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ECONOMETRICS



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

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# Impacts of an MSME lending portfolio - Banca Transilvania

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Final Report

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## Key findings



MSME portfolio as at 31/12/2025 in SFF (annual change in values in parentheses)

	<b>RON 19,917.1m (+ 26.9%)</b>	Portfolio value
	<b>75,787 (+ 19.2%)</b>	MSMEs financed
	<b>412,364 (+ 5.9%)</b>	Employees in MSMEs financed






Portfolio by segment

	<b>Female-owned</b>	<b>RON 3,343.9m</b>	Portfolio value
		<b>19,702</b>	MSMEs financed
		<b>94,537</b>	Employees in MSMEs
	<b>Youth-owned</b>	<b>RON 61.9m</b>	Portfolio value
		<b>1,065</b>	MSMEs financed
		<b>2,242</b>	Employees in MSMEs
	<b>Start-ups</b>	<b>RON 640.6m</b>	Portfolio value
		<b>10,060</b>	MSMEs financed
		<b>8,522</b>	Employees in MSMEs
	<b>Self-employed farmers</b>	<b>RON 542.2m</b>	Portfolio value
		<b>2,352</b>	MSMEs financed
		<b>2,352</b>	Employees in MSMEs
	<b>Other MSMEs</b>	<b>RON 15,328.5m</b>	Portfolio value
		<b>42,608</b>	MSMEs financed
		<b>304,711</b>	Employees in MSMEs

Total impacts as at 31/12/2025 (annual change in values in parentheses)

		<b>RON 41,710m (+ 25.5%)</b>	Gross output impacts
		<b>RON 17,109m (+ 26.8%)</b>	GDP impacts
		<b>RON 15,413m (+ 25.8%)</b>	GVA impacts
		<b>138,400 (+ 40.2%)</b>	Workers supported
	<b>RON 1m</b> in loans leads to	<b>RON 2.09m (- 1.4%)</b>	Gross output impacts
		<b>RON 0.86m (0.0%)</b>	GDP impacts
		<b>RON 0.77m (- 1.3%)</b>	GVA impacts
		<b>6.9 (+ 9.5%)</b>	Workers supported

Impacts by segment

	<b>Female-owned</b>	<b>RON 7,191.3m</b>	Gross output impacts
		<b>RON 2,722.1m</b>	GVA impacts
		<b>24,000</b>	Workers supported
	<b>Youth-owned</b>	<b>RON 129.5m</b>	Gross output impacts
		<b>RON 48.5m</b>	GVA impacts
		<b>400</b>	Workers supported
	<b>Start-ups</b>	<b>RON 1,363.3m</b>	Gross output impacts
		<b>RON 507.0m</b>	GVA impacts
		<b>2,600</b>	Workers supported
	<b>Self-employed farmers</b>	<b>RON 1,010.5m</b>	Gross output impacts
		<b>RON 404.9m</b>	GVA impacts
		<b>11,900</b>	Workers supported
	<b>Other MSMEs</b>	<b>RON 32,015.5m</b>	Gross output impacts
		<b>RON 11,730.6m</b>	GVA impacts
		<b>99,500</b>	Workers supported

# 1 Introduction

## 1.1. Banca Transilvania

Banca Transilvania is the leading financial institution in Romania by assets and the only systemically important bank with majority local capital. This position reflects not only the scale of its operations, but also its structural significance within the national economy. Operating under a universal banking model, the Bank serves a diversified client base, from individuals to entrepreneurs, SMEs and large corporations, while maintaining a strong focus on supporting sustainable economic development.

Banca Transilvania's strategic direction is defined by three complementary and mutually reinforcing pillars: financing the real economy through investment and working capital solutions; advancing financial inclusion by broadening access to modern and accessible banking services; and supporting the transition to a sustainable economy through products and portfolios aligned with ESG principles. Together, these pillars underpin the Bank's long-term value creation and its role as a driver of resilience and growth in the Romanian economy.

