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**Twin transition
policies for a
sustainable recovery:
an SME perspective**

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Background and context

Statement of the problem

There is a growing recognition of the importance of Small and Medium-sized Enterprises (SMEs) for the local and global economic development. Especially after the outbreak of the COVID-19 pandemic, which revealed the major vulnerability of SMEs and entrepreneurs hit more severely by the crisis, there has been an increasing number of international and local organisations, both governmental and non-governmental, that shifted their attention to this sector.

While the pandemic crisis has ravaged SMEs worldwide, it has also opened up new prospects for potential opportunities, accelerating the investments to build more resilient and sustainable economies: governments organised their resources to endure and survive to the crisis (during the *rescue phase*) and to strengthen a structural and sustainable growth of their economies with a longer-term view in the *recovery phase*.

It is during such a period of delicate transformation that it is important to understand the pivotal points around which new economic (development) models could revolve. Among these, the *twin transition* (involving both digital transformation and greening) of business activities seems to be a key element in the post COVID-19 recovery and a source for economic growth and competitiveness, with significant benefits for economies at large.

To achieve these goals, SMEs should be considered taking into account their main features: their importance in economic growth and development, their great potential contribution in shaping the path towards reaching net zero emissions and the challenges they face, heightened by the COVID-19 pandemic crisis.

Objective of this study

Throughout 2020, SMEs have been at the epicentre of the impact of the COVID-19 crisis, which made them the core of policy making activities: this resulted in a wealth of information and data about SME policies (OECD, 2022). However, as the pandemic progressed and multiple recovery plans were launched, SMEs seem to be no longer receiving much attention, despite the fact that they continue to be severely hit by new COVID-19 variants and related restrictions.

This study tries to answer to the following question: considering the key role of small businesses in economic growth and social development and their potential in shaping greener economies, to what extent are post COVID-19 recovery policies oriented towards SMEs to build more resilient and sustainable economies?

To provide an answer to this question, **it is essential to understand why SMEs are important in the transition towards more sustainable economies, and if and to what extent they have been included in post COVID-19 policies.** For this purpose, this study made use of different *trackers*, databases built and developed after the outbreak of COVID-19, collecting the policies announced and launched by governments to address the national emergency issues during the rescue phase and to support economic recovery efforts. The trackers analysed in this study are the following:

- (1) The **Global Recovery Observatory**, a database developed by the economists, engineers and policy experts of the *Oxford University Economics Recovery Project (OUERP)*. It focuses on the COVID-19 recovery efforts to “build back better” and achieve net-zero emissions and a sustainable development after the 2020 pandemic. Accessed in October 2021 (O' Callaghan & al., 2020).
- (2) A dataset provided by *Bruegel*, an economics-specialised European think tank established in Brussels in 2005. It provides information on the **European Union countries' Recovery and Resilience Plans**, the largest component of the Next generation EU (NGEU), an instrument to help EU members to recover from the COVID-19 pandemic. Accessed in July 2021 (Bruegel, 2021).
- (3) The **OECD Green Recovery** database (developed by the *Environment Directorate of the OECD*) which focuses on the recovery plans countries implemented after the global pandemic

and helps to identify and track the environmental dimensions of the announced post-Covid 19 measures. Accessed in September 2021 (OECD, 2021 [3]).

- (4) A database conjointly developed by the *Wuppertal Institut für Klima* and *E3G – Third Generation Environmentalism*, the **Green Recovery Tracker – ESRI**, assessing the contribution of 16 EU member countries’ national recovery plans for the transition to climate neutral economies, focusing on the effects of the supported activities on climate change mitigation efforts. Accessed in September 2021 (Wuppertal Institute & E3G, 2021).
- (5) The **COVID-19 Government Financing Support Programme for Businesses**, a dataset developed by the *Directorate for Financial and Enterprise Affairs (DAF)* of the OECD to support the work of the OECD Committee on Financial Markets (CMF). It consists of two large surveys conducted respectively during the first and second waves of the pandemic (April 2020 and December 2020) (OECD, 2020 [4]) (OECD, 2021 [2]).

The objective of the analysis of these trackers is to assess to what extent and how SME-related policies have been developed after the outbreak of COVID-19, with a focus on the recovery phase. The expression “*SME-related*” refers to the policies and measures that explicitly target SMEs or where small businesses are mentioned as one of the main target groups (OECD, 2022). The policies included in the databases have also been considered in the context of two main policy areas (greening and digitalisation) and types of financial support provided (liquidity and alternative sources of finance). Where the databases allowed for more (relevant) granular information, SME-related policies have been differentiated by focus on firm age (start-ups and young SMEs), self-employed, entrepreneurs and firm size per se, in line with the policy-relevant typologies for SMEs and entrepreneurship outlined by the *Typologies for publication* of the (OECD, 2021 [15])¹. Additionally, this study assessed the small business orientation of policies across emerging and advanced economies and across countries with different SME policy frameworks (OECD, 2021 [9]).

There are, however, few interpretation-wise limitations that should be addressed in this data-based analysis. (1) In first place, these databases are constantly being updated as the COVID-19 pandemic is relapsing in several waves differing in terms of intensity and severity. (2)

¹ Further information on these typologies can be found in Annex A

In addition, these trackers have been developed to serve different purposes and, thus, provide different types of information: they are therefore not entirely comparable. (3) Lastly, this analysis focuses on policies with an SME orientation, but does not suggest that other policies that are not identified as SME-related may not somehow have implications or relevance for the SME population (e.g., some policies targeting a particular economic sector of which SMEs are part without being the direct recipients might, in some cases, be even more beneficial compared to other measures directly oriented to SMEs)².

² Further information on the methodology applied and on the databases analysed can be found in Annex A

Motivation of the study

SMEs and entrepreneurship policies are a key issue for the Organisation of Economic Cooperation and Development (OECD) and its *Centre for Entrepreneurship, SMEs, Regions and Cities (CFE)*, where I did my postgraduate internship between July 2021 and June 2022. The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. Within the OECD, CFE is a directorate that helps local, regional and national governments unleash the potential of entrepreneurs and SMEs, promote inclusive and sustainable cities and regions, boost local job creation and implement sound tourism policies (OECD, 2021 [11]).

Throughout the 12 months of my internship, I provided inputs for and contributed to the drafting of the following publications and documents, which provided the basis for this study:

- I. The *Guiding Principles for SMEs and Entrepreneurship Policies*, developed by the Committee for Entrepreneurship and SMEs (CSMEE) together with the CFE in the context of the OECD SME and Entrepreneurship Strategy³. Their rationale and objectives, as outlined in the scoping paper *Build Back Better: An OECD Strategy for SMEs and Entrepreneurship in a post COVID-19 era* (OECD, 2021 [1]), is to provide guidance for effective and coherent SME and entrepreneurship policy approaches addressing current existing challenges and global megatrends, further heightened by the COVID-19 crisis.
 - a. As part of the development of the OECD SME and Entrepreneurship strategy, a public consultation on the guiding principles was held through a short survey between February and March 2022. This questionnaire targeted non-governmental organisations representing SMEs and entrepreneurs, such as associations of SMEs, independent professionals and self-employed, national and local chambers of commerce, federations of small businesses and major SME and entrepreneurship research centres across OECD member countries⁴.

³ To learn more about the projects and activities developed by the OECD for SMEs and entrepreneurs, visit the following website link <https://www.oecd.org/cfe/smes/strategy.htm>

⁴ Further information on the survey on the set of guiding principles for SMEs and entrepreneurship policies can be found in Annex B

- II. The *Thematic chapter of Financing SMEs and Entrepreneurs 2022: An OECD Scoreboard*, an annual publication documenting the policy developments aiming at easing SMEs and entrepreneurs in accessing financial resources since the financial crisis in 2008. The scoreboard constitutes an important tool to support the implementation and designing of SMEs and entrepreneurs' policies and to monitor the financial challenges and effects of the financial reforms on the smaller enterprises access to finance, including through indicators and data analysis (OECD, 2022).
- III. The *No Net Zero Without SMEs* paper, underlying the critical importance of SMEs and entrepreneurs for reaching climate objectives as, on aggregate, they have a significant impact on the environment. For this reason, they should be taken into account in climate and environmental policies, also by addressing the drivers and barriers of SMEs green transition (OECD, 2021 [4]).
- IV. The paper *SME Digitalisation To "Build Back Better"*, showing how SMEs responded to the COVID-19 crisis and adapted to a new scenario and how different players in their ecosystems are contributing to their digital transformation during the rescue and the recovery phases (OECD, 2021 [10]).

Chapter 1. SMEs: a fragile backbone of the economies

SMEs are essential for an inclusive and sustainable growth of the economies, but often face severe challenges related to their size. As they account for the overwhelming majority of private economic activities, they are recognised to play a key role in economic growth, job creation, local development, social inclusion and cohesion (especially in terms of upward mobility) and to be crucial in the adaptation of economic and social systems to major transitions, including to more sustainable business practices and models. Their relatively small size can represent an important asset in terms of flexibility, growth and innovation, but may also bring challenges: in particular, SMEs struggle to access key resources such as finance, digital assets, skills and knowledge networks, thus disclosing their vulnerability to lightning-changing market conditions.

This chapter outlines the worldwide importance of SMEs for social and economic development and the major challenges that they face, further heightened by the COVID-19 pandemic crisis.

SMEs represent the large majority of firms...

As literature widely reports, SMEs form the backbone of the economies, as they represent over 90% of the total number of enterprises in the world (World Bank, 2019), covering most of the economic activities across all sectors of the economy.

Most SMEs operate in the service sector, which in OECD member countries now accounts for more than two-thirds of national GDP (not least due to advances in technology, which generates the bulk of the overall employment) (OECD, 2021 [5]). SMEs are engaged mainly in the wholesale and retail commerce, in communications and support for businesses, in tourism and in the construction industry. Across the APEC economies, that include both emerging and developed countries, the shares of the SME population is particularly high in the service sector overall (89.2% in Malaysia and 39.6% in Thailand) and in the wholesale and retail trade in particular (47.3% in Taiwan and 46.4% in the Philippines and Peru) (APEC Policy Support Unit, 2020).

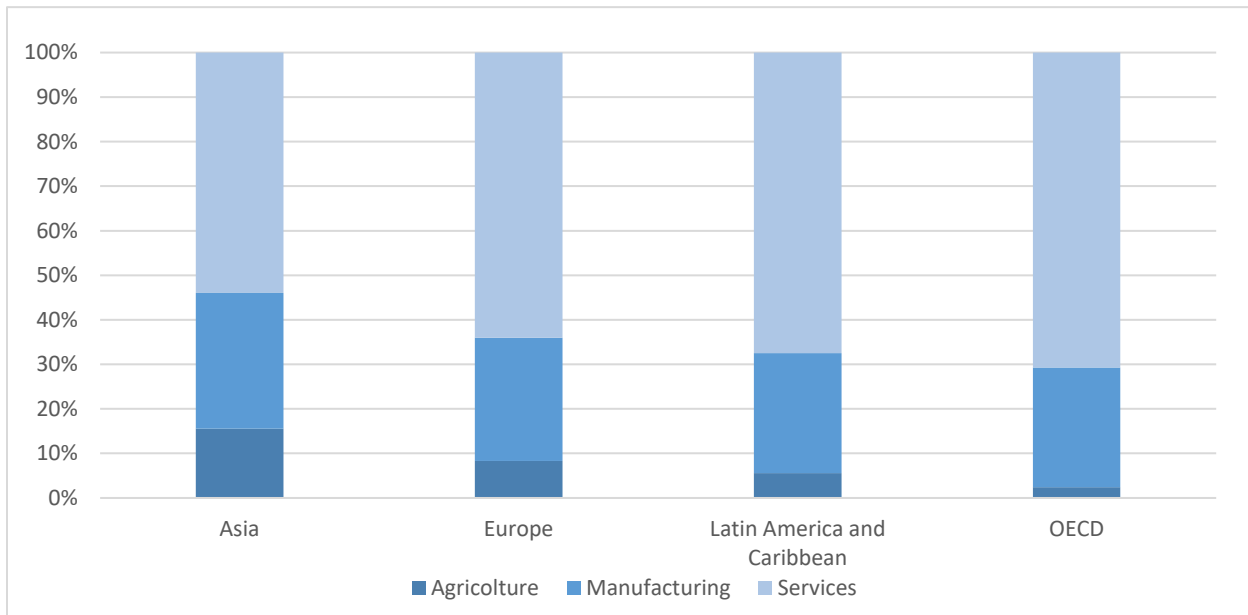
SMEs are also well represented in the manufacturing sector: although the world economy is overwhelmingly dominated by services, the manufacturing sector continues to play a

major role as it is the key driver of the productivity growth necessary to stimulate technological change and innovation (UNIDO, 2021). The increasing propensity of major manufacturing industries to subcontract certain activities, combined with the introduction of new technologies that have enabled SMEs to gain new market shares, has led to a 10% annual growth of small manufacturing businesses in recent years (OECD, 2000 [3]).

SMEs play a role in the first sector of the economy as well: agri-SMEs are reported to have a critical role in making food systems more inclusive and sustainable as they can be found almost all along the agricultural value chain. These SMEs are responsible for much of the sale of agricultural inputs, food production, its logistic distribution and trade, and in the retail of food products (Rural & Agricultural Finance, 2021) (Eskesen, Agrawal, & Desai, 2014).

Figure 1 shows that SMEs make up a large part of the service-related sector worldwide (65% on average) and that less than 30% of SMEs work in manufacturing. Only about 8% of small businesses operate in the agriculture sector (Kim & Wood, 2018).

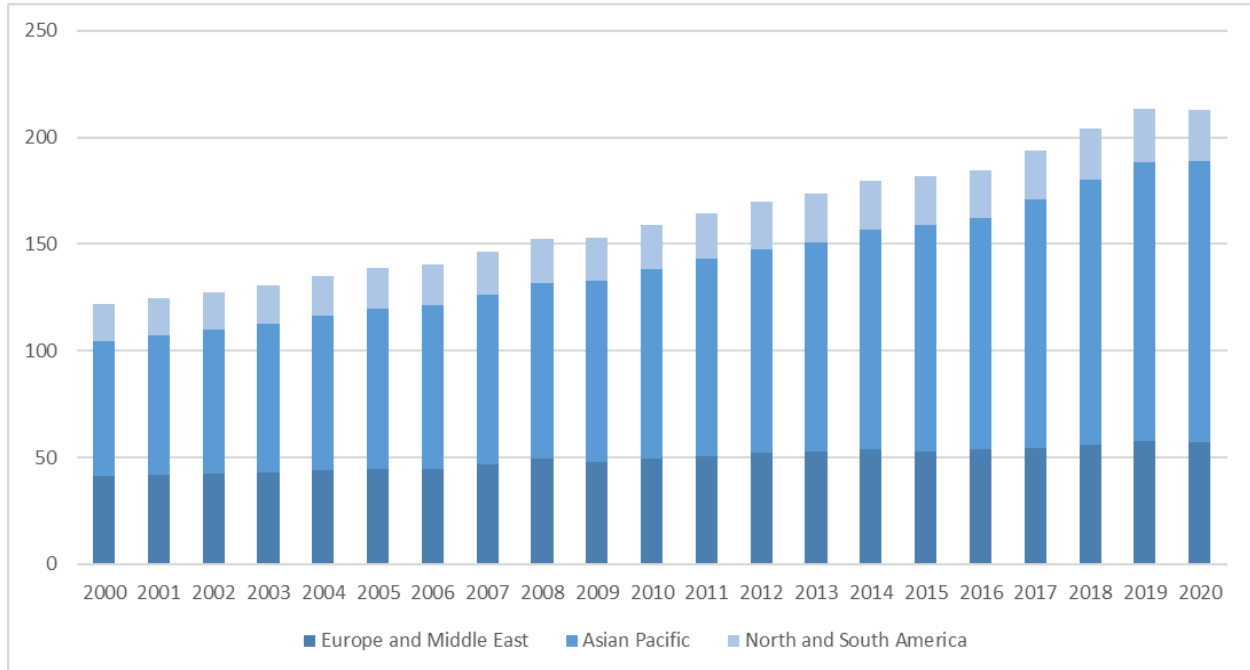
Figure 1. Sectoral shares of SME population, by geographical region



Source: Service sector development in Asia: an important instrument of growth (Kim & Wood, 2018)

Until the outbreak of COVID-19, the number of SMEs had been increasing, especially in the Asia Pacific region, where they hit a population of 131.88 million small businesses. This is more than the double of the SME population in Europe and Middle East (57 million) and five times more compared to the number of small businesses in North and South America (25 million) (Clark, 2021), as Figure 2 shows.

Figure 2. Number of SMEs worldwide 2000-2020, by geographical region (millions)



Source: Number of SMEs worldwide 2000-2020, by region (Clark, 2021)

...and are deemed to be the drivers for an inclusive and sustainable growth in terms of employment...

The importance of SMEs is widely acknowledged worldwide, as they play a major role in most of the economies, both emerging and developed. As SMEs represent most of the business activities, they are significant global drivers of job creation and overall economic development, contributing on average to 60% of the global employment (World Bank, 2019). In emerging economies, the role of SMEs is particularly important as they provide the most promising prospect of growth in terms of both employment and value-added (since they provide about 60% of their national income) (WTO, 2019). Across the OECD, an organisation which tends to represent, instead, the most developed economies around the world, SMEs are estimated to account

for 99% of all the business population and around 50% of the national value added: on average, almost an employee out of three works in a SME (OECD, 2019 [1]).

...and innovation-led development...

In addition, SMEs contribute to the economic development as they play an ever-increasing role in innovation, which is a key determinant of productivity and long-term growth (World Bank, 2018). Traditionally, the literature has highlighted that smaller enterprises were on average less innovative compared to larger enterprises as they had limited resources to allocate to R&D activities to remain competitive in the market: for example, across the OECD member countries, the median national share of investment in R&D in small businesses seems to be only 35% (OECD, 2018 [2]).

Nevertheless, recent findings prove that the heterogeneity of the SMEs population reflects extremely diverse levels of innovation rates and intensities: today, there is a significant proportion of SMEs that engage in innovation activities, especially in higher-income countries (OECD, 2021 [7]). This occurs because of the way in which innovation is carried out has changed, by shifting from a model limited to in-house R&D to more concerted and collaborative interaction-based innovation model involving not only other companies, but also other key innovative players such as universities and research centres. This new paradigm (better known as “open innovation”) has drastically reduced the need to allocate large amounts of capital to high-cost innovation processes and increased their accessibility in favour of smaller businesses (OECD, 2010). It is therefore in particular sectors, such as the science-intensive ones, that small businesses prove themselves to be radical innovators (as, for example, in the biotechnology field, where SMEs are reported to account for more than 20% of the patents granted) (OECD, 2018 [2]) (OECD, 2021 [4]).

Moreover, the gains in innovation-led productivity (which results in territorial economic growth) **are strongly influenced by the competitive environment in which SMEs operate** (OECD, 2000 [2]). Such competition is reported to have a twofold effect on innovation: on one hand, it may push SMEs to continuously strive for innovation (not only in products or services, but also in processes and methods) to survive and become more competitive in the market; on the other, market competition can squeeze SMEs market profits (and shares), making

it much more complicated to invest in cost-intensive innovation processes. However, different studies suggest that there is a common positive relationship between the competitiveness of markets and the innovation-related growth and scale-up of SMEs, as (Canare & Francisco, 2021) and the (OECD, 2000 [3]) report.

...especially in the knowledge-intensive era of globalisation

The globalisation gradually created a different business environment, that brought SMEs new opportunities and challenges. The weight of SMEs in economies has been growing exponentially since 1980s, when large companies and multi-national corporations (the main drivers of the globalisation) have in most cases followed a common trend of downsizing and outsourcing of production-related functions (OECD, 2000 [3]): for this reason, SMEs had ways to work in integration with large-scale organisations and change their development and growth strategies, adapting to a new (and more competitive) business environments (Singh, Garg, & Deshmukh, 2008).

According to (Audretsch & Thurik, 2001), **the globalisation did not turn SMEs to be obsolete, but it rather changed their role in the worldwide economic system**, that shifted to more knowledge-intensive activities for two reasons: (1) larger companies lost their competitive advantage in setting their production in high-costs regions/countries (especially in the manufacturing sector) in favour of smaller businesses. (2) SMEs and entrepreneurs gained most advantages out of a knowledge-based economy requiring, above all, the specialisation and the flexibility necessary to easily adapt to the fast changes in the business environment (Ribeiro Soriano & Roig Dobon, 2009).

