

The Logic of Economic Development: A Definition and Model for Investment

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Abstract: Despite significant public resources devoted to promoting innovation and entrepreneurship there is little agreement about how to measure outcomes towards achieving the larger objectives of economic development. This paper starts by defining economic development and then considers the role of government, arguing that public policy should focus on building capacities that are beyond the ability of the market to provide. This shifts the debate towards a neutral role of government as a builder of capacities that enable economic agents, individuals, firms or communities to realize their potential.

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Material prosperity and high quality of life are universal goals for democratically elected governments. However, the precise way to best achieve these goals is the subject of considerable theoretical and political debate. More recently, in the face of the most painful recession of the post-war period, policy agendas have been dominated by macroeconomic considerations that favor austerity. As the recession fades, there is widespread recognition that the long-term growth of industrial economies relies on innovation, entrepreneurship and production – decidedly microeconomic concerns. Unfortunately, although these topics have gained currency, they remain only one element in a chaotic and divisive debate on the role of government in the economy and in particular in supporting future economic growth.

The policy debate is particularly confused because we lack a clear and shared understanding of what we mean when we talk about economic development. In this journal nearly 30 years ago, Haider (1986) argued that the consensus about the meaning and function of economic development was still emerging – the same can still be said today. There would be no need for a consensus definition of economic development if over the previous 30 years individual and community needs had been largely satisfied. However, in light of a slow recovery from the global recession and continued debate about the role of government this is evidently not the case. If anything, the notion of economic development, once used chiefly in reference to actions aimed at boosting the prospects of lagging regions and poorer economies, is increasingly relevant for all types of economies. Once-prosperous places have been humbled by international competition and struggle to redefine themselves (Feldman & Lanahan, 2010; Christopherson et al, 2010). Even places currently doing well realize the vulnerability of their economic base, leaving them insecure about their future prospects. The concept of economic development has become relevant to the full range of nations, places and communities. Continual restructuring is the new norm, with the now universal concern of how to best secure an economic future. Strategies to depress wages and lower corporate taxes are a race to the bottom but have not lost their appeal perhaps because we lack consensus on how to define and measure economic development.

Having dominated global public discourse for over 30 years, the Reagan-Thatcher agenda to reduce government, and its corollary in international development thinking – the Washington

Consensus – has run its course. Yet no prominent counterargument on the appropriate role of government has emerged to take its place (Rodrik, 2006, Easterly, 2007). Most simply, government is a vehicle for collective action: the agent to advance the objectives of the citizens within its jurisdiction. While there are ensuing principal-agent problems, government is best positioned to make long run, and risky investments. Government is the only entity in the economy that has the mandate to promote wellbeing and prosperity, and government has unique access to the mechanisms that keep the economy on course. All but the most radical believers in free-markets recognize that government was the only entity capable of saving the global financial system from collapse in the last recession.

Though the phrase economic development is ever-present in policy circles and in academic research, it is rarely clearly defined. The chief aim of this paper is to advance a definition of economic development that has the objective of creating prosperity and increasing citizens' quality of life. A first step in defining economic development is distinguishing it from the concept of economic growth, as the two are different processes in a lifecycle of a place, but often conflated. The definition articulated in this paper is built upon well-known foundations, such as those provided by Sen, Schumpeter, and Ostrom, however it adds value by providing a novel synthesis that motivates complementary roles for public and private investment. The definition accommodates spatial policymaking as well as addresses concerns about measurement and evaluation.

Building on the definition of economic development, the paper articulates a role for government with clearly articulated goals that can inform investment decisions. This final section of this paper also considers implications of this new definition for measuring progress – a vital concern in an age of evidenced-based policymaking. Our objective is to change the conversation away from a focus on numbers of jobs, new firm formation or counts of innovation and towards a more inclusive set of indicators that capture the capacity of a region to advance citizens' well being and prosperity.

Economic Development Should Not Be Confused With Economic Growth

As currently defined, the term economic development is often conflated with development and growth, which adds to confusion in both policy and academic debates. A careful contrast between the two, however, is instructive. Economic growth has a strong

theoretical grounding and is easily quantified as an increase in aggregate output. In theorizing economic growth, David Ricardo (1819), and later Robert Solow (1956) and many others conceptualize an economy as a machine that produces economic output as a function of inputs such as labor, land, and equipment. Output can increase either when we add more inputs or use technology or innovation in order to enhance the efficiency with which we transform inputs into outputs. Subsequently, growth occurs when output increases. In part because of this straightforwardness, economic growth dominates the debate, with its emphasis on increases in population, employment or total output, despite the fact that increases in any or all of these could be associated with both improvements and/or declines in prosperity and quality of life. Regarding the latter terms, the consensus is that development is a fuzzier and more far-reaching idea. Nobel laureate Robert Lucas (1988:13) quips, “we think of (economic) growth and (economic) development as distinct fields, with growth theory defined as those aspects of economic growth we have some understanding of, and development defined as those we don't.”

