SYMBIOSIS OR COMPETITION? THE INTER-POPULATION DYNAMICS BETWEEN SOCIAL AND COMMERCIAL VENTURES

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**Recommended Citation**

Available at: http://digitalknowledge.babson.edu/fer/vol32/iss19/2
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THE INTER-POPULATION DYNAMICS BETWEEN SOCIAL AND COMMERCIAL VENTURES

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ABSTRACT

This study takes a population ecology perspective to uncover the influence that social venture creation exerts on commercial venture creation. Data from 88 Ohio counties during 2003-2007 uncovered a negative relationship suggesting that social ventures compete for resources with commercial ventures at the time of founding. Additionally, we found that government spending and income levels in the county affected not only the creation rates in each population, but also the inter-population dynamics. Specifically, lower income levels lowered commercial start-up rates while also exacerbating the competitive relationship between social and commercial ventures. Low levels of government spending were also found to suppress commercial start-up rates.

INTRODUCTION

Publications with a focus on social entrepreneurship have increased significantly in recent years, especially in entrepreneurship and management outlets (Short, Moss, & Lumpkin, 2009). Organizations such as Ashoka and the Skoll foundation have fueled and rewarded the creation of social ventures. The prevalence of social entrepreneurship is such that some claim that we are moving toward a new paradigm (Nicholls, 2010). Among the many topics addressed in this area, investigations of the relationship between commercial and social ventures remain scarce. In this study, we specifically address the dynamics between commercial and social venture creation rates, regardless of the possible collaboration between them. Following an ecological perspective (Aldrich, 1990; Hannan & Freeman, 1977), we investigate whether the creation of social ventures enhances or undermines the creation of commercial ventures.

Proponents of population ecology have encouraged the study of organizational founding rates in entrepreneurship, since it provides a different lens for investigating the dynamics of organizational creation. Population ecology explains that the environment is composed of different organizational populations. A population is defined as a group of organizations that share similar characteristics and utilize similar sets of resources (Hannan & Freeman, 1977). The founding rates of each organizational population are influenced by three ecological processes— intra-population, inter-population, and institutional (Aldrich, 1990). In this study, we focus on inter-population processes by examining the dynamics between two organizational populations, namely commercial and social ventures. The population of commercial ventures is composed of organizations that seek primarily economic gains. The population of social ventures is composed of organizations created to meet social needs or to exploit opportunities for social value creation (Lumpkin, Moss, Gras, Kato & Amezgua, 2011). Social ventures can be created under different legal forms including non-profit, for-profit and hybrid structures. For the purpose of the present study, we focus on the population of nonprofit social ventures.
In this study, we view entrepreneurship as the “creation of new organizations (Gartner, 1989, p. 62);” as such, we only examine the rates of successful venture creation for both social and commercial organizations. We propose that social and commercial ventures compete for similar resources at the time of founding, regardless of their ultimate goal. That is creating social ventures may absorb resources necessary for the creation of commercial ventures, thus undermining their start-up rates. We also propose that, in favorable environments characterized by efficient governments and high income levels, the competitive relationship between the two populations will be attenuated.

Following population ecology findings that stronger effects are found at local rather than diffuse geographical locations (e.g. Baum & Oliver, 1996), we perform our empirical test at the county-level. Our data consists of a panel of all 88 counties in the state of Ohio that covers the period from 2003 to 2007. We built the dataset from a variety of secondary sources such as the Ohio Department of Development and the Internal Revenue Service, among others. We employed econometric techniques to account for the panel nature of the data. The present study contributes to the population ecology literature by uncovering not only the inter-population dynamics between social and commercial ventures, but also the conditions under which such dynamics change. The findings also contribute to the social entrepreneurship literature by showing that nonprofit social ventures, though beneficial for society, may not be as beneficial for commercial venture creation. Finally, the results also inform the new venture creation literature by demonstrating that the creation rates of other organizational populations are antecedents of new venture creation rates.

**COMMERCIAL AND SOCIAL VENTURE CREATION: AN ECOLOGICAL PERSPECTIVE**

“The population-ecology perspective seeks to understand how environmental conditions and interactions within and between populations shape the diversity of organizations in society (Hannan & Freeman, 1987, p. 912).” Proponents of population ecology have emphasized the use founding rates to understand the evolution of different organizational forms. This perspective uses the population of organizations as the unit of analysis, as opposed to the individual firm, because looking at founding rates within populations is a good way to account for the evolution and diversity of the organizations of interest. Population ecologists also consider longer time frames than organizational- and individual-level perspectives on organizational creation, since the evolution of organizations is better appreciated in the long-term. Thus, population ecology is an appropriate lens for studying the evolution of commercial and social organizational populations. With the increasing attention given to social entrepreneurship in research and practice, it is timely to study the speed at which social organizations are evolving and the effect of their evolution on other organizational forms.

