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Enterprise policies and R&D support for high-tech SMEs: a multi-perspective approach

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ABSTRACT

This article examines the role of enterprise policy and R&D subsidy schemes in supporting high-tech Small- and Medium-sized Enterprises, by examining a case study of South Korea. A qualitative approach is used to analyse the perspectives of three stakeholder groups, entrepreneurs, national policymakers and policy-practitioners (including street-level bureaucrats working in bodies directly supporting the SMEs), based on semi-structured interviews with 35 participants. The findings suggest, first, that there was a mismatch in the conceptualizations of entrepreneurship, with policymakers and policy-practitioners focusing on entrepreneurship as the event of starting-up a business and entrepreneurs more on innovation. Second, while all groups feel the policy was beneficial, policymakers and policy-practitioners argue it was necessary to have a strict implementation process so-as-to deliver the subsidy fairly across many SMEs. In contrast, entrepreneurs considered such stringent and complicated policy implementation, and policy discontinuities, as impeding the R&D performance of SMEs. Third, although perspectives varied, all believed that flexibility in the policy implementation process is required to improve policy efficacy. The study highlights the critical role of “bottom-up” policy approaches to improve policy efficacy; especially policy-practitioners’ interactions and networking with entrepreneurs in the policy development and implementation processes. This study contributes to understanding the roles and perspectives of stakeholder groups in developing and implementing enterprise policies.

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Enterprise policy; R&D support; high-tech SMEs; start-ups; owner-managers; entrepreneurs

1. Introduction

Many governments have entrepreneurship and research and development (R&D) policies supporting high-tech SMEs to achieve economic and employment growth (Michael and Pearce 2009; Chatterji, Glaeser, and Kerr 2014). Public policy support is

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seen as a significant determinant of firm growth and survival (Bennett 2014). Specific enterprise policy has often centred on business start-ups and support for small-business growth (Audretsch and Beckmann 2007), such as innovation support, training, taxation (Venter and De Clercq 2007), incubators (Mas-Verdú, Ribeiro-Soriano, and Roig-Tierno 2015), fostering the contribution of human resources in the technological innovation (Gilbert, McDougall, and Audretsch 2006), development of supportive networks (Kristensen, McQuaid, and Scherrer 2015) and fostering pre-entrepreneurs as well as existing SMEs (Reynolds 2000). Related R&D support is also crucial to the growth and survival of start-ups, with Zhao and Ziedonis (2020) providing the evidence that those receiving R&D funding were 20–30% more likely to stay in the market in 4 years than others.

Business growth is a multi-dimensional and heterogeneous process affected by various stakeholders (Leitch, Hill, and Neergaard 2010). Given the relationship between enterprise policy, R&D and business growth, both policymakers and entrepreneurs are significant stakeholders related to the start-up and growth of high-tech SMEs. Despite research on stakeholders related the business growth of SMEs, the differences in the perspectives of national policymakers, policy practitioners (who work in public agencies implementing related business support policies) and entrepreneurs have had limited analysis. Therefore, this study explores these three groups' perspectives toward enterprise policy and R&D support to the development of high-tech SMEs, and seeks to contribute to the understanding of how policy stakeholders' perspectives toward the policy roles vary by their responsibilities and circumstances. The context for this study is South Korea which is now one of the leading countries in terms of R&D support for SMEs (OECD 2022). This article is structured as follows. We next discuss enterprise and R&D policies to support the start-up and the growth of high-tech SMEs and the context of South Korea. Next, the methodology section sets out the sample and focus for the semi-structured interviews. Next, the findings analyse the diverse perspectives of policy providers and policy consumers on enterprise policies and R&D support. The final section presents the conclusion and reflects on future research.

2. Literature review

This section considers the types of enterprises and SME policies generally and then specific R&D policies and other support in South Korean. It then considers some of the issues related to the implementation of such policies.

2.1 Entrepreneurship and SME policy

It can be argued that most enterprise policies focused on pre-entrepreneurs, stimulating new firm formation or start-ups and supporting their survival can be perceived of as entrepreneurship policy (Nolan 2003), through, for instance, assisting entrepreneurs, and supporting innovation and market entry by financial support and other means. Those policies supporting established companies to scale up their businesses can broadly be considered as SME policy (Audretsch 2004). Through these governments partly aim to achieve sustainable value creation through industrial policy (Pitelis 2007). Preuss (2011) considered entrepreneurship and small business policy in terms

of three main components: legal authority (e.g. preferential taxation rate), the market (e.g. particular procurement) and network effects based on geographic conditions (e.g. the place where entrepreneurs exchange information and knowledge). However, there may be different policy emphasis on various forms of entrepreneurship, such as entrepreneurship: being primarily seen as the event of a business start-up (Gartner 1988); reflecting small business owners (Leibenstein 1968) or entrepreneurship as an economic function involving innovation (Schumpeter 1943; McCann and Arita 2004). Overlapping SME policy, aimed more at those businesses already started, is more focused on the enterprise level, whilst entrepreneurship policy tends to concentrate on stimulating entrepreneurial behaviours (Lundström and Stevenson 2005). In entrepreneurship policies, entrepreneurs are perceived as a solution to improving weak economic performance as well as low levels of job creation (Audretsch, Grilo, and Thurik 2007). In consequence, governments have adopted various policies for creating a system to support entrepreneurship (Glancey and McQuaid 2000; Thurik, Stam, and Audretsch 2013), with in some cases public policy focused on reducing the SME death rate due to their lack of competitiveness compared to established larger companies (Audretsch 2004).

