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ECONOMETRICS

An analysis of the GVA effects and
employment supported by lending
to MSMEs in Romania.

Impacts of an MSME lending portfolio – Banca Transilvania

Final Report

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Key findings



MSME portfolio as at 31/12/2024 in SFF (annual change in values in parentheses)

	RON 15,694.4m (+ 5.6%)	Portfolio value
	63,567 (+ 4.1%)	MSMEs financed
	389,157 (- 1.2%)	Employees in MSMEs financed






Portfolio by segment

	Female-owned	RON 3,239.2m	Portfolio value
		20,408	MSMEs financed
		101,353	Employees in MSMEs
	Youth-owned	RON 92.4m	Portfolio value
		1,258	MSMEs financed
		2,965	Employees in MSMEs
	Start-ups	RON 615.2m	Portfolio value
		5,714	MSMEs financed
		11,116	Employees in MSMEs
	Self-employed farmers	RON 512.1m	Portfolio value
		2,436	MSMEs financed
		2,436	Employees in MSMEs
	Other MSMEs	RON 11,235.5m	Portfolio value
		33,751	MSMEs financed
		271,287	Employees in MSMEs

Total impacts as at 31/12/2024 (annual change in values in parentheses)

		RON 33,247m (+ 6.3%)	Gross output impacts
		RON 13,494.4m (+ 7.3%)	GDP impacts
		RON 12,249.1m (+ 6.7%)	GVA impacts
		98,700 (+ 2.9%)	Workers supported
 RON 1m in loans leads to		RON 2.12m (+ 0.5%)	Gross output impacts
		RON 0.86m (+ 1.2%)	GDP impacts
		RON 0.78m (+ 0.0%)	GVA impacts
		6.3 (- 3.1 %)	Workers supported

Impacts by segment

	Female-owned	RON 7,058.2m	Gross output impacts
		RON 2,647.8m	GVA impacts
		20,200	Workers supported
	Youth-owned	RON 197.9m	Gross output impacts
		RON 74.7m	GVA impacts
		600	Workers supported
	Start-ups	RON 1,295.3m	Gross output impacts
		RON 497.9m	GVA impacts
		2,400	Workers supported
	Self-employed farmers	RON 958.4m	Gross output impacts
		RON 384.1m	GVA impacts
		9,200	Workers supported
	Other MSMEs	RON 23,737.3m	Gross output impacts
		RON 8,644.6m	GVA impacts
		66,300	Workers supported

1 Introduction

1.1. Banca Transilvania

Banca Transilvania's (BT) mission, as a private bank with majority Romanian capital, is to support the business environment and the general public through innovative financial services and products. As a local bank, BT has focused its strategy on developing the national economy and communities. Financial inclusion, helping small businesses reach bankable standard levels, and encouraging the entrepreneurial environment in Romania has been the DNA of the bank since its inception in 1994.

BT pursues a universal banking model, comprising retail, micro-, small-, and medium-sized enterprises (MSMEs) and wholesale banking operations, providing services to a broad client base. The banking activity and product offering focus on retail and MSME customers. BT's model of a devolved, decentralized decision-making system with significant autonomy at local level allows it to be nimble in making and implementing decisions and well-attuned to local characteristics and client needs.

With 513 branches, agencies and offices in Romania, 1,937 ATMs and more than 148,000 POS terminals at the end of 2024, BT provides in depth coverage of the entire country and has one of the largest physical networks in Romania. The physical presence of BT allows it to offer reach, immediate support and assistance to its customers, and is also leveraged by the other BT Group entities in offering an integrated, multi-faceted financial services offering. Serving millions of customers through its branch network and multiple digital channels, BT is the main financier of the Romanian economy and runs a third of the payments made by the local population and companies.

MSMEs form the lifeblood of a majority of developing (and also developed) economies, enabling faster growth and economic stability. MSMEs face specific sets of needs and challenges: access to information, access to markets, access to skilled workforce, increase competitiveness and, critically, access to finance. Banca Transilvania addressed the access to finance of MSMEs as a main business model and developed dedicated products, services and channels that have become a hallmark in the Romanian banking sector.