As a private bank with majority Romanian capital, Banca Transilvania is committed to supporting the business environment and the population through innovative financial products and services. Since its establishment in 1994, the Bank has consistently contributed to the development of local communities and the national economy, with financial inclusion, entrepreneurship and support for small businesses embedded in its core approach.

Banca Transilvania's extensive physical and digital infrastructure ensures comprehensive national coverage and broad access to financial services. At the end of 2025, the Bank operated 531 branches, agencies and offices, supported by 2,031 ATMs and over 178,000 POS terminals, positioning it among the largest distribution networks in Romania. Its digital channels served approximately 5 million unique users during the year, reflecting the continued acceleration of digital banking adoption across its client base. This combination of physical presence and digital capabilities enables the Bank to provide accessible, efficient and immediate support to its customers, while also supporting the integrated service offering of BT Group entities.

The Bank has also continued to expand its presence in rural areas, with approximately 9% of ATMs and 12% of POS terminals located in such communities (compared to 6.8% and 11.2% respectively in 2024), underscoring its commitment to improving financial access in underserved regions. Serving millions of customers through its multi-channel model, Banca Transilvania plays a central role in financing the Romanian economy and processes a significant share of payments made by individuals and companies.

Micro, small and medium-sized enterprises (MSMEs) represent a fundamental pillar of both developing and developed economies, contributing to growth, employment and economic resilience. In Romania, MSMEs account for 99.8% of all non-financial sector companies and employ approximately two-thirds of the workforce, corresponding to around one-fifth of the total population.<sup>1,2</sup> Despite their central role, these businesses face structural challenges, particularly in accessing finance, markets, skilled workforce and relevant information.

Recognising these needs, Banca Transilvania has placed MSME financing at the core of its business model, developing dedicated products, services and distribution channels tailored to this segment. This

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

<sup>2</sup> <https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/f42084cf-5477-47d6-898d-7fca01e03eb2/download>

consistent focus has positioned the Bank as a key partner for entrepreneurs in Romania and as a leading financier of the MSME sector.

Romania's amended National Recovery and Resilience Plan (NRRP), approved by the Council on 8 December 2023, amounts to EUR 28.5 billion and, together with the structural funds allocation for the 2021–2027 period, represents a key framework for supporting sustainable economic growth. The plan combines investments and structural reforms aimed at addressing longstanding bottlenecks, while accelerating the green and digital transition and strengthening the resilience of the economy.<sup>3,4</sup>

Within this context, MSMEs are expected to benefit from both targeted financing and reforms designed to improve the business environment, enhance competitiveness and facilitate access to new markets, technologies and sustainable investment opportunities. At the same time, access to finance remains a structural constraint to business expansion, particularly for smaller companies. According to the EIB Investment Survey 2024, Romanian firms continue to report higher levels of financing constraints compared to the EU average, reflecting persistent barriers to external financing and limiting their capacity to scale, innovate and invest in the transition.<sup>5</sup>

Banca Transilvania's growth has been closely linked to the development of the Romanian economy, and the Bank continues to support a more inclusive economic model. Through its business model, nationwide coverage and presence in economically underdeveloped or less populated areas, Banca Transilvania provides customers with tailored solutions that support entrepreneurs, small businesses and MSMEs regardless of their location or size, facilitating access to finance and 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 31/12/2025 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.<sup>6</sup>

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.

<sup>3</sup> [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)

<sup>4</sup> [https://reforms-investments.ec.europa.eu/recovery-and-resilience-facility-1/country-pages/romania-recovery-and-resilience-plan\\_en](https://reforms-investments.ec.europa.eu/recovery-and-resilience-facility-1/country-pages/romania-recovery-and-resilience-plan_en)

<sup>5</sup> [EIB Investment Survey 2024 Country Overview: Romania](#)

<sup>6</sup> For more detail, see: [https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition\\_en](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.
- **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, București, Caraș-Severin, Hunedoara, Ilfov, and Timiș.<sup>7</sup>

### 3.1. MSME Loan Portfolio

Banca Transilvania's MSME loan portfolio had an outstanding balance of RON 19.92bn as at 31/12/2025. These outstanding loans were held by 75,800 MSMEs that employed more than 412,200 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 15.3bn. This is followed by 'Female-owned' (RON 3.3bn), 'Start-ups' (RON 641m), 'Self-employed farmers' (RON 542m), and 'Youth-owned' (RON 62m).

