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**A COVID-19 IDEJÉN A BUDAPESTI KKV-KRA GYAKOROLT
SZAKPOLITIKAI HATÁSOK KUTATÁSA
RESEARCH ON THE EFFECTS OF POLICIES ON HUNGARIAN
SMES DURING COVID19 – PERSPECTIVES ON BUDAPEST**

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1. INTRODUCTION

The Coronavirus disease 2019 (COVID-19) is considered the most severe public health emergency in a century, raising not only daunting health but also socioeconomic challenges (“Coronavirus ‘most Severe Health Emergency’ WHO Has Faced,” 2020). A survey by WHO shows that there have been around 2 million confirmed cases with more than 46,000 deaths in Hungary until August 2022, since the first cases were announced on 4th March 2020 (“Hungary Situation,” 2022). As a vital part of the Hungarian economy, micro, small and medium-sized enterprises (SMEs, henceforth) have been affected by the pandemic. There were nearly 800,000 SMEs in Hungary, employing more than 2 million people and accounting for 42% of the net turnover of total enterprises in 2019, but all figures decreased after the pandemic broke out (“Annual Structural Indicators by SME Size Class,” 2022). According to the survey conducted by the Budapest Chamber of Industry and Commerce, 60% of Budapest-based SMEs have seen a drop in sales and 40% a loss in the number of consumers during COVID-19 (“Coronavirus: Most Businesses in Budapest See Bleak Outlook,” 2020).

In response to COVID-19, governments around the world have released a wide range of policies, which plays a significant role in the recovery of the macroeconomy as well as the support for microeconomic subjects. There have been a number of studies focusing on the impact of COVID-19 on Hungary’s economy and enterprises (Kohlhoffer-Mizser, C., & Molnár, B. (2020). However, few studies of Hungary’s SME policy responses and their effects have been found. The topic of this research, the effects of policies on Hungarian SMEs located in Budapest, is chosen in this context.

The main purpose of this research is to assess the effects of government policies on SMEs in Budapest, therefore, to propose targeted policy recommendations to promote the economic recovery of SMEs. The subject of the research is SMEs in Budapest. This research will examine the research question: What kind of government policy do SMEs in Budapest need during COVID-19? How will the profit grow with the policies?

The hypotheses are listed below:

H1. There is a positive relationship between the need for government's tax supporting policy and expected profit increase of SMEs in Budapest during COVID-19.

H2. There is a positive relationship between the need for government's capital supporting policy and the expected profit increase of SMEs in Budapest during COVID-19.

H3. There is a positive relationship between the need for government's operating expenses policy and expected profit increase of SMEs in Budapest during COVID-19.

H4. There is a positive relationship between the need for government's structural policy and expected profit increase of SMEs in Budapest during COVID-19.

H5. There is a positive relationship between the need for government's labor policy and expected profit increase of SMEs in Budapest during COVID-19.

H6. There is a positive relationship between the need for government's social welfare policy and expected profit increase of SMEs in Budapest during COVID-19.

The assessment of the effects of SME policies is based on the evidence of online questionnaires from 152 enterprises conducted between October of 2022.

The main limitation of this research is that it's not a representative sample with such a small sample size, so the results are inconclusive for all SMEs in Budapest and shall not be generalized beyond this sample. A promising line of research in the future would be quantifying the effects of Hungarian SME policies with dynamic models using software such as the DSGE model.

The overall structure of the research takes the form of six chapters, including this Introduction chapter. Chapter Two presents the current research situation, and Chapter Three describes the chosen methodology in this research. Chapter Four reveals the results of the questionnaires. Based on the above analysis, discussions will be given in Chapter Five, Discussion. The last Chapter summarizes the whole research.

2. LITERATURE REVIEW

Declared the sixth public health emergency of international concern (PHEIC) by WHO, COVID-19 has been regarded as the most severe public health emergency worldwide in this century (“Coronavirus ‘most Severe Health Emergency’ WHO Has Faced,” 2020). The global pandemic has not only posed a threat to people’s health but also resulted in economic fallout. Governments around the world have launched comprehensive measures in response to the economic impacts of COVID-19, among which the author pays special attention to the SME policies of the Hungarian government. This chapter reviews the previous literature concerned with the macro- and mesoeconomic consequences of COVID-19, SMEs under the impact of COVID-19, and the SME policy responses in Hungary.

2.1. Macro- and mesoeconomic consequences of COVID-19

Since the beginning of the COVID-19 pandemic, the world has seen five waves of infection, more than 583 million confirmed cases, and around 6.4 million deaths (“Global Situation,” 2022). The annual world GDP affected by the pandemic fell to -3.3% with a decline of 5.9% (“World GDP Growth,” 2022). Developed economies could restore output and investment to the pre-pandemic level with an expected growth of 2.3% in 2023, while the output of emerging and developing economies, fragile and conflict (Kohlhoffer-Mizser, C., 2017, 2018, 2018) -affected economies, and small island states still suffer the setback of COVID-19 (World Bank, 2022). The World Bank Group (2022) pointed the global outlook is clouded by challenges from the pandemic, including the peak of total global debt in half a century, particularly intense boom-and-bust cycles of commodity prices, and global income inequality. As one of the most disadvantaged industries, tourism suffers losses in every subsector due to official travel restrictions, event cancellations, and the travelers’ fear of risk (Bulin & Tenie, 2020). Tourism exports in 2020 slumped to 548.2 billion dollars with a drop of 935.2 billion dollars (“Global and Regional Tourism Performance,” 2022).

Hungary's GDP growth rate for 2020 was -4.46%, with a decline of 9.02% (“GDP Growth - Hungary,” 2022). The sectors most vulnerable to the pandemic are those involved in

personal interaction: accommodation and food services, arts, entertainment, leisure, and other services (hairdressing, beauty, tattoo, etc.) (Kincses, Tóth, Jeneiné, & Péntzes, 2021). The data of the Hungarian Central Statistical Office (2021) also demonstrated that the economic fallout was mainly a consequence of poor performance in the service sector, where two-thirds of the employees of SMEs work. The restrictions set to reduce the mobility of the population resulted in the most significant cut in gross value added, 32% in the hospitality and catering industry, and 16% in the transportation and warehousing industry. The pandemic, however, did boost two industries: the Information and communication industry with 6.1% gross value added, and the financial services industry with 13%. The downturns of the manufacturing sector were 4.9% in industry and 9.4% in the construction industry.

According to the survey conducted by the National Bank of Hungary in April 2020, 63% of the total 5000 Hungarian enterprise respondents have experienced supplier disruptions, and 41% of respondents lacked suppliers of materials or services for up to one month. China was one of the most mentioned suppliers (MNB, 2020)

China has been closely connected to the global supply chain disruption caused by COVID-19. As both a leading exporter and a major market of global trade, China adheres to the “dynamic zero-COVID” policy. Consequently, its lockdown measures hit the global economy. According to *China and the world: Inside a changing economic relationship* (Woetzel et al., 2019) from McKinsey Global Institute, China is the largest export destination for 33 countries and the largest source of imports for 65 among 186 countries, especially for Asian Economies. Asian countries are connected to China through regional supply chains, for instance, the imports and exports of Singapore account for around 30% of its domestic production. From a global perspective, almost all sectors are exposed to China. China contributes 35% of global manufacturing output and more than 20% of global manufacturing consumption. Chinese shares of global exports in textiles, apparel, and leather sector, furniture, safety, fire sector and nonmetallic mineral products sector, rubber and plastics sector are 40%, 26%, 22%, and 19% separately. And China shares the proportion of 21% of global imports in the mining and quarrying sector. Embedded in the value chains of the electronics, machinery, and

equipment sectors, the Chinese share represents 17 to 28% of global exports and 9 to 16% of global imports.

The trade between Hungary and China, however, expanded during Covid-19. Hungary's total exports dropped by 3.8% in 2020, however, exports to China dramatically surged by 22% compared to 2019 (Moldicz, 2021). Hungary's exports to China rose by 4.3%, and imports from China increased by 18% in value. The business between the two countries can be featured as intra-industry because around half of Hungary's exports are machinery goods, and so does around 60% of China's exports. China was the largest investor in Hungary in 2020, and its major investments focused on transportation and logistics. The rail freight volume between China and Europe through Hungarian and Ukrainian border crossings turned tenfold in 2020 (Moldicz, 2021).

2.2. SMEs under the impact of COVID-19

As the 1. table presents, SMEs consist of micro-, small- and medium-sized enterprises (Act XXXIV of 2004, 2004). Micro enterprises refer to those whose number of employees is fewer than 10, annual net turnover and/or balance sheet total not exceeding the amount of Hungarian forint equivalent to 2 million euros. A small enterprise is qualified as an enterprise with 10 to 49 employees, an annual net turnover, and/or a balance sheet of more than 2 million euros but not exceeding 10 million euros. And an enterprise with 50 to 249 employees, an annual net turnover of more than 10 million euros but not more than 50 million euros, and/or a balance sheet total of more than 10 million euros but not more than 43 million euros is characterized as a medium enterprise.

SME category	Number of employees	Annual net turnover (euro)	Balance sheet total (euro)
micro	1 - 10	0 - 2 million	0 - 2 million
small	10 - 49	$2 < X \leq 10$ million	$2 < Y \leq 10$ million
medium	50 - 259	$10 < X \leq 50$ million	$2 < Y \leq 43$ million

1. table: definition of SME

Source: own editing based on XXXIV of 2004

SMEs are viewed as the engine of the world economy because they create employment, entrepreneurial spirit, and technique innovation (Luo, Wang, & Yang, 2016). SMEs play a decisive role not only in achieving economic development but also in economic diversification in all countries (Qaied & Basavaraj, 2021). However, SMEs are more vulnerable during a crisis with more limited access to financing, lower diversification of product base, and little space for downsizing (Chowdhury, 2011). And the pandemic has severely disrupted both the supply and demand sides of SMEs: logistical issues brought by the disruption of transportation and labor shortages have led to supply difficulties for SMEs, meanwhile, lockdown measures, a drop in consumer confidence, and the shutting down of numerous global value chains have posed challenges to demands of SMEs (Juergensen, Guimón, & Narula, 2020). Szepesi and Pogácsás (2021) stated that around 180,000 SMEs among 315,000 respondents in Hungary reported a turnover fall in 2020 compared to 2019. However, the average decrease was only 3% with slightly affected turnovers of most sub-sectors.

The economic consequences of the pandemic urgently call for policy responses. Chinese researchers Li and Wang (2020) provided an explanation of the necessity of tax policies in China during COVID-19. The special nature of a socialist country's taxation, as well as that of public goods, determines the indispensable role of tax policy in epidemic control and economic recovery. Researchers from other countries have similar assertions about the need for immediate policy intervention. Juergensen, Guimón and Narula (2020) claimed at the beginning of the pandemic that the aim of policies should improve the survival rates of SMEs with financial support to ease liquidity concerns and minimize employment losses. Then policies should contribute to the renewal and growth of survived SMEs with structural support measures to promote innovation, internationalization, and networking. A study by the National Bureau of Economic Research (Gourinchas, Kalemli-Özcan, Penciakova, & Sander, 2020) also announced that without public support, a wave of SME failure might occur, temporary layoff or furlough will turn into unemployment, banks will suffer huge losses on C&I loan, and increasing fiscal costs are expected due to the prospect of a financial crisis. Likewise, Hungarian researcher Magas (2019) affirmed the role of public spending and loan stimulation in maintaining trade and the economy during an economic crisis.

