Articles and essays

Public funding to tourism business: operation profile and spatial distribution of three Brazilian funds

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Abstract

This study analyzes the profile and the spatial distribution of credit operations to tourism companies through public funds. The tools used in this exploratory research were thematic cartography and descriptive and inferential statistics. Non-parametric tests, such as Chi-Square, Spearman-Rho, and Kendall's W, were afforded to consider 16 propositions about the position of funds in financing Tourism Characteristic Activities (TCAs). The investigated datasets are the Brazilian National Development Bank's indirect operations (2002 to 2020), the Brazilian Northeast Constitutional Fund (2010 to 2019), and the Brazilian Tourism Fund (2018 to 2020). To our knowledge, all are still new to tourism literature. The funds have different purposes. The study stresses the importance of examining the relationships and complementarities of transversal instruments to stimulate economic and territorial development compared with those to drive a particular sector. Another highlight is the focus on evaluating tourism financing directed to the private sector. Despite its importance, we found little empirical research on the topic. An original feature of the present work is the assessment of a large nationwide non-European country dataset with multiple TCAs from a cross-temporal perspective. The paper also contributes with a methodology for conducting this type of exploratory analysis. Suggestions for policymakers are discussed.

Keywords: Tourism Policy; Public Funds; Thematic Cartography; Tourism in Brazil**.**

Resumo

Financiamento público para empresas turísticas: perfil de operações e distribuição espacial de três fundos brasileiros

O estudo analisa o perfil e distribuição espacial das operações de crédito via fundos públicos para empresas de turismo. As ferramentas usadas nesta pesquisa exploratória foram a cartografia temática bem como estatística descritiva e inferencial. Testes não paramétricos, como Quiquadrado, Spearman-Rho e W de Kendall, possibilitaram considerar 16 propostas sobre a posição dos fundos ao financiar Atividades Características do Turismo (ACTs). As bases de dados investigadas são: operações indiretas do BNDES (2002 a 2020), Fundo Constitucional do Nordeste (2010 a 2019), Fungetur (2018-2020). Salvo melhor escrutínio, todas novas à literatura científica em turismo. Os fundos têm objetivos distintos. O estudo ressalta a importância de examinar as relações e complementaridades entre instrumentos transversais para estímulo do desenvolvimento econômico e territorial comparados àqueles dirigidos a um setor em particular. Outro realce é o foco em avaliar o financiamento em turismo dirigido ao setor privado. Apesar de sua importância, pouca literatura empírica foi encontrada sobre o tópico.

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Um aspecto inovador é avaliar uma base de dados de escala nacional de um grande país não europeu considerando múltiplas ACTs e uma série temporal extensa. Também contribui ao apresentar uma metodologia para conduzir esse tipo de análise exploratória. Ao final, são discutidas sugestões a respeito das políticas de financiamento público ao setor privado em turismo.
Palavras-chave: Política de Turismo; Fundos Públicos; Cartografia Temática; Turismo no Brasil.

Resumen

Financiación Pública para Empresas Turísticas: perfil de las operaciones y distribución espacial de tres fondos brasileños

El estudio analiza el perfil y la distribución espacial de las operaciones de crédito a través de fondos públicos para las empresas turísticas. Las herramientas utilizadas en esta investigación exploratoria fueron la cartografía temática y la estadística descriptiva e inferencial. Las pruebas no paramétricas, como la Chi-cuadrado, la Spearman-Rho y la W de Kendall, permitieron considerar 16 proposiciones sobre la posición de los fondos en la financiación de las actividades características del turismo (ACT). Las bases de datos investigadas son: operaciones indirectas del BNDES (2002 a 2020), Fondo Constitucional del Nordeste (2010 a 2019), Fondo General de Turismo (2018-2020). Todas nuevas a la literatura científica en turismo, salvo mejor búsqueda. Los fondos tienen objetivos distintos. El estudio subraya la importancia de examinar las relaciones y complementariedades entre los instrumentos transversales para estimular el desarrollo económico y territorial comparados a los dirigidos a un sector concreto. Otro aspecto destacado es el enfoque en la evaluación de la financiación del turismo dirigida al sector privado. A pesar de su importancia, se ha encontrado poca literatura sobre el tema. Un aspecto innovador del presente trabajo es evaluar un conjunto de datos en escala nacional de un largo país non europeo con múltiples ACTs en una extensa serie temporal. Al final, se discuten las sugerencias relativas a las políticas de financiación pública para el sector privado del turismo.
Palabras clave: Política Turística; Financiación Pública; Cartografía Temática; Turismo en Brasil.

Introdução

Tourism receives attention from several scientific fields, which define and evaluate its implications differently. One of the most widespread discourses is its understanding as a tool for promoting economic development, job and income creation. As such, it became a subject of public policies in Brazil, as established by the National Tourism Policy 11.771/08 law.

However, to fulfill this purpose, an important question is: How do we finance tourism projects and businesses? There are market mechanisms such as banks, credit unions, equities on stock exchanges, and real estate funds - dedicated to building hotels, malls, and leisure parks. However, a quick consultation at ANBIMA (Brazilian Financial and Capital Markets Association) with the terms 'tourism,' 'travel,' and 'hotels'[3] has returned only six results. For 'transportation,' a sector also considered a tourism characteristic activity (TCA), there are 186

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3. Consultation held on https://data.anbima.com.br/ on September 12, 2021 covering Debentures, Funds, CRIs (Real Estate Receivables Certificates) and CRAs (Agribusiness Receivables Certificates).

results, with a significant presence of infrastructure concessionaires to airports, highways, and airlines. The same trend is verified when searching for tourism companies listed on the Brazilian Stock Exchange: there are just a few.

Despite being capital-intensive, particularly in infrastructure, tourism is formed primarily by small and medium-sized enterprises (SMEs). Many of whom have restricted access to credit mechanisms. The bottleneck is more intense in the case of small businesses, generally considered risky by traditional creditor institutions. The lack of information about the destination as a whole makes the scenario more challenging as each actor focuses on their business. A Destination Management Organization (DMO)can provide insights into the destination's global panorama and support tools, mitigating this restriction.

Despite these uncertainties, tourism can be considered an instrument for regional development and job creation. Due to its transversality, it can articulate and integrate different productive sectors within a territory and add value to those production chains. In addition, it can generate opportunities for different company sizes, sometimes with small entry barriers.

In this sense, state policies may deal with these market failures, creating a support structure that enables the making of a regional network that gradually acquires autonomy. Thus, an important field of tourism policy is how to induce investments. Wanhill (2005) and Bodlender (1982) present different mechanisms, such as the direct provision of infrastructure or land, non-reimbursable grants, tax incentives, and subsidized credit or credit guarantees. Strategies that Development Banks or funds often operationalize.

