



2015

The Differing Impact of Household Income on Firm Emergence by Heterogeneous Start-up Configuration

Enrique Nunez

Ramapo College of New Jersey, enrique_d_nunez@hotmail.com

Follow this and additional works at: <https://digitalcommons.sacredheart.edu/neje>



Part of the [Entrepreneurial and Small Business Operations Commons](#)

Recommended Citation

Nunez, Enrique (2015) "The Differing Impact of Household Income on Firm Emergence by Heterogeneous Start-up Configuration," *New England Journal of Entrepreneurship*: Vol. 18 : No. 2 , Article 4.

Available at: <https://digitalcommons.sacredheart.edu/neje/vol18/iss2/4>

This Refereed Article is brought to you for free and open access by the Jack Welch College of Business at DigitalCommons@SHU. It has been accepted for inclusion in New England Journal of Entrepreneurship by an authorized editor of DigitalCommons@SHU. For more information, please contact ferribyp@sacredheart.edu, lysobeyb@sacredheart.edu.

The Differing Impact of Household Income on Firm Emergence by Heterogeneous Start-up Configuration

Enrique Nuñez

Using the Panel Study of Entrepreneurial Dynamics II dataset, we examine the role that household income plays in the emergence of consumer-oriented start-ups by individual (solo), family-based (family), and non-family based start-ups (team). In particular, we address the research question: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?

Our results indicate that household income does have a significant impact on average firm emergence, as well as on emergence growth rates for solo and family firms, playing an especially significant role for family firms. Furthermore, we found that household income is not a significant predictor of start-up activity completion for teams. Results from our study reinforce the extant literature on the benefits of starting a firm with teams, and suggests that these enterprise types may provide a more stable platform on which to launch a start-up. Implications of these findings and opportunities for future research are offered.

Keywords: start-up process, entrepreneurship, teams, family business, financial resources

During the start-up period, individual and household financial resources can be a key factor in a new entrepreneurial venture's resource base and is commonly a source of start-up capital (e.g., Evans & Jovanovic, 1989; Kim, Aldrich, & Keister, 2004). Beyond the immediate family, research suggests that one of the most meaningful sources of start-up capital for launching the venture are funds borrowed from family and friends (Van Osnabrugge & Robinson, 2000). Still, the impact of financial resources in general and household income in particular, on firm emergence remains unclear. Entrepreneurs employ a variety of techniques to minimize capital requirements in launching a firm (e.g., Winborg, 2009), the use of which may help to explain why most start-ups are founded with small amounts of capital (Bhide, 2000). Other studies have demonstrated that financial resources may be substituted to some extent with education in launching a firm (Demiralp & Francis, 2013). Consequently, situational factors impact the degree to which personal financial resources aid prospective entrepreneurs in the earliest stages of firm development.

In this article, we build on the existing research by investigating whether household income benefits the completion of start-up activities differently for heterogeneous start-up configurations. In particular, we ask the following question: *Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?* To answer this question, we develop a series of hypotheses and construct a multi-level longitudinal model to describe the impact of household income on firm emergence over time. The answer to our research question is of principal interest to practitioners, policy makers, and researchers alike. For nascent entrepreneurs, our study offers insight into the types of start-up configurations that are most abetted by personal resources as they travel on their entrepreneurial journeys. From a policy perspective, an improved understanding of the impact of household income on the process through which firms emerge would help policy makers to better develop constructive regulatory approaches toward entrepreneurship, which has long been acknowledged as a significant contributor to innovation, job creation, and economic growth. For entrepreneurship researchers, our study helps to contribute to an increasing scholarly interest in research that lies at the juncture of literature that explores antecedents to firm emergence and that which examines the influence of heterogeneous start-up configurations.

We begin by developing a theoretical framework for our propositions and establishing a foundation for the importance of access to financial resources to launching a firm. As we proceed, we present literature that reaffirms the necessity of resources, but argues that financial requirements can be abridged. We end this presentation by offering theoretical support for our central proposition; that is, household income will have a varying impact on firm emergence, based on start-up configuration, and pose four hypotheses. The section entitled *Methodology* begins with an explanation of the sampling procedure utilized in this study, and moves onto a discussion of the case selection process. We then review the means by which we manipulated the Panel Study of Entrepreneurial Dynamics II (PSED II) subsample to accommodate our examination of the impact of household income on

firm emergence. We utilize the Katz and Gartner (1988) model as the theoretical framework for classifying the start-up activities nascent entrepreneurs initiated and completed. As we are interested in the speed with which heterogeneous firms can complete a variety of start-up activities, our approach stresses the accomplishment of an array of start-up activities, and may better indicate the robustness of a new firm than any one measure (Carter, Gartner, & Reynolds, 2004). Subsection *Data Manipulations* offers more details on our use of the Katz and Gartner model. This section concludes with a discussion on the analytical techniques performed in the study. The section entitled *Results* offers a detailed explanation of our outcomes, and in the section entitled *Discussion*, we evaluate and interpret these results with respect to the original research question. In this section, we also consider the study's limitations and opportunities for future research.

Theoretical Framework and Hypotheses Development

All prospective company founders commence their entrepreneurial journey with an initial resource base that becomes the underpinning for starting the business (Brush, Greene, & Hart, 2001). During the start-up process, the founder's experience, education, professional network, and crucially, access to financing, all help to transform an initial idea into a commercial enterprise. The literature has long noted the significance of access to capital to launching a firm; and once started, to the start-up's growth, performance, and ultimate survival. For example, research indicates that financial capital invested during the start-up period significantly impacts performance (e.g., Lee, Lee, & Pennings, 2001). A study that sought to forecast the impact of human and financial resources invested at start-up on firms' failure, survival, or growth found that the amount of initial capital influenced both the survival and growth of new ventures (Cooper, Gimeno-Gascon, & Woo, 1994). Research that evaluated how differences in founder characteristics influenced the start-up's survival found that survival is positively related to the amount of financial capital invested (Boden & Nucci, 2000).

The Importance of Access to Financial Resources to a Start-up

Personal resources in particular also appear to play an important role in financing start-ups.¹ Research indicates that wealthy founders with sizable access to initial capital have a greater probability of becoming entrepreneurs, than those with less access (Blanchflower & Oswald, 1998; Boden, 1996; Dunn & Holtz-Eakin, 2000; Evans & Jovanovic, 1989). A study that examined a sample of French entrepreneurs and their decisions to either take over an existing firm or to start a new venture as a means of becoming entrepreneurs, found that low initial resources is more often associated with start-ups than with takeovers (Bastié, Cieply, & Cussy, 2013). In studying the relationship between founders, start-up characteristics, and business survival, researchers found that female entrepreneurs used substantively fewer financial resources to launch ventures than male counterparts, and theorized that women's lower wage earnings may constrain the amount of capital available to start or acquire businesses (Boden & Nucci, 2000).

As shown in Figure 1, which illustrates the mean number of start-up activities completed by household income, our own preliminary results appear to reflect these findings. The graph makes clear that firms whose founders have dissimilar household incomes complete start-up activities at different rates, with those with higher incomes generally completing more activities. When viewed strictly from the perspective of household income, we observe that across income scales, firms whose founders have higher household incomes are able to complete a