In this respect, **the rising pressure of competitiveness is one of the main reasons that encourage some small businesses to seek international partnerships** to cut costs and to ease the development of competitive advantages, targeting those types of activities where the advantage of small size in terms of flexibility is best exploited (OECD, 2004) (Dana, Etemand, & Wright, 1999). For SMEs in developing countries, the internationalisation process offered new important market opportunities (in terms of product, process specialisation and low-cost operations) and access to new technologies and know-how (such as electronic networks and databases) (OECD, 2000 [1]).

Benefits coming from an increased SME participation in international markets are not limited to gains in firm-wise competitiveness, but are often also extended to wider socio-economic dimensions: in this regard, for SMEs with a small home market, export activities play a central role in stimulating local economic growth and swift socio-economic transitions. Tightened value chains enhance the returns and productivity of SMEs, enabling them to create more and better-quality jobs within their local communities (ILO, 2019). On the other hand, SMEs that are competitive in the goods and services supplied on foreign markets can contribute to a country's exports (and, thus, to its GDP) (Harvie & Charoenrat, 2015). In this context, therefore, export-oriented SMEs should be considered as a key to the strategic development of the economies, especially in fast-growing emerging countries (UN ESCAP, 2015).

SMEs are beneficial for the distribution of economic resources...

However, the great contribution of SMEs to the economic and social growth of a country should not only be considered on the basis of employment and national GDP shares (United Nations, 2021). It is broadly acknowledged that SMEs play a key role in the pursuit of broader socio-economic objectives, including the achievement of the Sustainable Development Goals (SDGs), plans calling for action to be taken by all countries in the world to enhance the living conditions of people everywhere (UN Department of Economic and Social Affairs, 2018).

It is recognised that traditionally disadvantaged social groups, especially women and young entrepreneurs, benefit most from job creation through SMEs, as they see their incomes rise (WTO, 2017). The reduction of poverty in the short term (through better wages) has beneficial effects in the long term as well, as it positively impacts on household investments, on education and health. Thus, SMEs potentially become leading actors in the achievement of some important SDGs, such as gender equality and inclusive and sustainable economic growth, employment and decent work (ILO, 2021 [2]) (United Nations, 2021).

Moreover, it is argued that, as they are more spatially distributed, **SMEs could also contribute to both wealth allocation and formation of a more homogeneous entrepreneurial and economic environment** (also thanks to the geographical diffusion of skills and innovation), thus reducing the strong territorial disparities, especially between urban and rural areas (Hobohm, 2008) (Amini, 2004).

... and further contribute to the improvement of non-economic resources

SMEs are not just relevant for national economic-wise development, but appear to be essential for broader sustainable growth objectives. The goals set by the (United Nations, 2021) do not only cover the enhancement of social and economic conditions, but also address non-economic issues, such as climate change: as most of the population living in developing countries relies on the products and services provided by small businesses, extensive literature highlights how SMEs should be prominent in policy making not only for their aggregate environmental footprint, but also in relation to their potential contribution in improving the development and resilience of the communities most vulnerable to climate change (UNDP, 2015). Even though concerted climate change mitigation efforts are central to the policy agendas of many governments (that aim to achieve zero GHG emissions by 2050), for a long time SMEs were hardly considered, if not excluded, in the environmental debate: it is only in more recent times, with the growing urgency set by the climate change issues, that SMEs were deemed to play an important role in tackling and mitigating the environmental impact of economic activities (OECD, 2021 [4]).

For this reason, SMEs appear to become one of the main pillars of national and global sustainability agendas (Watts, 2020) (UN Department of Economic and Social Affairs, 2019). The SDG-related practices and principles have not yet been totally absorbed by the world of SMEs, which often seem to fail to realise that the adoption of sustainable development models could represent a strong driver of growth (and not only a cost), together with other megatrends (such as the increase in the intensity of globalisation, the digitalisation and new industrial revolutions) (Sustainability Knowledge Group, 2019).

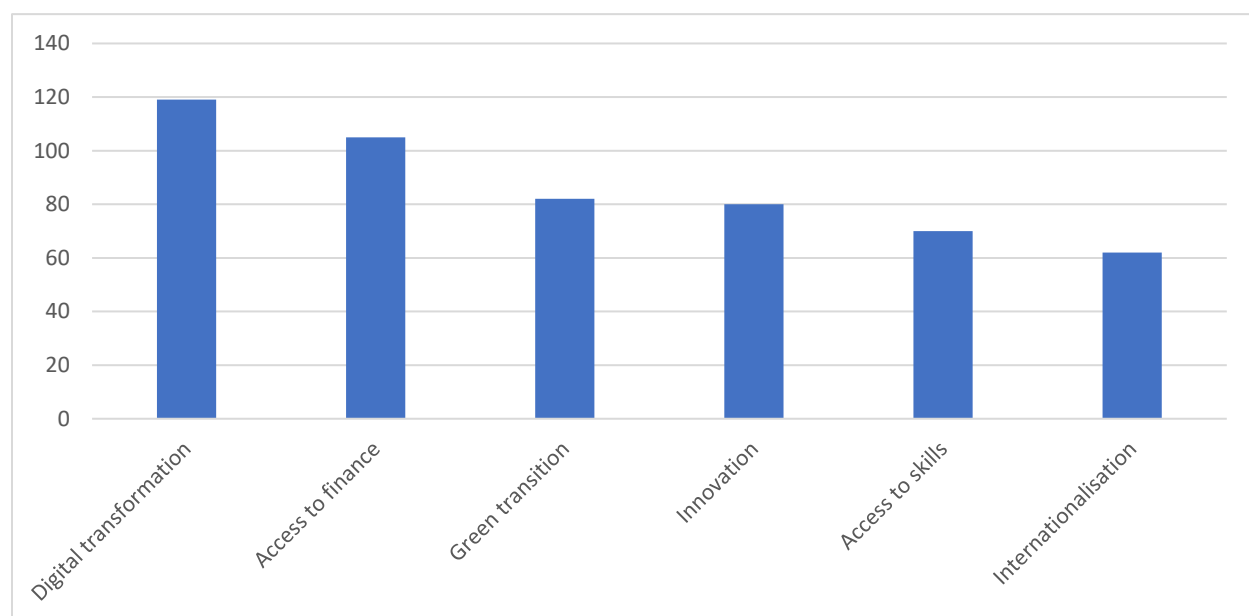
SMEs face substantial challenges...

The challenges that SMEs face are unique and heavily related to their size-based features, leading to higher transaction costs (when compared to larger enterprises) that hinder their performance. If their relatively small size could be seen as an important asset (allowing for greater flexibility and specialisation), it could, however, also be considered as a relevant sources of challenges (OECD, 2019 [2]). The size-related obstacles that SMEs face involve barriers to growth that are both internal to the enterprise (associated with organisational resources and capabilities,

such as the limited access to digital, finance and skills assets) and external (arising from the home and host environments in which the business is located) (Liñán, Paul, & Fayolle, 2020).

An important evidence of the challenges that SMEs face is provided by the outcome of a survey launched in the context of a public consultation held at the OECD⁵. Different non-governmental organisations representing SMEs and entrepreneurs, national and local chambers of commerce and SME research centres indicated that the most important challenges for small businesses (especially after the outbreak of the pandemic) were mostly their digital transformation (18% of the total number of respondents), their access to finance (16%) and becoming more environmentally sustainable (12%), together with other challenges (such as innovation, access to skills and internationalisation), as Figure 3 shows⁶.

Figure 3. Most important challenges for SMEs and entrepreneurs, survey outcome



Source: author, based on a public consultation held between February and March 2022 in the context of the OECD Strategy for SMEs and entrepreneurs⁷.

⁵ Further information on the survey on the set of guiding principles for SMEs and entrepreneurship policies can be found in Annex B

⁶ Next chapters further build on the outcome of this survey with a particular emphasis on the SME digital and green transitions and their access to financial resources.

⁷ To learn more about the projects and activities developed by the OECD for SMEs and entrepreneurs, visit the following website link <https://www.oecd.org/cfe/smes/strategy.htm>

...mostly in terms of adoption of digital technologies, ...

Businesses of all sizes and across all industries are increasingly equipping with digital assets, which yield many benefits, including innovation. The digital transformation drastically reduces transaction costs by providing faster and more efficient access to information and other resources, including finance, skills training and recruitment, innovation-related assets and government services that are increasingly being placed online. Furthermore, digital technologies such as ultra-fast broadband connectivity, big data and AI appear to be an important element to foster SME green growth (Ortega-Gras & al., 2021) (Rabetge, 2021). Nevertheless, many SMEs continue to lag significantly behind in the adoption of digital technologies (and the gap with large enterprises seems to have widened over the last decade) (OECD, 2021 [11]).

The adoption and diffusion of digital technologies tends to be less intense in firms of smaller size: indeed, more than 90% of European SMEs consider themselves as lagging behind in terms of digital innovation (European Commission, 2019), and the shares are even lower in developing countries (SME Finance Forum, 2021). Barriers leading to lower rates of adoption of digital technologies across SMEs include insufficient investments in these technologies and in complementary skills needed to provide organisational changes and a poor understanding of the use and benefits of a digital transformation (Ollerenshaw, Corbett, & Thompson, 2021).

...but also in the access to financial resources...

Access to financial resources is frequently addressed as one of the most critical hurdles to SME growth and (green) development. In both developing and developed economies, small businesses have been observed to have less access to external finance and are more restricted in their operation and growth (Beck & Demirguc-Kunt, 2006) (Wang, 2016). The (SME Finance Forum, 2022), an organisation working to expand SME access to finance on a global scale, estimates that 131 million (or 41%) of SMEs in developing countries face unsatisfied financial needs: this financial gap is estimated to amount to USD 5 trillion (World Bank, 2019). The data seems to be a little more encouraging, however, across advanced economies: in the EU member countries, for example, only one in four SMEs reports difficulties in accessing financial resources (European Investment Bank, 2019) (Muller & al., 2014), with an estimated financial gap of EUR 400 billion (Euler Hermes Global, 2019).

The reasons behind this gap are mostly due to the higher risks associated with SMEs and young firms, because of their low eligibility and a more limited credit history, which sometimes make borrowing finances more challenging (Teo & Cheong, 1994) (OECD, 2018 [1]): as the (Asian Development Bank Institute, 2017) highlights, there is often a problem of asymmetric information between the financing institutions and the small businesses: this is an issue that multinational enterprises and big firms do not face as they list their shares in the stock markets and issue securities in the bond markets, while SMEs have no connection with the capital markets and often their owners and managers lack expertise.

...and skills...

Furthermore, SMEs' limited access to skills represents one of the major obstacles to their development. Workers with advanced skills are a key resource in a knowledge-intensive economy, but smaller enterprises seem unable to take advantage of it as they face considerable skill-related challenges: these include a shortage of digital leadership skills and IT specialists (it is reported that almost 80% of the SME leaders lack of skills to successfully upgrade their businesses with new technologies (Woodcock, 2021)) and a critical shortage of management and problem-solving skills, also crucial for a successful combination of different types of innovation that require the management of larger portfolios of innovative assets (OECD, 2019 [1]).

Such skill gaps hinder small companies in defining their growth strategy and enabling employees to effectively use new technologies (European Commission, 2019). Acquiring skills does not come easy to SMEs, that, compared to larger companies, face further insufficient networking links and poor connections with educational institutions to find talent and often offer less appealing employment conditions (OECD, 2019 [1]).

...that contribute to a poor networking ability...

There is large literature-based evidence of the correlation between limited access to (digital) technologies, finance and skills assets and a poor connection with knowledge infrastructures and innovative networks (SME United, 2020). This issue often leads SMEs to be unable to fully exploit home markets, to penetrate foreign markets and to miss the benefits that production and sales connections bring (Gilmore, Carson, & Rocks, 2006) (UNIDO, 2007).

Networks have assumed a critical importance for SMEs' activities as they increase their potential to get in touch and exploit knowledge-based competitive advantages (especially in terms of know-how, new technologies and innovative projects) in domestic and foreign markets (Kazlauskite & al., 2015) (Gao, Qu, & Zhang, 2019).

Inter-firm collaboration and cooperation seem to have become by far the most important channels of transmission of knowledge-sharing and exchange for small businesses, which, however, often appear to be more risk-averse compared to large companies: beyond the lack of skills, this occurs by reason of limited financial resources and decision-making organisational structure (entrepreneurs and other SME owners get more affected by a mistake compared to employed managers) (Wüstermann, 2016) (Oparaochoa, 2015). To address these “market failures” that inhibit the knowledge-sharing and innovation process, governments have often stepped in and created network opportunities (also through the support of public-private partnerships and international linkages), that lower the risks in which SMEs potentially incur (OECD, 2004).

... and to a greater vulnerability to disruptive changes in market conditions

SMEs are more subject to market instability compared to larger firms: during both 2008 financial crisis and the more recent (still ongoing) COVID-19 crisis, small businesses have been proved to be the most fragile players (Asgary & al., 2020). Their weaknesses during times of crisis are generally related to a greater difficulty in downsizing (due to their already limited size), to poor reliance on the economies of scope (i.e., restricted diversification of their economic activities) and, not least, to many internal barriers already mentioned above (especially in terms of access to finance), as widely reported by the (OECD, 2009). The containment restrictions imposed against COVID-19 resulted in the most severe global economic recession since the second post-war period, with most SMEs either turning out of business or experiencing significant revenue losses (OECD, 2021 [7]).

Next chapter focuses on the disproportioned effects that the COVID-19 containment restrictions had on small businesses and tries to assess if and how governments reacted with respect to SMEs throughout the 2020 and 2021 pandemic crisis.

Chapter 2. COVID-19 policy intervention: an SME perspective

The crisis triggered by COVID-19 revealed the vulnerability of SMEs, which have been at the epicentre of the impact of the pandemic, with significant risks for economies at large. In addition, the crisis has compounded the need and the urgency for governments worldwide to step in and address the issues posed by the short-term financial emergency and the long-term challenges yielded by megatrends (such as the digital transformation and the green transition, necessary to restructure more sustainable and resilient economies, as shown in Table 2), through rescue measures and recovery packages.

This chapter examines the extent to which SMEs have been taken into account by policy makers throughout 2020 and 2021 in both advanced and emerging economies, including by differentiating between rescue measures and recovery packages and, where possible, by SME types.

COVID-19 substantially impacted SMEs...

The COVID-19 outbreak is historically unprecedented in its complex nature and scale: nationwide lockdowns, together with aggregate-level changes in behaviour driven by fear of being infected, not only caused disruptions in production and trade activities, but also led to the largest breakdown in demand for goods and services since the Great Depression of the 1930s (Gourinchas & al., 2021). Due to the pandemic, the 2020 global GDP decreased by 3.4%, while it was expected to increase at a steady rate of 2.9% (as it did in 2019) (Szmigiera, 2022). The (IMF, 2020) estimated a fall of 4.9% in global growth with significant impacts on the progress made in reducing extreme poverty in the world since the 1990s (accompanied by a loss of 255 million full-time jobs worldwide, four times more than the ones lost during the global financial crisis (ILO, 2021 [1])).

In addition, due to the disruption of trade activities, international investment flows (vital for the sustainable development of the poorest regions in the world) have been heavily affected and fell by 33% (estimated USD 1 trillion), far below the point reached in 2008 (UNCTAD, 2021 [2]). The vaccination campaign does not seem to stabilise (yet) the economic fluctuations to any greater extent, partly because of the large disparities in the distribution of doses (especially between high-income countries, where the vaccination rate exceeds 65%, and low-income

countries, where it does not reach more than 3% (IMF, 2021 [2])) and the new variants that keep on arising, forcing governments to apply further restricting measures.

The effects of COVID-19 were particularly severe on SMEs that, due to their size-related higher vulnerability and lower resilience capacity, have been at the centre of the economic typhoon caused by the pandemic (OECD, 2020 [3]). Lockdown measures imposed by governments have acted as a cut-off for almost all business activities which have encountered plummeting demands and disrupted supply chains. In addition, COVID-19 affected the sectors of the economy strongly dominated by SMEs (such as the transport manufacturing, wholesale and retail trade, services related to accommodation and food, professional services and other non-professional personal services), where the share of employment to which they contribute hovers around 80% (OECD, 2020 [3]).

The high vulnerability of SMEs to the pandemic resulted in a serious drop in revenues: in OECD countries, according to a survey, around 75% of SMEs experienced a dramatic fall in sales (and revenues) since February 2020 (OECD, 2021 [8]); in the United States the revenues of SMEs and the consumption spending of their owners declined by 40% after March 2020 (Kim, Parker, & Schoar, 2021); across the European Union members, where the share of small businesses reporting a drop in revenues was up to 70%, the key issues for SMEs were maintaining the fixed costs and the sale rates (as they faced a declining aggregate demand) and finding business continuity (due to challenges in coping with their staff working remotely and with the digitalisation of sales and partnership relations), as the (European Cluster Collaboration Platform, 2020) reports.

... and governments did not sit idly by, ...

Overall, governments seem to have responded fairly promptly to the unexpected challenges faced by small businesses through a broad range of incentive and support measures (World Bank, 2020 [1]). As the virus quickly spread all around the world, both developed and emerging economies were confronted with roughly the same SME-centred economic recessions throughout the past two years: Table 1 shows that the gaps in share of SME-related policies are not so wide across the four classifications of countries drawn by the (World Bank, 2021 [2]). Although there are evident imbalances in terms of absolute numbers of policies

and financial values allocated for SME-related policies, low and lower-middle income countries did not react too differently compared to high and upper-middle income countries with respect to policies addressing the challenges faced by SMEs after the outbreak of the pandemic.

Table 1. SME orientation of policies after COVID-19 outbreak, by country classification

	Low income		Lower-middle income		Upper-middle income		High income	
	Number	Value	Number	Value	Number	Value	Number	Value
SME-related policies	18	0.52	113	67.84	223	411.82	679	3462.66
Other policies	259	2.73	701	782.38	1516	2217.47	4056	12564.58
Total policies	277	3.25	814	850.22	1739	2629.29	4735	16027.24
Share in total	6%	16%	14%	8%	13%	16%	14%	22%

Source: author, based on the Global Recovery Observatory (O' Callaghan & al., 2020) and the country classifications by income level document operated by the (World Bank, 2021 [2])

Note: values are expressed in billions of USD

...but stepped in, trying to address two issues: rescue and recovery of small businesses

When dealing with small businesses, many governments were faced with a twofold issue: first, rescuing SMEs and entrepreneurs that, due to the restrictions, were running out of business and, once the damages have been limited, help them to recover and build more resilient and sustainable economies (OECD, 2021 [8]).

It is therefore possible to divide the measures launched by governments loosely between those focused on emergency liquidity support (during the *rescue phase*) and those focused on a "build back better" plan (during the following *recovery phase*). The policies launched during the rescue phase could be intended as “short-term measures designed for emergency support to keep people and businesses alive”, whereas the policies launched in the recovery phase (often included in wide recovery packages) could be considered as “long-term measures to boost economic growth” (O' Callaghan & al., 2020).

Although the waves of COVID-19 have been occurring not only with different timespans, but also with strong fluctuations in their magnitude, **the development and deployment of SME**

policy responses worldwide has largely followed similar patterns: following the launch of liquidity support measures during the first months of the pandemic to ensure survival to lockdown restrictions, governments have additionally issued recovery packages to structurally reform a more sustainable economy (OECD, 2022) (O' Callaghan & al., 2020).

However, the distinction between rescue measures and recovery packages is not always easy to draw: as a matter of fact, some countries included liquidity support measures in recovery packages or, in other cases, had already included more structural reform provisions in rescue measures. As multiple waves of COVID-19 imposed further lockdowns, some governments continued to launch rescue measures in parallel with recovery plans. In addition, especially in developing and emerging markets, some countries have not (yet) designed comprehensive recovery packages, but rather established a series of reforms aiming to ensure the restructuring of their economies (OECD, 2022).

The rescue phase had a stronger focus on SMEs...

During the first months after the outbreak of the pandemic, governments came at rescue of SMEs by trying to address their critical financial issues through liquidity support measures. These measures contributed significantly to preventing SMEs from going bankrupt, but at the same time increased their indebtedness.

The most recurrent instruments of SME-oriented aid across the rescue measures launched by governments were debt finance and employment support, according to the (WTO, 2020): in Austria, Belgium, Germany and Italy, for example, governments put in place new credit guarantee schemes, targeting SMEs in their eligibility criteria. In China, France and Finland, preferential loan application policies were offered to small businesses and entrepreneurs that have lost their sources of income during the lockdown restrictions. The governments of the Netherlands, New Zealand and the United States provided, along with other financial programmes, employment support (through wage subsidies) as alternative to payments to workers.