Rooted in sociology, population ecology seeks to understand social change from an angle that analyzes the addition of new actors and the demise of old ones (Hannan & Freeman, 1987). Aldrich (1990) strongly advocated the use of a population ecology perspective in entrepreneurship research as a way to uncover interesting organizational founding phenomena that cannot be devised by looking at individual entrepreneurs or organizations. He states that this perspective is “inherently dynamic in focus, emphasizes the many scales at which social action occurs, and leads to interesting research hypotheses (p. 8).” Population ecology is particularly relevant in entrepreneurship research, which has long been concerned with the creation of new ventures as evidence of successful entrepreneurship (Baum & Singh, 1994; Tucker, Singh & Meinhard, 1990).
Organizational Populations and Carrying Capacities

The main idea of the ecological perspective is that the environment has finite resources for which organizations compete. Consequently, there exists an environmental carrying capacity which sets a limit on the size of organizational populations, also known as population density (Hannan & Freeman, 1989). Though finite, environmental carrying capacities are not fixed since they respond to a variety of exogenous factors. For example, increasing demand for environmentally friendly products has increased the carrying capacity for organizational populations related to the production and sales of such products. Previous studies taking a population ecology approach have accounted for changes in carrying capacities caused by exogenous shocks, by controlling for the historical time period in which foundings for a population happen (e.g. Tucker et al., 1990; Hannan & Freeman, 1989). As mentioned above, the individual organization is not the unit of analysis for studying founding rates, since these are better devised at the population-level. An organizational population consists of a group of organizations that share similar characteristics and compete for the same resources (Hannan & Freeman, 1989).

In the present study, we focus on the dynamics between two organizational populations: commercial and social ventures. The population of commercial ventures consists of those organizations that engage in profitable operations with the purpose of generating private gains (Austin, Stevenson & Wei-Skillern, 2006). Commercial ventures are generally created based on self-focused desires such as wealth accumulation or self-employment, whereas social ventures are created based on collective-focused aspirations such as wealth giving or community development (Lumpkin et al., 2011, p. 4). Though, it has been argued that commercial ventures also provide collateral social value (Schramm, 2010), their main goal is to produce economic gains. In contrast, the population of social ventures is comprised of those organizations that are created for the fulfillment of a social mission (Zahra, Gedajlovic, Neubaum & Shulman, 2009). In other words, social ventures are created to exploit opportunities for social value creation. Lumpkin and colleagues (2011) explain that social value creation, though subjective and difficult to measure, has some underlying characteristics that differentiate it from purely economic value creation. First, they emphasize that social value creation is a positive externality since it does not accrue directly to the entrepreneur or stockholders. Additionally, social value creation is a deliberately generated outcome.

Social ventures can be created under different legal forms (Townsend & Hart, 2008) or structures including nonprofit and for-profit forms, and hybrid, joint ventures, or subsidiary structures (Kistruck & Beamish, 2010). For our study, we based our choice of the population of social ventures on their legal form. As mentioned above, we focus exclusively on the population of nonprofit social ventures. These organizations possess all the characteristics of social ventures as they are created to address a variety of social needs, while sharing the same legal form. We expect, however, that our subsequent predictions regarding the effect of social venture foundings will hold or even become more pervasive if all social ventures where included in the population regardless of their legal form.

**INTER-POPULATION PROCESSES BETWEEN SOCIAL AND COMMERCIAL VENTURES**

Paarlberg and Varda (2009) explain that the community carrying capacity of each population is not only determined by the resources available in the community, but it is also affected by the interrelationships among populations. Inter-population processes refer to those interrelationships among different organizational populations that modify carrying capacity, thus affecting organizational founding rates. Researchers taking a population ecology perspective have
mainly focused on competitive relationships between populations (Aldrich, 1990, p. 16). That is, their main interest has been on how one population diminished founding rates or increased disbanding of another population. A few studies, however, have found positive inter-population effects, in which increased foundings in one population help increase foundings in the other (e.g. Audia et al., 2006). Due to the diversity of organizational populations, the relationship between populations will vary depending on the populations being studied. Based on previous findings, Aldrich (1990) summarizes six possible inter-population relationships. The first type is called full competition and refers to populations negatively affecting each other’s founding rates. The second is known as partial competition, since the increase in foundings in population A negatively affects foundings of population B, but foundings in population B do not have an effect on population A. The third type is called predatory competition and refers to a situation in which population A has a positive effect on the founding rate of population B, but population B poses a negative effect on population A’s founding rate. A fourth process, known as neutrality, refers to populations who co-exist in the environment without affecting each other. The fifth process is commensalism and happens when population A has a positive effect on population B, but population B has no effect on population A. The last type of inter-population relationship is known as symbiosis and it occurs when both populations benefit each other.

