

Analysis of the Economic Activity of the State of Rio de Janeiro and the influence of the capital

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Abstract

This report presents a detailed investigation of the data related to the main economic activities of the State of Rio de Janeiro, focusing on the relationship with its capital.

The study also evaluates the dynamics of the generation of active jobs over a given period. Using data from the "RAIS" and "Brazilian Directories" databases, the work employs statistical analysis to understand the evolution of these patterns and their implications in the relationship with another municipalities of Rio de Janeiro estate.

Thematic/theoretical introduction

In 2016, according to the IBGE¹ SME Survey, the Education, Health, Public Administration group accounted for 23.3% of jobs in the city of Rio de Janeiro (680 thousand); Other Services employed 19.9% (581 thousand); Services provided to companies, 18.7% (548 thousand); Commerce, 17.0% (496 thousand); Industry, 11.2% (328 thousand); Construction, 5.7% (166 thousand) and Domestic Services, 3.7% (108 thousand).

¹ RELAÇÃO ANUAL DE INFORMAÇÕES SOCIAIS –RAIS 2021

https://www.gov.br/trabalho-e-emprego/pt-br/assuntos/estatisticas-trabalho/rais/1-ApresentaC3A7C3A3o_RAIS_2021.pdf

According to the IBG, in February 2016, there were 5 million and 910 thousand people of working age in the city of Rio de Janeiro. This population remained slightly stable during that year. Of this total number of people of working age, 49.4% were employed (employment level), 2.7% were unemployed and 47.8% were not economically active. The average real income of the employed population in the city of Rio de Janeiro was estimated at R\$3,038.40, which reflected the per capita income of the people of Rio de Janeiro.

In relation to the employed population, employees with a formal employment contract in the private sector represented 47.0% (1,373 thousand), employees without a formal employment contract in the private sector, 7.2% (210 thousand), self-employed workers, 21.8% (636 thousand) and Military personnel or statutory public servants, 13.5% (395 thousand).

The CNAEs were made official through the IBGE/CONCLA Resolution (Figure 1), dated September 4, 2006. Technically directed by the IBGE (Brazilian Institute of Geography and Statistics), the CNAE is coordinated by the Federal Revenue Service. Composed of a combination of 7 numbers, they represent the combination of sections, groups, divisions, classes and subclasses.

The first version of the CNAE subclass details was defined in 1998, with the name CNAE-Fiscal. It underwent adjustments in 2001 (CNAE-Fiscal version 1.0) and in 2002 (CNAE-Fiscal version 1.1), the latter following specific changes in the CNAE structure (CNAE version 1.0) due to adjustments in the international classification version ISIC/CIIU 3.1 (Figure 2).

Figure 1



Figure 2

OCDE DEFINIÇÃO MARCO DE INVERSÃO EXTRANHEIRA DIRETA: QUARTA EDIÇÃO 6 OCDE 2011

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7. CLASIFICACIÓN GEOGRÁFICA Y POR SECTOR DE ACTIVIDAD ECONÓMICA DE LA RED

7.3.3 Clasificación Industrial Internacional Uniforme (CIIU)

211 Los países deberán compilar los datos por sector de actividad económica que correspondan a las principales categorías de la CIIU de las Naciones Unidas (o su equivalente en la CNAE). Las principales categorías en la CIIU Revisión 4 (y que son comunes a la CNAE rev2) son:²¹

- A -- Agricultura, silvicultura y pesca
- B - Explotación de minas y canteras
- C -- Manufacturas
- D -- Suministro de electricidad, gas, vapor y aire acondicionado
- E -- Suministro de agua, drenaje, aguas residuales y actividades de depuración
- F -- Construcción
- G -- Comercio al por mayor y al por menor
- H -- Transporte y almacenamiento
- I -- Hoteles y restaurantes
- J -- Información y comunicaciones
- K -- Actividades financieras y de seguros
- L -- Actividades inmobiliarias
- M -- Actividades profesionales, científicas y técnicas
- N -- Servicios administrativos y de apoyo
- O -- Administración pública
- P -- Educación
- Q -- Servicios sociales y de salud
- R -- Arte, entretenimiento y recreación
- S -- Otras actividades de servicios
- T -- Actividades de hogares privados como empleadores de personal doméstico; actividades productoras de bienes y servicios no diferenciados de hogares privados para uso propio
- U -- Actividades de órganos y organizaciones extraterritoriales