The literature on Brazilian tourism policy focuses on the State's investments (Bezerra, 2005; Cruz, 2006; Lemos, 2013). Evaluating the private sector's response to these stimuli received less attention. This article aims to analyze the profile and spatial distribution of credit operations that finance tourism-related businesses in Brazil in three public funds with different purposes and to compare their performance. This article's contribution is manifold as (1) it contrasts the effects of different tourism funding policies in a (2) extensive and diverse non-European country, and (3) covers multiple Tourism Activities in a (4) cross-temporal analysis.

Given the need to take the risk of a loan, credit operations are an appropriate proxy to assess private sector expectations and confidence in tourism growth. Analyzing the location and distribution of these financings is also a way to evaluate the effectiveness of tourism stimulus policies. In addition, it allows us to recognize the different rhythms and dynamics of the sector in a given national territory. By investigating three different funding sources, the study also proposes to compare the results of different credit policies. One is FUNGETUR (Brazilian Tourism Fund), a tourism-specific fund. FNE (Brazilian Northeast Constitutional Fund) aims to reduce territorial disparities and promote regional development in a specific part of the Brazilian territory. Finally, BNDES (Brazilian National Development Bank indirect operations) aims to stimulate economic activity in general.

Other public funds invest in tourism-related businesses in Brazil. Nevertheless, we chose these due to their data open access availability. Another option was to limit the research to the period before the COVID-19 pandemic, given that this period's setbacks required specific policy demands beyond this research's scope.

The text is structured as follows: a discussion on the financing for tourism enterprises is presented. Subsequently, the three investigated funds are

characterized. The methods section describes the choices made in the analysis process. Results and their implications are then presented.

The financing of tourism enterprises

When considering tourism development funding, Bodlender (1982) recalls that public and private investors have different purposes and expectations, which has implications for policy design and approach to financing tourism projects. The private sector generally seeks profitability and a timely return on capital. Return that comes directly from a given investment. The public sector, however, aims at economic development, job creation, foreign exchange, increased tax revenue, or improvements to the territory. In addition, the investment has an indirect return as it increases future tax revenue. Another distinction is that the State has a lower cost for capital by having tax revenue assured. A vantage position that affords it to act as a new investment catalyst.

The perception of the State's role in promoting tourism development has varied through different institutional arrangements in time and space (Hall, 2011). It had a more active role in the 1970s, including direct services performance or subsidies to hotel construction in the so-called 'seed investments .'However, in a neoliberal scenario, the understanding that State action should be more retracted and restricted to a normative role became more common. Hence, there are policies of decentralization, privatization, concessions, and the discharge from the control of those previously created structures.

Development Banks like the World Bank (WB) also underwent this shift. Hawkins & Mann (2007) went through forty years of WB tourism projects in poor countries. They identified a reorientation from macro policies towards micro development initiatives. In the 1970s, WB had its tourism department and an active policy in financing projects aimed at macrodevelopment. In the 1980s, the institution officially ceased to support tourism. The reasons for this were the findings that tourism can contribute to a 'dependency model' that favors multinationals and the remittance of profits abroad, hence exacerbating the inequality between global North and South; the fact that the direct beneficiaries of the resources are not poor population but western visitors; the perception that tourism is an unstable and volatile sector, too sensitive to fluctuations in the political and economic scenario, vulnerable to disasters and taste trends. There was a perception that private investment would be more appropriate for tourism development. In the 2000s, there was a new expansion of WB tourism projects; however, with another focus and other mechanisms, such as direct loans to the private sector, risk warranties to invest in unstable areas, and microfinance instruments to enhance the links between large businesses and small suppliers. Project analysis was at a firm level, looking at its efficiency and value chain, which added to destination competitiveness. Themes were absent in the macro development period when analyses were made at a general national scale.

Wanhill (2000) reports a similar shift in the European Structural Funds to the UK case. From the large automatic grants to attract inner investment projects, it went to small firms funding and an endogenous development policy. The reason was that SMEs could create a more flexible structure that better-adapted

production techniques to the local context, customized services and products to consumer needs, provided new entrepreneurs local support, operated in networks, and provided local jobs. In sum, to create a certain regional autonomy based on the territory's competitive advantages.

Harvey (1989) interprets this movement as Fordism to flexible accumulation transitioning. In tourism, this means going from a scale economy, with large structures and wholesaler travel distribution, to a regional network of family businesses and digital platforms distribution in a segmented market where visitors have a more active role in experience value creation.