Symbiosis or commensalism occurs based on supplementary similarities or complementary differences (Hawley, 1950). Supplementary similarities happen, for instance, when two organizational populations enhance each other’s legitimacy. Alternatively, foundings in one population may signal that the time is ripe for organizational creation in general, leading to an increase in foundings on other related populations (Hannan & Freeman, 1987). Thus, the increase in founding rates in one population increases the legitimacy of the other, which in turn, leads to increased founding rates. Complementary differences happen when organizational populations have different capabilities that are beneficial for the other. For example, cable providers and manufacturers of television sets may complement each other. Competition usually happens due to resources and demand overlap between populations. As such, new organizational foundings in one population may exhaust resource mobilization of resources available to both populations, which would lead to a decrease in subsequent foundings (Hannan & Freeman, 1987).

The Impact of Social Venture Creation on Commercial Venture Creation

In this study, we examine the inter-relationships between the population of social ventures and the population of commercial ventures. In the interest of parsimony, however, we only examine such dynamics from the perspective of social ventures. In other words, we only investigate the effect of social venture creation rates on commercial venture creation rates, but we do not look at the effect of commercial venture creation rates on social venture creation. We acknowledge this as a limitation of our study that could be addressed in future research. We call a negative effect of social venture creation rates on commercial ones competition, and the positive relationship symbiosis. Depending on the effect that commercial ventures exert on social ventures, competition may be of any of the types explained above, and symbiosis may be a commensalism relationship instead.

Extant research seems to imply that the creation of social ventures would enhance the creation of commercial ventures. For instance, it has been argued that explicit cross-sector collaborations have the ability to reconcile the efficient functioning of markets with the wellbeing of communities (Domenico, Tracey & Haugh, 2009). Thus, by working together, commercial and social ventures can improve the community and the economy, which in turn, may lead to more commercial venture creation. Other studies have found that the creation of community-led social ventures helped communities at exploiting their resources more effectively; this, in turn, provided
local entrepreneurs with the skills necessary to start a business, which resulted in the creation of commercial ventures (Peredo & Chrisman, 2006). It could also be argued that the populations of social and commercial ventures are not overlapping since social ventures address social needs that commercial ventures (and the government) have failed to address (Meyskens, Carsrud & Cardozo, 2010). Furthermore, previous findings suggest that social ventures create complementary demand for commercial ventures, since they free up demand and resources by addressing social needs. When organizations are not overlapping and complement each other in such ways, the degree of mutualism or symbiosis increases (Baum & Singh, 1994).

Consistent with the above contentions, a recent study (Estrin, Mickiewicz, & Stephan 2011) found that countries that had higher levels of social entrepreneurial activity also had high levels of commercial entrepreneurial activity. The authors argue that social entrepreneurship creates the social capital necessary for establishing commercial ventures. Though their findings and theoretical explanation may suggest a symbiotic relationship, the fact that the study compared the two types of entrepreneurial activity at one point in time suggests that entrepreneurial activity in general, was more prevalent because of each country’s carrying capacity. That is, countries that possessed more resources had higher levels of both social and commercial entrepreneurial activity.

In summary, some studies suggest a symbiotic relationship between our populations of interest, because, by addressing persistent social needs, social ventures create better environments in which commercial ventures can thrive. Though this may hold in the long term, when communities have capitalized on the benefits provided by social ventures, we propose that at the time of founding, these benefits may not accrue and the two populations may compete for resources instead. For instance, if a social venture is created at time t, it may take resources away from a commercial venture that could be formed at time t+1. We are not implying that a one to one relationship in terms of the resources mobilized exists, but we are proposing that there is a degree of overlap in the resources required for the creation of social and commercial ventures. Population ecology, in fact, holds that competition among organizational populations is based on similarities of resource requirements (Hannan & Freeman, 1989). Populations that have greater resource overlap, also have greater potential for competition.