A series of recent studies well documented the impact of COVID-19 on Hungary's SMEs and the policy effects in other countries. Karácsony, Krupánszki and Antalík (2022) indicated that the COVID-19 pandemic significantly affected job insecurity and the financial situation of workers in SMEs in Hungary. According to another research by Karácsony (2020), the adverse effects for most SMEs in the Western Transdanubia Region of Hungary were decreased product/service demand and financial dilemmas. The research also reported the measures taken by SMEs in a sequence of frequency: finance measures, home office, revision of contracts, layoffs, external capital, and closing down firms. The popular measures turned out to be workplace protection programs, tax relief, and lending programs. Whereas the research investigated by Beraha and Đuričin (2020) about the impact of COVID-19 on Medium-sized Enterprises in Serbia found several different points from the previous Hungarian one. The questionnaire results showed that the major changes brought by the pandemic were home office, improved personal safety, declined capacity utilization, and supply chain disruptions. In contrast, the reduced working time, production disruptions, and limited resources had the least impact on daily operations. Among the supports needed by enterprises, tax payment extensions were the most popular type, followed by preferential short-term loans and fiscal policy. The contention of Le et al. (2020) about the order affecting the survival and development of SMEs in Thanh Hoa province of Vietnam is as below: preferential policies of the bank, capital support from the government, tax policies, insurance policies, professional association, acts of administrations. The study by Ma, Liu and Gao (2021) presented the positive relationship between finance, market, employee, cost, policy problems of SMEs, and the negative impact of COVID-19 in China, and the apparent effect of policies on financing cash flow and market.

2.3. SME policy responses in Hungary

Jeneiné and Henriett (2022) held the view that policy responses to COVID-19 move from defensive to preventive, more complex and targeted, compared to the measures for the Great Recession of 2008. The SME policy responses during the pandemic in Hungary are divided into six categories by the author, namely, tax support, labor, capital support, social welfare, operating expenses, and structural incentives.

To overcome COVID-19, the tax system should adopt tax stimulus policies after assessing and monitoring the needs and challenges of SMEs (Qaied & Basavaraj, 2021). Typical VAT, HIPA, income/corporate tax, and tourism tax relief in Hungary during COVID-19 are listed in the 2. table.

VAT Decrease	VAT rate shall be 5 % for take-away or home delivery of food and beverages (Government Decree 498/2020, 2020).
Local Tax (HIPA) Decrease	In 2021 and 2022, limited to 1% Local Business Tax rate and 50% of the tax advances for SMEs with annual net revenue or balance sheet sum below 11.1 million euros, on the condition that they are not qualified as “enterprise in difficulty” and submit the statement (639/2020. (XII. 22.) Korm. Rendelet [Government Decree 639/2020. (XII. 22.)], 2020).
Income/ Corporate tax Decrease	Self-employed and micro companies of transportation, tourism, catering, entertainment, sports activities, gambling, film industry, publishment, plant- and hunting-related business should be exempt from paying Itemized Tax for Small Business (KATA in Hungarian) during March and June 2020 (Government Decree 61/2020, 2020). Once KATA taxable people from similar industries received the highest income or at least 30% of the total income from May to October 2020 are not obligated to pay KATA tax in November 2020 (485/2020. (XI. 10.) Korm. Rendelet [Government Decree 485/2020. (XI. 10.)], 2020). Accommodation is excluded from this group due to other assigned subsidies. <i>Government Decree 105/2021</i> (2021) expanded the list for the KATA tax exemption for March and April 2021, for example, retail and repairment of household goods, accessories, and education-related services.
Tourism tax Waiver	No tourism contribution is required in 2021 (105/2021. (III. 5.) Korm. Rendelet [Government Decree 105/2021. (III. 5.)], 2021).

2. table: Typical government’s tax supporting policies during COVID-19 in Hungary

Faia, Lechthaler and Merkl (2013) highlighted that pure demand stimulation and consumption tax decrease have much fewer effects on the economy than income tax decrease, hiring subsidies, and short-time work, particularly in the long term. Conversely, Balleer, Gehrke, Lechthaler & Merkl (2016) argued that the effects of short-time work on unemployment and output fluctuations depend on its type. Compared to rule-based ones, discretionary short-time work interventions are ineffective on unemployment. The 3. table below shows typical labor-related policies focusing on active employees, including bonuses, wage subsidies, pay raises, working time, and self-employed policies.

Fringe benefits	Széchenyi Recreation Card (SZÉP card) with three separate subaccounts are limited to 800,000 forints per year in private business, 400,000 forints for employees of public institutions (140/2020. (IV. 21.) Korm. Rendelet [Government Decree 140/2020. (IV. 21.)], 2020) The category of catering sub-account is expended with retails of fruit, vegetables, meat, fish, bakery, beverages and tobacco. Besides, amounts of three subaccounts can be used for each other until the end of 2022 (781/2021. (XII. 24.) Korm. Rendelet [Government Decree 781/2021. (XII. 24.)], 2021)
Short-time work	Employees with 15-75% of worktime reduction due to COVID-19 can apply for subsidy equaling 70% of base salary for 3 months. R&D employees are also included. The max. subsidy equals to twice the min. wage. Besides, employer needs to maintain headcount of the employees receiving the subsidy (141/2020. (IV. 21.) Korm. Rendelet [Government Decree 141/2020. (IV. 21.)], 2020).
Worktime banking	Employers can raise the worktime banking to 24 months during the period of the COVID emergency without violating the rules of maximum daily and weekly working hours and minimum rest regulation (daily rest period/ weekly rest day/ period) (104/2020. (IV. 10.) Korm. Rendelet [Government Decree 104/2020. (IV. 10.)], 2020).
Self-employed	Those self-employed engaged in the activities specified in but not eligible for <i>government decree 485/2020</i> can apply to compensation allowance

	equal to one-month min. wage (310/2021. (VI. 7.) Korm. Rendelet [Government Decree 310/2021. (VI. 7.)], 2021).
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3. table: Typical government's labor-related policies during COVID-19 in Hungary

Source: own editing based on policies

The term “worktime banking” refers to more working days with longer daily working time for those who worked less during the pandemic but with the same salary, and it's banned from breaking rules of maximum working hours and minimum rest. This regulation is unusual and controversial due to its long duration, the base of an administrative decision, undefined criteria and the potential to undermine collective bargaining (Kun, 2021).

Compared to tax reduction policies, Zhang, Li and Liang (2020) pointed out that subsidies for SMEs are not that effective in China. Conversely, Demmou et al. (2020) found that wage subsidy is the most effective measure in improving firms' liquidity, followed by debt moratorium and tax deferral. Gourinchas et al. (2020) pointed out that preventing liquidity shortage from turning into a solvency problem is a primary concern during policy formulation, and SMEs' liquidity shortage can be addressed by short-term loans and working capital. The 4. table below illustrates debt moratoriums, loan guarantees, grants, and subsidies supporting the capital of SMEs.

Debt moratoriums	The loan repayments are suspended until 31 December 2020 for all businesses that took loans out before 18 March 2020 (Government Decree 47/2020, 2020), until 30 June 2021 for companies in difficulty by request (637/2020. (XII. 22.) Korm. Rendelet [Government Decree 637/2020. (XII. 22.)], 2020), and until 30 June 2022 for the company whose revenue decreased 25% or more in 2020 by request (537/2021. (IX. 15.) Korm. Rendelet [Government Decree 537/2021. (IX. 15.)], 2021).
Loan guarantees	Interest-free fast loan is launched with a grace period of 3 years, up to 10 million forints per business (A Kormány 1038/2021. (II. 5.) Korm. Határozat [Government Resolution 1038/2021. (II. 5.)], 2021).

Grants and subsidies	Business of tourism, film industry, restaurants, entertainment venues, gambling, sports, cultural services, land transportation can gain a subsidy equal to 50% of gross wage from November 2020 to April 2021, and the employer shall maintain headcount at least one more month after the subsidy (485/2020. (XI. 10.) Korm. Rendelet [Government Decree 485/2020. (XI. 10.)], 2020).
	Accommodation business can obtain the compensation up to 80% of the net sales as registered, and the employees shall be in employment on 8 November 2020 and paid with wages (485/2020. (XI. 10.) Korm. Rendelet [Government Decree 485/2020. (XI. 10.)], 2020).

4. table: Typical government's capital supporting policies during COVID-19 in Hungary

Source: own editing based on policies

Paying public charges and wages led to a liquidity dilemma for half of the respondents in April 2020, and solvency can be maintained for only one month without turnover (MNB, 2020). The survey with 1509 valid responses from China's SMEs showed that half of the respondents need policies related to cost subsidy (e.g., rent, wage, social securities)(Zhu, Zhang, Li, & Wang, 2020). The 5. table provides typical policies regarding SMEs' operating expenses.

Rent waiver/cut	For those businesses providing catering, entertainment, tourism services, rent increases and termination of rental contracts are prohibited until the end of June 2020 . the <i>Government Decree 52/2021</i> (2021) added nature-relevant and passenger land transport services to the free rent list. Those businesses on the list operated on 4th November 2020 are exempted from rent from February 2021 to June 2021. According to the <i>Government Decree 105/2021</i> (2021), retail sale and repairment of household and fashion goods, retail and rentals of personal entertainment goods, personal service and education-related service are also covered by the rent waiver in March 2021.
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Electricity price cut	SMEs (registered before 22 November 2021) with annual net revenue or balance sheet sum below 4 billion forints and max. 10 employees are eligible for the electricity cost cut until 30 June 2022(670/2021. (XII. 2.) Korm. Rendelet [Government Decree 670/2021. (XII. 2.)], 2021). Micro companies whose total connected load less than 3*63 A at all points and an annual limit of 4606 kw are eligible for the electricity cost cut from August to December 2022 (217/2022. (VI. 17.) Korm. Rendelet [Government Resolution 217/2022. (VI. 17.)], 2022)
Gas price cut	Micro companies whose gas capacity less than 20 m ³ / hour and 1489 m ³ / year are eligible for the gas cost reduction from August 2022 to December 2022 (217/2022. (VI. 17.) Korm. Rendelet [Government Resolution 217/2022. (VI. 17.)], 2022).

5. table: Typical government's policies related to operating expenses during COVID-19 in Hungary

Source: own editing based on policies

Chetty et al. (2020) tracked economic activities by analyzing consumer spending, business revenues, employment rates, and other indicators, they demonstrated that social insurance rather than the traditional macroeconomic tool is more helpful in mitigating economic difficulties during COVID-19. In contrast, Zhang, Li and Liang (2020) adopted a counter-factual simulation to assess the effect of fiscal policy and monetary policy on Chinese SMEs during COVID-19, which confirmed the effectiveness of both policies in improving the output, employment rate and investment of SMEs. The 6. table covers typical policies about family tax allowance, social security, and job seeker benefits.