Two surveys conducted in 2020 by the Directorate of Financial and Enterprise Affairs (DAF) of the OECD over the course of the COVID-19 crisis show how strong the SME orientation of policies was in rescue measures. It is estimated, in fact, that, across OECD

countries (including Brazil, Hong Kong and Russia), 55 out of 98 (56% of the total) policies identified were directly targeting SMEs in April, during the first wave of the pandemic (OECD, 2020 [4]). In December, during the second wave of COVID-19, the share of SMEs included as recipients in liquidity support measures was 39% (46 SME-related policies out of 117): despite the slight decrease, the rescue measures resulted to have an overall particularly strong SME component, especially when confronted with recovery packages.

Examples of SME-related policies included in rescue measures

In European countries:

- In **Belgium**, subsidies loan schemes (worth EUR 230 million) allowed SMEs to preserve their economic activities (European Commission, 2021 [8])
- The government of **Czech Republic** supported companies with up to 500 employees by securing their debts in the total amount of CZK 150 billion in guarantees (Ministry of Finance - Czech Republic, 2020)
- The **Finnish** Government allocated USD 260 million to support medium-sized companies and prevent bankruptcies (Ministry of Employment and the Economy - Government of Finland, 2020)

In North and South America:

- In **Argentina**, SMEs could benefit from a national 300 million pesos-worth loan policy and in the extension of their debt maturities (Ministerio de Desarrollo Productivo - Argentina, 2020 [2])
- The **Brazilian** Government allocated USD 1.8 billion to facilitate the access to credit for micro and small businesses (Federal Government of Brazil, 2020)
- In **The Bahamas**, USD 30 million have been allocated to fund grants and aid for small businesses (Ministry of Finance - Government of The Bahamas, 2020)
- The **Canadian** Government allocated USD 480 million to provide financial support for SMEs that were unable to access other COVID-19 business supports (Government of Canada, 2020)

In the Asia and Pacific regions:

- SMEs in **Japan** could benefit from USD 2.21 -worth subsidies measure (Government of Japan, 2020 [3])
- The **Chinese** Government launched a measure allowing SMEs to benefit from deferred payments of water, electricity and gas fees (Ministry of Finance of the People's Republic of China, 2020)
- In **Indonesia**, the government prepared an interest subsidy scheme and loan principal repayment relief for SMEs (Kementerian Keuangan - Republik Indonesia, 2020)

In Africa:

- The **Democratic Republic of Congo** provided ~USD 10 million-worth grants to SMEs and entrepreneurs in the mining sector, to help them meet running costs, and implement COVID-19 safety measure (République Démocratique du Congo - Gouvernement, 2020)
- In **Morocco**, the government provided a loan guarantee scheme (“Relance TPE”) to help SMEs access credit, by guaranteeing 95% of their loans (Kingdom of Morocco - Ministry of Economy and Finance, 2020)

...compared to the recovery phase, where the SME orientation became less explicit

As the pandemic continued throughout 2020 and 2021, governments started gradually including structural (recovery) support packages in addition to the rescue measures (OECD, 2022). Recovery packages substantially differ from the rescue measures in their purpose: while rescue measures aimed at avoiding liquidity issues across businesses, recovery packages were intended to enhance resilient and sustainable growth through both short-term measures (such as demand support through income sustainment and vouchers schemes) and long-term measures (such as structural solutions addressing digitalisation, greening, access to skills and innovation) (O' Callaghan & al., 2020).

These recovery packages vary in size of financial resources allocated, in launch time and in their focus (OECD, 2022). Table 2 provides an overview of such differences across selected OECD countries, as of December 2021.

Table 2. Recovery packages across OECD members

Country	Recovery package (date of implementation) (source)	Financial size	Focus (alphabetical order)
Australia	Federal budget 2021/22 (May 2021) (Government of Australia, 2021 [2]) The Economic Recovery Plan (Government of Australia, 2021 [3])	5% GDP AUD 507 billion	Digitalisation, greening, infrastructure, skills, tax cuts.
Austria	Rescue and investment package (June 2020) Recovery and Resilience Plan (June 2021) (Government of Austria, 2021)	EUR 15 billion EUR 3.5 billion	Digitalisation, greening, innovation, investment, skills.
Belgium	Plan National pour la Reprise et la Résilience (June 2021) (Cabinet du Secrétaire d'Etat à la Relance et aux Investissements Stratégiques, en charge de la Politique Scientifique, 2021)	EUR 5.9 billion	Digitalisation, greening, innovation, mobility, productivity, public finance, skills, social cohesion.
Canada	Recovery Plan for jobs, growth and resilience (April 2021) (Department of Finance Canada, 2021)	5% GDP	Digitalisation, greening, jobs, small businesses, women, young Canadians.
Chile	Social and Economic Recovery Plan (June 2020) (OECD, 2021 [5]) Paso a Paso Chile se Recupera (October 2020) (Government of Chile, 2021)	USD 12 billion	Greening, income support, infrastructure, innovation, investment, jobs, SME support, tourism.
Colombia	Compromiso por el Futuro de Colombia (July 2020) (Government of Colombia, 2020 [1])	COP 100 billion (USD 29 million)	Digitalisation, greening, health, housing, infrastructure, jobs, skills.
Czech Republic	National Recovery Plan (July 2021) (Ministerstva průmyslu a obchodu, 2021)	CZK 191 billion	Digitalisation, greening, mobility, skills, social services.
Denmark	Danish Recovery Plan (April 2021) (Danish Ministry of Finance, 2021)	DKK 11.6 billion	Digitalisation, exports, greening, health.

Twin transition policies for a sustainable recovery: an SME perspective

Estonia	Recovery and Resilience Plan (June 2021) (Eelarvenõukogu, 2021)	EUR 982.5 million	Digitalisation, greening, health, mobility, social protection.
Finland	Sustainable Growth Programme (May 2021) (Government of Finland, 2021)	EUR 238 million	Digitalisation, greening, health, jobs, social inclusion.
France	France Relance (September 2020) Plan National de Relance et Résilience (June 2021) (Government of France, 2021)	EUR 100 billion EUR 39.4 billion	Digitalisation, greening, health, innovation, skills.
Germany	Fighting Corona, Securing Prosperity, Strengthening Sustainability (June 2020) Recovery and Resilience Plan (April 2021) (Bundesministerium der Finanzen, 2021)	EUR 130 billion EUR 25 billion	Demand stimulus, digitalisation, greening, infrastructure, innovation.
Greece	Greece 2.0 (April 2021) (Greek Ministry of Finance, 2021)	EUR 60 billion	Digitalisation, greening, innovation, investment.
Hungary	Hungary Recovery Plan (May 2021) (Miniszterelnökség, 2021)	EUR 16.8 billion	Digitalisation, greening, mobility, skills.
Iceland	Fiscal Plan 2022-2025 (March 2021) (Government of Iceland, 2021 [2]) Fiscal Budget Proposal for 2022 (December 2021) (Government of Iceland, 2021 [1])	ISK 260 billion	Greening, infrastructure, innovation, jobs, skills, social cohesion.
Ireland	National Recovery and Resilience Plan (June 2021) (Department of Public Spenditure and Reform Ireland, 2021)	EUR 989 million	Digitalisation, greening, skills.
Israel	Economic plan for coping with the coronavirus crisis (September 2020) (Ministry of Finance - Government of Israel, 2020)	NIS 80 billion	Digitalisation, health, innovation, jobs, mobility, skills.
Italy	National Recovery and Resilience Plan (June 2021) (Government of Italy, 2021)	EUR 191.5 billion	Digitalisation, greening, innovation and start-ups, mobility, skills, social cohesion.
Japan	Comprehensive Economic Measures to Secure People's Lives and Livelihoods towards Relief and Hope (December 2020) (Government of Japan, 2020 [1])	JPY 40 trillion	Access to finance, digitalisation, disaster prevention and mitigation, greening, innovation.
Korea	Korean New Deal (July 2020, revised in July 2021) (Korean Ministry of Economy and Finance, 2021[2])	KRW 220 trillion	Digitalisation, greening, social safety net.
Latvia	Latvia Recovery Fund plan (June 2021) (Government of Latvia, 2021)	EUR 1.8 billion	Digitalisation, greening, skills, sustainable mobility.
Lithuania	New Generation Lithuania: Recovery plan (Government of Lithuania, 2021)	EUR 2.2 billion	Digitalisation, greening, health, skills, social protection.
Luxembourg	Plan pour la Reprise et la Résilience (June 2021) (Ministère des Finances, 2021)	EUR 93 million	Digitalisation, greening, jobs, mobility, skills
Mexico	Acciones para Reactivación Económica (January 2021) (Secretaría de Economía, 2021)	-	Digitalisation, greening, jobs, international trade, investment promotion.
Poland	National Reconstruction Plan (June 2021) (Government of Poland, 2021)	EUR 36 billion	Digitalisation, greening, health, innovation, mobility.
Portugal	Recovery and Resilience Plan (April 2021) (Government of Portugal, 2021)	EUR 16.6 billion	Access to finance, digitalisation, greening, innovation.

Slovak Republic	Recovery and Resilience Plan (April 2021) (Úrad vlády Slovenskej republiky, 2021)	EUR 6.3 billion	Digitalisation, greening, health, social cohesion.
Slovenia	Recovery and Resilience Plan (April 2021) (Republika Slovenija - Služba vlade za razvoj in evropsko kohezijsko politiko, 2021)	EUR 2.5 billion	Digitalisation, greening.
Spain	Recovery, transformation and resilience plan (October 2020) (Government of Spain, 2020)	EUR 72 billion	Digitalisation, greening, jobs, skills.
Sweden	Recovery Plan (May 2021) (Swedish Ministry of Finance, 2021)	SEK 34 billion	Digitalisation, greening, jobs, social cohesion.
Switzerland	Education and Research Budget (December 2020) (Government of Switzerland, 2020)	CHF 28 billion	Innovation, research, skills.
United Kingdom	Build Back Better plan for growth (March 2021) (Government of United Kingdom, 2020 [2])	GBP 65 billion	Digitalisation, greening, health, infrastructure, innovation, skills.
United States	American Families Plan (April 2021) (Government of the United States of America, 2021 [2]) American Jobs Plan (March 2021) (Government of the United States of America, 2021 [3]) Infrastructure Investment and Jobs Act (November 2021) (Government of the United States of America, 2021 [1])	USD 2 trillion USD 2.3 trillion USD 1.2 trillion	Income support, infrastructure, skills.

Source: Financing SMEs and Entrepreneurs 2022: An OECD Scoreboard (OECD, 2022)

In addition to the list of OECD member countries, other important international actors have designed and launched recovery packages with similar objectives: in China, the recovery packages presented by the government largely focused on accelerating investments for the promotion of green consumption, including through the support of zero-carbon electrification, and for new technology- (and green-) based infrastructures (Energy Transitions Commissions, 2020); the Russian government announced the allocation of USD 106 billion (equivalent to 7% of the national GDP) in the economic recovery plan involving infrastructure projects (The Moscow Times, 2020); the government of India promoted a green recovery by investing USD 35 billion in energy-related funding supporting the use of renewables (International Institute for Sustainable Development, 2021); the European Union's long-term budget will constitute the largest supporting package ever designed and implemented in Europe: EUR 806 billion will be invested in R&D, climate and digital transitions, health programmes and more (European Commission, 2021 [7]).

While SMEs were the main target of the intervention in the rescue measures, they play a marginal role in the recovery packages, where the emphasis on policies and budgets with an explicit SME orientation declined. Table 3 and Figure 4 show that, globally, of the total

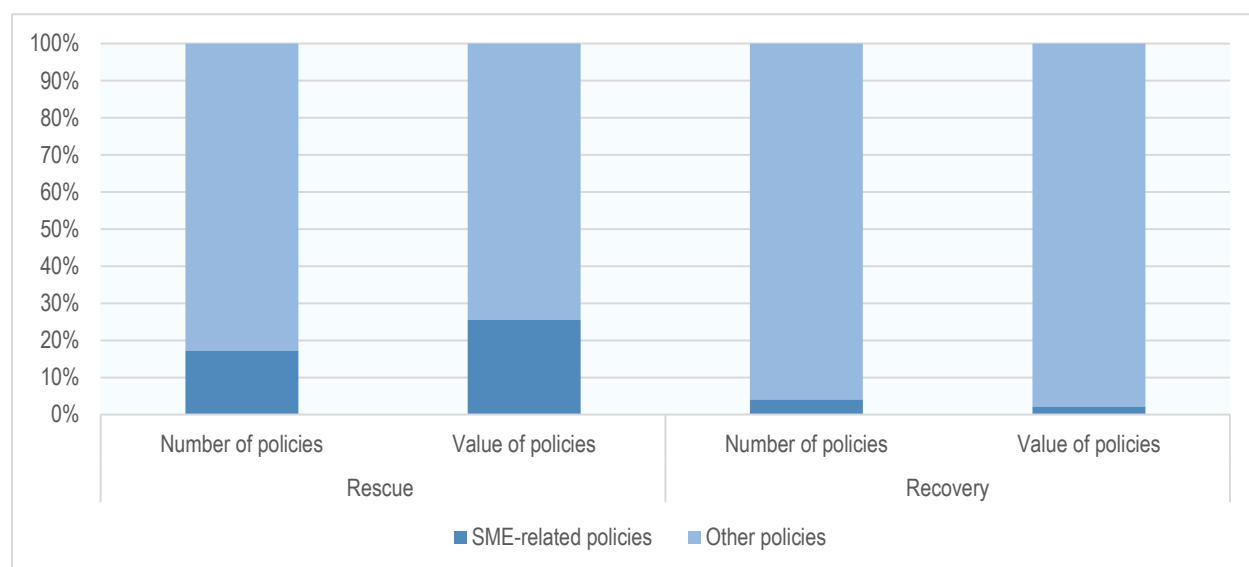
number of policies launched after the outbreak of COVID-19, 1033 (13.62%) were SME-related and that, in terms of value of funding for support, SME-related policies accounted for USD 3942.84 billion (20.21% of the total financial resources allocated during the pandemic crisis). The shares of SME-related policies and their financial value in rescue measures were respectively 17.25% and 25.51%, whereas in recovery packages the SME orientation appears to be significantly lower: only 4.07% of the total policies explicitly addressing SMEs, accounting for 2.21% of the total investment allocated during the recovery phase.

Table 3. SME orientation of policies in rescue measures and recovery packages

	Total (rescue and recovery)		Rescue measures		Recovery packages	
	Number	Value (bln USD)	Number	Value (bln USD)	Number	Value (bln USD)
SME-related policies	1033	3942.84	945	3862.02	85	78.15
Other policies	6551	15567.16	4533	11278.33	2002	3451.78
Total policies	7584	19510	5478	15140.35	2087	3529.93
Share in total	13.62%	20.21%	17.25%	25.51%	4.07%	2.21%

Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Figure 4. SME orientation of policies in rescue measures and recovery packages



Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Tables 4 and 5 show **similar patterns in the recovery packages designed and launched across European Union members**: although the number of policies explicitly targeting SMEs is in line with the findings in the Global Recovery Observatory (O' Callaghan & al., 2020), the shares of financial resources allocated to SME-related policies is slightly higher (ranging from approximately 2.29% to 4.65%) compared to 2.21% globally. This occurs, naturally, due to the large disparities in terms of financing resources between high-income countries (such as most of the European Union and OECD members) and low-income countries, especially when dealing with cost-intensive economic recovery plans.

Table 4. SME orientation in recovery packages, European Union (Bruegel)

	Number	Value (billion EUR)
SME-related policies	57	11.02
Other policies	1706	470.98
Total policies	1763	482.00
Share in total	3.23%	2.29%

Source: author, based on European Union countries' Recovery and Resilience Plans (Bruegel, 2021)

Table 5. SME orientation in recovery packages, European Union (Wuppertal Institute & E3G)

	Number	Value (billion EUR)
SME-related policies	41	31.89
Other policies	955	653.49
Total policies	996	685.38
Share in total	4.12%	4.65%

Source: author, based on Green Recovery Tracker (Wuppertal Institute & E3G, 2021)

The fall in the shares of the value allocated to SME-related policies from rescue measures to recovery packages reflects a trend: a large share of policies launched in the rescue phase were targeted at SMEs and included fairly high-budgeted policy instruments (such as loans and loan guarantees) compared to other types of measures addressing SMEs in recovery packages (such as digital voucher funds) (OECD, 2022).

Examples of SME-related policies included in recovery packages

In European countries:

- In **Germany**, SMEs received support for digitalisation through depreciation options for digital assets and construction of digital infrastructures (Bundesministerium der Finanzen, 2020)
- The Government of **Spain** launched a SME-oriented support for digitization and telework solution, by providing funds to purchase and lease digital equipment (Agencia Estatal, 2020)

In North and South America:

- The **Canadian** government connected homes and small businesses to broadband in underserved communities, so that Canadians could better participate in the digital economy by investing approximately USD 1.25 billion (Government of Canada, 2021 [2])
- In **Chile**, the government tried to reactivate the tourism sector by supporting 6500 tourism SMEs with subsidies worth CLP 20 billion (Ministero de Economia Fomento y Turismo, 2021)
- The Government of **Saint Lucia** launched a plan aiming at building competitiveness through digital transformation and adoption by equipping workers with digital skills and by supporting e-learning, targeting in particular entrepreneurs and SMEs (Ministry of Finance, Economic Growth, Job Creation, External Affairs and the Public Service - Saint Lucia, 2021)

In the Asia and Pacific regions:

- In **Australia**, the government launched a USD 270 million -worth “Digital Business Plan” to further improve productivity, income growth and jobs by supporting the adoption of digital technologies in small businesses (Government of Australia, 2021 [1])
- The Government of **Bangladesh** allocated USD 40 million to encourage digital innovation through the creation of a digital entrepreneurship hub in Dhaka and training and innovation support programs to advise start-ups (World Bank, 2021 [1])
- **China** encouraged the digitalisation of SMEs by financing digital service providers and platforms that meet the needs of SMEs (The State Council of the People's Republic of China, 2020)
- **Japan** supported the digitalisation of SMEs through remotisation by investing USD 20.7 billion in the tax system for small businesses for telework, by securing learning opportunities and by accelerating the construction of distance lesson environment at universities (also through optical fiber funding) (Government of Japan, 2020 [2])

In Africa:

- To stimulate SMEs, the Government of **Kenya** improve the national infrastructures and supported local labour through an investment worth USD 5 million (Ministry of Health, 2020)

A similar pattern can be observed across advanced and emerging economies...

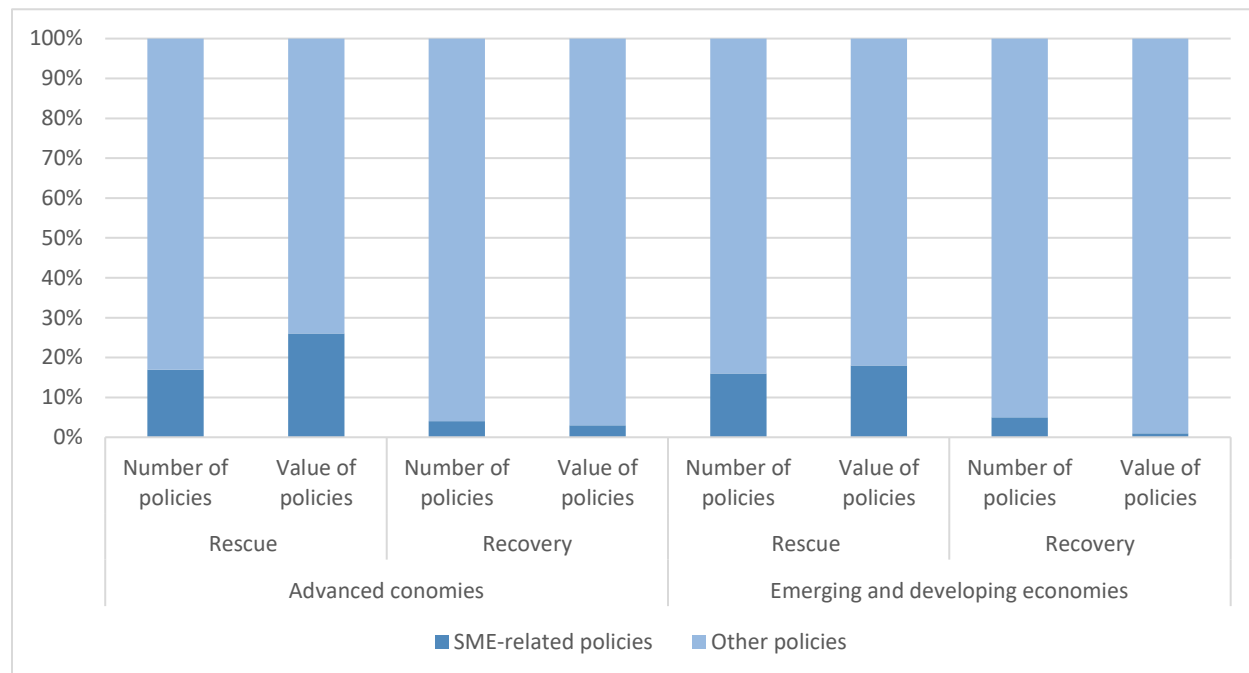
A weaker emphasis on SMEs in recovery packages is also reflected across both advanced and emerging economies. Despite the differences in terms of public investment between advanced and emerging economies, Table 6 and Figure 5 show similar policy patterns: in rescue measures, SME-related policies accounted for 17% and 16% of the total number of policies launched (and for 26% and 18% of the total investment) in advanced and emerging economies respectively. These shares drop significantly in the recovery packages, where the policies with an explicit SME orientation, on average, do not exceed 5% of the total number of policies launched and 3% of the total value allocated. In absolute terms, this shift is significantly visible when assessing the value of SME-related policies in emerging economies, as it dropped from USD 525.99 billion to USD 10.25 billion (meaning that the focus on SMEs got halved when governments started designing and implementing policies aimed at providing structural reinforcement of the economy).