Economic growth is easily quantified and measured, while economic development is more qualitative and “has meant all things to all men and women” (Arndt 1987:6). Economic development is focused on quality improvements, risk mitigation, innovation, and entrepreneurship that place the economy on a higher growth trajectory. While economic growth is tied to macroeconomic conditions and a function of market forces, economic development represents the conditions that determine the microeconomic functioning of the economy, affecting both the quality of inputs and the opportunity set for firms. Economic development is associated with institutions, social capital, labor and capital mobility, and income and wealth equity (Fagerberg et al. 2013).

Gordon (2010) argues that current productivity rates represent the slowest growth in measured American living standards over any two-decade interval recorded since the inauguration of George Washington, and Cowen (2011) describes the last several decades as “the Great Stagnation.” There is clear cause for concern: since 1973, growth in productivity has been lagging compared to historic rates, except for periods leading up to economic bubbles. This suggests that macroeconomic policy has not been able to engineer a solution. By focusing on the microeconomic foundation of the economy, economic development offers perhaps the best, and maybe the only, policy prescription for sustainable economic growth.

Economic development is predicated on long-term investments in the generation, dissemination and absorption of new ideas, as well as infrastructure. Economic development requires collective action and large-scale investments with long time horizons. Infrastructure projects, a traditional concern of economic development, now extends to the digital realm. The standard of literacy is expanded at a time when labor force participation requires a bachelor's degree with the expectation of continued lifetime education and training. Economic development is predicated on cooperation between the public sector and private enterprise but is defined by conditions established by government and public investments. Though it is certainly possible to have growth without development in the short or even medium-term, economic development creates the conditions that enable long-run economic growth.

Based on a review of the literature, we define economic development as the *development of capacities that expand economic actors' capabilities*. These actors may be individuals, firms, or industries. While actors have different perceived potential, it is difficult to predict the next new idea or to understand how genius may arise. In contrast to a resource-based economy, where location was constrained to natural endowments, a modern, knowledge-based economy depends on capacity that is constructed over time. Many dynamic regional economies may have been initiated by historical accident, whether we are thinking of the birthplace of Henry Ford or Goodrich (Buenstorf and Klepper, 2009) or the William Shockley's locational preferences (Saxenian, 1978). These accidents are difficult to replicate; the most unexpected individuals often come up with great ideas that enrich society. And yet, fortune favors the prepared: the ability to benefit from serendipity relies on actors' underlying capabilities (Feldman & Francis 2003). The argument that advantage is due to capacity investments that yield a long-term return is gaining acceptance (Rodríguez-Pose and Storper, 2006). In the absence of any clear bets, the best strategy is to enable every individual to fully participate in society and to realize their potential.

Building a Definition of Economic Development

If economic development is not the same as economic growth, then what exactly is it? Amartya Sen's (1999) international work, while never providing a precise definition, considers development to be the strengthening of autonomy and substantive freedoms, which allow individuals to fully participate in economic life. Hence, economic development occurs when

individual agents have the opportunity to develop the capacities that allow them to actively engage and contribute to the economy. In the aggregate, this should lower transaction costs and increase social mobility. Rather than being reduced to a static factor in a production process, individuals become the agents of change in the process of economic development: they have the freedom to realize their potential. The greater the number of individuals able to participate in the economy and the society, the greater the opportunity for new ideas to circulate and be put into action. Based on this, economic development is the sustained increase in real per capita income, and measures of the distribution of income and wealth as well as increases in indicators of quality of life, ranging from life expectancy to crime statistics to environmental quality. Economic development focuses on the microeconomics of growth. From this standpoint, economic development differs from growth in terms of a focus on a broader set of metrics that are more immediately realized. Although Sen's work was rooted in the context of some of the world's poorest countries, this definition and criteria are equally relevant to the full range of economies – both national and regional.

Inspired by Sen, *economic development is defined as the expansion of capacities that contribute to the advancement of society through the realization of individuals', firms' and communities' potential*. By capacities, we mean conditions conducive to promoting an array of intermediate outcomes that set the stage for the realization of potential or capabilities. This potential may be realized at multiple levels– for an individual, a firm or set of firms or industry, a community of people or a place. One lesson that history teaches is that the limits of human potential are unbounded and lie in uncharted domains. Building capacities allows for a platform to accommodate an uncertain future and the ability to meet many contingencies. Economic development thus depends on the expansion of human capital in its broadest sense, such that individuals can more fully participate in the economic, social and cultural patterns of behavior that encourage initiative, engagement, co-operation and competition.

Defining development in this way, and contrasting it with growth gives sense to the expected outcomes of economic development. Economic development, according to Joseph Schumpeter (1961), involves transferring capital from established methods of production to new, innovative, productivity-enhancing methods. Schumpeter's conceptualization was focused on understanding the origins of the business cycle and the conditions that gave rise to new opportunities that propelled the economy forward to a higher economic growth trajectory.

Schumpeter discusses the emergence of systems of complementary capabilities that develop around key radical innovations to create economic growth. For example, the industrial revolution was driven in part by changes in the means of production in the textiles industry; these changes generated a variety of social and economic effects that then extended to other complementary sectors, and diffused throughout the economy. During the industrial revolution, the factory became the unit of production, moving people off farms and into cities and required clocks and accounting systems to regulate working hours. The result was a sustained increase in the standard of living, albeit not without certain adjustment costs.