MSMEs in Romania employ 65% of the country's overall workforce and accounts for 99.8% of all non-financial sector companies, which employ 21% of the total population.^{1,2} Romania's Recovery and Resilience Plan (RRP) of EUR 29.18 billion and the national share of structural funds (EUR 31.5 billion for the 2021-27 period) have the potential to boost the economy.³ The MSMEs stand to benefit both from the financial allocation and the RRP reforms.⁴ Access to finance remains an issue for scaling up companies, especially MSMEs: in 2021, the country ranked 20th among the EU-27 in the EIF SME Access to Finance Index, representing a constraint in access to external finance, and had the fourth highest share of firms facing financial constraints in the EU in 2022.^{5,6}

Banca Transilvania's growth has been strongly interconnected with the development of the Romanian economy. The bank has contributed and will continue to support a more inclusive local economy. Through its business model, its nation-wide geographical coverage and offering access points even in

¹ <https://www.europarl.europa.eu/factsheets/en/sheet/63/small-and-medium-sized-enterprises>

² https://www.oecd.org/en/publications/capital-market-review-of-romania_9bfc0339-en.html

³ https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/country-pages/romania-recovery-and-resilience-plan_en

⁴ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733641/EPRS_BRI\(2022\)733641_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733641/EPRS_BRI(2022)733641_EN.pdf)

⁵ https://economy-finance.ec.europa.eu/system/files/2023-05/RO_SWD_2023_623_en.pdf

⁶ <https://www.eif.org/eib.org/img/publication/eif-in-romania.pdf>

economically underdeveloped or less populated areas, Banca Transilvania provides its customers with a range of dedicated solutions that support Romanian entrepreneurs, small business and MSMEs regardless of their location or size of business, facilitating access to finance and information related to financial products and services.

1.2. Scope of the study

Cambridge Econometrics (CE) was commissioned by Banca Transilvania to provide an impact assessment of its MSME lending portfolio, which is financed by Banca Transilvania's sustainable bonds.

This report focuses on loans provided to MSMEs in Romania as at 31/12/2024 and estimates GVA and employment supported by lending to MSMEs in Romania. The definition of a MSME, for the purpose of this report, is that of a European SME.⁷

A description of the approach, any underlying assumptions and limitations is provided in Chapter 2.

A summary of the impacts is then presented in Chapter 3.

⁷ For more detail, see: https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition_en

2 Approach

The purpose of the MSME lending analysis is to estimate the impact on the economy of Banca Transilvania's loans to MSMEs in terms of GVA and employment created and/or retained. This chapter briefly presents the approach used to estimate these impacts, accounting for workers in the MSMEs themselves (direct impacts) as well as the wider economy (indirect and induced impacts; explained below). For a more detailed description of the approach, assumptions and limitations of this study, see Appendix 1, Appendix 2 and Appendix 3.

Input Output Analysis

An input-output (I-O) analysis approach was used to estimate the employment and gross value added (GVA) impacts of supporting MSMEs in the Romanian economy. These impacts arise from the MSMEs' operations (expenditures), which create further spending in the Romanian economy. The I-O analysis was used to calculate the employment and GVA impacts of providing loans to MSMEs, identifying:

- **Direct impacts:** those that arise specifically from the lending to MSMEs (and therefore the MSMEs' spending) by sector.
- **Indirect impacts:** those generated when suppliers of goods and services must themselves purchase inputs from other sectors of the economy.
- **Induced impacts:** those produced by employees in sectors where the direct and indirect impacts take place, spending their additional wages and salaries on consumer products and services.

The analysis was based on the 2020 Romanian I-O table, and the results were adjusted for inflation and productivity by sector (see Appendix 1 for more details).

Limitations

There is a distinction between the new employment created by new (additional) activity supported by Banca Transilvania's loans and any existing employment retained (safeguarded) by the financial support provided by Banca Transilvania's loans. In cases in which the MSMEs would not have been able to survive in the absence of Banca Transilvania access to financing, all the existing jobs would have been lost.

We estimate the employment supported by the value of Banca Transilvania loans (i.e. employment created and/or safeguarded). In the absence of more detailed information provided by the borrowers on the purpose of the loan and a breakdown of how the loan is used, we cannot distinguish whether the loans create employment or safeguard existing jobs, and in fact some jobs could be both created and safeguarded. For example, we do not know if an MSME is using the loan to pay salaries in order to keep afloat, or whether the suppliers that MSMEs are purchasing inputs from using the loans are being kept afloat from these purchases.

See Appendix 3 for more details on all limitations of the analysis.

3 Results

This chapter presents Banca Transilvania's MSME loan portfolio being analysed in this study, and the impacts of the lending portfolio in Romania. The results are reported in terms of gross output, GDP, GVA, and employment (number of workers).