The funds in analysis

This research analyzes three different government-supported funds with particular characteristics. The Brazilian National Development Bank (BNDES) indirect operations is a general economy stimulation policy supported by Brazilian social security system resources (Melo et al., 2018). A particular tax assures its income and does not go through annual budget discussions. According to its investment guide (BNDES, 2024), the fund is available to various industries in loans up to R$150 million (approximately US$ 30 million) made through a large base of financial intermediaries, such as commercial banks. To access this fund, the candidates must be Brazilian businesses and refrain from using the resources for real estate or spring investments. The fund prioritizes investment in machinery and capital goods, making passenger transportation the TCA that benefits most. The data set is open-source, and the analyzed time frame goes from January 2003 to March 2020.
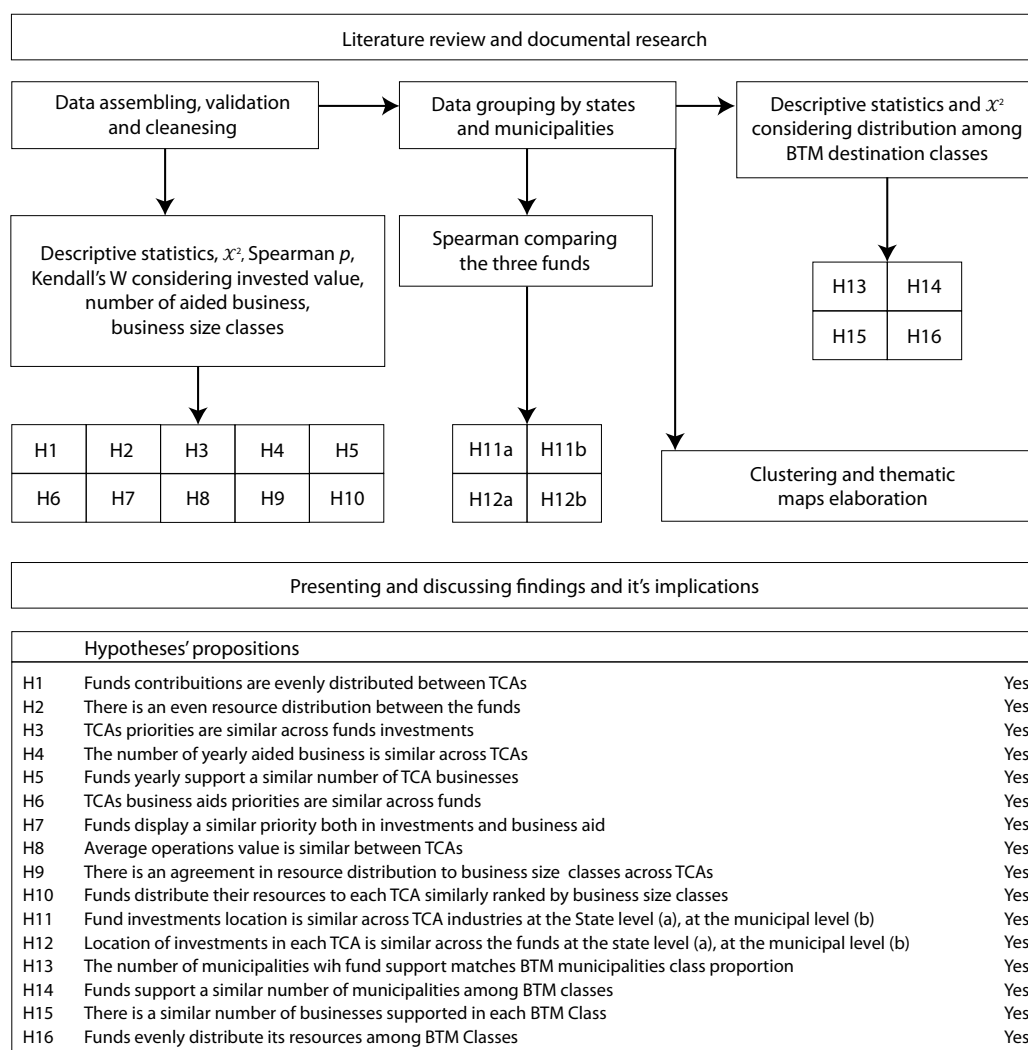
The FNE is part of regional development policy to promote one of the country's least economically developed regions (BNB, 2024). Despite having the reimbursements of previous loans as its main cash flow nowadays, a federal tax percentage assures the fund a stable source of income. The FNE resource allocation is annually defined in a participatory way, based on criteria such as benefiting micro and small businesses, appraising the borrowers' rural or urban condition, considering the regional development policy territorial classification, and devoting half of the fund's budget to the poorest areas. One State-owned bank grants access to FNE's resources. The analyzed data set encompasses TCA funding from January 2010 to December 2019.

The Tourism General Fund (Fungetur) was created in 1971 and incorporated by the country's new institutional democratic setting. It is the most flexible among the funds since Tourism Ministry ordinances define its guidelines (Brasil, 2020). Other than capital goods and working capital, it can support constructions, studies and plans elaboration, tourism promotion initiatives, and whatever the executive declares as of 'touristic interest.' However, unlike BNDES and FNE, it does not have a steady source of income, being subject to annual budget discussions. Despite being the oldest fund, the free access data set only covers operations from January 2018 onwards. In 2020, due to the pandemic, it received a significant capital influx, with some changes in the loan distribution regulation (Fungetur, 2021). The analysis of this unique period is beyond the scope of this study. Until March 2020, regional and State development agencies and banks distributed Fungetur's resources.

Methods

This text is an exploratory inquiry based on thematic cartography and descriptive and inferential statistics. The following image illustrates the steps and choices made during this research process.

Image 1 - Steps of the analysis.

Literature review and documental research	

Data assembling, validation and cleanesing → Data grouping by states and municipalities → Descriptive statistics and x^2 considering distribution among BTM destination classes

Descriptive statistics, x^2, Spearman p, Kendall's W considering invested value, number of aided business, business size classes

Spearman comparing the three funds

H13	H14
H15	H16

H1	H2	H3	H4	H5
H6	H7	H8	H9	H10

H11a	H11b
H12a	H12b

Clustering and thematic maps elaboration

Presenting and discussing findings and it's implications

	Hypotheses' propositions	
H1	Funds contribuitions are evenly distributed between TCAs	Yes
H2	There is an even resource distribution between the funds	Yes
H3	TCAs priorities are similar across funds investments	Yes
H4	The number of yearly aided business is similar across TCAs	Yes
H5	Funds yearly support a similar number of TCA businesses	Yes
H6	TCAs business aids priorities are similar across funds	Yes
H7	Funds display a similar priority both in investments and business aid	Yes
H8	Average operations value is similar between TCAs	Yes
H9	There is an agreement in resource distribution to business size classes across TCAs	Yes
H10	Funds distribute their resources to each TCA similarly ranked by business size classes	Yes
H11	Fund investments location is similar across TCA industries at the State level (a), at the municipal level (b)	Yes
H12	Location of investments in each TCA is similar across the funds at the state level (a), at the municipal level (b)	Yes
H13	The number of municipalities wih fund support matches BTM municipalities class proportion	Yes
H14	Funds support a similar number of municipalities among BTM classes	Yes
H15	There is a similar number of businesses supported in each BTM Class	Yes
H16	Funds evenly distribute its resources among BTM Classes	Yes

Source: author's elaboration

The first step was a literature review and information gathering about the available data sets, their institutions, and the funds' characteristics. The selection criteria were open access and the funding of TCAs in Brazil. After selecting the three funds, our next step was cleaning and validating the data. TCA selection sought to be consistent with previous studies (MTUR/IPEA, 2015; IBGE, 2012) in activity code choices. The broad categories were lodging, catering, tourism intermediaries, passenger transportation, entertainment, and cultural activities. We adjusted the business size variable to match across the data sets[4].

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4. The working definition for company size used here is from BNDES. It sets the classes according to annual billings. Small businesses are up to R$ 4.8 million (US$960,000), medium-sized businesses are those between R$4.8 and R$300 million (US$ 60 million), and large companies are those with more than US$ 300 million.

Using descriptive statistics and applying non-parametrical tools to test exploratory hypotheses was then possible. We used Chi-Square independence to evaluate how each fund distributed its resources to TCA and the number of supported companies in each TCA. Spearman-Rho correlations in those variables afforded comparisons between funds' behavior. We applied Kendall's W coefficient of concordance to consider whether the funds distributed resources evenly to different classes of business size. As an exploratory inquiry, the overall null hypothesis assumption is that funds resource distribution is similar, with the alternative being a different behavior.

Given the goal of analyzing investments' spatial distribution, we grouped loan data by TCA to each municipality and State. That made it possible to compare each fund through the Spearman-Rho correlation. It also enabled the creation of theme maps through QGis and IBGE's (2019) spatial grid. Different clustering methods – Jenks, Ward, Natural Breaks – were tested to present the variables on the maps. The chosen option was to adapt Ward's solutions to those closest to natural breaks, affording a more intuitive and comparative vision of the map data.