Methodology

This study is based on the analysis of data from the Annual Social Information Report² (RAIS) database, which is a socioeconomic information report requested by the Labor Secretariat of the Brazilian Ministry of Economy from legal entities and other employers annually. It is published annually and presents information on all formal establishments and labor and statutory employment relationships in Brazil. The generation of RAIS2021 statistics therefore relied on two data collection sources, eSocial and GDRAIS, with the following definitions:

- Stock of formal jobs: Refers to the number of active employment relationships on 12/31 of the previous year and represents a portrait of the labor market.
- Establishments: The RAIS declaration is mandatory for each establishment, allowing analysis of its main characteristics such as: economic

² Pesquisa Mensal de Emprego, Fevereiro 2016 - Município do Rio de Janeiro
https://ftp.ibge.gov.br/Trabalho_e_Rendimento/Pesquisa_Mensal_de_Emprego/Municipio_RJ/Comentarios/2016/pme-rj_201602comentarios.pdf

activity sector, legal nature and geographic location. Since 1995, establishments without employees have been required to submit the so-called negative RAIS.

- Grouping of Economic Activities: Classification derived from the aggregation of the Sections of the National Classification of Economic Activities (CNAE2.0).

SQL queries and the BigQuery platform were used to collect, organize, and visualize the relevant data. The specific SQL query used to extract the data required for the basic analysis, which deals with active links from 2018 to 2022 for each CNAE in the state of Rio de Janeiro, is presented below:

Query A

```
SELECT
  v.cnae_2_subclasse AS CNAE,
  SUM(CASE WHEN v.ano = 2017 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2018,
  SUM(CASE WHEN v.ano = 2018 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2019,
  SUM(CASE WHEN v.ano = 2019 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2020,
  SUM(CASE WHEN v.ano = 2020 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2021,
  SUM(CASE WHEN v.ano = 2021 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2022,
  v.sigla_uf AS UF,
FROM
  basedosdados.br_me_rais.microdados_estabelecimentos v
WHERE
  v.cnae_2_subclasse IS NOT NULL
  AND v.sigla_uf = 'RJ'
  AND v.ano BETWEEN 2012 AND 2022
  AND v.quantidade_vinculos_ativos IS NOT NULL
GROUP BY
  v.cnae_2_subclasse, v.sigla_uf
ORDER BY
  CNAE DESC;
```

Table A1: Jobs by CNAEs, state of Rio de Janeiro, 2018 to 2022

Coluna1	Coluna2	Coluna3	Coluna4	Coluna5	Coluna6	Coluna7	Coluna8
CNAE		Empregos_2018	Empregos_2019	Empregos_2020	Empregos_2021	Empregos_2022	UF
8411600	Administração pública em geral	651415	635187	617250	562094	601424	RJ
8112500	Condomínios prediais	116297	116011	114710	112112	111348	RJ
4711302	Comércio varejista de mercadorias em geral, com predominância de produtos alimentícios	106433	103302	104914	96448	100818	RJ
8610101	Atividades de atendimento hospitalar, exceto pronto socorro e unidades de emergência	70609	78239	71826	78187	82269	RJ
5611201	Restaurantes e similares	95641	99417	98189	76264	79667	RJ
8422100	Defesa	48021	70996	73383	74126	71995	RJ
8513900	Ensino fundamental	54789	60199	63337	61209	59201	RJ
4781400	Comércio varejista de artigos do vestuário e acessórios	67937	70791	65982	53417	52547	RJ
8211300	Serviços combinados de escritório e apoio administrativo	24836	29714	38086	42483	51977	RJ
4771701	Comércio varejista de produtos farmacêuticos, sem manipulação de drogas	49643	49322	53154	50791	51059	RJ
9430800	Atividades de associações de defesa de direitos sociais	47985	54454	45579	45117	51059	RJ
4712100	Comércio varejista de mercadorias em geral, com predominância de produtos alimentícios	50284	50361	49471	49646	49459	RJ
5611203	Lanchonetes, casas de chá, de sucos e similares	55020	55718	56247	46890	49332	RJ
8011101	Atividades de vigilância e segurança privada	47743	46821	49039	45620	47525	RJ
8121400	Limpeza em prédios e em domicílios	50997	51847	45006	45653	44827	RJ
4930202	Transporte rodoviário de carga, exceto produtos perigosos e não	40773	42129	43305	41978	44559	RJ
4120400	Construção de edifícios	36510	32831	37814	37993	40008	RJ
8532500	Educação superior - graduação e pós graduação	49148	49225	45049	41594	39953	RJ
8610102	Atividades de atendimento em pronto socorro e unidades hospitalares	44569	33336	33640	33556	35608	RJ
4921301	Transporte rodoviário coletivo de passageiros, com itinerário fixo	45853	41337	45975	38289	34115	RJ
7112000	Serviços de engenharia	22751	25209	29622	27194	31316	RJ
5510801	Hotéis	34038	32757	34319	26755	30455	RJ
3811400	Coleta de resíduos não perigosos	9045	7666	7045	8943	29420	RJ
5620101	Fornecimento de alimentos preparados preponderantemente para consumo	32127	31456	30192	28235	28443	RJ
8531700	Educação superior - graduação	24725	24345	26308	25193	27418	RJ
4731800	Comércio varejista de combustíveis para veículos automotores	27310	27272	27476	25232	26875	RJ
6422100	Bancos múltiplos, com carteira comercial	29715	29253	28481	15691	24523	RJ
4711301	Comércio varejista de mercadorias em geral, com predominância de produtos alimentícios	10093	11557	21599	23658	24177	RJ
4721102	Padaria e confeitaria com predominância de revenda	26218	26655	24717	22394	23021	RJ
4744099	Comércio varejista de materiais de construção em geral	20631	20013	21336	21548	22785	RJ
8512100	Educação infantil - pré escola	23331	24141	24653	23002	22760	RJ
8220200	Atividades de teleatendimento	27303	26932	23040	21887	22727	RJ
4921302	Transporte rodoviário coletivo de passageiros, com itinerário fixo	37349	35553	29863	24791	22684	RJ
7820500	Locação de mão de obra temporária	16494	18040	21231	22081	22450	RJ

