

# ICSB Gazette

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## PITFALLS IN INNOVATION POLICY MAKING

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In an era of economic upheavals due to radical technological change and rising trade protectionism, a major challenge facing policy makers is how to boost research and innovation across their economic system. The reason is quite apparent when considering what lies behind the sizeable and prolonged slowdown of economic growth in the EU countries in the last decade. Apart from cyclical developments, the economic slowdown has some of its roots in the long-term decline of productivity, which is the outcome of several factors affecting the ability of

entrepreneurs to do research and innovate on a wide scale, thereby ensuring economic renovation and competitiveness.

SMEs are part and parcel of this negative trend, but structural factors and government policies also play a significant role. It is well established that there is a positive correlation between both innovation and productivity, on one side, and firm size, on the other side, whereby investment in innovation and productivity rise with the increase of firm size. But in the new economic paradigm of an “entrepreneurial economy” that has taken hold in both industrial and emerging economies, even small firms can have access to the same resources needed for R&I as those available to large firms, that rely on their ability to exploit economies of scale. R&I are no longer the preserve of large firms due to their command over ample means. Still, firm size matters. Thus, while the channels linking growth, productivity and innovation are shared by all countries and their firms, regardless whether more or less developed, structural characteristics and policies that affect this relationship widely differ across countries, leading to disparities in economic performance.

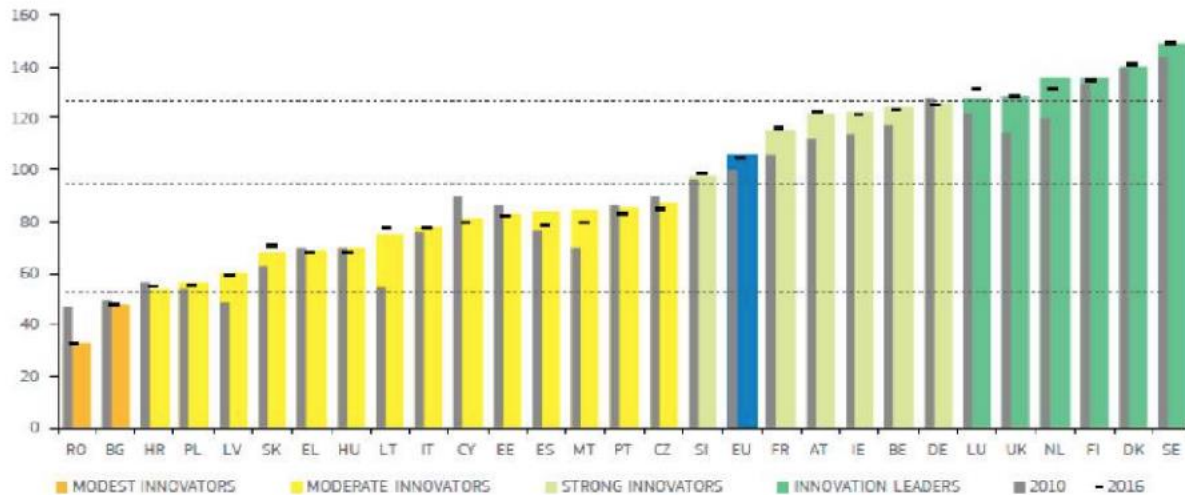
**"In several countries policy failures derive from lack of interest by government in evaluating its policy effectiveness and learning from its findings to improve its interventions."**

### EU Countries' Innovation System Performance

Firms' size, structural factors and government policies together have led to widely different productivity and growth performances within each economy and across countries, leading to divergent trends in per-capita



income. In this light, three aspects will be addressed here: first, SME concentration in the low-innovation and low-productivity end of the enterprise distribution; second, the issues affecting innovation performance of a country; and third, the pitfalls or shortcomings of innovation policies.



Coloured columns show Member States' performance in 2017, using the most recent data for 27 indicators, relative to that of the EU in 2010. The horizontal hyphens show performance in 2016, using the next most recent data for 27 indicators, relative to that of the EU in 2010. Grey columns show Member States' performance in 2010 relative to that of the EU in 2010. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups in 2017, comparing Member States'

Source: European Commission, European Innovation Scoreboard 2018.