Besides the maps, grouping data according to a geographical unit enabled descriptive statistics and hypothesis testing on resource distribution according to the destination classes established by the Ministry of Tourism Brazilian Tourist Map Policy (BTM) (Brasil, 2019). BTM taxonomy is a criterion for transfer agreements between federal and local governments. It considers variables such as the number of lodging facilities, estimated number of foreign and domestic visitors, and federal tax collection to group municipalities under five classes: A, B, C, D, and E. In the 2019-2021 version, from 5,700 Brazilian municipalities, 2,694 (47%) were present in BTM distributed through 333 tourist regions (Brasil, 2019). Table 1 shows a precise concentration of tourism indexes in municipalities class A and B.

Table 1 - Brazilian Tourist Map municipalities classes descriptive

Class	Municipalities (n.)	Municipalities (%)	Lodging Jobs (%)	Lodging businesses (%)	Domestic visitors (%)	International visitors	Federal TCA tax collection (%)
A	62	2%	56%	38%	80%	57%	73%
B	257	10%	28%	32%	14%	25%	21%
C	476	18%	11%	18%	3%	12%	5%
D	1,522	56%	5%	12%	2%	6%	0%
E	377	14%	0%	0%	0%	0%	0%
Total	2,694	100%	100%	100%	100%	100%	100%

Source: authors based on MTUR(2019).

Chi-square independence and Chi-Square goodness of fit were appropriate for comparing investment distributions over different BTM classes since data had to be grouped under municipalities' categorical labels.

The following section describes and discusses findings by comparing each fund's general contributions and how much is directed to TCAs. The results assess the distribution of funds' investments amongst TCA and companies of different sizes, which affords some remarks on TCA market structures.

Successively, the spatial distribution of funds' investments is discussed, including its allocation according to BTM destination classes. Finally, we considered the funding distribution through the years.

Findings and discussion

Comparing the funds

The first assessment refers to the general contributions of each fund and the amounts they drive to TCAs. The annual average values in Table 2 show a clear difference in fund sizes and the priorities given to TCAs on their agendas.

Table 2 - Yearly average values invested in TCAs

TCA	BNDES	%	FNE	%	FUNGETUR	%
Lodging	R$ 81,345,390.63	6%	R$ 252,631,153.67	69%	R$ 47,927,875.21	50%
Catering	R$ 55,867,268.60	4%	R$ 71,831,312.55	20%	R$ 11,803,293.70	12%
Travel Intermediaries	R$ 31,123,716.93	2%	R$ 2,930,418.64	1%	R$ 10,371,534.75	11%
Entertainment and culture	R$ 13,327,813.97	1%	R$ 19,865,292.18	5%	R$ 13,626,177.78	14%
Passenger transportation	R$ 1,212,620,984.99	87%	R$ 20,659,198.35	6%	R$ 11,954,043.95	12%
Fund's yearly contribution / % to TCAs	R$ 28,700,982,939.95	4,86%	R$ 16,081,740,605.09	2,3%	R$100,406,646.00	95,3%

Source: authors based on BNDES, FNE, and Fungetur

Chi-Square independence tests lead to reject the following hypothesis: (H1) "Funds contributions are evenly distributed between TCAs" (BNDES $\chi^2(4)$ 5.3e9; FNE $\chi^2(4)$ 5.8e8; Fungetur $\chi^2(4)$ 5.4e7, all with $\rho <0,000$), (H2) «There is an even resource distribution between the funds» ($\chi^2(2)$ 1,5e9 $\rho <0,000$). The residuals emphasize passenger transportation at BNDES, lodging and catering at FNE, and leisure and intermediaries at Fungetur. BNDES is the largest fund, although it directs only 0,63% to TCAs - passenger transportation excluded. Nevertheless, the amount is still superior to FUNGETUR, the specific national tourism policy fund. Which, as expected, is the one that drives the most significant amount of its resources to TCAs despite being the smallest fund. Although restricted to a specific Brazilian region, FNE is the fund that most devotes resources to lodging and catering services. Spearman assessed whether (H3) " TCAs priorities are similar across funds investments." The moderate correlation ($\rho =0,6$) between FNE and BNDES or Fungetur and a weak one ($\rho =0,2$) between BNDES and Fungetur points to somehow different priorities.

Another way to assess the funds is to consider how many businesses got a loan, as Table 3 displays.

Table 3 - Yearly aided TCA businesses

TCA	BNDES	%	FNE	%	FUNGETUR	%
Lodging	110	2%	213	1%	39	18%
Catering	394	9%	24,751	93%	113	52%
Travel Intermediaries	142	3%	398	1%	23	11%
Entertainment and culture	59	1%	59.4	0%	23	11%
Passenger transportation	3,820	84%	1,215	5%	20	9%
Yearly aided TCA companies / % TCA in overall business	4,520	2,94%	26,637	12,42%	220	98,41%

Source: authors based on BNDES, FNE, and Fungetur.

As in the previous figure, Chi-Square independence tests lead to reject the following hypothesis: (H4) "The number of yearly aided business is similar across TCAs" (BNDES $\chi^2(4)$ 1,1e4; FNE $\chi^2(4)$ 8,8e4; Fungetur $\chi^2(4)$ 1,42 all with ρ <0,000), (H5) «Funds yearly support a similar number of TCA businesses» ($\chi^2(2)$ 3,8e4 ρ <0,000). Only in this case, regarding (H6) «TCAs business aids priorities are similar across funds," BNDES and FNE show a similar agenda (ρ =0,900) despite having a different first TCA priority. In contrast, Fungetur drifts from both funds (ρ =-0,319 with BNDES and ρ =0,106 with FNE).

The number of supported companies by each fund is very dissimilar. FNE and Fungetur have in common, primarily supporting food and beverage businesses with many small companies and low-value loans.

Particularly, FNE, even with a restricted area, supports a far significant number of initiatives. However, those 93% of funded companies only get 20% of the value. In contrast, examining FNE loans given to accommodation, the 1% of businesses got 69% of resources. As further analysis demonstrates, there is a double strategy policy: primarily supporting small companies with low-value loans while investing higher amounts in significant developments—particularly those located at seaside destinations and directed towards large companies.

When asking if (H7) "Funds display a similar priority both in investments and business aid," the weak or absent link (FNE ρ = 0,2, Fungetur ρ =0,0) seems another pointer of this strategy. BNDES, however, shows a consistent preference (ρ = 0,7).

It is possible to see how each TCA has different capital needs when comparing their average operation (value in loans by number of aided businesses). Lodging requires larger loans (R$ 1,079,918) while catering for microcredit (R$ 5,630). In between are Passenger transportation (R$394,761), entertainment (R$ 364,505), and Travel Intermediaries (R$82,570). Dismissing (H8) "Average operations value is similar between TCAs" ($\chi^2(4)$ 1,8e6 p <0.000).

