

POLICIES TO SUPPORT HIGH PERFORMANCE FIRMS: A BRIEF GUIDE

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INTRODUCTION

The entry and further development of new small innovative firms is a significant determinant of any country's technology and industrial development. Policies to support these firms have been receiving increasing attention in developing countries, and there are a number of new initiatives in this regard.

This paper provides a broad overview of these new initiatives. Principally, addressed to policy makers, the paper outlines how such new small innovative firms are defined and why such firms, as opposed to small firms in general, merit particular policy attention. The system in which these firms are embedded is then sketched and the constraints faced by these firms at each point in the system are outlined. A quick suggestive guide as to the overall need for intervention and the areas that require intervention is then provided. The main policies that governments could adopt to address each of the constraints and some of the principal difficulties that they are likely to encounter are briefly outlined. By way of conclusion, a few general but important guidelines are provided for the policy maker.

This is a high level description of policy. It is not exhaustive. In particular the evaluation of the different policies is complex. What is provided here are only some pointers in this regard.

WHAT ARE HIGH POTENTIAL FIRMS?

There is no consensus as to what constitutes new firms with high potential – what is generally termed start-ups. Countries employ different definitions (Box 1). However, two characteristics are critical. Firstly, start-ups are seen to be young firms which have the potential for very rapid rates of expansion. Secondly, start-ups are innovative: they employ new technologies and/or introduce new products and production processes. Indeed, these two characteristics are interdependent – the firm's potential for expansion grows directly from its capacity for innovation.

These two interdependent characteristics differentiate start-ups from the vast majority of new firms.

Table 1: Some Developing Country Definitions of Start-ups

Start-up Chile (2016)	Innovative or technological firms targeting the global market with the potential to grow 20% during the first three years and achieve turnover in excess of USD 1 million.
India (2016)	An entity that develops a business model based on either product innovation or service innovation and makes it scalable, replicable and self-reliant
Brazil (2012)	Recently founded or growth-stage enterprises that carry out R&D activities, with low overheads and a potential for fast growth

Source: Chile, OECD, 2016: 8

Brazil, OECD, 2013:47

India, Startup India, 2016:2

WHY SUPPORT START-UPS?

Start-ups bring many economic and social benefits

On average, new firm entrants have higher growth rates and they create far more jobs than do well-established firms. However, the higher growth in output and employment results from the rapid growth of a small minority of firms.¹ So, governments that look to small firms to raise output and employment should focus, not on new small firms in general, but on those firms with the potential to grow their output and employment rapidly.

Moreover, because the growth of start-ups relies on innovation, the jobs created by start-ups require more skills – in science, technology, management and other areas. These are high-productivity employment opportunities with potential for high earnings.

Start-ups, by definition, and by contrast with the vast majority of new firms, introduce something new. For countries that are seeking to diversify away from traditional activities – for developing countries these are usually primary based activities - the introduction of new knowledge-intensive products and services are particularly critical. Indeed, the need to diversify the economy away from a dependency on primary products, has been a very important factor in the increasing attention that developing countries are according policy to enhance knowledge based start-ups – Saudi Arabia and South Africa are two examples. The

¹ Ayyagari, Demircuc-Kunt and Maksimovic, (2011)

potential impact on exports is particularly important. Countries with more knowledge based exports enjoy faster rates of economic growth.²

The innovative content of many start-ups consists of bringing new technology and solutions to the specific problems and challenges that the country confronts. Countries that have vibrant start-ups are generally characterised by experimentation with new solutions addressed to economic and also more broadly social challenges.

Start-ups disproportionately engage the young. Start-up entrepreneurs and employees tend to be young and skilled. Start-ups facilitate early entry of young people into the economy with concomitant social benefits.

Finally, while start-ups tend to agglomerate in large urban areas, they can be the spur to growth in neglected regions or areas of the country – Bangalore in India; Medellin in Colombia, or the reinvigoration of depressed areas – Detroit in the United States. Start-ups may also be an important route whereby those, who have hitherto been denied opportunities, are given the opportunity to engage in business. In South Africa, for example, government support for start-ups gives preference to black and female owned enterprises.

In summary, the benefits of start-ups fall into three categories – enhancing employment, growth and diversification.

Table 2: The Benefits of Start-ups

Increased Employment	<ul style="list-style-type: none"> - Overall - Skilled - High productivity and high remuneration
Higher Growth	<ul style="list-style-type: none"> - Overall - More knowledge based exports - In neglected areas - For hitherto disadvantaged groups
Diversification	<ul style="list-style-type: none"> - New economic activities - New solutions to social challenges

² Hausmann, Hwang and Rodrik, 2007.

These benefits associated with start-ups are not characteristic of new small firms in general. The vast majority of new small firms are designed and intended to remain small. Indeed, many of these firms have no intention of significantly expanding output or employment. These firms utilise standard technologies and well-worn business practices, entail no new economic activities and give rise to no new approaches to economic and social problems.

Therefore, while government will have policies to encourage entrepreneurship and small firm development in general, the focus of government policies and support should be firmly on start-ups: firms with a high potential to grow, where this high potential results directly from the firm's capacity for innovation.

MAPPING THE SYSTEM FOR START-UPS

Start-ups are the product of a system. There are numerous components of this system for start-ups

At base, there is firstly the supply of skills, the persons who will possess the capabilities to manage a start-up successfully and secondly the new knowledge that will inform the initial core of the firm's innovation. Collectively, skills and knowledge form the foundation – the base inputs for start-ups.

To take their knowledge to the market, start-up entrepreneurs will require additional inputs. In particular, as they grow and develop, start-ups will require finance. In addition, as they develop, increase their outputs and become more complex organisations, start-ups will require further inputs – more especially management and marketing and other contractual services such as insurance.