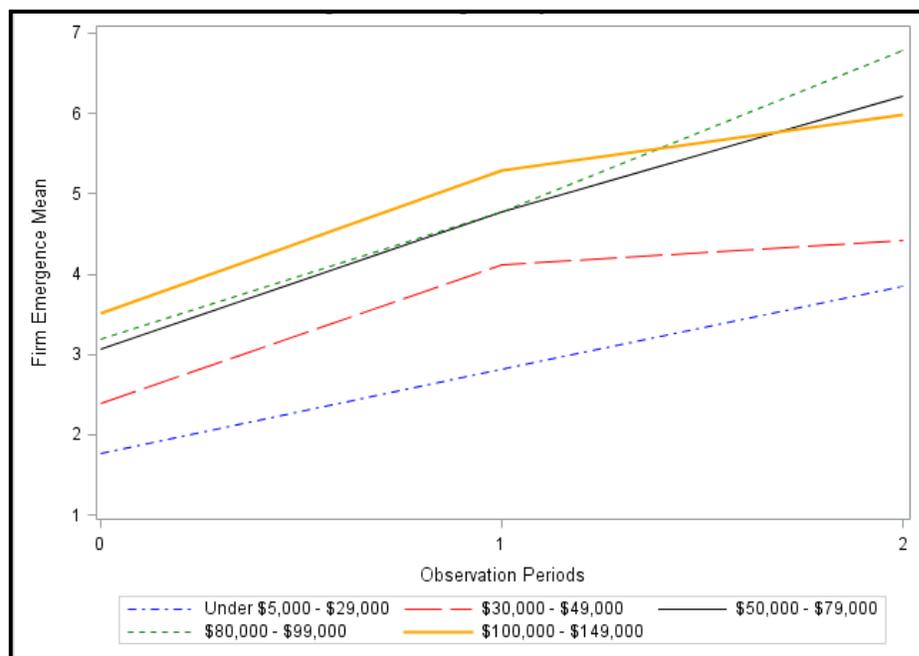


Figure 1. Average Firm Emergence by Household Income

greater number of start-up activities initially, although household income's impact on individual firm's emergence growth trajectory revealed temporal variation over the study period, as demonstrated by the precipitous drop in the growth in completion of start-up activities for two groups (\$30,000–\$49,000 and \$100,000–\$149,000) between the second and third observation periods. Nevertheless, as we will demonstrate, the influence of household income on firm emergence is more nuanced when viewed through the spectrum of a more finely grained analysis.

Income can also become a meaningful impetus for start-up growth when the intention is to replace employment income. Cressy (1996) found that firms run by founders with higher pre-start-up incomes grow faster than other start-ups. He reasoned that the objective of the higher income founders was to generate sufficient income to restore their previous employment salary, and consequently represented a meaningful incentive for growth. Another study investigating the transition to entrepreneurship among British workers who had received windfall gains found that wealthier individuals were more likely to become entrepreneurs (Georgellis, Sessions, & Tsitsianis, 2005). Founders may also productively leverage personal assets to secure external financing. A study that investigated credit rationing found that entrepreneurs who utilized personal capital for their start-ups were more likely to receive credit, and that earning capacity lessened the probability of being completely denied credit by a financial institution (Blumberg & Letterie, 2008).

Others have suggested that nascent entrepreneurs may face liquidity constraints in starting a new firm, as founders must accrue an asset base before launching a business (Evans & Leighton, 1989). Lacking the ability to borrow capital to grow the start-up to an efficient scale, the literature indicates that wealthier founders should enjoy superior prospects than their humbler counterparts. A study that utilized the PSED II dataset and investigated the start-up funding sources of more than 1,200 nascent entrepreneurs seems to confirm this perspective, finding that 57 percent of start-up financing came directly from founders' personal contributions, and that those with higher levels of net worth were considerably more likely to obtain external funding (Gartner, Frid, & Alexander, 2012). Yet, the impact of personal financial resources on firm emergence may be more nuanced. When examined more closely, the importance of ready access to bountiful capital appears more complex than the previously noted research may suggest. In the following sections, we will demonstrate that the need for financial resources during the start-up period may be reduced, and that family firms offer

unique characteristics that allow these types of enterprises to respond to challenges in ways that are not available to other start-up configurations, while teams' professional networks allow them to overcome business formation obstacles.

Resources Are Necessary, but Requirements Can Be Abridged

Nascent entrepreneurs frequently employ a variety of techniques, collectively known as “bootstrapping,” to improve cash flow while minimizing a venture's capital requirements and as previously noted, often make use of personal resources as an alternative to outside debt and equity financing (Winborg & Landstrom, 2001). The use of bootstrapping practices may help to explain why most firms are funded with negligible amounts of capital. According to Bhide, 30 percent of the more than 800,000 businesses started each year required less than \$5,000, and a slightly larger percentage needed more than \$50,000 (Bhide, 2000). Moreover, for at least some entrepreneurs, bootstrapping appears to be a savvy financial strategy that can lead to firm growth, rather than being used as a tactic of last resort. An investigation into the role of external financing in influencing new technology-based firms' size found that bank debt-financed firms are not larger than firms created through founders' personal savings (Colombo & Grilli, 2005).

In contrast to the previously noted research, another investigation indicates that wealth does not substantially impact the ability of prospective entrepreneurs with at least average levels of education and experience to launch a firm (Demiralp & Francis, 2013). Moreover, for all but the most affluent, wealth is not a significant indicator of starting a business, as the initial capital investments required to launch a firm are marginal and many small businesses obtain debt-financing. Research suggests that while founders with generous access to capital may be more likely to become involved in start-up activities, the “affluence effects” only impact the likelihood of starting a firm for the top 5 percent of the wealth distribution (Hurst & Lusardi, 2004). Others have observed a positive relationship between a founder's prior wealth and start-up size and profitability in the first three wealth quartiles, and have taken note that profitability drops markedly for very wealthy founders (Hvide & Møen, 2010). Therefore, as others have noted, capital may not be a barrier to starting a firm.

Notwithstanding the literature regarding the role that access to generous amounts of capital plays in the start-up, growth, and survival of a firm, an issue remains: do greater personal financial resources facilitate the completion of start-up activities differently for diverse types of founders? This issue is

substantive, as the composition of the start-up team (or in the case of the solo entrepreneur, no team at all) is a direct determinant of the venture's starting resource base. Moreover, the literature suggests that the dynamics at play within different start-up configurations may play a role in firm emergence, and studies have observed significant variability in firm emergence for heterogeneous enterprise types, but have not empirically tested the underlying causal variables (Nuñez, 2015). Consequently, our research question considers the varying role that financial resources, in this case, household income plays in firm emergence for different types of enterprises: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?

The Differing Impact of Financial Constraints on Heterogeneous Start-up Configurations

Family Firms' Mutually Shared Personal and Professional Values. The dynamics of family firms allow these types of enterprises to respond to challenges in ways that are not available to other types of firms. Researchers have coined the term "financial intermingling" and have noted the flexibility with which family firms may utilize resources. That is, if a problem requiring resources occurred with the family or the associated business, assets from the unaffected area may be utilized in response (Stafford, Duncan, Danes, & Winter, 1999). An investigation that compared financial intermingling behaviors of couples who share a personal relationship and a venture found that business property was often used to secure loans to meet family needs, while family assets and household income were used for business needs. Thus, family dynamics enabled financial intermingling and allowed the parties to take a longer-term view of success, which ultimately led to increased business profits (Muske, Fitzgerald, Haynes, Black, Chin, MacClure, & Mashburn, 2009).

Another manner with which to confront the challenges presented during the start-up period is by maintaining a flexible approach to work and family demands. Family firms present team members additional flexibility that may not be available to their non-family counterparts in the form of malleable allocation of responsibilities, adaptable childcare arrangements, and amenable work schedules, thus, facilitating the creation of the types of accommodating work roles and structures (Poza & Messer, 2001), which helps to reduce the conflict between personal and professional roles (Pleck, Staines, & Lang, 1980). Such flexibility may be particularly important for female entrepreneurs starting families, as having young children strongly influences women's decision to become self-employed (Boden,

1996; Carr, 1996), and starting a business may offer the opportunity for an enhanced professional and personal equilibrium (Powell & Greenhaus, 2010). In another study investigating the decision to launch a business under financial constraints where individuals must divide their time between business ventures and wage employment found that part-time entrepreneurs are not affected by financial constraints (Petrova, 2012). Thus the role of household income within family firms is complex, allowing for malleable work arrangements that may to some extent mitigate financial constraints.

