Measuring the Returns to Rural Entrepreneurship Development

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Introduction

Entrepreneurship has increasingly been held out as an alternative to traditional economic development strategies and policies. Advocates for entrepreneurship-based policies suggest that entrepreneurial development generates greater returns to the public than other alternative strategies such as industrial recruitment, or retention and expansion.

This paper develops a conceptual basis for measuring the welfare consequences of economic development programs and policies in general, and entrepreneurship oriented programs in particular. Furthermore, it considers the special case of economic development policy when the spatial distribution of development is important.

I first lay out the theoretical foundations of entrepreneurial economics and its relationship to economic growth and development. The theoretical link between entrepreneurship and economic growth is usually attributed to the early work of Joseph Schumpeter (1934). Schumpeter's concept of creative destruction provides us with a hypothetical relationship between entrepreneurship and economic growth and development.

In order to test the hypotheses from this conceptual foundation, we must establish the criteria against which economic development may be measured. The branch of economics that most directly addresses the measurement of economic benefits and costs of changes, including public policy, programs and projects, is welfare economics. Welfare economics deals with the measurement of society's wellbeing, changes in wellbeing caused by changes in economic variables, and comparisons among alternative cases. Welfare economics identifies and distinguishes between economic efficiency and distribution. The study of efficiency deals with the conditions under which perfect markets will achieve maximum welfare and how, under imperfect conditions, they may lead to market failure. Welfare economics also studies the causes and consequences of alternative distributions of income.

Finally, I draw upon regional economics to refine our basis for thinking about the spatial issues involved in entrepreneurship, welfare, and policy.

The Theory

The history of entrepreneurial theory (Herbert and Link, 1989; Wenneckers and Thurik, 1999) identifies three schools of thought and three major periods. The schools include "…the German tradition of von Thunen, Schumpeter and Baumol…the (neo-)classical tradition of Marshall, Knight and Schultz and…the Austrian tradition of Menger, von Mises, and Kirzner." The three periods include the original period of intellectual development up to the middle of the 20th century, the subsequent period of disinterest in entrepreneurship coinciding with the development of the formal neo-classical theory which has little room for entrepreneurship (Wenneckers and Thurik, 1999), and the last 20 years of resurgent interest. Each school of thought has contributed some useful insights to our understanding of entrepreneurship.

In 1912 Joseph Schumpeter (published in English in 1934), described how entrepreneurs challenge the status quo with superior products and processes. This process of creative destruction makes existing products and processes obsolete, releases resources and, in the medium to long run, leads to greater productivity. According to this line of reasoning, entrepreneurship is a behavior rather than a type of firm or even individual. Entrepreneurial activity can occur in any size firm as well as in start-up ventures. Employment, sales, and income growth is a consequence of entrepreneurship. Successful small firms become large firms because they are entrepreneurial.

Leibenstein (1968) elaborated on the concept of entrepreneurship, and proposed a theory of entrepreneurship-based development. Leibenstein distinguishes between routine entrepreneurship (management of well established businesses) and "new type" or N-entrepreneurship. N-entrepreneurship involves new or under-developed activities where markets are nascent and/or production functions are not fully known. Important roles of entrepreneurs are to acquire inputs when markets (financial markets for example) are not well developed, and to fill gaps when information and market mechanisms are incomplete. If markets were perfect, the search, organizational, risk-bearing and other activities of entrepreneurs would be available for sale by intermediaries in competitive markets and would provide opportunities for the generation of economic rent.

Schumpeter (1942) also describes a process of creative accumulation in which innovation is stimulated by R&D in a feedback loop which gives an advantage to larger firms. This led him and others to believe that larger firms would have an advantage over smaller firms in generating innovations and effecting creative destruction. From an empirical perspective there is ample evidence of the scale economies enjoyed by larger firms. Furthermore, large firms are responsible for the majority of R&D expenditures. Thus it would seem that larger firms would account for a majority of economic growth.

