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Explaining entrepreneurial transience: The role of local taxation policy.

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**EXPLAINING ENTREPRENEURIAL TRANSIENCE:
THE ROLE OF LOCAL TAXATION POLICY**

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Abstract*

Geographical relocation of ventures, together with rates of firm formation and closure, determine the entrepreneurial population dynamics of a region. However, venture migration has remained largely unaddressed by prior entrepreneurship scholars. This paper draws from theoretical frameworks and prior findings in the economic demography literature to explore policy and environmental determinants of regional venture migration rates, referred to as *entrepreneurial transience*. Using county-level data for the state of Ohio, we show that local taxation is an important driver of entrepreneurial transience. In particular, local income tax rates are found to be negatively related to subsequent net transience – i.e., venture migration deficits or surpluses. Local business property taxes also influence net transience, but the direction of their impact depends on the average income level in the locale.

Keywords: Entrepreneurial transience; venture migration; public policy; taxation; entrepreneurship

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EXPLAINING ENTREPRENEURIAL TRANSIENCE: THE ROLE OF LOCAL POLICY

Entrepreneurship has long been claimed to be the driving force of economic development. Audretsch & Keilbach (2004), for example, show that entrepreneurship capital is positively and significantly related to labor productivity. Thurik (1999) relates entrepreneurship to higher rates of employment growth. Mueller (2007) demonstrates a positive statistically significant relationship between entrepreneurship and annual economic growth. Michelacci (2003) develops a model that positively links entrepreneurship and innovation. Reynolds, Bygrave, & Autio, (2004) demonstrate a positive association between entrepreneurship and GDP dynamics. Entrepreneurship literature is thus fairly unambiguous in assigning positive economic and social returns to entrepreneurial activity.

But do we understand all the events that contribute to the accumulation of entrepreneurial ventures in a region. The entrepreneurship literature offers several useful frameworks and insights about the determinants of regional start-up rates (e.g., Acs & Szerb, 2007; Dubini, 1989; Okamuro & Kobayashi, 2006; Reynolds, Miller, & Maki, 1995; Santarelli & Piergiovanni, 1995) and – to some extent – entrepreneurial failure (e.g., Laitinen, 1992; Littunen, Storhammar, & Nenonen, 1998; Watson & Everett, 1996). However, firms may also leave their region of origin and move to locations that are perceived as more desirable (Stam, 2007). Relocation of local ventures out of a region subtracts from the region's (net) firm formation rates, while migration of ventures into the region complements local founding rates. Thus, the geographical movement of firms, together with rates of firm formation and closure, determine the number of ventures in a

region. This aspect of entrepreneurial populations (i.e., venture mobility or *transience*) has remained largely unaddressed by prior entrepreneurship scholars.

There are several reasons why it is important to fill this gap in the prior entrepreneurship literature and gain a better understanding of *entrepreneurial transience* (i.e., aggregate venture migration rates), as well as of its antecedents and consequences. First, even though there are no studies of venture migration in the entrepreneurship literature, this phenomenon was a subject of study in mainstream economic geography in the 1960's and 70's and has enjoyed renewed interest as part of an emerging *industrial demography* or *economic demography* literature (e.g., Brouwer, Mariotti, & Van Ommeren, 2004; Knoblen & Oerlemans, 2008; Martin, 1999; Pellenbarg, Van Wissen, & Van Dijk, 2002; Stam, 2007). Findings from this literature suggest that, despite the costs involved, firm migration flows are sizeable and have grown over time in some countries (Van Dijk & Pellenbarg, 2000). For example, an average of 1.6% of U.K. firms were reported to migrate, annually, during the 1988-1999 period (Mariotti & Pen, 2002)¹. As argued above, such migration flows will directly affect the rates of accumulation of entrepreneurial ventures in an area, above and beyond that which is attributable to firm starts and failures.

Second, the effects of entrepreneurial transience on local economic development are likely to be disproportionately important. For example, historically, relocated firms are reported to provide between 10 and 25-30 percent of a locale's employment opportunities (Pellenbarg et al, 2002). Unlike new firms for which the probability of failure is fairly significant (Gaskill, Van Auken, & Manning, 1993; Watson & Everett,

¹ This statistic reflects venture migration proper –i.e., it *excludes* companies branching out to new areas without eliminating their pre-existing location.

1996), transient firms have overcome early start-up stages and have prevailed in their original location (donor region), so that they are more likely to make robust contributions to the recipient region's economy.

Third and finally, it is possible that the factors making the area attractive to startups differ from those required to retain such firms or lure transient ventures into the region. If extant knowledge regarding regional determinants of firm formation does not generalize to the case of entrepreneurial transience, and if transient ventures have significant effects on regional economic outcomes, it follows that we have an imperfect understanding of the conditions that will lead to effective economic development of a region.

In particular, tax policies developed by county or municipal governments to stimulate new venture creation in a locale may have unintended venture migration consequences. For example, prior research suggests that greater income taxation fosters new firm creation by making self-employment more attractive than wage and salary work (Blau, 1987; Cullen & Gordon, 2007; Long, 1982; Parker, 1996; Pestieau & Posen 1991, 1992). Once established, however, small firm owners report taxation to be among their gravest concerns (Phillips & Wade, 2008); and income taxation, in particular, has been found to be negatively related to the growth of small firms (Carroll, Holtz-Eakin, Rider, & Rosen, 2000, 2001). Thus, given differences in taxation across neighboring areas, higher local income taxes may lead to greater new firm formation rates, but also greater propensity of native ventures to seek tax advantages elsewhere, resulting in ambiguous effects on economic development.

In this paper we seek to draw attention to the phenomenon of entrepreneurial transience, and take a first step toward investigating its regional determinants. While controlling for likely environmental antecedents, our focus is on tax policy variables that may be manipulated to influence local economic development. In particular, we study the effects of local property, income, and sales tax rates, as well as tax abatement schemes, on (net) entrepreneurial transience. Using multi-source data from 88 Ohio counties for the period from 2000 to 2004, we show that local tax policies have a significant impact on venture migration rates.

The remainder of the paper is organized as follows. First, we define the concepts of venture migration and entrepreneurial transience. Next, we discuss prior relocation theory and findings in the economic geography literature and formulate testable hypotheses about the impact of local taxation on net transience. After that, we introduce the sample, measures and methods employed in our study. The paper concludes with a discussion of results, implications for entrepreneurship research, policy, and practice, and possible avenues for future research.

THEORETICAL BACKGROUND

Venture Migration

Venture *migration* refers to a firm's decision to leave its original location in geographic area A and move its entire operations to a different location in geographic area B (Pellenbarg et al, 2002). In the economic demography literature this is also referred to as firm *relocation* (Pellenbarg, 2005), *complete relocation* (Brouwer et al., 2004), or *transfer moves* (Pellenbarg et al., 2002). Venture migration is distinct from

business *expansion* –also referred to as *partial relocation* (Brouwer et al., 2004). Migrating firms abandon their original locales while expanding firms *retain* their ‘nest’ and simply establish new branches elsewhere.