Customer segments

Banca Transilvania's MSME lending portfolio includes five distinct customer segments:

- **Female-owned:** At least 51% ownership of MSME by female owner(s).
- **Youth-owned:** MSME is owned by entrepreneurs in Europe, aged between 14 and 29.⁸
- **Start-ups:** MSME has been established no longer than three fiscal years ago.
- **Self-employed farmers:** located in socioeconomically disadvantaged areas.
- **Other MSMEs:** that do not fall under the previously listed categories, and which are located in socioeconomically disadvantaged areas.

Socioeconomically disadvantaged areas, for the purposes of this report, are all areas of Romania that fall outside the counties of: Arad, Bucureşti, Caraş-Severin, Hunedoara, Ilfov, and Timiş.⁹

3.1. MSME Loan Portfolio

Banca Transilvania's MSME loan portfolio had an outstanding balance of RON 15.69bn as at 31/12/2024. These outstanding loans were held by more than 63,000 MSMEs that employed more than 389,000 employees.

Table 3.1 shows the outstanding loan balance, the number of MSMEs financed, and the number of employees at the financed MSMEs for each customer segment. The largest customer segment within the portfolio is 'Other MSMEs', with an outstanding balance of more than RON 11.2bn. This is followed by 'Female-owned' (RON 3.2bn), 'Start-ups' (RON 615m), 'Self-employed farmers' (RON 512m), and 'Youth-owned' (RON 92m).

Table 3.2 shows the outstanding loan balance for each of the customer segments by broad sector.¹⁰ Across customer segments, the broad sectors with the most outstanding loan balance are 'Distribution' (RON 4bn), 'Agriculture etc.' (RON 2.5bn), and 'Manufacturing' (RON 2.3bn).

Banca Transilvania's MSME loans support businesses in every region of Romania. Figure 3.1 shows the number of MSMEs supported by loans in the portfolio in each Romanian county. This map also highlights which counties are defined as non-socioeconomically disadvantaged areas ('Self-employed farmers' and 'Other MSMEs' loans in these counties are excluded from the portfolio). The counties with the most MSMEs supported by loans in the portfolio are Cluj (6,012), Bihor (3,662), and Bucureşti (3,584); while the counties with the fewest MSMEs supported by loans in the portfolio are Caraş-Severin (169) and Mehedinţi (528).

⁸ This corresponds to the EU definition of young people who are not in employment, education, or training (NEET).

⁹ For detailed information on the criteria used to define socioeconomically disadvantaged areas, as well as the inclusion and exclusion criteria for the MSME lending portfolio, please refer to: <https://www.bancatransilvania.ro/files/app/media/relatii-investitori/corporate-Governance/Sustainable-Finance-Framework/Framework-2023.pdf>

¹⁰ Sectors are defined in terms of the EU's statistical classification of economic activities (NACE Rev. 2). For more detail on sector definitions, see Appendix 4.

Within the portfolio, non-socioeconomically disadvantaged areas (Arad, București, Caraș-Severin, Hunedoara, Ilfov, and Timiș) only include loans to female-owned, youth-owned, and start-up MSMEs.

Table 3.1: Portfolio summary by segments

Segment	Outstanding loan balance		Number of SMEs financed		Number of employees in SMEs	
	<i>RON, millions</i>	<i>% of total</i>	<i>000s</i>	<i>% of total</i>	<i>000s</i>	<i>% of total</i>
Female-owned	3,239.2	20.6	20.408	32.1	101.353	26.0
Youth-owned	92.4	0.6	1.258	2.0	2.965	0.8
Start-ups	615.2	3.9	5.714	9.0	11.116	2.9
Self-employed farmers	512.1	3.3	2.436	3.8	2.436	0.6
Other	11,235.5	71.6	33.751	53.1	271.287	69.7
Total	15,694.4	100.0	63.567	100.0	389.157	100.0

Source(s): Banca Transilvania MSME loan portfolio data.