Family tax allowance	The employees entitled to family tax allowance in 2021, and women with at least 91 days of pregnancy during 2021 are eligible for the tax refund. The amount of tax refund shall be neither more than the tax obligation of the employee nor the average yearly salary (560/2021. (IX. 30.) Korm. Rendelet [Government Decree 560/2021. (IX. 30.)], 2021).
Social security	Businesses of tourism, film industry, restaurants, entertainment venues, gambling, sports, cultural services, and land transportation needn't pay social security contributions (except health insurance) from March to

	June 2020 (Government Decree 47/2020, 2020) and from November 2020 to April 2021 (485/2020. (XI. 10.) Korm. Rendelet [Government Decree 485/2020. (XI. 10.)], 2020).
Job-seeker benefit	Those job seekers who worked more than 360 days during 3 years before unemployment are entitled to Job-seeker Benefit. Every 10 working days contribute to 1 day's benefit, and the entitlement lasts from 36 to 90 days. The amount of benefit equals 60% of the calculated monthly average gross wage, but not exceeding the current min. wage ("Tájékoztatás Álláskeresőknék [Information for Jobseekers]," n.d.)
	Those who'll retire within 5 years, worked at least 15 years, received Job-seeker benefit for min. 45 days in recent 3 years, can apply for Job-seeker Aid Before Pension. The amount of the benefit is 40% of the min. wage ("Tájékoztatás Álláskeresőknék [Information for Jobseekers]," n.d.)

6. table: Typical social welfare policies during COVID-19 in Hungary

Source: own editing based on policies

SMEs also play a crucial part in closing the productivity gap between regions, and innovation is one of the major drivers of SMEs in affecting regional development (Kincses et al., 2021). Innovation support schemes are beneficial to all types of SMEs, but focuses are different: product and marketing innovation for stand-alone SMEs, process and organizational innovations for specialized-suppliers, and entrepreneurship for knowledge-based SMEs (Juergensen et al., 2020). Digitalization plays an important role in increasing firms' capabilities but external support is needed to integrate it into enterprises' strategy (Ulas, 2019). The Economic Development and Innovation Operational Plus Program (GINOP plus, henceforth) pays special attention to non-KATA SMEs whose development needs are not located in Budapest. The 7. table illustrates the structural incentives, innovation, job creation, sustainability the digitalization of SMEs in Hungary. The details of the GINOP Plus Program are listed in the 8. table.

Innovation stimulation	R&D Employees without other support can apply for a three-month subsidy of up to 318,920 forints per month. The employers shall have operated for at least half a year and keep headcount and salary after the
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	subsidy ends (103/2020. (IV. 10.) Korm. Rendelet [Government Decree 103/2020. (IV. 10.)], 2020).
	GINOP PLUSZ-2.1.1-21 Program motivates SMEs to develop new and commercially viable products, technologies or services. This program supports both business Research & Development & Innovation (RDI) by enterprises, and collaborative RDI involving research and knowledge intermediary organizations (“GINOP PLUSZ-2.1.1-21”, 2022).
Job creation stimulation	Besides investing min. 2 million euros, medium and large enterprises shall create more than 25 new jobs or increase at least 15% in both sale revenue and gross wages in the two years after investment. The max. aid is gross of 1.8 million euros, the max. aid value is 33% of the investment in Szabolcs-Szatmár-Bereg, Borsod-Abaúj-Zemplén, Nógrád, Somogy, Békés, Jász-Nagykun-Szolnok or Baranya, but 20% in other regions (5th Amendment to SA.56926 (2020/N), 2021).
Sustainability stimulation	To reduce territorial disparities and strengthen the local economy, GINOP Plusz-1.2.2-22 Program supports the micro-enterprises in free trade zones or non-free trade zones with less than 5 000 inhabitants (“GINOP_Plusz-1.2.2-22”, 2022). GINOP Plusz-1.2.3-22 Program prioritizes SMEs in the four least developed regions, free trade zones, and the beneficiary districts (“GINOP_Plusz-1.2.3-21”, 2022).
	To strengthen green economy, GINOP Plusz-1.3.1-21 Program targets at energy, electromobility, water-management technology SMEs, and SMEs producing and using substitutes or secondary raw materials for single-use plastics (“GINOP Plusz-1.3.1-21”, 2022).
Digitalization stimulation	GINOP Plusz-1.2.1-21 helps SMEs in implementing digital tools (“GINOP Plusz-1.2.1-21”, 2022).

7. table: Typical government’s structural policies during COVID-19 in Hungary

Source: own editing based on policies

2.4. GINOP Plus Program

The GINOP Plus Program widely attracts entrepreneurs' attention, since its highest priority is increasing the competitiveness and productivity of SMEs. To stimulate the economies of the less developed regions in Hungary, the program is expected to realize job creation, e-services and ICT use, energy efficiency, R&D, high-speed internet coverage, and tourism development ("Economic Development and Innovation Operational Programme," n.d.). The target activities and non-refundable aid amount of GINOP Plus programs can be seen from the 8. Table.

Program	Target SMEs	Target activities	Aid amount (million forint)
GINOP Plusz-1.1.2-21 <i>Hungarian Multi-Program - Support for Micro, Small And Medium-Sized Enterprises with a High Level Growth Potential</i>	Min. 5 employees, 3 financial years, 100-million-forint net turnover in 2020. fast-growing business ¹ , fast-growing promising business ² , Exporters ³ , Suppliers ⁴	IT, renewable energy, equipment, experiment, foreign market, real estate, consulting service	100 - 2,500 30%-50% of the total costs

¹ at least 20% average annual increase of net revenue during last 3 financial years / min.50% average annual growth export turnover during 2017-2021 and export turnover 50 million forints last year

² has received a venture capital investment in recent 3 years / completed R&D projects or spent no less than 10% of the total cost of the project last year

³ export turnover shall be reported at least 50% in 2019, 2020 or 2021.

⁴ cooperate with a large integrating enterprise at least 30 days before applying.

<i>GINOP Plusz-1.2.1-21</i> <i>Support Micro, Small And Medium-Sized Enterprises to adapt for Modern Business And Production Challenges</i>	Min. 3 employees, 1 financial year	IT, renewable energy, equipment, real estate, consulting service, training service	10 - 629.3 45% - 70% of the total costs
<i>GINOP Plusz-1.2.2-22</i> <i>Hungarian Village Enterprise Relaunch Program</i>	sole traders, sole proprietorships, Business organization established in Hungary, in free trade zones or non-free trade zones with less than 5 000 inhabitants, Min. 3 employees, 1 financial year	IT, equipment, real estate	2 – 5 50% of the total costs
<i>GINOP Plusz-1.2.3-21</i> <i>Support for the development of micro, small and medium-sized enterprises in the most disadvantaged regions to adapt to modern business and production challenges</i>	Min. 3 employees, 1 financial year, double-entry bookkeeping Business organization ⁵ , sole proprietorship established in Hungary,	IT, renewable energy, equipment, real estate, consulting service, training service	10 – 200 100% of the total costs

⁵ also double-entry bookkeeping Business organization established in the European Economic Area with a branch in Hungary

	if receiving an amount of the GINOP exceeding 50% of the average turnover during last 3 years, the increase in gross value added shall be no less than GDP growth (5,25 %)		
<i>GINOP Plusz-1.3.1-21</i> <i>Green National Champions - Support For Technological Development of Micro-, Small- And Medium-Sized enterprises operating in the area of green economy</i>	Min. 3 employees, 1 financial year, 30-million-forint net turnover in 2020, IFKA certificate before applying	IT, renewable energy, equipment, experiment, real estate for entrepreneurial activity, and consulting service	20 - 1,500 40% - 50% of the total costs
<i>GINOP Plusz-2.1.1-21</i> <i>Supporting the enterprise research, development and innovation activities.</i>	Also large companies: Min. 3 employees, 2 financial years	industrial research, experiment, equipment, R&D project	50 – 1,000 25% - 80% of the total costs, depending on aid category

8. table: GINOP Plus

Source: own editing based on <https://www.palyazat.gov.hu/gazdasagfejlesztési-es-innovációs-operatív-program-plus>

Although extensive research has been carried out on the consequences of COVID-19 on macro-, meso- and microeconomy, and the SME policy responses in Hungary, much less is known about the policy effects on profit increase of Hungarian SMEs. This research aims at developing an understanding of SME policies in Hungary and the effects on SMEs located in Budapest, therefore, to offer suggestions for improvements to SME policies in the future. In response to the gap identified before, this research answered the following research questions: What kind of government policy do SMEs located in Budapest need during COVID-19? How will the profit grow with the policies?

The theoretical significance of this research is to enrich research about the impact of SME policies in Hungary, develop more targeted SME policies and provide guidance for the formulation of SME policies nowadays and in the future. The practical significance of the study is listed below: first, it enhances the effectiveness of SME policies in response to COVID-19 to boost the economy. Second, it provides a reference for establishing a system for public health emergencies in the future. Third, it guides enterprises to make use of policies to reduce risks. A promising line of research in the future would be quantifying the effects of Hungarian SME policies with dynamic models using software such as the DSGE model.

3. METHODOLOGY

3.1. Research design

This research was conducted in two phases, as shown in Figure 1. The purpose of the preliminary research is to test the scale's reliability and to modify the questionnaire, and the official research aims at testing the model and the research hypotheses.

Phase 1 - preliminary research, consists of a literature review, questionnaire design, and preliminary quantitative study. The literature review from 15 August to 23 September provided reference to form the research strategy, and dependent and independent variables for this research. The research was carried out quantitatively by sending both online and offline questionnaires. Much of the current literature on COVID-19 and SMEs adopted quantitative survey method, for instance, Karacsony et al. (2022), Beraha & Đuričin (2020), Ma et al. (2021), and Le et al. (2020).

The questionnaire was designed during Sep. 26th - Sep. 30th, written in three languages, Hungarian, Chinese, and English. The questionnaire contained 13 questions and was designed to provide insight on employees' understanding of SME policies during COVID-19.

The questions were organized along three thematic blocks. The first block relates to the general information about an enterprise, such as which category of SME, geographic district, primary industry classification, number of years in operation, nationality of enterprise owner, and business model (online/ offline). The second block includes pandemic-related questions, for instance, the current operation situation, adverse effects of the pandemic, crisis management solutions and covering time needed. Finally, the third block connects to the needed policies and estimated corresponding profit increase. The single- and multiple-choice questions with a set of predefined options are used in the first block and second block, and 5-point Likert-scale is developed to rate every item of the third block, with “no need at all”, “may not need”, “not sure”, “may need” or “need”.