Although not fully manifested during the firm's start-up period, families may also cultivate an intangible resource that is inaccessible to non-family firms in the form of the "interaction between the family, its individual members, and the business," which may help to establish the firm's continuity across generations (Habbershon & Williams, 1999). This intangible resource, coined "familiness," coupled with the greater levels of trust, altruism, a feeling of stewardship, mutually shared personal and professional values, and understandings may be a source of competitive advantage over non-family firms (Barney & Hansen, 1994; Cabrera-Suarez, De Saa-Perez, Garcia-Almeida, 2001; Davis, Allen, & Hayes, 2010; Habbershon, Williams, & MacMillan, 2003; Pearson, Carr, & Shaw, 2008). Familiness may enable firms to extend limited financial resources during a firm's start-up period by leveraging personal assets. A recent study noted that while more than 20 percent of nascent entrepreneurs employed family members, nearly a quarter reported depending on at least one unpaid family member (Global Entrepreneurship Monitor, 2012). Other research indicates that family involvement plays a role in assisting new ventures to attain debt financing by leveraging existing family social capital, finding that transgenerational succession intention improves relationships between entrepreneurs and lenders, while family governance helps the venture acquire third-party financing guarantees (Chua, Chrisman, Kellermanns, & Wu, 2011).

The Strength of Teams' Diverse Network

Even among start-up entities with a plurality of founders, non-family teams provide an advantage in the form of the strength and diversity of their professional networks, which founders can tap for help and support with overcoming the challenges encountered during the start-up period. Here again, teams have an advantage as information procured through the heterogeneous network of relationships that is more likely found among non-family firm members provides greater access to different types of knowledge. In contrast, family firms are apt to share common networks and thus, information reaped through family relationships is liable to be

homogeneous and may be of limited value to nascent entrepreneurs (Granovetter, 1974). Access to heterogeneous sources and types of information to aid in the development of experience is not inconsequential to nascent entrepreneurs as founders generate additional financing options as they become more aware of opportunities over time. A study examining the motives for using bootstrapping in 120 Swedish start-ups observed that as founders gained experience, they learned more about advantages of bootstrapping, and subsequently changed their actions from emphasizing cost reduction to risk reduction (Winborg, 2009). The type of bootstrapping method employed may also impact performance outcomes. A study examining small businesses' use of different bootstrapping methods found that firms associated with "private owner-financed" bootstrapping methods rely on resources provided by the founder and family. Firms employing these methods were typically new, fast-growing, and marginally profitable and were found to frequently require additional financing. In contrast, firms utilizing "joint-utilization" bootstrapping methods did not demonstrate a great need for additional financing, and many already have long-term finance from banks. These bootstrapping methods require a large network with which to share assets and coordinate purchases, and thus are more likely utilized by teams. Furthermore, the founders of these firms experience no great difficulties in obtaining additional finance, if necessary (Winborg & Landstrom, 2001).

Larger networks are prone to attract more investors, both formal and informal, yet these types of investors may self-select into groups, which results in shaping the financing mechanisms available to the entrepreneur. A study of the factors influencing the likelihood of attaining external start-up financing across 27 countries found that institutional investors rely on the experience of entrepreneurs in managing start-ups and the quality of investor protection, while informal investors tend to be attracted to the types of products being developed and are more likely to have a social relationship with the entrepreneur (Nofsinger & Wang, 2011). Thus, teams whose founding entrepreneurs often look to their networks for potential recruits, which may offer a larger pool of talent than found within families (Iacobucci & Rosa, 2010; Mosakowski, 1998), would likely attract institutional investors. As team member selection practices within family firms may be influenced by nepotism (Howorth, Rose, Hamilton, & Westhead, 2010), family firms are more likely to attract informal external financing, where social relationships hold sway.

A large, well-developed professional network and the material and emotional resources available through it may also provide a signal to outsiders of the venture's commercial viability. Research indicates that "social capital," resources resulting from embeddedness in networks of this type, helps to enhance firm performance by enabling entrepreneurs to draw upon their networks for financing (Batjargal, 2003), knowledge (Birley, 1985), competitiveness (McEvily & Zaheer, 1999), and legitimacy (Stuart, Hoang, & Hybels, 1999). A study of Korean technology start-ups examining the effect of internal capabilities and external networks on firm performance found that partnership-based relationships, such as those with venture capital firms, can have a positive impact on performance by magnifying the effect of capabilities and financial resources, and may act as an indicator to other parties to become involved with the new firm (Lee et al., 2001).

Solo Entrepreneurs' Idiosyncratic Strengths

The characteristic strengths of individual entrepreneurs, such as creativity, foresight, intuition, and alertness (e.g., Mosakowski, 1998), may not provide benefits with regard to alleviating capital constraints endemic during the firm emergence process. A study examining how the characteristics of a start-up's assets and founder attributes relate to a new venture's initial financial structure found that solo start-ups are more likely to be financed with the founder's personal resources, and those of family and friends (Sanyal & Mann, 2010). Without the larger resource base associated with a plurality of founding members, solo entrepreneurs will likely rely on a personal stock of intangible assets such as expertise and skills that impose financial constraints. With fewer assets to pledge as collateral and to liquidate in cases of default, firms that rely on intangible assets may need to utilize informal means of attaining start-up capital financing, such as personal resources and loans from friends and family (Cassar, 2004).

Even distinctive solo strengths, such as firm ownership and management control, may prove to be drawbacks when financing the start-up. Lacking access to a network of superior expertise and skills than is available to an individual founder (Vesper, 1990), solo entrepreneurs may be at an additional disadvantage with regard to the long-term development of their ventures, as the number of founders within a start-up has been found to contribute to growth (Cooper, Gimeno-Gascon, & Woo, 1994). This is a particularly troublesome issue, as financial capital at the time of firm establishment is among the most significant predictors of growth for start-

ups founded by individual entrepreneurs (Korunka, Kessler, Frank, & Lueger, 2011). Absent the ready-made professional network that comes with a plurality of founding team members, solo entrepreneurs can choose to develop an outside network of advisors, or to resign themselves to utilizing their existing network. Yet, solo entrepreneurs have limited time to dedicate to developing network relationships, and doing so may be counterproductive, as an increase in the strength of a founder's network of relationships is negatively associated with the accomplishment of founding activities (Kreiser, Patel, & Fiet, 2013).

Choosing to forego the development of a robust external network may mean abandoning the opportunity to acquire the heterogeneous sources and types of information that are most necessary to help grow the firm. Moreover, research demonstrates that "joint-utilization" bootstrapping methods are more important during start-up than during later stages of the firm's life cycle (Ebben & Johnson, 2006). Deprived of a large network with which to share assets and coordinate purchases, solo entrepreneurs are unlikely to employ such methods.

Devoid of the convenient professional network that is more likely to be found within firms with a plurality of founding members, solo entrepreneurs may instead have to rely on limited information and resources to help grow their firms, which include restricted financing alternatives. Chief among the financing alternatives utilized by the solo entrepreneur will be personal resources. In contrast to team-based start-ups, firm emergence within family firms is also likely to be impaired by a lack of a well-developed professional network. Family firms are more likely to have homogeneous networks that generate information of limited value to developing additional financing options. They are also more likely to attract informal external financing, thus further limiting their ability to draw upon their networks for more sophisticated financing options. Therefore, we propose that individual and household financial resources will have a meaningful impact on firm emergence for both solo entrepreneurs and family firms.

Hypothesis 1: Household income will be a significant predictor in solo entrepreneurs' firm emergence, as well as in family firms' emergence.

Correspondingly, we purport that personal resources in the form of household income will influence firm emergence growth rates for these enterprise types. We define *firm emergence growth rate* as the change in the completion of start-up activities for firms over the study period.

Hypothesis 2: Household income will be a significant predictor in family and solo firm emergence growth rates.

We offer that household income will play an exceptionally significant role in firm emergence within family firms. The greater reliance on financial intermingling among family firms is likely to cause household income to be of great consequence in launching these types of enterprises. Moreover, because of the greater levels of trust, altruism, mutually shared personal and professional values, and understandings found with families, as well as the unique aforementioned dynamics within family firms associated with managing the venture's starting resource base, we propose:

Hypothesis 3: Household income will have a more significant impact on family firms' emergence than on other enterprise types.

Teams have access to a larger pool of talent than is available to other enterprise types, and thus are able to draw upon their networks for help with financing, expertise, and legitimacy. As a result, we propose that teams' greater access to experienced personnel, as well as the availability of a wider array of desirable financing options than is available to other start-up configurations will negate the need for a reliance on household income.

