dynamic environment. My approach is generally in line with work that focuses on how entrepreneurs’ personal characteristics lead to
new ventures or venture growth (e.g., Baron, 1998, Baum et al., 2001; Baum & Locke, 2004; Busenitz & Barney, 1997).

Central to the rationale of the proposed model are the issues of exploration and exploitation. The model is intended to capture the efforts of individuals to explore their problem space once changes are detected in order to diagnose the nature of those changes and implement suitable strategies that exploit resources in a way different from the status quo (or pre-adaptive method). The model (see Figure 1) incorporates both motivational and cognitive pathways, which interact with one another over time. Generally, the model posits that entrepreneurs’ metacognitive strategies guide a search in the problem space to detect and diagnose novelty and/or change. Metacognitive strategies, which involve self-questioning that improves the knowledge of and control over one’s own cognitions, guides search patterns and regulates the balance between exploration and exploitation (Ford et al., 1998; Schmidt & Ford, 2003;). These cognitive processes then influence the extent to which entrepreneurs feel capable to set and achieve goals directed at performing in the face of novelty or change.

In order to most accurately represent and measure the processes of exploration and exploitation, the proposed model distinguishes explicitly between metacognitive processes directed towards detecting change and those directed towards diagnosing the cause of those change. Similarly, it distinguishes between the exploration of the task domain space as well as the strategic effort exerted towards utilizing resources in novel ways. Breaking up exploration (i.e., search behaviors) and strategic effort in the model emphasizes the point that individuals must both search (e.g., move to new locations, inspect different options, learn new information, consider alternate solutions) and experiment with alternative strategies. Exploration refers to the extent to which individuals engage in search behavior, and strategic effort refers to the extent to which effort is exerted towards implementing new strategies that permit the exploitation of resources that are discovered as a result of the search behavior.

The switching mechanism that controls the relative balance between exploitative and explorative behavior is two-fold. First, the degree to which changes are diagnosed and potential solutions identified is posited to negatively influence the rate of exploitative effort and positively influence the rate of exploration. If changes are diagnosed and potential solutions identified, individuals will be more likely to exert effort exploring their task domain space in search of suitable alternate strategies. The second aspect of this switching mechanism relates to the effect of performance on detection levels. As performance improves, efforts to detect changes will decrease, and relatively higher levels of exploitative effort will result. Since detection is a distal predictor of explorative effort,
it is expected that if detection is low then diagnostic processes and explorative effort will subsequently be lower. It follows that when performance is relatively stable, both exploration and exploitation will occur, but at a rate that heavily favors exploitation.

In order to test this model, I propose to introduce a metacognitive training manipulation in a laboratory setting. Participants will engage in a computerized simulation consisting of multiple trials of a complex decision making task that requires adaptation for successful performance. Briefly, it is expected that providing training to individuals on how to engage in metacognition directed towards detection and diagnosis of change will increase the extent to which metacognition is utilized after training in a novel environment. Consequently, individuals will be better able to adapt, as per the dynamics of the model described above. In addition to static improvements between individuals, I expect that higher initial levels of metacognition and self-efficacy will improve the rates of change of the subsequent variables in the model by better enabling adequate rebalancing between explorative versus exploitative effort. Thus, it is generally expected that higher levels of metacognition and self-efficacy will lead to higher rates of change in adaptation over time.

**Discussion**

It is expected that this proposal, when fully implemented, will provide important theoretical contributions. Primarily, this work would provide a detailed, longitudinal, and dynamic explanation of the regulatory processes involved in entrepreneurial adaptation, and would therefore fill important gaps in the both the entrepreneurial and adaptation literatures. Future work could then examine additional factors expected to play a role in these processes, such as affective regulatory processes, moderating contextual factors, and the role of additional individual differences. On a larger scale, once these dynamics are better understood, future work could examine the extent to which these processes in lead to organizational-level outcomes, such as venture growth, new venture success, or successful acquisitions/mergers. Obviously, additional work in more applied settings would be ideal, but an experimental setting is suitable for an initial investigation given the complexities involved in isolating these variables in the field.

There are also many practical contributions of this proposed work. First, it suggests that entrepreneurs would benefit from metacognitive training. This could either be incorporated into more formalized business training (e.g., MBA programs), or could be implemented in more proximal ways. For example, this work suggests that the development of modular training materials that could be accessed easily and regularly in normal entrepreneurial work settings would help entrepreneurs
continually engage in appropriate regulation. This model suggests that it may not be the case that some entrepreneurs are destined to fail while others are predisposed to succeed; rather, successful adaptation may largely result from employing particular cognitive and motivational strategies. Support of this model would suggest that all entrepreneurs could improve their success by engaging in appropriate strategies that are relatively simple to initiate.

References


Figure 1. Dynamic adaptation

Dashed lines signify negative linkage
Solid lines signify positive linkage

Self-efficacy

Goal

Difficulty

Exploitation: Effort

Exploration

Metacognition: Detection

Strategic Effort

Performance

Metacognition: Diagnosis
SMALL FIRMS AS SOURCES OF EMPLOYEE ENTREPRENEURSHIP: THE MODERATING EFFECT OF IMMIGRATION STATUS

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Abstract

The entrepreneurship literature shows that employee entrepreneurs are more likely to originate from small relative to large firms and that such effect is stronger for higher ability individuals. The research also shows that prior experience in small firms has positive performance implications for high skill employee entrepreneurs. The evidence, however, shows that a significant proportion of high skill individuals are immigrants and the anecdotal evidence suggests that immigrant entrepreneurs play a prominent role in the national economy. We ask the question of how does the immigration status affect the propensity of employee entrepreneurs to originate from small firms and what are the performance implications. Our central premise is that potential immigrant entrepreneurs may choose larger firms as their employment prior to transitioning to entrepreneurship due to immigration considerations – even though small firms may provide opportunities to acquire superior skills. Further, we examine whether such sub-optimal choice has implications in the form of entrepreneurial performance. We test our predictions using the SESTAT dataset of the U.S. scientists and engineers.