Although the survival rate of start-ups is generally low, many countries' policy initiatives focus on promoting successful innovative start-ups around the creation of new industries (Audretsch et al. 2020). Many western entrepreneurship policies tend to encourage large numbers of people to be entrepreneurs, but these are mainly one-employed businesses with a low possibility of continuous growth (Acs et al. 2016). This is one reason why the enterprise policies may have a range of policy targets.

Using entrepreneurship policies, public agencies and universities often support entrepreneurs with incubators to supply appropriate accommodation during the entrepreneurial phase (Mas-Verdú, Ribeiro-Soriano, and Roig-Tierno 2015) in addition to private sector provision. Such publicly funded incubators provide network, hosting and consultancy services such as legal, financing and technology to new firms (Carayannis and Zedtwitz 2005), although of course many entrepreneurs get information from professions such as accountants, lawyers and Venture Capital (VC) investors, to respond to various business circumstances (Miller and Bound 2011). In terms of SME policy for the established companies, innovation policy often focuses on productivity and other policies supporting the creation of business environments that lead to growth (Audretsch and Aldridge 2014). SME policies have various aspects as mentioned above; among those financial support is an essential policy for SME growth, as well as new firm creation. In particular, high-tech SMEs can get investment at lower interest rates, compared to bank loans, through government and VCs funding their technology innovations (Doh and Kim 2014).

Given the national economic conditions influencing government financial supports for SMEs (Shi and Li 2006), enterprise policy tends to focus on high-value-added industry, given the potential for sustained employment growth (Anttiroiko 2004). Enhancing the innovation capacity of high-tech SMEs is a rising issue for fostering technology-based enterprises. Therefore, many governments are keen to increase R&D support for high-tech SMEs to enable job creation and economic growth (Ravšelj and Aristovnik 2018), and these are now discussed in the case of South Korea.

2.2 Government-driven R&D support and the case of South Korea

Many OECD countries adopted SME policies to stimulate their economy, including digitalization of SMEs to enhance scaling up their businesses (OECD 2021a). To foster technology-based SMEs, the majority of OECD countries implemented tax exemptions and direct R&D funding (Busom, Corchuelo, and Martínez-Ros 2014; Saha and Shaw 2018). Both measurements have different roles in motivating R&D actions by SMEs. Tax policy can save costs after the development of products and investment, whilst direct R&D funding generally covers some *a priori* costs of developing products and production processes, although both aim at supporting R&D actions. Government provided R&D subsidy schemes have been used as a driver to stimulate innovation and R&D activities in high-tech SMEs (Kang and Park 2012; Szczygielski et al. 2017), with Ghazinoory and Hashemi (2021) arguing that funding is a more effective policy than tax exemption to facilitate R&D activities and product development in such firms. R&D support, such as tax breaks and loan guarantees, in addition to subsidy schemes is also perceived as essential to the development of technology and related economic growth (Cin, Kim, and Vonortas 2017). Such innovation funding also facilitates the contributions of high technology firms to developing new products and to creating new markets (Doh and Kim 2014). Although there is a lack of commercialization and market expansion of subsidized innovation outcomes (Bronzini and Piselli 2016), the evidence suggests that R&D is a key foundation of successful businesses in high-tech industries. In line with this, the South Korean government has been delivering various R&D policies for SMEs and start-ups, as is now discussed.

South Korean R&D policies for start-ups and SMEs have been revised by the Korea Small Business Innovation Research (KOSBIR) scheme, which was developed in 1998, after reflecting on the Small Business Innovation Research (SBIR) of the USA government (Hong 2015). A South Korean policy driver was to foster high-tech SMEs through entrepreneurial financial support provided by the public sector and this has positively affected the growth of national economy in recent decades (Klingler-Vidra and Pardo 2020). The Korean entrepreneurial ecosystem has been driven to foster technology-based innovative SMEs by government policies regardless of regime change over the years. Indeed, president Kim's government (1998–2003) focused on fostering ventures to drive economic growth, and president Ro's government (2003–2008) supported SMEs' technological innovation including fostering the Inno-Biz (Innovation oriented Small and Medium Businesses) companies (Kim 2007). The government of president Park (2013–2016) launched a creative economy plan to foster high-tech SMEs (Pacheco and Klingler-Vidra 2019). This continuous Korean governmental effort to support technology innovation of SMEs reflects the long-term strategy to achieve innovation rather than responding to the external competitors (Thurbon and Weiss 2021).

In South Korea, there have been many entrepreneurship policies for new firm creation and additional enterprise policies for SMEs growth. Among these, the primary policies regarding SMEs and start-ups have identified the importance of R&D subsidies, such as enterprise-driven R&D, government-driven R&D, collaborative R&D with the Universities, and international collaborative R&D with international partners, and these were included into several plans (South Korean government 2023a). The majority of high-

tech SMEs participated in the enterprise-driven R&D scheme¹ because they could develop their research projects to support their current or future business strategies. In 2014, the South Korean government launched the Tech Incubator Program for start-ups (hereafter TIPS²) to encourage high-tech based entrepreneurs who had been in business for less than 7 years. TIPS was modelled on the technological incubator (TI) program of Israel to support technology start-ups. This program is referred to as an accelerator investment-driven TIPS and it has been positively associated with entrepreneurship and employment creation (Kim 2022).

Despite enormous government support through R&D subsidies, many South-Korean SME owner-managers pointed out the lack of practical industrial collaborations, impeding independent R&D actions due to relying on subsidy-driven R&D support; with issues of strict selection processes, harsh auditing systems and discrimination against regional SMEs not in the capital area, needing to be considered to improving policy efficacy (Lee 2021). Nevertheless, R&D subsidy funding for SMEs has grown to US\$3.8 billion in 2021, with a 60% increase in funding since 2017 (South Korean government 2021). The South Korean government R&D budget was high by world standards, being first or the second out of OECD countries between 2007 and 2021 (OECD 2022). In 2023, the budget of this R&D scheme had further grown to about US\$320 million a year (South Korean government 2023a).