Query B

```

SELECT
  v.cnae_2_subclasse AS CNAE,
  SUM(CASE WHEN v.ano = 2017 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2018,
  SUM(CASE WHEN v.ano = 2018 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2019,
  SUM(CASE WHEN v.ano = 2019 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2020,
  SUM(CASE WHEN v.ano = 2020 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2021,
  SUM(CASE WHEN v.ano = 2021 THEN v.quantidade_vinculos_ativos ELSE 0 END) AS
Empregos_2022,

  v.sigla_uf AS UF,
  v.id_municipio

FROM
basedosdados.br_me_rais.microdados_estabelecimentos v
WHERE
  v.cnae_2_subclasse IS NOT NULL
  AND v.sigla_uf = 'RJ'
  AND v.id_municipio = '3304557'
  AND v.ano BETWEEN 2012 AND 2022
  AND v.quantidade_vinculos_ativos IS NOT NULL
GROUP BY
  v.cnae_2_subclasse, v.sigla_uf, v.id_municipio
ORDER BY CNAE DESC;

```

Table B: Jobs by CNAEs in the city of Rio de Janeiro, 2018 to 2022

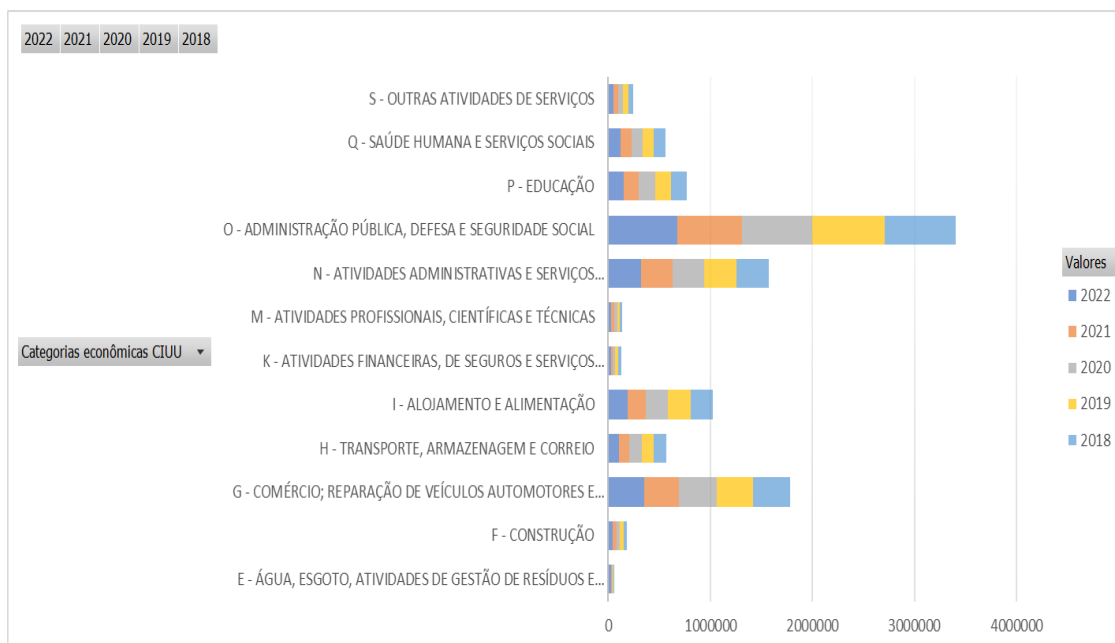
Coluna1	Coluna2	Coluna3	Coluna4	Coluna5	Coluna6	Coluna7	Coluna8	Coluna9	Coluna10
CNAE		Empregos_2018	Empregos_2019	Empregos_2020	Empregos_2021	Empregos_2022	UF	id_municipio	
8411600	Administração pública em geral	347052	315418	304157	279346	267223	RJ	3304557	
8112500	Condomínios prediais	84526	84631	83824	81894	81067	RJ	3304557	
8422100	Defesa	38772	54346	56063	55951	54048	RJ	3304557	
8610101	Atividades de atendimento hospitalar, exceto	44034	48677	45241	48624	49602	RJ	3304557	
5611201	Restaurantes e similares	59491	61475	60215	46429	46957	RJ	3304557	
4711302	Comércio varejista de mercadorias em geral	52955	50405	50357	44133	44689	RJ	3304557	
9430800	Atividades de associações de defesa de dire	35832	43761	35091	34422	40101	RJ	3304557	
8011101	Atividades de vigilância e segurança privada	40972	40815	40247	37079	37141	RJ	3304557	
8532500	Educação superior - graduação e pós graduaç	35406	35406	34261	33755	32271	RJ	3304557	
8211300	Serviços combinados de escritório e apoio ad	17981	18481	22643	23926	29636	RJ	3304557	