Keywords: Entrepreneurship, Small firm effect, Employee entrepreneurship, Immigration status, Temporary work visa.

Introduction

The existing literature shows that individuals working for small firms are more likely to become entrepreneurs after they exit relative to individuals working for large firms (Wagner, 2004; Sørensen, 2007; Elfenbein, Hamilton, Zenger, 2010). Elfenbein et al. (2010), studying the data on the U.S. engineers and scientists, suggest that such “small firm effect” is driven by self-selection of future entrepreneurs into small firms as well as by the acquisition of relevant entrepreneurial skills. The authors also show that such effect is stronger for high ability individuals and that the work experience in small firms has positive impact on subsequent entrepreneurial performance.

The significant proportion of high skill individuals such as scientists and engineers are, however, immigrants. The statistics of the U.S. Congressional Budget Office (2005) shows that about
half of the workers with graduate degrees are immigrants. The recent empirical evidence also indicates that even within the categories that require at least a college degree (such as IT workers) immigrants tend to be individuals with higher unobservable ability relative to similar domestic workers (Mithas and Lucas, 2010). Similarly, the anecdotal evidence provides many examples of successful foreign-born entrepreneurs such as the Hungarian-born co-founder of Intel, Andrew S. Grove, or the Chinese-born co-founder of Yahoo, Jerry Yang (Richtel, 2009). Such findings are hardly surprising. The high-skilled immigrants are subject to the selection process that is inherently associated with their decision to leave their home country and overcome multiple hurdles in their pursuit of economic opportunities (Mithas and Lucas, 2010).

One of such hurdles is the immigration process within the United States. After obtaining education in the U.S., the high skill foreign-born nationals are typically granted temporary work visa status like the H1B. The hallmark of the temporary work visa categories is that they are employer-sponsored and do not allow self-employment. When making employment choices, the immigrants do not only consider the willingness to sponsor their temporary work visas but also support their transition to permanent residency (i.e. the “green card”). Such transition is, however, a costly and lengthy process and the fact that temporary visas like H1B and employment-based green cards are employer-sponsored translates into severe restrictions on mobility. Our key question thus is how the constraints given by the immigration process interact with the employment choices from the perspective of the acquisition of skills. Are future immigrant entrepreneurs less likely to select small firms as their employment relative to domestic entrepreneurs? Are high ability individuals more or less likely affected by the constraints given by the immigration process? What are the performance implications for immigrant entrepreneurs? Answering these questions is important not only from the perspective of individual entrepreneurs but also from the social and policy perspective. If immigrant entrepreneurs make choices that interfere with their ability to acquire relevant skills it has negative individual and social consequences. It may also imply that immigration procedures and policies need to be adjusted to mitigate such negative impact.

In the paper, we address these questions by examining the 1995 to 2001 panel dataset of the National Science Foundation’s Scientist and Engineers Statistical Data System (SESTAT). Analogous to prior research, we find that employee entrepreneurs are more likely to originate from small firms. Consistent with our theorizing, we find that immigrant entrepreneurs who are on temporary work visa (immediately before obtaining the green card and becoming self-employed) are more likely to choose
large firms as their place of employment relative to domestic employee entrepreneurs. Our analysis also suggests that such choice has negative performance implications for immigrant entrepreneurs.

References


Introduction

The advent of the information age has led to an unprecedented increase in the amount of information which may influence consumers, investors, and entrepreneurs. While the extant literature has delved deeply into the question of how individual agents, be they managers or firms, are influenced socially it unilaterally ignores the perspective of a broader, non-agent specific, social influence which can affect decision making. In this manuscript we seek to remedy this oversight by exploring characteristics of the decision maker’s environment which affect not only the focal decision maker, but all agents. Take, for example, the perspective of social contagion (Burt, 1987) residing within the literature on social networks. While concepts such as structural holes (Burt, 1983), or the strength of weak ties (Granovetter, 1973) and contagion itself, examine the effect of an individual actor’s social network in exacting detail it fails to recognize the effect that a broader, decentralized, social influence may have on the focal agent’s decision making process. The reason for this is that the network is always native to the specific actor. Perspectives such as the institutional theory (DiMaggio & Powell, 1983) and fashionability of ideas within managerial circles (Abrahamson, 1996) in the sociological literature, or information cascades and herding (Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992) from economics, fare no better in resolving this oversight. One perspective which does seek to remedy this concern, but has been subject to limited empirical investigation, is that of the availability cascade (Kuran & Sunstein, 1999; Sunstein, 2003) and how increases in discourse can affect the behavior of both entrepreneurs and investors. In this manuscript we ask the following question: “how does the emergence of availability cascades on a focal industry affect the decision making process during entrepreneur’s the decision to form a firm and a VC’s decision to invest in a firm?”

Kuran and Sunstein (1999) define an availability cascade as “a self-reinforcing process of collective belief formation by which an expressed perception triggers a chain reaction that gives the perception of increasing plausibility through its rising availability in public discourse.” More simply put, as the amount of discourse on a technology or industry increases individuals lose the ability to properly estimate the risks associated with that technology or industry. For this reason we specifically
focus in this manuscript on firm founding and funding decisions; decisions not only which must be made, but also the decisions which are subject to high degrees of risk and uncertainty.