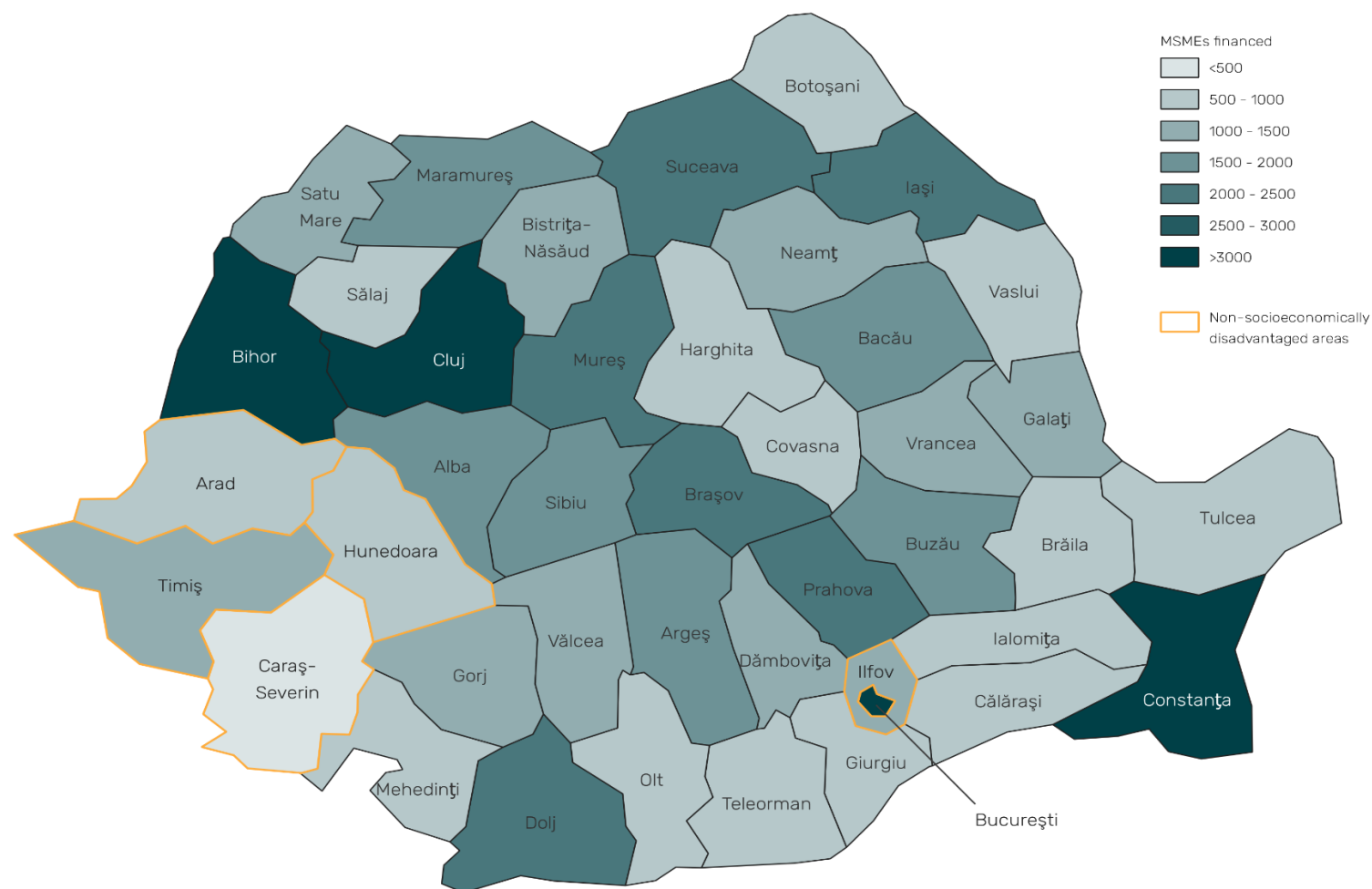
Table 3.2: Outstanding loan balance (RON, millions) by segments and sector

Sectors	Female-owned	Youth-owned	Start-ups	Self-employed farmers	Other MSMEs	Total
Agriculture etc.	408.1	15.5	14.0	512.1	1,563.0	2,512.6
Extractive-related activities	0.0	0.0	0.2	0.0	5.9	6.1
Manufacturing	407.5	19.5	69.8	0.0	1,790.2	2,286.9
Electricity, gas & water	26.4	1.6	0.2	0.0	177.6	205.8
Construction	275.5	5.6	102.0	0.0	1,249.3	1,632.4
Distribution	920.1	27.7	55.3	0.0	2,979.9	3,982.9
Transport & storage	265.1	9.0	77.9	0.0	1,113.2	1,465.2
Accommodation & food services	161.3	3.2	45.8	0.0	566.0	776.3
Information & communications	30.9	3.8	14.4	0.0	167.2	216.3
Business professional and financial services	336.6	2.8	196.6	0.0	1,149.6	1,685.6
Public administration	354.6	2.4	33.9	0.0	356.0	746.8
Other services	53.2	1.4	5.2	0.0	117.6	177.4
Total	3,239.2	92.4	615.2	512.1	11,235.5	15,694.4

Note(s): Extractive-related activities is defined as NACE 09; Business professional and financial services as NACE 64; Public administration as NACE 86. See Appendix 4 for definitions of all other sectors.