In Schumpeter's view, economic development is a fundamental transformation of an economy. This includes altering the industrial structure, the educational and occupational characteristics of the population, and indeed the entire social and institutional fabric. While growth is measured by putting more people to work within an existing economic framework, economic development is aimed at changing that framework so that people work more productively, with a concomitant economy-wide shift toward higher value-added activities. One important conclusion from this is that, while economic growth can be measured quarterly, realizing gains in economic development may take decades or generations. Thus, to add to the definition, *Economic Development is the means to achieve sustained increases in prosperity and quality of life realized through innovation, lowered transaction costs, and the utilization of capabilities towards the responsible production and diffusion of goods and services.*

Economists conclude that the development of high quality institutions is the major factor behind economic growth (Rodrik et al. 2002). Lipset (1959) argues that the efficiency of a political jurisdiction's social and economic institutions define economic development. Institutions are the rules of the game, enforcement mechanisms or the accepted standard of behavior in a society (Ostrom 1986). Institutions operate with specific rules and procedures that lower transaction costs and inspire confidence by certifying the range of potential outcomes. High quality institutions support productive activities and encourage capital accumulation, skill acquisition, invention, and technology transfer (North and Thomas 1973). Rosenberg and Birdzell (1987) highlight how the development of institutions conducive to capitalism was a driving force in *How the West Grew Rich*.

Two points about institutions are relevant to solidifying our understanding of economic development. First, there is no single institution, such as the legal system or property rights that

supports economic development. What matters is an underlying capability and orientation of the social and economic organization of a society, especially the capacity to instill confidence in the future. Formal and even informal institutions create predictability and order that allow individuals and businesses to make investment decisions. Second, institutions are endogenous – that is, they are the product of history, culture and historical accidents. Institutions evolve in unexpected and idiosyncratic ways. However desirable, it is mostly not possible to transplant organizations or sets of incentives wholesale from where they originate to other contexts where they appear to be needed. Instead, organizations and incentives need to flow from existing institutional arrangements. Engaging in economic development means building or augmenting existing institutions that are critical to progress.

Giving primacy to the market hides the fact that markets would be very primitive without government. When government works well, the private sector benefits through greater productivity and efficient use of resources. Government also mitigates risk through a relatively stable and predictable system of laws and money. Government provides rules and incentives – the conditions under which modern markets are even possible, and enables the private sector to realize its potential. More broadly, government provides for social order and predictability in contracts and daily life. The difficult balance for the government to strike is to provide for the realization of potential while not reducing incentives in the private sector. Thus, to further build the definition, *Economic development requires effective institutions grounded in norms of openness, tolerance for risk, appreciation for diversity, and confidence in the realization of mutual gain for the public and the private sector.*

Economic development may be viewed as both a precursor to, and a result of, economic growth. Economic growth provides slack resources that, if invested in economic development, provide the basis for future economic growth (Amsden 1997). Unfortunately promoting all and any growth is too often an easy victory to win at the expense of longer-term goals and objectives (Rubin 1988). Indeed, many of our conceptual tools may not be quite up to the task of economic development. Douglas North (1984) argues that neoclassical economics' focus on short-run optimal resource allocation is simply not well suited to the dynamic, long-term orientation that defines the process of economic development. Consider that it takes seven years for an academic discovery to be incorporated into an industry (Mansfield 1991) or 18 years of education to produce a scientist.

Examples abound of national economies that have experienced significant increases in economic output, due to either population growth or large-scale resource extraction, with little broad-based improvement in individuals' quality of life and ability to realize human potential. There are numerous countries in sub-Saharan Africa, Central and South America and Oceania that provide examples of growth without development (Acemoglu et al. 2002; De Soto, 2000; Moyo, 2009). These economies are increasing their ranks of highly educated professional elites, skilled workers, and officials occupying high-level positions in international NGOs; at the same time they receive substantial support from foreign aid. Their national income grows, coupled with notable investments made by the public sector. And yet, despite these indicators, little progress has been made on health outcomes such as infant mortality, morbidity rates and life expectancy (Overseas Development Institute, 2009). Moreover, these nations suffer from significant income inequality and limited educational attainment, especially among women and immigrants (Wolfson 1997). Although they receive international aid, many countries are unable to provide adequate medical, social, and educational institutions that enable the entire population to thrive. Despite their economic growth, with insufficient support for economic development, longer-term outcomes that lead to broad-based improvements in quality of life and widespread prosperity remain inaccessible. Keefer and Knack (2001:146) find evidence that income inequality and polarization – correlates of a lack of economic development – foster an environment of uncertainty. This erodes the enforcement of property and contractual rights that, “affect growth directly, by influencing the choice of production process and the efficiency with which production is carried out, and indirectly by reducing incentives to invest.” Weak economic development inhibits capacities and places limits on economic growth in the future. Of course, growth provides slack resources that may either be appropriated by rent-seeking elites or invested in economic development to provide the basis for future economic growth. When long-run prosperity rests not on resource extraction but on the ongoing production and exploitation of ideas, investments in economic development become even more essential as a precursor to growth. Finally, *Economic development is essential to creating the conditions for economic growth and ensuring our economic future.*

In sum, we advance the following definition:

Economic development is defined as the expansion of capacities that contribute to the advancement of society through the realization of individuals', firms' and communities' potential. Economic Development is a sustained

increase in prosperity and quality of life realized through innovation, lowered transaction costs, and the utilization of capabilities towards the responsible production and diffusion of goods and services. Economic development requires effective institutions grounded in norms of openness, tolerance for risk, appreciation for diversity, and confidence in the realization of mutual gain for the public and the private sector. Economic development is essential to creating the conditions for economic growth and ensuring our economic future.