In the face of overwhelming information individuals invoke the availability heuristic (Tversky & Kahneman, 1973) and neglect the true probability of events occurring (Sunstein, 2003). As individuals are boundedly rational (Cyert & March, 1963) the availability cascade causes them to ignore the true probability of events occurring by taking “mental shortcuts” to answer questions. In this manuscript we argue that entrepreneurs will be more likely to found firms in industries experiencing availability cascades as they will inaccurately estimate the probability of their new firm’s success. In this same vein, we assert that venture capitalists (VC) will be susceptible to this same cognitive bias and will be more likely to fund entrepreneurs whose firms operate in technology spaces which currently are experiencing availability cascades. Moreover, we extend the existing theory regarding availability cascades by positing that the ability of VCs and entrepreneurs to participate in the agenda setting process of the media (McCombs & Shaw, 1972; McCombs & Shaw, 1993), through social media such as blogs, will augment the decision making process and mediate the effect nationalized discourse has on the decision making process of the manager.

Theory and Hypotheses
The Entrepreneur’s Decision: Firm Founding

We hypothesize that entrepreneurs will be heavily influenced the presence of availability cascades in the industries they wish to enter because they will systemically overestimate the probability of success after entering the market. Although entrepreneurs have been shown to be less risk averse than traditional workers (Kihlstrom & Laffont, 1979) risks are still part of the entrepreneur’s decision making calculus (Klepper & Graddy, 1990). If this is the case then the decrease in the probability of failure perceived by the entrepreneur when the availability heuristic is invoked (Tversky & Kahneman, 1974) will, on the margin, induce more entrepreneurs to form firms. This inability to estimate baseline probabilities will impact entrepreneurs when assessing several risks native to the process of founding and formalizing a firm. ActionCOACH CEO Brad Sugar (2008) lists the three largest concerns for new entrepreneurs as cash flow, uncertainty about customers, and political uncertainty.

When considering the sources of capital available the entrepreneur has several avenues available to them including their own personal resources (bootstrapping) (Bhide, 1992), their social network (the stylized friends, family, and fools) (Shane, 2008), banks (Ueda, 2004), and venture
capital (Gompers & Lerner, 1999). With the exception of investing personal resources each of these sources of funding require the entrepreneur to estimate the probability of the alternate party funding them. It is our assertion that the focal entrepreneur will be biased by the availability cascade in the focal industry causing her to systemically underestimate the difficulty associated with acquiring capital. Compounding this bias will be the representativeness heuristic (Tversky & Kahneman, 1974). As the focal entrepreneur will self-identify with successful entrepreneurs, believing herself to be comparable to these individuals, her estimation of the probability of success will rise even more.

This same logic can be applied to the other risk estimation procedures that the entrepreneur will need to conduct: political risk and customer risk. As each process of risk estimation is systemically biased the entrepreneur will be incentivized, on the margin, to found the firm during an availability cascade. Therefore we propose:

H1: The manifestation of national availability cascades will be associated with an increased firm founding rate for industries affected by the cascade.

The Venture Capitalist’s Decision: Firm Funding

VCs have also been shown to be influenced by broader social conditions which will affect their ability to properly evaluate risks (Greenwood & Gopal, 2010). As VCs rigorously scan their environment to find the next big technology (Gompers & Lerner, 1999) it is likely that they will be affected by the national and social media. If this is the case then the same biases to which the entrepreneur is subject when making the decision to start the firm will affect the VCs decision to fund it. More succinctly, as the amount of media regarding a technology sector or industry rises, VCs will be more likely to seek out entrepreneurs operating in that technology space.

The invocation of the availability heuristic (Tversky & Kahneman, 1973) will cause the VC to incorrectly estimate the baseline probability of success and improperly assess several risks native to funding the nascent entrepreneur. Fiet (1995) describes the two major risks the VC faces when making the funding decision as agency risk, uncertainty about the entrepreneur, and market risk, unforeseen competitive conditions. Much like the entrepreneur, the VC will not be able to effectively estimate whether or not the entrepreneur can complete their product and penetrate the market (market risk), or fail to abide by their agreement by acting in their own best interest (agency risk). Systemic underestimations of either of these risks will induce the VC, on the margin, to invest in the entrepreneur. Therefore we propose:
H2: Firms seeking venture capital funding under national availability cascades will receive venture capital sooner, ceteris paribus, than firms seeking funding while not under a cascade.

Social Media

As discussed, we measure discourse as a function of the level of discussion IT industries receive in both the national and social media. While the effect media has on the thought process of the populace is a question which has been thoroughly explored within the extant literature (Deephouse, 2000; Pollock & Rindova, 2003; Pollock, Rindova, & Maggitti, 2008) the management literature lacks rigorous discussion of the psychological mechanisms by which the media can affect individual thought process. As a result, we apply an agenda setting theory (McCombs & Shaw, 1972) lens to more thoroughly tease out the mechanisms by which these two outlets of discourse will affect individual thought.

In his seminal work on the topic Cohen (1963) notes that while the national media is effective at dictating what topics the populace will think about, it rarely affects what individuals believe about topics. More succinctly, the media does little to dictate to the populace what to think, but is successful in setting the stage to dictate to the populace what to think about (Kosicki, 1993). The reason for this is the lack of participation the populace has in the agenda setting process (a lack of participation which is only exacerbated by the increased number of media outlets in the digital age) (McCombs & Shaw, 1993). It is our assertion that social media, which is participatory by nature, will serve to resolve this lack of “sense of community” (McCombs & Shaw, 1993) between the populace and the national media.