Source(s): Banca Transilvania MSME loan portfolio data.

Figure 3.1: MSMEs in Banca Transilvania portfolio by county



Note(s): Within the portfolio, non-socioeconomically disadvantaged areas (Arad, București, Caraș-Severin, Hunedoara, Ilfov, and Timiș) only include loans to female-owned, youth-owned, and start-up MSMEs.

3.2. Total impacts

Table 3.3 shows the estimated direct, indirect, and induced impacts of Banca Transilvania's MSME lending in Romania. Approximately 0.5% of the total loan portfolio was excluded from the impact analysis, as a small number of clients in the portfolio did not meet the MSME criteria for analysis.

Table 3.3: Direct, indirect and induced impacts

Impacts	Gross output (RON, millions)	GDP (RON, millions)	GVA (RON, millions)	Employment (000s)
Direct	15,694.4	7,062.9	6,411.2	64.1
Indirect	8,505.8	4,114.3	3,734.7	21.3
Induced	9,046.8	2,317.1	2,103.2	13.3
Total	33,247.0	13,494.4	12,249.1	98.7

Note(s): Gross output, GVA, and GDP impacts are reported in current (nominal) prices.
 Employment impacts are estimated using people as the unit of measure.
 Employment impacts are estimated as the employment supported (i.e. employment created and/or safeguarded) by the value of the outstanding loan balance of Banca Transilvania loans.
 Sum of direct, indirect and induced results may not precisely match reported totals due to rounding.

Table 3.4 shows the number of people employed in Romanian MSMEs that have received Banca Transilvania loans.

Table 3.4: Employees in Banca Transilvania-financed MSMEs

	(000s)
MSME employees	389.2

Economic Output

An estimated RON 33.2bn in (economy-wide) gross output is attributed to Banca Transilvania MSME loans. The corresponding GDP and GVA impacts are estimated to be RON 13.5bn and RON 12.2bn respectively. Of the GVA impacts, RON 6.4bn are directly attributable to MSME loans provided by Banca Transilvania (as above, the outstanding principal balance of the portfolio totalled RON 15.7bn as at 31/12/2024). Through supply chains and compensation paid to employees, this generated a further RON 5.8bn of (indirect and induced) GVA in the Romanian economy.

Employment

The outstanding loans provided by Banca Transilvania directly supported jobs for more nearly 64,100 people. Beyond this, the indirect and induced effects of the loans supported jobs for 34,600 people. Altogether, the portfolio supported jobs for a total of 98,700 people in the Romanian economy.

Additionally, Banca Transilvania's loans provide critical financial support to the MSMEs that receive them, which goes beyond the monetary value of the loan by providing support for the MSMEs' operation, thereby contributing to safeguarding their existing employment.

3.3. Impacts by segment

The impact analysis of Banca Transilvania's MSME loans portfolio in Romania was carried out by customer segment to understand how the impacts can be attributed to different types of MSMEs. Table 3.5 shows the total gross output, GVA, and employment impacts for each customer segment.¹¹

Just under three quarters of the national GVA impacts (RON 8.6bn) can be attributed to loans to 'Other MSMEs', which is expected, given this is the customer segment with the largest outstanding loan balance (see Table 3.1). In terms of employment, loans to 'Other MSMEs' are estimated to have supported the most workers (66,300), followed by 'Female-owned' (20,200), 'Self-employed farmers' (9,200), 'Start-ups' (2,400), and 'Youth-owned' (600).

Table 3.5: Total impacts by segment

Segment	Total gross output impacts		Total GVA impacts		Total employment impacts	
	RON, millions	% of total	RON, millions	% of total	000s	% of total
Female-owned	7,058.2	21.2	2,647.8	21.6	20.2	20.5
Youth-owned	197.9	0.6	74.7	0.6	0.6	0.6
Start-ups	1,295.3	3.9	497.9	4.1	2.4	2.4
Self-employed farmers	958.4	2.9	384.1	3.1	9.2	9.3
Other MSMEs	23,737.3	71.4	8,644.6	70.6	66.3	67.1
Total	33,247.0	100.0	12,249.1	100.0	98.7	100.0

Note(s): Total impacts include direct, indirect, and induced impacts.
 Gross output and GVA impacts are reported in current (nominal) prices.
 Employment impacts are estimated using people as the unit of measure.
 Employment impacts are estimated as the employment supported (i.e. employment created and/or safeguarded) by the value of the outstanding loan balance of Banca Transilvania loans.
 Sum of direct, indirect and induced results may not precisely match reported totals due to rounding.