In South Korea, the central government delivers and implements enterprise policies via regional government offices and government funded institutes. Policy-practitioners in regional government offices implement the policies, introducing and advising entrepreneurs on available support for their businesses (South Korean government 2023b). Although they are employees of the same Ministry, policymakers and policy-practitioners in the Ministry of SMEs and start-ups in the South Korean government are periodically exchanged between the central office in Sejong city, primarily involved in policy development, and departmental regional offices involved in policy implementation. This provides some opportunities for the two groups to understand policy-making and policy implementation, even though their individual approaches are affected by their current responsibilities. Through a variety of three-way relationships between policymakers, policy-practitioners and entrepreneurs, the South Korean government has implemented a diverse range of policy measures to stimulate R&D activities and facilitate innovation in SMEs, including corporate tax reduction for the expenditure on R&D and support for human resource development (Chung 2011).

2.3 Policy implementation

The continuity of government policies is affected by several factors, such as budgetary constraint (Kirkpatrick, Lester, and Peterson 1999), fiscal constraint and elections (Ferry and Bachtler 2013), and the government's ideological environment due to the regime change (Lewis 2002). National policy development is often aimed at co-ordinating and integrating specific country-wide policies into national circumstances, whilst individual cities and local governments tend to focus on regional practices from bottom-up perspectives (Timms 2011). The good relationship between policymakers and street-level bureaucrats plays an essential role in positive policy implementation (Gaus et al. 2019). That is, policy implementation includes the administration process

of local policy implementers, who have the responsibility to implement policies in the field via contacting SMEs and entrepreneurs (Urwin and Jordan 2008).

However, enterprise policy usually exists at the macro level in a top-down approach, even though policy initiatives are delivered by policy practitioners at the micro-level taking a bottom-up approach (Arshed, Mason, and Carter 2016). Government policy in many countries plays an essential role in stimulating entrepreneurial innovation (Autio et al. 2014), with top-down approaches coordinating new groups of policy support that are required to adopt existing enterprise policies, whilst bottom-up approaches help avoid mis-aligning the public policy needs and firms' strategies (Torres and Clegg 2014). Despite the "picking-winner" issues of high-growth firms targeted by the enterprise policies, these policy-driven firms suggest faster growth than ordinary firms have not been supported by the enterprise policies (Autio and Rannikko 2016).

Given a primary aim of enterprise policy is often national economic growth, it is necessary to reduce the policy implementation gap between policymakers and entrepreneurs' needs. Ansell, Sørensen, and Torfing (2017) also asserted that policy designing is needed to connect between actors in collaborations and deliberation. Thus a theoretical consideration of the policy implementation approach is a key element in improving policy efficacy.

As well as policy development, policy implementation processes have diverse routes through regional or local government or public agencies. In consequence, poor communication between policymakers and regional agencies causes a lack of understanding about enterprise policy initiatives and negatively affects policy implementation efficacy (Arshed, Mason, and Carter 2016). Niska and Vesala (2013) suggested that the relationship between policy actors and entrepreneurs needs to be considered individually because their perspectives can be changed through joint activity. Further, policymakers and policy stakeholders can develop enterprise policies collaboratively through strategic conversations and assessment processes (Woods and Miles 2014; Kristensen, McQuaid, and Scherrer 2015). The collaboration between policy actors may not only facilitate the development of effective policies for SMEs and start-ups but also stimulate quick responses to changes in the business environment. Thus understanding the practical implications of enterprise policies from the perspectives of key stakeholders is essential for developing and implementing appropriate policies. However, studies about differences in stakeholders' perspectives toward enterprise policy and R&D subsidy schemes for high-tech SMEs are rare and so are the subject of this research.

3. Methodology

3.1 Research design

Qualitative research is used to explore, better understand and interpret the different people, social situations and social actions with descriptive data (Creswell 2014, 3). The fundamental aim of the current research is to examine diverse perspectives of entrepreneurs, policymakers and policy-practitioners towards enterprise policy, and specifically various R&D supports, in South Korea. These key actors in enterprise policy development and implementation interact with each other to support economic growth. Purposeful sampling was adopted to recruit research participants with specific

experience of engaging with enterprise policy implementation and the adoption of R&D subsidy schemes for SMEs to understand specific information-rich cases (Patton 2015, 140).

We investigated various individual perspectives underpinning the consideration of socially constructed actions between stakeholders. Semi-structured interviews were used to explore the attitudes and concerns of policymakers, policy-practitioners and entrepreneurs to discern the various factors regarding the contributions of enterprise policy to the high-tech SMEs and start-ups and the impact of R&D subsidy schemes on the sustained growth of high-tech SMEs. Formal ethical approval was given by the author's institutional Ethics Committee.