5611203	Lanchonetes, casas de chá, de sucos e similar	33775	34163	34462	28078	29148	RJ	3304557	
8121400	Limpeza em prédios e em domicílios	35568	33475	28607	29233	27300	RJ	3304557	
8513900	Ensino fundamental	25836	29328	28154	27399	26425	RJ	3304557	
4781400	Comércio varejista de artigos do vestuário e	33113	35051	32847	25474	24231	RJ	3304557	
4771701	Comércio varejista de produtos farmacêuticos	23667	22917	26019	23176	23192	RJ	3304557	
8423000	Justiça	24110	23300	23052	23784	21688	RJ	3304557	
3811400	Coleta de resíduos não perigosos	1643	1879	1419	1042	21550	RJ	3304557	
8220200	Atividades de teleatendimento	24703	23561	19886	19346	21280	RJ	3304557	
4120400	Construção de edifícios	19504	17613	19380	18981	20454	RJ	3304557	
4712100	Comércio varejista de mercadorias em geral,	18455	18940	19810	19546	19879	RJ	3304557	
4921301	Transporte rodoviário coletivo de passageiros	27332	25679	27347	22332	18958	RJ	3304557	
7820500	Locação de mão de obra temporária	13698	15253	18283	19328	18562	RJ	3304557	
8610102	Atividades de atendimento em pronto socorr	25314	19488	17349	15682	17265	RJ	3304557	
7112000	Serviços de engenharia	14884	17033	17933	14902	16844	RJ	3304557	
8424800	Segurança e ordem pública	13442	4772	4989	9098	16463	RJ	3304557	
7020400	Atividades de consultoria em gestão empres	17774	15101	14632	13688	16006	RJ	3304557	
5510801	Hotéis	18319	17597	18814	13114	14871	RJ	3304557	
4930202	Transporte rodoviário de carga, exceto prod	16875	17084	16888	13937	14675	RJ	3304557	
7830200	Fornecimento e gestão de recursos humanos	7886	7993	12450	12267	14673	RJ	3304557	
6422100	Bancos múltiplos, com carteira comercial	18803	18441	17684	9744	14642	RJ	3304557	
8520100	Ensino médio	15241	14589	14435	13423	13837	RJ	3304557	
7810800	Seleção e agenciamento de mão de obra	18259	21113	15151	14026	13471	RJ	3304557	
1921700	Fabricação de produtos do refino de petróleo	11998	13001	14321	12270	12242	RJ	3304557	
4321500	Instalação e manutenção elétrica	6797	8259	9577	10404	12227	RJ	3304557	