These inputs collectively can be considered as the supply side of start-up entry and growth.

The entry and further growth of start-ups is responsive also demand – the existence of a “market” for the new products and services that start-ups supply and the extent to which that market is growing.

A number of dimensions are important here. Firstly, larger domestic markets are likely to offer more scope, particularly for the growth of start-ups. Larger markets allow for the development of specialist suppliers and talents that might not be demanded in a smaller market.

Secondly, more rapidly growing economies offer more scope for the entry and further growth of start-ups. Rapid growth implies increasing incomes, new consumption patterns and new consumers entering into the market. This is a market environment that will be conducive to the growth and entry of new firms in general and start-ups in particular. By contrast, where markets are not growing, demand for new products and services will be very limited. Moreover, where growth is low, established businesses will be engaged in retaining their market share. New firms attempting to wean away consumers from established firms will generally encounter increased barriers to entry and further growth in a low growth environment.

The export market offers a further potential source of demand.

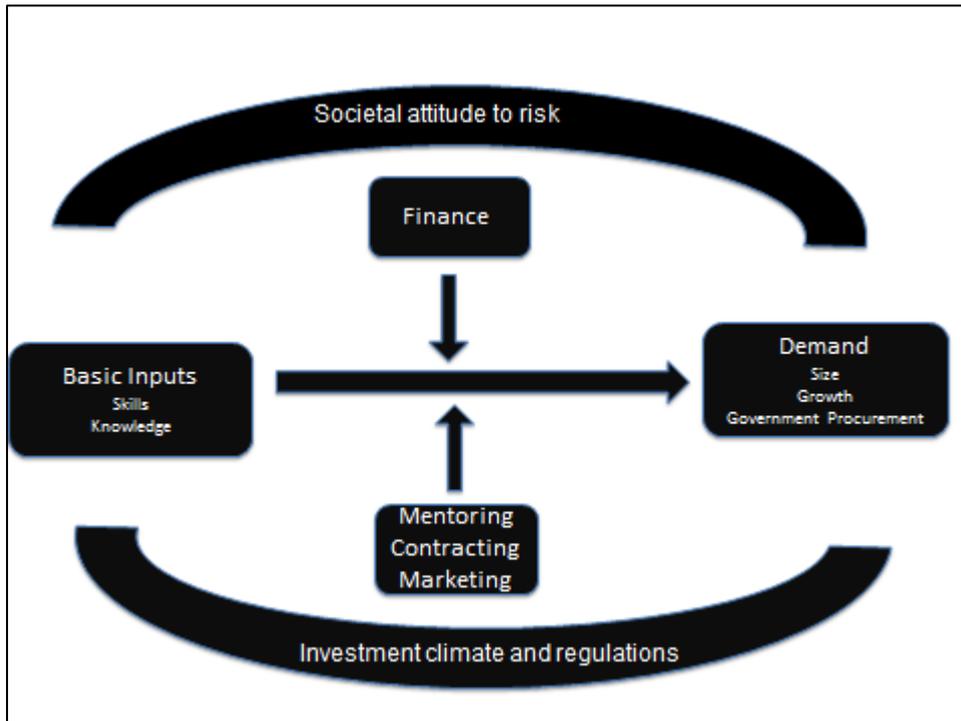
In addition to these factors constituting supply and demand for start-ups, there are what might be termed two broad environmental or conditioning factors. These factors particularly impact on the supply side – the entry (most strongly) and also the further growth of start-ups.

The first is society-wide attitude to risk. Even if the supply factors are in place and there is demand for new products and services, potential entrepreneurs may be deterred from start-ups in a society where failure incurs significant social stigma. Where the private costs of failure are high, this will deter entry into risk intensive activities.

The second factor is the regulatory and legal framework. High costs of compliance will deter the entry and restrict the further growth of start-ups.

The system for start-ups is summarised graphically below.

Fig. 1. The System for Start-ups: Graphical Representation



Obstacles and constraints to the entry and further development of start-ups will be manifest in all components of the start-up system. The next section, examining each component of the system in turn, outlines these obstacles and constraints.

WHAT ARE THE OBSTACLES AND CONSTRAINTS FACED BY START-UPS?

All new firms, particularly small firms, will face obstacles and constraints in entering the market and in growing further. Some of these obstacles and constraints will be common to all new small firms. However, start-up firms face additional and very particular obstacles and constraints. These additional obstacles and constraints arise principally because of the reliance of start-ups on developing their capacity for innovation.

The first task of government policy is a careful analysis of the obstacles and constraints faced by start-ups, particularly those that impact upon the capacities of start-ups to develop their technological capacities and to innovate.

The following are the major obstacles that start-ups face. These obstacles constrain both the entry and the further expansion of start-ups.

1. The national education system may be producing a very limited number of graduates with the requisite skills – both entrepreneurial and technical. The skills constraint will negatively impact on both the entry and growth of start-ups. There will be fewer start-ups and those start-ups that enter will find it difficult and hence also expensive to gain access to the requisite skills as they seek to expand.
2. The national system for science and technology may be producing very limited new knowledge that could inform the innovative capacities of start-ups. Limited research in the tertiary education system and/or a preponderance of research that may be of an academic nature but that does not lend itself to commercial application will constrain the emergence of start-ups.
3. Potential start-up entrepreneurs may be risk-averse and seek to join established companies or to seek forms of “safe” employment. Some societies are more hostile to risk taking than others. In many African countries, for example, skilled graduates have a marked preference for government employment.
4. High legal and administrative costs of setting up a company can constitute a major obstacle to the entry of new firms. Requisite standards and regulations governing established companies curtail further growth and development. These obstacles are common to the entry and further growth of all small firms. However, some regulations and requirements are particularly constraining of start-ups. For example, taxation policies, particularly policies that limit potential high profit returns from risk taking, will significantly lower the incentive for start-ups to enter and grow.
5. The obstacles related above fall largely on the supply side – they restrict the entry of start-ups and they curtail the growth of start-ups that do enter. But, the demand side is also of significance.