That disparity shows how the TCA labels groups of industries with different market structures. Company size is another variable in the three datasets (Image 2). It is possible to see how Catering and Travel Intermediaries borrowers are mainly micro and small businesses. Meanwhile, lodging and entertainment funding goes towards medium-sized companies. Passenger Transportation is where large companies play a critical role. Entertainment is made mainly of microbusinesses, but large and medium-sized companies get most of the funding.

Image 2 - Business size class distribution of financed
values and aided business in each TCA
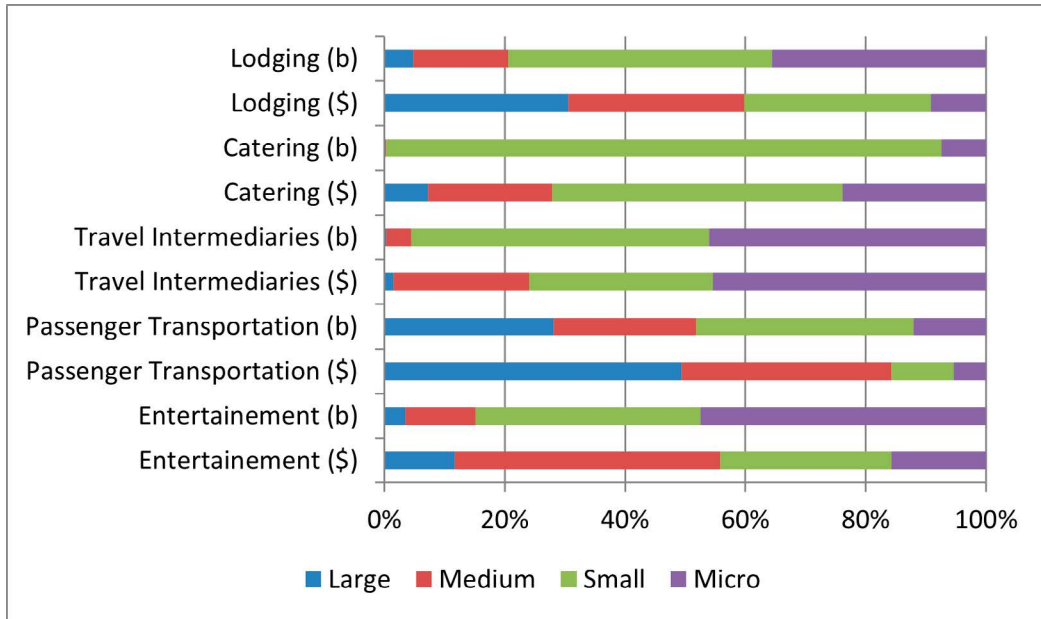
Source: authors based on BNDES, FNE, and Fungetur

Does business size matter in how each fund distributes its resources? Is there a similar trend between TCAs? Do funds present the same preferences on company size when funding the same TCA? To examine that topic with potentially different funding policies, business size classes - large, medium, small, and micro - were transformed in rank from one to four. Kendall's W coefficient of concordance was applied. Chi-Square tests were not an option due to missing values in some business size categories when disaggregating data by fund and TCA.

Analyzing whether (H9) "There is an agreement in resource distribution to business size classes across TCAs," results support the existence of a convergence. However, the low W values (BNDES w = 0.032; FNE w=0.004; Fungetur w= 0.034) indicate those links to be weak. That aligns with the existence of different market structures across TCA industries. Going beyond aggregated analysis and discretely examining TCA sectors is then appropriate.

Therefore, the proposition is: "Funds distribute their resources to each TCA similarly ranked by business size classes" (H10). Results indicate an agreement, although it varies among TCAs, and funds did not fully align in a single case. The highest agreement was in catering (w = 0.733), with resources flowing towards small companies and drifting from large ones. The lowest convergence was in passenger transportation (w = 0.244), with BNDES preferences for large and medium-sized businesses and FNE primarily aiding small and micro ones. Other assessed TCAs were Lodging (w = 0.556), entertainment (w= 0.467), and travel intermediaries (w = 0.6). A policy that primarily benefits a particular business size class in any fund does not exist. Business size class preferences shifted, adjusting to each TCA composition.

Loans spatial distribution

Another study concern is to understand where the funds allocate their resources. Is there a spatial relation between investments in different TCA industries? Are they scattered, or do they flow to the same localities? Do funds behave the same way? An early assessment can be made by examining the number of municipalities that received funds' resources. BNDES supported loans in 3,759 (65%) of the 5,700 Brazilian municipalities. Also available to all, Fungetur only got only to 173 (0,03%) localities. FNE area is restricted to 1,990 municipalities, of which 1,220 (61%) got TCA loans. To measure how loan distribution relates between different funds and TCAs, a Spearman correlation analysis was applied at state and municipal levels, as in Table 4. We selected FNE area municipalities only to compare it with the other funds.

Table 4 results afford to consider (H11) "Fund investments location is similar across TCA industries at the State level(a), at the municipal level(b)." At the state level (H11a), the Spearman correlation was moderate or strong to BNDES and FNE - except for entertainment. For Fungetur, it was moderate between lodging, catering, and passenger transportation. However, the links were weaker when measured at the municipal level (H11b). In summary, there is a tendency for investments to flow to the same macro-areas, but at the micro level, loans are scattered. In that sense, it is possible to say that they complement each other rather than overlap and that there is a spatial diversity in the needs of loans to fund TCAs.

Table 5 assists in answering (H12): "Location of investments in each TCA is similar across the funds at the state level(a) and at the municipal level(b)."

Table 4 - Spearman-Rho correlations matrix at State and Municipal levels in each fund.

		State level				
	BNDES	**Lodging**	**Catering**	**Travel Intermediaries**	**Passenger Transportation**	**Entertainment**
Municipal level	Lodging		.817**	.708**	.837**	.760**
	Catering	.368**		.766**	.797**	.801**
	Travel Intermediaries	.246**	.362**		.736**	.627**
	Passenger Transportation	.388**	.494**	.369**		.731**
	Entertainment	.342**	.414**	.442**	.461**	
	FNE					
Municipal level	Lodging		.691*	.864**	.718*	0.545
	Catering	.353**		.700*	.736**	.727*
	Travel Intermediaries	.360**	.290**		0.473	0.473
	Passenger Transportation	.305**	.323**	.328**		0.564
	Entertainment	.300**	.351**	.295**	.342**	

	BNDES	Lodging	Catering	Travel Intermediaries	Passenger Transportation	Entertainment
	State level					
Fungetur						
Lodging			.698**	0.476	.636*	0.446
Catering		-0.048		0.421	0.493	0.240
Travel Intermediaries		-0.008	0.046		0.261	0.477
Passenger Transportation		-0.060	-0.131	0.070		0.453
Entertainment		0.009	0.000	0.029	0.045	

Source: authors based on BNDES, FNE, and Fungetur.