Table 6. SME orientation of policies in rescue measures and in recovery packages, by country classification

	Advanced Economies		Emerging and Developing Economies	
	Number	Value (billion USD)	Number	Value (billion USD)
	Total (rescue measures and recovery packages)			
SME-related policies	555	3103.00	430	536.78
Other policies	3637	11970.38	2798	3177.71
Total policies	4192	15073.38	3228	3714.49
Share in total	13%	21%	13%	14%
	Rescue measures			
SME-related policies	505	3032.98	393	525.99
Other policies	2403	8807.99	2068	2357.99
Total policies	2908	11840.97	2461	2883.98
Share in total	17%	26%	16%	18%
	Recovery packages			
SME-related policies	48	67.89	36	10.25
Other policies	1228	2325.54	720	819.52
Total policies	1276	2393.43	756	829.77
Share in total	4%	3%	5%	1%

Source: author, based on the Global Recovery Observatory (O' Callaghan & al., 2020) and the *World Economic Outlook Database* built by the (IMF, 2021 [3])

Figure 5. SME orientation of policies in rescue measures and in recovery packages, by country classification



Source: author, based on the Global Recovery Observatory (O' Callaghan & al., 2020) and the World Economic Outlook Database of the (IMF, 2021 [3])

...and across countries with different SME policy frameworks

The OECD distinguishes between three types of SME policy frameworks, reflecting the different dimensions that SMEs and entrepreneurs take in the respective governmental agendas. (1) The main distinction relies on the kind of strategy chosen for SMEs and entrepreneurs: some countries opt for specific strategies addressing SMEs issues year-by-year, whilst some others include SME-related policies in broader policy frameworks. (2) The policy frameworks also differ in terms of the objectives and the policy instruments outlined, that might be more or less specific in targeting SMEs. (3) Different coordination mechanisms might be put in place for effective SME policy delivery and implementation: the actors change according to the SME governance systems (it might be more horizontal, involving Ministries and agencies, or more vertical, including different levels of government and territorial governance) (OECD, 2021 [9]). With reference to such differences, countries have been labelled as:

- (1) **Countries with SME strategies**, that explicitly formalised SME strategies, including a broad range of issues addressed, such as digital transformation, innovation, access to skills, green

transition, internationalisation and access to finance. They include, for example, Costa Rica, Czech Republic, the European Union, Germany, Ireland, Korea, New Zealand and Spain.

- (2) **Countries with multi-annual Action Plans or other dedicated documents on SME and entrepreneurship policies**, that provide clear information on the vision and the priorities governments give with regard to SMEs when designing and developing policies (Australia, Austria, Chile, Finland, Japan, Netherlands, Norway, Turkey and United States provide some examples).
- (3) **Countries where SME and entrepreneurship policies are part of wider strategies and policy frameworks**, such as, for instance, industrial, innovation and digital plans. Examples include Belgium, Canada, Colombia, Denmark, France, Italy (where SMEs are part of the “Industry 4.0” plan), Mexico, Poland, Portugal, Sweden and United Kingdom.

It is interesting to notice that, **although the OECD member countries have different SME policy frameworks, the political efforts taken by governments in addressing SMEs after the global pandemic look similar**. In addition, a common pattern in the shift from rescue measures to recovery packages can be observed: regardless of whether a country had explicit SME strategies or included small businesses in wider policy frameworks, the SME component of policies (and the financial funding allocated to small businesses) dropped massively in the recovery packages (Table 7).

Table 7. SME orientation of policies in rescue measures and in recovery packages, by type of SME policy framework

	SME Strategies		Action Plans		Wider policy frameworks	
	Number	Value (bln USD)	Number	Value (bln USD)	Number	Value (bln USD)
	Total (rescue measures and recovery packages)					
SME-rel. policies	155	923.05	204	1447.70	229	754.66
Other policies	911	4353.63	1183	5102.77	1392	2706.07
Total policies	1066	5276.68	1387	6550.47	1621	3460.73
Share in total	15%	17%	15%	22%	14%	22%
	Rescue measures					
SME-rel. policies	136	887.93	192	1422.51	205	744.84
Other policies	596	3143.92	871	3697.91	785	2106.98
Total policies	732	4031.85	1063	5120.42	990	2851.82
Share in total	19%	22%	18%	28%	21%	26%
	Recovery packages					
SME-rel. policies	18	35.12	11	23.06	24	9.82
Other policies	312	1209.71	310	569.47	606	597.63
Total policies	330	1244.83	321	592.53	630	607.45
Share in total	5%	3%	3%	4%	4%	2%

Source: author, based on Global Recovery Observatory (O'Callaghan & al., 2020)

Note: the shares are calculated over the total number and value of rescue and recovery policies of each SME policy framework respectively

In addition, substantial differences occur among the types of SME targeted by post COVID-19 policies

Another relevant distinction concerns the types of SME to which the policies launched after COVID-19 were oriented: existing SMEs, new businesses and start-ups, self-employed

and entrepreneurs⁸. Table 8 shows that, globally, out of the 1033 SME-related policies identified in Table 3, the large majority focuses on existing SMEs both in terms of number (55.37%) and funding (92.03%), followed by policies targeting self-employed (14.81% by number and 12.55% by value of funding). Start-ups and new SMEs only account for approximately 4% of the total number and 0.55% of the total value of the SME-related policies.

In Figure 6 it is clear that, among the SME-related policies launched in the recovery packages, there is a slight increase in number (and financial value) of measures explicitly targeting existing SMEs, shifting from 55.03% to 58.82% (and from 82.14% to 92.31%) and entrepreneurs, shifting from 7.51% to 20% (and from 1.47% to 8.66%). Start-up policies have risen even more, accounting 23.53% of the total SME-related policies in recovery packages, compared to 2.22% in rescue packages (with a growth of more than 4% in terms of financial value). By contrast, the measures targeting self-employed decreased in recovery packages (shifting from 15.34% to 9.41% in number and from 11.38% to 4% in value of policies).

Table 8. SME orientation of policies in rescue measures and in recovery packages, by types of SME

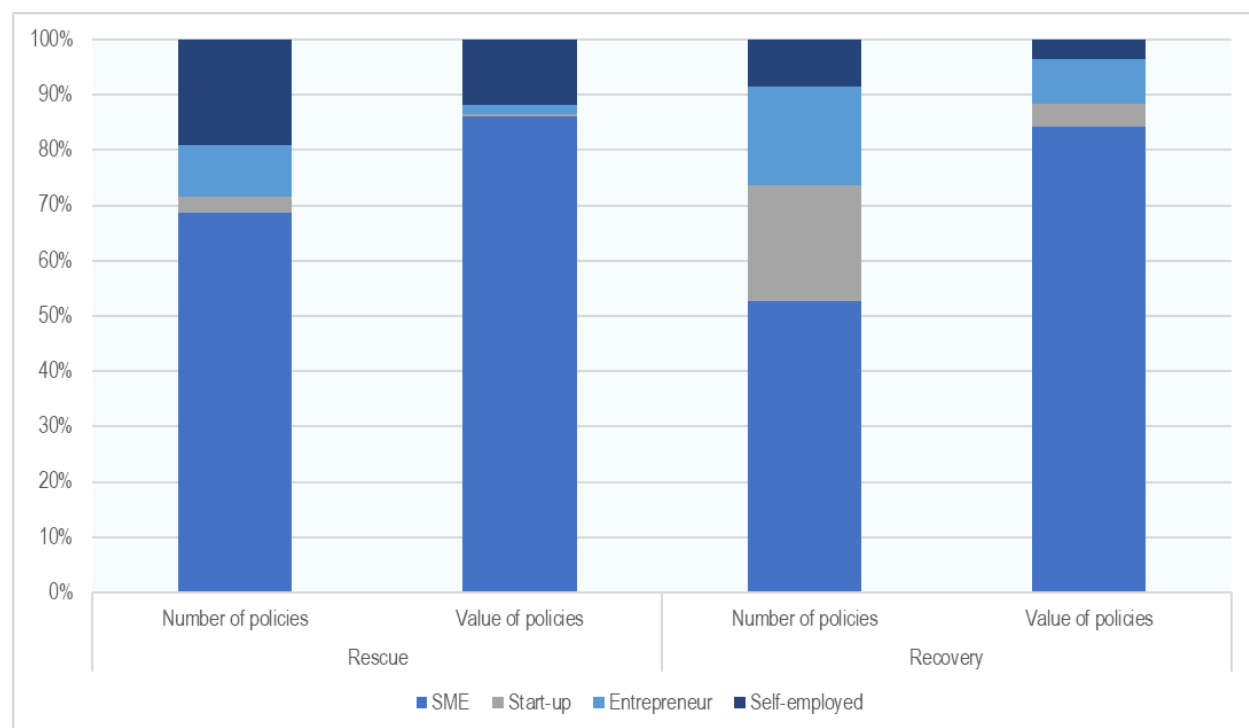
	Number of policies				Value (billion USD)			
	SMEs	Start-ups	Entrepreneurs	Self-employed	SMEs	Start-ups	Entrepreneurs	Self-employed
	Total (rescue measures and recovery packages)							
SME-rel. policies	572	41	88	153	3,245.11	19.49	63.59	442.67
Share of policies	55.37%	3.97%	8.52%	14.81%	92.03%	0.55%	1.80%	12.55%
	Rescue measures							
SME-rel. policies	520	21	71	145	3,172.43	15.93	56.82	439.57
Share of policies	55.03%	2.22%	7.51%	15.34%	82.14%	0.41%	1.47%	11.38%
	Recovery packages							
SME-rel. policies	50	20	17	8	72.14	3.56	6.77	3.1
Share of policies	58.82%	23.53%	20.00%	9.41%	92.31%	4.56%	8.66%	3.97%

Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Note: the shares are calculated over the total of SME related policies (1033) amounting to USD 3942.8 billion. The shares do not add up to 100% because some SME-related policies are not related to one of the four types

⁸ Further information on the SME policy-relevant typologies can be found in Annex A

Figure 6. SME orientation of policies in rescue measures and in recovery packages, by types of SME



Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Note: adjusted shares (see note above)

The results reported in European Union recovery packages confirm the significant investments on existing small businesses (around EUR 6.4 billion), the large share of start-up policies (over 30% of the total number of European SME-related policies) and the lower shares of self-employed policies (both in terms of number and funding value of policies), as Table 9 shows.

Table 9. SME orientation of policies in recovery packages, by types of SME

	SMEs	Start-up	Entrepreneurs	Self-employed
Number of policies	13	18	5	1
Value of funding (EUR billion)	6.37	0.28	0.55	0.01
Share of SME-related policies by SME type (number)	22.81%	31.58%	8.77%	1.75%
Share of SME-related policies by SME type (value)	57.78%	2.58%	4.99%	0.09%

Source: author, based on European Union countries' Recovery and Resilience Plans (Bruegel, 2021)

Note: The shares are calculated over the total SME-related policies (57) amounting to EUR 11.02 billion. The shares do not add up to 100% as some SME-related policies are not related to one of the four types

Examples of post COVID-19 policies oriented to the different types of SME

Start-ups and young firms:

- The **Austrian** Government allocated two funds accessible to start-ups in their recovery plan: a COVID-19 aid fund with an amount of EUR 100 million and a venture capital fund with an amount of EUR 50 million (Brutkasten, 2021)
- In **Denmark**, two EUR 300 million worth-loan schemes were launched to support start-up companies (European Commission, 2020 [4])
- The **European Union** allocated EUR 5 billion for farmer start-ups and on-farm investments (Euractiv, 2021)
- The **South Korean** Government launched a guarantee program specifically addressing start-ups worth KRW 200 billion a year (start-ups can receive KRW 600 million worth of guarantees at a cost of just 0.3%) (Korean Ministry of Economy and Finance, 2021[1])
- The “Green start-up funding” launched in **United Kingdom** allocated GBP 40 million to boost start-ups in the green sector (BusinessGreen, 2020)

Entrepreneurs:

- In **Canada**, USD 10 million were allocated to provide support to young entrepreneurs in terms of payment relief for up to one year (Government of Canada, 2020)
- The **Republic of Kyrgyzstan** put in place 300 guarantees (worth USD 10 million) to help entrepreneurs during COVID-19 (Kabar, 2020)
- Black entrepreneurs in **South Africa** were supported via USD 10 million worth-loan measures (White&Case, 2020)
- The **Colombian** Government set up an “entrepreneurship fund” for people between 14 and 28 to provide training in entrepreneurship, sustainability and innovation (Government of Colombia, 2020 [2])

Self-employed:

- The Government of **Cuba** exempted the self-employed workers that could not run their business activities due to COVID-19 from the annual payment of the Personal Income Tax (Gaceta Oficial de la Republica de Cuba, 2020)
- The self-employed in **Italy** were partially exempted from social security contributions by the government (through a EUR 2.5 billion -worth investment) (European Commission, 2021 [9])
- The **Irish** Government supported the self-employed workers that lost their jobs and/or hours of work reduced during COVID-19 through a new social welfare scheme (Citizens Information, 2020)
- The Government of the **Republic of Mauritius** implemented a Self-Employed Assistance Scheme (SEAS) to assist self-employed persons who have suffered a loss of revenue as a consequence of COVID-19 (Mauritius Revenue Authority, 2020)

The significant drop of investments addressing self-employed in the shift from rescue to recovery phase of policies reflects the needs of independent workers: the irregularity of payments, negatively affecting their chances to obtain loans and the lack of paid benefits (such as sick pay and annual leave). During the rescue phase, where lockdown restrictions forced nearly the entire workforce to stay at home, the self-employed found themselves in serious financial difficulty. For this reason, much of the investment financed by governments in the rescue measures aimed at saving the self-employed and allowing them to survive. As the lockdown restrictions were alleviated worldwide, self-employed lost priority in policy agendas.

The inverse pattern of start-ups (from less visibility in rescue measures to more support received in the recovery packages) finds a twofold explanation: (1) in order to obtain the liquidity needed for a business to survive, governments required to present the income statement and balance sheet documents of previous years, a condition that start-ups and young companies could not meet; (2) start-ups, which are more innovative and resilient forms of business, better matched the objectives and aspirations of the economies' recovery and structural rehabilitation plans.

There is a particular category of start-ups, the *unicorns*, characterised by extremely fast scale-up rates and high levels of digitalisation, that substantially contribute to transform markets through the introduction of disruptive innovations (Lee, 2013) (PwC, 2022). These venture-backed businesses (with a valuation often exceeding USD 1 billion) are reported to have not been significantly affected by the COVID-19 crisis, when compared to SMEs: a survey conducted by (Uvarova & Pobol, 2021), indeed, shows that 66.7% of the respondents (mostly including public organisations, academia and state bodies) consider that start-ups and small businesses suffered more of the effects of the pandemic as they did not have the same financial cushion as the unicorns and other larger firms. For the same reason, no unicorn-oriented policy was found in the databases supporting this study.

By leveraging on the outcome of the survey (Figure 3), next chapter explores how and to what extent SMEs have been included by governments in recovery twin transition policies to build more resilient and sustainable economies.

Chapter 3. Twin transition policies for SMEs

The twin transition (involving both greening and digital transformation) of SMEs is a domain increasingly coming under the attention of policy makers (OECD, 2021 [4]) (OECD, 2021 [11]) (Ortega-Gras & al., 2021): in fact, in order to reach the net-zero climate goals set by 2050 and shift to more sustainable economies, many governments directly invested in the acceleration of green business practices and models, including by supporting the adoption of digital technologies and skills that contribute positively to the reduction of the environmental footprint of SMEs (European Commission, 2022) (Lisbon Council, 2022).

Worldwide data on the emissions by small businesses and on the different stages of the adoption of green practices and digital tools is still scarce: policy makers started only recently to recognise the importance of including SMEs in the agendas designed to reduce the emission volumes (OECD, 2021 [4]). Although SMEs are deemed to be, on aggregate, important players in reducing the emissions coming from business activities, the data collected appear to be still insufficient to precisely build relevant figures. The adoption of digital technologies could make the SMEs' environmental impact more easily trackable and might potentially contribute to the overall reduction of GHG emissions (European Digital SME Alliance, 2020 [1]).

This chapter tries to assess how much governments have been investing in green and digital policies to turn SMEs more environmentally sustainable and competitive, in line with the common ambitions of the recovery plans listed in Table 2.

The restrictions put in place by governments positively affected GHG emissions...

Literature highlights that the restriction measures have had several (mostly positive) effects on the environment throughout the first semester of 2020. For instance, (1) remote working practices massively helped in the reduction of GHG emissions as they replaced, in most cases, commuting by car (thus improving air quality, since the most crowded urban areas saw a 95% drop in rush-hour congestion (Crow & Millot, 2020 [2]) (The Guardian, 2021).

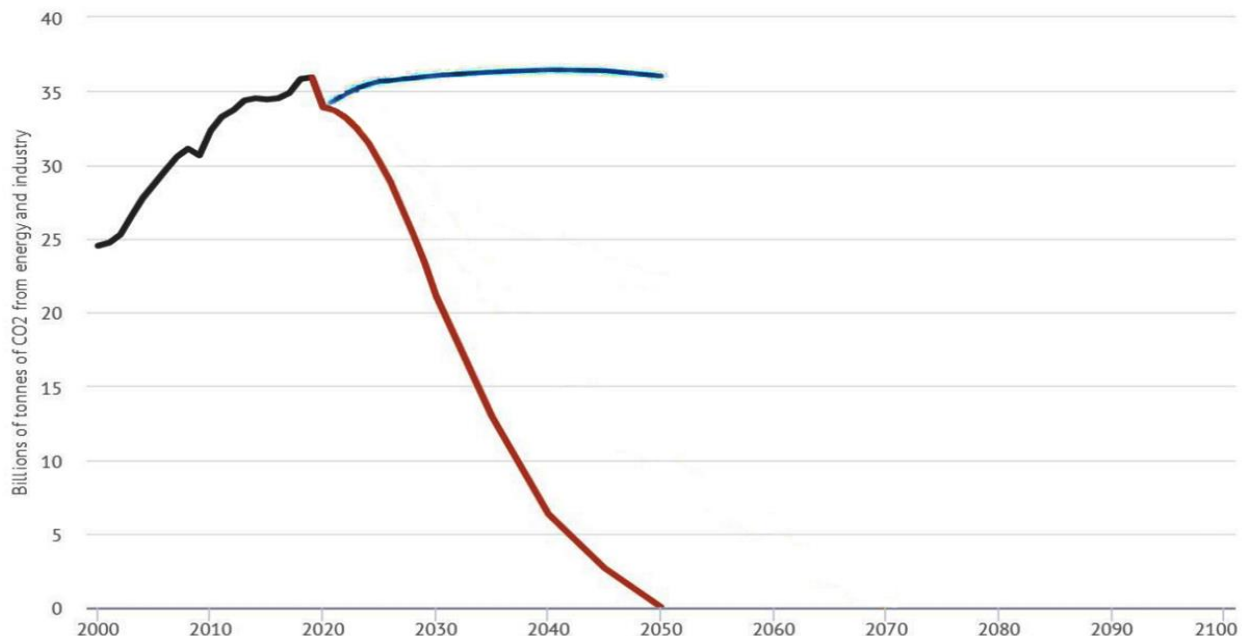
(2) Global lockdown restrictions pushed more consumers to purchase on online marketplaces: this had wider implications on the consumers' behaviours and preferences for sustainability (Gu & al., 2021). In Europe, it is estimated that 56% of the consumers that shifted

to online shopping have been influenced by environmental concerns in their purchase decisions and 67% of them bought products that were more ecologically sustainable, even if they were more expensive. Another 81% decided to e-shop closer to home to support local businesses, as reported by the (European Commission, 2021 [3]).