Prior demography research shows that expansion is favored by larger firms, while migration is rather the purview of small, younger, single-site firms (Brouwer et al., 2004; Pellenbarg et al., 2002). For example, in the Netherlands, the average size of the migrant firm in the period 1994-95 was 2.8 employees (Van Dijk & Pellenbarg, 2000). Venture migration also tends to be executed across neighboring areas or regions, and it hardly occurs over long distances (Brouwer et al., 2004; Knobens, 2008). Migration costs are likely to increase with distance. In particular, proximate relocations minimize the need to replace and re-train employees (Van Dijk & Pellenbarg, 2000). Another of the key findings in economic demography is that migration rates vary by industry: Firms in industries where demand does not necessarily have a strong local component (such as manufacturing, construction, wholesale, and business services), exhibit higher migration rates. In turn, firms in industries that are more dependent on local customers (such as the retail trades, personal services, finance, and insurance and real state) are less transient (Wasylenko, 1980; Van Dijk & Pellenbarg, 2000).

Entrepreneurial Transience

Here we introduce the terms *entrepreneurial transience* to refer to the aggregate rate of migration of a particular population of firms. Thus, we use ‘venture migration’ to refer to the individual, firm-level event; while ‘entrepreneurial transience’ designates the population-level attribute that results from the combined firm-level actions during a particular period of time.

Entrepreneurial transience includes both inflows of firms to the focal area as well as outflows from the focal area to other areas. Although it would be interesting to study the effects of local policies on migration inflow and outflow rates separately, in this paper we focus on the balance between the two, which we refer to as *net entrepreneurial transience*. The latter is defined as the relative change in the number of ventures in a locale due to migration flows. When a locale attracts more migrant firms than it loses, it will exhibit positive net entrepreneurial transience. If more firms exit the locale than relocate into it, the locale's net entrepreneurial transience will be negative.

In particular, our study focuses on net entrepreneurial transience across county-level enterprise populations (i.e., relative migration surpluses/deficits emanating from inter-county migration flows).

Relocation Theory

Economic geography research demonstrates that location considerations rarely determine the choice of a site for new businesses (Pellenbarg et al, 2002). New firms are likely to be started where the entrepreneurs themselves reside (Pellenbarg, 2005) or tend to be co-located next to existing clusters of businesses in search of agglomeration-related benefits (Feldman, 1999). After start-up, however, the entrepreneurial venture may discover that other location(s) would be more favorable in terms of greater expected revenues or lesser costs and, thus, may consider venture migration. Indeed, due to environmental changes over time (e.g., changing factor prices or external conditions such as congestion), firms are unlikely to occupy their optimal location without relocation. Nevertheless, given costs and risks of relocation (e.g., it might involve the loss of key

personnel or major customer relations), firms are resistant to move and many will remain in a suboptimal site (Pellenbarg et al, 2002).

In this literature firm migration is characterized as a complex process involving a series of choices (e.g., Van Wissen, 2000). Most firm relocation studies distinguish between *push factors*, which cause the firm to re-evaluate its original location in the first place; and *pull factors*, which attract the firm to its destination location. Push factors include both *internal* and *external* factors, while pull factors are mostly external (i.e., environmental) variables. Common internal push factors are firm growth, and thus the need for expansion of facilities, as well as changes in market orientation or in the technology of production leading to different requirements in terms of economies of scale or access to key inputs or resources (Knoben, 2008). Typical external push/pull factors include market conditions, cost or quality of factors of production (i.e., energy, land, labor, etc.), infrastructure or access to particular facilities, and local policy (Van Dijk & Pellenbarg, 2000). Given our interest in explaining aggregate local transience, the present study focuses on external migration factors.

In terms of the rationale used to explain firm migration, *relocation theory* can be divided into three different schools of thought: neo-classical, behavioral, and institutional approaches (see Hayter, 1997, and Pellenbarg et al., 2002, for recent reviews of the relocation literature). *Neo-classical relocation theory* assumes perfect information and rational economic agents that seek to maximize profits (or minimize costs). Location matters because costs and revenues vary over space producing different *spatial margins to profitability* in different locations. Also, due to internal and external changes, the margins to profitability offered by different locations vary over time. Economic agents

are able to continuously estimate the different geographical margins to profitability and to identify their *optimal* location at each point in time. However, due to relocation costs and capital inertia (i.e., sunk costs) the firm will not be able to continuously move to the new ‘optimal’ location. If potential gains from relocating into a new locale offset relocation costs the firm may move to another area. Although both internal (i.e., firm growth) and external factors are key drivers of migration in this framework, neo-classical location research has traditionally focused on external migration factors (Pellenbarg et al., 2002)².

Behavioral relocation theory, which is based on the behavioral theory of the firm (Simon; 1955; Cyert & March, 1963), focuses on the decision-making process and seeks a better understanding of the actual behavior of the entrepreneur (e.g., Brouwer et al., 2004). It replaces the assumption of fully informed economic agents making optimal decisions with the view of a bounded rational decision-maker that works with limited (and possibly biased) information emanating from the firm’s own searching, information-processing and learning activities. Thus, uncertainty (i.e., lack of information) and perception (which may deviate from reality) is what matters to explain firm migration decisions in this tradition (Pellenbarg et al., 2002). Also, firms evaluate their location only occasionally. For example, in Nakosteen & Zimmer (1987) model, firms monitor their profits relative to a fixed target threshold and do not engage in a search for alternative locations as long as this target is met. Moreover, alternatives are searched and evaluated in a sequential way; and decision-makers are *satisficers* (as opposed to optimizers), so that they will often settle for the first alternative that is found to exceed the firm’s performance aspiration level (Van Dijk & Pellenbarg, 2000). Given its main

² Recent developments in neo-classical location theory include the new economic geography writings of Krugman (1995).

precepts, the emphasis of the behavioral approach is on internal mobility factors, like firm specific characteristics (i.e., firm age, size, industry, growth) (e.g., Van Dijk & Pellenbarg, 2000; Brouwer et al., 2004), as well as indicators of the firm's willingness and ability to obtain and process information (e.g., organizational structure, the quality of management, and organizational goals) (e.g., Lloyd & Dicken, 1992).

Given their relative emphasis on external and internal relocation factors, Pellenbarg et al. (2002) recommends "an eclectic combination of the behavioural and neo-classical approaches" (p. 116). In the next section, we follow this recommendation to derive our hypotheses.