As blogs and other forms of social media are often effective indicators of public opinion (O'Connor, Balasubramanyan, Routledge, & Smith, 2010) it is our assertion that the social media will resolve the problem of lack of community (McCombs & Shaw, 1993) by increasing the participation of the IT community in the agenda setting process. This increased participation will, in turn, increase the salience of the industry in the mind of the VC and the entrepreneur (Iyengar, 1990; Sunstein, 2003). This multi-stage process will result in a mediating relationship between the national media and the inevitable funding (founding) decision by the VC (entrepreneur). The reason for this is that the national media will set the agenda for discussion within the social media, and the social media will, in turn, affect the decision making process of the VC and entrepreneur. Therefore we propose:

H3a: Social media will mediate the relationship between the national media and the entrepreneur’s founding decision.
H3b: Social media will mediate the relationship between the national media and the VC’s funding decision.

Figure 1: Theoretical Model

Conclusion

This study represents the first attempt in the literature to rigorously investigate the theory of availability cascades. We make several important theoretical contributions to the existing literature. Not only do we empirically verify the theory of availability cascades we augment it by illustrating the interplay between the source of discourse and empirically demonstrate the mediating relationship between the national and social media. Our second contribution is to augment the existing literature on firm formation. While the existing literature rigorously examines the economic support structures provided to the entrepreneur little attention has been paid to the broader social influences which may induce an entrepreneur to commercialize her idea. Our final contribution is to the literature on VC funding. In this context we augment existing theory on the ramifications of investment in socially popular ideas.

Important implications stem from this research for the realm of practice. For entrepreneurs we not only demonstrate the increased probability of the reception of funding entrepreneurs will receive from cascades but also illustrate how governments, at the federal, state, or municipal level, may increase the firm founding rates within their jurisdictions. The implications for VCs are equally important. Understanding the ramifications of investments made under availability cascades (or bubbles) is a pressing problem for VCs.
Selected References


DO BUSINESS MODELS INFLUENCE THE SUSTAINABILITY OF ENTREPRENEURIAL FIRMS? - THE CASE OF HEALTH INFORMATION EXCHANGE

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Abstract

Business models have been widely implicated as key influences on the performance of firms, and especially so in the case of new ventures. Yet, empirical studies investigating the relationship between business models and performance are limited. We theorize and empirically examine the influence of two elements of a business model: organizational form and revenue model on the sustainability of new ventures. We contextualize our study to health information exchanges (HIEs) that are new business ventures in healthcare engaged in providing information exchange services across healthcare stakeholders. Using a unique archival data set constructed from surveys of HIEs in the US from 2008 to 2010, we find that for-profit organizational form, and transaction and subscription based revenue models are associated with higher likelihood of achieving financial sustainability and operational maturity. In addition to direct effects, we hypothesize and find support for mediation by operational maturity of the influence of organizational form and revenue models on financial sustainability.

Keywords: entrepreneurial firm, health information exchange, organizational form, business model, sustainability, maturity.

Introduction

Although early venture funding or grants may help new firms commence operations, a firm becomes sustainable only when it achieves financial breakeven, and is able to support and maintain operations through its own stream of revenues and profits. Researchers have suggested that inappropriate design of business models is a key element that provides connections and roadmaps that leverage the firm’s technical potential and revenue generation opportunities for the realization of economic value [1, 2]. The role of business planning and the design of a business model is the subject of considerable debate in the existing entrepreneurship and strategic management literature, with
inconclusive empirical results, with the argument that they may be demonstration activities for new ventures to satisfy investors and promoters, that have little impact on future sustainability [3, 4].

In this study, we pose the question: how do the components of a business model influence the sustainability of entrepreneurial firms? Drawing on prior research we identify three components of a business model that are important for operational maturity and financial sustainability of the new venture: the organizational form reflected in its choice of for-profit or non-for-profit structure, the value proposition that is manifested through service and product offerings, and the revenue model for generating income from the firm’s products or services. We use a unique archival data set constructed from surveys conducted by the eHealth Initiative (http://www.ehealthinitiative.org/) in 2008, 2009 and 2010 to test the research hypotheses for this study. Results of our analysis suggest that a for-profit organizational form and core services offering as the value proposition positively influence the financial sustainability of HIEs; whereas a subscription fee-based revenue model has a negative influence on sustainability. Further, we find that the effect of business model components on financial sustainability is mediated through operational maturity.

Theory and Hypotheses

Drawing on the theoretical foundation of organizational imprints and business models [3, 5], we suggest that the sustainability of an entrepreneurial firm depends on the design of appropriate organizational form, value proposition and revenue model – i.e., three core components of the business model (see Figure 1). We focus on two outcomes that are independently and collectively important indicators of firm viability: financial sustainability, which assesses the extent to which the firm is able to generate revenue that is greater than cost, and operational maturity that indicates the progress of the firm through different stages, independent of its financial achievements. We argue that efficiency-centered business models are appropriate for HIEs, as they principally strive to enable transaction efficiency for improved information flow among stakeholders, and to reduce information asymmetries among healthcare providers. We posit the following hypotheses:

\textbf{H1a:} For-profit organizational form is positively associated with operational maturity of HIEs.

\textbf{H1b:} For-profit organizational form is positively associated with financial sustainability of HIEs.

\textbf{H2a:} The value proposition through offering of core services is positively associated with higher level of operational maturity of HIEs.
**H2b:** The value proposition through offering of core services is positively associated with **financial sustainability** of HIEs.

**H3a:** Subscription fee based revenue model is negatively associated with **operational maturity** of HIEs.

**H3b:** Subscription fee based revenue model is negatively associated with **financial sustainability** of HIEs.

**H4:** The effect of organizational form, value proposition and revenue model on financial sustainability is mediated through the operational maturity of HIEs.