The next section considers the ways in which economic development may be realized, based on a review of the literature.

The Context of Economic Development

Schumpeter's attention to innovation and entrepreneurship proved ahead of its time; these concerns now lie center stage in policy discussions about economic development. Entrepreneurs are the agents of change in an economy and the source of increased productivity – those actors who recognize opportunity and garner resources to create value. Innovation and entrepreneurship are two sides of the same coin: Entrepreneurs identify opportunity and innovate, while innovation is the commercial realization of value from a new idea or invention from an entrepreneur. Innovation may result in new products introduced to the market, new production processes or new organizational forms. While radical new breakthrough advances hold our imagination, there are many more mundane industries and incremental forms of innovation that are within reach and that rely on different types of knowledge. Successful firms often arise in unusual locations, serving unanticipated customer needs in unexpected ways.

Despite the pervasive image of the lone genius, innovation is a social activity that requires a mix of individuals with different skills to collaborate to create value. Rather than distributed uniformly through time and across geographic space, innovation tends to cluster both temporally and spatially. This creates cycles of boom and bust, causing disruption for people who move to follow opportunity, as well as the many who remain. One of the reasons why regions, and in particular, cities, have moved to the center of attention is that inventors heavily rely on local information or knowledge in generating novel products or processes. When an industrial activity dominates a landscape, the factors of production become calibrated to that activity and generate increasing returns. These factors of production include specialized skilled labor, which is often referred to as *talent* but extends to all workers involved in production.

Related and subsidiary activities, which support and create economies of scope and both formal and informal institutions, which share expertise and define a future trajectory are all part of the factors of production. Observing that much industrial know-how defies formal capture through market transactions, Alfred Marshall (1890) is famously noted to have said, “the secrets of the industry are in the air.” Despite the Internet and advances in teleconferencing and communications, the process of innovation still requires debating ideas, unpredictable epiphanies and chance encounters. Innovation is essentially unpredictable – rooted in the creative sparks that make us human and the serendipity that makes life interesting.

This has implications for economic development in both creating the capacities that promote innovation as well as easing the transitions for places and communities. Of course, predicting what will be the next *big thing* or even next important industry is difficult, and most likely too difficult. Location becomes important not only for recognizing opportunity but also for providing an environment that is responsive to the entrepreneurs’ activity, which in turn lowers the cost of innovating (Audretsch & Feldman, 1996). Innovation and entrepreneurship require economic agents to venture into uncharted domains and test the limits of their capabilities to realize potential rewards. Even the most accomplished venture capital investors and stock analysts make bad investments from time to time. It is no easier for government than for private investors to decide which companies will be successful or how markets will develop. We never know which new opportunities will yield a high return and which projects or companies will fail. The best way to hedge society’s bets is building the capacity of individuals to fully and creatively participate in economic and social life, and to incentivize companies to more fully realize their capability to add to the economy. By facilitating industrial upgrading and improving infrastructure, government lowers transaction costs to expedite economic exchanges. By investing in institutions, government lowers risk and supports the utilization of private sector capabilities.

It is not uncommon for policy makers to talk about return on investment (ROI), yet this belies the fact that government invests in those activities that the private sector does not find lucrative enough to warrant their own investment in the short term, or for which the capital requirements are so large and the number of actors so complex that collective action is required. Porter (1998) does not articulate a role for government policy, but instead considers government as a background condition with influence on all of the factors in what has become known as

Porter's Diamond. Porter's emphasis, however, does highlight what the private sector requires to be profitable and internationally competitive. Porter advances the idea of geographic clustering of industries in a model that includes the nature and extent of the inputs required by firms to produce goods or services; the type and intensity of local rivalry; the quality of demand for local services; and the extent and quality of local suppliers and related industries. These factors certainly define firm and industry capabilities as one of the important components of a regional economy. However, Porter does not directly consider capabilities that support and sustain innovation and new firm formation. The focus on existing industries precludes an emphasis on the nascent or emerging industries that offer the most in terms of upside economic potential. In the *Innovator's Dilemma*, Clayton Christensen (1997) points out that innovative firms that focus solely on their currently profitable activities are commonly eclipsed by more forward-looking innovators. Ideally, a firm's potential is realized before the opportunity becomes obvious.