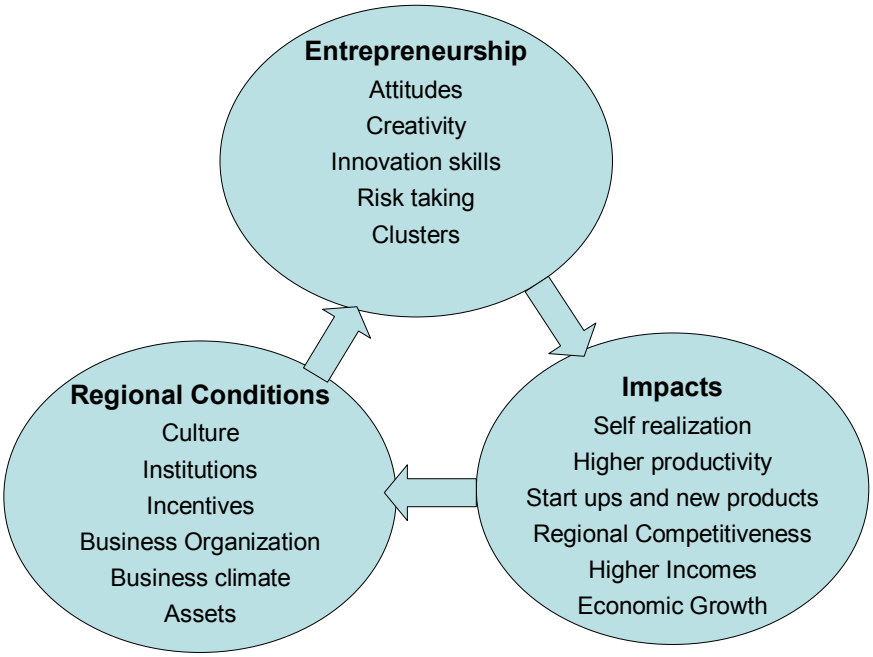
However, empirical analysis does not support this hypothesis and generally finds that small firms survive by being more innovative, and by generating these innovations with lower investments in R&D. In a recent OECD study, Audretsch and Thurik write, "…series of studies has identified a change in the determinants underlying the industry structure that has reversed this trend [toward consolidation and larger firm size]…The most salient point of this change is that technology, globalisation, deregulation, labour supply, variety in demand, and the resulting higher levels of uncertainty have rendered a shift in the industry structure away from greater concentration and centralisation towards less concentration and decentralisation."

Subsequent theoretical developments have hypothesized that small firms are more innovative because they are better able to appropriate new knowledge, especially knowledge generated in by public research. The literature on knowledge spillovers underscores the importance of proximity and social networks in communication knowledge. Individuals and small firms are more adept at exploiting spillovers and thus generating innovations without bearing much of the development costs. Empirical work (Audretsch; Fannin and Johnson, 2006) confirm that while the correlation between R&D

and measures of innovation at the firm level is low, the correlation in space is much higher suggesting the importance of place-based knowledge spillovers.

Small firms and individuals have been particularly important in terms of the introduction of transforming innovations. In addition to their ability to capture knowledge spillovers, small firms may have greater flexibility in their investments. Furthermore, venture capitalists and spatial clusters play an important role in providing small firms with some of the advantages of scale. The role of spatial clusters is of particular interest in this paper.

While little progress has been made to formalize the more dynamic and disequilibrium conceptualization of entrepreneurship, many of the key ideas can be merged into to an amalgam theory of entrepreneurship. Wenneker and Thurik concludes with a summary of several theories which serves as a starting point for such an amalgam. Figure one describes a dynamic 'model' of entrepreneurship which identifies three levels at which entrepreneurship may be viewed—the individual (within which entrepreneurship resides), the firm (which serves to internally organize factors of production), and the region (which serves as the external organizer of factors of production). It also identifies three dimension of entrepreneurship—the conditions which lead to entrepreneurship, the attributes of entrepreneurial individuals, firms and regions, and the impact or consequences of entrepreneurship which is the primary interest of this paper.



Level	Entrepreneurship:		
	Conditions for	Elements of	Impacts of
Individual	Culture Incentives	Attitudes Skills Creativity	Self-realization Income
Firm	Business culture Size distribution Incentives Organization	Start-ups New markets Firm size R&D	Firm productivity Growth New sectors Size distribution
Region	Culture Institutions Regulations	Variety Competition Clusters	Competitiveness Economic growth

Source: Adapted from Wenneker and Thurik, 1999.