Table 3.2 shows the outstanding loan balance for each of the customer segments by broad sector.<sup>8</sup> Across customer segments, the broad sectors with the most outstanding loan balance are 'Distribution' (RON 4.6bn), 'Agriculture etc.' (RON 3.6bn), and 'Manufacturing' (RON 2.7bn).

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 (6,773), Bihor (4,492), and București (4,174); while the counties with the fewest MSMEs supported by loans in the portfolio are Caraș-Severin (199) and Hunedoara (572). 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.

<sup>7</sup> 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>

<sup>8</sup> 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.

Table 3.1: Portfolio summary by segments

Segment	Outstanding loan balance		Number of MSMEs financed		Number of employees in MSMEs	
	RON, millions	% of total	000s	% of total	000s	% of total
Female-owned	3,343.9	16.8	19.7	26.0	94.5	22.9
Youth-owned	61.9	0.3	1.1	1.4	2.2	0.5
Start-ups	640.6	3.2	10.1	13.3	8.5	2.1
Self-employed farmers	542.2	2.7	2.4	3.1	2.4	0.6
Other	15,328.5	77.0	42.6	56.2	304.7	73.9
<b>Total</b>	<b>19,917.1</b>	<b>100.0</b>	<b>75.8</b>	<b>100.0</b>	<b>412.4</b>	<b>100.0</b>

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

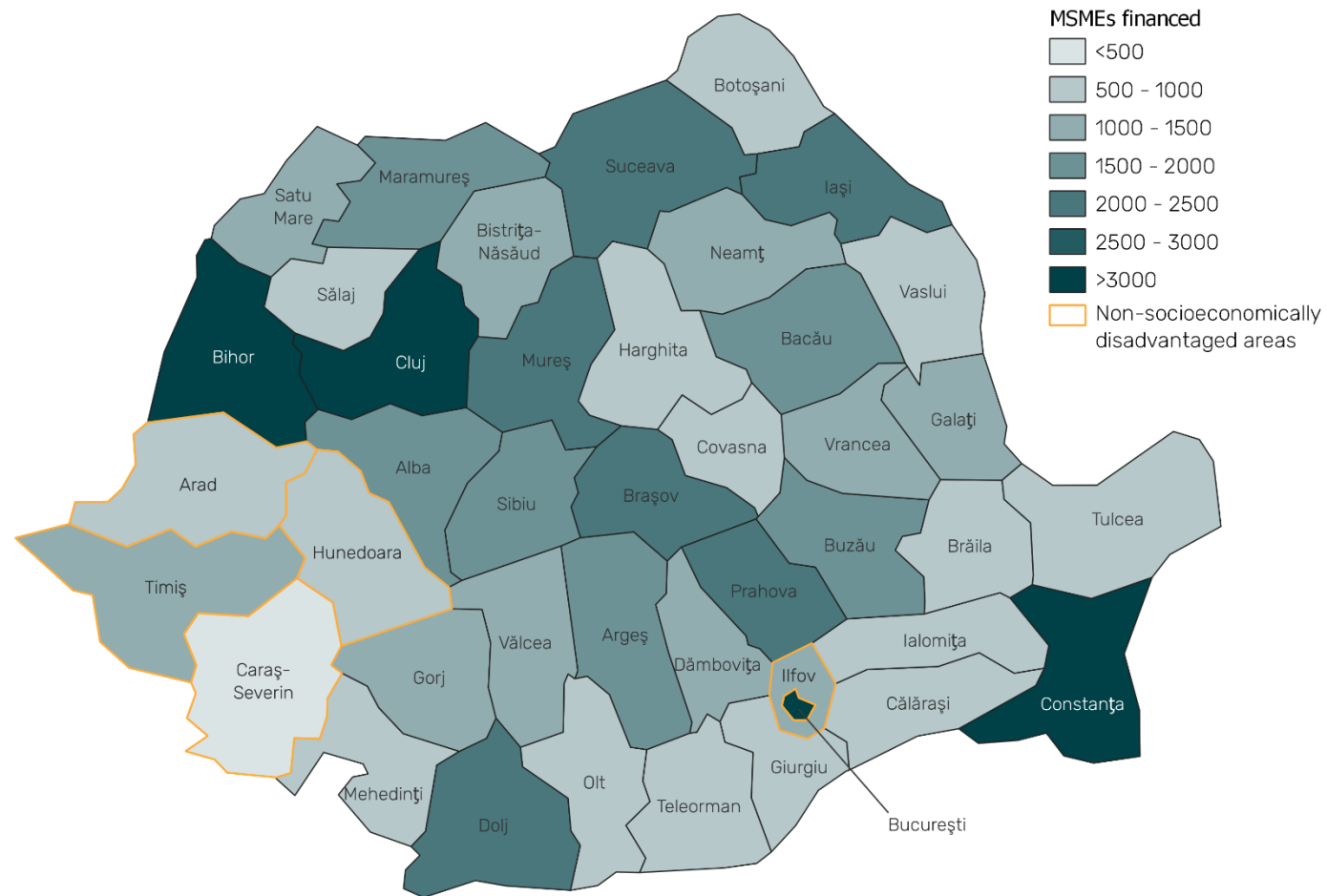
Table 3.2: Outstanding loan balance (RON, millions) by segments and sector