As outlined earlier, domestic demand is determined by both the size of the economy and the rate of growth.

The overall size of the economy and the change in overall demand in the economy are a given - exogenous factors that are not readily amenable to policy governing the entry and the further development of start-ups.

However, there is one component of domestic demand that can be directly impacted upon by government policy – namely government procurement. Government procurement policies can have a significant impact on the entry and subsequent expansion of start-ups (see below).

A further source of demand is the export market. Start-ups, as with all firms, face considerable costs, particularly in entering into new export markets. Export demand is largely exogenous, but government policies can facilitate exports on the part of firms.

6. Start-ups face particular challenges in contracting with other parties – potential investors, insurers, partners and customers.

All new firms face problems convincing investors or banks about their potential. There is a very large gap between the understanding of the potential on the part of the start-up and the understanding of the investor. These informational asymmetries are far more pronounced in respect of start-ups. A start-up, seeking to raise finance, precisely because it entails novelty, will find it far more difficult to convince investors or banks of its potential than would say an electrician or a plumber.

Not only do start-ups face higher risks than other new entrants, these risks are far harder to insure against. Again, informational asymmetries are at play – insurers will find it difficult to assess risks associated with new activities and products.

Innovation requires technical skills but those with the requisite technical skills rarely also possess the business skills required to translate a technical solution into a real market opportunity. Business planning and implementation, including marketing skills are essential for success. Indeed, it is the lack of these skills that frequently results in the failure of start-ups. Those with technical skills will have to develop business skills and/or partner with others who possess such skills. Matching of skills and partnering entails costs, imposes delays and requires trust.

For many start-ups, the biggest challenge relates not to the innovation itself – the development of the new product or production process – but to taking the product to the market. It is at the marketing stage that the obstacles are often most significant. Even when start-ups have reached the stage where they have demonstrated the technical viability of the product or service, they will often find it very difficult to convince customers of the superiority of their product or service as opposed to the well-established. Gaining market recognition can entail very large costs and uncertainties. Indeed, marketing costs and requirements often result in the sale of the start-up to firms that already have well-established marketing and distribution channels.

7. Perhaps the major obstacle that start-ups face is in raising finance. Finance is a key obstacle at every stage of the development of the start-up.

All new firms face problems persuading potential investor. The first problem is one of collateral and risk. A plumber or an electrician will require finance to purchase well-recognised assets to commence a business. In the event of failure, these assets can be re-possessed and their value realised, at least in large part. But, by contrast, in the event that the start-up who seeks funding to develop an idea or build a prototype fails, there is little recourse to an investor to reclaim the investment i.e. the start-up cannot offer the same collateral. This lack of collateral arises for two main reasons - firstly because it entails knowledge which is very difficult to sell and secondly because of its novelty.³

Start-ups also have particular difficulties in raising funds for subsequent expansion. Novelty entails greater risk and uncertainty. A plumber seeking to expand can forecast future demand with some degree of certainty and hence provide a degree of certainty to a potential investor. This is far more difficult for a start-up expanding with a new product or service into new markets.

In many countries, there are regulatory restrictions on funding for start-ups. In particular pension funds are frequently prohibited from investing in start-ups or in private equity funds that invest in start-ups. However, this is changing. In Latin America, for example,

³ Rajan, 2012

pension funds can now invest in private equity in Brazil, Bolivia, Chile, Colombia and Mexico.⁴

The flow of funds to start-ups which are, by their nature inherently high-risk, will also be restricted in the event that there are readily available alternative investment possibilities that offer good returns and that are far safer. Monetary policy based on inflation targeting whereby the interest rate serves as the nominal anchor results in high real interest rates, more particularly, where a country is dependent on inflows of foreign portfolio investments. High real yields on Treasury Bills and other secure financial assets make it more difficult to attract investments to more risky activities such as the funding of start-ups. In South Africa, for example, high real interest rates provide high yielding and secure investments that attract both local and foreign funders.

Funds that specialise in entrepreneurial finance, particularly, venture capital, may be poorly developed. This may be because of the lack of training or the lack of experience of fund managers. It may be that the returns are larger elsewhere. Or, there may simply be an insufficient supply of investable projects. For venture funds to be successful, they need deal flow – a large number of potentially lucrative projects. At the same time, the volume of potentially lucrative projects is dependent, at least in part, on the existence of venture capital funding.

In conclusion, start-ups face a number of possible obstacles and constraints. Many of these obstacles and constraint are faced by all new small firms. However, as outlined, start-ups face particular obstacles and constraints, more numerous and often more severe than those of small firms in general. At the same time, the potential benefits of start-ups significantly exceed those of small firms in general.

However, none of these obstacles are immutable. To varying degrees, they are all susceptible to amelioration through policy intervention. Each of the obstacles and constraints confronting start-ups will require specific policy interventions. As previously outlined, the potential returns to government policy from the enhanced entry and growth of start-ups are significant.

⁴ Crespi, Fernande-Arias and Stein, 2012: 118

WHERE TO INTERVENE – A QUICK GUIDE FOR THE POLICY MAKER

The obstacles and constraints outlined above face start-ups in all countries. Left to the market i.e. in the absence of any government intervention, insufficient start-ups enter and those start-ups that do enter may not grow rapidly. Governments will seek to have policies in place that address these issues.