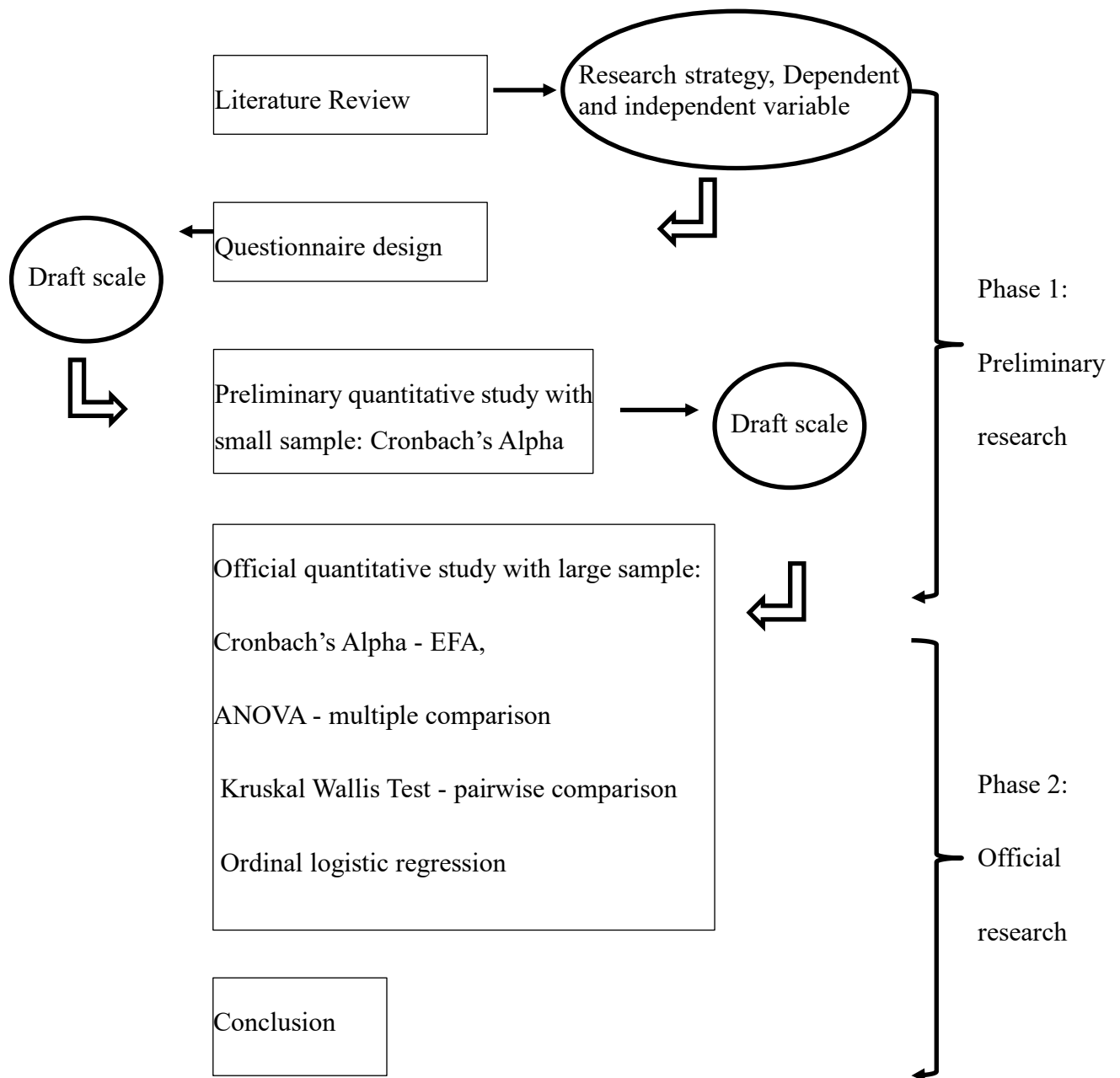


Figure 1. Research Design

Source: Author's proposal

To adjust several questionnaire options accordingly before entering the official research phase, the preliminary quantitative study was conducted with a small sample between 1 October and 2 October 2022. The official quantitative study was conducted between 3rd – 7th November 2022. The Cronbach's Alpha, EFA, one-way analysis of variance (ANOVA), multiple comparisons, Kruskal Wallis Test, pairwise comparisons, and

ordinal logistic regression were applied for the quantitative research part. At last, the conclusion was drawn.

3.2. Research Model

Figure 2 denotes the research model below.

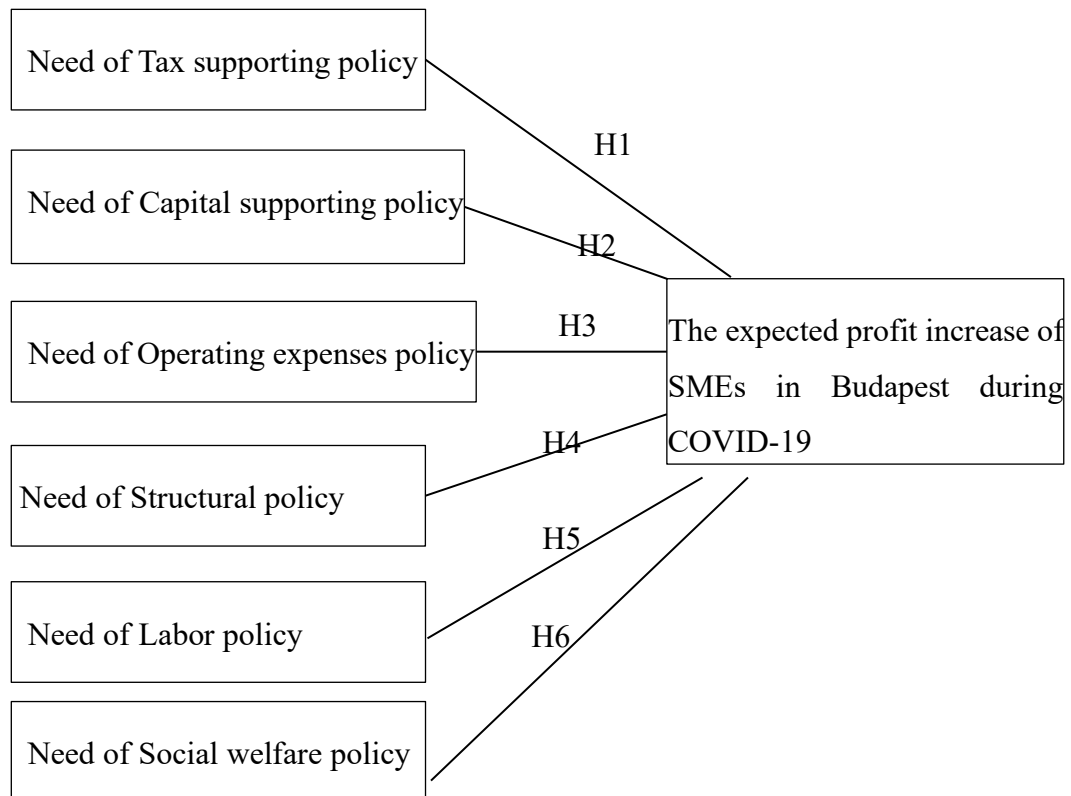


Figure 2. Research model

Source: Author's proposal

The hypotheses are listed below:

H1. There is a positive relationship between the need for government's tax supporting policy and expected profit increase of SMEs in Budapest during COVID-19.

H2. There is a positive relationship between the need for the government's capital supporting policy and expected profit increase of SMEs in Budapest during COVID-19.

H3. There is a positive relationship between the need of the government's operating expenses policy and expected profit increase of SMEs in Budapest during COVID-19.

H4. There is a positive relationship between the need of government's structural policy and expected profit increase of SMEs in Budapest during COVID-19.

H5. There is a positive relationship between the need of government's labor policy and expected profit increase of SMEs in Budapest during COVID-19.

H6. There is a positive relationship between the need of government's social welfare policy and expected profit increase of SMEs in Budapest during COVID-19.

3.3. Materials and methods

3.3.1. Data Collection Methods

The equation to yield a representative sample for a large population was developed by Cochran (1963).

$$N = \frac{Z^2 p(1 - p)}{e^2}$$

Symbol e is devoted to the margin of error, which shows how close the sample results are to the result of real population. In this research, e is set as 10%. Z is related to confidence level, the certainty about the sample results representing the entire population within the set margin of error. The corresponding value of Z is 1.96 at the 95% confidence level. Symbol p means the estimated proportion of an attribute in the population. And p indicates possible variation and is chosen to be 0.5 in this research.

$$N = \frac{1.96^2 * 0.5 * (1 - 0.5)}{0.1^2} \approx 97$$

So the minimum sample size of this research is 97.

For EFA, the minimum sample size should be 5 times the total number of observed variables (Hair, Black, Babin, & Anderson, 2009). From the 9. table, it's clear that the research consists of 20 observation variables, so the minimum sample size needed is 100. The size of this research's sample, 152, satisfies this requirement. For multinomial logistic regression, a min. of 10 cases per independent variable is required (Schwab, 2002). The structure of this research sample also satisfies this requirement.

As mentioned before, this research contains preliminary research and official research. During preliminary research, the questionnaires were sent offline with a small sample (10 SME employees from Chinatown in Budapest) between 1 October and 2 October 2022.

The official survey was conducted in Budapest with the participation of employees of SMEs. The questionnaires were sent both online and offline from 3rd – 25th October 2020.

The online respondents were selected mainly by stratified random sampling. Stratified random sampling is a method that involves the division of a population into subgroups. First the author first divided the SMEs into 15 types according to the services/products they provide: travel agency, accommodation, catering, sports, cultural events organizers, retail, wholesale, agriculture, IT, construction, financial consulting, beauty industry, medical service, light industry, and others. Then the classifications were used as keywords on Google Maps, the potential respondents were chosen based on the rate of Google reviews. After the email addresses of chosen SMEs were collected, the author sent the link of questionnaire and a short description of the research. The stratified random sampling was chosen because of the representative industry distribution of SMEs within the sample. Besides, the author also sent link to the SMEs on the list of "KKV TOP100" online. The questionnaires were sent through mailing lists to approximately 794 potential respondents, and 83 evaluable responses were returned. The response rate was around 10.5%, which was rather low.

The offline questionnaires were first given to the employees of SME involved in wholesale and beauty industry in Chinatown, because there were little online respondents from these industries. The questionnaires collected included 10 from wholesale, 5 from beauty industry, 5 from restaurants, and 1 from travel agencies during 14 October and 16

October. Then convenience sampling was used during 21 October and 25 October, when the author sent questionnaires near Freedom Bridge and Papp László Sportaréna to people who took a rest around the square. And the sum of the questionnaires gathered was 69.

In total, the authors have collected 152 questionnaires both online and offline.

3.3.2. *Data Analysis Methods*

Both preliminary and official research used quantitative research methods. After receiving the questionnaires, the author encoded the necessary information, entered and analyzed the data with SPSS software version 26.0.

First, Cronbach's alpha test was conducted to test the internal consistency of each scale and the whole research. Then statistical assumptions, Kaiser–Meyer–Olkin (KMO) and Bartlett's test of sphericity, were tested. And EFA was conducted using the principal component analysis (PCA) extraction method, and Varimax rotation to maximize variance. After the removal of variables not meeting the requirements, then the above steps were repeated to determine the optimal number and scale of factors.