3.4. Impacts by sector

MSMEs in Banca Transilvania's portfolio operate across many sectors of the economy. Table 3.6 shows the total (direct, indirect and induced) gross output, GVA, and employment impacts by broad sector (see Appendix 4 for definitions of sectors).

In terms of GVA, the portfolio has had the largest total GVA impacts in 'Distribution' (RON 2.6bn), 'Financial & business services' (RON 2.5bn), followed by Manufacturing (RON 1.6bn) and 'Agriculture etc.' (RON 1.6bn). When looking at employment, the largest impacts were in 'Agriculture etc.' (48,700 workers supported), 'Distribution' (13,900 workers supported), and 'Manufacturing' (9,800 workers supported).

¹¹ Total impacts include direct, indirect and induced impacts.

Impacts in a specific sector can occur even if Banca Transilvania does not provide loans to MSMEs in that sector. For example, while there are relatively few loans provided to MSMEs in 'Mining & quarrying' (in particular, loans were only provided to MSMEs operating in extractive-related activities), MSMEs receiving loans in other sectors may purchase from the wider 'Mining & quarrying' sector, creating indirect impacts in the sector.

Table 3.6: Total impacts by sector

Sector	NACE	Total gross output impacts		Total GVA impacts		Total employment impacts	
		RON, millions	% of total	RON, millions	% of total	000s	% of total
Agriculture, etc.	A	3,461.8	10.4	1,577.4	12.9	48.7	49.3
Mining & quarrying	B	125.9	0.4	72.7	0.6	0.1	0.1
Manufacturing	C	4,866.9	14.6	1,579.2	12.9	9.8	10.0
Electricity, gas & water	D-E	1,013.2	3.0	334.7	2.7	0.7	0.7
Construction	F	2,224.7	6.7	654.5	5.3	3.8	3.8
Distribution	G	5,983.7	18.0	2,558.3	20.9	13.9	14.1
Transport & storage	H	2,318.1	7.0	873.3	7.1	4.7	4.8
Accommodation & food services	I	975.3	2.9	437.4	3.6	3.5	3.6
Information & communications	J	1,080.9	3.3	614.2	5.0	1.2	1.2
Financial & business services	K-N	4,628.7	13.9	2,473.8	20.2	4.6	4.6
Public admin., health & education	O-Q	1,295.9	3.9	803.6	6.6	6.5	6.6
Other services	R-U	520.9	1.6	270.0	2.2	1.3	1.3
Compensation of employees	-	4,750.9	14.3	-	-	-	-
Total		33,247.0	100.0	12,249.1	100.0	98.7	100.0

Note(s): 'Compensation of employees' represents impacts to households in the form of wages and other compensation for employment, and thus cannot be categorised into a NACE sector code.
 Total impacts include direct, indirect, and induced impacts. Total impacts in a sector include spending by MSMEs operating in that sector, and supply chain and household spending in that sector stimulated by MSME spending from the whole portfolio.
 Gross output and GVA impacts are reported in current (nominal) prices.
 Employment impacts are estimated using people as the unit of measure.
 Employment impacts are estimated as the employment supported (i.e. employment created and/or safeguarded) by the value of the outstanding loan balance of Banca Transilvania loans.
 Sum of direct, indirect and induced results may not precisely match reported totals due to rounding.

3.5. Summary of impacts

Every RON 1m in loans provided to MSMEs in Romania has:

- Created RON 2.12m in gross output impacts
 - Created 0.86m in GDP impacts
 - Created 0.78m in GVA impacts
 - Supported jobs for approximately 6.3 people through MSME spending
- The loans have also contributed to safeguarding some of the existing jobs of more than 389,000 people employed in the MSMEs that received financing.

Appendices

Appendix 1 Input Output (I-O) analysis

An input-output (I-O) analysis approach was used to estimate the employment and gross value added (GVA) impacts of supporting MSMEs in the Romanian economy. These impacts arise from the MSME's operations (expenditures), which create further spending in the Romanian economy.