There are a number of reasons to believe that foundings in the population of social ventures exhausts resources necessary for the creation of commercial ventures. Previous research investigating cross-sector ecological dynamics has suggested that nonprofit status acts as a distinctive competitive advantage for the acquisition of resources and community support (Baum & Oliver, 1996). Therefore, nonprofit social venture start-ups may prevail over their commercial counterparts. This phenomenon is exacerbated by the recent trend of pushing nonprofit organizations to engage in commercial activity to fund their social mission. Nonprofits that traditionally relied on philanthropic donations and grants are adding commercial activities that are not related to their overarching mission; this situation places them in direct competition with commercial organizations. In terms of resources necessary for organizational creation, social and commercial ventures may experience overlap mainly in financial and human capital. Traditional sources of financial capital for social ventures include donations, government and foundation grants, and corporate sponsorships (Dees, 1998). At first sight, social and commercial organizations should not have to compete for financial capital, since the funding sources mentioned are not applicable to commercial organizations. However, the financial capital fueled into the nonprofit social sector could have been used for funding commercial organizations. This is a form of diffuse competition since the links between the two populations’ resource requirements are not apparent. For example, a corporation could use their money to fund their own corporate entrepreneurial venture instead of providing sponsorship for a social venture.
Competition for human capital is also a form of diffuse competition, since founding entrepreneurs for both types of organizations possess similar characteristics. Previous research on social ventures has emphasized that, similar to commercial entrepreneurs, social entrepreneurs need the entrepreneurial and business skills necessary for successful venture creation (Haugh, 2007; Peredo & Chrisman, 2006). Oftentimes, when an entrepreneur decides to form a social venture, one entrepreneur is taken away from the pool of entrepreneurs that could form a commercial venture. Human capital also refers to potential employees that both populations wish to attract. For instance, both types of organizations may seek college graduates for their managerial positions, thus competing with each other in a diffuse manner (Aldrich, 1990). In this aspect, nonprofit social organizations may possess an advantage, since it has been reported that employees of nonprofit organizations value job quality more and wages less than commercial employees (DiMaggio & Anheier, 1990). Furthermore, nonprofit social venture have the advantage of being able to attract volunteer labor.

Another reason why social ventures may suppress the creation rates of commercial ventures is that, as Nicholls (2010) puts it, social entrepreneurship is becoming a new paradigm. Therefore, it is possible that customers and investors alike are increasingly expecting new businesses to pursue social goals instead of or in addition to the traditional economic goals. This phenomenon may slowly lead social ventures to become the only acceptable organizational form, which would mean these organizations would slowly take over purely commercial entities. In fact, previous research has argued that entrepreneurs should not profit from certain types of services (Weisbrod, 2004), therefore organizations established as nonprofit have more legitimacy and are more likely to be founded. Some examples are organizations in the health care, social services, community development, and education. Researchers have explained that nonprofit social ventures are likely to prevail over commercial organizations for a variety of reasons. Some authors have stated that nonprofit organizations have an unfair advantage, which originates from tax exemptions; hence, they argue that as the population of nonprofit social organizations expands, purely commercial organizations (especially small firms) are crowded out of the market (Bennett & DiLorenzo, 1988). Other researchers explain that nonprofit social ventures may prevail in some industries because they are able to provide better services as they are not preoccupied with making money, whereas the commercial organizations oftentimes have to downgrade the quality of their services in order to generate a profit (Baum & Oliver, 1996).

**Hypothesis 1:** Social venture creation rates are negatively associated with commercial venture creation rates

**The Effect of Inhospitable Environments**

As mentioned above, institutional processes, consisting on external factors, also influence organizational founding rates. Population ecologists hold that economic and social contextual factors can produce variations in founding rates across populations (Aldrich & Wiedenmayer, 1993). Most studies have investigated the influence of such contextual factors on founding rates of specific populations. However, changes in the nature of those external or institutional factors can influence not only foundings within populations but can also alter the ecological dynamics among populations (Tucker et al., 1990). Consistent with these findings, we propose that the influence of social venture creation on commercial venture creation will differ based on the type of environment in which the two populations coexist. More specifically, we propose that inhospitable environments will make competition between these two populations more prevalent.
For our purposes, inhospitable environments are those characterized by harsh socioeconomic conditions and poor/inadequate government policy. These environments are not ideal for the creation of commercial ventures, since the type of opportunities those ventures pursue tend to be scarce. Conversely, inhospitable environments are believed to produce opportunities for social value creation, thus enticing social venture foundings (Austin et al., 2006). In these environments, the potential for new foundings in the population of social ventures to affect the carrying capacity of the commercial ventures population is greater. A potential explanation is that scarce resources make competition more prevalent, since the two populations need to compete for more limited resources. In these environments, demand for social ventures increases; thus, scarce resources are more likely to be devoted to the creation of social ventures rather than commercial ventures. On the other hand, favorable environments characterized by the availability of vast resources would dissipate competition between these two populations, because there will be sufficient resources to support both of them. Therefore, an increase in the density of social ventures would not affect the carrying capacity of the population of commercial ventures to a great extent.