Factors	Observational variables	Variable codes
Tax supporting policy (X ₁)	Value-Added Tax decrease	TS1
	Local Tax (HIPA) decrease	TS2
	Income/corporate tax decrease	TS3
	Tourism tax waiver/decrease	TS4
Capital supports policy (X ₂)	Debt moratoriums	CS1
	Loan guarantees	CS2
	Grants and subsidies	CS3
Operating expenses policy (X ₃)	Rent waiver/cut	OE1
	Electricity price cut	OE2
	Gas price cut	OE3
Structural policies (X ₄)	Innovation	SP1

	Job creation	SP2
	Sustainability	SP3
	Digitalization	SP4
Labor policy (X ₅)	Fringe benefits alteration ⁶	LP1
	Short-time ⁷	LP2
	Working time banking ⁸	LP3
Social welfare policy (X ₆)	Family tax allowance	SW1
	Social contribution	SW2
	Job-seeker benefit	SW3

9.table: Hypothesized influencing factors and test outcome

Source: Author's proposal

Test of normality of data is a prerequisite for Anova, because the continuous data can only be presented in mean value and calculated its *p* value when following normal distribution. According to SAS Institute (1991), Shapiro-Wilk test is for $n < 50$ and the standard Kolmogorov-Smirnov test is for $n > 50$, so the Kolmogorov-Smirnov test was adopted in this research ($n=152$). Central limit theorem demonstrated that when $n \geq 100$, violation of the normality is not a major issue (Altman & Bland, 1995). The numerical methods should be combined with graphical method, and P-P Plot was applied in this research. For those policies whose data doesn't show normal distribution, non-parametric Kruskal-Wallis Test instead ANOVA was applied (Walpole, Myers, Myers, & Ye, 2017).

In this research, dependent variable "profit increase" is an ordinal variable, with "1= may not", "2 = $0 < x \leq 30\%$ ", "3 = $30 < x \leq 60\%$ ", "4= $60 < x \leq 100\%$ ", "5 = $100\% < x$ ". Therefore, an ordered logit model was developed in this research.

⁶ Category of catering sub-account expends, and amounts of three subaccounts can be used for each other.

⁷ Employees with worktime reduction due to COVID-19 can apply for government's subsidy.

⁸ More working days with longer daily working time for those who worked less during the pandemic but with the same salary.

As for ethical consideration, the questionnaire is anonymous to protect respondents' privacy. Besides, all respondents were informed about the objectives and purpose of the research through the note below the questionnaire title, and continuing to fill out the questionnaire is considered as consent to use of their data in this research.

The main limitation of this research is that it's not a representative sample with such a small sample size, so the results are inconclusive for all SMEs in Budapest and shall not be generalized beyond this sample.

4. RESULTS

4.1. The Profile of the sample

From 10. table, we could clearly see the information of the enterprises in this research, including enterprise type, main service/products, operation in years, business model, enterprise location and nationality of the main owner.

There are 59.20% of respondents work in a micro enterprises, 23.00% of respondents are from small enterprises, and 17.80% of respondents work in a medium enterprise. More than half of businesses (51.3%) operate online and offline. 37.5% of respondents work in only offline enterprises, and 11.2% of them work for web shops.

As for their operation in years, almost one third of them (30.3%) have operated for no more than 5 years. And nearly one quarter of them (23.7%) have operated for more than 5 years and no more than 10 years. Businesses operating more than 10 years but no more than 20 years account for 25%. And 13.80% of respondents work in an enterprise that has operated more than 20 years and no more than 30 years. 5 respondents's enterprises have operated for more than 30 years and no more than 40 years. And the number of respondents from an enterprise that has operated more than 40 years and no more than 50 years, more than 50 but less than 100 years, more than 100 years are the same, 2, each taking up 1.30%.

Among listed services and products, most respondents provide catering services, taking up 12.50%. The second highest proportion, 8.55% of respondents, are involved in the construction industry. Accommodation, retail and sports service providers account for the same percentage in this research, 7.89%. The percentage of medical service providers is 6.48%. And the figure for travel agency is 5.92%. The number of respondents working as cultural events organizers, IT workers and beauty service providers are the same, 8, each accounting for 5.26%. The number of respondents from the light industry is 4, taking up 15.13%. And there were only 2 respondents from the agriculture industry and the financial consulting industry, the percentage of which is 1.32%, and 0.66% respectively.

Variable	N	%	Variable	N	%
Enterprise type			Enterprise location (district)		
Micro enterprise	90	59.20	I.	3	2
Small enterprise	35	23.00	II.	7	4.6
Medium enterprise	27	17.80	III.	3	2
Main service/products			IV.	5	3.3
Travel agency	9	5.92	V.	12	7.9
Accommodation	12	7.89	VI.	12	7.9
Catering	19	12.50	VII.	12	7.9
Sports	12	7.89	VIII.	13	8.6
Cultural Events	8	5.26	IX.	6	3.9
Retail	12	7.89	X.	24	15.8
Wholesale	11	7.24	XI.	10	6.6
Agriculture	2	1.32	XII.	5	3.3
IT	8	5.26	XIII.	14	9.2
Financial consulting	1	0.66	XIV.	7	4.6
Construction	13	8.55	XV.	8	5.3
Beauty	8	5.26	XVI.	2	1.3
Medical service	10	6.58	XVIII.	2	1.3
Light industry	4	2.63	XX.	3	2
Others	23	15.13	XXI.	1	0.7
Operation in years			XXII.	2	1.3
$0 < X \leq 5$	46	30.30	XXIII.	1	0.7
$5 < X \leq 10$	36	23.70	Nationality of main enterprise owner		
$10 < X \leq 20$	38	25.00	Hungarian	93	61.18
$20 < X \leq 30$	21	13.80	European within EU region	11	7.24
$30 < X \leq 40$	5	3.30	European out of EU region	2	1.32
$40 < X \leq 50$	2	1.30	Asian	43	28.29
$50 < X \leq 100$	2	1.30	African	1	0.66
$X > 100$	2	1.30	North American	2	1.32
Business model					
Online only	17	11.20			
Offline only	57	37.50			
Online and offline	78	51.30			

10. table: Profile of the sample (n=152)

Source: Author's research

This research has respondents from almost every district, except XVII and XIX districts. Most of the respondent's enterprises (12) locate in X. district, taking up 15.8%. The number of respondents working in V., VI., VII., VIII. districts are a half of that in X district, 12, accounting for 7.9% each. There are 14 respondents who work in XIII district, the percentage of which is 9.2%. And 5.3% of respondents work in XV. District. The number of II. district and XIV. district respondents are both 7, the proportion of total respondents is 4.6% each. The number of respondents whose workplace is in IX. districts are 6, the corresponding percentage is 3.9%. The number of respondents whose enterprises are located in IV. and VII. Districts is the same, 5, both taking up 3.3%. Fewer respondents work in the remaining districts. There are 3 respondents each from I., III., and XX. district, and 2 respondents from XVI., XVIII., XXII. district and only 1 respondent from XXI., XXIII. district, the proportion of them are 2%, 1.3% and 0.7% respectively.

93 out of 152 enterprises are mainly owned by Hungarian, accounting for 61.8%. The main owner of 43 enterprises is Asian, taking up 28.29%. There are 13 enterprises owned by non-Hungarian Europeans, 11 of them come from the EU region and only 2 of them are from non-EU area. There are also 1 African-owned business and 2 north American-owned businesses.

4.2. The SMEs located in Budapest and COVID-19

Figure 3 below provides SME employees' perceptions regarding the adverse effects of COVID-19. It's clear that almost half of the respondents, 67 or 68, perceived inflation, a decrease of demand and revenue. Around one third of them, 47 respondents, pointed out the problem of canceled orders. Commercial transportation became the barrier for 35 SMEs. And around 30 SMEs lacked both raw materials and labor during COVID-19. And 25 SMEs were faced with employee health issues. The stock problem, Lack of investment and decreased working time were recognized by 18, 16 and 15 SMEs employees respectively. It's important to highlight that 12 respondents didn't perceive any adverse effects of the pandemic.

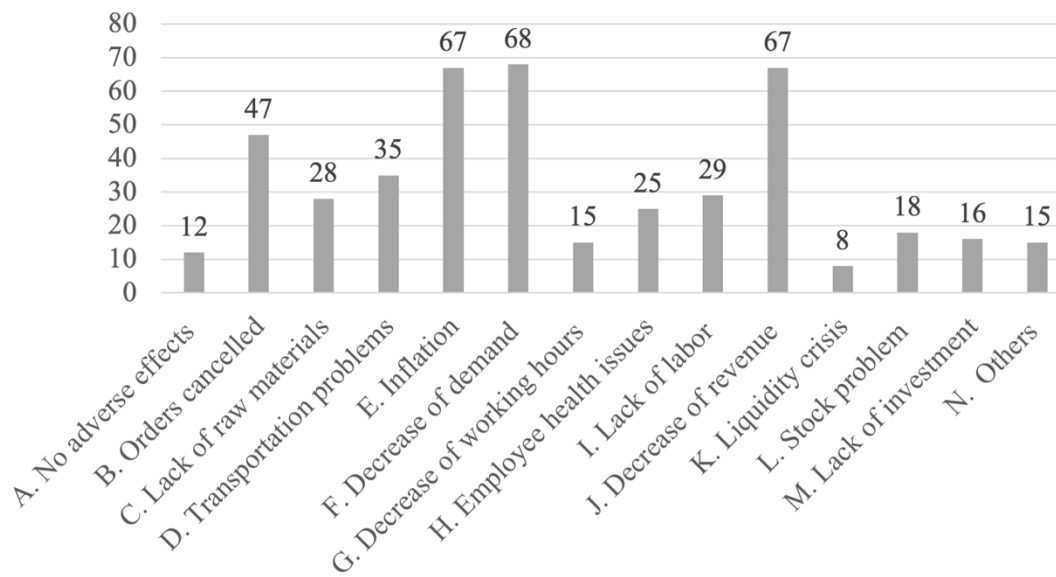


Figure 3. Adverse effects of COVID-19

Source: Author's survey

Figure 4 below demonstrates crisis management taken by SMEs in response to COVID-19.

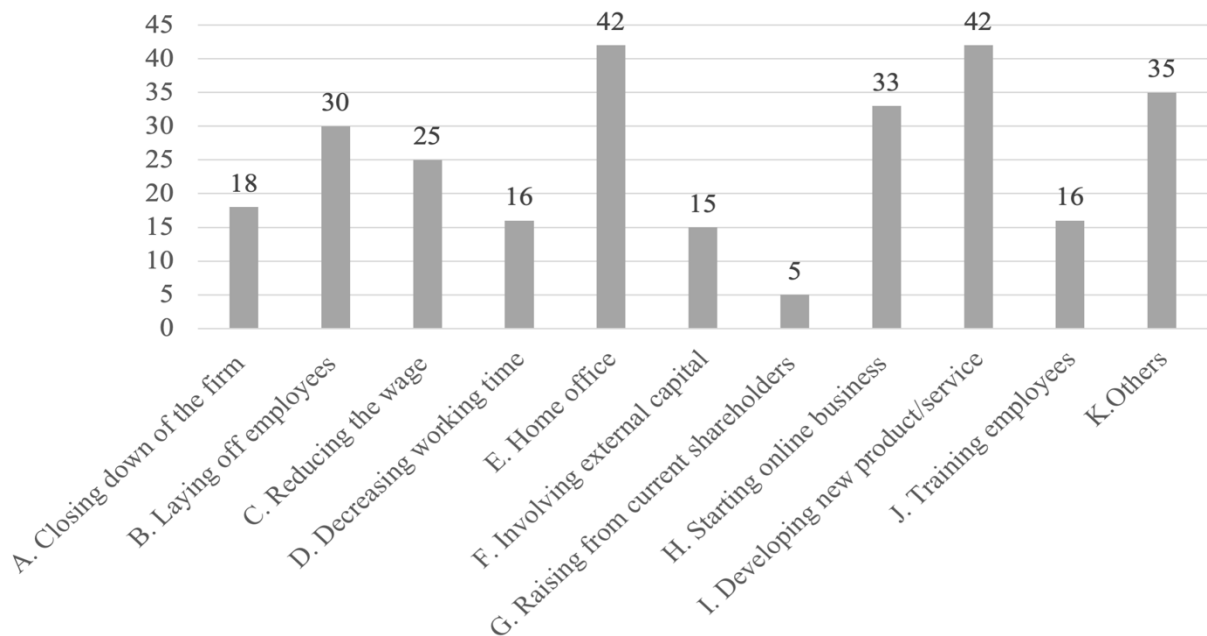


Figure 4. Crisis management taken by SMEs in response to COVID-19

Source: Author's survey

As shown, the most frequent solution chosen by 42 employees are home office and developing new products and services. 33 SMEs started online business during the pandemic. Around one fifth (30) SMEs laid off employees and 25 of them reduced employees' wage. 18 SMEs shut down their business during COVID-19. 16 business decreased working time and provided training for employees. From the point of capital, 15 enterprises involved external capital and 5 raised from current shareholders. There were also other measures taken by 35 enterprises.