The first issue that confronts the policy maker is to assess how well the current system – the combination of market and policies - is functioning to produce and grow start-ups?

To the extent that there is the evidence for the recent emergence of a significant number of new knowledge-based firms, particularly new firms that attract young entrepreneurs, the system is functioning to allow entry. A subsidiary issue would be to assess how broad based is the entry of start-ups. If the entry of start-ups is confined only to particular sectors and activities, this will clearly indicate that the favourable circumstances for one sector are not reproduced in other sectors.

In relation to the development of start-ups, is there a high rate of attrition? How rapidly are start-ups growing?

Even broad answers to these questions are suggestive of the effectiveness of the current system for start-ups and therefore a guide to the degree of further policy intervention required.

How could a policy maker then rapidly determine how significant are each of the constraints and obstacles identified above? Measures are readily available that would allow for a quick first assessment of the magnitude of at least some of these constraints.

1. Insufficient skills – how many graduates with knowledge based skills that could be commercialised is the society currently producing? Does supply exceed the demand from well-established activities in existent firms and government? If those with knowledge based skills can readily find employment in established activities, there will be little incentive to engage in start-up activity.

2. Insufficient production of relevant knowledge – there are many well-known indicators of new knowledge, including publications, patents and technology receipts. How much of this new knowledge is giving rise to new technology based start-ups? Are there spin-offs from tertiary education institutions? Is the knowledge produced appropriate? Growing scientific publications in the absence of technology outputs and start-up activity may indicate that new knowledge production is overly academic.
3. Risk aversion – which are the sectors and activities that absorb skilled graduates? Do graduates with skills shun entrepreneurial activity in favour of safer more secure forms of employment?
4. Legal and administrative burdens – there are various readily available measures whereby countries can rapidly gauge the extent of administrative burdens that fall on small firms in general. The World Bank's doing business indicators is particularly widely used. For start-ups the regulatory burdens of winding down a business and obtaining permits for skilled workers from abroad, who bring specialised skill that many start-ups will need to expand, are particularly important.
5. Finance – what sources of private finance are there are there for start-ups? Private venture capital funds are particularly important. Pension funds and other institutional investors including corporate venture capital funds may also be significant. One key measure that is widely used as a key indicator of the availability of funding for start-ups is venture capital as a share of GDP assessed against the level of development of a country, usually measured as GDP per capita.
6. Insufficient demand – to what extent are start-up entry and growth correlated with overall economic growth? Where growth in the economy does not result in concomitant increase in the entry and expansion of start-ups, this would indicate that the key constraints and obstacles facing start-ups are rather to be found on the supply side.

The basic measures outlined above are a first guide as to how critical are each of these various constraints. A consideration of these basic measures will allow policy makers to get a first view of where the most critical fault lines in the system of support for start-ups currently rest, the so-called binding constraints. Identification of the binding constraints on start-ups will, in turn, indicate the principal areas which should attract policy attention.

However, it is very important that policy makers recognise the interdependency of many of these factors. Thus, for example, the lack of development of venture capital may reflect the lack of appropriate skills or knowledge and hence a volume of deal flow that could sustain a

viable venture capital industry. Increasing policy support for the venture capital industry will not therefore succeed without complementary interventions in the provision of appropriate skills and knowledge. Another example, a slow growing economy may offer few opportunities for the entry and expansion of start-ups and providing financial support in the absence of demand will have little impact.

Start-ups and entrepreneurial activity in general are embedded in an inter-dependent system. Thus, while the key weaknesses within the system need to be identified and merit particular policy focus, multiple policy interventions aimed at enhancing the functioning of the entire system will also be required.

HOW TO SUPPORT START-UPS TO OVERCOME THE IDENTIFIED OBSTACLES AND CONSTRAINTS: POLICY INSTRUMENTS

There are a variety of policy instruments to support the growth and further expansion of start-ups. Following the systemic approach adopted above, this section outlines the policy instruments aimed at supporting start-ups to overcome each of the constraints and obstacles that they are likely to encounter.

Two caveats:

- We omit a discussion of education, training and research. We assume that these basics of skills and knowledge are in place.
- What follows is not an exhaustive list of policy possibilities. However, this section does aim to address, albeit briefly, the major policy instruments that could be employed.

Enhancing the Investment Climate and Reforming Regulations

In the last decade or so, following the creation of the World Bank's Doing Business indicators, many countries have sought to improve their business climate, the overall business regime, so as to make the environment more conducive to investment in general.

To this end, a number of policies have been adopted that aim to reduce bureaucratic burdens on business. In particular, reducing entry barriers –the time and costs taken to establish a

business – has attracted much policy attention. Chile (2015) and Mexico (2016) for example, have recently introduced laws to allow paperless (over the internet) company registration in just one day.

However, a number of studies, from both developed and developing countries, suggest that while entry of new firms may be promoted initially by lowering entry barriers for new business, increased entry is not sustained. More importantly, the additional firms that enter, as a result of lowering the barriers to entry, tend to be those with low productivity and potential. Lowering entry has only a very limited effect on the entry of high potential firms.⁵

Reforming bankruptcy legislation to allow for the easier winding up of companies may be more effective in supporting start-ups. However, bankruptcy reform measures should recognise that effective winding down of a business takes time and policy should aim at removing only excessive regulation.

Easing the entry of foreign investors and skilled workers facilitates the entry and the growth of high-potential firms seeking to attract and exploit foreign support and talent. A number of developed countries offer visas to start-up entrepreneurs – including Austria, Australia, Germany and Italy.