3.2 Data collections and analysis

The sampling of policymakers reflected the relevant perspectives on the role of enterprise policy and the government R&D supports. With the criteria of high-tech SMEs and relevant policymakers, 22 policymakers and policy-practitioners, and 30 entrepreneurs were contacted by email, based on the researcher's networking and the snow-balling approach. From them, 10 policymakers, 8 policy-practitioners and 17 entrepreneurs agreed to participate. The research participants recognized and had experience of using, the major enterprise-driven R&D scheme for SMEs and start-ups. The sample entrepreneurs are business owners, as well as CEOs, and have applied for government policies to grow their businesses. Both policymakers and policy-practitioners also have experienced in developing and implementing enterprise policies for those SMEs and start-ups. Thus the interview data includes participants' perspectives toward the contribution of enterprise policies and R&D subsidy schemes to their business development. Although the South Korean society has been attempting to improve the gender-balance across the sectors, gender-inequality is relatively high compared to many OECD countries. In particular, the gender wage gap at 32.5% was the highest level compared to OECD countries in 2019, and the labour participation gap with only 52.9% is also the highest among OECD countries in 2018 (OECD 2021b). The gender balance of research participants reflected on these characteristics in South Korea. Thirty-two interviewees (17 owner-managers, 7 policymakers, 8 policy-practitioners) are male and only 3 policymakers are female. This is a limitation in understanding diverse perspectives of research participants, this enables to understand multi-perspectives of different groups, but partly reflects current societal differences. In accordance with participants' requests (to allow them to answer after reflection and at a time that was convenient to them), the semi-structured interviews were carried out by in-person interviews, email, VOIP and internet-based messenger programs between April and September in 2017 in South Korea. In-depth interviews via email with open-ended questions can be conducted via multiple electronic message systems (McCoyd and Schwaber Kerson 2006), allowing participation regardless of time and space (Salmons 2010). Despite the limitation of being unable to catch sensory and emotional cues from respondents in email interviews (Nehls 2013), the study complemented the interviews with various follow-up communications, such as emails and telephone calls to add more information after the initial interview. All interviews were carried out in the Korean language by one of the authors who is a native speaker.

Table 1. Policymakers and policy-practitioners.

Identification	Grade	Retention period (2017)	Identification	Grade	Retention period (2017)
PM1	Grade 5	11 years	PP1	Grade 6	12 years
PM2	Grade 5	16 years	PP2	Grade 6	11 years
PM3	Grade 5	13 years	PP3	Grade 6	14 years
PM4	Grade 5	11 years	PP4	Grade 6	11 years
PM5	Grade 5	13 years	PP5	Grade 7	5 years
PM6	Grade 6	14 years	PP6	Grade 8	7 years
PM7	Grade 5	11 years	PP7	Grade 6	11 years
PM8	Grade 6	8 years	PP8	Grade 8	4 years
PM9	Grade 4	14 years			
PM10	Grade 4	10 years			

*Grade: The level of responsibility of South Korean civil servants from 1 (the highest responsibility) to 9 (the lowest responsibility).

Source: Author adapted from interviewees' information.

Given the distinguishable responsibilities under the organizational structure of the Ministry of SMEs and start-ups, policymakers and policy-practitioners were classified by their current responsibilities and working place: policymakers in head office are coded *PM*; policy-practitioners in regional offices are coded *PP*. Entrepreneurs are coded as *EN* in this research. The information on the interview participants is described in Tables 1 and 2.

The interview questions for policymakers and policy-practitioners were based around the three areas of: the purpose of policy support; recent enterprise policy and R&D subsidy schemes and respondents' personal opinions toward policy improvements. The interview questions for entrepreneurs were about their business motivations and the policy impact on their businesses, and contributions of R&D support based on their experiences. These questions were aimed at exploring what different perspectives they have in terms of the role of enterprise policies for the business growth and achievements of policy purposes. All participants were asked to answer to the interview questions reflecting on their experiences of the past seven years since 2010, given that some entrepreneurs started their businesses in 2010. Some respondents answered based on when they started their businesses more than 7 years ago. These answers provided some good examples of market creation by the enterprise policy.

Table 2. Entrepreneurs and their businesses.

Identification	Main business product	Age of company (2017)
EN1	Scanning electron microscope	7 years
EN2	Business model/kiosk device	7 years
EN3	Protection film for mobile device	19 years
EN4	Electric lighting fixtures for exhibition	15 years
EN5	Fluid power equipment	22 years
EN6	Smart cards with magnetic stripe or chip	18 years
EN7	Product design services	13 years
EN8	Mobile game software publishing	14 years
EN9	System software publishing	13 years
EN10	Security software development	13 years
EN11	Security software development	7 years
EN12	User interface development, graphic design	11 years
EN13	Security software development	17 years
EN14	Application software publishing	15 years
EN15	System software publishing	21 years
EN16	Application software publishing	15 years
EN17	Application software publishing	18 years

Source: Author adapted from interviewees' information.

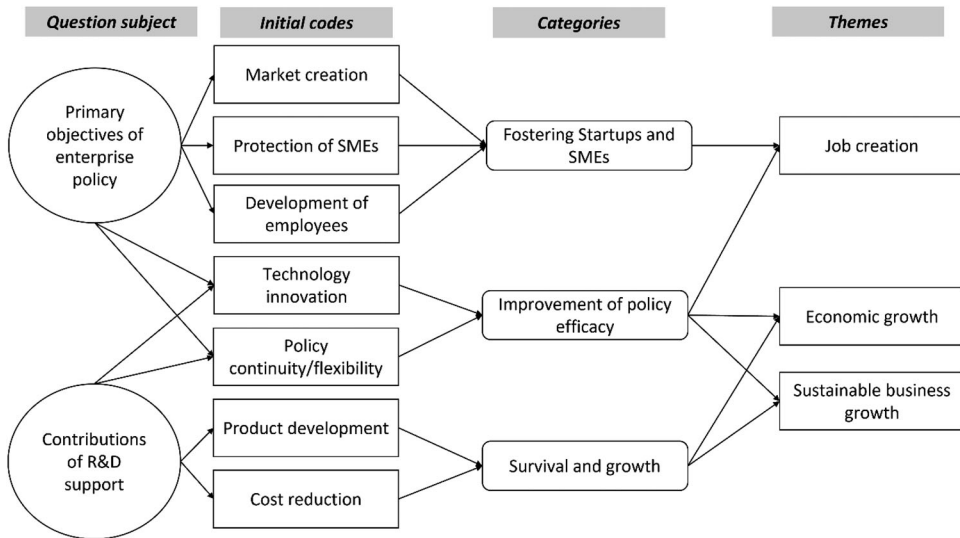


Figure 1. Thematic analysis overview.