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**Analysis and Results**

We operationalized the variables for this study using the survey questions from the annual surveys conducted by the eHealth Initiative (http://www.ehealthinitiative.org/) in 2008, 2009 and 2010 to test our research hypotheses. The pooled data set for the analysis consists of 110 HIEs (28 HIEs in 2008, 32 HIEs in 2009 and 50 HIEs in 2010). Table 1 provides a description of variables used in this study. We used appropriate econometric models depending on the nature of dependent variable: ordinary least squares (OLS) estimation for the interval scale variable of operational maturity (stagehie) and a probit estimation for the binary variable financial breakeven (fin_breakeven). We conducted several robustness checks to validate our results. Parameter estimates obtained from the empirical models are presented in Table 2. We find support for all hypotheses. Results suggest that a for-profit organizational form and core services offering as the value proposition positively influence the financial sustainability of HIEs; whereas a subscription fee-based revenue model has a negative influence on sustainability. Further, we find that the effect of business model components on financial sustainability is mediated through operational maturity.

**Discussion**

The goal of this study was to understand the drivers of sustainability and maturity of health information exchanges. We establish the importance of a for-profit organizational form, value proposition in offering core services and subscription revenue models on the sustainability of HIEs, and using objective financial breakeven and operational maturity as outcome measures. The study contributes to the existing literature that explores sustainability of new ventures and entrepreneurial initiatives, by identifying the components of a business model that are likely to make
HIEs more sustainable. Second, we contribute to the growing stream of literature exploring the relationship between business models and value creation for entrepreneurial firms, and to the emerging literature on the appropriateness of transaction versus subscription revenue models. Furthermore, by conducting a detailed analysis of the determinants of sustainability using a nation-wide sample of HIEs, this study contributes to the healthcare management literature on sustainability of nascent organizational forms in this sector. This study identifies some salient factors that should receive requisite attention from policymakers and managers to make progress toward sustainability and success of HIEs.

Figures and Tables

Figure 1: Theoretical Framework: Elements of Business Model and Sustainability for HIEs

Table 1: Description of Key Variables

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Description</th>
</tr>
</thead>
</table>
| Financial breakeven (fin_breakeven)  | Whether the HIE has achieved financial breakeven as a result of operational revenue.  
                                      | 1= if the HIE has achieved financial breakeven                                                        |
|                                      | 0=otherwise                                                                                           |
| Operational maturity (stagehie)      | The stage of operational maturity of the HIE, from stages 1 to 7 matched to the 7-stage HIE maturity model of the eHealth Initiative. 
                                      | The stages are: 1=venture initiation, 2=structure formation, 3=plan formulation, 4=plan implementation, 5=technology operation, 6=Commercial operation, 7=operational collaboration. |

Independent variables

28
<table>
<thead>
<tr>
<th>For-profit model (forprofit)</th>
<th>Whether the HIE is structured as a for-profit corporation model or limited liability company model. 1=for-profit organizational form 0=non-profit organizational form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value proposition: core services offering (coreservice)</td>
<td>Whether the HIE is currently offering any of the five core services as its value proposition. 1=if the HIE is currently offering the core services 0=if the HIE has not started offering the services, but expected to offer the services in future</td>
</tr>
<tr>
<td>Subscription fee based revenue model (subsrev)</td>
<td>To support the ongoing operations, whether the HIE is charging subscription fees to clients. 1=only subscription fee based revenue model 0=transaction fee based revenue model, or hybrid models of both subscription fees and transaction fees.</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
</tr>
<tr>
<td>Geographic coverage (coverage)</td>
<td>Dummy variables indicating the coverage area of the HIE is spread to a state level.</td>
</tr>
<tr>
<td>Firm size (size)</td>
<td>Size of the HIE measured by the estimated number of physicians to have access to the network enabled by the HIE, in 1000 units.</td>
</tr>
</tbody>
</table>

**Table 2: Estimation Models**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) OLS estimation</th>
<th>(2) Probit estimation (Marginal effects)</th>
<th>(3) Probit estimation (Marginal effects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For-profit organization (forprofit)</td>
<td>1.062*** (0.232)</td>
<td>0.243*** (0.092)</td>
<td>-0.020 (0.079)</td>
</tr>
<tr>
<td>Core services offering (coreservice)</td>
<td>1.225*** (0.264)</td>
<td>0.268*** (0.073)</td>
<td>0.090 (0.077)</td>
</tr>
<tr>
<td>Subscription fee based revenue model (subsrev)</td>
<td>-0.658** (0.301)</td>
<td>-0.182** (0.091)</td>
<td>-0.066 (0.077)</td>
</tr>
<tr>
<td>Geographic coverage (coverage)</td>
<td>0.113 (0.259)</td>
<td>-0.172* (0.096)</td>
<td>-0.105 (0.080)</td>
</tr>
<tr>
<td>Firm size (size)</td>
<td>0.093** (0.036)</td>
<td>0.087** (0.035)</td>
<td>0.072** (0.032)</td>
</tr>
<tr>
<td>Operational maturity (stagehie)</td>
<td></td>
<td></td>
<td>0.187*** (0.021)</td>
</tr>
<tr>
<td>Observations</td>
<td>100</td>
<td>110</td>
<td>100</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj./Pseudo R-squared</td>
<td>0.296</td>
<td>0.184</td>
<td>0.414</td>
</tr>
<tr>
<td>F stat./Chi-square</td>
<td>12.081***</td>
<td>23.18***</td>
<td>38.20***</td>
</tr>
</tbody>
</table>

Standard errors in parentheses; standard errors adjusted for 69 clusters in models 1 and 3 and 70 clusters in model 2; significance levels: *** p<0.01, ** p<0.05, * p<0.1; model 1 has a constant term.
References

THE VALUE OF ONLINE TRUST SEALS FOR ONLINE ENTREPRENEURS: AN EMPIRICAL INVESTIGATION

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Online trust issues have frequently been cited as the main reason why people hesitate to shop online. Although the share of e-commerce in total US retail sales has steadily increased recently, online retailers are yet to fully reap the benefits of online commerce. Unlike brick-and-mortar stores that have physical existence and are normally located nearby, customers shopping online might be dealing with small unknown retailers. Uncertainty about the quality of the products on the website, the security of payment process, the reliability of shipping, the protection of customers’ privacy, among others, add to the risks perceived by online shoppers.