These theoretical advances lead to at least two important observations about entrepreneurship. First, entrepreneurship is not just a part of economic development—it is the basis of long-term economic development. Second, entrepreneurship is highly place-based. Not only is entrepreneurship shaped by spatial attribute, and not only does it transform the socio-economies of places, but more fundamentally, economic development is less likely to occur in the aggregate if space is not effectively organized into regional entrepreneurial systems. Given our interest in rural entrepreneurship this last point is of particular interest here.

The combined theory of entrepreneurship above suggests a number of ways in which entrepreneurship is related to place-based attributes. Entrepreneurs function through membership in networks and by exploiting their place-based human capital. Both of these strategies require trust and face-to-face relationships to be effective. Entrepreneurs capture knowledge spillovers, which are known to diminish over space. As 'gap-fillers' and 'input completers' in Leibenstein's terminology, entrepreneurs rely on place-based knowledge, to access community memory, to bridge incomplete markets, and to find non-marketed and unusual inputs such as locally relevant information.

The Role of Policy

The goals of most economic policies, including economic development policies, are to increase welfare either by reducing the deleterious effects of market failure, or by improving the distribution of income or both. Economic development falls under both of these rationales. Market failure by definition leads to suboptimal economic performance. Economic growth is not only a consequence of policies which eliminate market failures, but growth is itself a public good. Public goods often justify public investments and interventions.

The issue of rural entrepreneurship is also one of distribution. There will never be agreement on what constitutes an ideal distribution of income. These issues have been, and continue to be, studied and debated extensively in the economics literature and in the public media. For the purposes of this paper the following assumption will be taken as given. *The spatial distribution of economic activity is a goal of many public policies.* Local policy makers are responsible to their constituents to generate improved economic conditions in their localities and regions without regard for the consequences in other regions. Likewise, state policy makers have a responsibility to residents of their state, while Federal policy makers are responsible for maximizing the benefits to the nation.

At each of these levels, the spatial distribution of economic activity as well as the aggregate level is relevant. For example, the Economic Development Administration was established to, "…to help bolster economic activity in America's economically distressed communities." USDA Rural Development mission statement indicates that the agency is "…committed to helping improve the economy and quality of life in all of rural America."

Clearly these goals and missions include distributional dimensions—to improve the economy of particular areas. Thus the success of these programs should be measured not only on how large the aggregate national economic benefits are but also on where these benefits occur.

Benefit Indicators

The most widely used indicators of economic performance are Gross Domestic Product (GDP) and Gross National Product (GNP). At the national level, GDP is the aggregate measure of economic performance of economic firms and individuals residing in the nation. GNP on the other hand measures the performance of nationals. GNP includes returns on foreign investments and excludes payments to foreign owned factors. While neither GNP nor GDP are perfect measures of welfare, economists believe that they are highly correlated with welfare and are practical measures of welfare, and welfare change. Of the two, GNP is more associated with people, while GDP is associated with place. Both measures have counterparts at local, regional and state levels which are consistent and additive. Below we will refer to the regional counterpart to GNP as gross regional product (GRP).

What is Gross Regional Product? GRP measures the value added or net production after inputs of firms owned by individuals in defined region. GRP is gross because it does not

adjust for capital consumption required to produce this value added. Another measure closely related to GRP but more difficult to measure is Net Regional Product which is net of capital consumption, and is an even closer measure of welfare. Furthermore, variations on Net Regional Product can take into consideration non-market measures of welfare change including environmental degradation or rehabilitation, and production or consumption of non-market services such as safety or economic security. Obviously, such measures are exceptionally difficult to measure in the aggregate and even more difficult to associate with particular policies.

The various measures above are examples of regional accounts. A common type of regional accounts is referred to as the Social Accounting Matrix (SAM). In practice most SAMs do not go much beyond the calculation of GRP and NRP and various indicators of distribution. However, they provide the framework and foundation for more sophisticated measures of welfare change.

Policy Impacts

Economic development policy is not only designed to intervene to directly affect the nature and location of economic activity, but also to leverage other actors in order to increase the effectiveness of policy. There are several types of leveraging possible. First, whenever partnerships and joint ventures are involved, each investor essentially uses his or her investment to leverage the investment and behavior of others. Leveraging occurs when the behaviors of others are altered due to one's own actions. Leveraging is often an explicit goal of economic development policy and is appropriately included as part of the policies consequences.