Clusters appear to occur spontaneously as a result of the intrinsic tendency for industrial activity, and especially innovative activity, to cluster spatially. However, clusters build on existing capacities (Audretsch and Feldman 1996). In many cases the design and cultivation of competitive industry clusters, often seen as a policy panacea, has failed to produce meaningful economic development (Martin and Sunley 2003; Duranton, 2011). This failure has also contributed to dissatisfaction with government policy (Lerner 2009). One reason is that the cluster model obscures the role of government and fails to consider how industrial competitiveness translates into economic development outcomes for an economy. The concept of competitiveness, while operational at the individual firm and industry level, does not translate fruitfully into economic development activities, and often creates bidding wars between adjacent jurisdictions that would benefit from cooperation. Despite all the attention to lowering tax rates and increasing a pro-business climate, the evidence suggests that these factors have little effect on economic growth, while actually decreasing the potential for economic development (Goetz et al, 2011; Hungerford 2012). While empirical research has shown that industrial activity certainly benefits from location (Greenstone et al. 2010), the resulting profits are typically not distributed back to local residents and communities or reinvested in those same places that provided the advantage to firms and industries. Indeed, there are few mechanisms other than corporate social responsibility and philanthropy available for firms to reinvest in local areas due to a preoccupation with low tax rates.

Economists tend to be skeptical of place-based development strategies on efficiency grounds, considering that localities may benefit at the expense of aggregate national welfare. There is little empirical work on this topic and theoretical work tends to focus on the default, mathematically tractable assumption of constant returns to scale. However, the major contribution of the new growth theories is to recognize that knowledge benefits from increasing returns to scale rather than the constant or decreasing returns associated with physical commodities. Activities that create knowledge and opportunities for sharing of knowledge generate increasing returns that would lead to increased national welfare. But at this point neither theoretical nor empirical economics can address the appropriateness of different interventions and mechanisms. Policy makers cannot afford to wait. As Klein and Moretti (2013:34) conclude, “Second best may, in practice, be very attractive relative to the status quo.” The case for place-based policies is accepted for the remediation of localized market imperfections and a key role of governments is to provide services that raise the quality of life of local residents.

The ultimate goal of economic development is to create economic prosperity and high quality of life. Intermediate goals - for example, to increase innovation or to reduce barriers to entrepreneurship and private sector investment - are the means to the ultimate end of creating this prosperity. The investment challenge is to ascertain progress towards these goals in complex environments, and under conditions for which impact is difficult to attribute to any one specific investment. It is certainly possible to consider the impact of investment on outcomes for individual firms. However, economic development investments aim to build capacity that extends beyond individual firms to benefit the larger ecosystem. Advancing the public interest requires finding balance that scaffolds economic transactions while not over regulating, provides support and incentives without discouraging initiative and enables all economic actors to realize their potential.

Rationale for Government Investment in Economic Development

Capacity building requires government investment: there is simply no other entity that has societal benefit as its main objective and is able to command the resources required to have significant impact. Government is a vehicle for collective action: an agent for whom the principal is its citizens and the businesses within its borders. While the not-for-profit and even for-profit sector has taken over many functions previously allocated to government (Salamon

2002), the results of this privatization are mixed. Government is the principal inclusive vehicle for organizing economic, social and civic life. In contrast, markets are concerned with transactions and coordinating activity through prices. The invisible hand works on the logic that firms attempt to maximize profits or shareholder value while workers seek to maximize their wages. The result is the all too familiar race to lower costs through relocation or the de-skilling of the labor force to lower wages. This market logic does not account for the potential longer-term benefits to firms if skilled worker suggest new product improvements. Moreover Henry Ford's epiphany that if he paid his workers a good wage they could afford to buy his cars.

Government seeks to allocate resources for the collective good and tries to simultaneously satisfy a large number of constituencies. In reality, private businesses' profit maximization goal is much easier to achieve than satisfying the diverse aims required for the achievement of government effectiveness. While it has become popular to bemoan the quality of government services, a reasonable benchmark may be our levels of satisfaction with mobile phone service, computer operating system, insurance claims or consumer choice in many product markets. We hold government to a higher standard because, implicitly at least, we acknowledge its functions are critically important.

Economists have traditionally relied on the theory of market failures to justify government investment in economic activity. However, markets are concerned with transactions. In a variety of circumstances, specifically those concerning public goods; information asymmetries; industry conditions that provide a barrier to new firms being able to enter; and the difficulty of pricing externalities, markets yield less than efficient outcomes. An easy illustration of the market failure justification for government investment is Research and Development (R&D) investment. Nelson (1959) cogently argues for federal funding to support R&D activity within the U.S. by observing that when the marginal value of a good to society exceeds the marginal value of the good to the individual who pays for it, the allocation of resources that maximizes private profits will not be optimal. Of course the problem lies in estimating the marginal value of goods to society. Strict reliance on the private sector results in an under-investment in R&D. Econometric estimates find that the rate of return on R&D investments are higher than for ordinary capital and the social rates of returns are even higher (Hall, Mairesse and Mohnen 2009). However, realizing the benefits of investing in R&D critically depends on

complementary social capabilities and infrastructure to support and bolster economic growth (Galor 2011; Fagerberg et. al 2014).

