Policy rationales and objectives on financing innovation

Policy may aim at correcting for capital market failures (e.g. failures arising from informational imperfections) that negatively affect the performance of innovative businesses by reducing firms' access to financing. At the same time it is important to critically assess the contributions policy interventions can have both ex ante and ex post.

Importance of innovation for economic growth and social welfare

Innovation is a driver of economic growth and an important basis for developing solutions to economic and social challenges, such as climate change, ageing societies and poverty (OECD, 2010a). Innovation can play a critical role by supporting economic growth and employment (see Contributions to growth and jobs [1]), and contributions to social challenges (see Addressing environmental challenges [2], and see Addressing social challenges [3]). To name but a few examples, innovation can contribute to addressing environmental challenges through the introduction of new technologies and non-technological innovations that limit global greenhouse gas emissions and help to limit climate change and maintain biodiversity. Innovation can also allow firms to increase their output and tap into new markets, factors which can be associated with job creation and with increased labour productivity, and economic growth.

Market failures requiring policy intervention

Policy might be implemented to correct for a set of market failures that negatively affect the performance of innovative businesses. A major underlying justification for public intervention is that the market will otherwise invest in innovative activities at less than the socially desirable level (Nelson, 1959; Arrow, 1962). The main reasons why this might occur include:

- Imperfect appropriability of knowledge creation due to positive externalities. Due to the non-rivalry nature of many knowledge creations (i.e. the fact that the use of one piece of knowledge does not prevent its simultaneous use by another party), knowledge can generate spillovers: not only does the innovator benefit but also other agents, such as competitors and follow-on innovators. Unless otherwise compensated (e.g. by monopoloy rights created by the IP system or grants for conducting innovation), this means that the social rate of return for knowledge production may exceed the private rate of return and, therefore, investment in the production of new knowledge would be below the socially optimal level. Such risks might reduce the financial resources firms will mobilise internally to fund innovation activities. They might also reduce the external financial resources available.

- Informational imperfections. Information asymmetries occur when one party to a transaction has access to relevant information that the other party does not. The extent of information asymmetry associated with investments in innovation is typically larger than that associated with other investments, such as those in physical capital (e.g. property, plant, and equipment). This is because i) innovative investments are relatively unique and their value is often, by nature, uncertain, and ii) because the imperfect appropriability of innovation typically deters innovative firms from disclosing information about their innovative activities and knowledge.

As a result of informational imperfections, potentially profitable projects might not be financed. Lenders are not easily able to separate potentially successful businesses from less successful ones, and therefore may provide less funding than the company needs and require a higher interest rate. This, in turn, can increase the risk of the borrowers and create a greater share of higher risk firms in

the pool of borrowers (adverse selection). On the other hand, lenders can't be sure that once the funds are loaned, firm managers will not take excessive risks or misuse the funds (moral hazard). One way for lenders to overcome the problems associated with information asymmetries is by requiring collateral. However, providing collateral might not be possible for innovative firms, especially if their main assets are intangible. Therefore, these firms are likely to be credit constrained, despite their project quality and growth potential.

In this context of market imperfections, public policies can facilitate access to finance through a wide range of instruments, including the provision of public grants.

Limitations of policy interventions

Not all potential failures in innovation systems make government intervention required or even desirable. There is no guarantee that government policy can address each market failure in a way that effectively improves the outcome (in welfare terms, for instance). For instance, crowding out can occur, if diminishing marginal returns from R&D cause grant holders to reduce their own funding for R&D expenditures one-for-one with public funds. For some firms, government funding may just be a cheaper source of finance than funding raised from capital markets (Lach, 2002).

Furthermore, governments' means and scope of action can be very limited. Even when governments may potentially improve welfare, they do not always have the means to do so in practice (Dixit, 1996).

Besides, policy failure (i.e. the failure of a policy to achieve its goals) may arise from a wide range of factors, such as inadequate policy design, implementation, and governance failure. These policy failures may be due to contradictory goals, limited capabilities and information constraints that may limit governments' ability to intervene effectively. Indeed, government is subject to sometimes even more stringent informational constraints than are private actors. These policy failures imply that government interventions can be counterproductive. Therefore, the soundness of the foundations and the achievements of government intervention need to be scrutinized ex ante and ex post. The choice of policy instrument should also reflect potential constraints (e.g. research grants require a more knowledge-based approach by governments than IP support).

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