Sectors	Female-owned	Youth-owned	Start-ups	Self-employed farmers	Other MSMEs	Total
Agriculture etc.	558.6	9.8	16.4	542.2	2,463.8	3,590.9
Extractive-related activities	14.0	0.0	0.3	0.0	73.6	88.0
Manufacturing	374.5	6.2	21.9	0.0	2,343.5	2,746.1
Electricity, gas & water	26.3	0.3	16.8	0.0	263.4	306.8
Construction	224.2	9.2	92.9	0.0	1,587.3	1,913.5
Distribution	890.8	15.2	106.3	0.0	3,619.7	4,632.0
Transport & storage	259.7	6.6	36.8	0.0	1,439.9	1,742.9
Accommodation & food services	211.7	3.2	75.3	0.0	912.4	1,202.6
Information & communications	32.9	5.2	17.8	0.0	174.5	230.4
Business professional and financial services	343.9	3.4	170.4	0.0	1,877.9	2,395.6
Public administration	346.5	1.0	76.3	0.0	408.7	832.6
Other services	60.7	1.7	9.4	0.0	163.8	235.7
<b>Total</b>	<b>3,343.9</b>	<b>61.9</b>	<b>640.6</b>	<b>542.2</b>	<b>15,328.5</b>	<b>19,917.1</b>

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.

Table 3.3: Direct, indirect and induced impacts

Impacts	Gross output (RON, millions)	GDP (RON, millions)	GVA (RON, millions)	Employment (000s)
Direct	19,917.1	9,036.1	8,140.6	94.4
Indirect	10,774.4	5,285.6	4,761.8	28.0
Induced	11,018.5	2,786.9	2,510.7	16.0
<b>Total</b>	<b>41,710.0</b>	<b>17,108.6</b>	<b>15,413.1</b>	<b>138.4</b>

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	412.4

#### Economic Output

An estimated RON 41.7bn in (economy-wide) gross output is attributed to Banca Transilvania MSME loans. The corresponding GDP and GVA impacts are estimated to be RON 17.1bn and RON 15.4bn respectively. Of the GVA impacts, RON 8.1bn are directly attributable to MSME loans provided by Banca Transilvania (as above, the outstanding principal balance of the portfolio totalled RON 19.9bn as at 31/12/2025). Through supply chains and compensation paid to employees, this generated a further RON 7.3bn of (indirect and induced) GVA in the Romanian economy.