In developing countries, Chile has been a pioneer - Start-Up Chile launched in 2010. Applications from start-up entrepreneurs are invited from any country. Entry applications to Chile are via the internet and are processed very rapid as is the issuing of work permits. Successful candidates receive a physical space to conduct their activities and considerable non-refundable seed money. Large and growing numbers of applications have been received from more than 50 countries and most of the successful candidates (of the order of 80%) are foreign.

No comprehensive impact evaluations of Start-Up Chile programme are available, but a number of countries, including Peru, Brazil, Uruguay and Jamaica are planning similar programmes.

⁵ For Portugal, Bransetter et al, 2010; for Mexico, Kaplan, Piedra and Seira, 2011; for Brazil, Bruhn and McKenzie, 2013.

Changing Social Attitudes to Risk

Rates of entrepreneurial activity vary widely across countries. Even when controlled for institutional development and other factors, some countries are far more entrepreneurial than others. South Africa, for example, has far lower rates of entrepreneurship than other countries in the region.

Attitudes to risk are deeply embedded in societal beliefs and practices. Changing these beliefs and practices is difficult and a slow process. Policies to enhance risk – often referred to as the promotion of an entrepreneurial culture – are nevertheless being adopted by an increasing number of countries, developed and developing.

Policies to promote an entrepreneurial culture are particularly aimed at the youth. A number of policies are possible. They include:

- Working with the media to raise public awareness and promote the virtues of entrepreneurship. Panama, Argentina and South Africa all have state sponsored programmes to encourage entrepreneurship.
- Promoting an image of a country or a city as a place that welcomes and supports investors and entrepreneurs – Medellin in Colombia, for example.
- Incorporating entrepreneurial training into education. This can be done at all levels of the education system – from schools to tertiary education. In respect of the latter, equipping graduates in engineering and science with business skills is now widespread. Colombia has embodied entrepreneurial education into statute (see box 1).
- Establishing a publicly funded agency designed to enhance awareness as well as support entrepreneurship. Mexico has created a national entrepreneurship institute, El Instituto Nacional del Emprendor (INADEM).

Mainstreaming Entrepreneurship Education: Colombia

Colombia has made several efforts to mainstream entrepreneurship issues – including entrepreneurship education – into its national policy framework. The 2006 Law for the Promotion of a Culture of Entrepreneurship, for example, includes a commitment towards “training for entrepreneurship” through entrepreneurship skill development in both the formal and non-formal education systems. This law is part of the normative framework that gave way to the 2009 National Policy for Entrepreneurship, whose National Strategic Plan involves the promotion of entrepreneurial activities, capacity development, and awareness. Among other things, it involves the Ministry of Education and institutions of both basic and higher education. The 2006 law also served as a backdrop for the ongoing presidential programme entitled “Young Colombia”.

Source: Ley 1014 de 2006 (26 de enero) – Fomento a la Cultura del Emprendimiento – Programa Presidencial Colombia Joven. <http://www.colombiajoven.gov.co> 8. Cited in UNCTAD, 2011.

Public Procurement

The demand for the innovative products and services produced by start-ups is largely determined by the overall size and growth of the economy. This is largely exogenous. However, one element of demand is directly under the control of government – namely public procurement.

Governments can utilise public procurement to directly spur innovation and the development of start-ups. This aspect of policy has been attracting a lot of attention lately and a number of new approaches are evident.

There have been a growing number of policy initiatives at the level of cities and local government. In particular, large metropolises that seek to become so-called ‘smart cities’ have altered their procurement policies so as to attract start-ups. Barcelona City Council, for example, listed challenges confronting the city such as public transport and social inclusion and invited innovative solutions. Successful companies were then awarded procurement contracts. Medellin in Colombia invites citizens and those outside of the city to formulate new ideas in a wide variety of areas and challenges that the city faces. These ideas are

published and, using social technology, citizens can comment and vote on each new idea. These ideas are then considered by the city in executing its projects and selecting product and service providers (Amar Florez, 2016:14).

At the level of national government, Sweden has pioneered what has come to be called ‘innovation-related public procurement.’ The Swedish government has very recently taken a decision to adopt the National Procurement Strategy in late June 2016 (see box).

Functional procurement is an important element in the procurement strategy of the government in Sweden. Functional procurement takes place “...when a public agency or unit places an order for a product to fulfil certain functions within a given time period, but for which a product does not exist at the time of the order. This type of procurement must result in some form of product innovation before delivery can occur.” (Edquist, 2006:31) The key therefore is that procurement specifies not the product required but the function that is to be performed. Functional procurement, public procurement on the basis of functional specification, thus opens up the prospect of new innovative solutions, enhancing the demand for innovative solutions and hence for start-ups, which are often the providers of such innovative solutions.

Since public procurement budgets are very large, even setting aside a small part of the budget for functional procurement can exert a major stimulus for innovation. Indeed, given the size of government budgets, one commentator directly engaged in the formulation of this policy in Sweden regards innovation-related public procurement as “ ... potentially the most powerful kind of demand-side innovation policy instrument available – see below. It might even potentially become the most powerful instrument among all innovation policy instruments.” (Edquist, 2016:30).

Functional Public Procurement: Sweden

The Swedish National Procurement Strategy (Regeringskansliet 2016) has a section entitled “Public procurement that enhances innovations and alternative solutions”. This states inter alia

- “There is a large potential in using procurement as an instrument to enhance development and innovation.”
- “The public sector can also enhance innovation in suppliers by, in procurement, demand functions rather than ready solutions.”
- “By requiring functions instead of having specific requirements with regard to goods and services, the creativity and ability to innovate of the potential suppliers are enhanced.”
- “To demand functions can increase competition in the procurement, since a larger number of firms and organizations can respond to the tenders, which is beneficial particularly for small and medium-sized firms.”
- “... your agency formulates functional requirements and emphasizes the result that shall be achieved instead of specific requirements with regard to the goods and services.”
- “... your agency uses assistance from the initiatives and means of support that The National Agency for Public Procurement has developed to formulate functional requirements in procurement.”