Table 5 - Sperman-Rho correlations matrix at State and Municipal levels in each TCA.

		State level		
	Lodging			
Municipal level		BNDES	FNE	Fungetur
	BNDES		0,580*	,663*
	FNE	0,365**		,240
	Fungetur	0,254*	0,315	
	Catering			
Municipal level		BNDES	FNE	Fungetur
	BNDES		,182	,245
	FNE	,444**		-,288
	Fungetur	0,121	0,14	
	Travel Intermediaries			
Municipal level		BNDES	FNE	Fungetur
	BNDES		,218	,384
	FNE	0,508**		-,296
	Fungetur	0,207	0,594	
	Passenger Transportation			
Municipal level		BNDES	FNE	Fungetur
	BNDES		,264	,276
	FNE	0,279*		-,344
	Fungetur	0,188*	,240	
	Entertainment			
Municipal level		BNDES	FNE	Fungetur
	BNDES		0,618*	,244
	FNE	,279*		,232
	Fungetur	0,41	0,232	

Source: authors based on BNDES, FNE, and Fungetur

Image 3 - Maps with fund's investments spatial distribution according to TCA.
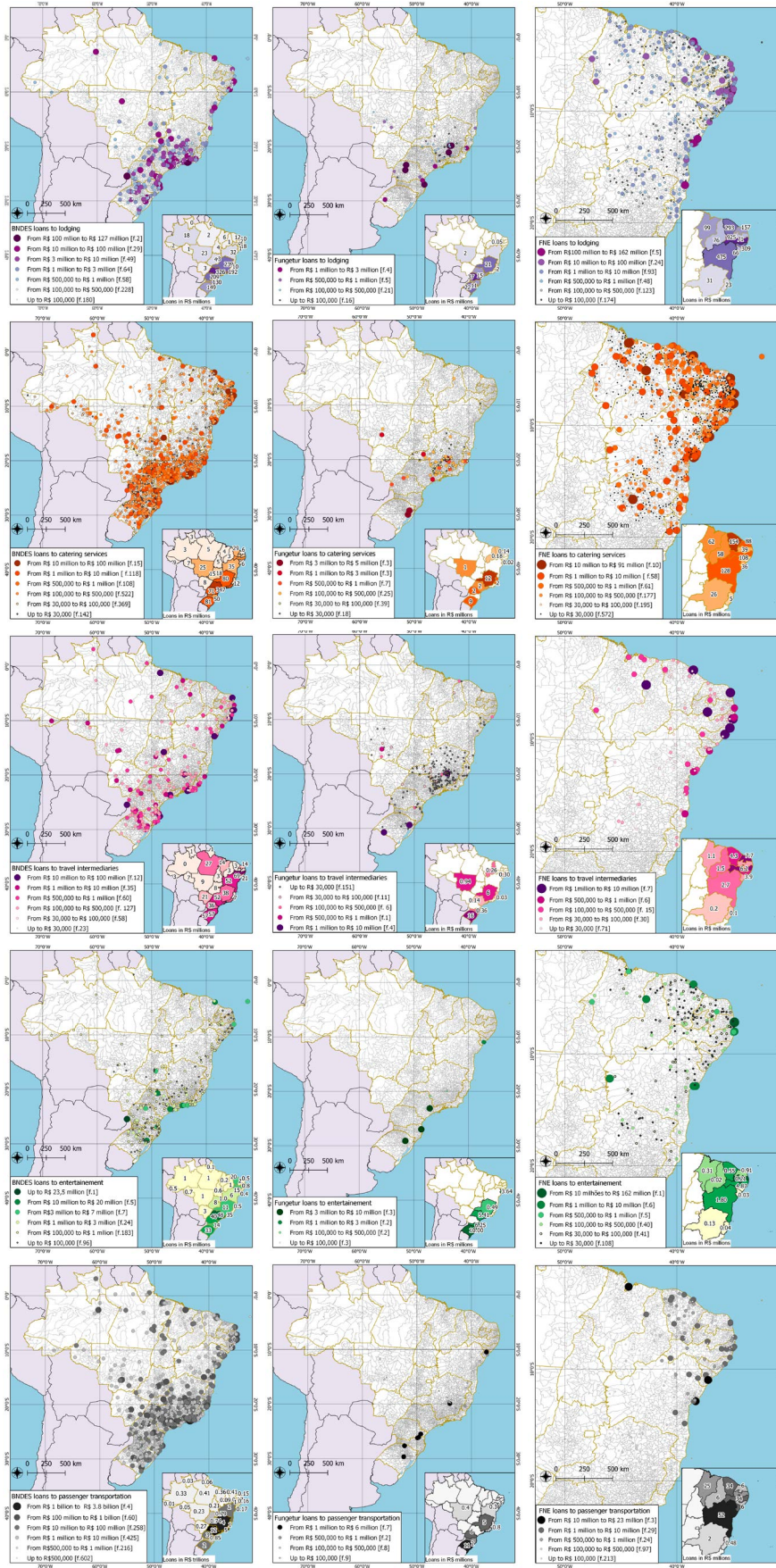
Source: authors based on BNDES, FNE, Fungetur, and BNDES (2019).

When comparing each TCA support across funds, the result is different from the previous Table 5; here, there are few correlations at the state level (H12a). At the municipal level (H13b), the FNE and BNDES moderate to small correlation is constant across all five TCAs. Fungetur hardly correlates with other funds. Lodging is where the highest convergence of funds' investment location is found. This varied answer calls for an individual analysis of each TCA industry. The following 15 theme maps show how each fund distributes its investments to each sector at municipal and State levels.

The maps show that BNDES contributions are generally concentrated in Southeast and South Brazil, the most economically prominent regions. Fungetur loans are also primarily applied in these areas; nevertheless, they are highly concentrated in specific municipalities compared to other funds. One reason might be the fund's few intermediaries, which do not have the same market penetration as BNDES's and FNE's financial partners. Fungetur hardly reaches the North, Midwest, and Northeast regions, assisted by constitutional funds such as FNE.

FNE is the favorite borrower fund in its operation area, except when the loans are for acquiring vehicles – in TCAs such as Passenger Transportation and Tourism Intermediaries. Despite their policy to fund initiatives inland, the loans still accumulate at the coastline. The region is a sunbelt for the southern Brazilian domestic market. Particularly about accommodation, FNE invested more in Porto de Galinhas, a seaside resort, than in other states. Catering services, though, are more prone to geographical dispersion. It is the activity with loans in more municipalities, specifically in the low values classes. That reflects the industry's lower entry barrier and SME composition.