Market failure has become a primary rationale for all government investment in the economy. The logic of market failures, though appropriate to justify R&D investment, should not be uncritically extended to all government investment. In the discourse of market failure, the market takes primacy while the government's role is minimized. Amsden (1997: 470) makes the case that the market failure approach, while useful in considering economic exchanges, is inadequate when the focus is on economic development, which requires building and sustaining markets and communities. Markets only work when there are well-defined property rights, a valid medium of exchange and enforceable contracts. These require agreement, collection action and enforcement.

There are many attempts to substitute market mechanisms for the provision of government services. For example, support for public funding for higher education has eroded (Bok, 2009). The argument is frequently made that educated individuals receive higher wages as a result of their investment in human capital (Spence, 1973). This suggests that it is rational for individuals to make the investment rather than rely on public funding. However, job markets are highly uncertain and individuals invest without a guaranteed return (Green & Zhu, 2010). Moreover, a well-educated workforce generates larger social returns (Greenstone, Hornbeck and Moretti 2010). The consensus in both the theoretical and empirical literature is that spillovers from human capital have a positive significant impact on firm and industry productivity, and economic growth (Jaffe & Trajtenberg, 1993). These real, beneficial externalities represent a subsidy that is impossible to price or even attribute. Indeed, despite the potential to apply the logic of the marketplace, public provision of higher education has long been justified in the U.S. as a building of capacity to allow citizens to fully participate in social and economic life (Nash 1963).

Neoclassical economics is centrally concerned with the efficient allocation of goods. It treats the creation of knowledge as exogenous – ideas simply appear (Arrow, 1962; Romer 1995). A fuller consideration of the benefits of government R&D investment suggests that the private benefit may be recast as increased capacity. Indeed, Salter and Martin (2001) highlight that government R&D investments creates additional long-term dynamic externalities as skills and capabilities are developed, thereby lowering the cost of subsequent inventive activity.

Investments in R&D offer opportunities for experimentation and learning that enhance the ability to solve complex technological problems and extend the scope of inquiry. Additionally, government R&D investments make it easier for firms to absorb information, and in so doing they improve private sector decision-making and ability to innovate (Cohen & Levinthal, 1990).

With a more nuanced understanding of the nature of innovation and entrepreneurship, the case for government involvement is stronger (Feldman & Kelly, 2003). At the point when technology has the greatest potential for creating new industries, the frontiers are poorly defined and the chances of failure are high. Complex new technologies require collaboration and information sharing; however, the upfront cost of establishing research and development partnerships and making them work productively is a disincentive to the private sector despite the high potential to create new industries. As evidenced by pharmaceutical manufacturers' focus on blockbuster life-style drugs or incremental changes in current drugs in order to keep them under patent., the profit motive favors short-term activity with large market potential – not the most important societal concerns. Based on short-run profit motive alone, much of potential return on investment may be left on the table.

Government as an Investor in Capacity

By contrast, government is the actor in the economy best positioned to act with an eye to the long run, undertaking investments that provide a platform for economic growth. Firms have only weak incentives to invest in new technologies that are radically different from those that already exist. Formerly radical new technologies required decades of public support to reach the threshold of commercial viability. Direct government investment is essential, given the long-term, risky and commercially unpredictable nature of basic research. Entrepreneurial firms have been most innovative when given the opportunity to capture economic rents opened up by complementary public investment. These are far from being simply theoretical ideas; we have exemplary cases of government investment in the development of nascent but transformative technologies, such as radar, penicillin, atomic energy, the Internet, and space travel.

Rather than relying on the market-based rationales for public investment, it is important to define the function of the public sector as building and bolstering the capacity for economic actors to realize their potential. Rather than viewing individuals, firms, and communities as objects on the receiving end of public initiatives, economic development requires that they be

considered as active agents. This prioritizes improving quality of life and wellbeing by enhancing capabilities and ensuring that agents have freedom to achieve their potential as productive members of society. When every actor in society is capable of being an active agent with the potential for full participation in economic and communal life, society makes better use of available resources.

If we reconsider the rationale for government investment through a capacity building lens, then government serves as a facilitator for the population at large, including the private sector. By promoting capacity, the public sector's contribution extends beyond improving efficiency and equality towards bolstering a foundation upon which long-term growth and development can be sustained.

Evidence suggests that at a time when market fundamentalism has come to guide policy debates, government has actually become more and more immersed in the economy through its technology policies (Block & Keller, 2009) and public institutions (Schrank & Whitford, 2009).¹ Rather than being confined to the R&D labs of large corporations, innovative activity is now embedded in networks of scientific collaborators between both public and private institutions. This decentralization encourages organizations to work in concert and also fosters a greater dependence on government programs that provide incentives to form networks and subsidies that lower the costs of coordination. In their examination of the *R&D 100*, which catalogs cutting-edge premier innovations, Block and Keller (2009) observe that organizations have moved away from vertical integration toward relying more heavily on complex collaborations that include governmental agencies or government programs as important conveners and intermediaries. Inter-agency collaborations like the United States' Jobs and Innovation Accelerator Challenge are a perfect example of this emergent practice.²