(Regeringskansliet 2016: 18-19 cited in Edquist, 2016: 36)

In India, procurement policies have recently been adopted which are specifically targeted at start-ups. The Prime Minister launched the Startup India Action Plan on January 16, 2016. Startup India aims to empower start-ups to grow through innovation and design and to generally accelerate start-ups. In terms of this plan, India requires that at least 20% of government procurement is sourced from micro and small businesses. Furthermore, public procurement regulations are to be transformed so as to enable SMEs to tender for contracts. Finally, start-ups also qualify for some tax concessions

To be eligible, start-ups must be entities, incorporated or registered in India within the last five years. These entities must have an annual turnover not exceeding INR 25 crore in any preceding financial year, and are working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property.

Sartup India is aimed specifically at small firms that have entered the market very recently and that rely on their capacities for innovation – in brief, a clear demarcation of high-potential start-ups. While Startup India is in its infancy, 162 applicants were received; 636 applicants were recognised as start-ups and 146 are being considered for tax benefits.

Encouraging innovative solutions through public procurement can thus enhance the government’s capacity to meet identified social and economic challenges and simultaneously potentially increase the demand for the products and services of innovative start-ups. However, in respect of the latter, there are some clear limits.

Much of public procurement is routine and much of procurement will be from well-established providers. These providers will often have large fixed investments to meet public procurement requirements. Only a small percentage of government procurement should therefore be subject to functional procurement. Further expansion of functional procurement can then be predicated upon an assessment of its efficacy. There is also likely to be resistance on the part of government employees who are traditionally conservative and have little incentive to experiment. They will favour “safe” solutions, well-trying and tested, rather than “risky” and innovative. This will also limit the effectiveness of procurement policy and is a further reason why restructuring procurement policies to support start-ups should advance incrementally, based on a thorough assessment of performance.

Facilitating Linkages, networking and mentoring

As entrepreneurs acquire experience, their performance and their chances of success improve. Many countries provide support to firms to enhance learning and skill acquisition. These include networking and mentorship programmes and supports to firms to acquire specialist consultancy services and training.

A number of intermediary institutions provide linkage and support.

Technology transfer offices (TTO) are becoming widespread. In some countries, South Africa for example, a TTO is a statutory requirement for all tertiary education institutions. Technology transfer offices encourage the commercialisation of knowledge acquired in research through spin-offs, linking researchers and funders and providing support for faculty and students starting a new business.

Incubators and business accelerators are especially widespread. Typically, incubators provide a physical space for a set period of time, usually between three to five years, where the new enterprise receives access to infrastructure and services. Services generally include linkages to potential partners and funders, support for intellectual property management and marketing and commercialisation of technology and sometimes, in addition, some financing.

Overall, the evidence suggests that incubators have not been very effective at growing businesses. One large scale study, covering a number of countries, found that business incubation increases employment and sales growth rates but actually lowers the expected lifespan of incubated firms by comparison with non-incubated firms. The overall difference in performance between incubated and non-incubated firms was marginal (Amezcuca, 2010).

This lack of success has resulted in new strategies being adopted with respect to incubation. Two new strategies are particularly significant.

Firstly, incubators should focus much less on the provision of shared infrastructure – buildings, equipment etc. This infrastructure can be effectively provided by private suppliers. Instead, incubators should focus far more on that which private suppliers cannot effectively provide quality mentoring, networking and matching the firm with complementary ideas to enhance knowledge or complementary assets to enable commercialisation.

Secondly, the incentive structure needs to be radically altered. Traditionally, incubators received regular funding and they were evaluated solely on the number of firms that they serviced. In brief, incubators were rewarded for the quantity of start-ups that they supported. Thus incubators had no incentive to screen and select only firms with real potential and they had no incentives to provide these firms with the services that would actually allow them to grow.

This is now changing. Increasingly, the funding received by incubators, and the incubator staff, is subject to performance based indicators. Some of these indicators are internal and measure the management and cost effectiveness of the incubator. In addition, and most importantly, there are indicators that measure the performance of the incubated firms. For example, the incubator run by CORFO in Chile traditionally received a flat fee per incubated firm. By contrast, the funding has recently been made dependent on other criteria that reflect the effectiveness of the incubator. Moreover, the incubator now has a strong and direct interest in the growth of its client firms (see box).

A Performance Based Incubator Programme - Corporación de Fomento de la Producción: (CORFO) Chile

The renewal of the subsidy and the size of the subsidy is dependent on a number of performance indicators internal to the incubator and external i.e. reflecting the progress of incubated firms:

Internal

- Quality of corporate governance and management
- Quality of selection processes

External

- Sales performance of incubated firms
- The degree to which incubated firms internationalise
- The extent to which incubated firms attract outside funding.

Bridging the funding gap

When start-ups have secured a clear revenue stream, a potential investor can weigh up the risk and uncertainty as with any other company. Prior to this, at every stage of their development, start-ups are high risk and are accordingly faced with a significant challenge of accessing funds. Access to finance for start-ups to support further development is accordingly subject to market failure.

Government policies designed to address these market failures can be divided into two categories. The first category is direct intervention on the part of government such that government directly provides funding to start-ups. Sometimes funding is combined with other forms of support. The second category is more indirect, where government supports and incentivises potential private providers to fund start-ups. Governments may utilise a combination of direct and indirect policy interventions at different stages of the development of start-ups.