**Government spending.** Previous studies have found that governments have the ability to influence market mechanisms by removing conditions that create market imperfections (Gnyawali & Fogel, 1994, p. 46). Through various policies and procedures, governments can contribute to the efficient functioning of markets and thus, influence the creation of organizations. Some researchers define market failure as situation in which governments do not have the will, power, or resources to address social issues (Austin et al., 2006). Market failure situations are considered important sources of opportunities for social value creation. Therefore, we believe that social ventures are more likely to prevail in conditions of suboptimal government procedures. Researchers have looked at different variables that are related to government actions, they include tax policy, business regulations, and government spending (e.g. Sørensen, 2007). In this study we focus on government spending and its influence on the relationship between social and commercial venture foundings. Low government spending can result in market failure conditions in which social ventures find opportunities. In fact, Badelt (1997) mentioned that a decrease in government spending is one of the factors influencing the growth of the nonprofit entrepreneurship sector.

Reducing government spending may affect the inter-population dynamics between social and commercial ventures by increasing the demand for services provided by social ventures. If the demand for social ventures increases, resources are more likely to be fueled to those types of organizations; which may exhaust resource mobilization within the population of commercial ventures. In addition, commercial ventures tend to forfeit opportunities in this type of environment (Austin et al., 2006), which would translate in lower commercial venture creation rates. This is related to the thin demand argument which explains that nonprofit ventures will serve markets that purely commercial ventures considered too thin to be served profitably (Weisbrod, 2004).

One way to assess government spending is by looking at transfer payments. Transfer payments are a welfare mechanism of income redistribution and include cash benefits such as social security, unemployment insurance, and educational assistance, and in-kind benefits such as food stamps and housing assistance. Supporting our assertions that resources are more likely to be fueled to social ventures when government spending is low, studies have found that countries with limited provision of welfare had higher rates of social entrepreneurship activity (Cornwall, 1998). In a recent study, we also found that reducing transfer payments resulted in the creation of more nonprofit social ventures.
Hypothesis 2: Reduced government spending strengthens the negative relationship between social and commercial venture creation rates

Income. The entrepreneurship literature has shown that the economic conditions of a region have strong influence on the creation of new businesses. Economic conditions can be gauged by the level of income in a country or region, which acts as an indicator of overall prosperity (Todaro, 2000). The level of income affects the availability of financial capital for both populations. The availability of financial capital is an important predictor of commercial ventures start-up rates (Gnyawali & Fogel, 1994). In the nonprofit social sector, financial capital is an equally important resource for organizational creation. We propose that at low levels of income the creation of a social venture is more likely to tap on the financial capital that would otherwise be devoted to commercial ventures. This is rooted in the fact that harsh socio-economic conditions increase the demand for social ventures. Therefore, when financial resources are limited, they are more likely to be used to stimulate the creation of social ventures.

Consistent with our rationale, previous studies have found that social ventures emerge due to, among other factors, economic crisis and lack of individual opportunity (Peredo & Chrisman, 2006). Regarding nonprofit social ventures, Corbin (1999) found that these organizations were more likely to be created in economically distressed areas, regardless of whether they were addressing poverty issues or not. At the same time, other studies found that harsh economic environments resulted in a decrease of net commercial start-up rates (Brixy & Grotz, 2007). This suggests that the competitive relationship between populations exists in favor of nonprofit social ventures, especially when the environment is characterized by low income levels. Nonprofit social ventures are likely to prevail over commercial ventures, despite harsh economic conditions, because their nonprofit status enables them to draw on non-financial resources that are not available to for-profit organizations (Haugh, 2007). Those resources include volunteers and in-kind donations

Hypothesis 3: Low income levels strengthen the negative relationship between social and commercial venture creation rates