Development and results

The economy of a geographic region influences the number of jobs generated. The city of Rio de Janeiro has a large metropolitan region and a great influence on other cities in the state.

One of the objectives of Query A was to identify the economic activities that represent more than 50% of the jobs generated in the state of Rio de Janeiro. The research established as a cut-off line for the purposes of this research 35 CNAEs, out of a total of 1,318, with 52.82% of the total job stock at the beginning of 2022, as per Table A1.

Thus, Graph A was generated to identify the main economic activities that generate jobs in the state of Rio de Janeiro based on Table A2, which presents the groups of the main economic activities.

Chart A: Main economic activities with more than 50% of jobs

Table A2: Jobs by Group, State of Rio de Janeiro

Categorias econômicas, estado Rio de Janeiro	2022	2021	2020	2019	2018
E - ÁGUA, ESGOTO, ATIVIDADES DE GESTÃO DE RESÍDUOS E DESCONTAMINAÇÃO	29420	8943	7045	7666	9045
F - CONSTRUÇÃO	40008	37993	37814	32831	36510
G - COMÉRCIO; REPARAÇÃO DE VEÍCULOS AUTOMOTORES E MOTOCICLETAS	351472	343134	368649	359273	358549
H - TRANSPORTE, ARMAZENAGEM E CORREIO	101358	105058	119143	119019	123975
I - ALOJAMENTO E ALIMENTAÇÃO	187897	178144	218947	219348	216826
K - ATIVIDADES FINANCEIRAS, DE SEGUROS E SERVIÇOS RELACIONADOS	24523	15691	28481	29253	29715
M - ATIVIDADES PROFISSIONAIS, CIENTÍFICAS E TÉCNICAS	31316	27194	29622	25209	22751
N - ATIVIDADES ADMINISTRATIVAS E SERVIÇOS COMPLEMENTARES	322635	309251	311121	314748	317866
O - ADMINISTRAÇÃO PÚBLICA, DEFESA E SEGURIDADE SOCIAL	673419	636220	690633	706183	699436
P - EDUCAÇÃO	149332	150998	159347	157910	151993
Q - SAÚDE HUMANA E SERVIÇOS SOCIAIS	117877	111743	105466	111575	115178
S - OUTRAS ATIVIDADES DE SERVIÇOS	51059	45117	45579	54454	47985
Total Geral	2080316	1969486	2121847	2137469	2129829

One of the objectives of Query B was to identify the main economic activities that generated the most jobs in the city of Rio de Janeiro, according to Table B. With the sum of the total jobs generated in the state and city over the period 2018 to 2022, it was possible to create a Graph B to identify their dynamic relationship.

DataMPE Brasil SEBRAE Rio de Janeiro³ using data from the Annual Social Information Report (RAIS), the number of employees registered in the state of Rio de Janeiro in 2021 was 3,938,871, which represents a variation of 4.56% compared to the previous year. The average worker's remuneration in 2021 was R\$2,333.58, and the number of registered establishments was 560,871, which represents a variation of 2.84% compared to the previous year.

In the state of Rio de Janeiro, the economic sectors that brought together the most workers in 2021 were Public Administration, Defense and Social Security (730,013), Retail Trade (598,989), and Education (231,811).

In 2021, 42.9% of workers were women, with an average salary per person of R\$3,186.91; 57.1% were men with an average salary of R\$3,780.99. According to data from the Brazilian Federal Revenue Service (RFB), of the total number of establishments registered up to 2023, 10.3% correspond to Others (214,564 establishments), 62.8% correspond to Individual Micro Entrepreneur (MEI) (1,312,029 establishments), 22.5% correspond to Microenterprise (ME) (470,895 establishments), and 4.44% correspond to Small Business (EPP) (92,755 establishments).