Hypothesis 4: Household income will not be a significant indicator in teams' firm emergence.

Methodology

Sampling Procedure

Our decisions concerning the research methods utilized in this study were guided by our need to better understand the impact of household income on the business formation process. Consequently, our sample of nascent entrepreneurs is drawn from Waves A through C of the PSED II dataset, a longitudinal database of US-based individuals in various stages of starting a business, which identified and tracked over 5 years, a sample of business owners who were in the process of starting a business. PSED II is a rich dataset that includes data on a wealth of characteristics of nascent entrepreneurs and their firms, as well as the activities founders undertake in starting a business. PSED II is a particularly useful dataset for analysis of team issues (Davidsson & Gordan, 2012), as those that are examined in this study. Data collection for the data utilized in this study began in September 2005 and was completed in May 2008.

PSED II data employs post-sampling stratification weights. Weights are based on demographic characteristics such as age, gender, and household income, as well as geographic dispersion, that were derived from the Census Bureau Population Study, and must be applied to any analyses completed with PSED data in order to generate unbiased statistical conclusions that are generalizable to the entire US population (Curtin & Reynolds, 2004). Accordingly, weights for our study sample were re-centered to prevent a bias estimate of standard errors, and the new weights were used in the analyses.

Selection of Cases for Analysis

To control for industry variability, only start-ups involved in consumer-oriented industries were included in the analysis. We chose to examine consumer-oriented industries for a number of reasons. In the PSED II database, more than half of survey respondents identified their firms as selling to consumers. We limited our analysis to consumer-oriented firms as industry context is widely recognized as being significant, and restricting the industry context allows researchers to avoid some of the issues regarding the varying effects associated from analyzing widely disparate industries (Dess, Ireland, & Hitt, 1990). Industry profitability has been found to be a significant predictor of firm profitability; offering more predictive value than market share, debt/equity ratio, firm capital intensity (Beard & Dess, 1979; Beard & Dess, 1981), general economic factors, and changes in leadership (Lieberson & O'Connor, 1972). Therefore, as an accepted industry classification utilized by economists, as well as others examining industries collectively, we reasoned that our choice to focus on firms that sell products and services directly to the consumers (versus business-to-business) was a rational, theoretically sound decision. Perhaps more significant however, was the focus of our research. In this study, we were primarily interested in examining the impact of household income on start-up activity *momentum*; that is, the number of start-up activities completed, how that number changes over the study period, and if that change differs by enterprise type. While firms from diverse industries may differ on *which* start-up activities are completed, our research centered on the *number* of start-up activities completed by enterprise type.

To ensure that our analysis focused on firms engaged in the start-up phase of firm development, we filtered out cases where respondents indicated that their firm had positive cash flow for the past 6 months and where the firm's revenue covered expenses including salaries. We also only included start-ups that initiated their start-up efforts at a compara-

tively equivalent time, limiting our analysis to firms that had initiated their first and last start-up activities within a 2-year time frame. As noted, individuals with considerable access to start-up capital are more likely to become entrepreneurs than those with less access. Therefore, to limit outliers, firms whose founders indicated initial household incomes greater than \$150,000 were omitted from the analysis.

Enterprise type classifications in this study were determined based on ownership as identified by the survey respondent, which was established by two sets of questions. We classify solo entrepreneurs as respondents indicating that they alone own the start-up. We define a family business as a firm that is controlled by individuals who are related by blood or marriage, and are guided by the following definition:

...a business governed and/or managed with the intention to shape and pursue the vision of the business held by a dominant coalition controlled by members of the same family or a small number of families in a manner that is potentially sustainable across generations of the family or families (Chua, Chrisman, & Sharma, 1999).

We classify an "entrepreneurial team" as a firm started by a plurality of founders that are unrelated. In this study, teams are identified, and subsequently categorized, as being unrelated by blood or marriage so as to differentiate them from a family business. As such, we are guided by the following definition:

Two or more individuals who jointly establish a business in which they have an equity (financial) interest. These individuals are present during the prestart-up phase of the firm, before it actually begins making its goods or services available to the market (Kamm, Shuman, Seeger, & Nurick, 1990, p. 7).

A second set of questions probing the relationship of up to 10 owners was used to refine the enterprise type. Respondents were also asked to define their relationships of other owners (if any) in terms of: spouses, partners sharing a household, relatives, friends or acquaintances, strangers before joining the new business team, or as some other type of relationship. Respondents indicating founding relationships of "partner, friend, acquaintance, stranger, or other" were classified as teams, while those indicating relationships of "spouse" or "relative" were classified as a family business. Instances where the enterprise contained both team and family members were classified as a family business.

To establish enterprise type within our study, we created a 3-category variable: solo (1), family (2), team (3). When queried about firm ownership, survey respondents indicating “self only” were categorized as solo; those responding “self and spouse” were categorized as family; and “self and other” as a team. A second sequence of questions inquiring about firm owner relationships was also applied to determine enterprise type, with survey respondents specifying partner, friend, acquaintance, or stranger being categorized as a team. We took into account that the response item “partners sharing a household” may be interpreted two ways. If the item was understood by the respondent to indicate a romantic relationship, this response may indeed be construed to be family. Another interpretation of the response would be as business associates. As the data did not allow for a more detailed taxonomy of founders’ relationships, nor did it account for non-traditional family arrangements, we chose to classify these instances as teams. In addition, if the respondent indicated that the start-up is not owned by a person (e.g., it is owned by another firm), the case was excluded from analysis.

Data Manipulations

Our dependent variable, firm emergence, is calculated as a continuous emergence score that registers the number of founding activities conducted (i.e., how far a firm has “emerged”) at each measurement point over the study period. Start-up activities associated with the venture creation process are classified in this study according to the Katz and Gartner model (1988), which suggests that firm emergence can be identified by four properties: intentionality, resources, boundary, and exchange. The literature offers evidence that start-up activities may be, at least to some degree, self-reinforcing. A study that empirically tested the effect of these four Katz and Gartner properties on the likelihood of continued organizing found that all were necessary for firm survival in the near-term (Brush, Manolova, & Edelman, 2008). Using data from the PSED II, another study that examined the role of intentionality in new venture development found that marketing and business planning activities only create value when coupled with other activities, such as information acquisition with potential customers (Hopp, 2012). Lastly, an emphasis on the contribution of any one individual activity may also be of limited value, as activities may change over time (Jacobides & Winter, 2007) or decisions concerning start-up activities may result in changes to the vision of the firm (Lichtenstein, Dooley, & Lumpkin, 2006).

To calculate a firm emergence score, we first create and assign values to wave-specific activities, based on PSED II survey questions asking respond-

ents about start-up activities over the study period. All wave-specific activity variables included in the analysis are operationalized as dummy variables, and then coded such that firms were given points for having completed an activity, and penalized if there was an indication that an activity should be completed, but had not yet been achieved. The sum of these wave-specific activities is then loaded onto an activity score by wave. Each activity score represents the number of firm-founding activities completed by an individual start-up during one data collection period. Lastly, we compute firm emergence scores by adding the current wave-specific activity score to the previous wave-specific firm emergence score. Thus, each firm emergence score represents how far an individual start-up has progressed overall, in completing firm-founding activities.