#### Employment

The outstanding loans provided by Banca Transilvania directly supported jobs for 94,400 people. Beyond this, the indirect and induced effects of the loans supported jobs for 44,000 people. Altogether, the portfolio supported jobs for a total of 138,400 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.<sup>9</sup>

Just over three quarters of the national GVA impacts (RON 11.7bn) 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 (99,500), followed by 'Female-owned' (24,000), 'Self-employed farmers' (11,900), 'Start-ups' (2,600), and 'Youth-owned' (400).

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	7,191.3	17.2	2,722.1	17.7	24.0	17.3
Youth-owned	129.5	0.3	48.5	0.3	0.4	0.3
Start-ups	1,363.3	3.3	507.0	3.3	2.6	1.9
Self-employed farmers	1,010.5	2.4	404.9	2.6	11.9	8.6
Other MSMEs	32,015.5	76.8	11,730.6	76.1	99.5	71.9
<b>Total</b>	<b>41,710.0</b>	<b>100.0</b>	<b>15,413.1</b>	<b>100.0</b>	<b>138.4</b>	<b>100.0</b>

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 'Financial & business services' (RON 3.2bn), 'Distribution' (RON 3.0bn), followed 'Agriculture etc.' (RON 2.2bn) and by Manufacturing (RON 1.9bn). When looking at employment, the largest impacts were in 'Agriculture etc.' (81,700 workers supported), 'Distribution' (16,800 workers supported), and 'Manufacturing' (11,700 workers supported).

<sup>9</sup> 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	4,829.5	11.6	2,226.5	14.4	81.7	59.0
Mining & quarrying	B	246.9	0.6	142.6	0.9	0.4	0.3
Manufacturing	C	5,916.2	14.2	1,895.2	12.3	11.7	8.5
Electricity, gas & water	D-E	1,305.1	3.1	430.7	2.8	1.4	1.0
Construction	F	2,649.4	6.4	779.4	5.1	3.9	2.8
Distribution	G	7,090.2	17.0	3,042.6	19.7	16.8	12.2
Transport & storage	H	2,791.1	6.7	1,051.6	6.8	5.1	3.7
Accommodation & food services	I	1,445.1	3.5	648.2	4.2	4.6	3.4
Information & communications	J	1,316.2	3.2	748.4	4.9	1.1	0.8
Financial & business services	K-N	6,047.0	14.5	3,155.8	20.5	4.5	3.2
Public admin., health & education	O-Q	1,513.0	3.6	945.0	6.1	5.9	4.2
Other services	R-U	669.8	1.6	347.0	2.3	1.3	1.0
Compensation of employees	-	5,890.5	14.1	-	-	-	-
<b>Total</b>		<b>41,710.0</b>	<b>100.0</b>	<b>15,413.1</b>	<b>100.0</b>	<b>138.4</b>	<b>100.0</b>

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 2.09m in gross output impacts
  - Created 0.86m in GDP impacts
  - Created 0.77m in GVA impacts
  - Supported jobs for approximately 6.9 people through MSME spending
- The loans have also contributed to safeguarding some of the existing jobs of more than 412,000 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.<sup>10</sup> 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 tool<sup>11</sup>
- 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)

<sup>10</sup> Statistical classification of economic activities in the European Community (NACE).

<sup>11</sup> 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 2023 and 2025 were calculated using the latest GVA deflator data from Eurostat.<sup>12</sup>
- Productivity – the relevant productivity figures were estimated based on the latest (2023) GVA<sup>13</sup> and employment<sup>14</sup> data by sector from Eurostat. After inflating GVA values from 2023 to 2025 prices, productivity was then calculated based on the inflated GVA and 2023 employment.

<sup>12</sup> 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 \(NACE Rev.2\)](#)

<sup>13</sup> 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 \(NACE Rev.2\)](#)

<sup>14</sup> 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
Public admin., health & education	81	Services to buildings and landscape activities
	82	Office administrative, office support and other business support activities
	84	Public administration and defence; compulsory social security
	85	Education
	86	Human health activities
	87	Residential care activities
	88	Social work activities without accommodation
	90	Creative, arts and entertainment activities
Other services	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.