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The Global Entrepreneurship Index (GEINDEX)

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Abstract

This paper constructs a Global Entrepreneurship Index (GEINDEX) that captures the contextual feature of entrepreneurship across countries. We find the relationship between entrepreneurship and economic development to be mildly S-shaped not U-shaped or L-shaped. Our findings suggest moving away from simple measures of entrepreneurship across countries illustrating a U-shaped or L-shaped relationship to more complex measures, which are positively related to economic development. Implications for public policy suggest that institutions need to be strengthened before entrepreneurial resource can be deployed to drive innovation.

Keywords: Entrepreneurship; Development; Stages of Growth; Globalization; Innovation; Index; Knowledge; Institutions.

JEL codes: L26, O1, O3

Contents

1

Introduction

Joseph Alois Schumpeter pointed out over one hundred years ago that entrepreneurship is crucial for understanding economic development.[1] Today, despite the global downturn, entrepreneurs are enjoying a renaissance the world over according to a recent survey in the *Economist* magazine (2009). The dynamics of the process can be vastly different depending on the institutional context and level of development within an economy. Therefore, if one is interested in studying entrepreneurship within or across countries, the broad nexus between entrepreneurship, institutions, and economic development is a critical area of inquiry. This nexus is especially important in helping understand why the relative contributions of entrepreneurship can vary significantly across countries and regions.

Baumol (1990) observes that historically all societies have a constant supply of entrepreneurial activity, but that entrepreneurial activity is distributed unevenly between productive, unproductive, and destructive entrepreneurship. As institutions are strengthened, and the

[1] For a review of the literature see Acs and Virgill (2009).

incentive structure changes, more and more entrepreneurial activity is shifted toward productive entrepreneurship strengthening economic development (Acemoglu and Johnson, 2005). This entrepreneurial activity explodes through the efficiency-driven stage and culminates in a high level of innovation with entrepreneurship leveling out as institutions are fully developed Fukuyama (1989).

Of course, the interdependence of economic development and socio-political change is generally recognized by social scientists (Adelman and Morris, 1965). This environment is marked by interdependencies between economic development and institutions, which affect other characteristics such as quality of governance, access to capital and other resources, and the perceptions of entrepreneurs. Institutions are critical determinants of economic behavior and economic transactions in general, and they can impose direct and indirect effects on both the supply and demand of entrepreneurs.

Over the past two decades the role played by institutions in economic development has become increasingly clear to economists and policymakers alike Acemoglu et al. (2001). At least three large research projects at the World Bank, The Heritage Foundation and the World Economic Forum are actively involved in measuring the quality of institutions across countries and over time. However, none of these indexes measure the *business formation process* in any detail. While the measurement of institutions has been an ongoing activity for decades, the measurement of entrepreneurial activity is a relatively new subject that represents a gap in our understanding of why countries are rich and poor.

For the past 10 years an international research project has been underway that has had as its explicit mission *the measurement of the business formation process across countries*. The Global Entrepreneurship Monitor (GEM) project is similar to the projects at the above institutions in that it is a large research project that is interested in understanding economic development albeit from a slightly different perspective. The business formation process is an important aspect of how technology and institutions interact to produce innovations and deliver new goods and services to society. However, how successful different countries are at this process is not easily discernable from either

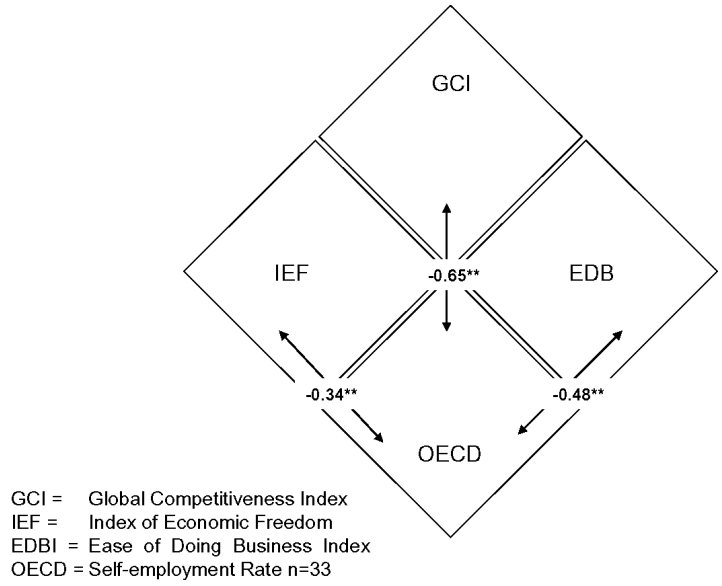

Fig. 1.1 Correlation between OECD and major institutional indicators.

the GEM project or from several other projects that try to measure the business formation process.