At the same time, bolstering capacity as a rationale for government intervention is as old as the American republic. As Alexander Hamilton (1791) highlighted in his Manufacturing Report presented to the House of Representatives, the government holds the responsibility to

¹ While the most recent estimates of public investment in university R&D show slight declines, this is attributable to financial constraints that resulted from the recent economic recession rather than a changing shift in public support for R&D. Source: <http://www.insidehighered.com/news/2012/01/23/state-funds-higher-education-fell-76-2011-12#.Tx1RreVDRX4.mailto>

² <http://www.eda.gov/challenges/jobsaccelerator/>

build a foundation so that the private sector can flourish. He emphasized the role of manufacturing in leading the country toward economic growth and prosperity. Hamilton saw manufacturing as a complement to other economic activities, providing for the “employment of persons who would otherwise be idle (and in many cases a burden on the community), and increasing the viabilities of communities.” Following Hamilton’s advocacy, tariffs were imposed on imported manufactured goods. These tariffs were the major source of government revenue until the imposition of the federal income tax. This infant industry policy supported the development of U.S. manufacturing, which became the backbone the economy.³

Capacity building has been instrumental throughout American history. From Alexander Hamilton’s tariffs on manufacturing imports to John Kennedy’s space race and DARPA’s investment in the early Internet, government has been critical to the American economy. Investments in building the TransAmerican railroad or supporting the World Wide Web by the Department of Defense and the National Science Foundation have served to enhance the private sector abilities. In the United States, there have been cyclical debates about the role of government with the waning and waxing of regulations, tariffs and social policies. Yet the role of government in building scientific and research capacity has never been questioned. A long-term contract between the public and private sector has been the foundation for American prosperity, providing the opportunity for the private sector to create, build, employ, trade and innovate. Arguably, this kind of active involvement in development characterizes most of the examples of successful national catch-up during the 20th century (Freeman, 1987; Page, 1994; Rodrik, 1994).

Capacity is essential to innovation and entrepreneurship. Innovation relies on creativity and we are never sure where genius originates. Our investments in building innovation capacity come with a certain level of necessary risk because the results cannot be immediately observed nor can we accurately predict how they will be affect products and processes over time. For example, J.K. Rowling was a welfare mother when she wrote her first *Harry Potter* manuscript. The result demonstrates the potential of small, seemingly inconsequential efforts (Bell 2012). It took Rowling 12 attempts to find a willing publisher. Once published, the novel did well. It created an entire new category of fiction for young teens – an audience that publishers felt was moribund. Of course, Rowling had the capacity to pursue her ambition: she was well educated

³ Unfortunately, too often tariffs have been used to support mature industries.

and public assistance gave her the chance to pursue her ambitions. As reported in the *Financial Times* in 2003, J.K. Rowling became wealthier than the Queen of England.⁴ Like a true entrepreneur, her ideas have created wealth and jobs through subsequent films, video games, toys, and now even, a theme park. The underlying idea from this simple example is that it is impossible to predict which ideas will create the desired outcomes. But the greater the capacity in the total population, the more likely that unexpected ideas can take hold and innovation will propel the economy forward.

A common argument against industrial policy is the idea that government will become captive to vested interests. While there is broad consensus that innovation serves as an integral catalyst in leading the trajectory of an economy and even society forward, the emphasis in economic development policy remains on traditional attraction and retention incentives. This is often directed at specific businesses, which is largely a zero-sum game with little or no broader effects for economic development. In addition, local governments tend to support the same policies over time, adding incremental changes to preexisting strategies, rather than a wholesale reconsideration of investment strategy. The emphasis recently has shifted towards boutique, targeted policies. Yet, as we consider that the greatest economic growth potential is expected from the development of new industries, the difficulty of predicting what will be the next big thing is a daunting task for venture capitalists, investment bankers and other experts. Our argument is that government has a vital role in promoting capacities that enable the fullest variety of human endeavors and potential, including a variety that cannot be foreseen.

Policy efforts aimed at fostering equity are commonly criticized as handouts that produce perverse incentives to diminish effort. Despite intentions to “even the playing field”, the American public has notable reservations in supporting redistributive programs (Pittau, et al. 2013). Up until the recent economic recession, many espoused anti-regulation and pro-privatization practices. Nevertheless, as we reflect on economic practices over the past few decades, many are questioning the tenets of the Chicago School of Economics: rent-seeking behavior associated with widespread deregulation and retraction of government involvement in the marketplace and society is widely considered to have contributed to the growing socioeconomic rifts across the U.S. population as well as the dramatic economic downturn that

⁴ "In the News." *Financial Times* [London, England] 28 Apr. 2003: 3. *Financial Times*. Web. 30 Aug. 2013.

began in 2008. In his book, *The Price of Inequality*, Nobel Prize winning economist Joseph Stiglitz (2012) argues that equity and efficiency must be considered in tandem. The skewed distribution of wealth in the U.S. has grave consequences for the economy and society. Those occupying the middle and lower rungs of the income distribution are unable to follow the American Dream because they lack the capabilities to fully participate in the economy. If this cycle continues there is potential for subsequently even greater divergence in income and opportunity, leaving those who are disadvantaged less able to gain access to education, finance and opportunity. Moreover, as Brenner and Pastor (2013) emphasizes, the increasingly unequal distribution of income inhibits entrepreneurship, slows economic growth, and destabilizes the economy of American cities. Rather than viewing equity and efficiency at odds, they appear to be complements. Reconsidering the role of government argues for a broader framework focused on building capacities designed to benefit and advance the entire population.