Drawing on the availability of microlevel data, two recent studies by the OECD1 have shed light on the unexpected features of the aggregate productivity slowdown. It has emerged that the decline of productivity growth has not been due to the performance of frontier firms, i.e. the top 5% of the firm distribution, but to a rising gap between the global frontier firms, that have actually kept on advancing, and the laggard firms. Actually, the rise of labor productivity of firms at the frontier has been coupled with increasing divergence with respect to laggards. This divergence remains after taking account of differences in capital deepening, leaving Multi Factor Productivity (MFP) as a determinant factor in explaining such a divergence. More precisely, this gap is estimated to reflect only partially the market power of frontier firms, i.e. their ability to charge higher mark ups, but it is mostly the result of a widening divergence in revenue-based multifactor productivity.

What can explain this rising gap in MFP? The answer lies with structural factors such as digitalization, innovation, globalization, higher weight of tacit knowledge and the complexity of new technologies, as they require complementary investment in order to be able to absorb them. But there is more to take account of. Other studies show that digital technologies may enable leading firms to acquire a hard-to-beat advantage over laggards (in other terms, they may lead to winner-takes-all dynamics), raising in fact barriers to market entry and reducing market contestability. Apart from digitalization, MFP divergence from leading firms is found to be more severe in sectors where competition is less pervasive and deregulation or competition-enhancing policies are lacking. Significant product market competition generates incentives to raise innovation intensity and to aim at more efficient resource allocation. This is consistent with gathered evidence showing weaker MFP performance in sectors with rising barriers for laggards to catch up. In these patterns, size matters: in manufacturing, MFP frontier firms have higher revenues and employment than laggard firms, while in the services sector this divergence is found in terms of revenue, but not employment.

The conclusion of these econometric tests is clearly that there has been an increasing failure in diffusing innovation and best practices from the most productive firms to the mass of those lagging behind, or by extension from expanding firms to less dynamic small OECD, DSTI, The global productivity slowdown, technology divergence and public policy: a firm level perspective, by Andrews D., Criscuolo C. and Gal P., 21-9-2016. OECD, DSTI, The great



divergence(s), by Criscuolo C. and Berlingieri G., 6-10-2016. 52 firms. Once again, the mass of laggards is made out of small firms operating in sectors or areas less open to market competition. There are also low productivity small firms serving local markets and less likely to pursue growth strategies, as well low-productivity young firms in early stages of their activity. This heterogeneity of SMEs' characteristics calls for different policy responses in promoting innovation. What hampers such a diffusion? A number of barriers prevent the spreading of innovation, but to a different degree across countries and sectors, and they are found all along the various phases of the innovation process. On the demand of innovation, we often find a kind of system inertia due to entrenched habits, lack of information and bias towards existing technologies and approaches. On the supply side, there is a large depository of new knowledge in universities and public research institutions that has not yet found its way into products or business applications. Funding is also a hard constraint for SMEs, since the risk involved in very innovative undertakings or in applying new technologies is difficult to assess by financiers, with the result of restraining the supply of funds. By another token, public funds cannot be a replacement for private capital because of their limitations and since their primary aim is to support mainly basic research and experimentation, areas where market failure is most evident. Transmission of knowledge from producers to users is the weakest link in the innovation system. There is often a low propensity to collaborate with Universities or outside research centers, or to enter into teams of firms to carry out innovative projects.

An enabling environment is crucial to allow innovative entrepreneurship. Three components are crucial: availability of skills -- from management to blue collar workers, efficient financial institutions capable of allocating capital to creditworthy but risky projects, and infrastructures that are functional to implementing innovative projects, such as broadband, testing laboratories, technology incubators, transport and communications. Some impediments stem from skill mismatches between what public education and training systems provide and what firms need. Small innovative firms, which don't have the resources to invest in training programs, are at a clear disadvantage in pursuing their innovative projects.

Government policy is called to address these market failures together with the business community, but it turns out 53 that it may be itself a source of failure, as seen in some countries. Governments fail to understand the systemic nature of innovation, i.e. that is the result of a system of interactions that has to involve several actors (from researchers and inventors to educational institutions, financing sources, users,

etc.), and requires specific targeting of measures, specialized infrastructures and policy coordination across different policy makers.

Pitfalls begin when innovation issues are approached without a long-term vision of the goals towards which government wishes to orient business choice. The usual approach consists of adopting spot measures aimed at individual weaknesses that are thought to be the major ones. A piecemeal approach is, instead, partial and leaves important deficiencies unmet. Ireland is a case in point. It has introduced a vast array of measures to promote innovation among SMEs, but it has no holistic strategy, with the result of shortcomings and inadequate effectiveness.

Another pitfall lies with the supply driven characteristic of many policy approaches. Support is given mostly to public research institutions and R&D projects by the private sector, without due attention to the whole demand side, i.e. the large number of noninnovative firms, especially small firms, that should ask for new knowledge to deal with their challenges but don't do it, because of difficulties in absorbing new approaches.