...but as soon as they were relaxed, GHG emission volumes increased again to pre-pandemic levels...

Throughout 2020, the restrictions put in place to fight against COVID-19 positively affected the global GHG emissions, although they did not stop the relentless advance of climate change. Figure 7 shows how the effects of the global lockdown measures and other restrictions on GHG emissions in 2020 were in line with the 2050 ambitious net-zero climate goals. It has been a positive break in terms of CO₂ emissions, but this practice was clearly not economically sustainable in the long run: by the time restrictions were relaxed and different economic activities slowly picked up again their pace, GHG emission volumes were reported to be increased back to the pre-pandemic levels (IEA, 2021 [2]).

Figure 7. Global CO₂ emissions from energy and industry (billions of tons)



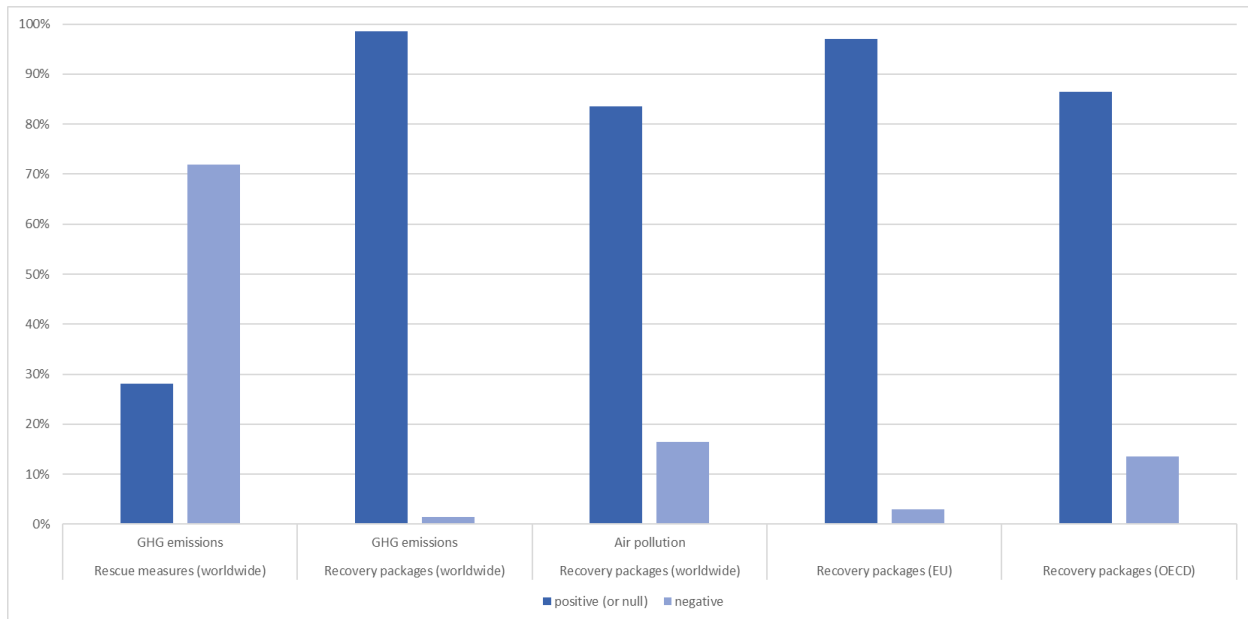
Source: IEA: Renewables should overtake coal “within five years” to secure 1.5° C goal (IEA, 2021 [2]). Note: Net-zero emissions roadmap in red; IEA stated policies scenario in blue; Historical emissions in black.

...leading many governments to reinforce their green-driven recovery policies

As Table 2 shows, **the policies launched in the recovery packages were often strongly driven by ecological sustainability rationales**, representing a once-in-a-generation opportunity to reshape the future and the business activities and models, by entailing significant changes in demand, capital allocation, costs and jobs (IEA, 2020) (Krishnan & al., 2022) (OECD, 2022). The COVID-19 pandemic accelerated the need for a solid shift to environmentally more sustainable economies: therefore it seems that a return to “business as usual” activities and ecologically detrimental investment patterns could not be part of the recovery equation to build more resilient and durable economies worldwide (World Economic Forum, 2020).

For this reason, **the recovery plans are mostly aligned with the long-term objectives aiming at reducing GHG emission, slowing biodiversity loss and increasing circularity of the economies, together with other social key dimensions** included in the 2015 UN Paris Agreement (also listed in Table 2) (Andrijevic & al., 2020) (OECD, 2020 [2]) (OECD, 2022): globally, it is possible to observe that the measures put in place during the rescue phase were much more environmentally detrimental when compared to recovery plans, driven by strong environmental purposes. This is due to the fact that the scope of the rescue policies (designed to support health systems, alleviate unemployment and firm bankruptcy rates during the first months after the outbreak of the pandemic) was short-term and lacked an environmental focus (UN Environment Programme, 2021). The evidence of positive (or null) environmental effects of recovery policies can also be seen across European Union and OECD member countries (Figure 8).

Figure 8. Environmental impact of post COVID-19 policies



Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020), Green Recovery Tracker (Wuppertal Institute & E3G, 2021) and OECD Green Recovery Database (OECD, 2021 [3]).

Note: further disaggregation of data applied where it was possible to analyse the effects of post COVID-19 policies on GHG emissions and air pollution.

SMEs are increasingly becoming the focal point of green policies...

SMEs are becoming steadily more important in the framework of green policies, for two main reasons: (1) the challenges brought by climate change are becoming more urgent and have already been included in the mainstreaming of many policy agendas. It is now clear that the achievement of net zero emissions is realistic only if all the actors, including SMEs, play a role: although the individual pollution volumes of SMEs are rather modest, on an aggregate level their impact is reported to be remarkable, despite data on SMEs is still scarce (Calogirou & al., 2010) (IDDRI, 2020). (2) Investing in SMEs could unlock an important driver in the efforts to reduce the emissions (due to their potential contribution to eco-innovation activities) and to reach other important socio-economic objectives set out in recovery plans (OECD, 2021 [4]).

...because of their (aggregate) environmental footprint...

On an aggregate level, SMEs contribute significantly to the emissions and pollution, but the data available is still very limited (OECD, 2021 [4]). Different studies across literature evidence strong SME environmental footprint: in Europe, smaller businesses are estimated to contribute for about 60% - 70% of the total industrial pollution (in particular in the manufacturing

sector) (Calogirou & al., 2010) (OECD, 2019 [2]). Other studies, such as one conducted by (Franco & Rodrigues, 2021), show similar figures worldwide, highlighting that, although not easily calculated, the average combined CO₂ emitted by SMEs exceeds by far that of large enterprises (it is estimated that SMEs are responsible for 60% of all carbon dioxide emissions (Baur, 2021)). As the (Environment Agency, 2009) reports, in certain countries (e.g., England and Wales) SMEs can generate 60% of the total commercial waste and are held responsible for 43% of the serious industrial pollution incidents.

Moreover, **small businesses are often the suppliers of larger companies: when the latter are reported to negatively impact on the environment, studies reveal that much can be traced back to SMEs within their supply chains.** It is indeed demonstrated that, on average, the supply chain GHG emissions are more than 10 times higher than operational CO₂ emissions (issued within the boundaries of a company), albeit data is still relatively scarce (Jauven & Schmidt, 2022) (EPA, 2022). To address this issue, for instance, the (European Commission, 2021 [6]) adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD), with the aim of enabling the investors and the consumers to evaluate the non-financial performance of larger companies and stimulating these businesses to pursue more environmentally responsible practices. In addition, the Commission is proposing a parallel development of dedicated and proportionate (voluntary) standards for SMEs to ensure that the collection of sustainability information becomes a common practice for companies of all sizes.

... and due to their potential contribute to climate mitigation...

SMEs, on the other side, are deemed to be the most feasible drivers to sustain net-zero emission goals, not only because they account for the vast majority of the business population, but mostly because they seem to be in a good position to contribute to eco-innovation: indeed, a study revealed that for most small businesses (roughly 80% of the total surveyed) the reduction of CO₂ emissions represents a “high-priority” in their agendas not only for moral and ethical reasons (96%), but also to improve their reputation (73%) and differentiate themselves from the competitors (61%) (George, 2022). As (Parker, Redmond, & Simpson, 2009) argue, despite SMEs widely differ in their characteristics (such as size, age and business sector in which they operate), they are nonetheless expected to engage in environmentally sustainable activities in the years to come.

A study made by the (OECD, 2019 [2]) highlights how those **SMEs adopting environmentally sustainable practices and business models might represent the key drivers towards a greener economy**. There are broadly three typologies of SMEs that could contribute to the green transition: (1) the eco-innovators, that are SMEs engaging in innovative activities that would potentially reduce the environmental impact, (2) the eco-entrepreneurs, that seek for opportunities with high sustainability potential, in line with their personal goals and aspirations and (3) the eco-adopters, which, compared to the first two categories, are not actively engaging in environmentally sustainable activities, but simply comply with environmental regulations.

SMEs and green entrepreneurs contribute to three different forms of eco-innovation: (1) radical innovation (such as advances in the renewable energy sector), which creates entirely new solutions that lead to major technological shifts; (2) disruptive innovation, taking the form of different organisation of practices and changes in the business models adopted to reduce the environmental impact (there is not necessarily a technological shift); and (3) incremental innovation, that occurs when an existing technology gets updated to raise the efficiency in resource and energy exploitation (OECD, 2021 [4]). Overall, SMEs (and new entrants to the market, such as start-up) are more like to apport radical and disruptive innovations making the most of market gaps missed by large companies (OECD, 2013) (Triguero, Moreno-Mondéjar, & Davia, 2013).

For this reason, the growing environmental challenges might create new business opportunities, especially after the launch of green incentives included in the recovery packages. A survey conducted by the (Economist Intelligence Unit, 2021) on a global scale reveals that markets have been changing notably between 2016 and 2020 and that the demand for ecologically sustainable goods and services increased of 71 percentage points. The demand for green goods and eco-friendly services kept growing after the pandemic outbreak, with strong differences across developed and emerging economies, industries and consumers' features (Businesswire, 2021).

As the (OECD, 2021 [4]) highlights, **SMEs seem to be in an advantageous position to seize the business opportunities generated by these “green” structural shifts**, by exploiting their eco-innovation potential to expand their market share and pave the way for new alternative environmentally friendly markets: these would include the circular economy, inducing positive

changes to the labour markets (through the creation of “green jobs”, responsible for reducing the environmental impacts of economic activities) and increasing national GDPs (Sulich & Sołoducho-Pelc, 2022) (Wright, 2021).

...although smaller enterprises are not yet properly taken into account in recovery policies

Despite that fact that SMEs are gaining recognition as important drivers towards more ecologically sustainable economies, they seem to be still poorly included in the green policies launched after the outbreak of COVID-19. Support for greening makes up an important part of the recovery plans launched to “build back better” the economies worldwide (as Table 2 shows), yet it seems that the relevance of the support that SMEs can provide is poorly recognised by governments, which, since 2020, launched policies with limited explicit SME orientation.

Table 10 shows that, globally, the share of greening spending focused on SMEs is relatively modest, representing less than 5% of the total number of policies and 2.44% of the total investment. It is also clear that in the recovery packages the policies explicitly targeting SMEs represent only 2.88% of the total number of green policies and 1.77% of the total amount invested (USD 24.57 billion out of USD 1,385.71 billion).

Table 10. SME orientation of greening policies in rescue measures and recovery packages

	Total (rescue and recovery)		Rescue measures		Recovery packages	
	Number	Value (bln USD)	Number	Value (bln USD)	Number	Value (bln USD)
SME-related policies	39	38.2	20	13.63	19	24.57
Other policies	767	1,525.49	127	164.35	640	1,361.14
Total policies	806	1,563.69	147	177.98	659	1,385.71
Share of policies	4.84%	2.44%	13.61%	7.66%	2.88%	1.77%

Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Note: the shares are calculated over the total number and value of greening rescue and recovery policies

A modest focus on SMEs and on their ecological potential can also be observed across European recovery plans (Table 11) and in the recovery packages launched by OECD

member countries (Table 12). It is estimated that, across 17 European Union members, USD 204 billion out of USD 685 billion (30% of the total recovery investment) was spent for greening purposes, but only USD 10 billion were allocated to finance SME-related policies greening process. OECD countries seem to allocate even less investments and efforts for policies sustaining SME greening (SME-related policies represent only 1.50% of the total number of greening policies and less than 1% of the resources invested in green recovery).

Table 11. SME orientation of greening policies in recovery packages, European Union

	Number	Value (billion EUR)
SME related policies	16	10.33
Other policies	311	193.85
Total policies	327	204.19
Share of policies	4.89%	5.06%

Source: author, based on Green Recovery Tracker (Wuppertal Institute & E3G, 2021)

Note: the shares are calculated over the total number and value of greening recovery policies

Table 12. SME orientation of greening policies in recovery packages, OECD

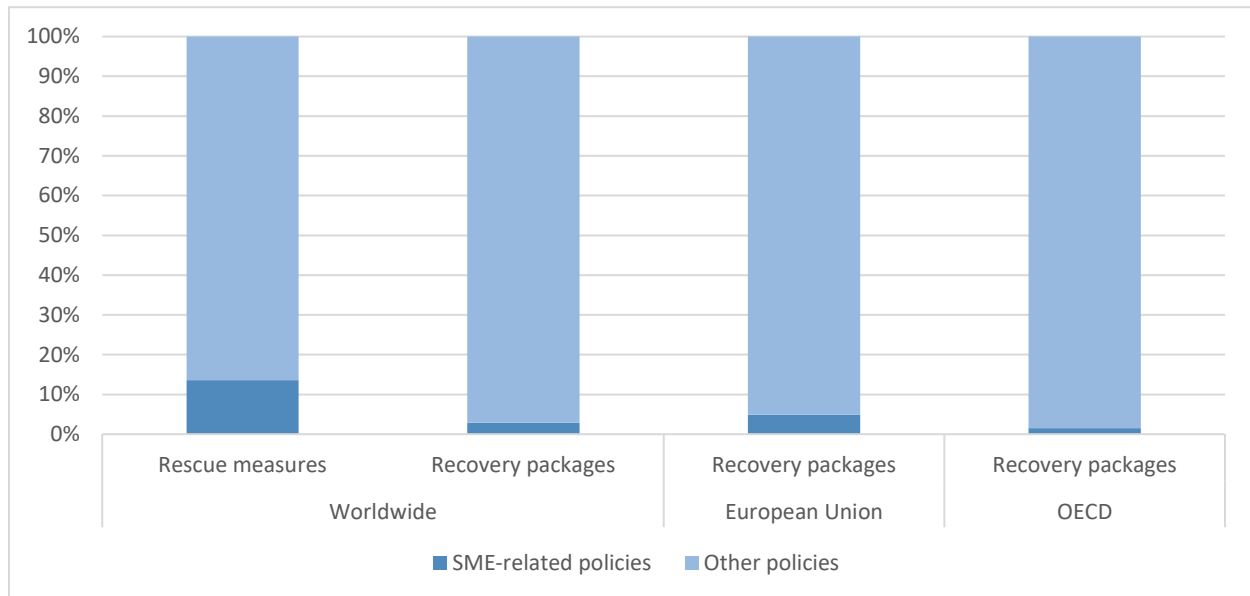
	Number	Value (billion USD)
SME related policies	7	1,261
Other policies	459	306,651
Total policies	466	307,912
Share in total (%)	1.50%	0.41%

Source: author, based on Green Recovery Database (OECD, 2021 [3])

Note: the shares are calculated over the total number and value of greening recovery policies

Figure 9 provides a comparison of the number of policies explicitly targeting small businesses worldwide, across European Union and OECD member states, highlighting the limited shares of SME-related policies in recovery packages.

Figure 9. SME orientation of greening policies in post COVID-19 policies (number)



Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020), Green Recovery Tracker (Wuppertal Institute & E3G, 2021) and Green Recovery Database (OECD, 2021 [3])

There are substantial differences between advanced and emerging economies in terms of investment allocated to finance SME-related green policies in recovery plans: the Global Recovery Observatory (O' Callaghan & al., 2020) indicates that in advanced economies, on average, the funding allocated for SME-related green policies is USD 24.41 billion (3% of the total green recovery investment), while in the emerging economies the green policies designed to directly support SMEs represent only 0.10% of the total green investment (less than USD 1 billion). However, (Beyer & Vandermosten, 2021) report that only some developed countries such as Canada and the European Union members significantly oriented their recovery spending towards green policies, while other large economies (among which the United States and China) invested much less in this direction. Opposite direction was taken by some emerging markets such as Mexico and Russia, whose investing in recovery plans was reported to reinforce carbon-intensive economic activities (Energy Policy Tracker, 2022).

Recovery policies included support for renewable energy and green-innovation...

The green policy measures launched by governments after the outbreak of COVID-19 have common key objectives, including the green transition of smaller enterprises. (1) Some governments implemented recovery plans to stimulate more efficient and cleaner energy consumption in SMEs to reduce their impact on GHG emissions (OECD, 2021 [4]). The policies

included in recovery packages strongly promote the use of renewable sources of energy (including solar, geothermal, wind and hydropower (IEA, 2021 [1])) and investments for more efficient and cleaner energy consumption (also by supporting green buildings and infrastructures (World Bank, 2021 [3])).

(2) Recovery packages also include innovation policies that were launched to help SMEs (and start-ups) further develop eco-innovative technologies and circular business models. Across European Union countries, innovative start-ups were the main target of the Green Deal's sustainable growth strategy: "Horizon Europe" is a EUR 95.5 billion worth R&D innovation programme aiming at supporting the green innovators (70% of the investment was allocated for SMEs) (European Commission, 2021 [4]); "LIFE" is a EUR 5.4 billion budgeted programme financing green and circular economy breakthrough innovations (European Commission, 2020 [2]) and the "Innovation fund", a fund of EUR 10 billion to support GHG reduction innovative technologies (including renewable energy generation and storage) (European Commission, 2021 [5]). In 2020, the Government of South Korea launched innovation stimulus plans that were aimed at supporting sustainability transition strategy (within the "Green New Deal" framework): the main target were the sectors with higher risks of being left behind in the green transition, including SMEs and start-ups (Lee & Woo, 2020).

...and often supported the twin transition

(3) Policies supporting the digital transformation of businesses represent an important side of the funding allocated in recovery packages and have been launched not only to stimulate the catching-up process by SMEs on digital technologies and help them ease the global disruptions, but also with a longer-term green perspective (OECD, 2021 [4]) (Kesidou & Ri, 2021).

The deployment of digital technologies such as ultra-fast broadband connectivity, big data and AI appears to be a fundamental way to reach climate neutrality by 2050 (Ortega-Gras & al., 2021). SMEs are becoming more involved in policies supporting digital transformations to foster businesses green growth (Rabetge, 2021), although there is still little evidence of the actual magnitude of the environmental effects due to SME digital transformation.

Examples of SME-related green policies in recovery packages

In European countries:

- In **Austria**, the Climate Protection Ministry allocated EUR 4.4 million to support eco-tech start-ups (Brutkasten, 2021).
- As part of the European Green Deal, the **European Commission** invested EUR 495 million to help start-ups and SMEs develop green technologies (European Commission, 2021 [2]).
- The **Swedish** government developed a “Green credit guarantee for competitiveness” programme and invested USD 40 million green research and innovation to support start-ups (Regeringskansliet, 2020).
- A GBP 100 million scheme was launched by the **United Kingdom** government to help SMEs invest in low carbon heating systems (Government of United Kingdom, 2020 [1]).
- In **Finland**, EUR 300 million have been invested to help SMEs sustain environmental investments (Ministry of Economic Affairs and Employment of Finland, 2020).