The companies' payments to other organisations for goods and services generate receipts for other Romanian organisations which, in turn, generate a requirement for (further spending on) inputs further up the supply chain.

The I-O approach captures these expenditures in order to quantify the total operational economic impacts on the Romanian economy (in terms of GVA) of the MSMEs supported by Banca Transilvania loans. Employment impacts are then consistently estimated using the same data and sources by applying assumptions about productivity (the ratio of GVA to employment). This gives a measure of the MSMEs' economic footprint and reflects the 'multiplier effect' by which an initial set of purchases generates further purchases elsewhere in the economy to support production.

I-O analysis is a standard technique in economic impact work to understand the relationships between different sectors of the economy and how activity in one sector might generate activity elsewhere, through supply-chain effects. It is frequently applied to shed light on how interventions in one sector can have wider economic implications.

An I-O economic impact tool was developed based on the 2020 Romanian Input-Output table produced by Eurostat. This table captures the linkages between 65 sectors and between different agents in the Romanian economy and the rest of the world. The sectoral detail is important because different sectors have different supply-chain requirements and productivity assumptions (which were used to calculate the employment impacts). The tool was used to calculate the employment and GVA impacts of providing loans to MSMEs, identifying:

- the direct impact as that arising specifically from the lending to MSMEs by sector. These data were provided by Banca Transilvania in the form of the on-balance principal exposure of loan by company and an associated code denoting the sector in which the MSME operates, based on the NACE classification.¹² Each MSME was mapped to an I-O sector (of which there are 65) and the balance of loan figures were used as the inputs to the I-O tool¹³
- indirect impacts as those generated when suppliers of goods and services must themselves purchase inputs from other sectors of the economy – these follow from the I-O tool (so-called Type I impacts)
- induced impacts as the impacts of people working in sectors where the direct and indirect impacts take place, spending their additional wages and salaries on consumer products and services – these also follow from the I-O tool (Type II impacts)

¹² Statistical classification of economic activities in the European Community (NACE).

¹³ See Appendix 4 – for the sector classification in this analysis.

Appendix 2 Assumptions

The I-O economic impact tool was developed based on the detailed Romanian Input-Output table for 2020. The table describes the structure of the Romanian economy in that year in terms of supply chains (links between industries) and final expenditure (e.g. households, government, trade etc.) as well as aspects of income (notably employees' wages and salaries).

Given the 2020 vintage of the economic data that underpins the tool, it is necessary to account for two factors which may have changed in the intervening period (between then and now): inflation and productivity (the ratio of GVA to employment).

For the purpose of this analysis, adjustments for inflation and changes in productivity over time are based on the following assumptions:

- Inflation – inflation rates by sector between 2022 and 2024 were calculated using the latest GVA deflator data from Eurostat.¹⁴
- Productivity – the relevant productivity figures were estimated based on the latest (2022) GVA¹⁵ and employment¹⁶ data by sector from Eurostat. After inflating GVA values from 2022 to 2024 prices, productivity was then calculated based on the inflated GVA and 2022 employment.

¹⁴ Gross value added and income by main industry (NACE Rev.2) (NAMA_10_A10):

[\[nama_10_a10\] Gross value added and income by main industry \(NACE Rev.2 \)](#)

¹⁵ Gross value added and income by detailed industry (NACE Rev.2) (NAMA_10_A64):

[\[nama_10_a64\] Gross value added and income by detailed industry \(NACE Rev.2 \)](#)

¹⁶ Employment by detailed industry (NACE Rev.2) – national accounts (NAMA_10_A64):

[\[nama_10_a64_e\] Employment by detailed industry \(NACE Rev.2\) – national accounts](#)

Appendix 3 Limitations

The limitations of the approach for the MSME analysis are listed below.

- Employment retained (safeguarded) versus created – there is a distinction between the new employment created by new (additional) activity supported by Banca Transilvania's loans and any existing employment retained (safeguarded) by the financial support provided by Banca Transilvania's loans. In cases in which the MSMEs would not have been able to survive in the absence of Banca Transilvania access to financing, all the existing jobs would have been lost.

We estimate the employment *supported* by the value of Banca Transilvania loans (i.e. employment created and/or safeguarded). We cannot distinguish whether the loans create employment or safeguard existing jobs, and in fact some jobs could be both created and safeguarded.