Finally, *institutional location theory* posits that firms exert substantial influence upon their environment (Hayter, 1997; Martin, 2000). According to this theory, location decisions are the outcome of a firm's negotiation with distributors, suppliers, government, labor unions and other institutions about prices, wages, tax subsidies, infrastructure, and other key production factors. Given this, it has been argued that institutional theory is more suitable for the study of large enterprise expansion and migration (Pellenbarg et al., 2002). Larger firms have more bargaining power, while small firms usually have to accept conditions as dictated to them. Hence, this theoretical perspective is less pertinent in the context of the present study.

HYPOTHESES DEVELOPMENT

Prior entrepreneurship literature suggests several groups of environmental factors that affect firm births and deaths within a region, including economic conditions, industry structure, demographic indicators, labor market characteristics, availability of financial as

well as non-financial assistance, and network and ecological considerations (e.g., Armington & Acs, 2002; Gnyawali & Fogel, 1994; Reynolds, 1994). Many of these variables may also relate to entrepreneurial transience. While we intend to account for these environmental factors in our empirical analyses, the primary focus of our investigation is on policy variables subject to manipulation by local governments. Given similarities in market variables and costs of inputs across neighboring locations, we expect policy differences to be salient and to play a significant role in firms' decision to relocate as well as in their choice of a new location (Keeble, 1976; Pellenbarg, 2005). In this regard, local policies may be conceived as 'anchoring strategies' (Lagendijk, 1999), which seek to achieve positive rather than negative *net transience* or, in other words, migration *surplus* as opposed to migration *deficit* (Mariotti & Pen, 2002).

Chief among policy instruments that can be used to attract and retain businesses is manipulation of the local tax system (Wasylenko, 1997) which includes tax rates as well as special tax abatements and incentive programs.

Local Taxes and Entrepreneurial Transience

In the United States several kinds of tax vehicles are administered locally. Most counties, municipalities, and school districts (in some cases after tax-payer approval) levy taxes on real property located in their jurisdictions, including land and buildings used for industrial/commercial purposes. Some states also allow local governments to levy taxes on income earned (including firm profits) and/or on sales of goods and services (normally to end-users) in the locale. We are interested in the effects of each of these forms of local taxation on net transience of local entrepreneurial populations. As reported below, local

tax rates vary significantly across neighboring locations which raises the possibility of relocation rents. Also, taxes and tax-related issues are among the most acute concerns of small business owners (Phillips & Wade, 2008) who, therefore, are likely to be very sensitive to these regional tax differentials.

Our argument is straightforward: Lowering tax rates below region-average levels is likely to stimulate migration surplus within the locale. Consistent with neo-classical reasoning, less fiscal pressure increases the location's margin to profitability which, in turn, should increase net transience.

Property tax. Property taxes are the main source of local tax revenue in the United States and, in particular, play a key role in the funding of the education system. In 2004, over 54,000 local property-tax-levying jurisdictions across the U.S. (including counties, cities, school districts, community college districts, fire districts, sewer districts, etc.) collected an estimated \$308 billion in property taxes (Prante, 2006). As a result, property taxes are often the biggest local tax burden on small businesses.

Property taxes are seen as a disincentive to entrepreneurial activity because they create an added fixed cost of business, which is due whether the firm makes a profit or not (Wagner & Sternberg, 2004). The scant research evidence available appears to support this conjecture: First, with regard to new firm formation, Bartik (1989) found average business property tax rates to be negatively related to state-level business starts. Also, with regard to firm migration, Wasylenko (1980) found lower local property taxes to explain firm in-migration patterns from Milwaukee central city to its suburban markets, at least for some industries (manufacturing and wholesale) and some markets

(those that did not overly restrict industrial and commercial land use). Finally, Carlsen, Langset & Rattso (2005) found that municipalities in Norway with more geographically mobile firm populations (i.e., populations that had a greater ability to flee, based on their industry composition) tended to set lower comparative fees for infrastructure use by firms. This is the only local tax instrument in that institutional context, and it is similar to property taxes in the sense that it also represents a fixed cost to business. Their findings suggest that local governments use this form of taxation as an important business retention tool.

Consistent with neo-classical relocation theory arguments, as well as with the limited available evidence, we expect that firms will move out of counties with higher property tax rates while relocating firms will be attracted to counties with comparatively lower property tax rates. Stated formally:

Hypothesis 1: Net entrepreneurial transience is negatively related to the industrial/commercial property tax rate in an area.

Local income tax. Local income taxes are a less pervasive policy instrument throughout the United States, although recent data suggests that it has become quite common: Indiana, Iowa, Kentucky, Maryland, Michigan, Ohio, and Pennsylvania are states with widespread use of local income taxes (Henchman, 2008). A few counties, cities, and/or school districts also impose income taxes in Alabama, Arkansas, California, Delaware, Missouri, New Jersey, New York, and Oregon (Henchman, 2008).

There is a copious literature on the effects of income taxes on entrepreneurial activity. However, prior work has largely focused on national (e.g., Davidsson & Henrekson, 2002) and, to a lesser extent, state-level (Georgellis & Wall, 2006; Bruce, Deskins, & Mohsin, 2004) income taxation; and on its effects on either start-up rates or total entrepreneurial capital (often defined as rates of self-employment). Theory and findings emanating from this literature suggest that local income taxes will provide a revenue vehicle with rather benign consequences for new venture formation. First, as opposed to property taxes, income taxes involve risk sharing with local ventures (Domar & Musgrave, 1944): The local government collects less revenue if ventures are not successful; and the latter pay no tax unless they make a profit. Second, because local tax schemes are typically based on a flat rate (i.e., they are not progressive), this form of taxation does not disproportionately penalize those who succeed, thus encouraging greater entrepreneurial effort (Gentry & Hubbard, 2000). Finally, income taxation encourages entrepreneurial activity due to the opportunity to under-report income, and thus to evade taxes, under self-employment (Pestieau & Possen, 1991, 1992). Of course, the added consideration at the local level is that variation in tax schemes across neighboring jurisdictions provides opportunities to capture tax advantages via relocation. Thus, after formation, a high local income tax rate may provide incentives for native ventures to migrate to a more tax advantageous area.

Based on a straightforward neo-classical argument, as income taxes reduce net profits, we expect higher local income tax rates to lead to greater out-migration and lesser in-migration rates. Stated formally:

Hypothesis 2: Net entrepreneurial transience is negatively related to the local income tax rate in an area.

Local sales tax. This is another common policy instrument at the local level. Counties, cities or other jurisdictions levy sales tax rates that are added to the state tax rate and collected on applicable business transactions. There are 30 states that allow local sales taxes across the U.S. In 1999, sales taxes produced \$35 billion for localities in these states (Dennis, 2002).