Analytical Techniques Performed

The longitudinal model developed and analyzed in this paper utilized the MIXED procedure in SAS version 9. This SAS routine allows users to fit linear-mixed models with continuous outcomes, thereby enabling statistical inferences for fixed-effects and covariance parameters to be drawn. In this study, we develop a multi-level longitudinal model to describe the impact of household income on firm emergence over time (Heck, Thomas, & Tabata, 2014; Singer & Willet, 2003). At Level 1, each firm’s successive measurements over time are defined by an individual growth trajectory and random error. The subscript (i) describes individual firms and (t) refers to occasions of measurement. We assume the observed status Y_{it} , at time t for individual firm i is a function of firms’ systematic growth trajectory plus random error. The following is the Level 1 model used in this study:

$$Eq. 1 \quad Y_{it} = \pi_{0i} + \pi_{1i}a_{ti} + \pi_{2i}a_{ti}^2 + \varepsilon_{ti}$$

where a_{ti} represents the linear, and a_{ti}^2 the quadratic time-varying variables of interest. As we have coded the first repeated measure as 0, the intercept parameter (π_{0i}) indicates the firm’s emergence at the beginning of the study. π_{1i} and π_{2i} describe the linear and quadratic growth rates, respectively; and represent the predicted change in individual firm’s estimated emergence activity over the study period. The linear component (π_{1i}) describes the rate of change per unit of time and represents the growth rate in estimated emergence activity for each firm in the study. The quadratic component (π_{2i}) indicates the “change” in the rate of change in estimated emer-

gence activity. The intercept (π_{0i}) and slope coefficients (π_{1i} and π_{2i}) represent the model's fixed effects. ε_{ti} represents variation in estimating the projected emergence activity within individual firms. For Level 2, we formulate the following equations:

$$Eq. 2a \quad \pi_{0i} = \beta_{00} + \beta_{10}ZHHIncTotal + u_{0i}$$

$$Eq. 2b \quad \pi_{1i} = \beta_{10} + \beta_{11}ZHHIncTotal + u_{1i}$$

where u_{0i} and u_{1i} represent variation associated with estimating the intercept and slope parameters between individual firms. Our time-varying covariate household income ($ZHHIncTotal$) allows us to account for temporal variation that may increase (or decrease) the value of firm emergence predicted by the individual firm's growth trajectory. As untransformed polynomial components may be highly correlated (Heck et al., 2014), we transform the coded polynomial components so that they are orthogonal ($OrthTime$ and $OrthQuad$). In order to examine the related hypothesis regarding the Level 2 impact of household income on Level 1 firm emergence growth rates, we create a cross-level interaction term ($ZHHIncTotal * OrthTime$). The quadratic component is specified as fixed at Level 2 ($\pi_{2i} = \beta_{20}$). Substituting equation 1 with Equations 2a, 2b, and our fixed quadratic component and cross-level interaction term, we obtain the equation for examining the fixed and random components used in this study:

$$Eq. 3 \quad Y_{ti} = \beta_{00} + \beta_{01}ZHHIncTotal_i + \beta_{10}OrthTime_{ti} + \beta_{11}ZHHIncTotal_i * OrthTime_{ti} + \beta_{20}OrthQuad_{ti} + u_{1i}OrthTime_{ti} + u_{0i} + \varepsilon_{ti}$$

Results

Table 1 presents the firm emergence means for each enterprise type by measurement occasion. We note that n and the resultant means in this table present marginally different results than estimates in subsequent tables. As a general rule, SAS handles missing data by excluding omitted values. As such, observations with missing values are excluded from consideration when calculating means. However, when examining growth patterns, we use *PROC MIXED* with a Restricted Maximum Likelihood solution, which manages incomplete data when computing estimates. Note that the average firm emergence for the end of the first measurement period (i.e., Time 0) and for the last period (i.e., Time 2), indicates a considerable change over time for each of the enterprise types. Family firms have the highest average emergence overall, while solo firms exhibit the lowest average emergence.

Family firm emergence was the strongest of the three enterprise types in this study overall, and from the first to the second period logged growth of 1.73, and then slowed with an increase of 1.13 between the second to third measurement periods. Teams demonstrated nearly constant growth throughout the study, with 1.32 from the first to the second period and 1.19 between the second to third measurement periods. The significance of these findings will be examined in subsequent hypotheses.

Lastly, as is evident in Figure 2, we observe that firm emergence appears to exhibit a quadratic trend, particularly for solo firms. Table 1 suggests that each of the grand means of 3.37, 4.14, and 3.47 for solo, family, and team firms respectively, fall somewhere between the first and second measurement periods. Solo firms logged growth of 1.49 from the first to the second period, and nearly matched the team firm emergence performance in the first observation period. However, growth slowed to an increase of .88 between the second to third measurement periods.

Next, to explain the variability in the random parameters across individual firms, we consider the varying role that household income plays in firm emergence for different types of enterprises. The fixed effects are summarized in Table 2. The solo firms intercept (β_{00}), which is the solo firms' true grand-mean emergence adjusted for household income is 3.54 and significant ($p < .001$). As house-

Table 1. Firm Emergence Means by Measurement Occasion

Enterprise	Time	<i>n</i>	\bar{x}	Δ	Std.	Min	Max
Solo	0	283	2.45		2.25	-1.50	8.65
	1	174	3.94	1.49	2.81	-2.20	10.15
	2	130	4.82	.88	2.69	-2.00	10.35
	Total	587	3.37		2.69	-2.20	10.35
Family	0	151	3.13		2.41	-1.40	9.50
	1	85	4.86	1.73	2.83	-2.50	10.30
	2	50	5.99	1.13	2.64	-1.50	10.90
	Total	286	4.14		2.81	-2.50	10.90
Team	0	96	2.65		2.34	-1.50	8.25
	1	51	3.97	1.32	3.59	-2.80	9.25
	2	34	5.16	1.19	3.77	-1.90	10.25
	Total	181	3.47		3.17	-2.80	10.25

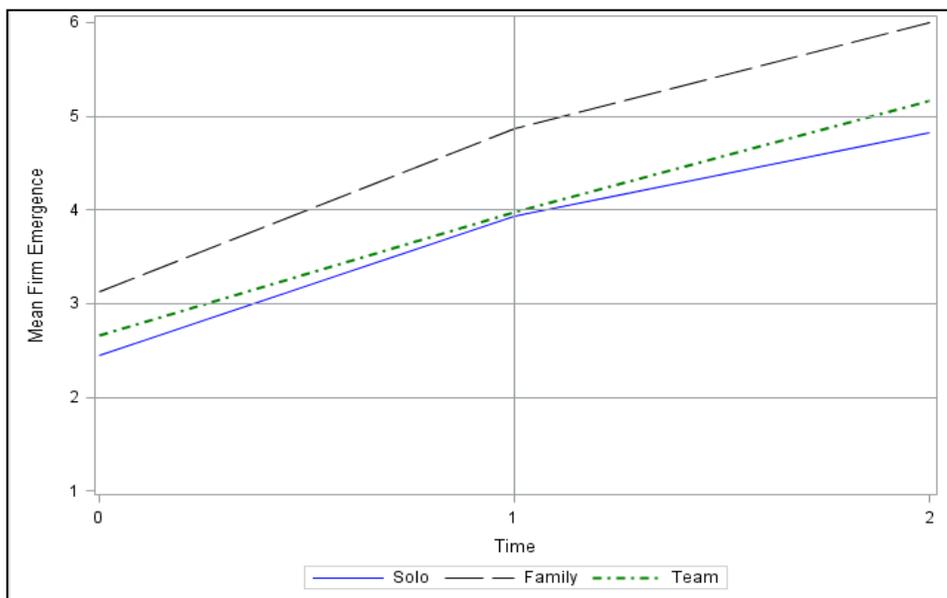


Figure 2. Firm Emergence by Enterprise Type

hold income is defined as a z-score in this model, this finding can be interpreted as the grand-mean firm emergence score for solo firms whose household income was 0.00. The family and team firms' intercepts are also significant ($p < .001$): 4.19 and 3.60, respectively.

Table 2. Estimates of Fixed Effects

Enterprise	Effect	Estimate	Std. Error	df	t
Solo (n = 295)	Intercept	3.5430***	0.1537	294	23.05
	ZHHIncTotal	0.1834***	0.05810	108	3.16
	OrtbTime	.9974***	0.07521	180	13.26
	OrtbQuad	-0.08404***	0.02298	108	-3.66
	ZHHIncTotal*OrtbTime	0.1202**	0.05962	108	2.02
Family (n = 156)	Intercept	4.1857***	0.2272	155	18.43
	ZHHIncTotal	0.5422***	0.1571	36	3.45
	OrtbTime	1.0225***	0.1391	90	7.35
	OrtbQuad	-0.1389***	0.03598	36	-3.86
	ZHHIncTotal*OrtbTime	0.1629***	0.1476	36	1.10
Team (n = 101)	Intercept	3.5901***	0.3307	100	10.86
	ZHHIncTotal	0.004637	0.1795	24	0.03
	OrtbTime	1.1833***	0.2080	52	5.69
	OrtbQuad	-0.05472	0.04361	24	-1.25
	ZHHIncTotal*OrtbTime	-0.2137	0.1422	24	-1.50

Dependent Variable: Firm Emergence. *** $p < .001$, ** $p < .05$

Our research question asks: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration? For solo and family firms, the coefficients for household income ($\beta_{01} = .18$ and $.54$, respectively) are related to firm emergence ($p < .001$). Therefore, we support Hypothesis 1. Solo firms with an interval (z-score) increase in household income can therefore expect an estimated firm emergence of 3.72, while family firms a firm emergence of 4.73. We also note that household income is a much stronger predictor of growth for family firms than for other enterprise types,

thus supporting Hypothesis 3. As household income is not a significant predictor ($p > .05$) in firm emergence for teams, we also support Hypothesis 4.