If publicly supported projects would have occurred in the absence of the public support then it is obvious that the program being evaluated has had little or no impact. This is a potential issue with all economic development programs. If the program is designed to fill a gap through loans, grants or technical assistance, then it is incumbent on the program's regulations and procedures to identify meritorious projects that would not be possible, in the respective location, without the public support. It is likely that this criterion is not met on some occasions. This is a risk comparable, in some sense, to any other risk involved in supporting economic ventures. There is some risk that the funds were unnecessary and thus had no impact on the program's goals.

A second and less visible, but no less real, type of leveraging is variously referred to as the ripple effect, the turn-over effect, or the multiplier effect. It is well known that changes in one sector have important impacts on other sectors of the economy through their economic linkages. Business owners know that their businesses fluctuate in response to changes in the economic situation of their buyers. There is no question as to the existence of economic multipliers. However, legitimate questions arise as to the size of multipliers and the whether there are offsetting or partially offsetting effects elsewhere in the economy. This offset, or displacement effect, is discussed later.

The multipliers described above are referred to as backward linkages. Backward linkages are relatively easy to predict based on our understanding of economic structure. Another type of leveraging is the so-called forward linkage. The term forward linkage refers to the investments, economic activity, and general economic behavior that occur because of the existence of a particular product in a place. For example, if an investor decides to locate logistics and service operation in a particular location in order to take advantage of the proximity to a manufacturing company which is producing a new global product, this investment and the subsequent economic activity are forward linkages or consequences of the investment in the manufacturing plant. However, forward linkages are much more difficult to predict than backward linkages because our models of economic structure are based on the purchasing patterns of firms, households and governments and not their sales patterns.

Thus we observe a series of economic leverages which each potentially extend the impacts and thus the effectiveness of policies and programs. In summary these leveraging mechanisms are:

1. Co-investments which are easily measured because they are a matter of public record:
2. Backward linkages (multipliers) which can be predicted using our knowledge of economic structure;
3. Forward linkages which are difficult to predict but observable *ex post*.

The length of run is an important dimension of economic impacts and in particular the linkages discussed above.[1] In the short run the size of the multiplier effects depend on the ability of the economy to adapt to the new conditions created by the intervention being observed. If the economy has significant flexibility due to unemployment of factors of production (labor, fixed capital and financial capital), the stimulation caused by new economic activity can have a significant impact. If the economy is at full employment the stimulus will cause a redistribution of factors among economic activities. The aggregate impact on employment may be small. Note that the redistribution may increase overall productivity of the economy by moving resources to higher productivity activities.

In the long run all factors of production (labor, fixed and financial capital) are variable. Thus if there are no absolute limits on the availability of factors, the multipliers and forward linkages will be fully realized. In a closed economy[2], it is not the variability but the absolute availability of resources that is most likely to determine the size of the impact.

In the long run, in a closed economy at full employment, there is only one source of economic growth. Only productivity growth can lead to economic growth. In a closed

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[1] In economics length of run refers to the factors of production which can be changed. In the very short run production is fixed and all quantities are given. In the short run, some inputs are variable and others are fixed. In the long run all factors are variable.

[2] A closed economy is one where there are no external sources of labor, capital, inputs, or products. In closed economies there are no imports or exports.

economy at full employment, job creation is exactly offset by job destruction elsewhere in the economy. In the long run even business cycles can be viewed as part of a full employment economy. Net job creation during a recession may employ temporarily unemployed factors and increase the size of the economy and the aggregate welfare during that period of economic slack, but will have no long term effect on the economy unless it leads to productivity growth.

Of course no economy (except the global economy) is closed. Given immigration and international financial markets, sound economic development policies can lead to net gains in jobs at the national level over time. But these impacts are relatively small in comparison to overall job turnover (job replacement) rates. The most important determinant of growth, especially on a per capita basis, is still productivity growth. Thus job displacement[3] when new jobs are created is not only likely, but desirable.

When it comes to job displacement, the spatial dimension is critical. Local economies, especially rural areas, are very open economies. Labor and capital are constantly moving on the margin. In the long run there are no absolute limits on the availability of any factor to local economies. An economic stimulation that creates an opportunity for labor will lead to growth (or smaller declines) in the labor force. An opportunity for capital will lead to investment (or a slower disinvestment). Obviously, when labor and capital are induced to relocate there is spatial displacement but from the perspective of the local economy these are new jobs and new investment.