The Figure 5 below illustrates the current operation situation of respondents. 72% of respondents are in totally normal operation, and 22% of them are still suffer from COVID-19. And among those SMEs that both operates online and offline, 3% of them only have online business currently. And 3% of the SMEs are still closed. In conclusion, the current situation is mainly positive.

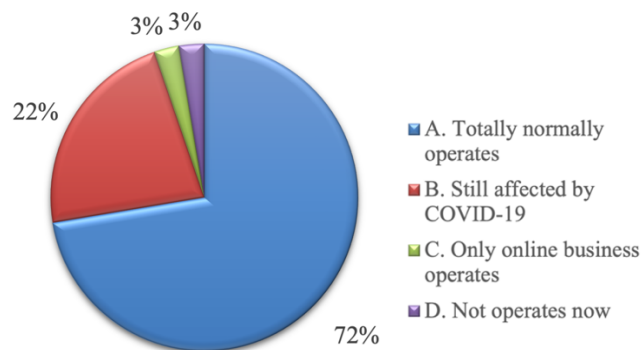


Figure 5. Current operation situation

Source: Author's survey

Figure 6 below reveals the respondents' opinion about the time needed for their business to recover from the pandemic. Most of respondents think the recovery would take 1-3 years, accounting for 39.5%. And 27% of respondents believe that the business already recovered from the pandemic. The number of those who hold the view that the time would be 0-1 year and 3-5 years is close, 13.8% and 15.1% respectively. Only 2% of respondents think their business would still be affected by the pandemic even in more than 5 years. And 2.6% of respondents believe the damage caused by COVID-19 couldn't be fixed. In

conclusion, a large part of respondents holds positive views about recovering from the pandemic.

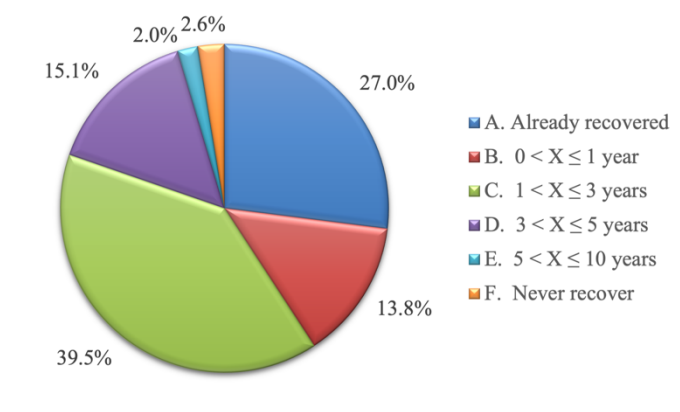


Figure 6. time needed for recovery from COVID-19

Source: Author's survey

4.3. Data analysis

4.3.1. EFA

In this research, the variables were chosen based on the SME policies during COVID-19, and the factors were hypothesized by the author to collect enough variables for each factor. To identify factors that indeed explain the correlation in a variable set, the EFA was used through SPSS 26. version.

The reliability was assessed by corrected item-total correlation and Cronbach's alpha coefficient. The value of the corrected item – total correlation should be more than 0.3 , and Cronbach's Alpha value should be greater than 0.7 (Nunnally & Bernstein, 1994). The 11. table informs that every scale developed by the author is acceptably reliable, and the whole research is highly reliable.

EFA can be conducted when the value of the KMO index is greater than 0.70 and the significance of Bartlett's test of sphericity is less than 0.001 (Field, 2009). The results in 12. table show the KMO= .830 and Sig < .001, which means that the EFA can be applied in this study.

Items with factor loadings $< .5$ should be removed (Hair et al., 2009). 13. table indicates the rotated component matrix, where variables with factor loadings $> .5$ are bolded.

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
LP1	6.96	3.535	.613	.459	.695
LP2	6.59	4.230	.612	.476	
LP3	7.78	5.486	.338	.793	
SW1	7.35	5.076	.660	.677	
SW2	7.04	5.548	.610	.732	.788
SW3	7.26	4.987	.617	.726	
TS1	10.13	11.201	.583	.754	
TS2	10.22	10.082	.783	.657	
TS3	10.16	11.397	.520	.785	.794
TS4	10.47	10.529	.558	.770	
OE1	7.93	5.988	.733	.928	
OE2	7.58	6.086	.828	.843	
OE3	7.59	5.979	.867	.811	.903
CS1	7.39	5.232	.627	.758	
CS2	7.20	5.007	.708	.669	
CS3	6.88	5.779	.621	.762	
SP1	10.93	10.775	.681	.845	.867
SP2	10.78	11.439	.658	.853	
SP3	11.01	9.620	.791	.799	
SP4	10.87	10.457	.745	.819	

11. table: Reliability test before modification

Source: Author's data analysis

KMO and Bartlett's Test ^a		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	1788.070
	df	190
	Sig.	.000

a. Based on correlations

12. table: KMO and Bartlett's Test^a before modification

The only removed variable is LP3, according to the 13. table below. The optimal number of factors depends on latent root criteria (eigenvalues > 1.0 , the Kaiser's criterion K1) with scree plot (Field, 2009). The 5 factors satisfy the above requirements, so the optimal number of factors are 5. The only difference between the outcome and the hypothesized factors is that LP1, LP2, SW1, SW2, SW3 are grouped into one factor, which makes sense since both labor policy and social welfare policy aim at employees and other policies at enterprises. And the LP2, LP1, SW2, SW1, SW3 are renamed as EP1, EP2, EP3, EP4 and EP5.

Rotated Component Matrix ^a					
	Component				
	1	2	3	4	5
LP2	.823	.132	-.035	.163	.044
LP1	.790	.189	-.033	.017	.145
SW2	.670	.042	.34	.087	.119
SW1	.668	.089	.344	.141	.147
SW3	.654	.154	.323	.209	.247
SP4	.106	.865	.171	.075	.015
SP3	.116	.845	.265	.103	.013
SP2	.231	.705	.131	.206	.208
SP1	.099	.616	.423	.321	.142
LP3	.392	.433	-.100	.024	.252
TS2	.196	.113	.805	.288	.156
TS1	.253	.129	.666	.105	.267
TS4	.121	.221	.654	.162	.181
TS3	-.053	.307	.645	.258	-.041
OE3	.125	.214	.257	.868	.171
OE2	.174	.259	.211	.851	.158
OE1	.247	.026	.439	.693	.219
CS2	.184	.119	.138	.143	.812
CS1	.194	-.045	.182	.108	.802
CS3	.108	.230	.132	.164	.763
Eigenvalue	7.773	2.063	1.744	1.337	1.006
Cumulative %	38.866	49.179	57.900	64.584	69.613

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 7 iterations.

13. table: Rotated Component Matrix^a before modification

Source: Author's data analysis

As seen in the 14. table, all the remaining 19 observed variables' value is above the thresholds, indicating that every item is well associated with the corresponding scale and the research also has excellent internal consistency.

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha	
EP2	14.89	16.532	.628	.815	.841	
EP1	14.53	17.364	.680	.801		
EP4	15.13	17.037	.636	.811		
EP3	14.82	17.595	.619	.816		
EP5	15.03	16.270	.671	.802		
TS1	10.13	11.201	.583	.754	.794	
TS2	10.22	10.082	.783	.657		
TS3	10.16	11.397	.520	.785		
TS4	10.47	10.529	.558	.770		
OE1	7.93	5.988	.733	.928	.903	.914
OE2	7.58	6.086	.828	.843		
OE3	7.59	5.979	.867	.811		
CS1	7.39	5.232	.627	.758	.804	
CS2	7.20	5.007	.708	.669		
CS3	6.88	5.779	.621	.762		
SP1	10.93	10.775	.681	.845	.867	
SP2	10.78	11.439	.658	.853		
SP3	11.01	9.620	.791	.799		
SP4	10.87	10.457	.745	.819		

14. table: Reliability test after modification

Source: Author's data analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.839
Bartlett's Test of Sphericity	Approx. Chi-Square	1723.605
	df	171
	Sig.	.000

15. table: KMO and Bartlett's Test^a after modification

Source: Author's data analysis

The results in 15. table shows the KMO= .839 and Sig < .001, so the EFA can be adapted in the research.

And as seen in the 16. table, the modified 6 factors' loading ranging from .627 to .872, which are appropriate for this research. This value of cumulative reaches 71.711%, which means 71.711% of the variation could be explained by 5 factors: Employee policy (EP), Tax supporting policy (TP), Capital supports policy (CS), Operating expenses policy (OE), Structural policies (SP).