A high sales tax rate may limit the growth potential of a firm by making its goods and services less affordable to potential customers (Chen & Williams, 1999). Accordingly, since business growth is one of the leading reasons for firm relocation, a county with above-average sales tax rates may be a less attractive destination, *ceteris paribus*, than a locale with below average rates. Fewer opportunities for business growth may also limit the pursuit of economies of scale, resulting in higher costs. Additionally, from a behavioral standpoint, to the extent that greater sales tax rates impact firm revenues, native firms in a high sales tax context are more likely to initiate a *problemistic* search (Cyert & March, 1963) for a new location. Therefore, locales with high sales tax rates are likely to experience net migration deficits while locales with low sales tax are likely to experience migration surpluses. Stated formally:

Hypothesis 3: Net entrepreneurial transience is negatively related to the sales tax rate in an area.

Moderating effect of income

Prior research suggests that drivers of entrepreneurial activity differ depending on a region's relative wealth. For example, beyond experiencing greater rates of new firm formation, the types of activities undertaken by entrepreneurs in wealthy locations differ significantly from entrepreneurial opportunities in low-income areas (Wennekers, van Stel, Thurik, & Reynolds, 2005). Research also suggests that necessity-based entrepreneurship is more common in low-income regions while opportunity entrepreneurs are more prevalent in high-income locations (Acs, Arenius, Hay, & Minniti, 2005). *Necessity-based entrepreneurship* involves people who start a business because other employment options are either absent or unsatisfactory (Reynolds et al, 2002). By contrast, *opportunity-based entrepreneurship* includes individuals that respond to entrepreneurial opportunities. Globally, about one-third of entrepreneurs indicate they act out of necessity, although there is substantial variation across countries in these proportions (Reynolds et al., 2005).

We expect that low-income counties will be characterized by a greater share of necessity-based entrepreneurs and, as a result, that their venture populations will exhibit less geographic mobility. Behavioral relocation theory suggests that necessity-based entrepreneurs may have a lesser ability to relocate. First, as a reaction to local unemployment, necessity-based entrepreneurship suggests a commitment to the area on the part of the entrepreneur and, thus, an unwillingness to search for work elsewhere. Second, necessity-based entrepreneurship is often associated with lower education levels (Reynolds et al, 2002), which in turn may be related to a less effective use of relevant information about geographical margins to profitability and, thus, to a greater likelihood

of lingering in a suboptimal location (Pellenbarg et al., 2002). Third, necessity-based entrepreneurs might have lower thresholds of acceptable performance, and may be more undercapitalized and resource constrained as well, and thus may be more willing to remain in a spatially unfavorable location rather than face relocation expenditures. Given this, we expect that the effects of taxation on net transience will be more tenuous in low-income locales.

By contrast, opportunity-based entrepreneurs may have greater performance thresholds, as well as better ability to collect and act upon information regarding spatially available margins to profitability. As a result, we expect opportunity-driven entrepreneurs' behavior to be closer to that of the neo-classical profit maximizer: They will exhibit a greater proclivity to relocate in order to tap greater margins available elsewhere. Given this, locales with a greater share of opportunity-based entrepreneurship (i.e., high-income counties) may demonstrate a stronger relationship between local taxation and net entrepreneurial transience. Stated formally:

Hypothesis 4a: Average personal income in an area moderates the negative relationship between property tax rates and net entrepreneurial transience such that the relationship is stronger in high-income counties than in low-income counties.

Hypothesis 4b: Average personal income in an area moderates the negative relationship between local income tax rates and net entrepreneurial transience such that the relationship is stronger in high-income counties than in low-income counties.

Hypothesis 4c: Average personal income in an area moderates the negative relationship between sales tax rates and net entrepreneurial transience such that the relationship is stronger in high-income counties than in low-income counties.

Local Tax Incentives: Enterprise Zones

Enterprise zones (EZs) are a relatively new policy instrument that originated in Britain and was first introduced in the United States during the 1980's. By 1987 more than 30 states had EZ programs (Couch, Atkinson, & Smith, 2005). Once an area has been designated as an EZ, tax incentives are made available to firms that locate within the geographic confines of the zone.

We expect that EZs will have an impact on intra-regional migration rates. First, based on a straightforward neo-classical rationale, firms receiving/expecting to receive subsidies will be enticed to remain in/move to the EZ location, which as a result of tax subsidies will exhibit comparatively favorable spatial margins to profitability (Pellenbarg et al, 2002). More importantly, from a behavioral perspective, the presence of EZs may act as a signal of an interest in enterprise development on the part of the local government and, thus, of a supporting climate for relocating ventures. Hence, for smaller ventures, which have a lesser ability to negotiate subsidies with the local government, and which face greater information constraints, the presence of active EZs may help create the perception of a favorable business environment. Stated formally:

Hypothesis 5: Net entrepreneurial transience is positively related to the prevalence of enterprise zones in an area.

METHODS

Data

The population for the present study consists of the 88 counties in the state of Ohio. We collected data for each county and for each year between 2000 and 2004. Our independent variables were lagged by one year, so that the effective data used consists of a panel dataset of 352 county-year observations containing 2001 to 2004 transience estimates and 2000 to 2003 data on independent variables. Data was drawn from a number of secondary sources including Ohio Bureau of Workers Compensation, Ohio Department of Development and Ohio Department of Taxation, as well as the Bureau of the Census, Bureau of Economic Analysis, Small Business Administration, and Federal Deposit Insurance Corporation.

Measures

Dependent Variable: Net Transience. Information for this variable was drawn from the Ohio Bureau of Workers Compensation (BWC) data files. Ohio employers (even part-time employers) are required to carry worker's compensation insurance. Large and financially stable employers are allowed to self-insure. All other employers must purchase and maintain a policy with the BWC by paying bi-annual premiums based on self-reported payroll in several employment categories or "manual codes". Given this legal requirement, the BWC database is believed to be a reliable source of employer counts in Ohio³.

³ County-level business counts obtained from BWC as part of this study were found to be comparable to county-level data on number of establishments from the Census Bureau.

BWC data, however, includes more than just private business employers. Some state and county public employers contribute to the state insurance fund as well. In addition, private not-for-profit employers are also required to maintain active accounts with BWC. This includes schools, colleges, universities, and related activities (e.g., fraternities and sororities); emergency services; welfare and social services; religious organizations; athletic clubs and events; and even persons hiring uninsured domestic contractors and household employees. Therefore it was important to screen BWC accounts and select only those that corresponded to private businesses, as indicated by insurance manual codes. County-level aggregates of BWC policies corresponding to non-public for-profit employers were provided by the Office of Strategic Research of the Ohio Department of Development.

BWC data files include information on (i) active policies and the year they were started; (ii) cancelled policies and the year they were cancelled, when companies are dissolved or move out of state; and (iii) policies that become inactive due to firm bankruptcy. Interestingly, if a company moves within the state of Ohio its policy remains unchanged and active, and only the firm address is updated. Given the structure of BWC data, net transience for a particular county (*i*) in a particular year (*t*) was measured as the relative change in the number of active businesses that could not be explained either by new policies, cancelled policies, or firm bankruptcies during the year. Formally:

$$\text{Net Transience}_i(t) = \frac{[\text{Actives}_i(t) - \text{Actives}_i(t-1)] - [\text{New}_i(t) - \text{Cancelled}_i(t) - \text{Bankrupt}_i(t)]}{\text{Actives}_i(t)} * 100$$

This measure estimates the percent change in the number of local businesses due to firm relocations to/from other counties. Positive net transience values indicate that a greater contingent of businesses moved into the county than out of the county. Negative

values indicate a greater number of relocations out of the county. Average net transience was -0.24% (stdev =2.46).