Methods

Data

The present empirical test is conducted at the county level, population ecologist have found stronger effects on founding rates at local levels rather than at diffuse geographical levels (Baum & Oliver, 1996). Thus, comparing inter-population dynamics at the county-level would allow us to capture stronger effects. The population for the present study consists of all 88 counties in the state of Ohio and covers the period from 2003 to 2007. Because of the time lag incorporated in the study, and the fact that we used a moving average approach to operationalize our independent variable, the effective sample consists of 352 (=88*4) county-year observations. Data was gathered from a number of secondary sources including the Internal Revenue Service, the Ohio Department of Development, the Ohio Secretary of State, the Ohio Department of Education, the Ohio Department of Taxation, the Ohio Department of Job and Family Services, the U.S. Census Bureau, the Bureau of Economic Analysis, and the National Bureau of Economic Research. The fact that our data was gathered from a single state poses some external validity concerns with respect to our results. However, relevant national and state statistics indicate that the state of Ohio is highly representative of the entire country. First and foremost, the number of active nonprofit organizations per 100,000 residents in the state of Ohio is 585, which exactly matches the national
average and comes significantly close to the national median of 557 nonprofits per 100,000 residents. Similarly, the number of entrepreneurs, as reported by the Kauffman Foundation, amounts to 270 entrepreneurs per 100,000 residents for the state of Ohio and 290 for the entire United States. In terms of income, Ohio reports $32,000 per capita income which resembles the national average of $34,000 per capita. The state of Ohio is also close to the national median in terms of welfare recipients, ranking #24 with 1.61 welfare recipients per 100 people. In addition, the state is comprised of a wide variety of rural, suburban, and urban areas, which make it a rich environment with enough variability to test our hypotheses.

Measures

Dependent variable: Commercial venture creation rate. Consistent with other population ecology studies, we focus on the number of organizations to account for the size of the population. The number of organizations may have little effect on other possible size dimensions such as the number of employees or the resources controlled by each organization (Hannan & Freeman, 1987). Our dependent variable is constructed as a ratio of new commercial establishments to the population of active establishments in the county and is expressed in percentage points. As such, it follows the so-called ecological approach to operationalizing venture creation rates that is rather common in entrepreneurship research (e.g., Bosma, Stam & Schutjens, 2011). The data to calculate this variable were obtained from the Ohio Department of Development.

Independent variable: Social venture creation rate. This variable was calculated based on the number of new and active tax-exempt organizations in Ohio as provided in the Internal Revenue Service Exempt Organizations Business Master File. Similar to our dependent variable, this variable follows the ecological approach and is constructed as a ratio of new nonprofit organizations in the county to the population of active nonprofits expressed in percentage points. Individual nonprofit social ventures were aggregated to the county level according to the Ohio municipal, township, and school board roster published by the Ohio Secretary of State. Because it takes time for the newly created organization to obtain the tax-exempt status (often up to six months or more), we utilized the moving average approach to approximating the number of social ventures created in a particular year that reflects such delay. The numbers we obtained closely approximate the estimates of nonprofits created in the state of Ohio reported by the Secretary of State.

Moderators. Two moderators are included to account for government spending and income levels in each county. We operationalize government spending with the amount of transfer payments to each county. Transfer payments are a welfare mechanism of income redistribution that include cash benefits such as Social Security, unemployment insurance, and educational assistance, and in-kind benefits such as food stamps and housing assistance. Transfer payments represent the ability of government to address social ills. The statistics were obtained from the Ohio Department of Development. The income level variable was operationalized with per capita income in constant 2004 U.S. dollars. The estimates were compiled by the Ohio Department of Development based on the information provided by the Bureau of Economic Analysis.

Control variables. We included a number of control variables that have been found to influence commercial venture creation rates. We controlled for the county’s population and income growth as it may have direct impact on the number of ventures necessary to serve each county. We also controlled for county innovativeness as the ratio of county-level patents granted per 10,000 residents. Information on utility patents of Ohio assignees has been gathered from the National Bureau of Economic Research’s Patent Data Project. Each patent was then matched to an assignee’s
municipality. Municipality-based patenting levels were then aggregated to the level of counties in accordance with the Ohio municipal, township and school board roster published by the Ohio Secretary of State. The level of education in each county was also included as a control variable since it has been found to influence the probability of starting a business (Arenius & Minniti, 2005). This variable was proxied by the percentage of the adult population without a high school degree. The numbers originated at the U.S. Census Bureau. We also included the unemployment rate as a control, since previous research has found that unemployment is an important influence on venture creation rates (Evans & Leighton, 1990). Data on unemployment rates were obtained from the Ohio Department of Job and Family Services. Finally, property, sales, and income tax rates were included as they may impact the viability of establishing a commercial venture in the county. The numbers were gathered from the Ohio Department of Taxation.