The Objective of Government Investment in Economic Development

For the private sector, the objectives are clearly defined as profit maximization and organizational survival. For government, articulating a vision and meeting a set of broad objectives is more difficult as a result of competing interests, the need to consider diverse perspectives, and the inability to divest mandated but unprofitable and sometimes unpopular activities. In the absence of an accepted consensus vision for government, it is too easy to give in to competing short term demands or become diverted to serve other purposes. An articulated vision for government is crucial to following an effective long-run course.

From a societal point of view, increasing in quality of life, which includes long-term prosperity, is the ultimate benchmark of economic development for democratic governments. Prosperity and quality of life are often synonymous with the concept of the *good life*, which encompasses a sense of material comfort as well as psychological satisfaction and health (Lane 1994). Indeed, the concept of the American Dream is an ideal of a good life based on a classless society with meritocratic advancement and continual progress (Cullen 2003). High quality of life is an integral outcome for government policy (OECD 2014: Chapter 2). It would be difficult to argue for the opposite as an articulated objective for government in any democracy.

Economic development is the means to achieve the objective of high quality of life and prosperity. The notion behind greater prosperity and better quality of life is that they are earned

by working hard and realizing potential. Employers reward professional success and innovativeness with higher wages or more prestigious jobs, which then translates into higher income. But underlying this ideal is the reality that individuals are educated and prepared for gainful employment, and that high quality jobs are available, with opportunities for advancement. Reaching this objective requires the public and private sector work together for their mutual gain and the greater good of society.

Prosperity and high quality of life are laudable long-term goals. More intermediate realized outcomes, however, may be used to measure more tangible progress, such as, the quality and quantity of jobs created, the earnings and wealth of individuals, the types of new innovative goods and services introduced to the market and investments made and the growth and exporting of firms. These intermediate outcomes are only realized through the actions of the private sector and require that firms have incentives to take risk and are actively engaged in the production and distribution of goods and services. Economic development requires effective institutions grounded in norms of openness, tolerance for risk, appreciation for diversity, and confidence in the realization of mutual gain for the public and the private sector. These are the ideal goals for a better functioning economy.

The result of economic development is greater prosperity and higher quality of life, but this is realized through increases in four dimensions of capacity outcomes:

Community Capacity: The physical, social, and environmental assets that influence the context for economic development;

Firm and Industry Capacity: The assets relevant to firms and industry, including workforce, facilities and equipment, organization, and supply chain;

Entrepreneurial Capacity: The potential for generating new small businesses, including a risk-taking culture, networks, and access to financial capital and a skilled workforce; and,

Innovative Infrastructure: The capacity to support new products, processes, and organizations, in terms of facilities, support services, and willingness to take risks.

These capacities are overlapping and mutually reinforcing. Other categorizations are certainly possible but such categorizations are needed to measure progress. Measuring capacities permits an overview of the status of a regional economy and measures the direction of change. These categories represent broad constructs that governments could use as benchmarks for making

progress toward economic development. The capacities provide a diagnosis of the prospects for future prosperity and economic wellbeing. They indicate where capacity is strong or increasing and highlight where additional investigation is required to understand roadblocks, stumbling blocks, and information gaps.

Measurement of changes in a region's capacities – that is, the quantification of specific attributes associated with these capacities capture progress in building resources associated with generating a stream of outcomes, such as jobs and earnings, over time: if capacities are increasing then economic development follows. If capacities are underdeveloped then government is the entity that can provide the programs and policies to move towards economic development.

Conclusion

We define economic development as activities that expand capacities to realize the potential of individuals, firms or communities who contribute to the advancement of society through the responsible production of goods and services. Economic development addresses the functioning of the microeconomics of the economy. Without economic development, economic growth is limited. The ultimate result of economic development is greater prosperity and higher quality of life; however, these goals can only be realized through sustained innovation, activities that lower transaction costs through responsive regulation, better infrastructure and increased education and opportunities for more fruitful exchange. Only by appreciating the role of government as a vehicle for collective action, and not simply a corrective against market failure, can we ensure our economic future.

The logic of economic development requires certain capacities that require collective action through government. For government to be effective in creating economic development there is a need for performance and impact measurement systems that are able to provide decision support for strategic investments, to assess progress made in the catalytic capacity-building function, and to assess the limitations and barriers that prevent the utilization of capacity that government investments build. More than simply ex-post evaluation, there is potential for continuous improvement and adjustment when metrics are monitored. However, it is important to be sure that measurement is done well and reflects an understanding of the complex process of economic development. In this paper, we have built a foundation for

understanding economic development and the role of government that should permit the future development of such performance and impact measurement systems.

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