Seed and Early Stage

At the seed stage, a potential entrepreneur has nothing more than an idea or a concept. Typically, the knowledge that underpins the idea or the concept results from research in a university or other research environment. This very early stage is especially speculative and risky. Government support, at this seed stage, is essential. However, while countries often have well-developed systems of support for research, governments support to encourage researchers to develop their research so as to take it closer to market, is often much less developed.

Potential entrepreneurs seeking to further develop an idea or a concept may look for finance to friends and family (often termed, and not without reason, the three Fs – friends, families and fools). This form of funding is informal and provided via personal networks. An additional source of this early stage funding has very recently emerged – namely crowdfunding. Crowdfunding is small sums of money from large groups of people. Funding is generally raised through internet sites designed specifically for this purpose. Finally, there are so-called angel investors who are generally located somewhere between informal funding and crowdfunding and venture capital. Angel investors provide funding to projects that are not yet in a position to attract investment from venture capitalists.

Government policies can have some impact in encouraging the development of crowdfunding. Mexico has recently created an association for crowdfunding platforms, Asociacion de Plataformas de Fondo Colectivo (AFICO). AFICO “...groups the main platforms of crowdfunding in Mexico with the main objective of promoting the model and defending the interests, establishing codes of practices that are adopted by all platforms and professionals of crowdfunding in the country.”⁶

At the seed and early stage, many ventures will be unable to access private provision of finance. Risks are very high and often capital financing requirements are significant - providing proof of concept or building a prototype, for example, are costly. Government policy can have only a limited impact in encouraging private investors - crowdfunding and angel investors. As a result, direct financial contribution on the part of government at the seed and early stage is essential.

Developmental Stage

Even once the technology has reached the stage of development, beyond pure research and is indicative of potential commercialisation, start-ups will require considerable financial resources to further develop their product or service in order to bring it closer to commercialisation. But, before start-ups have significant revenue they will find it very difficult to access the formal capital market.

⁶ AFICO accessed at <http://www.afico.org/>

This is the “space” in which private venture capital (VC) operates. VC private investors are professionals who provide funding for innovative enterprises that they assess have significant profit potential. VC financing frequently takes the form of convertible securities that resemble debt and so limit the risk to the investor if the venture fails but can be converted to equity if the venture is profitable. This gives the investor some security while at the same time providing very considerable incentives to the VC to invest in ventures with potentially high returns. Moreover, and of considerable importance, VCs provide much more than capital. They are active investors, monitoring firm performance, bringing in management expertise and providing market and industry intelligence.

VCS are well-established and play a critical role in the provision of finance to start-ups in developed countries. There are considerable variations as to the development of VCs within developing countries. In India and China for example, the funding provided by private VCs relative to GDP is ten times larger than the average for Latin America (Crespi, Fernandez-Arias and Stein, 2014: 133). However, overall, VCs are far less well-established in developing countries.

Policies to support the growth of private VCs have been adopted in many developed countries – and are increasingly being adopted in developing countries.

Two broad policy approaches, which are not necessarily mutually exclusive, can be distinguished.

The first approach is for government to initiate a fund which then injects monies directly into a number of recognised VC funds. The rationale for this approach is that VC funds are not sufficiently profitable and the available investments are too risky to attract private investors. Direct government financial support for private VCs is usually very limited and is structured so as to somewhat reduce the risk without taking away the upside gain of a successful investment. Management and decision making is generally left entirely in the hands of the VC management with government essentially playing the role of a passive investor. This Fund-of-Funds approach has been widely applied in developed countries and is being increasingly adopted in developing countries.

Most recently, India has adopted this policy. In June 2016, Cabinet approved the creation of a Fund of Funds for Startups (FFS). This fund is managed by the Small Industries

Development Bank which provides funding to registered Alternative Investment Funds which invest in start-ups. The investment in any fund is limited to 15% of the fund's capital.

The second approach is for government to address the entire ecosystem for private VC. This is the approach taken in Brazil (see box). The success of the Brazilian programme INOVAR has led to it being adopted as a model for Peru and Colombia and recognised as "...a role model for government efforts to stimulate a VC ecosystem." (Leamon and Learner, 2012: 2)

Enhancing the Ecosystem for private VCs: INOVAR, Brazil

Commencing in 2000, the Brazilian government's Agency for Innovation (Financiadora de Estudos e Projectos, or FINEP), with support from the Multilateral Investment Fund (MIF), established INOVAR. INOVAR is a comprehensive approach to the VC environment. This has entailed a number of activities:

- Entrepreneurs were trained in what to expect from and how to deal with VC investors
- VC fund managers were trained in how to raise and manage funds and how to assess investment opportunities
- Potential partners – most importantly pension funds – were trained to do due diligence on funds
- Managers of Brazilian pension funds visited the United States to engage with those who had experience of investing in VC.
- One of the largest pension funds was persuaded to invest in VC and this served to encourage the entry of other pension funds.
- An INOVAR funds panel was established as a consortium of investors that analysed funds collectively and then independently decided where to invest.
- INOVAR facilitated the matching of entrepreneurs and VC investors.

Source: Crespi, Fernandez-Arias and Stein, 2014: 134- 136.

Rather than encouraging private VCs to fund start-ups, either by providing funding support or by improving the ecosystem for private VCs, government can intervene and establish its own governmental fund to provide funding directly to start-ups.

Mexico's National Entrepreneurship Institute (INADEM), created in early 2013 has two funding support schemes: one for high-impact enterprises and one for enterprises with a

social or environmental impact. Each scheme supports businesses based on their development stage, distinguishing between early-stage enterprises or start-ups on the one hand, and enterprises that are scaling up on the other. Under each scheme, INADEM offers co-financing for up to 80% of the project cost, up to a maximum of MXN 3 million for projects in the start-up stage and MXN 5 million for projects in the scale-up stage. In addition to direct support for start-ups, INADEM also provides support to private providers of financial support to start-ups.