Tax Rates. Local governments in Ohio are authorized to impose taxes on property, income, and sales. Tax data was obtained from Ohio Department of Taxation.

Property Tax Rates. In Ohio, as well as in most other states, assessment and collection of property tax bills is handled at the county level, with revenue subsequently distributed to each taxing jurisdiction according to the taxable values and tax rates levied by each. Our measure was the average effective property tax rate for commercial, industrial, mineral, and public utility class of real property, computed as aggregated county-wide taxes divided by county-wide taxable business property values in each particular tax year⁴. Average property tax rates are expressed in mills (i.e., units of \$1 per \$1,000 of taxable value) and include levies by all jurisdictions (school district, county, municipality, etc.) for property located in each county. Rates varied considerably, from 31.8 to 70.9 mills ($\mu=48.45$; stdev =7.56).

Local Income Tax Rates. Ohio municipalities have the ability to levy a flat rate tax imposed on wages and salaries earned by residents as well as by non-residents working in the municipality, and on net business profits attributable to activities in the municipality. To create our county-level measure, local income tax rates were averaged across all cities and villages within a county for each year observation. Rates ranged from zero to 1.81 percent ($\mu=0.25$; stdev =0.24).

Local Sales Tax Rates. Ohio counties (as well as a few transit authorities) are authorized to levy a sales tax in addition to the state sales tax (of 5.5 percent from 2000 to

⁴ In Ohio, taxable value is 35 percent of the true (market) value, as assessed by the county auditor every three years.

2002, and temporarily increased to 6.0 percent in 2003), subject to voter approval. Since 1987, local sales tax can be levied in quarter-percent increments up to a 1.5 percent rate. Since this is a county-level tax, our variable was straightforward. County sales tax rates ranged from zero to 1.50 percent ($\mu=1.11$; $\text{stdev}=0.32$).

Enterprise Zones. Since 1982, local governments in OH have the ability to offer tax incentives to encourage new business capital investment through the creation of an Enterprise Zone (EZ). The latter is a designated area in which businesses can receive exemptions from real or personal property taxes up to 75% for up to 10 years on new capital investments (buildings or building renovations, machinery/equipment, and furniture or inventory improvements). The municipal government must define the geographic area in need of business development and then submit a petition and gain EZ certification from the state. Once certification is granted, municipalities are permitted to negotiate tax incentive agreements (i.e., contracts) with prospective companies. Our measure is the average prevalence of EZs, computed as the total number of active EZs in the county-year divided by the number of municipalities in the county ($\mu=0.11$; $\text{stdev}=0.08$).

Control Variables. We controlled for a number of potential correlates of net transience. First, to account for general entrepreneurial climate, we controlled for local rates of new firm formation. *Firm birth rates* were computed as the ratio of new business starts in the county-year per 100 people (e.g., Lee, Florida, & Acs, 2004; Reynolds, Storey & Westhead, 1994). Second, we controlled for the structure of industry in the focal county-year, as this may affect rational incentives to exit/enter. Following Armington and Acs (2002) and Lee et al. (2004), we used *industry intensity* and *average*

establishment size as proxies for local industry structure. The former was measured as the number of establishments per 100 people. The later was measured as total employment divided by the number of establishments, using County Business Patterns data from the Bureau of the Census. Third, we added indicators of local demand growth, including per capita annual *income growth* and *population growth* (Reynolds, 1994). County-year personal income data was obtained from the Bureau of Economic Analysis. Population estimates were obtained from the Census Bureau. Per capita income amounts were adjusted for inflation using the GDP implicit price deflator and were nominated in \$ thousands of 2004. Fourth, we controlled for local labor market conditions, including the *change in unemployment rate*, as well as the *share of high-school dropouts* and the *share of college graduates* (e.g., Lee et al., 2004). The change in unemployment rate proxies for trends in local labor costs. Also, depending on the industry and type of business, firms may relocate to tap onto local pools of either low-skilled or high-skilled employees⁵. The share of high-school dropouts has been used in the prior literature as a proxy for the prevalence of unskilled and semi-skilled labor (e.g., Armington & Acs, 2002), while the percent of college graduates proxies for the availability of high-skilled labor. County-level unemployment data was obtained from the Ohio Department of Job and Family Services. Education attainment data was obtained from the Bureau of the Census. The share of high-school dropouts was defined as the percent of the county-year's adult population (those over 25 years of age) without a high school degree. The share of college graduates was the percent of the adult population with a bachelor's degree or above. Fifth, we added controls for the extent to which the locale may facilitate access to institutional capital. In contrast to prior studies of new firm formation which

⁵ We thank an anonymous reviewer for pointing this to us.

emphasize local personal wealth as a predictor (e.g., Gnyawali & Fogel, 1994; Pennings, 1982; Shane, 1996; Sutaria & Hicks, 2004), our focus here was rather on the extent to which a locale may offer greater/lesser access to commercial lending, as the phenomenon of interest is the relocation of firms that have been operational for some time and, thus, are beyond their founding stages. Prior research suggests that firms depend on informal borrowing from family members, friends, and angel investors during their early years (Brophy, 1997), but that bank credit becomes the largest incremental source of funding after that (Petersen & Rajan, 1994). We used two separate measures to proxy for conditions leading to greater bank-credit access: (i) the natural log of *Small Business Administration loan guarantees* (in \$ millions) in the county-year, per capita; and (ii) the level of competition among financial institutions, as measured by the number of *bank offices per capita*. Given the dependence of small and young firms on so-called “relationship” lending⁶ (Ang, 1992), branch proliferation was believed to be the most salient aspect of local bank competition for the purposes of the present study. Sixth, we controlled for *per-capita personal income* level, adjusted for inflation. This was important as other regressors (in particular income-tax rates, but also education as well as the density of bank offices) might be related to income. Addition of this variable was also necessary in our full model specification, to be able to explore hypothesized moderation of tax effects. Finally, as discussed below, we controlled for random county-effects as

⁶ “Relationship” lending refers to lending based on “soft” information that results from direct relationships between the loan officer and the small business owner, its firm, and its community. It is opposed to “transaction-based” lending, which is based on “hard” information about the business contained on formal financial statements, tangible assets than can be offered as collateral, or information from external credit bureaus (Berger and Udell, 2002). Proximity between the small firm and the lender is essential to relationship lending (e.g., Petersen & Rajan, 2002).

well, which capture any additional impacts on net transience from county traits beyond those explicitly included in the regression equation.