Online retailers address these perceived risks in different ways. Advertisement, branding, feedback mechanisms etc. may help retailers gain shopper confidence. However, these measures are very costly and also take some time to work. Online entrepreneurs need economical and faster solutions to convey their trustworthiness which comes in the form of third party trust seals.

Online startups and small retailers can signal their reliability to the potential customers through their affiliations with reputable exchange partners. Among the various mechanisms, trust seals have been the most long-standing and the most pervasively used one. Trust seals are typically offered by a third-party, also known as seal providers. To obtain a trust seal, an online retailer typically goes through a certification process administrated by the seal provider. Upon qualification, the retailer is offered the right to display the trust seal on its website.

Despite their popularity, the impact of trust seals on online transaction outcomes has been inconclusive. Kimery and McCord (2002) find that some trust seals related to privacy protection can enhance customer trust, while other studies (McKnight et al. 2004) do not find any significant impact. There are similar mixed findings in Hu et al. (2003). One possible explanation of the discrepancy is that the above studies use either controlled experiments in lab settings, or surveys. Limitations relating to the design of the experiments and the survey instruments could be some reasons for the inconclusive findings.
In this study, we exploit a unique dataset to examine the impact of trust seals on transactions. Provided by one of the major companies offering trust seals, the dataset includes 288,169 transactions from 493 different online retail websites in the January - October 2007 period. A key aspect of our dataset that enhances its empirical value is the presence of random seal tests. The seal provider, in agreement with the retailers, conducts “A/B Tests” to measure the impact of its trust seal on key site metrics. In this test, the participating retailers allow the seal provider to display the seal with 50 percent of the visitors to their web sites – so called A’s, while not displaying the seal with the other 50 percent – called B’s. The visitors were selected randomly to be either an A or B, ensuring that it is only the presence of the seal that varies systematically between the two sets of visitors. Thus, these “A/B tests” allow us to establish causality and identify the impact of the presence of the trust seal on shopper behavior.

Using this dataset, we examine the impact of trust seals on the likelihood of consumers completing their purchase in online transactions. This rich dataset allows us to not only quantify the impacts of trust seals on cart completion rate, but also to identify moderating factors that influence the seal’s effectiveness. Next, we provide our hypothesis and the research framework.

**H1. Presence of the online trust seal at a retailer’s website increases the propensity of completion of shopping carts created by online shoppers.**

**H2. Online retailers with smaller sales volume benefit more from the presence of the online trust seal than larger online retailers.**

**H3. The online trust seal is more effective towards completion of higher value shopping carts than lower value shopping carts.**

**H4. The effect of the online trust seal diminishes for more frequent shoppers at a retailer’s website.**

**H5. As the number of trust seals at an online store increases, the marginal impact of an additional trust seal on the completion likelihood of shopping carts diminishes.**

**Figure 1: Theoretical framework of our model**

- **H1:** Presence of the focal trust seal
- **H2:** Online retailer’s size (Merchant volume)
- **H3:** Value of the shopping cart
- **H4:** Shopper’s experience with the online retailer
- **H5:** Number of other trust seals

The Likelihood of Cart Completion
Our findings provide empirical evidence that the presence of third party trust seals at online retailers’ websites increases the completion likelihood of shopping carts, thus resulting in increased sales for retailers displaying the seal—particularly the small sized retailers. The risk that originates from information asymmetry perceived by consumers when shopping from an unknown retailer is partially mitigated when a trusted third party endorses the quality claims of the online retailer through a trust seal. The seal acts as an additional quality signal for the online retailer and reduces the amount of information asymmetry faced by the shoppers, thereby easing the purchasing decision of the shoppers.

Not surprisingly, large online retailers such as Amazon.com do not display any trust seals on their websites. Online retailers with larger sales volume are likely to have built a good reputation and be known by more consumers. Our results complete the puzzle by finding that the presence of the seal at startups and smaller retailers’ websites is likely to bridge the reputation gap suffered by these retailers. The additional risk perceived by shoppers due to small retailer size is partially mitigated by the presence of the trust seal. Our study thus, is among the first to provide evidence of the value of third party trust seals for online startups and small retailers.

Our analysis also sheds light on how the trust seal interacts with some e-commerce variables. Our expectations that the seal would be more effective towards completion of high value carts, was not supported. This finding suggests that shoppers could be considering the additional risk brought by higher value purchases before adding items to the cart, perhaps simultaneously considering it with the retailer’s reputation, quality of the web site, or initial viewing of the trust seals. Thus, our results point to the need for additional research in investigating the relationship between shopping stages and price related risk perception in online shopping.

Similar to conventional environments, a shopper’s trust in an online retailer is likely to increase after a few successful online transactions. Thus, experienced shoppers are less likely to pay attention to quality signals but focus on details of the transaction. However, shoppers who have not yet interacted sufficiently with a particular retailer - novice shoppers - have more difficulty in making a purchase decision. Our research finds that these novice shoppers feel more comfortable when the online retailer displays the seal on its website. The additional risk faced by a shopper due to lack of enough experience with a particular online retailer is mitigated significantly by the presence of a trust seal. Therefore, we find evidence that the online trust seal partially substitutes for both shopper experience, as well as seller size/sales-volume.