In North and South America:

- In **Canada**, national start-ups were allocated USD 600 million to adopt and develop pre-commercial clean technologies (Government of Canada, 2021 [1]).
- The Government of **Chile** launched a “Green credit” programme, mostly addressed to SMEs, to help small businesses develop projects for the generation or storage of Non-Conventional Renewable Energies (NCRE), energy efficiency and environmental improvements in production processes (Portal PYME, 2020).
- In **El Salvador**, a line of credit of USD 20 million was made available to finance SMEs in the fields of energy efficiency and renewable energy (CABEI, 2021).

In the Asia and Pacific regions:

- **China**'s government invested CNY 130 billion to improve small businesses' access to power by enhancing electricity services in the country (China Daily, 2020).
- SMEs in **Taiwan** have been allocated USD 80 million for the restoration and generation of new jobs, including in the sectors of renewable energy and cleaner production (BCIE, 2020).

In Africa:

- In **Ghana**, USD 20 million were allocated to help SMEs grow into sustainable businesses, capable of competing on the regional, continental and global stage (Ministry of Trade and Industry -Republic of Ghana, 2021).
- The Government of **South Africa** invested USD 70 million to sustain SME sustainable food production and to mitigate the effects the impacts of the pandemic on small businesses (Reuters, 2020).

COVID-19 accelerated the support for SME digitalisation...

The COVID-19 pandemic crisis served as a catalysator of the digitalisation trend, highlighting the importance for SMEs to adopt digital technologies. A survey conducted by the (OECD, 2021 [10]) in partnership with Facebook and the World Bank reports that, in 2020, between 25% and 60% of the surveyed SMEs increased the digitalisation of their business processes and that more than 40% of them (especially the medium enterprises) believe that COVID-19 changed permanently their use of digital tools.

After the outbreak of COVID-19, governments strengthen their commitment to the digital transformation to allow SME survival during the rescue phase and to strive for more sustainable and resilient economies when recovering. Many governments prioritised short-term digital rescue measures aiming at facilitating online operations of the businesses that had closed down due to the lockdown restrictions: direct financial support (in the form of grants and subsidies (OECD, 2022)) addressing SMEs encouraged the adoption of digital technologies allowing for e-commerce, remote working and cloud computing (UNCTAD, 2021 [1]). Starting from mid-2020, governments devoted their recovery policies to support emerging digital technologies such as blockchain, AI, IoT, 5G and broadband infrastructures to support structural changes that would strengthen SME resilience and sustainability (Dreyer & Nygaard, 2020) (OECD, 2020 [5]): the adoption of digital technologies and practices in the SMEs' long-term business models, in fact, would improve not only their productivity and competitiveness, but also their environmental sustainability (OECD, 2021 [10]).

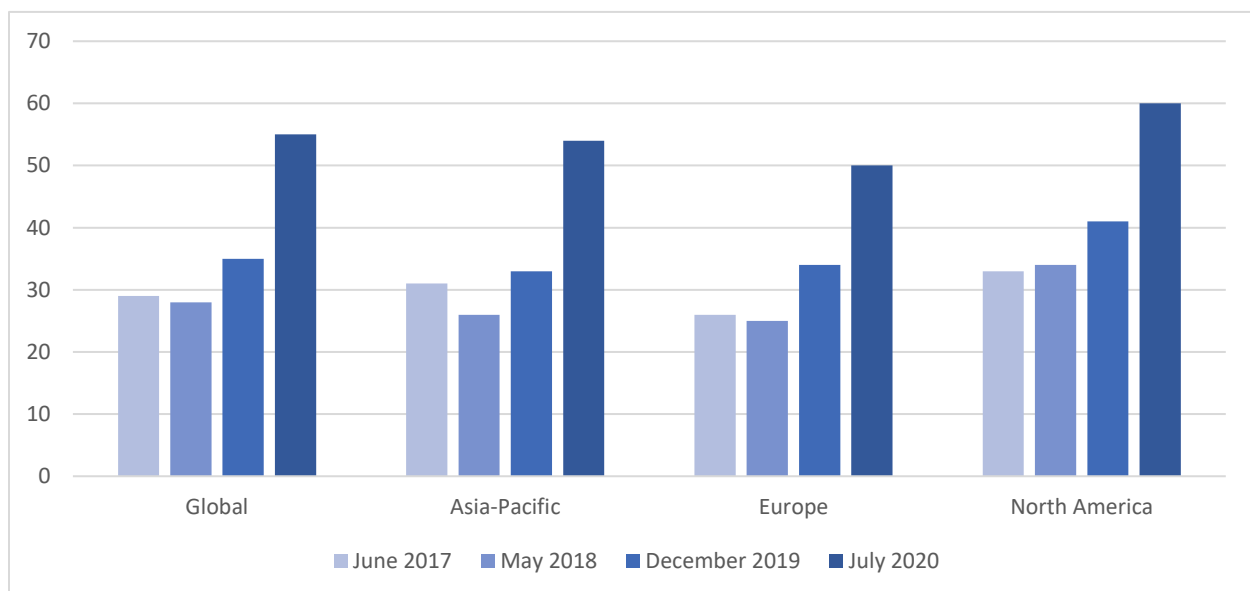
...in the rescue phase to ensure their survival...

While in normal times the uptake of digital tools, services and practices equips SMEs with the capabilities to innovate, scale up and enter new markets across different regions and countries, **after the outbreak of COVID-19 it further helped SMEs survive during the restriction measures put in place by governments.** An online survey funded by the European Union revealed that the vast majority (79.2% of the total number of respondents) believed that the digital transformation of business processes substantially helped SMEs survive in the COVID-19 time. The remaining 20.8% of them pointed out that only the small businesses that were already (even partly) digitalised could start using online tools to adapt their business to the restriction measures

imposed by COVID-19. Almost 90% of the respondents assessed that SMEs needed further support by governments to carry on with their digital transformation to fully recover from the pandemic (Uvarova & Pobol, 2021).

As matter of facts, COVID-19 triggered the surge in online business activities and e-commerce and led SMEs to a “forced digital transformation” to survive (McKinsey & Company, 2020): (1) a study published by (UNCTAD, 2020) reveals that, on average, in both emerging and developed economies, 40% of the total buyers shifted to shopping online and that might have permanently changed their consuming behaviour. As, during the pandemic, consumers moved towards online channels, businesses and industries responded in turn: the large majority (around 88%) of the European SME organisations and associations surveyed by the (European Commission, 2021 [1]) believe that SMEs that had not made use of any digital tool before the pandemic adopted basic digital technologies (such as emails, internet connection, teleconferencing, etc.) in 2020 and roughly 50% of them think that these SMEs (totally or partly) shifted to online selling practices after the pandemic crisis. Figure 10 shows that, as of July 2020, the worldwide average share of products and services that were partially or fully digitalised increased by 20% (compared with December of the previous year), with few differences across global regions (McKinsey & Company, 2020).

Figure 10. Average share of products and services partially or fully digitalised, by geographical region



Source: How COVID-19 has pushed companies over the technology tipping point and transformed business forever (McKinsey & Company, 2020)

(2) **COVID-19 also acted as a driver towards teleworking:** restriction and lockdown measures pushed SMEs to radically change not only their way to do business, but also how they organise it. In Europe, remote working practices shifted from around 5% before COVID-19 to 40% during the pandemic (Lopez Pelaez & al., 2021), allowing SMEs to continue their operations under the restrictions imposed by governments (OECD, 2020 [5]).

... and in the recovery packages to “build back better” the economies...

The digitalisation of small businesses appears to be a key element in building resilient and sustainable economies for two main reasons. (1) As the digital economy develops, and the ongoing COVID-19 crisis continues, the shape of the global economy's future seem to hinge on digitalisation (OECD, 2021 [10]): leading technologies such as blockchain, 5G, IoT, cloud computing, AI and data science (together with the rise of new digital business models) are set to transform the global economy (SME Finance Forum, 2020). A survey conducted by (ASME & Microsoft Singapore, 2018) reveals that the adoption of digital technologies by SMEs is expected to raise revenues by an average 26% and save 22% of the costs held, by creating value in 4 different areas: increased engagement with customers, optimisation of business operations, transformation of products and services and empowerment of employees who can help grow the business by channelling more efforts into digital activities (Leung, 2019).

(2) **Many countries took an SME perspective when approaching the issues of digital transformation and environmental recovery to build back better their economies:** policies supporting the adoption of digital tools can play an important role in helping SMEs achieving their green objectives (OECD, 2021 [10]). The joint adoption of digital and net zero practices by SMEs would help them to successfully complete their sustainable transformation whilst narrowing the gap on digitalisation with larger companies and improving their business performances.

...although digital recovery policies seem to have a weak SME orientation

Governments largely invested in the support of digital transformation to enhance long-term sustainable recovery, but recovery plans seem to have limited explicit focus on SMEs. After the outbreak of COVID-19, governments stepped in to support the digitalisation of SMEs to ensure their survival during the first months of 2020, when restrictions hampered the

practice of almost any kind of economic activity, and to help “build back better” their economies in their recovery plans, although SMEs seem to have become less relevant.

Table 13 shows that, worldwide, in both rescue measures and recovery packages, the SME-related digital policies were only 9.40% of the total digital policies amounting to USD 57 billion (i.e., 8.47% of the total investment in digital assets). It also suggests that most of the SME-related digital effort was focused during the rescue phase, where the policies targeting SMEs represented almost 30% in terms of number and 22.72% in terms of financial value allocated of the total digital policies launched. These shares are much lower (6.58% and 7.68% respectively) for the SME-related policies launched in the national recovery plans, possibly indicating that governments did not much consider small businesses when trying to build more resilient and sustainable economies.

Table 13. SME orientation of digital policies in rescue measures and recovery packages

	Total (rescue and recovery)		Rescue measures		Recovery packages	
	Number	Value (bln USD)	Number	Value (bln USD)	Number	Value (bln USD)
SME-related policies	26	56.98	10	7.97	16	49.01
Other policies	251	616.06	24	27.11	227	588.95
Total policies	277	673.04	34	35.08	243	637.96
Share of policies	9.39%	8.47%	29.41%	22.72%	6.58%	7.68%

Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Note: the shares are calculated over the total number and value of digital rescue and recovery policies

As Table 14 suggests, the figures on the number and value of SME-related policies implemented in the recovery packages are not so different across European Union members either: in fact, despite the great financial efforts invested in the digital transformation (more than EUR 120 billion), only 5.29% of them were addressed to SMEs (and the number of SME-related policies was even less, approximately 4.80% of the total number of digital policies) (Figure 11).

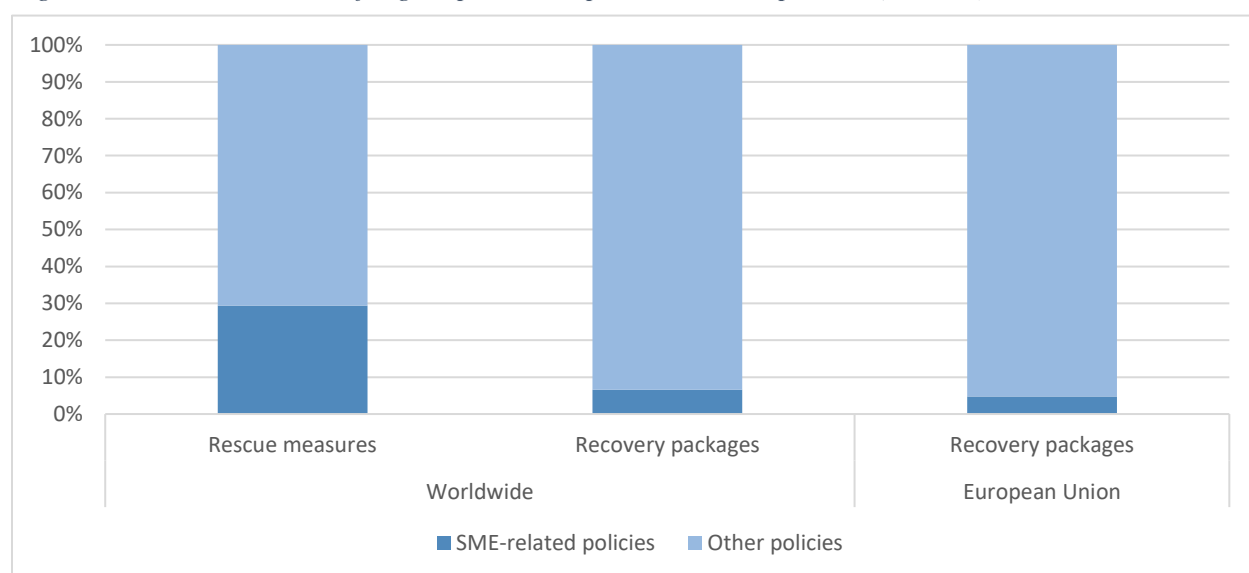
Table 14. SME orientation of digital policies in recovery packages, European Union

	Number	Value (billion EUR)
SME related policies	23	6.38
Other policies	460	114.57
Total policies	483	120.95
Share in total	4.76%	5.29%

Source: author, based on European Union countries' Recovery and Resilience Plans (Bruegel, 2021)

Note: the shares are calculated over the total number and value of digital recovery policies

Figure 11. SME orientation of digital policies in post COVID-19 policies (number)



Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020) and on European Union countries' Recovery and Resilience Plans (Bruegel, 2021).

A decrease of digital policies explicitly addressed to SMEs can as well be seen across advanced and emerging economies as the Global Recovery Observatory (O' Callaghan & al., 2020) shows: the investments for SME-related digital policies massively dropped in advanced economies (from 26% of the total digital fund allocation in the rescue measures to the 11.62% in the recovery plans) and even more in developing economies (where the shares of investments shifted from 18% in the rescue phase to less than 1% in the recovery).

Beyond the improvement of market performance, digital technologies support and accelerate the green transition of SMEs...

The digital transformation can reshape the environmental footprint of human activities, providing further momentum in building greener and more sustainable economies (World Economic Forum, 2021 [1]). In the same way, the policies designed to support the adoption of digital technologies and practices can further strengthen the commitment of greening measures to achieve net zero GHG emissions (OECD, 2021 [4]). This is why the green transitions and digital transformation policies implemented by governments across the European Union and the OECD are usually referred to as “twin transition” measures, where the greening efforts are further supported by the adoption of digital technologies.

There are several different ways the digital transformation is proved to support and accelerate the SME journey in green transition, such as (1) **the reduction of GHG emissions**: due to the shortage of relevant data covering the individual and local aggregate levels of emissions of smaller enterprises, an accurate quantification of GHG volumes could be regarded as a key feature for governments and SMEs in their strive to reach net zero. As (Kesidou & Ri, 2021) argue, digital tools may help governments in the identification of the largest emissions hotspots, thus potentially making the SME sustainable transition faster and more cost-efficient (Dwortzan, 2021).

(2) **Optimisation of energy systems**: a report by (IEA, 2017) claims that the next decades will see the emergence of digital technologies designed to make the world's energy systems more connected, intelligent, efficient and sustainable. Future digitally-enabled energy systems could be capable of identifying precisely where the energy is most needed and deliver it at the most efficient time, location and cost, thus reducing the average electricity and heating demand by firms. It also substantially improves transport, building and other SME-intensive industrial sectors where small businesses could become more energy-efficient (Noussan & Tagliapietra, 2020): indeed, it is estimated that, worldwide, SMEs account for 13% of the total energy consumption and that the adoption of digital technologies would help them gain up to 30% of efficiency in energy use (LEAP4SME, 2021).

(3) **Environmental big data and AI algorithms**: the adoption of advanced digital tools (such as AI-powered smart grids) seems to help small businesses build more sustainable and

transparent supply chains and to boost their eco-innovation practices, being highly correlated with environmental R&D and green research (EIB, 2020) (Kesidou & Ri, 2021) (Ortega-Gras & al., 2021).

(4) **Support for a green and more sustainable finance:** as the (Green Finance Platform, 2018) and the (UN Environment Programme, 2018) report, the developments in digital technology and its nexus with finance (including mobile platforms, blockchain and the Internet of Things) help to overcome the challenges faced by SMEs to leverage private capital in order to support sustainable and green business growth and a stable financial system: small businesses, in fact, are often unaware of the attractive (micro-) financial opportunities available to improve their environmental impact and associate green-driven decisions with technical burden, red tape and other costs (OECD, 2015 [1]) (World Economic Forum, 2017). Furthermore, digital tools might be used to create eco-innovative products, services and models that cope with the green finance-focused offerings demanded by customers (BBVA, 2021).

(5) **Facilitation of greater circularity:** the digital transformation can significantly accelerate the SME transition to a more ecologically sustainable circular economy. It can help close product and input cycles by providing detailed information on their availability, location and storage status (European Digital SME Alliance, 2020 [2]). Digital technologies can also increase the efficiency of processes in companies, including by minimising waste, promoting longer product lifecycles and lowering transaction costs (Antikainen, Uusitalo, & Kivikytö-Reponen, 2018) (World Economic Forum, 2021 [2]). It is also reported that the digital transformation might change aggregate consumption behaviours: as reported above, online shopping practices seem to have shifted the demand of consumers towards more environmentally sustainable goods (European Commission, 2021 [3]), thus possibly creating new market opportunities for businesses.

(6) **Support for enhanced environmental policy design:** monitoring the trends of energy consumption and GHG emission volumes represents a key component of climate change science. Smart grids powered by AI and data centres seem to better support the collection and analysis of environmental data to ensure a more tailored design and implementation of green policies (Geneva Internet Platform, 2019), especially when it comes to collect granular data on SMEs' pollution levels. An analysis held by (PwC, 2020 [1]) reveals that the exploitation of AI digital technology

for large scale environmental purposes might lead to a twofold advantage: it has the potential to boost the global GDP by 3.1% - 4.4% and reduce, at the same time, the GHG emissions by around 1.5% - 4% relative to business as usual.

Geopolitical update on SME-related recovery policies supporting the digital transformation and the green transition

The Russian large-scale aggression against Ukraine entails considerable risks for the world's economies, that are still in the process of recovering from the COVID-19 pandemic crisis: this conflict (and the sanctions resulting from it) could massively impact growth, inflation and monetary policies designed in the recovery packages, especially in Europe and in the United States (Bloomberg, 2022)

This issue is of particular concern for SMEs that could be more severely affected: many small businesses are already suffering from high levels of indebtedness due to the COVID-19 crisis and this conflict and the subsequent sanctions applied caused a surge in inflation and energy prices, dramatically raising SMEs' operational costs and aggravates their liquidity problem (Finance Monthly, 2022).

In addition, the SME-related policies included in the recovery packages supporting their twin transition might be heavily affected by:

- **A radical change in energy markets**, to which governments responded in divergent ways. While many (developed) countries increased the investments for renewable energy, several others adjusted their energy regulatory framework by taking back non-renewable resources (such as coal, gas and oil) in response to the energy crisis.
- **The soaring of cybersecurity threats**, which also affected the renewable energy assets. As part of the recovery measures aiming at accelerating the digital transformation of businesses, governments might further invest in expanding business cybersecurity capabilities (Chalamish, 2022).

Examples of SME-related digital policies in recovery packages

In European countries:

- The **French** government invested USD 180 million to finance support to businesses (especially SMEs) in the retail sector. These measures included the shift to e-commerce (Government of France, 2020).
- In **Germany**, a “Support for SME digitalisation” recovery package (worth USD 1.12 billion) was launched to empower small businesses to accelerate digital transformation (Bundesministerium der Finanzen, 2020).
- The Government of **Spain** invested USD 5.64 billion to support the digitalisation of SMEs (also through business training in digital skills for executives) (Gobierno de España, 2021).
- In **United Kingdom**, GBP 1 million-worth digital selling capability grant was allocated for Northern Irish businesses to generate business online (Department for the Economy, 2020).