Statistical Analysis. We test our hypotheses by means of random-effects generalized least squares regression of net transience rate. The random county effect accounts for unobserved time-invariant characteristics of counties that may bear on transience. To the extent that relevant omitted variables are correlated with explanatory variables included in our model, the failure to account for these correlations would bias the regression estimates (Hsiao, 1986). Furthermore, given the panel structure of the data, we base our results on robust estimation of standard errors, in order to avoid bias due to potential autocorrelation.

All regressors (both controls and independent variables of interest) were lagged by 1 year to better proxy for information that was available to small business owners at the time of their decision to relocate.

Since some of our hypotheses entail moderation, we used a hierarchical sequence of models. The baseline model (Model 1) contains only control variables. A subsequent model (Model 2) contains controls as well as the main effects of the policy variables of interest. This model provides tests for Hypotheses 1 to 3, as well as Hypothesis 5. The final full model (Model 3) includes also the interaction effects between tax terms and per-capita income and, thus, provides a test for Hypotheses 4a to 4c. We assessed overall model fit by means of Wald chi-square statistics. We used chi-square difference tests to assess the incremental contribution of each subsequent block of variables.

RESULTS

Descriptive statistics and correlations are given in Table 1. Results of hypotheses testing are summarized in Table 2.

----- Insert Table 1 about here -----

----- Insert Table 2 about here -----

Overall, the set of control variables in our base-line model (Model 1, in Table 2) is strongly significant [$X^2(12) = 151.5; p < 0.001$]. Net transience tends to be positive and larger in counties that (i) provide a favorable environment for entrepreneurial firms (as indicated by firm birth rates), (ii) exhibit lower intensity of businesses per capita, and (iii) have faster growing populations.

Adding the block of policy variables in Model 2 resulted in a marginally significant increase in overall model fit [$X^2(4) = 8.1; p < 0.087$]. The estimated coefficients for property tax rate and sales tax rate are against the expected direction, in both cases, and are non-significant, so that Hypotheses 1 and 3 are not supported. The coefficient for average income tax is negative and significant ($\beta = -1.20; p = .016$). This result provides support for Hypothesis 2 and suggests that lessening income taxes will enhance the ability of a locale to attract ventures currently operating elsewhere. The coefficient for EZs is positive, as predicted, but fails to reach statistical significance. Thus, Hypothesis 5 is not supported.

Extension of the regression equation with interaction effects between tax variables and income (Model 3, in Table 2) resulted in a strong improvement in model fit. The Chi-square difference test between Model 2 and Model 3 suggests that the set of interaction terms is jointly significant [$X^2(3) = 34.2; p < 0.001$]. With regard to individual effects, the coefficient for the interaction between property tax rate and personal income is negative

and significant ($\beta = -0.01$; $p = .023$), indicating that the slope of the relationship between property taxes and net transience declines as average income increases. This result provides support for Hypothesis 4a. Further analysis of the shape of this interaction term (see Figure 1 for a plot of this interaction effect) demonstrates that the effect of property taxes on transience reverses over the mid-range of the distribution of personal income values. In high income counties (we plot the relationship at one standard deviation above the mean) greater property taxes lead to lesser net transience, as predicted. However, in low income counties (we plot at one standard deviation below the mean) greater property taxes were actually found to lead to greater net transience. Thus, although we did find a negative moderation effect of income, the particular shape of the interaction effect was a bit of a surprise and explains why we failed to find support for an overall negative main effect of property taxes in Model 2 above.

----- Insert Figure 1 about here -----

The regression coefficient for the interaction between income tax rate and per capita personal income is in the hypothesized direction but is not statistically significant. Thus, Hypothesis 4b is not supported. Income levels do not moderate the negative effect of local income tax rates on net transience.

The coefficient for the interaction between sales tax rate and personal income is positive and non-significant. Thus, Hypothesis 4c is not supported. Net transience is unaffected by local sales tax rates.

Interestingly, allowing for interaction terms in the regression specification revealed marginal positive effects on transience of local labor market structure (both prevalence of low-skilled and of high-skilled labor), as well as of personal income. The

latter effect is also reflected in the interaction plot shown in Figure 1, as expected levels of transience over the mid-range of property tax values (minus/plus 1 standard deviation from the mean) are consistently lower in low-income counties (i.e., estimated net transience lines do not cross).

DISCUSSION

This study introduces a novel topic for the entrepreneurship literature, which we term entrepreneurial transience. While the extant literature has focused on the study of firm births and deaths (e.g., Reynolds et al., 1995), we argue that venture relocation is also an important phenomenon that contributes to the accumulation of entrepreneurial capital in a region and, as such, should be of interest to policy makers as well as to entrepreneurship researchers and practitioners. We explore possible reasons that may justify a costly decision for a firm to migrate into another location, propose hypotheses regarding the impact of local tax policies on net rates of entrepreneurial transience, argue for other possible environmental determinants, and investigate relationships using county-level data for the state of Ohio during the 2000-2004 period.

Our findings demonstrate that local authorities possess several tools to stimulate the net gain of transient businesses into the area. First, local (i.e., municipal) income tax rates were found to be negatively related to net transience. This provides support for neo-classical relocation theories based on relative spatial margins to profitability, and suggests that cities could reduce income taxes as a means of attracting outside ventures. Second, property tax rates were also found to be related to net transience, although the direction of the relationship depended on average personal income level in the county.

This finding was somewhat of a surprise. Based on behavioral relocation theory, we had hypothesized moderation (in strength, but not in sign) by county income levels. In lieu of that, we found income moderation of a stronger form, whereby tax effects flipped their signs in poorer versus richer counties. The expected negative effect of property tax rates on venture transience was circumscribed to high-income counties. The effect was reversed in low-income areas. The implication is that local governments may want to follow a contingency approach to property tax policy, depending on average personal income in their area.

While tax rates were found to be important determinants of entrepreneurial transience, we found no support for a similar role of tax incentive schemes. In particular, the relative prevalence of EZs within a county was not related to net venture relocation rates. An ex-post perusal of enterprise zone agreements entered during the period of study across a sample of Ohio counties suggests that this policy tool tends to target larger, more mature firms (both from state and out-of-state) that can bring substantial investment and employment gains to the area. Thus, EZs may do more to promote mature businesses' expansion into the county as opposed to re-location by smaller/younger ventures. Furthermore, to the extent that some enterprise zone agreements involve intra-state relocations of smaller firms, the inflow of external businesses receiving preferential tax treatment in the locale may be matched by an outflow of incumbents who now find themselves at a disadvantage. In short, it could be that special tax abatement and incentive agreements have positive effects on both venture in-migration and out-migration to/from a focal county, so that they become a blunt entrepreneurial activity instrument. Indeed, although the literature on economic impact of EZs is rather mixed,

our results are consistent with the majority of studies, which have found little or no effect of zones on either local levels of economic activity (e.g., Boarnet & Bogart, 1996) or employment outcomes (e.g., Bondonio & Engberg, 2000). Given this, Greenbaum and Engberg (2004) called for the separate study of job (or establishment) creation and destruction flows, as opposed to net changes. Their research shows that EZs have a positive effect on new establishment outcomes but a negative effect on existing establishment outcomes, resulting in overall neutral effects on both employment and number of establishments. In a similar fashion, future research should seek to cast further light onto transience outcomes that derive from enterprise zone and other tax incentives by studying their separate impact on venture migration inflows and outflows.