The thematic data analysis was carried out by four steps (Miles and Huberman 1994): transcription, confirmation and familiarization of the interviews, data reduction with simplifying process, and finally coding and interpreting through the manual analysis. To achieve robust data analysis, the cross-sectional analysis is considered in this research. Informative literature review, various perspectives and diverse positions were discussed to ensure validity and reliability of the data (Fine, Calvin, and Sharmi 2010). In this research, we can see various perspectives of policy providers (policymakers and policy practitioners) and policy consumers (entrepreneurs). Figure 1 describes thematic analysis and Table 3 indicates the overview of cross-sectional analysis corresponding to two main interview question categories.

4. Findings

4.1 Primary objectives of enterprise policy to foster SMEs and start-ups

The policymakers and policy-practitioners interviewed stated that enterprise policy to foster SMEs and start-ups for job creation was important. In particular, they perceived

Table 3. Cross-sectional analysis by participant groups.

Question subject	Codes	Policymakers (PM)	Policy-practitioners (PP)	Entrepreneurs (EN)
Primary objectives of enterprise policy	Market creation	0	0	0
	Protection of SMEs	0	0	0
	Development of employees	0	0	0
	Technology innovation	0	0	0
	Policy continuity/flexibility	0	0	0
Contributions of R&D support	Product development	0	0	0
	Cost reduction	0	0	0

PM: Policymakers, PP: Policy-practitioners, EN: Entrepreneurs.

technology-based SMEs as essential drivers of job creations and economic growth (e.g. Michael and Pearce 2009). Policymakers and policy-practitioners have diverse roles, covering policy development by the former, and policy delivery and policy implementation mainly by the latter. Regardless of their responsibilities, they have similar perspectives on the goal of enterprise policies supporting SMEs and start-ups. Policymaker PM3 and policy-practitioner PP2 said:

The biggest aim of the government policy is revenue growth, job creation and the regional contribution of SMEs. It is possible to achieve national economic growth when companies achieve appropriate volume ... (Policymaker PM3)

... the ultimate purpose of government enterprise policy is to create job opportunities, as well as to retain employment ... , to do this, the enterprise policy has various measurements to protect SMEs, as well as to foster new firms ... (Policy-practitioner PP2)

Enterprise policy not only directly supports SMEs but also makes space for new businesses. Both policymakers and policy-practitioners introduced a new regulation-free zone for new technology-based start-ups to facilitate some specific technologies, such as autopilot and remote healthcare service. Policymaker PM6 and Policy-practitioner PP4 said:

Recently, the government created a regulation-free zone to support high-tech SMEs. SMEs could do experiments without any limitation in this area. Also, the government offered a tax cut for R&D investments of SMEs, holders of the public certifications of technology-based SMEs. (Policymaker PM6)

One of primary enterprise policies is to provide a regulation free zone to stimulate utilization of new technologies without limitations. This can motivate entrepreneurship and thus the government expects additional job creation and economic growth. (Policy-practitioner PP4)

Changes in the regulatory framework related to technical standards worked to remove market barriers, thus enabling entrepreneurs to grasp new opportunities to develop new markets. Many entrepreneurs interviewed in this research agreed with policymakers and policy-practitioners that some entrepreneurs acquired benefits, enabling new challenges via the reframing of regulations. Entrepreneur EN9 said:

When I started my business seventeen years ago, the South Korean government set the new regulation of security software, forcing public sectors to install high standard systems. Thus, many security software companies like us were founded over a decade ... (Entrepreneur EN9)

Contrasting views on entrepreneurship as focused on start-ups or existing SMEs, and associated job creation, soon appeared. Entrepreneurs agreed that enterprise policy contributed to job creation but importantly they argued for the need to provide greater support to sustain continuous employment growth in SMEs. Some also commented on the objectives of the policy, arguing that enterprise policy to be too focused on new firms and there were many stringent regulations in terms of the national labour standards rather than on the more general sustainability of the business. Entrepreneur EN11 argued:

... government policy focus is too narrowly limited in job creation but I think the enterprise policy needs to help SMEs to be sustainable, thus we can see continuous employment growth in SMEs ... (Entrepreneur EN11)

Differences between larger and smaller firms, and the need for flexibility particularly in terms of labour for SMEs, were also raised as an issue with the main policy objectives. While policymakers attempted to develop a specific scheme supporting job creation for permanent positions, this contrasted with some entrepreneurs who expressed difficulties following the general standard government labour regulation (in relation to job permanency) due to business uncertainty compared to larger companies. Entrepreneur EN17 explained some of the difficulties with policies:

... I feel the government wants all jobs to be part-time workers because of too strict and general labor standard law ... all SMEs should abide by the rule regardless of their capability. This makes the business unsustainable and irresistible to increase permanent employees ... (Entrepreneur EN17)

Entrepreneurs admitted the importance of enterprise policy for SMEs and start-ups, but they perceived a need for improvements in terms of policy development and the implementation process. They wanted enterprise policy to have both flexibility and to have continuity, although they recognized the need for fairness and consistency during policy implementation. In particular, entrepreneurs said that enterprise policy focuses on the impact generated from initial project implementation and thus it is difficult to reflect the business's changing needs. Some policymakers also recognized the negative effects on policy effectiveness of over stringent policy implementation. Policy-practitioners also saw the SMEs as customers, whose views should be considered more. Policymaker PM2 and policy-practitioner PP5 said:

I think policy implementation abides by the regulation to treat with SMEs fairly but from time to time this process impedes policy efficacy. Thus we often see unexpected outcomes of policy implementations different from the policy purposes ... (Policymaker PM2)

... we may need to evolve policy implementation process reflecting on entrepreneurs' opinions because they are our customers. (Policy-practitioner PP5)

Further, despite overall continuity in government support for high-tech firms, some entrepreneurs raised issues about the negative effects regarding the continuity of specific enterprise policies. Entrepreneur EN4 suggested:

Government policy has often been changed by regime change thus SMEs find it difficult to know how they can use the government schemes in their business, this may cause negative effects on the policy efficacy regardless of the policy purpose. (Entrepreneur EN4)

Overall, the three stakeholder groups had similar perspectives regarding the positive contribution of enterprise policy towards the growth of start-ups and SMEs, although entrepreneurs wanted the implementation process to be flexible so as to improve business performance via policy support. This is an important finding for policy administrators given the different positions of them as policy providers and the SMEs as policy consumers. In the following section, we discuss how stakeholder consider of specifically R&D support in fostering high-tech SMEs.

4.2 Contributions of R&D support

All participants discussed R&D funding and its contributions because it is the primary R&D policy for high-tech SMEs and gives greater benefits, such as cost reduction and opportunities of innovative challenges to SMEs and start-ups. Policymakers and policy-practitioners believed that R&D funding and various incentives for R&D actions are critical to sustain competitiveness and growth of high-tech SMEs. The South Korean government supported R&D actions of high-tech SMEs with R&D subsidy schemes and tax cut for various R&D investments. Policy-practitioner PP3 said:

SMEs can use R&D subsidy schemes to respond to various business circumstances, as well as to continue R&D investment to improve technological capabilities. (Policy-practitioner PP3)

Policymakers and policy-practitioners considered that the key role of direct R&D funding was to encourage SMEs and pre-venture entrepreneurs to develop innovative products, and thus they wished entrepreneurs to work towards achieving this purpose of this R&D subsidy. They also recognized SMEs as having a lack of competitiveness in developing new products, thus some R&D subsidy schemes were aimed at engaging SMEs in the collaborative research with research institutes and universities.

SMEs can apply to various R&D subsidy programs to develop new products, as well as to update established products. (Policy-practitioner PP6)

At the beginning of the business, entrepreneurs could get much technical help from the university via the collaborative R&D program and thus they could develop the products. (Policymaker PM3)

In other words, many policymakers and policy-practitioners interviewed thought that such subsidies were the primary method for stimulating the R&D actions of high-tech SMEs at the beginning of their business, and that they could help make the business successful. Entrepreneurs had conflicting demands, wanting to save their operational costs as well as to continue investment of R&D, with many having chronic difficulties in investing continuously in R&D activities due to a lack of capital, despite R&D being fundamental to their business. They used R&D subsidy schemes to develop new products to gain a technological competitiveness in the market. Hence, there did not appear to be significant policy “deadweight” (i.e. funding an activity that would have occurred anyway) as the R&D would not have occurred at that level without the policy. However, these developments could not be commercialized quickly as the research projects were not yet completed and the time delay of commercialization limited revenue and employment growth, which often failed to meet government expectations, so the policy impacts were less than expected.

Both policymakers and policy-practitioners attempted to encourage SMEs to commercialize the outcomes of products developed by R&D subsidy, but the entrepreneurs’ utilization of the R&D subsidy was constrained by their business circumstances. For instance, entrepreneur EN9 used R&D subsidy schemes to survive at the beginning of their business as they were without annual revenues for a few years. EN13 actively applied for R&D subsidy schemes to reduce risks issued from investing relatively huge amounts of money to develop new products. Likewise, many entrepreneurs perceived

R&D subsidy schemes as the primary funding method to accumulate technological capabilities and competitiveness, as well as to dilute business risks they may have faced with using just their own capital. Entrepreneur EN9 said:

When I was starting my business nearly fifteen years ago, I could not only survive but also prepare for future market through continuous R&D activities with R&D subsidy schemes. Government R&D support was the key for our business sustainability at the beginning of our business ... (Entrepreneur EN9)

Some policymakers and policy-practitioners recognized that various entrepreneurs used R&D subsidies continuously and relied too much on this government funding, and their R&D outcomes were less commercialization than policymakers' expectations. Policymakers said that the R&D subsidy schemes continued to be revised to improve policy impacts and value added:

The R&D subsidy continues to increase and the government policy purpose is to stimulate technological innovation so as to foster SMEs, and thus we would expect lot of job creation ... to do this, SMEs which gained benefits of R&D subsidy need to focus on the development of products to be able to commercialize in the market ... (Policymaker PM9)

R&D subsidy schemes have advantages and disadvantages that are perceived differently by providers (policymakers and policy-practitioners) and consumers (entrepreneurs). All research participants perceived that the implementation process of R&D subsidy as being strict, but they interpreted its functions differently. Policymakers and policy-practitioners thought it was necessarily a strict process so-as-to deliver the subsidy fairly to many SMEs. Meanwhile, entrepreneurs emphasized that its stringent implementation and complicated administration processes were impeding policy efficacy and R&D performance of SMEs. Policy-practitioner PP4 and entrepreneur EN14 said:

... R&D subsidy is a great benefit so I think it needs to be managed with strict standards to deliver it to SMEs fairly, but at the same time, I think it is useful to empower administration processes to the policy-practitioners to respond to the business environment flexibly ... (Policy-practitioner PP4)

... to follow complicated administration processes of R&D subsidy schemes, we need to allocate one employee so it may take our human resources off from our organization. (Entrepreneur EN14)

A major role of policymakers and policy-practitioners is to help SMEs and start-ups and thus, they need to understand what entrepreneurs are requesting from the government, while ensuring good and fair use of public resources. Poor communication caused a poor policy efficacy (e.g. Arshed, Mason, and Carter 2016; Gaus et al. 2019). We now discuss these differences in perceptions about these policies in more detail.