The Figure 1.1 shows three major international research projects that track data on global institutions in most countries. However, not only do these research projects not track the firm formation process, but also most do not correlate with measures of the firm formation process. For example, the self-employment rate published by the OECD correlates *negatively* with the Global Competitiveness Index, the Index of Economic Freedom and the Ease of Doing Business. What does this *negative* relationship mean? Does less economic freedom mean more entrepreneurship? What about the difficulty of starting a business?

This paper addresses this paradox in the economic development literature. Building on previous measures of entrepreneurship, we define the basic requirements for construction of an entrepreneurship index. First, the index should be sufficiently complex to capture the multidimensional feature of entrepreneurship. Second, besides the quantity, or level-related measures, there should be indicators referring to

quality-related differences. Third, the index should incorporate individual level as well as institutional variables. Entrepreneurship depends on the mutual interplay of the individual level and institutional variables (Busenitz and Spencer, 2000).

The purpose of this paper is to contribute to our understanding of economic development by constructing a global entrepreneurship index (GEINDEX) that captures the essence of the contextual features of entrepreneurship and fills a gap in the measure of development. *We develop a global entrepreneurship index that offers a measure of the quality and quantity of the business formation process in 65 of the most important countries in the world* (see Table 4). The GEINDEX captures the contextual feature of entrepreneurship by focusing on entrepreneurial attitudes, entrepreneurial activity, and entrepreneurial aspirations. These data and their contribution to the business formation process are supported by three decades of research into entrepreneurship across a host of countries. The index construction integrates 31 variables, 17 from GEM, and 14 from other data sources, into 14 pillars, three sub-indexes and a "super-index".

This project is not without its challenges. Some of the other global indexes have been 30 years in the making and our understanding of them is rather advanced. The role of economic freedom, for example, is now well established as being indispensable to economic development. In the following section we lay out the rationale for entrepreneurship and economic development. In Section 3 we show the history of entrepreneurship index building. Section 4 develops the methodology of index building introducing two novel methods: the first is the application of the environmental variables as weighting elements, and second, the penalizing for bottleneck problems incorporates dynamism into the index building. A potential connection of the three sub-indexes, entrepreneurial Attitudes, entrepreneurial Activity, and entrepreneurial Aspiration, is presented. Section 5 presents the building of the sub-indexes. Section 6 contains the results as well as the analysis of the 28 variables,[2] 14 indicators, the three sub-indexes. Section 7 analyses the

[2] In three cases the basic individual GEM data are used to construct combined individual variables.

results of the GEINDEX. Section 8 presents the policy guide and the paper concludes with a summary.

We find that the relationship between entrepreneurship and economic development appears to be mildly S-shaped. Our findings suggest moving away from simple measures of entrepreneurship across countries illustrating a U-shaped or L-shaped relationship to more complex measures, which are positively related to economic development. The interaction between institutions and entrepreneurs varies with the stages of economic development. Institutional change is more important at lower levels of development and entrepreneurial activity becomes more important at higher levels of development. The model has important implications for development policy.

Nordic and Anglo-Saxon countries are in the front ranks. Two Scandinavian countries, Denmark and Sweden, lead the index with very balanced performance in all three sub-indices respectively. Four of the five Nordic countries, Denmark, Sweden, Iceland, and Norway, are in the top ten. The United States 4th, New Zealand 3rd, Australia 5th and Canada 6th occupy the rest of the top spots. The United States lost out on the top spot because of its weaknesses in attitude measures, while ranking second in aspirations. The most populous EU countries are in the middle part of the rankings; France is 14th, UK 21st, Italy is 23rd, Germany is 29th, followed by Spain in the 30th place. China, an efficiency-driven economy, with a per capita GDP close to $10,000 ranks 39th overall. However, it ranks 20th on aspirations. Low GDP-level factor-driven countries, such as Jamaica 56th, Bosnia–Herzegovina 57th, Venezuela 59th, Brazil 58th, Philippines 60th, Iran 61st, Bolivia 62nd, Ecuador 63rd, and Uganda 64th are on the bottom of entrepreneurship ranking, as expected.

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