Nevertheless, investments are more intense in the more populous municipalities, which underlines the industry's relationship with urbanization and response to a local demand besides visitors—explaining the BNDES catering loans agglomeration in São Paulo city. It is possible to notice that BNDES is the leading fund in carrying out the concession policy and infrastructure provision of attractions such as national parks.

Under the label entertainment are museums, zoos, amusement parks, theme parks, rodeos, concerts, theatres, nightclubs, circuses, and sports events. Despite their diversity, that is the TCA with the lowest loan value and the most spatially constrained. There is a tendency to cluster in state capitals and regional hubs, where small businesses carry out a more vibrant cultural offer. Differently, the most prominent investments to larger companies are made in tourist-specialized municipalities to foster theme/water parks or national parks concessions, as attested by Foz do Iguaçu(PR), Gramado (RS), Aquiraz(CE) and Fernando de Noronha (PE).

Travel agencies and tour operators, labeled as Tourism intermediaries, are a kind of TCA that can be located both at visitors' origins – promoting them to leave – or at destinations – welcoming them. That justifies why this industry has a less uneven spatial spread at the state level than other TCAs. However, at the

municipal level, it is more concentrated than lodging, catering, or passenger transportation. BNDES policy for acquiring vehicles also matters at this TCA. Tourism intermediation represents only 1% of FNE TCA investment. In contrast, BNDES displays ten times the FNE loan value, with a higher proportion in the Northeast and other regions than in traditional Southeastern concentrations. Otherwise, Rio Grande do Sul (62%) concentrates on Fungetur's investments.

BNDES policy to support nationally produced capital goods means that passenger transportation funding values ranged at billions and not millions of Reais(R$) as in other TCAs. Transport is the TCA with the most spread out loans throughout the country, despite the concentration in São Paulo state in BNDES' case. As in other cases, Fungetur investments seem pinpointed.

Road transportation makes 95% of the loan's value, even if it was directed to different modes such as air (5%), water, and rail – which sum accounts for 0,13%. Airline funding is highly concentrated in a few companies, while road transportation has a more extensive spread. It is worth mentioning that road transportation's particular characteristic is to install itself in locations such as the state capital's neighbors, seeking lower-cost spots but still with good connectivity. That makes its distribution different from other TCAs when considering the municipalities class at BTM, which is less concentrated in the A and B classes.

Loan Distribution According to MTUR's Brazilian Tourism Map

Another research concern is evaluating loan distribution and the number of supported companies across the different classes in which the 2019 Brazilian Tourism Map (BTM) disposes municipalities – as shown in Table 6. Tourism plays different roles in different territories. There are mature destinations and tourism-specialized locations where new investments make low incremental value to the existing offer. Besides, there are places where tourism is still incipient, where low investment and proper support can lead to substantial tourismscape transformation.

Table 6 - Loans distribution by BTM Class.

	BTM Class	n. municipalities	%	n. business	%	total invested value (R$)	%
BNDES	A	57	2%	4,525	39%	16,814,268,351	44%
	B	179	5%	2,424	21%	8,546,210,535	22%
	C	539	14%	2,351	20%	7,903,920,336	21%
	D	1,961	52%	1,723	15%	3,482,786,454	9%
	E	549	15%	69	1%	126,439,026	0,3%
	No class	474	13%	566	5%	1,745,061,885	5%
	Total	3,759	100%	11,658		38,618,686,587	

	BTM Class	n. municipalities	%	n. business	%	Total Invested value(R$)	%
FNE	A	15	1%	2,352.9	11%	2,215,175,636	60%
	B	48	4%	2,372.7	11%	755,926,337	21%
	C	112	9%	3,688.1	17%	291,686,593	8%
	D	383	31%	5,695.3	26%	260,298,200	7%
	E	64	5%	571.7	3%	1,165,832	0,0%
	No class	598	49%	6,988.9	32%	150,163,006	4%
	Total	1,220		21,669.6		3,674,415,605	
	BTM Class	n. municipalities	%	n. business	%	Total Invested value (R$)	%
FUNGETUR	A	16	9%	170	35%	130,855,232	56%
	B	31	18%	97	20%	42,979,686	19%
	C	54	31%	113	23%	45,809,593	20%
	D	43	25%	62	13%	10,286,891	4%
	E	2	1%	4	1%	222,556	0,1%
	No class	27	16%	46	9%	2,610,492	1%
	Total	173		492	100%	232,764,453	

Source: authors based on BNDES, FNE, and Fungetur.

The higher number of supported municipalities in classes C and D corresponds to the BTM distribution in Table 1. However, excluding the nonclassified municipalities and performing Chi-Square goodness of fit tests, in the three cases, results suggest rejecting (H13) "The number of municipalities with fund support matches BTM municipalities class proportion" (BNDES $\chi^2(4)$ 3.13; FNE $\chi^2(4)$ 13.5 both with p <0.000); Fungetur small values did not support the test. Chi-Square for independence also leads to dismiss (H14) "Funds support a similar number of municipalities among BTM classes" (BNDES $\chi^2(4)$ 3.5e4; FNE $\chi^2(4)$ 7.1e2 both with p <0.000; Fungetur small E class values did not support the test). Comparison between the funds also points to different distributions.

When assessing the number of supported businesses, Chi-Square independence test results also prompt to reject (H15) "There is a similar number of businesses supported in each BTM Class" (BNDES $\chi^2(4)$ 4.6e3 FNE $\chi^2(4)$ 4.9e4; Fungetur $\chi^2(4)$ 1.7 all with p <0.000). BNDES and Fungetur support far more initiatives in Class A consolidated tourism destinations. With a different behavior, FNE supports more business in D class or out of BTM and the national tourism policy. The already commented large amount of small loans to the catering sector explains this.

Concerning resource allocation, Chi-Square independence tests values lead to dismiss (H16) "Funds evenly distribute its resources among BTM Classes" (BNDES $\chi^2(4)$ 2.1e10; FNE $\chi^2(4)$ 4.4e9; Fungetur $\chi^2(4)$ 2.2e8 all with p <0.000). In the three cases, the trend is to concentrate investments in class A destinations. In that sense, a greater value is directed towards fewer localities where tourism is already consolidated. Private investors are likely to take loans in territories with consolidated demand, a certain competitive edge, and a productive tourism specialization, thus reinforcing existing agglomerations. That is particularly valid for the FNE case despite the number of municipalities and supported businesses in D and No classes. Alternatively, BNDES and Fungetur allocate more resources in Class C municipalities, where tourism is still incipient.

Loans over time

Another study concern was investment distribution over time (Image 4).