In North and South America:

- The Government of **Argentina** launched a “tax credit program for training” to partially reimburse SMEs the costs of digital training (Ministerio de Desarrollo Productivo - Argentina, 2020 [1]).
- The **Canadian** government connected homes and small businesses to broadband in underserved communities, so that Canadians could better participate in the digital economy by investing approximately USD 1.25 billion (Government of Canada, 2021 [2]).
- The Government of **Peru** supported the digitalisation of small companies to mitigate their decreased revenues from traditional shopping (Ministry of Production of Peru, 2020).
- The Government of **Saint Lucia** launched a plan aiming at building competitiveness through digital transformation and adoption by equipping workers with digital skills and by supporting e-learning, targeting in particular entrepreneurs and SMEs (Ministry of Finance, Economic Growth, Job Creation, External Affairs and the Public Service - Saint Lucia, 2021)

In the Asia and Pacific regions:

- The Government of **Bangladesh** allocated USD 40 million to encourage digital innovation through the creation of a digital entrepreneurship hub in Dhaka and training and innovation support programs to advise start-ups (World Bank, 2021 [1]).
- In **South Korea**, KRW 1 trillion was allocated for SMEs (including KRW 200 billion to encourage smaller business to go online) (Korean Ministry of Economy and Finance, 2020).
- As part of the recovery plan, the Government of **Taiwan** assisted SMEs and aboriginal entrepreneurs with selling products on e-commerce platforms (Directorate-General of Budget Taiwan, 2020).

...although twin transition policies' drawbacks and limitations might be hidden...

There is an increasing discussion about the possible long term negative environmental implications of such digital technologies: as a matter of fact, there is a risk that the policies supporting the digital transformation and the green transition might not be aligned and that the measures promoting the adoption of digital tools end up worsening the environmental impact of SMEs' economic activities (Kesidou, 2021) (Babinet, 2021).

The policies supporting the twin transition of small businesses, therefore, need to take into account the “hidden” effects of the adoption of digital technologies. (1) A study conducted by the (Geneva Internet Platform, 2019) suggests that digital technologies such as blockchain and the deployment of other online activities might cause an “invisible” pollution that amounts to 4% of the worldwide GHG emissions (exceeding the ones released by the entire aviation industry) (World Economic Forum, 2018).

(2) The use of IoT products, data centres and AI systems might drastically increase the energy consumption and the volumes of electronic (toxic) waste (Maksimovic, 2018): the e-waste might become a huge problem with the growing adoption of electronic equipment that, once outdated, needs to be disposed.

...especially if SMEs are not equipped with the necessary skills...

The recovery plans often included specific policies supporting the development of (green and digital) skills, fundamental for the SMEs twin transition (Table 2) (Kesidou & Ri, 2021) (European Digital SME Alliance, 2021): as the (ILO, 2020) reports, many jobs have been undergoing a transformation. The results of a survey conducted by the European Centre for the Development of Vocational Training (CEDEFOP, 2021) shows that around 75% of the surveyed companies experienced a change in skill needs after the pandemic, but most of them still find challenges in accessing those skills. A study, indeed, reveals that 63% of SMEs that responded found that the greatest barrier for their twin transition was a lack of in-house skills and knowledge (George, 2022).

(3) **Therefore, digital skills** (including ICT and data literacy and management of cybersecurity risks) **and green skills appear to be crucial to trigger the SME twin transition**

(OECD, 2016) (AFDB, 2020). The Global Recovery Observatory (O' Callaghan & al., 2020) shows that the investment in recovery policies supporting SMEs' uptake in skills seems to be still quite low (USD 13.09 billion, i.e. 4.20% of the total fund allocated to sustain the development of skills).

...and the SME-related policies do not mobilise a sustainable finance

(4) The twin transition need to be further aligned with the sustainable and resilient economy objectives outlined in the recovery plans, including support to employment rates (McKinsey & Company, 2020) (PwC, 2020 [2]) and a sustainable and green financial system to support businesses: as (Bonefeld-Dahl, 2021) argues, **the policies promoting the adoption by SMEs of digital technologies for environmentally sustainable practices should further mobilise sustainable finance and investment instruments.**

Next chapter provides literature-driven evidence of the overall deficiency of SME green finance and explores the degree to which alternative sources of finance have been mobilised to support the recovery of SMEs from the COVID-19 crisis.

Chapter 4. SME sustainable sources of finance

Appropriate SME financing forms and systems are fundamental to enable small businesses to economically recover from the pandemic and better take part of the twin transition: the financial gaps SMEs face, however, might prevent them from adopting sustainable practices, seizing the green business opportunities available (OECD, 2015 [1]) and further developing in the context of the post COVID-19 pandemic recovery (OECD, 2022).

In the past few years, in fact, the improvement of SME access to finance played a major political role, especially across developed economies: G7 members widely recognised the need to reduce the cost and availability of capital to financially support SMEs' in reducing their environmental impact and support more carbon-neutral economies, in line with the SDGs and the Paris Climate Agreement (UN Environment Programme, 2017).

This chapter reports a literature-based evidence of the lack of green finance for SMEs and tries to assess the extent to which alternative sources of finance were mobilised to fund SME recovery from the COVID-19 crisis.

Limited data on SMEs hinders twin transition investments...

Green and sustainable finance, responsible business conduct and both financial and non-financial sustainability issues are drawing wide attention. As the public consultation held at the OECD (Figure 3) shows, a growing number of SME organisations and associations are asking their governments to provide financial support to SMEs in their transition to a more environmentally sustainable economy as they see it as one of the most important challenges small businesses will face in the years to come.

However, small businesses very often lack accurate data and information on their credit history, which makes them less eligible for loans: this turns out to be an important obstacle for SME green financing and for the implementation of policies supporting SMEs in the engagement in a long-term sustainable journey (UN Environment Programme, 2015). The S&P Global Market Intelligence reports that more information will become available to governments and financial institutions when banks will start offering more sustainable services and products,

that would track the sustainability of SMEs, gather more (granular) data and, ultimately, stimulate the development of SME green and sustainable finance (Laidlaw, 2021).

...as widely acknowledged by SME literature

While governments and large enterprises are increasingly gearing up their initiatives to meet climate objectives and requirements, **many SMEs are struggling to take their role in the green transition, due to the financial challenges they meet** (OECD, 2021 [6]). Surveys reveal that 27% of the European Union's SMEs regard their lack of financial resources as one of the fundamental limitations for their green transition, as they cannot improve their environmental performance nor provide eco-innovative products and services (OECD, 2021 [4]).

Indeed, **beyond the well-recognised budgetary challenges, SMEs are further confronted with barriers specifically related to green finance**, including (1) a lack of information and data among banks and other financial institutions on SMEs' needs for green financing; (2) a limited diversity of financial institutions providing the necessary capital to meet the sustainable finance needs of SMEs; (3) a narrow spectrum of sustainable financing products supplied; (4) insufficient consideration of environmental benefits in SMEs' risk assessments; and (5) unawareness among SMEs of the positive effects of green investments on market competitiveness and resilience (UN Environment Programme, 2017).

In respect of the two last barriers mentioned, **entrepreneurs and finance officers in SMEs are often reported to lack the necessary skills needed to recognise the importance of funding sustainable practices for tax incentives available** (Kimanzi & Gamede, 2020): a study conducted by a lending institution in Belgium, (ABN AMRO, 2022), reveals that entrepreneurs and SME owners frequently fail to understand that investing in the adoption of sustainable practices pays off (as a 11% growth in SME environmentally sustainable performance is reported to decrease their credit risk by 3.5%).

Moreover, the pandemic has shown the importance for policy makers to avoid SMEs' over-indebtedness...

While the SMEs' shift to more sustainable activities and practices is obstructed by the shortage of data, **there is also a risk that their green transition will be undermined by their**

over-indebtedness after the outbreak of the pandemic. During the first months after the outbreak of COVID-19, in fact, governments came at rescue of SMEs by trying to address their critical financial issues through liquidity support measures which significantly contributed to preventing SMEs from going bankrupt, but at the same time drastically increased their indebtedness (OECD, 2021 [7]). These liquidity support measures mostly embedded the following financial instruments:

- (1) **Job retention schemes**, including short-time work and wage subsidy schemes, designed to preserve jobs in companies experiencing a temporary drop in aggregate demand. They were also useful to preserve the connections between companies and their employees (which can be difficult to restore once interrupted) and, at the same time, to underpin the incomes of the employees, who retain their employment contract even if the job is on hold (Drahokoupil & Muller, 2021).
- (2) **Deferrals of payments** (including taxes and social security contributions), to enhance the liquidity positions of small businesses without wiping out their obligations (Anderson & al., 2020).
- (3) **Financial support via debt channels**, through a combination of loans, guarantees and grants (OECD, 2022).

These liquidity instruments were launched by many governments to help SMEs meet their obligations throughout the COVID-19 crisis, as indicated by the (IMF, 2021 [1]) *Policy Tracker* and by the *Map of SME-support Measures in Responses to COVID-19* developed at the (World Bank, 2020 [2]). Moreover, during the times of financial urgency driven by nation-wide restrictions, governments and local authorities were able to act promptly by leveraging on the pre-existing relationships between SMEs and banks to provide liquidity support (OECD, 2022).

In this respect, **the result of two surveys conducted during the first months of the pandemic shows that SME-related policies launched in OECD countries provided large liquidity support** (90% and 65% respectively during the first and second waves of COVID-19) to prevent the liquidity crisis from becoming a broader insolvency issue for businesses (OECD, 2020 [4]) (OECD, 2021 [2]). In Europe, a survey estimates that almost 50% of the SMEs tapped governments' liquidity support to alleviate their wage costs, that 25% of them benefitted from tax

moratoria and payment suspension measures and that 32% of them made use of other support measures, including subsidy schemes (European Central Bank, 2021). In the United States, four out of five small businesses were in need to access the governmental COVID-19 relief options (such as loans and grants) to continue operating and paying their employees (Federal Reserve Bank of New York, 2020) (SBA, 2021).

The deployment of these financial instruments to rescue SMEs during the COVID-19 crisis led small businesses to drastically increase their indebtedness levels, with emerging risks of financial default and other potential negative consequences for economies at large (OECD, 2022). This is the reason why many studies report that, in addition to such measures, SME recovery should be supported by policies promoting other (non-debt) forms of financial services (BIAC, 2018) (Temelkov, Boshkov, & Zezova, 2018) (OECD, 2020 [6]).

...and improve SME access to alternative financing instruments...

Alternative finance is an emerging branch of financial markets, intended to provide a diversified range of instruments from external non-bank sources, including through the use of new technologies such as online and social networking platforms (Segal, 2016). These alternative sources of finance are deemed to have the potential to revolutionise the systems of banking and investment via new digital technologies allowing new connections between different (non-bank) investors and small businesses (Baeck, Collins, & Zhang, 2014): instruments such as equity-based crowdfunding and peer-to-peer business lending could unveil a new path for SMEs' sustainable growth and development (UN Environment Programme, 2015).

The diversification of the sources of funding for businesses is widely acknowledged to be more financially sustainable compared to debt instruments (OECD, 2022). While bank lending is (and remains) key to meet part of the SMEs' financial needs, the promotion of a resilient and sustainable recovery requires that SMEs gain access to a wide portfolio of alternative financing instruments, tailored to their specific requirements, as further outlined in the *G20/OECD High Level Principles on SME Finance* (OECD, 2015 [2]).

Indeed, **a diversified financing supply would narrow the SMEs' gaps in access to finance and raise financial inclusion of smaller businesses, entrepreneurs and start-ups**

(especially in the most developed economies) (OECD, 2020 [1]) (International Finance Cooperation, 2021). Among the others, alternative finance instruments include:

- (1) **Venture capital** and **business angel** financing, that can provide capital for young SMEs and start-ups. As the (UN Environment Programme, 2015) highlights, these capital flows mostly contribute to funding the eco-innovation of small businesses.
- (2) **Leasing** and **factoring**, two types of financial leverage that help business owners to obtain the right to make use of certain fixed assets in return for a contractual (tax-deductible) payment (Eden, 2022)
- (3) **FinTech** and **(digital) trade finance** are terms used to describe innovative financial services which get delivered by means of software and digital technologies: these range from simple money transfer and e-payment services to the exchange of alternative currencies and transactions on the blockchain (Simmons & Simmons, 2016) (OECD, 2021 [14]).
- (4) **Subordinated loans** and **loans with profit participation**, instruments that allow lenders to grow beyond their traditional sources of income and share the financial risks of the investments that often prioritise young and innovative businesses (Loras, 2020).
- (5) **Green bonds** are alternative finance instruments aimed at financing environmentally sustainable projects, particularly infrastructure investments (Deschryver & De Mariz, 2020). Green bonds are beneficial for two reasons: they offer a wide range of sustainable financing options for small businesses (including their issuance from banks that aggregate SME loans) and they might pilot transparency measures in fixed-income markets (Asian Development Bank Institute, 2021) (UN Environment Programme, 2017).

Due to the COVID-19 crisis, there is a risk to slow down (or even partially delete) the progress made in diversifying the financing support for SMEs (OECD, 2020 [7]). The pandemic dampened the development of alternative finance instruments and led governments to make extensive use of measures and policies supporting traditional liquidity instruments instead, leading to SME over-indebtedness and weaker financial inclusiveness (OECD, 2022) (GPII & World Bank, 2021).

...although recovery policies seem to include limited support to alternative sources of finance...

Although critically important to “build back better” the economies, the measures supporting alternative finance for small businesses seem to be still very limited in recovery packages. It is in fact estimated that, worldwide, the policies explicitly addressing the SME recovery do not promote the use of alternative sources of finance, but still mostly rely on other forms of liquidity support (such as debt, grants and deferral instruments): the Global Recovery Observatory (O' Callaghan & al., 2020) shows that, in the recovery packages, there are 74 policies promoting alternative finance and 277 supporting liquidity instruments, with little gaps in terms of share of number of policies explicitly oriented to small businesses (5.78% and 6.76% respectively for SME-related policies promoting liquidity and alternative sources of finance). Differences arise with respect to the allocation of funds: whereas USD 31.87 billion has been spent in SME-related policies providing liquidity (4.46% of the total), only USD 680 million has been allocated in policies supporting alternative sources of finance with an explicit SME orientation (1.78% of the total) (Table 15).

Table 15. SME orientation of policies in recovery packages, by types of financial support

	Liquidity		Alternative sources of finance	
	Number	Value (bln USD)	Number	Value (bln USD)
SME-related policies	16	31.87	5	0.68
Other policies	261	682.61	69	37.61
Total policies	277	714.48	74	38.29
Share of SME-related policies	5.78%	4.46%	6.76%	1.78%

Source: author, based on Global Recovery Observatory (O' Callaghan & al., 2020)

Note: the shares are calculated over the total number and value of recovery policies supporting liquidity and alternative sources of finance respectively

Examples of types of financial support included in SME-related policies in recovery packages

Liquidity:

- In **Portugal**, the Government has enacted a series of measures aimed at investment in Portuguese businesses through both grants and lending: these measures are part of a broad package titled the Economic and Social Stabilization Program, aimed at the digitalisation and growth of SMEs (Republica Portuguesa, 2020).
- The Government of **Taiwan** granted CNY 560 million to help small businesses accelerate their digitalisation and scale-up through a bank-released voucher program (Ministry of Finance R.O.C., 2021).
- In **Greece**, the European Investment Bank provided a loan of EUR 200 million to finance initiatives to accelerate small scale innovation, entrepreneurship, clean energy, environmental protection, education and health projects (European Investment Bank, 2021).
- The SMEs in **Chile** were the main beneficiaries of governmental loans allocated for renewable energy investment projects, including environmental improvements in production processes, such as waste reuse and recycling (Portal PYME, 2020).

Alternative sources of finance:

- In **Poland**, a USD 3.02 billion-worth programme aims at supporting SMEs through factoring and other financial services providing alternative sources of working capital (European Commission, 2020 [3]).
- The Government of **Peru** launched a fund (USD 20 million) to develop venture capital investment funds with the objective of fostering entrepreneurial capital industry and supporting start-ups (Ministry of Production of Peru, 2021).
- In **Norway**, a risk capital scheme allowed Norwegian banks to lend NOK 2 billion (released through an agreement between Innovation Norway and the European Investment Fund) to start-ups and small businesses that aim to innovate and grow (Solberg Government, 2020).
- The **Danish** Government released an “Aid package” to provide funding to early-stage entrepreneurs to recover from the pandemic. This fund is mostly financed through angel loans, COVID-19 syndicated loans, investor loans and start-up loans (Finansministeriet, 2020).
- In **Belgium**, a subordinated loan of up to EUR 25000 (and up to 50% of the joint bank loan) was allocated to support SME recovery (European Commission, 2020 [1]).
- The Government of **South Korea** designed a SMEs and start-ups oriented measure supporting the adoption of trade finance tools (Xinhua, 2020).

...with the risk to hamper the SME recovery and to limit their potential contribution to environmental sustainability

The majority of the SME-related policies in the greening and digital domains were supported by traditional liquidity instruments (debt and loans, deferral of payments and grants instruments) which could slow down and hamper the development of a SME-driven resilient and sustainable economy (OECD, 2022).

Indeed, **the share of alternative sources of finance remains very low and SMEs are still reported to depend excessively on bank loans to meet their needs:** as the (OECD, 2015 [3]) outlines, the lack of access to a diverse range of financial instruments turns out to be particularly detrimental to SME development and growth and to the support for their transition towards more digital and environmentally sustainable economies (G20 Insights, 2020) (SME United, 2021).

Conclusions

SMEs are key to achieving inclusive and sustainable growth in economies: as they represent the vast majority of private economic activities, they play a crucial role in economic growth, job creation, local development, social inclusion and cohesion (especially in terms of upward mobility) and are essential in the adaptation of economic and social systems to major transitions, including to more sustainable practices and business models.

Although a limited size can be seen as an important asset to SME growth and innovation, it can also represent a source of relevant challenges: the adoption of digital technologies, the access to finance and the green transition appear to be the most demanding barriers for SMEs' development and growth (further heightened by the COVID-19 crisis), with adverse consequences for economies at large.

Albeit data on the environmental footprint of SMEs is still relatively scarce, **literature extensively highlights the significant (aggregate) environmental impact of small businesses and their considerable potential in reducing the emissions to achieve the global net-zero commitments**, one of the key objectives of the COVID-19 recovery plans. On this basis, one would expect SMEs to be given a strong emphasis in post COVID-19 policy making activity.

However, findings in this study show that, while small businesses were the main target of the intervention in rescue measures (designed to address the urgent liquidity short-term issues), **they play a marginal role in recovery packages** (aimed at “building back better” the economies), where the emphasis on policies and budgets with an explicit SME orientation declined.

Besides, **recovery policies included limited provisions for the twin transition (involving both greening and digital transformation) of small businesses**, that were mainly supported through traditional liquidity instruments (whereas the share of SME oriented measures supporting alternative sources of finance remained very low): in turn, this might result further detrimental to SME development and to the support for their transition towards more resilient and sustainable economies.

Annex A: Methodology and databases analysed

This annex describes the methodology applied in this study and provides information on the databases analysed. It starts by defining “SME” (along with its typologies) and explaining the objectives underlying the analysis and the different data sources and policy trackers used. It then discusses in detail the methodology used and its limitations. At last, it reports the relevant information from each database for further possible use. The methodology applied in this analysis is largely based on the Thematic chapter of *Financing SMEs and entrepreneurs 2022: An OECD Scoreboard* (OECD, 2022), a document to which I gave contributions and provided inputs throughout my internship at the OECD, by working on the databases and on some of its textual parts.

Issues in defining “SME”

One of the complexities of conducting an international analysis involving small businesses is the lack of a standard working definition of which sizes really qualify as an SME. There are two key issues when it comes to define them. (1) First, there is no universally accepted definition of what an SME is, since in some countries the concept of business is only related to the number of persons employed, while in other countries financial variables - such as business turnover and amount of total assets in the firm - are as well taken into account (Sanderovitz, 2009). For example, across the member countries of the European Union, SMEs are considered to be businesses with fewer than 250 employees (European Commission, 2003), whereas the governments of United States and China respectively define SMEs as companies with up to 1200 and 2000 employees (U.S. Small Business Administration, 2017) (China Daily, 2010). In some cases, the notion of SME varies also according to the different sectors in which they operate, as it happens, for instance, in South Africa (The Banking Association of South Africa, 2021).

These cultural differences in defining and identifying the features characterising SMEs are reflected not only among different countries, but also across international organisations, and often offer inconsistent national data, making the global comparisons more problematic. For the purpose of this study, the adopted definition was the one given by the (OECD, 2005), according to which SMEs are “non-subsiary, independent firms which employ fewer than

a given number of employees [and with limited financial ceilings such that] the turnover of medium-sized enterprises (50-249 employees) should not exceed EUR 50 million; that of small enterprises (10-49 employees) should not exceed EUR 10 million while that of micro firms (less than 10 employees) should not exceed EUR 2 million”.