As part of our research, we are also attentive to the differences in firm emergence growth rates related to household income by start-up configuration. Across enterprise types, the average linear growth rate increases significantly over time ($p < .001$). Regarding variables that help explain the variability in firm emergence between individual firms, Table 2 demonstrates that the linear interaction term is only significant for solo firms ($\beta_{11} = .12$, $p < .05$) and family firms ($\beta_{11} = .16$, $p < .001$). Thus, we support Hypothesis 2. We also observe that the quadratic polynomial is significant ($p < .001$) for solo firms ($\beta_{20} = -0.08$), as well as for family firms ($\beta_{20} = -0.14$), indicating that firm emergence slows slightly over time for these two types of enterprises.

In Table 3, we note that the variation in the size of the within-individual growth parameter across individual firms is significant ($p < .001$) across enterprise types: Solo (Wald $Z = 5.46$), family (Wald $Z = 4.35$), and teams (Wald $Z = 3.58$). Consequently, we infer that emergence growth varies significantly across the population of individual firms across enterprise types. With the addition of household income, we see that there is still significant ($p < .001$) residual variance across enterprise type intercepts (Wald $Z = 10.75$, 7.50, and 6.18, respectively), as well as in slopes (Wald $Z = 5.46$, 4.35, 3.58, $p < .001$,

Table 3. Estimates of Covariance including Time Parameters

Enterprise Type	Parameter	Estimate	Std. Error	Wald Z	95% Confidence	
					Lower	Upper
Solo (n = 295)	Repeated Measures	0.3697***	0.04767	7.76	0.2915	0.4843
	Intercept + Time UN (1, 1)	6.1724***	0.5740	10.75	5.1855	7.4721
	UN (2, 1)	1.1096***	0.2112	5.25	0.6955	1.5236
	UN (2, 2)	0.6339***	0.1161	5.46	0.4561	0.9409
Family (n = 156)	Repeated Measures	0.3476***	0.07940	4.38	0.2325	0.5759
	Intercept + Time UN (1, 1)	6.5950***	0.8792	7.50	5.1616	8.7243
	UN (2, 1)	1.0354**	0.3605	2.87	0.3288	1.7419
	UN (2, 2)	1.0369***	0.2381	4.35	0.6922	1.7232
Team (n = 101)	Repeated Measures	0.3364**	0.1277	2.63	0.1799	0.8405
	Intercept + Time UN (1, 1)	8.9140***	1.4428	6.18	6.6459	12.5859
	UN (2, 1)	2.3133***	0.6594	3.51	1.0210	3.6056
	UN (2, 2)	1.7508***	0.4884	3.58	1.0831	3.3023

Dependent Variable: Firm Emergence. *** $p < .001$, ** $p < .05$

respectively) left to be explained. The covariances between the intercepts and slopes (Wald $Z = 5.25, 2.87, 3.51$, respectively) were positive and also significant for solo and team firms ($p < .001$), as well as for family firms ($p < .05$).

Discussion

Our study helps to contribute to an increasing scholarly interest in research that lies at the juncture of literature that explores antecedents to firm emergence and that which examines the differences of heterogeneous start-up configurations. Our research question asks: *Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?*

To answer this question, we established three objectives for this study. First, we endeavored to draw attention to the significant differences in influence of household income on firm emergence between start-up configurations. Second, we sought to utilize the Katz and Gartner model (1988), which suggests that firm emergence can be identified by four properties. Our intention in using this model was to offer a theoretical rationale for choosing the start-up activities nascent entrepreneurs initiated and completed. Our final objective was to detail those start-up configuration characteristics that are likely to benefit or hinder firm emergence, and propose underlying causal factors for the temporal patterns discovered during our study. The four main properties from our study include:

- Household income can be used to significantly predict the completion of start-up activities (i.e., firm emergence) for solo and family firms (Hypothesis 1).
- Of these two start-up configurations where household income can be used to help forecast firm emergence, income plays a more significant role in emergence among family firms (Hypothesis 3).
- Household income is not useful in helping to estimate emergence for team-based start-ups (Hypothesis 4).
- Household income can be used to project family and solo firm emergence *growth rates* (the change in the completion of start-up activities for firms over the study period—Hypothesis 2).

Results from our study reinforce the extant literature, which cites the benefits of starting a firm with a plurality of founding members, finding that multi-member start-ups complete a greater number of start-up activities over the observation period. The existing literature on the role that household income plays in the growth of a firm offers more nuance, with some researchers arguing for the importance of personal resources in financing start-ups, while others claiming that under particular circumstances wealth does not substantially impact the ability of

prospective entrepreneurs to launch a firm. Our study broadens and extends these two streams of literature to offer additional insights into the firm emergence process by focusing on the impact of household income on firm emergence when viewed through a start-up lens.

To help answer our research question, we have developed a series of suppositions and constructed a multi-level longitudinal model to describe the impact of household income on firm emergence over time. Our first hypothesis, which put forth that household income will have a significant impact on average firm emergence for one-person and family firms, was supported and reflects much of the extant literature noting the importance of personal resources in launching a firm. We proposed that both solo entrepreneurs and family firms are less likely to have well-developed professional networks that would offer a rich set of financing alternatives. As an alternative, these enterprise types are more likely to rely on a restricted array of financing options, namely, personal resources and debt financing from extended family friends. We also found support for Hypothesis 3, which purported that household income would play an especially significant role in the average firm emergence within family firms. Family firms demonstrated the most robust average emergence of the three enterprise types in this study. We believe that this finding offers a meaningful contribution to the literature, as we theorize that family dynamics, which may include high levels of trust, altruism, shared values and understandings, as well as the greater dependence on financial intermingling within family firms would cause household income to be of great consequence in founding a firm. We also found support for Hypothesis 2, which proposed that household income will have a meaningful impact on firm emergence growth rates for both family and solo firms. In other words, a proportion of the differences in firm development that we observe for various start-up configurations can be accounted for by household income. Thus, for these types of enterprises, firms whose founders have higher income levels emerge further over time compared to their counterparts at the household income grand mean.

Furthermore, we found support for Hypothesis 4, which proposed that firms founded by a plurality of unrelated members were more likely to have well-developed professional networks and greater access to a selection of attractive financing options than is available to other start-up configurations, and would therefore rely less on household income. The advantages of start-up teams over solo entrepreneurs are widely documented in the literature, noting that start-ups with a plurality of founding members outperform start-ups founded by individual entrepreneurs

on a host of factors. Yet, the tempo at which a firm emerges is more complex than can be explained by simply having a greater number of founding members. Our study suggests that a plurality of unrelated founders may provide greater advantages in the form of a more stable platform on which to launch a start-up. Our findings indicate that teams appear to emerge in a more consistent manner than other enterprise types. We observe that solo and family firms exhibit a quadratic emergence growth trend, with a pronounced slowing in the rate of change in estimated emergence activity over time. On the other hand, teams exhibited nearly constant growth throughout the study, with no appreciable slowing in growth throughout the study period.