Since online retailers’ web sites could display more than one trust seal, our findings also provide insights on the dynamic interactions among multiple seals. Our analysis indicates that there is an
inverted “U” shape relationship between the total number of other seals and cart completion likelihood. This could be attributed to several reasons. Firstly, it is possible that some shoppers may not be aware of the function of the different trust seals and could be confused by the presence of many seals which would then lead to an abandoning of carts. Secondly, shoppers may suffer from “feature fatigues”, where addition of new features increases product complexity and consumer anxiety and stress (Thompson et al. 2005). Thirdly, it is possible that the presence of a large number of trust seals could signal the “desperation” of a less reputable seller to attract consumers, leading to the endogeneity of the total number of other Seals displayed on a website.

**Implications**

This research offers several implications for different stakeholders in e-commerce. First of all, our findings can help resolve the discrepancy between the academia and industry regarding the effectiveness of trust seals in influencing shopper behavior. Second, our findings suggest that smaller online retailers benefit more from the presence of the trust seal compared to larger online retailers. Web entrepreneurs, mostly lacking significant financial resources, can boost their sales by displaying a well-known third party trust seal on their web sites. The trust seal also could help small retailers avoid deep discounts while competing with larger, more reputable online retailers. Third, our results also provide some useful guidelines for the design of online retailers’ operations. For example, based on our findings that the seal is more effective in converting novice shoppers, online retailers can make the seal more visible and salient during sessions initiated by first time visitors. Also, given that more is not necessarily better with trust seals, online retailers would do better by being selective about displaying only the most effective seals. Finally, our findings are of importance to policy makers and regulatory authorities. Given that online trust seals are valued by consumers, it is important that the third party trust seal providers act as independent entities and held to high standards by regulatory oversight.

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ABILITY VERSUS NEED: HYBRID-IDENTITIES, RESOURCE ACQUISITIONS AND THE SOCIAL ENTERPRISE

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Abstract

This study theorizes about lender preferences for entrepreneurial projects in a charitable peer-to-peer microfinance marketplace and empirically tests these theories by leveraging over five million historical lending decisions. It proposes that entrepreneurs vary on two fundamental dimensions: perceived ability and perceived need. These dimensions subsequently appeal to separate lender preferences for business-like or charity-like activity. It is therefore predicted that borrowers who simultaneously communicate business ability and personal need will receive funding faster than loans that score lower on either dimension. Preliminary results currently indicate that lender preferences in aggregate are dominated by a charity logic, meaning that loans promoting “need” characteristics (e.g. wearing non-western clothing) are funded faster. These results have implications for how microfinance institutions and related entrepreneurs strategically attract capital.

Introduction and Setting

The on-line peer-to-peer website Kiva.org represents an ideal setting to study the boundary between business and charity issues. Kiva acts as an intermediary between individual lenders in countries such as the United States and microfinance institutions (MFIs) primarily in developing economies which manage the loans of the entrepreneurs featured on the website. Fundraising is performed in a piecemeal fashion (typically $25 increments); a borrower’s loan page will state the total amount of funds requested and the amount of money currently raised from individual lenders. Once the aggregate contributions from lenders reach the entrepreneur’s requested amount, the loan is considered fully funded and removed from the Kiva website. At any given point time, Kiva can be conceptualized
as a type of self-contained venture capital community. Individual lenders make choices about where to
direct their capital, and the most appealing entrepreneurs receive funding faster than others.

Like any venture capital setting, there is evidence that underlying lender preferences structure
the behavior observed in the market. Matt Flannery, co-founder of Kiva, commented on this relatively
soon after Kiva’s founding: “Lenders showed unambiguous preferences according to region, gender,
and business type: Africans first, women first, and agriculture first. A female African fruit seller?
Funded in hours. Nicaraguan retail stand? Funded in days. A Bulgarian Taxi Driver? Funded in weeks”
(Flannery, 2007, p. 50). My preliminary results confirm and quantifies that lenders have systematic
preferences for certain borrower types.

In a 2007 MIT Innovations article, Kiva cofounder Matt Flannery detailed five elements of
Kiva’s product philosophy. Included in his list was “Emphasize Progress Over Poverty.” (p. 40). In
Flannery’s conception, “Business is a universal language that can appeal to people of almost every
background. This can lead to partnerships rather than benefactor relationships. We appeal to people's
interests, not their compassion.” The idea that people could be open to lending money as a charitable
act is now well supported by the growth of the broader microfinance movement (Khavul, 2010).
However, the phenomena of charity and lending are less than obviously related on a theoretical level:
the act of lending is centrally concerned with the productive use of capital within a market, while
charity is focused on helping others through benevolent actions.

The above quote from Flannery compliments and contrasts with Kiva’s objective status as a
non-profit and its mission “to connect people through lending to alleviate poverty.” The fact that
lenders are never paid interest on their loans results in a de facto selection-bias of lenders to the Kiva
platform, as participants have an ex-ante understanding that the purpose of lending is not
moneymaking. At the same time, however, lenders do expect their loan to be repaid (repayment rates
are around 98%) and explicitly choose Kiva over more traditional charity outlets that would allow
them to perform outright donations. Therefore, lenders are drawn to the Kiva platform at least in part
by its unique ability to combine both the strengths of charity and business activity into a single service.