Size	Number of employees	Turnover (EUR)
Medium-sized enterprises	50 - 249	< 50 mln
Small enterprises	10 - 49	< 10 mln
Micro enterprises	< 10	< 2 mln

Source: OECD Glossary of Statistical Terms (OECD, 2005)

(2) The second issue concerns major structural changes that have taken place in recent decades that often make the distinction among the sub-categories of SMEs (namely micro, small and medium-sized enterprises) irrelevant. It is argued that the very notion of SME could be too broad to be globally used for analytical purposes, especially when it comes to comparing micro and small businesses between emerging and advanced economies. What could be considered as a well-established player in a country or economic region, could represent a marginal business activity (facing radically different challenges and seizing different opportunities) in another (Zavatta, 2008). For this reason, in the context of the quantitative analysis supporting this study, the differentiation among sub-categories of SMEs has not been considered.

Therefore, rather than dwelling on sub-categories of small businesses, this study emphasises the typologies of SMEs that are relevant from a policy making perspective: indeed, several studies highlight the importance of developing different typologies of SMEs according to their organisational attributes (e.g., firm age, growth orientation and type of ownership), which are deemed to be more significant for the design and delivery of small business-oriented policies (OECD, 2021 [15]). The types of SMEs taken into account when accessing the trackers reflect the (small-sized) economic actors that suffered most of the pandemic crisis and that, therefore, appear to have been particularly targeted by the policies included in rescue measures and recovery plans.

SME policy-relevant typologies

According to the paper *Understanding SME heterogeneity: Towards policy relevant typologies for SMEs and entrepreneurship* of the (OECD, 2021 [15]), **there are four types of SMEs that can be identified as particularly relevant in post COVID-19 policies, drawn along:** (1) their **age**. Start-ups and young SMEs share the common feature of being both micro or small organisations typically having informal structures and, thus, being inherently flexible (Cavallo, Ghezzi, & Rossi-Lamastra, 2020). New ventures and start-ups have been hardly hit by the restriction measures applied in 2020, that did not allow for time and resources to scale-up and grow.

(2) Their **entrepreneurial** features. Entrepreneurship is a process of creating business ventures which could grow in time to become SMEs and large firms. For this reason, entrepreneurs represent a vital pulsing core of businesses (Lucky & Olusegun, 2012), that deserved a second chance after failing due to the pandemic crisis. A recent publication, *The Missing Entrepreneurs 2021* (OECD, 2021 [12]), highlights the need for policies addressing different entrepreneurial populations, such as women, youth, unemployed and immigrants, which yield broader benefits for a better economic recovery.

(3) The **self-employment** component. In the last decades, especially in the emerging economies, the self-employed segment of the workforce has gained significance as self-employed can run businesses without or with employees. In the second case, the resulting businesses are in the great majority SMEs (Romero & Martinez-Roman, 2012). The COVID-19 pandemic and the restrictions on economic activities resulted having a major impact on self-employed (OECD, 2020 [8]), due to their lack of employee benefits.

(4) The **firm size** per se, intended in a broader typology sense - i.e., small businesses and SMEs with size from 1 to 249 employees - relevant from the perspective of the objectives that policies pursued and comparable in the multiple contexts across different country settings, as outlined by the (OECD, 2021 [15]).

Objectives of the analysis

This analysis aims to identify the SME orientation of the measures and policies launched and/or declared following COVID-19. For this purpose, a distinction is made between "SME-related" and "other policies" where the firsts explicitly mention SMEs or address them as one of the target groups. The latter do not explicitly mention nor refer to small businesses.

This study investigated the SME orientation of policies by assessing their number and financial value and by differentiating for both rescue measures and recovery packages. As defined in one of the databases analysed, the Global Recovery Observatory (O' Callaghan & al., 2020), this study refers to rescue measures as “short-term measures designed for emergency support to keep people and businesses alive” and to recovery packages as “long-term measures to boost economic growth”. Moreover, where possible, the SME-related policies identified in the databases were differentiated along the 4 different small business typologies along firm age (start-ups and young firms), self-employment, entrepreneurship and firm size per se (SMEs and small businesses).

Furthermore, where the databases allowed, this analysis tried to assesses the SME orientation of policy measures at lower levels of aggregation. (1) First of all, this study focused on the three main policy domains identified in the recovery plans (i.e., greening, digitalisation and skills) to “build back better” the economies after the COVID-19 crisis. Secondly, it provided an assessment of the financial support (liquidity and alternative finance) and financial instruments (debt, deferral, grants, etc.) used by policies in rescue and recovery packages.

Sources of information

- **Global Recovery Observatory:** accessed in October 2021, this database was developed by the Oxford University Economics Recovery Project (OUERP) and it covers both rescue measures and recovery packages, including information on the number and value of 7584 policies in 91 countries (O' Callaghan & al., 2020).
- **Bruegel dataset European Union countries' Recovery and Resilience Plans:** latest accessed in July 2021, this dataset was developed by a Brussels-based think tank, Bruegel, to provide information on the European Recovery and Resilience plans across 22 EU members, by including 1763 policies (Bruegel, 2021).

- **The OECD Green Recovery Database:** accessed in September 2021, this database provides information on 857 policies included in recovery plans launched or declared across 44 countries (mostly OECD members) and their (positive, null or negative) environmental implications. that are likely to have significant environmental implications across 44 countries (OECD, 2021 [13]).
- **Green Recovery Tracker:** latest accessed in September 2021, this dataset was jointly developed by the Wuppertal Institute and E3G and it includes 996 recovery policies across 17 EU member countries, further assessing their expected impact on climate change. (Wuppertal Institute & E3G, 2021).
- **COVID-19 Government Financing Support Programme for Businesses:** this dataset was developed by the Directorate for Financial and Enterprise Affairs (DAF) of the OECD to support the work of the OECD Committee on Financial Markets (CMF) throughout the COVID-19 pandemic crisis. It consists of two surveys respectively conducted during the first and second waves of COVID-19 (April and December 2020) and it includes 215 policies (OECD, 2020 [4]) (OECD, 2021 [2]).

Methodological steps

The analysis of the databases mentioned above was conducted following three main steps:

1. Leveraging relevant existing classifications included in the databases

Every database comes with a pre-defined set of categories (or classes) of measures and policies, which served as a benchmark for this analysis. These included the following:

- The distinction between rescue and recovery measures in the Global Recovery Observatory.
- Archetype C (“Liquidity for SMEs and start-ups”) of the Global Recovery Observatory served as a starting point to build the pool of SME-related policies.
- To assess the policies addressing green and digital issues, the “Clean archetype” in the Global Recovery Observatory database and the “Green transition” and the “Digital transformation” classifications in the Bruegel database were used.

2. Conducting a comprehensive analysis

A structured textual analysis based on specific keyword search was conducted to further assess the SME orientation of policies (also distinguishing among typologies of SMEs), greening, digitalisation and skills policy domains and the types of financial support and instruments used. To this end, descriptive and explanatory texts available in the databases were analysed. The tables below show the search terms used, that can be found throughout this study⁹.

SME-related policies by size	SME-related policies by age	Entrepreneurs	Self-employed
SME	Start-up	Entrepreneur	Self-empl
Small	Startup		Self empl

Greening	Digitalisation	Skills
Green	Digit	Skill
Electric	Cyber	Educate
Sustaina	AI / Artificial Intelligence	Competenc
Climat	E-comm / E comm	Abilit
Environm	Cloud	Training
Clean energy	Connect	Vocation
Circular economy	Broadband	Human capital
Emission	5G	School
Biodivers	Optic fiber	
Pollut	Online / On-line	

⁹ To improve the coverage on SME-related policies, both terms “SME” used at the OECD and EU official documents and “small businesses” mostly applied in Anglo-Saxon countries were included. Certain keywords used in this textual analysis do not display the complete word, as the shortened and abbreviated text ensures that several variants of the terms are considered: for example, for singular and plural entries (“deferral”-s), nouns and adjectives or verbs (“environment”-al, “pollut”-ion and -ing). Significant attention was also given to the several ways in which the keywords were referred to in the databases, such as, for instance, “AI” and “Artificial intelligence” and “start-up” and “startup” (without the hyphen). In addition, considerable efforts have been invested in avoiding the misattribution of the keywords used (such as “small” and “connect”) to meanings unrelated to their context (i.e., small businesses and digitalisation respectively). Some of the key-terms contain the full(ly written) word to avoid potential confusion with others (as with “lease” and “leasing” which, if abbreviated, would be confused with expressions such as “at -leas-t”) and may also contain additional spaces to distinguish them from other words (“ lease ” and “ leasing ”, not to be included in terms such as “re-lease” and “re-leasing”).

Renewab Energy efficiency Green infrastructure Solar		
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Liquidity			Alternative finance
Debt	Deferral	Grants and subsidies	Different instruments
Loan	Moratori	Grant / Grants	Subordinated loan
Guarantee	Deferral / Defer	Subsidies / Subsidy	Venture capital / VC
Debt	Payment delay /	Forgivable loan	Business Angel
Credit	Tax delay	Lump-sum / lump sum	Equity
Direct lending	Payment suspension / Tax suspension		Equity fund
Lend / Lending	Forebearance / Forbearance		Participating loan
			Lease / Leasing
			Factoring
			Crowdfund
			Peer to peer / Peer-to-peer / Peer to peer
			Alternative finance
			Green bond
			Bridge capital
			Risk capital

For each keyword and existing classification, a set of dummy variables (1 and 0) was built (where 1 was assigned to the policy whose description contained the term selected and 0 in the other cases). The purpose of this exercise was to create a “macro” column that collected all the policies identified by leveraging the existing classifications and by using the keyword search while avoiding, at the same time, the issue of double counting the numbers and values of these policies that, usually, overlap.

3. Carefully checking the results of the textual analysis

A one-by-one manual check of every policy identified was performed to ensure that no false positives were included. This manual check basically consisted in the scanning and reading of policy descriptions where the keyword search was performed to test if the methods applied and the results found were accurate, consistent and convincing for each policy with an

SME orientation, each policy domain and financial instrument. In addition to this, a further manual check was conducted by focusing on the (possible) outliers in the financial values across SME-related policies, as the databases, in some cases, reported policies presented as larger packages of measures, thus over-estimating the real financial value allocated for these policies.

Limitations

The methodology used allowed for quite limited interpretation of the SME orientation of policies in response to COVID-19. However, **the approach as well has few limitations that need to be taken into account when interpreting the results:**

- (1) Some databases have been accessed when not fully up to date as they get continuously updated. As a consequence, not every measure or policy put in place by governments could have been included in this study.
- (2) The databases widely differ in the objectives, methodologies, content and country coverage, and, therefore, might not always be fully comparable.
- (3) Information and data on the financial values of the policies reported in the databases should be carefully taken into account as the policies and measures mostly refer to announcements, not actual expenditure. Furthermore, a small number of policies listed in the databases does not include an assessment of their financial values, thus potentially leading to an underestimation of the financial allocation for those measures. Finally, the changes in the currencies exchange rates might affect the comparability of the financial values allocated to policies.
- (4) These databases report the measures launched in the rescue and recovery phases after the outbreak of the COVID-19 pandemic, therefore some (SME-related) policies that may have been implemented before 2020 might have been overseen.
- (5) While the analysis provides insights in the SME orientation of policies, it does not suggest that the (“other”) policies that have been identified as not “SME-related” are not relevant for SMEs: in fact, many measures (especially those included in the recovery packages) aim to provide the strengthening of economic structures, such as broadband connection, which benefit SMEs as well, even if small businesses are not the main target of the policies. In addition, the financial support measures addressing the issues of the business sector at large (mostly included in the rescue packages) might turn out to be also relevant for SMEs: the fact that recovery policies

are much less SME oriented than that of rescue policies is, in part, the logical consequence of a shift towards more generic policy measures.

Further information on the databases analysed

Beyond the scope of this study, this annex provides more information on the policy trackers reported above for possible further analysis (even unrelated to SMEs). As very few trackers provide information addressing specific SME-related policies (only the two surveys conducted by the OECD distinguish among firm sizes), these databases (that can be found in excel format) could be used for other purposes and applications. For this reason, specific characteristics of the databases are reported hereafter, with a deeper insight on their content and features.

	Number of policies reported	Types of policies (rescue / recovery)	Does the database have a relevant existing classification on SMEs? (*)	Which is the main policy area the database focuses on?	Number (and type) of countries involved	Pending updates?
Global Recovery Observatory	7584	both	Yes	Undefined (many policy areas reported)	91 (developed and emerging) countries	Yes
European Union countries' Recovery and Resilience Plans	1763	Recovery	No	Digitalisation and greening, education and skills, R&D and innovation.	22 (European Union member) countries	Yes
OECD Green Recovery database	857	Recovery	No	Greening	44 (OECD member and non-member) countries	No
Green Recovery tracker	996	Recovery	No	Greening	17 (European Union member) countries	Yes
COVID-19 Government Financing Support Programme for Businesses – OECD	215	Rescue	Yes	Finance	26 (OECD member and non-member) countries	No

Structure of the databases

Global Recovery Observatory (O' Callaghan & al., 2020)

- Name of the country
- Policy Archetypes, defining:
 - the incentive and investment measures under the recovery packages
 - the temporary liquidity, life and livelihood, tax and payment relief measures under the rescue packages (with special focus on SMEs and start-ups).
- Policy name
- Description, with detailed explanations on the implementation of the different policies
- Date
- Source(s)
- Total value of funding for the different policies, expressed in billions of USD
- Recovery dummy variable, where, for each policy, the numbers 1 and 0 provide information, respectively, for recovery and rescue packages.

For more information, please visit <https://www.bsg.ox.ac.uk/research/research-projects/COVID-19-government-response-tracker> (where it is possible to download and access the database).

European Union countries' recovery and resilience plans (Bruegel, 2021)

- Name of the country
- National Classification Level 1, Level 2, Level 3 and Level 4, describing the main categories (and subcategories) of spending as provided in the national plans
- Pillars, Flagship and NACE, mapping and categorising with different criteria the aforementioned classification
- Bruegel Level 1, 1st and Bruegel Level 2, 1st, that is the primary classification mapping, categorising the data under “Green transition”, “Digital transformation”, “Social, economic and institutional development” and “Uncategorised”
- Bruegel Level 1, 2nd and Bruegel Level 2, 2nd, providing further categorisation within the primary classification mapping
- RRF amount, which is the total value of the investment (expressed in billions of Euros) that the country requested for a specific policy: it is the result of the sum of the values of grants and loans.

For more information, please visit <https://www.bruegel.org/about/> (where it is possible to download and access the database).

OECD Green Recovery database (OECD, 2021 [3])

- Country code
- Type of measure, which is a pre-set categorisation of the types of green policies

- Scope and sector, defining, respectively, the range and sectors covered by the green policies
- Value of measure, which is the total value of funding announced by countries for specific policies. It is expressed in USD billion
- Environmental dimensions 1, 2 and 3, describing the positive, negative and mixed potential effects of the measures announced
- Summary description, containing explanatory information of the measures and policies announced
- Source(s)

For more information, please visit <http://oecd-ilibrary.org/> (where it is possible to download and access the database).

Green Recovery Tracker (Wuppertal Institute & E3G, 2021)

- Name of the country
- Measure, providing a description of the policies
- Funding in Euro, assessing the value of funding for a specific policy
- Impact assessment, providing information on the effects of the policies on the green transition (very positive, positive, likely no significant climate effect, likely climate effect but direction not assessable, negative and very negative)
- By sector, specifying the effects of the policies on the different sectors
- National or EU, containing information about where the funding comes from (EU Recovery Budget, National Budget, etc.)

For more information, please visit <https://wupperinst.org/en/the-institute> (where it is possible to download and access the database).

COVID-19 Government Financing Support Programme for Businesses (OECD, 2020 [4]) (OECD, 2021 [2])

- Jurisdiction, that is the name of the country
- Purpose and programme, containing information on the goals and objectives of the policies and the project framework in which they have been implemented
- Type of policies, defining the kind of measure (guarantee, loan, grant, recapitalisation)
- Total size, providing information on the value of funding allocated for each policy
- Terms and Terms – Rates, defining the terms of the current programmes
- Capital structure (debt or equity)
- Firms targeted
- Restrictions

For more information, please visit <https://www.oecd.org/daf/> (where it is possible to download and access the database).

Annex B: Survey on the guiding principles for SME and entrepreneurship policies

This annex offers a short and concise overview of the outcome of the survey on set of guiding principles developed at the OECD. The survey has been conducted between February and March 2022 on the OECD media channels (website of *OECD Strategy for SME and entrepreneurship*, Twitter, LinkedIn and other social media platforms). The questionnaire was designed and structured to gather information on the draft set of 15 guiding principles for SMEs and entrepreneurship policies, developed in the context of the OECD Strategy for SME and Entrepreneurship by the CSMEE, the *OECD Committee on Small Medium Enterprises and Entrepreneurs*¹⁰.

The survey

The survey specifically targeted non-governmental organisations representing SMEs and entrepreneurs, such as associations of SMEs, independent professionals and self-employed, national and local chambers of commerce, federations of small businesses and major SME and entrepreneurship research centres across OECD member countries, to which the questionnaire was sent via e-mail. The purpose of this public consultation was twofold: on one hand it aimed at increasing the visibility of the guiding principles for SMEs and entrepreneurship policies, on the other, it tried to collect comments and opinions beyond the CSMEE.

This questionnaire gathered 180 total responses from 33 OECD member and 15 non-member countries, including respondents from Central and South America (Argentina, Brazil, Ecuador, Guatemala, Peru, Trinidad and Tobago and Uruguay), but also from Europe (Azerbaijan Rep., Montenegro and North Macedonia), Africa (Benin, Mauritius and Tunisia) and Middle East (Oman and Saudi Arabia).

The responses included in Figure 3 widely reflected the outcome of the survey on the prioritisation of the guiding principles, where respondents identified as most important Principle

¹⁰ The CSMEE represents an important intergovernmental activity of the OECD in which all member countries participate (including, Romania, Thailand, Ukraine and Kazakhstan) with the aim of improving the policies and measures to support SMEs and entrepreneurs, emphasising their relevance for a resilient and sustainable growth of the economies and for an enhanced social inclusion (with particular reference to women, youth, senior, minority and disabled entrepreneurs).

5. Digital transformation (14%), Principle 2. Cross-cutting approach (11%), Principle 13. Finance (9%), Principle 6. Green Transition (8%) and Principle 14. Skills and entrepreneurial mindset (8%).

The guiding principles for SME and entrepreneurship policies

The set of 15 guiding principles for SMEs and entrepreneurship policies aims to help policy makers design and implement effective and coherent SMEs and entrepreneurship policies by providing high-level guidance for a coherent approach to SME and entrepreneurship policies at the national and sub-national level. Following the discussion on Tuesday 12 April 2022, the CSMEE approved a Recommendation document embodying the Guiding principles for SMEs and Entrepreneurship Policies.

Latest accessed in May 2022, the guiding principles have been organised along three pillars, namely:

- **Principles related to policy coordination and governance**, which address how the development and delivery of policies should be streamlined to consistently meet the objectives that SMEs and entrepreneurs aim to achieve. They include, for instance, the relevance of securing a whole-of-government approach, of considering the SME and entrepreneur perspectives in policy-making, of duly acknowledging the differences among SMEs, and of building sound policy evaluation and monitoring mechanisms.
- **Principles related to transitions and resilience**, reflecting current and emerging developments and significant transitions in SME policy domain, acknowledging the opportunities as well as challenges for SMEs and entrepreneurs in such processes. These principles also emphasise that, despite the fact that these developments affect the entire business population, they occur in many different forms and policy-makers need to bear this in mind.
- **Principles related to the access to resources**, which focus on the relevance for SMEs and entrepreneurs to gain access to resources which are crucial to thrive and develop. From a policy perspective, arguments for political intervention may concern information asymmetries, where SMEs might be disadvantaged.

Guiding principles for SME and entrepreneurship policies

Principles related to policy coordination and governance

1. Whole-of-government and multi-level governance
2. Cross-cutting approach
3. Diversity of SMEs and entrepreneurs
4. Monitoring and evaluation

Principles related to transitions and resilience

5. Digital transformation
6. Green transition
7. Internationalisation and participation in global value chains
8. Business dynamics, start-ups and scale-ups
9. Fostering inclusive entrepreneurship
10. Transitions related to informal enterprises and self-employment
11. Enhancing responsible business conduct and social impact

Principles related to access to resources

12. Innovation
13. Finance
14. Skills and entrepreneurial mindset
15. Ecosystems, networks and public procurement

For more information, please visit <https://www.oecd.org/cfe/smes/strategy.htm> .

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