In South Africa, there was evidence that much of South Africa's scientific knowledge was not being commercialised. This gap between invention and commercial innovation, the so-called innovation chasm, was seen to be principally the result of inadequate private funding. As a result, the Technology Innovation Agency (TIA) was created so as to provide government funding directly to start-ups.

Providing Direct Funding Support to Start-ups: The Technology Innovation Agency (TIA); South Africa

TIA was founded in 2008. It was formed through a merger of a number of governmental support programmes for innovative firms. Falling under the Department of Science and Technology, TIA's objective was conceived as bridging the gap between basic research and the commercialization of locally-developed technologies.

To this end TIA provides funding to South African registered start-ups that have clear Intellectual Property. The state of technology development must be beyond basic research. TIA funds the further development of the technology. Qualifying expenditures for support must be directly related to the firm enhancing its technology or its innovative capacity and taking that closer to market. Applicants are evaluated on the commercial potential of their technology; on their business model and on the capacity of their management. Funding takes the form of loans with royalties and, much less often, equity. Providing that the loans are used for the purposes agreed, they are only repayable if and when the technology comes to market and is sold or realises revenue.

TIA operates three funds – the first is a Seed fund – very early funding largely for universities and government supported research organisations. This fund assists researchers to advance their research outputs and ideas to develop prototypes, proof of concept and business cases that could be used for further development. The second fund, which absorbs most of the resources, is a Technology Development Fund. This fund is to assist innovators, from proof of concept to technology demonstration so as to advance along the value chain to commercialisation. A third fund, the Commercialisation Support Fund, is to prepare funders that are close to commercialisation to secure follow-on funding with other funders.

Comparing the Different Approaches to Bridging the Funding Gap

These approaches to funding of start-ups in developing countries are very new. Indeed, they are in an experimental stage and constantly undergoing modifications. As result, there are few definitive answers as to which approach is best. However, there are some, albeit tentative, indications.

The distinct advantage of private VC as a funder is that incentives are well aligned. There is significant downside risk and upside gain for private funders who have every incentive to allocate their funds effectively and to bring additional resources that they can command – management, networking, market information – that can play a major role in determining that funding is efficiently allocated.

The INOVAR programme provides an important “model” for government’s seeking to develop private sector capabilities via VC to provide funding. The approach here is essentially a multiple pronged approach to improving the functioning of private service providers.

The fund-of-funds approach, if structured correctly, retains the considerable downside risk and particularly the upside gain to private VCs that are the recipients of state funding. As a result, much of the incentive alignment is in place. In societies, where there are other far safer traditional avenues for investment, it will be difficult for private VCs, in the absence of some form of direct funding support from government, to operate. On the other hand, if the deal flow is low – there are few bankable projects – providing subsidies to private VCs will be likely to lead to otherwise unworthy projects receiving funding.

As regards, government owned funds, there are three major concerns. The first, and the most significant concern, is that incentives are misaligned. Those who dispense public funds are only indirectly rewarded for good performance, or (less often), punished for poor performance. As a result, projects supported by government owned funds are likely to be less well screened and less well supported in terms of other factors such as management, networking and market knowledge than is the case with private VC. The second concern is that where private and public funds coexist, the latter might crowd out the former – leading to less rather than more funding support for start-ups. Thirdly, in most developing countries, there is a significant skills shortage. It has proven very difficult to attract the skills required to evaluate funding applications – particularly in IP management, law and accountancy.

On the other hand, it could be argued that government owned funds have a number of advantages. These include the allocation of funding taking account of social objectives such as employment creation and/or having a longer time horizon than private VC (more “patient” capital); better control over the sale of IP and determining that this IP is further developed and exploited locally and aligning support with other aspects of government policy –notably industrial policies that favour particular sectors or activities.

There is some evidence that government-owned funds are less effective in providing capital to start-up than are government-supported venture capital funds – the funds-of- funds approach based (Brander, J., Du, Q., and Hellmann, T. 2010: 13). However, the other advantages of government-owned funds will also have to be taken into consideration..

BY WAY OF CONCLUSION

Governments are experimenting with various policies to support star-ups. Policy development is at an early, indeed experimental, stage and there are few firm conclusions – particularly for developing countries. However, a few general guidelines are evident.

- As with all developmental policies, there is no one –size fits all. What works in one country to support start-ups may not work in another. Context, including critically, governmental capacities to address market failures must be carefully considered in weighing up what policies are appropriate. Policies in this area are difficult and demanding of governmental capacities including skills and resources. Moreover, the possibilities of capture and corruption, particularly where finance is provided, are significant risks. It is in implementation, much more so than in design, that government policies to support start-ups so frequently fail
- Particularly because they are so new and indeed experimental, it is important to monitor and evaluate policies implemented. Policies can then be moderated or altered dependent on performance. Start-ups are operating in a fast changing global context. This is an area where government needs to be particularly agile. New institutional arrangements – government agencies with considerable autonomy and public-private partnerships in areas such as VC and incubators for example – are in order, but their performance will need to be evaluated and held accountable to clearly stipulated performance indicators.

- There is a strong complementarity between policies. For example, support for VC will not work in the absence of a significant deal flow and deal flow may not happen without effective incubation which in turn will not work without a supply of skilled entrepreneurs. It is best to conceive of the system for start-ups as an integrated ecosystem whereby the success of any policy is dependent, at least in part, on the success of other policies, and policies will be needed across a broad front to address the ecosystem in its entirety.
- The returns to policy are unlikely to be rapid. Consistent policies applied over a long period are required if there is to be more than a marginal change in the start-up ecosystem.

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