Although our focus was on policy strategies, the study also sheds light on environmental determinants of net transience. Transient ventures were found to favor counties with greater rates of population growth, greater per capita income, greater proportions of low-skilled and high-skilled adults, lesser industry intensity (i.e., lesser competition), and greater rates of new firm creation. The latter is, perhaps, most interesting. We argued that greater start-up rates proxy for a supportive entrepreneurial climate or culture in the focal county. Additionally, for some of the relocating ventures (specially those specializing in business services), it may be that greater start-up rates provide greater business opportunities. In either case, it would seem that the benefits of a vigorous entrepreneurial community spill over into net transience, thus compiling the accumulation of entrepreneurial capital in the locale. Hence, our findings underscore the importance of policies that seek to find a balance between providing a favorable environment for established ventures and stimulating local start-up activity.

Implications for Research

There are several implications for research that derive from our study. First, our paper contributes to the entrepreneurship literature by raising the topic of business transience as an important aspect of entrepreneurial activity and as a contributor to the accumulation of entrepreneurial capital within a region, alongside net rates of business creation (firm births minus deaths). Further research is needed that explores determinants and consequences of entrepreneurial transience, as well as its interplay with native firm creation.

Second, our study contributes to the firm relocation literature in industrial demography. Prior findings in this literature (mainly based on European data) provide evidence of a limited impact of regional economic conditions on firm migration rates (Benoit, 1995), as well as mixed findings, at best, for the role of government policy (Pellenberg et al., 2002). Here we found, strong evidence of both. Also, as far as the role of government is concerned prior firm relocation literature has focused on infrastructure, land zoning regulations, environmental regulations, and tax subsidies, as opposed to local taxation, which doesn't exist in European countries. Here we find that local tax rates are an important firm migration policy tool.

Third, our study contributes to the literature on taxation and entrepreneurial activity. Most of the prior research has focused on the effects of federal and state personal and corporate income taxes. Thus, authors have called for attention to local tax policies, and to other forms of taxation besides income taxes, which may represent the bulk of the tax burden for small firms (e.g., Bruce, Deskins, & Mohsin, 2004). Our research answers this call and studies the effects of local property, income, and sales

taxation on a key element of entrepreneurial population dynamics: entrepreneurial transience. Future research should also investigate the consequences of local taxation on local rates of new firm formation, to ascertain that national and state-level findings can be translated to the local level.

Fourth, our study suggests that the effects of income taxes on entrepreneurial activity are more complex than previously thought. Prior studies report either a linear positive (e.g., Bruce & Mohsin, 2006; Evans & Leighton, 1989) or U-shaped (Georgellis & Wall, 2006) relationship between (federal and state) income tax rates and new firm formation. Authors argue that greater tax rates provide incentives to self-employment in the form of greater opportunities for tax evasion and greater net subsidies to risk taking by emerging start-ups (e.g., Cullen & Gordon, 2007; Parker, 1996; Pestieau & Posen 1991, 1992). By contrast, the present study finds the relationship of (local) income taxes with net transience to be linear and negative⁷. Since relocating entrepreneurs are past the point of considering alternatives to self-employment, the reduction in profits associated with higher income tax rates becomes the most salient aspect to them. Given countervailing effects on start-ups and migration, the net impact of local income tax policies on accumulation of entrepreneurial capital is ambiguous and begs future study.

Fifth, our study also extends the scant prior evidence regarding effects of business property tax rates on entrepreneurial activity. Bartik (1989) found property tax rates to be negatively related to business starts, and Wasylenko (1980) found them to be negatively related to firm in-migration in manufacturing and wholesale industries, where demand does not vary by location. Similarly, we found property tax rates to be negatively

⁷ Although not reported, we ran models with quadratic taxation terms which failed to reach statistical significance in all cases.

related to net transience, although this was circumscribed to high-income counties only. In low-income counties, our study suggests that business property tax rates are, actually, positively related to net transience. As noted above, we expect low-income counties to be characterized by a greater share of necessity-based entrepreneurs, which are often associated with marginally profitable businesses. Given this, a tentative explanation for our finding might be that, in low-income counties, increases in property taxes may lead to increases in business termination rates, which in turn would lead to increases in the stock of commercial property available for sale and downward pressure on property prices. These favorable factor conditions may, then, attract outside ventures, with healthier business models, to relocate into the county. Future research is needed that sheds further light on the impact of property tax on venture formation and transience across regional income levels, and to explore the underlying mechanisms of any observed effects. In particular, it would be interesting to investigate the effects of business property taxes on business exit (i.e., termination), as well as on venture in-migration and out-migration flows.

Implications for Policy and Practice

Our study has important policy implications. First, it calls for restoring considerations of entrepreneurial migration as part of the economic development puzzle at the local level. Since most firm relocations are local, prior regional and national level studies failed to find that firm populations were strongly influenced by migration. This led to a prevalent approach to business development that focuses on firm creation and closure, while ignoring transience concerns (Pellenbarg, 2005). Findings from the present study show that such a streamlined policy-making approach may not be appropriate at the

county (or municipality) level. Maximization of local entrepreneurial capital calls for a consideration of the complex interplay between all demographic events in business populations: births, deaths, and migration. Second, in terms of specific policy instruments, our study suggests that property taxes are an important economic development tool, but their role depends on local income levels. In affluent locales, property tax policy directed to the promotion of entrepreneurial capital appears straightforward: Lower business property taxes should increase both start-up rates as well as net transience. By contrast, in low income locales, the overall effect of property tax policy on entrepreneurial activity is less clear: Lower property tax rates may increase birth rates at the expense of a decrease in net venture migration rates. Interestingly, our results suggest that local income taxes may involve a similar trade-off between native venture formation and net transience: Higher (lower) income taxes may be used to increase (decrease) local start-up rates in exchange for venture migration deficits (surpluses). These trade-offs underscore the dangers of a development approach overly focused on new firm formation. For example, locales with high income tax rates may foster local start-ups but may not fully reap the associated economic benefits, as successful local ventures are more likely to leave. This raises the prospect that neighboring communities will become the eventual beneficiaries of native entrepreneurship.