- Interpreting what the loans represent – in the absence of more detailed information on the purpose of the loan and a breakdown of how the loan is used (e.g. expenditure categories), the analysis assumes that the loan value equals the direct impact. The value of each loan was applied to the relevant sector to form the inputs to the I-O tool. The tool then estimates the total impacts of the loan based on how firms in that sector operate on average. In reality, the MSME's expenditure could differ from the sector average, but this cannot be reflected in the analysis without having access to more detailed expenditure data. This limitation applies to all I-O exercises of this form.
- The impact of the location of the MSME – the location of an MSME can affect the size of the GVA and employment impact its operational activities are likely to have (money invested in one area could have more of an impact than the same amount of money being invested in a different area). This variation could not be captured in the approach within the scope of this project, owing to a need for highly detailed data (which are not available).

Appendix 4 Sector definitions

Broad sector	NACE	Detailed sector
Agriculture etc	01	Crop and animal production, hunting and related service activities
	02	Forestry and logging
	03	Fishing and aquaculture
Mining & quarrying	05	Mining of coal and lignite
	06	Extraction of crude petroleum and natural gas
	07	Mining of metal ores
	08	Other mining and quarrying
	09	Mining support service activities
Manufacturing	10	Manufacture of food products
	11	Manufacture of beverages
	12	Manufacture of tobacco products
	13	Manufacture of textiles
	14	Manufacture of wearing apparel
	15	Manufacture of leather and related products
	16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
	17	Manufacture of paper and paper products
	18	Printing and reproduction of recorded media
	19	Manufacture of coke and refined petroleum products
	20	Manufacture of chemicals and chemical products
	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
	22	Manufacture of rubber and plastic products
	23	Manufacture of other non-metallic mineral products
	24	Manufacture of basic metals
	25	Manufacture of fabricated metal products, except machinery and equipment
	26	Manufacture of computer, electronic and optical products
	27	Manufacture of electrical equipment
	28	Manufacture of machinery and equipment n.e.c.
	29	Manufacture of motor vehicles, trailers and semi-trailers
	30	Manufacture of other transport equipment
	31	Manufacture of furniture
	32	Other manufacturing
	33	Repair and installation of machinery and equipment
Electricity, gas & water	35	Electricity, gas, steam and air conditioning supply
	36	Water collection, treatment and supply
	37	Sewerage
	38	Waste collection, treatment and disposal activities; materials recovery
	39	Remediation activities and other waste management activities
Construction	41	Construction of buildings
	42	Civil engineering
	43	Specialised construction activities
Distribution	45	Wholesale and retail trade and repair of motor vehicles and motorcycles
	46	Wholesale trade, except of motor vehicles and motorcycles
	47	Retail trade, except of motor vehicles and motorcycles
Transport & storage	49	Land transport and transport via pipelines
	50	Water transport
	51	Air transport
	52	Warehousing and support activities for transportation
	53	Postal and courier activities

Broad sector	NACE	Detailed sector
Accommodation & food services	55	Accommodation
	56	Food and beverage service activities
Information & communications	58	Publishing activities
	59	Motion picture, video and television programme production, sound recording and music publishing activities
	60	Programming and broadcasting activities
	61	Telecommunications
	62	Computer programming, consultancy and related activities
	63	Information service activities
Financial & business services	64	Financial service activities, except insurance and pension funding
	65	Insurance, reinsurance and pension funding, except compulsory social security
	66	Activities auxiliary to financial service and insurance activities
	68	Real estate activities
	69	Legal and accounting activities
	70	Activities of head offices; management consultancy activities
	71	Architectural and engineering activities; technical testing and analysis
	72	Scientific research and development
	73	Advertising and market research
	74	Other professional, scientific and technical activities
	75	Veterinary activities
	77	Rental and leasing activities
	78	Employment activities
	79	Travel agency, tour operator and other reservation service and related activities
	80	Security and investigation activities
	81	Services to buildings and landscape activities
	82	Office administrative, office support and other business support activities
Public admin., health & education	84	Public administration and defence; compulsory social security
	85	Education
	86	Human health activities
	87	Residential care activities
Other services	88	Social work activities without accommodation
	90	Creative, arts and entertainment activities
	91	Libraries, archives, museums and other cultural activities
	92	Gambling and betting activities
	93	Sports activities and amusement and recreation activities
	94	Activities of membership organisations
	95	Repair of computers and personal and household goods
	96	Other personal service activities
	97	Activities of households as employers of domestic personnel
	98	Undifferentiated goods- and services-producing activities of private households for own use
	99	Activities of extra-territorial organisations and bodies

Source(s): Eurostat: NACE Rev. 2.