Limitations and Future Research

Although the research methodology and the PSED II data utilized in this study offer a solid foundation on which to examine firm emergence, our study is subject to certain limitations. In this study, our objective was primarily to assess the differing effect of household income on average firm emergence and on emergence growth rates of heterogeneous start-up configurations. We observe that significant residual variance in the average emergence levels, as well as in the rates of emergence growth across all enterprise types, remains unexplained. This suggests that other variables may impact how far and how quickly a firm emerges. For example, in addition to household income, researchers may consider looking more closely at variables that offer a more holistic perspective on personal finances, such as net worth. Net worth may be a more significant personal resource for financing a start-up than household income as assets can be divested or used to secure loans (Kim et al., 2004). As a result, future analyses would benefit by identifying other personal resource-related variables that help explain the remaining residual variance.

We have given careful attention to organization and industry contexts within our study. As a result, only start-ups involved in consumer-oriented industries were included in the analysis to help control for industry variability. Yet, our consideration of service-oriented and product-oriented start-ups in aggregate, as part of the larger consumer-oriented industries category, may obscure issues regarding differing financial needs. As a result, it may be the case that service-oriented and product-oriented start-ups emerge at different rates, because they require different levels of initial financing. Future research should further tease out these distinctions to determine if they impact firm emergence and help to explain a portion of the residual variance that we observe. In excluding firms whose founders indicated initial household incomes

greater than \$150,000, we have reduced the richness of our dataset, as one reviewer correctly noted. As a result, we believe that future research should analyze heterogeneous start-up configurations whose founders have outside initial incomes separately, as research indicates that these founders have a greater likelihood of becoming entrepreneurs. In addition, data limitations have inhibited a full consideration of every factor that may impact firm emergence. In this investigation, we have not measured the difficulty in executing

the founders' business ideas. The founding of businesses based upon radical product innovations or within highly uncertain environments may impose greater demands in terms of time and effort than for firms not confronting such challenging conditions (Nuñez, 2012; Nuñez & Lynn, 2007), and may require the completion of start-up activities not encompassed within the PSED II data.

End Note

1. Our research concerns the complex role that household income plays in firm emergence. We include literature on the impact of personal financial resources (including wealth) on start-up activity to offer a broader context for our specific analysis. We thank reviewers for encouraging us to clarify this point.

References

- Barney, J. B., & Hansen, M. H. (1994). Trustworthiness as a source of competitive advantage. *Strategic Management Journal*, Vol. 15, pp. 175–190.
- Bastié, F., Cieply, S., & Cussy, P. (2013). The entrepreneur's mode of entry: The effect of social and financial capital. *Small Business Economics*, Vol. 40 No. 4, pp. 865–877.
- Batjargal, B. (2003). Social capital and entrepreneurial performance in Russia: A longitudinal study. *Organization Studies*, Vol. 24, pp. 535–556.
- Beard, D., & Dess, G. G. (1979). Industry profitability and firm performance: A preliminary analysis of the business portfolio question. *Academy of Management Proceedings*, pp. 123–127.
- Beard, D., & Dess, G. G. (1981). Corporate-level strategy, business-level strategy, and firm performance. *Academy of Management Journal*, Vol. 25, pp. 663–688.
- Bhide, A.V. (2000). *The Origin and Evolution of New Businesses*, Oxford Press, New York, NY.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, Vol. 1, pp. 107–117.
- Blanchflower, D.G., & Oswald, A.J. (1998). What Makes an Entrepreneur? *Journal of Labor Economics*, Vol. 16 No. 1, pp.26–60.
- Blumberg, B. F., & Letterie, W. A. (2008). Business starters and credit rationing. *Small Business Economics*, Vol. 30 No. 2, pp. 187–200.
- Boden, R. J. (1996). Gender and Self-Employment Selection: An Empirical Assessment. *Journal of Socio-Economics*, Vol. 25 No. 6, pp. 671–682.
- Boden, R. J., & Nucci, A. R. (2000). On survival prospects of men's and women's new business ventures. *Journal of Business Venturing*, Vol. 15 No. 4, pp. 347–362.
- Brush, C.G., Greene, P.G., & Hart, M.M., (2001). From initial idea to unique advantage: the entrepreneurial challenge of constructing a resource base. *Academy of Management Executive*, Vol. 15 No. 1, pp. 64–78.
- Brush, C.G., Manolova, T. S., & Edelman, L. F. (2008). Properties of emerging organizations: An empirical test. *Journal of Business Venturing*, Vol. 23, pp. 547–566.
- Cabrera-Suarez, K., De Saa-Perez, P., & Garcia-Almeida, D. (2001). The succession process from a resource- and knowledge-based view of the firm. *Family Business Review*, Vol. 14 No. 1, pp. 37–47.
- Carr, D. (1996). Two Paths to Self-Employment? Women's and Men's Self-Employment in the United States, 1980. *Work and Occupations*, Vol. 23 No. 1, pp. 26–53.
- Carter, N. M., Gartner, W. B., & Reynolds, P. D. (2004). Firm founding", in: Gartner, W.B., Shaver, K.G., Carter, N.M., & Reynolds, P.D. (Eds.). *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*. Sage, Newbury Park, CA, pp. 311–323.
- Cassar, G. (2004). The financing of business start-ups", *Journal of Business Venturing*, Vol. 19 No. 2, pp. 261–283.
- Chua, J. H., Chrisman, J. J., Kellermanns, F., & Wu, Z. (2011). Family involvement and new venture debt financing. *Journal of Business Venturing*, Vol. 26 No. 4, pp. 472–488.
- Chua, J. H., Chrisman, J. J., & Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship Theory & Practice*, Vol. 23 No. 4, pp. 19–39.
- Colombo, M. G. & Grilli, L. (2005). Start-up size: The role of external financing. *Economics Letters*, Vol. 88 No. 2, pp. 243–250.