Image 4 - Timely distribution of TCA funding from BNDES, FNE, and Fungetur
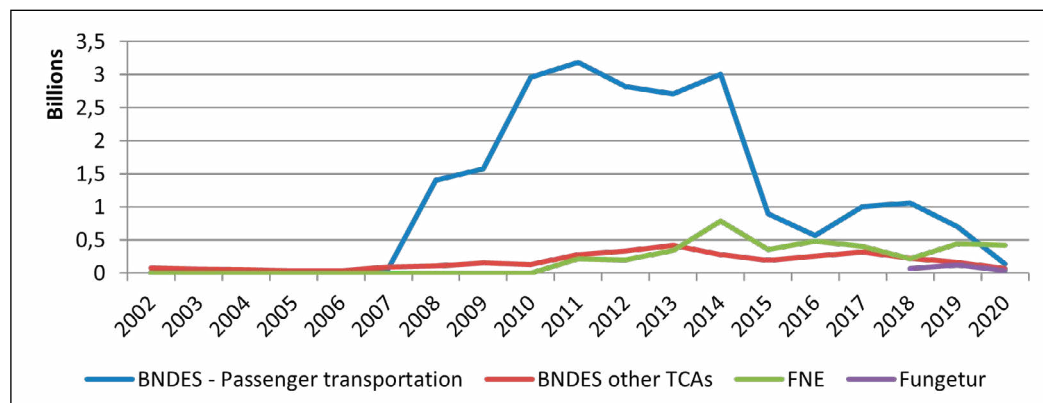
Source: authors based on BNDES, FNE, and Fungetur.

It is essential to notice that Brazil hosted two significant sports events in the analyzed period. There was a rising tide in TCA loans three years before FIFA's World Cup (2014), but there was a decline after the 2016 Summer Olympics Games. From 2018 onwards, FNE recovered, unlike the other funds. However, the highlight is BNDES passenger transportation, which was given a different

series due to its far superior values to other TCAs. Those investments resulted from a government policy to foster industrial activities, which had a clear cut after the 2014 national elections.

Conclusions

In a sector mainly formed by SMEs, a key point for the success of tourism policies is ensuring access to funding so destinations can flourish in initiatives and innovations. When evaluating the position of institutions that finance development projects related to tourism, the literature points to a transition from a perspective centered on macro indicators of national destination performance to an emphasis on the micro level, complementarity between firms, and the value generated by their interaction. This study evaluated the distribution of loans to TCA private businesses from three Brazilian public funds with different missions. BNDES aims to promote general economic stimulus, FNE seeks to mitigate regional imbalances and help the development of lagging areas, and Fungetur has a flexible design explicitly targeted as a policy for the tourism industry.

Several propositions (H1 to H16) helped understand each fund's position in finance TCAs. The differences in the results are appropriate to each fund's mission. An example is the higher spatial dispersion and support to many small firms in a regional policy such as FNE. It emphasizes capital goods with a concentration at the country's most prominent economic region in the BNDES case. The Fungetur has less restricted possibilities to foster tourism initiatives.

There is a convergence and complementary in the funds' resource destination, indicated by the existence of a correlation between investments at the state level and absence on a municipal scale.

The use of intermediaries to spread its resources is an aspect that differentiates the funds' operations. In the analyzed time frame, Fungetur resource access was more constrained; it used ten intermediaries, primarily State or regional development banks and agencies less known to SME entrepreneurs. That differs from BNDES, whose loans were distributed through a network of 84 financial agents, many of which had a significant market share. FNE, on the other hand, has only one intermediary, but it has a great capillarity in the region it serves. FNE is the fund with the greatest ability to spread its resources in several municipalities and assist businesses. Even if it also concentrates resources at Class A seaside resorts.

The three funds tend to support investments at BTM class A and B municipalities. An outcome of private risk takers prefer to invest in territories with a competitive edge and productive specialization in tourism. Therefore, it strengthens existing agglomerations where there is a consolidated tourism demand. The presented maps afford to analyze these investment locations and consider the different TCA rhythms and needs of aid throughout the national territory.

Another aspect that deserves reflection is the diversity of characteristics and needs of industries grouped as TCA. It displays the different average operations,

on a low agreement at the company's size resource distribution preferences, and weak correlation of its spatial distribution.

This situation leads to the following question: Which industries should benefit from policies proposing tourism incentives? With no pretension for an answer, it seems appropriate that an industry policy should consider other initiatives and sources of support available at each destination ecosystem and try to enhance its synergy by helping businesses connect and access them rather than providing individual industry aids. An example of this interaction and complementarity was the combination of a fund with high passenger transportation incentives with others more appropriate to lodging and catering businesses.

Notably, considering the Brazilian scenario, the tourism-specific fund Fungetur does not have a stable and assured new revenue source, unlike BNDES and FNE. Besides, considering the ensemble of analyzed datasets, Fungetur stands for only 0,22% of the TCA yearly loan value and 0,7% of the aided businesses. Present conditions seem different from those in the 1970s when the central government created the fund to foster seed investments to create an emerging tourism market. There is a much more extensive credit offer to TCAs through other development policies, such as BNDES and FNE, not to consider the market mechanisms that have been well-developed since then. The notion of a tourism-specific fund to foster private businesses is questionable, considering the diverse nature of TCAs and their capital needs, not to mention possible distortions that could arise when giving special credit to particular industries. A new updated use for Fungetur resources would be to foster tourism DMOs, tourism promotion regional funds, or mechanisms that help tourism SMEs cope with risks – such as insurance or aids at crisis moments, or even contribute to social tourism programs fostering domestic demand to less known destinations. That would align with the decentralization principle of Brazilian tourism policy's current setting and the global tendency to add value to local chains.

Despite the valid insights on tourism businesses' access to public funds loans, this study has limitations. It is solely based on secondary data and does not address topics that merit attention, such as the loan takers' perception of the available credit options – which may be broader than the three analyzed datasets – and their decision-making process. It also did not consider the role played by financial intermediaries in accessing the resources. Another aspect is that it portrays a before-COVID-19 scenario. The shock generated by the pandemic led to new credit demands and a reassessment of the State's role in supporting tourism businesses, which should be investigated. Another restriction is its descriptive nature. Future works could model the efficiency of the fund's investment in generating jobs and increasing tourist arrivals and receipts.

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Contributions:

Maurício Ragagnin Pimentel: Definition of the research problem and objectives; development of the theoretical proposition; conducting a literature review and theoretical foundation; choice of methodological procedures; data collection; data analysis; preparation of tables, graphs and figures; writing the manuscript; adequacy of the manuscript to the RTA formatting rules.

Jaciel Gustavo Kunz: Definition of the research problem and objectives; development of the theoretical proposition; conducting a literature review and theoretical foundation; critical revision of the manuscript.