If a program's goals are to create economic opportunities in rural areas how are we to measure its success? What should our indicators be? The foregoing would suggest the following principles:

1. The ideal proxy for economic benefits (given accuracy of estimates, costs of data collection and costs of calculation) is contribution to Gross Regional Product;
2. The total impact, including leveraged investments, the multiplier effect and forward linkages are relevant;
3. Programs which create higher productivity economic activities are preferred;
4. Thus total GRP per job created is an indicator of productivity;
5. The program should be credited with any impacts that would not have occurred without the intervention (the "but-for" condition);

Data

Once benefit indicators have been established and an accounting system or model built to measure and predict changes in these indicators, the necessary input data can be identified. It should be obvious that the results of this assessment process and the value of the assessment system will only be as good as the input data.

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[3] Here, job displacement does not refer to the simple relocation of specific jobs from one location to another with the economy. Job displacement refers the to the replacement of one job with another job, usually in another firm and often in an different sector of the economy. Job displacement of this type may occur within the same local or regional economy, but usually involves some mobility of labor.

It is useful to distinguish between two types of data which involve different points in the process, different levels of accuracy and which play different roles in project assessment. We will refer to the first as *ex ante* data. *Ex ante* data are produced prior to commencement of the project and are projections, usual made during feasibility studies and/or the program application processes. These data are sometimes optimistic but often conservative estimates of overall size and essential attributes of the proposed project.

We will refer to the second type of data as *ex post*. These data reflect the observed, after the fact, results of investments and activity related to the project. If accurately collected these data are neither optimistic nor pessimistic since they reflect what has already happened.

Ex post data is not always easy to collect. In the simplest of cases it includes the level and nature of new economic activity induced (direct contribution to GRP) and the magnitude of production or services provided. In other cases, such as technical assistance programs, educational programs, information clearing house, etc., the direct effects are more difficult to determine and quantify. It is often necessary to design quite innovative data collection procedures in order to collect this information.

Ex ante data, when introduced to the entrepreneurial assessment system, generate projected indicators, whereas *ex post* data generate estimates of actual impacts. Only the latter estimates can be considered real program assessment indicators. The *ex post* data provide information on actual direct changes due to programs, the timing of these changes and interactions with the local and regional economies. The *ex post* reports of new economic activity in the regional economy provide a better basis for estimating leverage and multiplier effects of the program than *ex ante* predictions. Furthermore, *ex post* reports are the only way to determine forward linkages (see the benefit indicators section above) from the projects.

What data are needed and how much effort will be required to collect it? Where is the ideal balance between accuracy of data collected and the effort required to collect it? The answers to these questions are perhaps the most critical to the accuracy of this assessment process.

Since our benefits indicators are based on total value-added (i.e. contribution to GRP), and quality of jobs, it is important that we know each entrepreneur's linkages with the local economy and the types of jobs created. It is highly likely that new entrepreneurial activities are substantially different from existing firms. Secondary and historical data provides information on old technologies and techniques. Thus primary data collection from entrepreneurial firms is highly desirable.

The ideal alternative would be to observe at least a sample of new entrepreneurial activities over time to collect information on the current size of their operation, their employment levels and their purchase patterns. Over time this process could be further

streamlined. By identifying where the sample survey data are the least critical to the accuracy of the process, some questions could be eliminated or modified.

Conclusions

The measurement of returns to entrepreneurship development policies and programs involves a number of components.

It requires a theoretical framework to point out the rationale for indicators chosen. This framework is provided by the concepts of innovation, creative destruction and the individual-firm-region triad. This suggests that an extended Net Domestic Product measure and a job displacement measure are preferred. It also suggests a medium to long run perspective on change.

It requires a regional accounting stance which coincides with the responsibility of the governmental agency involved in the entrepreneurship policy. Implied in this component is the need for a place-based perspective which considers local preferences, local opportunities and local successes.

Finally, it requires an information system which incorporates these indicators into the regional accounting stance and adds a data collection process that considers the leveraging power of the policy.

This is not small undertaking, and no matter how much effort is devoted to this assessment it will always provide only approximate estimates of net returns. It may never be possible to generate a literal return on investment measure because some of the benefits are incommensurate with others. But assessment is the only way to determine if the public resources devoted to entrepreneurship are well spent, and how they might be spent more effectively.

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