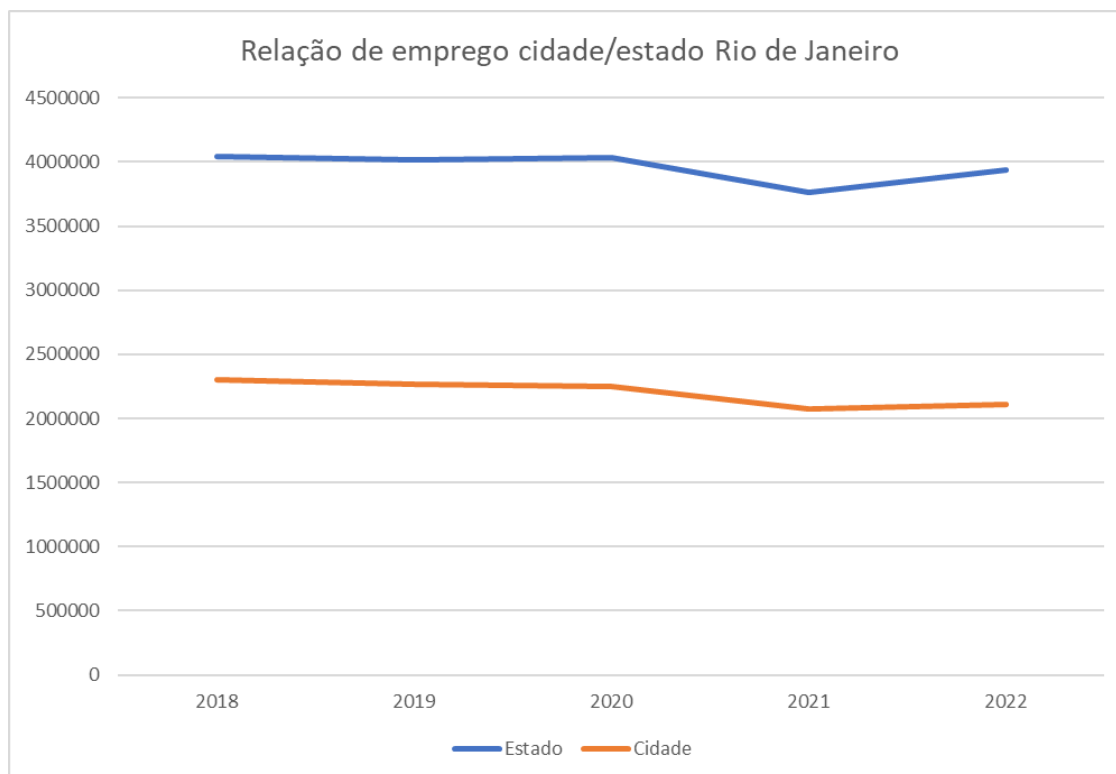
Around 13.2 million people worked as individual microentrepreneurs (MEIs) in Brazil in 2021, equivalent to 69.7% of all companies and other organizations and 19.2% of all formal workers. In 2021, of the total of 673 CNAE 2.0 classes, MEIs were present in 206. More than half of the MEIs (55.7%) were present in the first 15 classes and almost 75% in the first 30. Around half of the MEIs (50.2%) were present in the Services sector in 2021.

Trade; repair of motor vehicles and motorcycles accounted for 29.3%, and this activity had the largest number of MEI employees (48.3%). Rio de Janeiro (26.0%) was the federation unit with the highest proportion of MEIs in relation to the total number of formal employees, followed by Espírito Santo (24.8%). We consulted the Federal Revenue website, which contains

³ DataMPE Brasil SEBRAE Rio de Janeiro
<https://datampe.sebrae.com.br/profile/geo/rio-de-janeiro>

information on the number of MEIs by CNAE. The survey found 35 CNAEs with 67.42% of the total number of individual microentrepreneurs on 11/18/2023.

Chart B: Employment ratio between city and state of Rio de Janeiro



Conclusion:

Economic activities related to public administration have a significant impact in the state of Rio de Janeiro, as shown in Chart A. Many activities are probably carried out by companies that provide complementary technical or administrative services to state-owned companies, public organizations and municipal and state governments.

Future studies may identify the poles of influence of public economic activities to compare with the areas of salary distribution in the state of Rio de Janeiro.

There appears to be an economic correlation between the state of Rio de Janeiro and its capital, as suggested in Graph B. It is necessary to expand the historical series and compare the economic activities in the respective surveys.