Statistical Analysis

Because our data are panel in nature (multiple county-year observations), ordinary least squares estimation is inappropriate and may produce biased results (Cohen, Cohen, West & Aiken, 2003). Econometric techniques that correct for panel error assumptions such as panel heteroscedasticity, panel autocorrelation, and contemporaneous correlation are needed. The most suitable techniques are feasible generalized least squares (FGLS) and Prais-Winsten regression with panel-corrected standard errors (PCSE), both of which adequately account for the panel error structure (Blackwell, 2005). Since FGLS has been found to produce standard errors that lead to extreme overconfidence, we chose to use PCSE to test our hypotheses. PCSE accounts for the panel structure and allows for heteroscedasticity, within-panel AR(1) serial correlation and cross-sectional dependence all the while being more conservative than FGLS (Beck & Katz, 1995). All the independent variables were lagged by one year in order to uncover causality.

Results

We calculated three models to test the hypotheses. Model 1 is a baseline comparison model that only includes control variables. Model 2 includes the main effects of the independent variable and moderators. Model 3 is a full model that includes main and moderating effects. Table 1 provides descriptive statistics and correlations, and Table 2 presents the results of hypotheses testing. As shown in Table 1, none of the correlation coefficients is above the recommended cut-off value of .70. Therefore, we conclude that multicollinearity does not jeopardize the validity of our results. All models in Table 2 demonstrate acceptable fit and are statistically significant. Furthermore, the variance explained increases considerably when the independent variables and moderators are included (an increase in R^2 from 0.31 in Model 1 to 0.47 in Model 3). The coefficients for control variables change when our variables of interest are added, but remain robust in terms of sign and significance across Models 2 and 3. As expected, Model 3 shows that as population in a county increases, more commercial organizations are created to address the demand posed by the growing population. Contrary to previous studies that have found that higher education levels lead to more entrepreneurial activity in a region (e.g. Armington & Acs, 2002), our results show that as the number of people without a high school degree increases, the number of start-ups increases as well. Similarly, the results show that higher unemployment rates lead to more start-ups in the county, which supports previous findings regarding a positive effect of unemployment on entrepreneurial activity (e.g. Evans & Leighton, 1990). Finally, as expected, income and sales taxes exhibit a negative relationship with commercial start-up rates. This confirms our rationale for including these variables as controls.
The main effect of our variables of interest also remained consistent in terms of sign and significance across Models 2 and 3. Thus, we focus on Model 3 for our analysis. The results show that Social Venture Creation rates have a negative effect on commercial venture creation ($\beta=-0.138, p<.001$). This lends empirical support to hypothesis 1, which predicted that the creation of social ventures would undermine the creation of commercial ventures. The variable Transfer Payments, which accounts for government spending, has a positive and significant relationship with commercial start-up rates ($\beta=0.188, p<.001$), even when the interaction term with social start-up rate is included in Model 3. This suggests that increased transfer payments create a good environment in the region by moving a significant proportion of people above the poverty line, which in turn entices entrepreneurial activity. Similarly, the results indicate higher income per capita entices the creation of commercial ventures ($\beta=0.08, p<.05$). As we mentioned before, the level of income in a region is a good indicator of the availability of funding in the area. Thus, we expected that higher income levels would lead to increased commercial start-ups.

Hypothesis 2 stated that lower government spending would strengthen the negative relationship that social venture creation exerts on commercial ventures. On the contrary, as the negative sign of the interaction term indicates ($\beta=-0.01, p<.01$), the effect of social venture creation becomes slightly more negative at high levels of government spending. The slopes at high and low levels of government spending do not exhibit a considerable difference, suggesting that government spending does not alter ecological relationships significantly. However, we do observe higher commercial start-up rates when transfer payments are high at all levels of social venture creation rates. Though this result does not lend empirical support to hypothesis 2, it uncovers interesting insights, since it suggests that social ventures suppress commercial creation rates slightly more when the government effectively addresses social issues through spending on welfare. It may be that under conditions of market failure, social ventures effectively address social issues in favor of commercial organizations, thus making the competitive relationship less prevalent. Hypothesis 3 predicted that at lower income levels, the negative effect of social venture creation on commercial venture creation would become stronger. This hypothesis receives marginal support as indicated by the positive sign of the coefficient for the interaction effect of social venture creation with income per capita ($\beta=0.03, p<.10$). As predicted, the effect of social venture creation on commercial venture creation is more negative at low levels of income. That is, in counties with low income levels, the competition between these two populations at founding becomes more negative.