An analogous mistake is made when governments adopt a top-down policy approach, which does not take account of strengths and weaknesses of firms, especially small ones. On the opposite side, a bottom up approach is equally ill-conceived, since it doesn't spur firms to advance towards new frontiers in production, marketing and internal organization. A combination of the two approaches is a preferable solution, which could be implemented through ad hoc public-private dialogue, exchange of views and partnerships. A common mistake in innovation policy is to confine interventions to the remit of industrial policy. Evidence, instead, signals the need to adopt a holistic approach that draws on a wide set of other policies, such as education, training and school curricula, tertiary education, financial system, trade arrangements, judicial system, public governance, intergovernmental agreements, defense, company law, public procurement,

intragovernmental coordination. In the absence of an all-encompassing approach, inconsistencies can emerge, as evidenced, for instance, by skill mismatches, relatively low private return on R&I investment due to taxation and costly requirements by public administration, and difficulties to develop and commercialize an innovation because of lack of infrastructures or regulatory barriers to market entry.

Skill mismatches are bound to magnify in the coming years as soon as the new industrial revolution

becomes widespread. The new emerging technologies like robotization, artificial intelligence, augmented reality, big data and others, require skills that are hardly provided by the current, public education and training systems. In the near future, advanced economies will likely experience an increasing polarization between new skills in short supply and old skill becoming redundant and unemployed. Public policies have to support the transition towards the new industrial paradigm by supporting retraining and a new work



culture, in which new services can expand and reach higher productivity. In developing specialized skills and promoting linkages between knowledge centers and business, measures aimed at supporting general purpose institutions are less effective than a proactive policy that reaches out to backward SMEs and provides them with mentoring services and networking with large and more advanced firms. A degree of selection of the beneficiaries is necessary. In addressing the funding problem of innovation, a major risk is to offer incentives for R&I investment on a general basis, while for creditworthy firms, banks and capital markets are the natural source of financing. Here again, selection is a means to optimize the use of limited public resources.

Choosing the most appropriate tool to foster innovation is another area prone to mistakes. Some countries have shifted their support towards tax credit, avoiding lengthy and dubious selection processes. But this instrument is not appropriate for startups or very young innovative firms, since they don't have access to credit or equity markets because of their age, size and risky venture. Grants and subsidized long-term loans are more effective, albeit they involve a difficult selection process.

In the same vein, differential treatment is required for firms of different size classes, age, innovation-propensity, economic sectors and location because their need for assistance differs. Small firms should receive more support than large ones, and the services sector should not be left at the margin because innovation is mostly associated with manufacturing, while services are more in need to innovate.

Furthermore, the diffusion of innovation cannot be left to market forces alone, but depends on some structural policies, especially enhancement of market competition and allowing more factor mobility particularly for the labor factor. Innovation implies both ease of market access by curtailing the power of incumbents, and efficient reallocation of human and capital resources that are employed in less competitive enterprises, being sheltered by lack of competition. Hence, policies favoring innovation may be inconsistent with or made less effective by the presence of rigidities in factor mobility and poorly contestable markets.

Policy governance may also be the source of failures even for well-designed measures. Leaving aside divergences in sectoral policies, in a multilayer government system, different authorities may pursue divergent objectives in the same realm of innovation, depriving the overall government strategy from needed synergies and impact strength. Tight coordination within government is a requisite that could be met by establishing a system of close cooperation of all public bodies and involving the scientific and business communities.

In several countries policy failures derive from lack of interest by government in evaluating its policy effectiveness and learning from its findings to improve its interventions. Policy evaluation is often seen as a threat to the credibility of government action rather than as an invaluable tool to sharpen its focus and avoid repeating past mistakes. Hence, evaluation should be part and parcel of policy making and an opportunity for periodic reassessment of both, strategy and measures, to plan ahead.

Overall, the experience across advanced countries points to the conclusion that there is no optimal policy model which would fit all, but each country has first to analyze its strength and weakness, then determine the general orientation of its innovation policy, choose the most appropriate tools and monitor results, being ready to make swift adjustments based on careful evaluations. On top of all this, it has to breed across society an attitude favorable to change and continuous advancement towards the frontier of knowledge. In the absence of this cultural change, widespread innovation will always be a mirage.



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### **ICSB Executive Director Comment:**

This Gazette issue is from the 2019 MSME Report.

Dr. Ayman El Tarabishy

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