This dual framework is most clearly instantiated at the level of individual borrowers. Borrowers can theoretically be classified along two separate continua: their level of need and level of ability. This information is communicated through specific profile elements such as the business type, photograph, and supplemental background description of each borrower. For example, a loan that is described using language related to money, experience, and performance all indicate higher ability of the borrower. While language related to personal situation, emotion, or hardship indicates level of borrower need. From the above discussion, loans that simultaneously communicate business ability and personal need are predicted to receive funding faster than loans that score low on these dimensions. The least optimal configuration for a borrower is not communicating personal need nor business ability. Figure 1 summarizes the main hypotheses.

**Figure 1**
Hypothesized Performance of Loan Given Need/Ability Characteristics

<table>
<thead>
<tr>
<th>Need</th>
<th>High</th>
<th>Medium</th>
<th>Fastest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Slowest</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

A number of theoretical lenses provide the interface between lender preferences and lender decisions to fund specific loans. A form of symbolic action (Zott & Huy, 2007) may be possible via the photographic communication channel. For example, lenders might interpret the wearing of western clothing as representing professionalism and thus business ability. At the same time, if a borrower wears traditional or distinctively ethnic clothing, lenders may interpret this as meaning the loan will fulfill a role in helping people from a specific community or background. “Entrepreneurial passion” (Cardon, Wincent, Singh, & Drnovsek, 2009; Chen, Yao, & Kotha, 2009), might be communicated by
the emotional state of the borrower. Borrowers that seem happy, excited, or optimistic about their work may be interpreted by lenders as having greater ability. However, if lenders preferences are aimed at serving a need, then sad or dejected entrepreneurs should be more likely to get funded. This research aims to detangle such possible outcomes.

Methods

The proposed direction for the study is to calculate an “ability score” and a “need score” for each loan. Average scores for each of the dimensions will then be calculated for all loans within each lender’s past borrowing history. From this, lenders can then be classified along two scales: their level of preference for “ability” and their level of preference for “need.” A ratio of these dimensions at the individual level will then be used to determine the likelihood of choosing a borrower at a future point with a similar ratio; this will indicate preferences over time. Development of these dimensions is currently in progress. I am also investigating the appropriateness of matching models.

The preliminary results presented below are more straightforward and illuminate the aggregate preferences of lenders. The main dependent variable in the study, fund time, was calculated based on the difference between the date-time the loan was posted on the website and the date-time at which it became fully funded and was no long open to new lenders. Thus, the dependent variable represents performance in the ability to quickly raise capital in a competitive marketplace vis-à-vis other loan requests. The mean fund time over the entire sample is 63 hours.

Preliminary Results

Full Sample Results

In the first stage of analyses, various regression models were constructed using the full sample of roughly 165,000 observations. Loans that were still in the fundraising stage were dropped from
analysis. These analyses included the objective data discussed previously. Because of current resource constraints, the only photographic attribute included in the full sample analysis is objective image brightness.

Preliminary results include the findings that each additional dollar requested results in an additional 3.8 minutes until the loan is fully funded, being male adds an additional 36.8 hours, an above average brightness reduces fund time by 1.9 hours, Africa is by far the quickest region to get funded (Eastern Europe the slowest), and education is the quickest sector to get funded (clothing the slowest). The primary finding related to photographs is that neither happiness nor the obviousness of the borrower’s livelihood is statistically significant. Non-western clothing, however, reduces fund time by 28.3 hours. Brightness is no longer significant, though this is likely from the 99% reduction in sample size (this was confirmed by regressing brightness alone on fund time, and still not achieving significance). Finally, in an early test of this research, around 4,000 images from the years 2008 and 2009 were coded for the “happy” attribute. Detailed results are not presented, but appear consistent with the sample tested above.

**Discussion and Implications**

These results partially support the hypotheses that aggregate lender preferences are for loans that demonstrate need over ability. However, current results are mixed. A number of specific findings support this suggestion. The fact that borrowers wearing distinctively non-Western clothing are funded faster than those wearing Western clothes indicates that lenders take into account the cultural background and identity of individual borrowers. In addition, there is no immediate business or financial logic to explain why specific countries and sectors are significantly preferred to others, further supporting the assertion that lending decisions are not made due to a preference to reward ability.
In the charity sector, photographs often moderate the unique relationship between donors and those requesting funds. Advertisers have traditionally used strong visual cues to appeal to potential donors (e.g., solicitations from organizations like Save the Children). Research has found that through a process of emotional contagion, charity donors feel sympathy when viewing photographs of sad victims and are thus more likely to donate money (Small & Verrochi, 2009). In this sample, the happy variable was not statistically significant in either direction. This finding indicates that in aggregate, borrowers may be split on their desire to reward either need or ability. Likewise, there is no statistical impact for appearing in an occupational-context within the profile photo. This result also indicates a potential split sample of lender preferences. Lenders that prefer needy borrowers may dislike seeing existing assets depicted, whereas borrowers with a preference for ability clearly prefer to see the business context; if these occur with equal frequency it may explain the lack of current findings for this measure.

The proposed research extensions discussed earlier are designed to address this issue by analyzing preferences at the level of individual lenders. A specific lender may lend disproportionately to either borrowers with need or borrowers with ability; a fact that is not captured in the preliminary analysis and would explain the non-findings related to happiness and identification of occupation.

**Conclusion**

This study begins to explore a number of questions pertaining to the nature of the emerging peer-to-peer microfinance industry for entrepreneurs in developing economies. The initial findings indicate that lenders appear to participate in the market using logics transferred both from charity and business contexts. However, it is theorized that more diverse lender preferences exist below the surface of this analysis. The data has now been collected to test these more nuanced hypotheses and is the next stage of the project.
References