5. Attributes of enterprise policy for SMEs and start-ups

The findings indicated that the three stakeholder groups were generally positive about the critical roles of enterprise policy in market creation, technology innovation and job creation (e.g. Kitching, Hart, and Wilson 2015; Pickernell et al. 2013). In terms of R&D

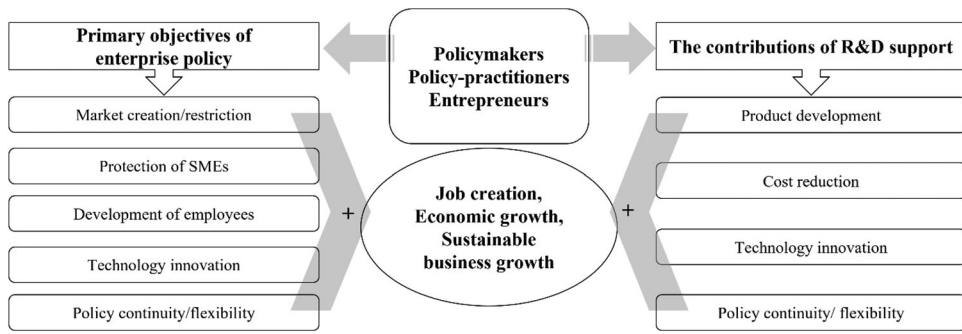


Figure 2. Overview of findings.

subsidy, participants perceived its considerable contributions to the development of new products, as well as contributions such as cost reduction, and a contributor to survival, and job creation (e.g. Bogliacino, Piva, and Vivarelli 2014). Figure 2 presents an overview of the findings.

Government support tends to be focused on job creation, but some entrepreneurs who participated in this study had difficulties in market entry, R&D actions, as well as employment. As a result, the South Korean government introduced various enterprise related policies, such as employment support, export support and R&D subsidies. All participants in this study perceived that policy interventions can help create a new market, as well as shrink an established market. In particular, government regulation impedes new entry in specific regulated industries such as health and medicine (Kitching, Hart, and Wilson 2015). In a similar way, some entrepreneurs in this study used policy intervention to create a new security software market, as discussed earlier.

In terms of the ultimate policy objectives, policymakers mainly focused on employment growth at the national level whereas policy-practitioners and entrepreneurs argued more strongly for an enterprise policy that supported continuous employment growth of long-lasting SMEs rather than focusing on new firm creation or short-term job creation. These different perspectives towards the objectives of enterprise policy showed in the government enterprise policies in different countries (e.g. Arshed, Mason, and Carter 2016), and a holistic approach may be useful to reduce this policy implementation gap.

The entrepreneurs in this study used government R&D subsidy schemes to develop products, and they perceived the R&D subsidy as a significant driver for encouraging R&D actions, mirroring previous studies where R&D subsidies worked as a critical policy for technology-based firms to create new products and new markets (Bogliacino, Piva, and Vivarelli 2014; Kang and Park 2012).

However, some entrepreneurs thought that it was difficult to commercialize products developed with R&D subsidies, due to reasons such as R&D objectives and a lack of capital. Meanwhile, policymakers were concerned with the poor policy effectiveness, and a lack of job creation, due to the lack of commercialization for those outcomes of R&D subsidies, with these contrasting perspectives supporting previous discussions (e.g. Bronzini and Piselli 2016).

Furthermore, entrepreneurs of high-tech SMEs wished for continuous government support for established firms beyond the start-up stage because they felt the government focused too much on start-ups and firm creation. They were also concerned about the discontinuity of policy support because changes in government had resulted in the ending of some established R&D schemes. As Thompson, Scott, and Downing (2012) show, policy support demonstrates different patterns reflecting government change and, thus, policy users can be dissatisfied by policy programs. Although all groups interviewed were in different positions, they believed that flexibility in the policy implementation process (e.g. the flexible application of rules and empowering policymakers) is required to improve policy efficacy (e.g. Lee 2021). All participant groups perceived that rigid and strict policy implementation needed to be blended with policy flexibility to improve policy effectiveness.

Many of the issues discussed in this article have also been raised by many South Korean entrepreneurs since 2017 and a government policy evaluation report 2021 (Lee 2021). That is, despite the revision of enterprise policies over a decade, entrepreneurs have been discussing these issues, such as strict policy implementation, harsh auditing system, and policy termination, as impeding factors to the policy efficacy. All entrepreneurs in this study are the owners of high-tech SMEs using R&D subsidies in their R&D actions and perceived the necessity of the various R&D support and flexibility, whilst a few policymakers and policy-practitioners were concerned with the possibility of weakening fairness of enterprise policies because of too much flexibility. In particular, all policy actors in this study perceived this to be an issue, based on their experiences of the enterprise-driven R&D scheme. Policymakers and policy-practitioners also have different experiences and perceptions toward the policy roles and R&D policy. Although interviews asked them mainly to focus on the time period in the past 7 years, their answers included longer term experiences depending on their careers. That is, policy efficacy is not only a present day issue but has been one for a considerable time. Thus contrasting policy efficacy arguments remain between policy providers and policy consumers.