Our study also has implications for entrepreneurs. First, relocation is one of the strategic options available to entrepreneurs to improve the likelihood of venture survival and growth. Hence, by informing of environmental and policy drivers of net migration, this research points to aspects that should be considered as part of the decision to move

and selection of a new location. Second, from the point of view of young ventures in the host region, our study may point to predictors of greater future levels of competition: Since migrating firms are older and will tend to be somewhat larger as well than the typical startup, relocation of outside ventures into a region may result in non-trivial increases in the level of competition for market space and for resources. Future research may explore this further by analyzing the effects of venture in-migration on subsequent failure rates and out-migration.

Limitations

Results from the present research have to be considered in the context of certain limitations. While consistent with current approaches to the study of entrepreneurship (e.g.; Santarelli & Piergiovanni, 1995) our data is limited to firms with at least one employee. Our study is also limited to intra-state venture transience, as venture relocation from out-of-state would not be included in our measure of net transience. Nevertheless, we expect the former to represent the bulk of the phenomenon of interest. Since we study transience at the county-level of analysis, a greater limitation is that we don't capture intra-county firm migration. Also, our investigation is limited to effects on net transience surpluses/deficits. Although this is appropriate for an initial study of this phenomenon, and it conforms to a similar approach used in the study of firm formation (Anyadike-Danes, Hart, & O'Reilly, 2005), we have acknowledged throughout this discussion that subsequent research analyzing migration inflows and outflows separately will contribute to a better understanding of the etiology and dynamics of entrepreneurial transience. Finally, our finding regarding a moderating effect by county income levels has to be interpreted with caution as this result could be due to different composition of industry

sectors in low- versus high-income areas. We leave exploration of this issue to future research.

CONCLUSION

We argue that net transience is a contributing factor to the accumulation of entrepreneurial ventures in a locale and, as such, deserves attention from researchers, policy makers and practitioners. The focus of the prior entrepreneurship literature has been on venture birth and death rates (e.g., Anyadike-Danes et al., 2005; Reynolds et al., 1995). However, because venture populations are transient, attraction and retention rates also have an impact on changes in the local stock of ventures and, thus, on expected economic development benefits. This paper brings attention to the phenomenon of entrepreneurial transience and sheds light on its policy and environmental drivers. We show that local taxation is an important predictor of firm relocation rates.

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TABLE 1
Descriptive statistics and correlations^a

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 . Net transience	-0.24	2.46															
2 . Property tax rate	48.45	7.56	0.17														
3 . Income tax rate	0.25	0.24	0.07	0.51													
4 . Sales tax rate	1.11	0.32	-0.20	-0.28	-0.32												
5 . Enterprise-Zone programs	0.11	0.08	0.05	0.22	0.62	-0.15											
6 . Firm-birth rate	0.22	0.06	0.27	0.10	0.07	-0.13	-0.03										
7 . Industry intensity	1.99	0.36	-0.07	-0.02	0.20	-0.07	0.19	0.25									
8 . Establishment size	15.44	3.74	0.15	0.36	0.30	-0.22	0.34	0.00	-0.06								
9 . Per capita income growth	0.01	0.02	-0.02	-0.01	-0.07	0.08	-0.02	-0.05	0.06	0.00							
10 . Population growth	0.29	1.49	0.33	0.07	0.03	-0.18	0.07	0.28	-0.08	0.12	-0.22						
11 . Change in unemployment rate	0.09	0.17	0.09	0.12	0.10	-0.09	0.09	0.02	-0.01	0.10	-0.40	0.17					
12 . Share of high school dropout	0.19	0.05	-0.19	-0.28	-0.32	0.28	-0.26	0.01	-0.03	-0.30	0.09	-0.20	-0.15				
13 . Share of college graduates	0.15	0.07	0.39	0.49	0.42	-0.48	0.23	0.25	-0.10	0.36	-0.08	0.43	0.19	-0.60			
14 . Ln(SBA loan guarantees per capita) ^b	2.72	1.25	0.23	0.31	0.32	-0.28	0.22	0.16	0.12	0.33	0.08	0.16	0.11	-0.40	0.43		
15 . Bank offices per capita	0.36	0.10	-0.11	-0.24	0.01	0.14	0.15	-0.22	0.52	-0.10	0.02	-0.11	-0.04	0.04	-0.27	-0.11	
16 . Per capita personal income ^c	26.78	4.59	0.35	0.43	0.50	-0.47	0.34	0.20	0.11	0.44	-0.05	0.36	0.18	-0.67	0.84	0.47	-0.08

^a $n = 352$. Correlations greater than $|0.14|$ are significant at $p < .01$

^b Nominated in \$ of 2004, using the implicit GDP deflator.

^c Nominated in \$-thousands of 2004, using the implicit GDP deflator.

TABLE 2.
Random-effects Regression of Net Transience^a

	Model 1	Model 2	Model 3
Property tax rate		0.02 (0.02)	0.01 (0.02)
Income tax rate		-1.20 * (0.50)	0.33 (1.32)
Sales tax rate		-0.27 (0.37)	-0.09 (0.41)
Enterprise-Zone programs		0.55 (1.64)	-0.89 (1.96)
Property-tax x Pers. Income			-0.01 * (0.00)
Income-tax x Pers. Income			-0.10 (0.16)
Sales-tax x Pers. Income			0.06 (0.10)
Control variables:			
Firm-birth rate	8.75 *** (2.65)	8.67 *** (2.70)	8.83 *** (2.62)
Industry intensity	-1.22 * (0.49)	-1.15 * (0.50)	-1.04 * (0.47)
Establishment size	0.00 (0.03)	-0.01 (0.04)	-0.01 (0.04)
Per capita income growth	6.04 (5.97)	5.08 (6.06)	3.97 (5.90)
Population Growth	0.26 ** (0.10)	0.24 * (0.10)	0.18 † (0.10)
Change in unemployment rate	0.38 (0.80)	0.33 (0.79)	0.18 (0.76)
Share of high school dropout	2.56 (3.71)	2.64 (3.66)	6.56 † (3.87)
Share of college graduates	5.76 (3.73)	5.40 (4.06)	7.59 † (4.05)
Ln(SBA loan guarantees per capita) ^b	0.18 (0.14)	0.18 (0.14)	0.12 (0.14)
Bank offices per capita	2.82 (1.81)	3.02 (1.90)	1.66 (1.68)
Per capita personal income ^c	0.08 (0.06)	0.09 (0.06)	0.11 † (0.07)
Intercept	-2.62 (1.61)	-2.82 † (1.66)	-2.99 † (1.61)
X^2	151.45 ***	159.57 ***	193.80 ***
d.f.	12	16	19

^a n = 352, unstandardized regression coefficients, robust standard error in parenthesis, † p < .10, * p < .05, ** p < .01, *** p < .005

^b Nominated in \$ of 2004, using the implicit GDP deflator.

^c Nominated in \$-thousands of 2004, using the implicit GDP deflator.

FIGURE 1

Relationship between Property Tax and Net Transience at Different Local Income Levels