Rotated Component Matrix ^a					
	Component				
	1	2	3	4	5
EP1	.833	.137	-.060	.158	.058
EP2	.801	.194	-.061	.011	.161
EP3	.676	.052	.329	.085	.124
EP4	.659	.161	.309	.208	.254
EP5	.658	.072	.364	.145	.138
SP4	.118	.872	.138	.068	.029
SP3	.125	.848	.241	.097	.023
SP2	.248	.720	.088	.197	.228
SP1	.117	.646	.381	.314	.160
TS2	.197	.134	.803	.293	.154
TS4	.119	.227	.664	.164	.174
TS1	.256	.148	.654	.109	.270
TS3	-.047	.335	.627	.261	-.037
OE3	.130	.228	.242	.866	.176
OE2	.170	.257	.211	.852	.155
OE1	.247	.038	.437	.695	.217
CS2	.197	.134	.108	.137	.828
CS1	.181	-.071	.209	.112	.790
CS3	.113	.230	.114	.162	.771
Eigenvalue	7.608	2.042	1.658	1.314	1.004
Cumulative %	40.04	50.787	59.512	66.428	71.711

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

16. table: Rotated Component Matrix^a after modification

Source: Author's data analysis

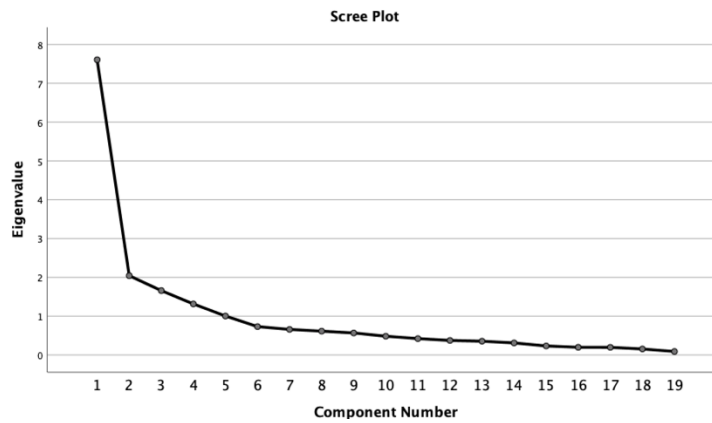


Figure 6. Scree Plot

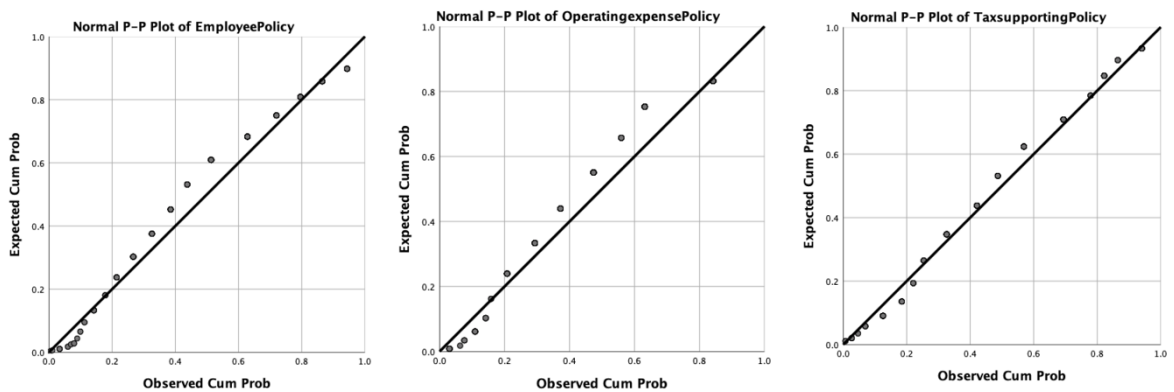
Source: Author's data analysis

Combining the Scree Plot reported in Figure 6. where the turning point of eigenvalues is 6, 5 factors should be retained as significant, which is insistent with the above conclusion.

4.3.2. ANOVA and multiple comparisons test

Test of normality of data is a prerequisite for ANOVA. Since $n=152$ in this research, the numerical method, Kolmogorov-Smirnov test, was adopted. The graphical method, P-P Plot was also applied in this research.

According to the dispersion situation of observation points around the expected straight line in figure 8, the data of tax supporting policy, capital supporting policy, and structural policy can be identified as normal distribution.



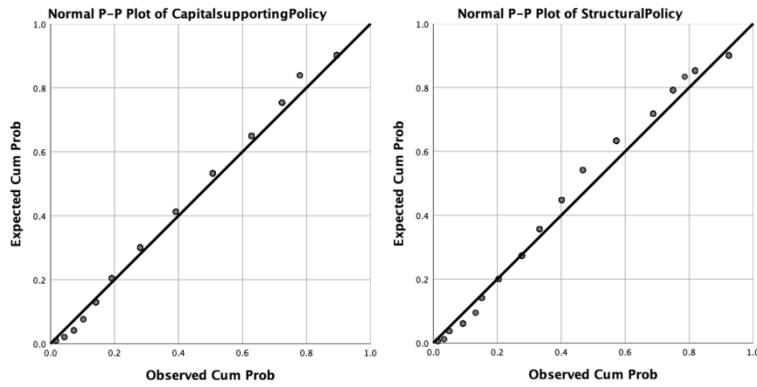


Figure 8. P-P plots of policies

Source: Author's data analysis

The Kolmogorov-Smirnov test is presented in the 17. table, p value $< .05$ are marked red. The data of tax supporting policy and capital supporting policy are totally accepted as the normal distribution. Combining the P-P plots above, these three policies were accessed by the test of homogeneity.

	Profit increase	Kolmogorov-Smirnova	
		df	Sig.
Employee policy	may not increase	17	.200*
	(0,30%]	70	.000
	(30,60%]	44	.200*
	(60,100%]	16	.018
	(100%, $+\infty$)	5	.200*
Tax supporting policy	may not increase	17	.000
	(0,30%]	70	.058
	(30,60%]	44	.105
	(60,100%]	16	.200*
	(100%, $+\infty$)	5	.200*
Operating expenses policy	may not increase	17	.200*
	(0,30%]	70	.004
	(30,60%]	44	.000
	(60,100%]	16	.011
	(100%, $+\infty$)	5	.001
Capital supporting policy	may not increase	17	.171
	(0,30%]	70	.082
	(30,60%]	44	.057
	(60,100%]	16	.113

	(100%, $+\infty$)	5	.200*
	may not increase	17	.200*
	(0,30%]	70	.017
Structural policy	(30,60%]	44	.000
	(60,100%]	16	.164
	(100%, $+\infty$)	5	.026

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

17. table: Tests of Normality

Source: Author's data analysis

It can be seen that the p value of tax supporting policy, capital supporting policy and structural policy are 0.194, 0.455, 0.403 respectively, all $> .05$, proving that the homogeneity assumption of the variance is met. Then ANOVA could be conducted as next step.

	Levene Statistic	df1	df2	Sig.
Tax supporting Policy	1.538	4	147	.194
Capital supporting Policy	0.919	4	147	.455
Structural Policy	1.013	4	147	.403

18. table: Test of Homogeneity of Variances based on mean

Source: Author's data analysis

As shown in 19. table, in ANOVA test, the p value of tax supporting policy, capital supporting policy, structural policy all $< .05$, indicating that there are significant differences within the expected profit increase group on the need for tax supporting policy, capital supporting policy and structural policy.

	Sum of Squares	df	Mean Square	F	Sig.
Tax supporting Policy	29.472	4	7.368	7.728	.000
Capital supporting Policy	25.136	4	6.284	5.831	.000
Structural Policy	30.415	4	7.604	8.020	.000

19. table: ANOVA between groups

Source: Author's data analysis

To explore the significance between the options of profit increase and each policy, Bonferroni Multiple Comparisons were conducted. In the 20. Table, the author only listed the items with p value less than .05, and omitted the $I-j$ part expressing the same relationship. Compared to those who chose their profit “may not increase”, those SMEs believing their profit would boost more than 100% have the highest need for tax supporting policy, followed by those expecting “(30,60%]”, “(60,100%]”, “(0,30%]” of profit growth. Regarding the need for capital supporting policy, there is no significant difference between those enterprises who suppose “may not increase” and “more than 100% profit increase”. Compared to “may not increase” option, the need of capital supporting policy increases as the expected profit growth increase. As for structural policy, those supposing (0,30%] of profit rise need it more than the enterprises predicting (30,60%] of profit rise. And compared to “may not increase” option, the need of structural supporting policy increases as the expected profit growth increase.

Dependent Variable	(I) Profit increase	(J) Profit increase	Mean Difference (I-J)	Sig.	95% CI	
					Lower Bound	Upper Bound
Tax supporting Policy	may not	(0,30%]	-.903*	.008	-1.655	-.151
		(30,60%]	-1.438*	.000	-2.233	-.644
		(60,100%]	-1.244*	.004	-2.213	-.274
		(100%, +∞)	-1.703*	.008	-3.119	-.287
Capital supporting Policy	may not	(0,30%]	-1.201*	.000	-2.001	-.401
		(30,60%]	-1.307*	.000	-2.152	-.462
		(60,100%]	-1.445*	.001	-2.475	-.414
		(30,60%]	-1.270*	.000	-2.063	-.478
Structural Policy	may not	(60,100%]	-1.468*	.000	-2.434	-.501
		(100%, +∞)	-1.665*	.010	-3.077	-.253
		(0,30%]	-.560*	.033	-1.094	-.027

* The mean difference is significant at the .05 level.

20. table: Bonferroni Multiple Comparisons

Source: Author's data analysis

The remaining employee policy factor and operating expenses policy factor were examined by Kruskal Wallis Test, and the results are shown in 21. table. With the p value

of employee policy $> .05$, there is only significant difference within the expected profit increase group on the need for operating expense policy.

	Employee Policy	Operating expense Policy
Kruskal-Wallis H	4.440	20.679
df	4	4
Asymp. Sig.	0.350	.000

21. table: Kruskal Wallis Test with grouping variable: Profit Increase

Source: Author's data analysis

Only the items with *adj. p* value less than .05 are listed in 22. table by the author. As for operating expense policy, those supposing (30,60%] and (60,100%] of profit rise have higher need of it than those enterprises who assume their profit “may not increase”. And compared to the (0,30%] option, those who chose the (30,60%] profit increase are in more need of an operating expense policy.

Sample 1-Sample 2	Test Statistic	Std. Test Statistic	Sig.	Adj. Sig. ^a
may not increase - (60,100%]	-43.961	-2.921	.003	.035
may not increase - (30,60%]	-45.084	-3.654	.000	.003
(0,30%]-(30,60%]	-24.444	-2.941	.003	.033

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

22. table: Pairwise Comparisons of Profit increase

Source: Author's data analysis

4.3.3. Ordinal logistic regression

To explore the policy factors affecting “profit increase”, namely may not, $0 < x \leq 30\%$, $30 < x \leq 60\%$, $60 < x \leq 100\%$, $100\% < x$, which means the dependent variable was ordinally scaled, an ordered logit model was developed in this research.

As seen in 23. table, almost half respondents ($n=70$) think the policies would increase less than 30% of original profit during COVID-19, and 28.9% of respondents believe that the policies would realize more than 30% but no more than 60% profit growth. The number

of respondents who hold the view that the profit may not increase and increase more than 60% but no more than 100% are similar, 17 and 16 respectively. Least people think their profit increase might more than double with government policies, accounting to only 3.3%.

		N	Marginal Percentage
Profit increase	may not	17	11.20%
	$0 < x \leq 30\%$	70	46.10%
	$30\% < x \leq 60\%$	44	28.90%
	$60\% < x \leq 100\%$	16	10.50%
	$x > 100\%$	5	3.30%
Valid		152	100.00%
Missing		0	
Total		152	

23. table: case processing summary

Source: Author's data analysis

The 24. table combines the model fitting Information and test of parallel lines^a. $\chi^2 = 47.203$, $p < .05$, indicating goodness of fit between **the** prediction model for profit increase and data. In the test of parallel lines, $\chi^2 = 14.953$, $p = 0.455 > .05$, proportional odds assumption is held and **the** ordered logit model can be used in this research.