6. Conclusion

The objective of this research was to explore the perspectives of differing stakeholder groups on how enterprise policy and R&D subsidy schemes support high-tech SMEs and start-ups. Investigating specific groups of policymakers, policy-practitioners and relevant entrepreneurs of high-tech SMEs allowed a comparison of the benefits that entrepreneurs wanted from enterprise policy support and how policymakers and policy-practitioners think about enterprise policy for entrepreneurs and SMEs. Although many studies about policies have discussed the impact of policy support, this article contributes to the underdeveloped discussion of different perspectives of key actors on specific policies for SMEs.

South Korean enterprise policy tends to focus support on new firm creation, but many entrepreneurs in our study wanted continuous policy support for established SMEs across different growth stages. The research suggests the evidence of a policy implementation gap between the enterprise policy provider for SMEs (policymakers and policy-practitioners) and policy consumers (entrepreneurs). We suggest that this may partly

reflect contrasting focuses: on perspectives on entrepreneurship and on policy provider perceptions of policy effectiveness.

The main findings were, first that there were different perceptions of what entrepreneurship was and of the characteristics of high employment growth start-ups (Brown, Mawson, and Mason 2017). Policymakers and practitioner perspectives appear based more on start-up type definitions with entrepreneurship being primarily seen as the event of a business start-up (Gartner 1988), while entrepreneurs focus more on entrepreneurship as reflecting small business owners and as an economic function involving innovation (Schumpeter 1943). Second, while all groups feel that the policies were beneficial, policymakers and policy-practitioners argued that it was necessary to have strict implementation processes so-as-to deliver the subsidy fairly for many SMEs. In contrast, entrepreneurs considered these policy processes to be overly stringent and complicated, and together with regular policy changes and discontinuities, to impede the R&D performance of high-tech SMEs.

Third, entrepreneurs preferred various balances between policy certainty and policy flexibility, but policy makers felt a need to balance value for money and fairness across SMEs. Enterprise policy seeks to manage various aspects of support for both the present and the future economy, linked with market creation and regulation (e.g. Kitching, Hart, and Wilson 2015; Pickernell et al. 2013). Entrepreneurs utilized these and other business environment changes to set up their businesses, as well as to expand established businesses. They pointed out that its stringent implementation and complicated administration processes were impeding policy efficacy and R&D performance of SMEs. Policies needed to balance certainty or consistency and flexibility in policy, with many entrepreneurs wanting R&D subsidies to remain consistent, especially over time, to decrease uncertainty and allow the firms to adapt their strategies, but they also wanted policies to be applied flexibly. Each entrepreneur is in a different stage, thus all entrepreneurs have a variety of needs for policy support. However, they strongly supported the integration and collaboration between entrepreneurship and SME policies and the reduction of uncertainty in receiving continuous policy supports. This consistency versus flexibility of a policy remains a major argument in policy efficacy and implementation (e.g. Arshed, Mason, and Carter 2016; Thompson, Scott, and Downing 2012).

Theoretically, this study indicates the critical role of policy-practitioners' experience and their networking with entrepreneurs in policy development and implementation processes. Thus the findings support the crucial contributions of bottom-up approaches (e.g. Arshed, Mason, and Carter 2016; Urwin and Jordan 2008) compared to primarily top-down approaches in policy implementation for SMEs and start-ups. Despite potential conflicts between both approaches to policy implementation processes, the results suggest that bottom-up approaches play a critical role in understanding stakeholders' perspectives toward enterprise policies. This result also supports the importance of the relationship between policy providers and entrepreneurs (e.g. Niska and Vesala 2013). Given the government-driven economic growth history of South Korea, this study provides insights into how enterprise policies have evolved and which policy support and theories may be suitable for developed countries in different stages of national economy growth. Thus further theoretical studies of the

impact implementation processes are required to explore various attributes of policies influenced by stakeholders.

The research also confirms the need for policymakers and policy-practitioners to improve the exchange their various opinions for improving policy efficacy. They have been communicating with entrepreneurs over decades, but there remained a lack of exchanges of knowledge about enterprise policy. This is the strong evidence on why policymakers should expand their in-depth consideration of entrepreneur perspectives in understanding policy consumers (entrepreneurs). Of course, great care must be taken by policymakers and practitioners to avoid being overly influenced by just those existing entrepreneurs (a form of “producer capture”), who may have strong vested interests, and must balance the perspectives of the full range of stakeholders (including potential entrepreneurs, workers and wider society). The findings also indicate that one of the main issues is policy continuity and flexibility in policy implementation process. To improve policy efficacy on the entrepreneurs’ side, policymakers and policy-practitioners need to consider how to develop strong fundamental enterprise policies, which are able to continue regardless of regime change. Additionally, policymakers should consider the need for policy flexibility for entrepreneurs.

Given the importance of job creation and economic growth in modern economies, policy efficacy and stakeholders’ contributions are essential cornerstones, as well as financial and environmental sustainability. This research on the perceptions of three groups of key stakeholders towards the roles of enterprise policy has some limitations, including concerning the sample size and the specific context of South Korean high-tech SMEs. Thus further investigation of enterprise policies for SMEs across countries is worth exploring to provide more diverse examples. In particular, considering various additional stakeholders, including employees, private sector specialist professional support firms offering related services, and local development agencies, may be valuable to better understand effective enterprise policies for the future. This would build on the research presented in this article comparing both policymaker and policy-practitioner groups and entrepreneurs in their roles as policy providers and policy “customers”.

Notes

1. The enterprise-driven R&D scheme was launched in 1997 by the South Korean government to support enterprise-driven R&D projects for SMEs and start-ups. It classified recipients into two categories according to their growth stage: Technology and Innovation R&D, the Firm Creation R&D.
2. TIPS (Tech Incubator Programme for Start-ups). Available at: <http://www.jointips.or.kr/global/> [accessed: 01 May 2022].

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