**DISCUSSION AND CONCLUSION**

The present study contributes to the literature on social venture creation by examining the influence that social venture creation exerts on the creation of commercial ventures. Taking an ecological perspective, we predicted that the creation of social ventures would undermine the creation of commercial ventures due to the resource overlap between the two organizational populations. Our empirical test supported this prediction by showing that as the social venture creation rates increased in a county, the commercial start-up rate decreased in the subsequent year. The result lends support to our conjectures that, at the time of founding, both organizational populations go after similar resources such as financing and human capital. Therefore, we conclude that the symbiotic relationship suggested by previous studies (e.g. Peredo & Chirsman, 2006; Estrin et al., 2011) does not hold at the time of creation, though it may hold in the long run when looking at established organizations.
In addition to uncovering negative effect of social venture creation on commercial venture creation, we proposed and tested environmental conditions that modify such effect. Our general prediction was that inhospitable environments, characterized by inadequate government policy and harsh socioeconomic conditions, would lead to more intense competition between the two organizational populations. To test this general prediction, we examined two environmental factors: government spending and income levels. Our prediction that lower income levels would make the competitive relationship between social and commercial ventures more prevalent was supported by our data. Thus, in counties were income levels were low, the competition for resources became more intense so that increases in social venture creation rates lead to a steeper decrease on the rates of commercial venture creation. This result also supports assertions that environmental factors not only influence foundings within an organizational population, but also influence the ecological dynamics between populations (Tucker et al., 1988). Regarding the moderating effect of government spending, our prediction was that low levels of spending on welfare, operationalized with transfer payments, would also intensify the competitive relationship between social and commercial venture creation. The results showed that at high levels of government spending, creating more social ventures results in a slightly steeper decline in commercial venture creation, than when government spending is low. However, when considering the main and interactive effects together, we find that high levels of government spending are still effective at enticing commercial venture creation at all levels of social venture creation rates.

The present study also contributes to the new venture creation literature by demonstrating that the creation of social organizations acts as an antecedent that hinders commercial venture creation. Therefore, researchers examining new venture creation rates in any organizational population should considered the influence of other populations as an important predictor of start-up rates. As Aldrich (1990) stated “more effort should be devoted to tracing out the processes linking all populations into a community of organizations (p. 20).” Finally, our study also contributes to the social entrepreneurship literature by testing the relationships between social and commercial ventures at the time of founding. Most research in this area has focused on explicit cross-sector collaboration (e.g. Domenico et al., 2009). Thus, we contribute to the literature by examining cross-sector relationships regardless of possible explicit collaborations between organizations in the two populations. Our results show that social ventures compete for resources with commercial ventures; this inter-population dynamic must be taken into account when studying the interplay of social entrepreneurship with external factors.

Some implications for nascent commercial ventures are that, especially in suboptimal environmental conditions, competition at the time of founding comes not only from companies that will engage in similar activities, but also from those organizations that utilize similar resources, in this case social ventures. In addition, both populations need to be aware of the environmental conditions in which they operate and of how these conditions affect the dynamics with other populations. The prevalence of social venture foundings over commercial ones also suggests that purely commercial organizations may benefit from exploiting opportunities for social value creation. Policy implications relate to the provision of resources for both organizational populations. Providing different resource alternatives for social and commercial ventures may reduce competition between the two populations allowing them to co-exist in the same environment. Population ecologists maintain that organizational diversity helps society at better adjusting to uncertain and changing environments (Hannan & Freeman, 1987). Therefore, it could be beneficial to preserve the diversity of commercial and social organizations, rather than supporting one so it prevails over the other.
This study has some limitations that could be addressed in future research. First, the fact that we only included nonprofit social ventures in our samples, limits our study's generalizability to other social entrepreneurial organizations. In addition, the population of commercial ventures we study may include a few ventures with a clear social purpose, since as we mentioned social ventures can also be created as for-profit organizations. The nature of the data, however, does not allow us to tease out those organizations. Future research could focus on ways to identify social organizations in the for-profit sector in order to include them in the population of social organizations. Another limitation could be the fact that our sample was drawn from a single State. Though we ensured that the State of Ohio was representative of the country by looking at various indicators, it would be interesting to replicate the results at the national and international levels.

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REFERENCES


### Table 1. Descriptive Statistics and Correlations

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### Table 2. Regression Results

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<td>Coeff.</td>
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| Wald Chi² | 112.64*** | 778.02*** | 560.64*** |
| R² | 0.31 | 0.46 | 0.47 |

†p<0.10  *p<0.05  **p<0.01  ***p<0.001