- Cooper, A. C., Gimeno-Gascon, F. J. & Woo, C. Y. (1994). Initial human and financial capital as predictors of venture performance. *Journal of Business Venturing*, Vol. 9, pp. 371–395.
- Cressy, R. (1996). Pre-entrepreneurial Income, Cash-flow Growth and Survival of Startup Businesses: Model and Tests on U.K. Data. *Small Business Economics*, Vol. 8.
- Curtin, R. & Reynolds, P. D. (2004). Appendix B: Data documentation, data preparation and weights in Gartner, W. B., Shaver, K. G., Carter, N. M., & Reynolds, P. D. (Eds.), *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*. Sage, Newbury Park, CA, pp. 477–494.
- Davidsson, P. & Gordan, S. R. (2012). Panel studies of new venture creation: a methods-focused review and suggestions for future research. *Small Business Economics*, Vol. 39, pp. 853–876.
- Davis, J. H., Allen, M. R., & Hayes, H. D. (2010). Is blood thicker than water? A study of stewardship perceptions in family business. *Entrepreneurship Theory & Practice*, Vol. 34 No. 6, pp. 1093–1116.
- Demiralp, B., & Francis, J. L. (2013). Wealth, human capital and the transition to self-employment. *Eastern Economic Journal*, Vol. 39 No. 1, pp. 72–92.
- Dess, G. G., Ireland, R. D., & Hitt, M. A. (1990). Industry Effects and Strategic Management Research. *Journal of Management*, Vol. 16 No. 1, pp. 7–27.
- Dunn, T. & Holtz-Eakin, D. (2000). Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links. *Journal of Labor Economics*, Vol. 18 No. 2, pp. 282–305.
- Ebben, J., & Johnson, A. (2006). Bootstrapping in small firms: An empirical analysis of change over time. *Journal of Business Venturing*, Vol. 21 No. 6, pp. 851–865.
- Evans, D. S., & Jovanovic, B. (1989). An Estimated Model of Entrepreneurial Choice under Liquidity Constraints. *Journal of Political Economy*, Vol. 97 No. 4, p. 808.
- Evans, D. S., & Leighton, L. S. (1989). Some Empirical Aspects of Entrepreneurship. *The American Economic Review*, Vol. 79 No. 3, p. 519.
- Gartner, W. B., Frid, C. J., & Alexander, J. C. (2012). Financing the emerging firm. *Small Business Economics*, Vol. 39 No. 3, pp. 745–761.
- Georgellis, Y., Sessions, J. G., & Tsitsianis, N. (2005). Windfalls, wealth, and the transition to self-employment. *Small Business Economics*, Vol. 25 No. 5, p. 407.
- Global Entrepreneurship Monitor. (2012). *National Entrepreneurial Assessment for the United States of America*. Available at: www.gemconsortium.org (accessed 6 May 2014).
- Granovetter, M. (1974). *Getting a job: A study of contacts and careers*, Harvard University Press Cambridge, MA.
- Habbershon, T. G. & Williams, M. L. (1999). A Resource-Based Framework for Assessing the Strategic Advantages of Family Firms. *Family Business Review*, Vol. 12 No. 1.
- Habbershon, T. G., Williams, M. L. & MacMillan, C. I. (2003). A unified systems perspective of family firm performance. *Journal of Business Venturing*, Vol. 18, pp. 451–65.
- Heck, R. H., Thomas, S. L. & Tabata, L. N. (2014). *Multilevel and Longitudinal Modeling with IBM SPSS, Second Edition*. Routledge, New York, NY.
- Hopp, C. (2012). The acquisition and utilization of market information in new venture development and the contingent nature of new venture organizing activities. *Journal of Strategic Marketing*, Vol. 20 No. 6, pp. 553–567.
- Howorth, C., Rose, M., Hamilton, E., & Westhead, P. (2010). Family firm diversity and development. *International Small Business Journal*, Vol. 28 No. 5, pp. 1–15.
- Hurst, E., & Lusardi, A. (2004). Liquidity constraints, household wealth, and entrepreneurship. *The Journal of Political Economy*, Vol. 112 No. 2, pp. 319–347.
- Hvide H. K., & Møen, J. (2010). Lean and Hungry or Fat and Content? Entrepreneurs' Wealth and Start-Up Performance. *Management Science*, Vol. 56 No. 8, pp. 1242–1258.
- Iacobucci, D., & Rosa, P. (2010). The growth of business groups by habitual entrepreneurs: The role of entrepreneurial teams. *Entrepreneurship Theory & Practice*, Vol. 34 No. 2, pp. 351–377.
- Jacobides, M. G., & Winter, S. G. (2007). Entrepreneurship and Firm Boundaries: The Theory of a Firm. *Journal of Management Studies*, Vol. 44 No. 7.
- Kamm, J. B., Shuman, J. C., Seeger, J. A., & Nurick, A. J. (1990). Entrepreneurial Teams in New Venture Creation: A Research Agenda. *Entrepreneurship Theory & Practice*, Vol. 14 No. 4, pp. 7–17.
- Katz, J., & Gartner, W. B. (1988). Properties of emerging organizations. *Academy of Management Review*, Vol. 13 No. 3, pp. 429–442.

- Kim, P. H., Aldrich, H. E., & Keister, L. A. (2004). Household Income and Net Worth in Gartner, W. B., Shaver, K. G., Carter, N. M., & Reynolds, P. D. (Eds.). *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*. Sage Series, Newbury Park, CA, pp. 49–61.
- Korunka, C., Kessler, A., Frank, H., & Lueger, M. (2011). Conditions for growth in one-person startups: A longitudinal study spanning eight years. *Psicothema*, Vol. 23 No. 3.
- Kreiser, P. M., Patel, P. C. & Fiet, J. O. (2013). The Influence of Changes in Social Capital on Firm-Founding Activities. *Entrepreneurship Theory & Practice*, May.
- Lee, C., Lee, K., & Pennings, J. M. (2001). Internal Capabilities, External Networks, and Performance: A Study on Technology-Based Ventures. *Strategic Management Journal*, Vol. 6/7, p. 615.
- Lichtenstein, B. B., Dooley, K. J. & Lumpkin, G. T. (2006). Measuring emergence in the dynamics of new venture creation. *Journal of Business Venturing*, Vol. 21.
- Lieberson, S., & O'Connor, J. (1972). Leadership and organizational performance: A study of large corporations. *American Sociological Review*, Vol 37, pp. 117–130.
- McEvily, B. & Zaheer, A. (1999). Bridging ties: A source of firm heterogeneity in competitive capabilities. *Strategic Management Journal*, Vol. 20, pp. 1133–1156.
- Mosakowski, E. (1998). Entrepreneurial resources, organizational choices, and competitive outcomes. *Organization Science*, Vol. 9 No. 6, pp. 625–643.
- Muske, G., Fitzgerald, M. A., Haynes, G., Black, M., Chin, L., MacClure, R., & Mashburn, A. (2009). The Intermingling of Family and Business Financial Resources: Understanding Copreneurial Couple. *Journal of Financial Counseling and Planning*, Vol. 20 No. 2.
- Nofsinger, J. & Wang, W. (2011). Determinants of start-up firm external financing worldwide. *Journal of Banking & Finance*, Vol. 35 No. 9, pp. 2282–2294.
- Núñez, E. (2012). Radical and Incremental Innovation in Marvel, M. R. (Ed.). *Encyclopedia of New Venture Management*, Sage Reference, Thousand Oaks, CA.
- Núñez, E. (2015). The Temporal Dynamics of Firm Emergence by Team Composition – Examining Top-Performing Solo, Family, and Team-Based Startups. *Journal of Applied Management and Entrepreneurship*, Vol. 20 No. 2, pp. 65–92.
- Núñez, E., & Lynn, G. (2007). Entrepreneurial Environments Call for Novel Approaches to New Product Development. *Business Journal for Entrepreneurs*, Vol. 1 No. 1.
- Pearson, A. W., Carr, J. C. & Shaw, J. C. (2008). Toward a theory of familiness: A social capital perspective. *Entrepreneurship Theory & Practice*, Vol. 32, pp. 949–969.
- Petrova, K. (2012). Part-time entrepreneurship and financial constraints: evidence from the Panel Study of Entrepreneurial Dynamics. *Small Business Economics*, Vol. 39.
- Pleck, J. H., Staines, G. L., & Lang, L. (1980). Conflicts between work and family life. *Monthly Labor Review*, March, pp. 29–32.
- Powell, G. N., & Greenhaus, J. H. (2010). Sex, gender, and decisions at the family–work interface. *Journal of Management*, Vol. 36 No. 4, pp. 1011–1039.
- Poza, E. & Messer, T. (2001). Spousal leadership and continuity in the family firm. *Family Business Review*, Vol. 14 No. 1, pp. 25–36.
- Sanyal, P., & Mann, C. L. (2010). The Financial Structure of Startup Firms: The Role of Assets, Information, and Entrepreneur Characteristics. *Research Review*, pp. 35–37.
- Singer, J. D., & Willet, J. B. (2003). *Applied Longitudinal Data Analysis, Modeling Change and Event Occurrence*, Oxford University Press, New York, NY.
- Stafford, K., Duncan, K. A., Danes, S., & Winter, M. (1999). A research model of sustainable family businesses. *Family Business Review*, Vol. 12 No. 3, pp. 197–208.
- Stuart, T. E., Hoang, H., & Hybels, R. C. (1999). Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative Science Quarterly*. Vol. 44.
- Van Osnabrugge, M., & Robinson, R. J. (2000). *Angel investing: matching start-up funds with start-up companies: the guide for entrepreneurs, individual investors, and venture capitalist*, Jossey-Bass, San Francisco, CA.
- Vesper, K. H. (1990). *New venture strategies*, Prentice-Hall, Englewood Cliffs, NJ.
- Winborg, J. (2009). Use of financial bootstrapping in new businesses: a question of last resort? *Venture Capital*, Vol. 11 No. 1, pp. 71–83.
- Winborg, J., & Landstrom, H. (2001). Financial bootstrapping in small businesses: examining small business managers' resource acquisition behaviors. *Journal of Business Venturing*, Vol. 16, pp. 235–254.

About the Author



ENRIQUE NUÑEZ (enrique_d_nunez@hotmail.com) is an award-winning teacher, scholar, inventor, and entrepreneur. As an Associate Professor of Management in the Anisfield School of Business at Ramapo College, Dr. Nuñez teaches popular courses in family business, entrepreneurship, strategy, leadership, and managing organizational behavior, and he conducts research on innovation and entrepreneurship.