	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Model Fitting	Intercept Only	396.929			
	Final	349.726	47.203	5	.000
Test of Parallel Lines ^a	Null Hypothesis	349.726			
	General	334.773	14.953	15	0.455

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

24. table: Model Fitting Information and Test of Parallel Lines^a

Source: Author's data analysis

As shown in 25.table, the p of Employee policy, Operating expenses policy, and Structural policies are .009, .031, .001 respectively, all $< .05$, so these three policies significantly affect the profit increase of SMEs located in Budapest during COVID-19. Tax supporting policy and capital supporting policy are excluded from the final model. The employee policy adversely influences profit increase, considering the value of β is

negative (-.505). The $EXP(\beta) = .604$, meaning that as the need for employee policy increases by one level, the profit increase will decrease by 0.604 times. Both the operating expenses policy and structural policy help in increasing profit, and the structural policy ($\beta=.607$, $EXP(\beta)=1.835$) are more beneficial than the operating expenses policy ($\beta=.401$, $EXP(\beta)=1.326$).

	β	OR	Sig.	95% C.I.	
				Lower Bound	Upper Bound
Employee policy	-.505	.604	.009	-.883	-.127
Tax supporting policy	.282	1.326	.174	-.124	.689
Operating expenses policy	.401	1.493	.031	.037	.764
Capital supporting policy	.296	1.344	.081	-.037	.628
Structural policy	.607	1.835	.001	.233	.981

Link function: Logit.

25. table: Results of ordinal logistic regression

Source: Author's data analysis

Therefore, the hypotheses of study H3 and H4 are accepted. From the research findings, we have the results of testing the proposed research hypotheses as follows:

Hypotheses	Results	The order affects to dependent variable
H1. There is a positive relationship between the need of government's tax supporting policy and the profit increase of SMEs in Budapest during COVID-19.	Rejected	-
H2. There is a positive relationship between the need of government's capital supporting policy and profit increase of SMEs in Budapest during COVID-19.	Rejected	-
H3. There is a positive relationship between the need of government's operating expenses policy and profit increase of SMEs in Budapest during COVID-19.	Accepted	2
H4. There is a positive relationship between the need of government's structural policy and profit increase of SMEs in Budapest during COVID-19.	Accepted	1

H5. There is a positive relationship between the need of government's labor policy and profit increase of SMEs in Budapest during COVID-19.	Rejected	-
H6. There is a positive relationship between the need of government's social welfare policy and profit increase of SMEs in Budapest during COVID-19.	Rejected	-

26. table: Results of testing the proposed research hypotheses

Source: Author's data analysis

5. DISCUSSION

The recent review of the literature underlined the consequences of COVID-19 on macro-, meso- and microeconomy, and on the SME policy responses in Hungary, much less is known about the policy effects on profit increase Hungarian SMEs. Therefore, the present study sought to develop an understanding of SME policies in Hungary and the effects on SMEs located in Budapest, as a result, to offer suggestions for improvements to SME policies in the future.

First the present study presents the adverse effects perceived during COVID-19 and crisis management taken by SMEs. It's encouraging to compare this with the survey of other researchers. In this research, a decrease of demand (n=68) was reported by most respondents, which is similar to the finding of Karácsony (2020) that the adverse effects for most SMEs in the Western Transdanubia Region of Hungary were decreased product/service demand. According to this survey, reduced working time was chosen by the second fewest respondents (n=15). The most adopted crisis management was the home office (n=42), which also has similarities with the findings of Beraha and Đuričin (2020) that among major changes brought by the pandemic, a home office is on the top and reduced working time is almost at the bottom of the list. One unexpected finding is that only 8 respondents were faced with a liquidity crisis, while a national survey in Hungary in April 2020 showed that half of the respondents were stuck in a liquidity dilemma and solvency could be maintained for only one month without turnover (MNB, 2020).

Then the research included the exploratory factor analysis to prove the hypothesized variables and factors. The results of EFA showed that among the hypothesized six factors, Labor policy and Social welfare policy were grouped into one new factor, Employee Policy, while other variables and factors remained the same. This result could be explained by the fact that both labor policy and social welfare policy aim at employees and other policies at enterprises. The only removed variable was worktime banking due to its low factor loading ($<.5$) on every factor. This regulation means more working days with longer daily working time for those who worked less during the pandemic but with the same salary. A possible explanation is that the people are reluctant to work longer

time. This result also accords with the statements of Kun (2021) that this regulation is unusual and controversial.

Next part of this research was for Bonferroni Multiple Comparisons, Pairwise Comparisons and their pre-tests, to explore differences within the expected profit increase group on the need for five policies above. These were followed by the ordinal logistic regression, figuring out the effect of five factors on the profit increase of SMEs located in Budapest.

For the Employee Policy factor, since its data doesn't follow a normal distribution, it was accessed by Kruskal Wallis Test. The result showed no significant difference within the expected profit increase group on the need for Employee policy. For employee policy, $p < .05$, β is negative (-.505) in the ordinal logistic regression model, proving that the employee policy adversely influences profit increase. The OR value of employee policy is .604, meaning that as the need for employee policy increases by one level, the profit increase will decrease by 0.604 times.

As mentioned before, lack of labor ($n=29$), employee health issues ($n=25$) and a decrease of working hours ($n=15$) already put pressure on the respondents. It seems possible that as the limit of fringe benefits increase and as the working time decreases, the profit of SMEs will be affected. The remaining three included social welfare policies generally are not harmful to the profit of SMEs. Although they are not major components in the Employee Policy, they contributed to lowering the reverse OR value.

This outcome is contrary to that of Chetty et al. (2020) who found that social insurance is helpful in mitigating economic difficulties during the pandemic. The result is also in contrast with the finding of Zhang et al. (2020) that the fiscal policy is effective in improving the output, employment rate and investment of SMEs during COVID-19. Besides, the result differs from the argument of Faia et al. (2013) that short-time work benefits the economy. However, the result supports the point of Balleer et al. (2016) that discretionary short-time work interventions help a little with unemployment and output fluctuations.

For operating expense policy factor, it was also examined by Kruskal Wallis Test. With p value $< .05$, it's decided that there is a significant difference within the expected profit increase group on the need for an operating expense policy. Those supposing (30,60%] and (60,100%] of profit rise have a higher need for operating expense policy than those enterprises who believe their profit "may not increase". And compared to the (0,30%] option, those who chose the (30,60%] profit increase is in more need of an operating expense policy. With $p < .05$, β is positive (1.493) in the ordinal logistic regression model, the operating expense policy has a positive effect on profit increase. The OR value of the operating expense policy is 1.493. Therefore, the profit increase will rise by 1.493 times if the need for operating expense policy increases by one level.

This result is not difficult to explain as the price of gas and electricity shot up nowadays, meanwhile inflation caused trouble to around half of the respondents ($n=67$). It's not surprising that the enterprises need favorable policies to support their utility bills. As for the decrease or waiver of rent, it can also be understood without difficulty, especially for those shutting down ($n=18$) during COVID-19.

This result is supported by the survey conducted in April 2020, claiming that paying public charges and wages led to a liquidity dilemma for SMEs (MNB, 2020). The result is also in line with the survey about China's SMEs that they need policies related to rent subsidies (Zhu et al., 2020).

For Tax Supporting Policy and Capital supporting Policy, their data was confirmed as normal distribution by using the Kolmogorov-Smirnov test and observing P-P plots. The Structural Policy factor didn't satisfy the statistical method, but its P-P plot also suggested that the data follows a normal distribution. With all p value $> .05$, the assumption of the test of homogeneity was held. And all p value $< .05$ in the ANOVA test indicates significant differences within the expected profit increase group on the need for each policy. The Bonferroni Multiple Comparisons were applied then.

For Tax Supporting Policy, compared to those who chose their profit "may not increase", those SMEs believing their profit would boost more than 100% have the highest need for it, followed by those expecting "(30,60%]", "(60,100%]", "(0,30%]" of profit growth. Regarding the need for capital supporting policy, compared to "may not increase" option,

the need for capital supporting policy increases as the expected profit growth increase. Contrary to expectations, this study didn't find a significant relationship between the need for Tax Supporting Policy ($p=.174$) / Capital Supporting Policy ($p=.081$) and profit increase.

This finding isn't supported by the previous literature. Le et al. (2020) confirmed the importance of capital support from the government and tax policies for SMEs in Thanh Hoa province of Vietnam. Zhang, Li and Liang (2020) pointed out that tax supporting policies are effective in China during the pandemic. Demmou et al. (2020) found that wage subsidy, debt moratorium and tax deferral are significant in improving firms' liquidity. Gourinchas et al. (2020) pointed out that SMEs' liquidity shortage can be addressed by short-term loans and working capital.

There are two possible explanations: first, the sample size is too small to present a proper finding; second, the majority of respondents need these two policies. According to Bonferroni Multiple Comparisons are shown in 20. table, there is a significant difference only between "may not decrease" and other groups on the need for operating expense policy and Tax Supporting Policy, and the value of mean difference is very close between groups, so it might be the situation that no matter which profit increase option the respondents chose, the need for operating expense policy and Tax Supporting Policy is similar.

For structural policy, those supposing (0,30%] of profit rise need it more than the enterprises predicting (30,60%] of profit rise. And compared to "may not increase" option, the need for structural supporting policy increases as the expected level of profit growth increases. With $p < .05$, β is positive (0.607) in the ordinal logistic regression model, the operating expense policy has a positive effect on profit increase. The OR value of the operating expense policy is 1.835. Therefore, the profit increase will rise by 1.835 times if the need for structural expense policy increases by one level.

This finding could be explained by the fact that the outbreak of COVID-19 raised people's awareness of innovation and digitalization, which could develop new markets, attract new customers, and improve production efficiency. In this research, 33 SMEs started online businesses and 42 developed new products / services. And in such a crisis when the

economy has been hit hard, policies related to job creation would also encourage the enterprises to promote production capacity. As for sustainability, it could be divided into social and environmental parts. The social sustainability policies could help enterprises in less developed areas, which constantly contribute to the profit increase of SMEs and the local economy. Environmental sustainability is closely connected with green but expensive energy, so it always needs government support.

The result matches the statement of the National Bureau of Economic Research (Gourinchas et al., 2020) that public support to SMEs could prevent temporary layoff or furlough becoming unemployment. This result is also in agreement with the statement of Ulas (2019) that digitalization could help SMEs in achieving benefits such as productivity improvements, cost reductions and innovation, and government assistance is regarded as a significant stimulation. Besides, this result confirms the active effects of innovation-related policies on SMEs put forward by Juergensen et al. (2020).

6. CONCLUSION

In this research, the aim was to assess the effects of the government's policies on SMEs in Budapest, therefore, propose targeted policy recommendations to promote the economic recovery of SMEs. The subject of the research is SMEs in Budapest.

This research proved the positive effect of the need of the government's operating expenses policy / structural policy, and the adverse effect of employee policy on expected profit increase of SMEs in Budapest during COVID-19. This research also indicated SME's general need for tax supporting policy and operating expense policies.

This research has provided a deeper insight into the effect of SME policies in Hungary, and could contribute to developing more targeted SME policies and provide guidance for the formulation of SME policies nowadays and in the future. The practical significance of the study is listed below: first, it enhances the effectiveness of SME policies in response to COVID-19 to boost the economy. Second, it provides a reference for establishing a system for public health emergencies in the future. Third, it guides enterprises to make use of policies to reduce risks.

The scope of this research is limited with such a small sample size, so the results are not representative and conclusive for all SMEs in Budapest and shall not be generalized beyond this sample.

A further study could quantify the effects of Hungarian SME policies with dynamic models using software such as the DSGE model.

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