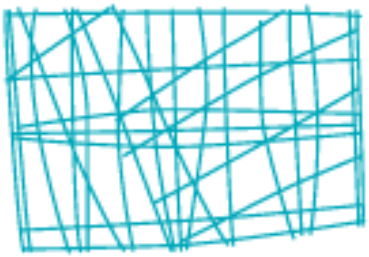

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da Universidade de São Paulo

Domestic Tourism and Regional Inequality in Brazil

International Workshop on Regional Modeling

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- ✓ Introduction
- Methodology
- Expenditures patterns
- Simulation design and results
- Final remarks

How does the observed pattern of domestic tourist expenditures contribute to regional inequality in Brazil?

This paper analyzes the consumption patterns of tourists coming from different domestic origins and choosing other domestic destinations in Brazil, in terms of **expenditure level and composition**.

We also look at the different alternatives of **financing tourist expenditures** and their implications for the net multipliers in an integrated framework.

We use **survey data** for domestic tourism in Brazil to consolidate an interregional matrix of expenditures by tourists and then use **an interregional input-output system** for Brazil to compute the tourism multiplier effects based on alternative hypotheses for the sources of financing of expenditures by tourists.

The results are analyzed, and their implications for regional inequality in the country are discussed.

Results suggest domestic tourism acts in favor of reducing regional inequality in the country

Main issues:

1) Domestic versus international tourists

2) Financing tourist expenditures – potential crowding-out effects

3) Single-region versus interregional systems

4) National and regional effects

5) Budget constraints

6) Domestic tourism as a (more efficient) mechanism of interregional transfers

Regional indicators in Brazil

	GDP share	Per capita GDP	HDI
North	5.1	63.9	0.722
Northeast	13.1	46.8	0.681
Southeast	56.0	132.5	0.803
South	16.6	114.2	0.805
Center-west	9.2	127.4	0.788
BRAZIL	**100.0**	**100.0**	**0.766**

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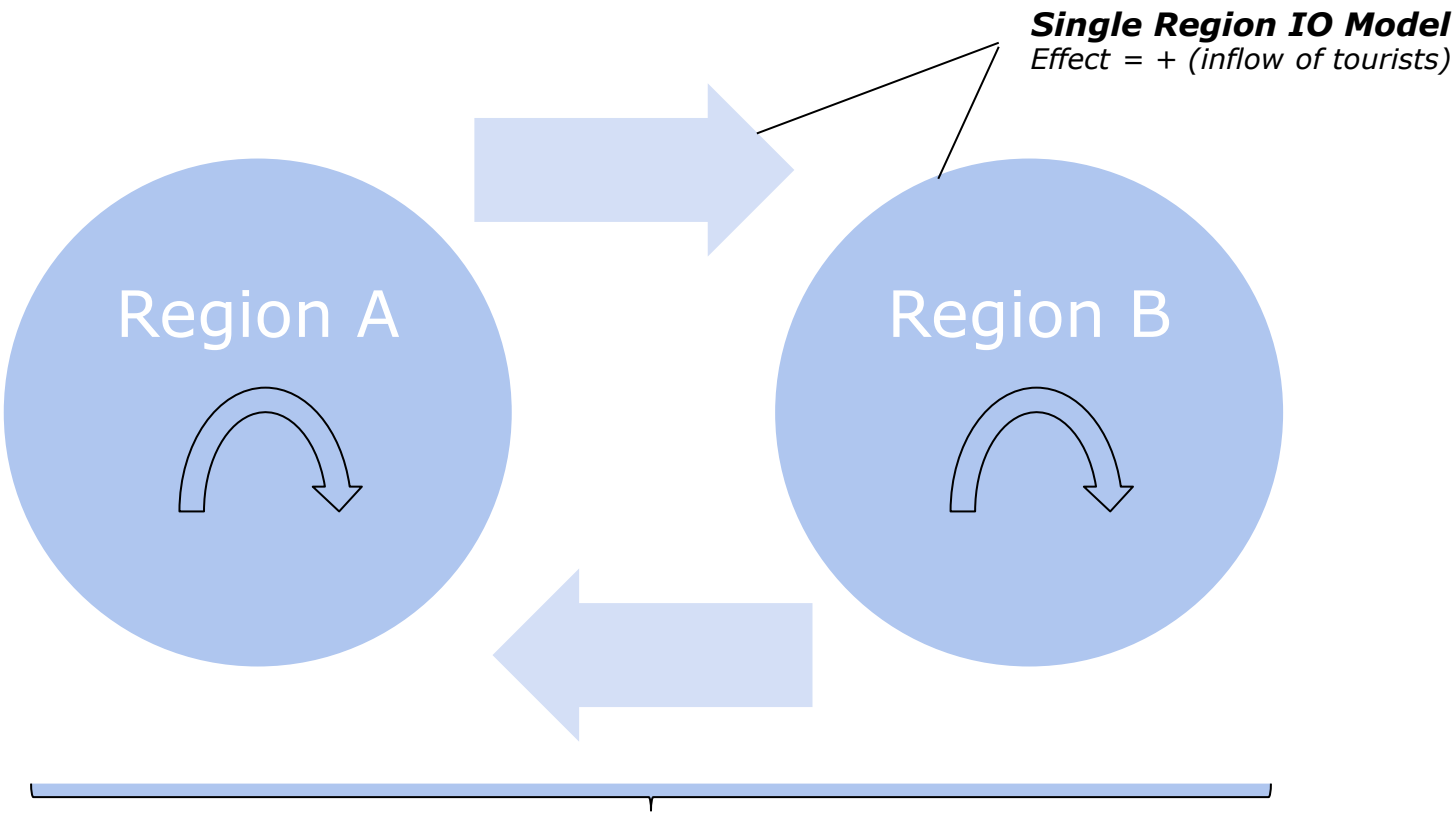
Methodological approach

Interregional input-output accounting-based approach incorporating data from a comprehensive national survey on domestic tourism in Brazil

Look at different alternatives of financing tourist expenditures and their implications for the net multipliers in an integrated framework

The use of a national survey integrated to an interregional input-output system eliminates the often encountered problem in local and regional studies associated with the absence of any control on total data for tourist expenditure figures in an integrated system (Archer, 1984, 1995)

Domestic tourism flows in an interregional system



Interregional input-output analysis

$$x = (I - A)^{-1} f = Bf$$

$$x = \begin{bmatrix} x^1 \\ \vdots \\ x^R \end{bmatrix};\ A = \begin{bmatrix} A^{11} & \cdots & A^{1R} \\ \vdots & \ddots & \vdots \\ A^{R1} & \cdots & A^{RR} \end{bmatrix};\ f = \begin{bmatrix} f^1 \\ \vdots \\ f^R \end{bmatrix};\ \text{and}\ B = \begin{bmatrix} B^{11} & \cdots & B^{1R} \\ \vdots & \ddots & \vdots \\ B^{R1} & \cdots & B^{RR} \end{bmatrix}$$

$$x^1 = B^{11} f^1 + \cdots + B^{1R} f^R$$
$$\vdots$$
$$x^R = B^{R1} f^1 + \cdots + B^{RR} f^R$$

$$v = \begin{bmatrix} v^{11} & \cdots & v^{1R} \\ \vdots & \ddots & \vdots \\ v^{R1} & \cdots & v^{RR} \end{bmatrix};\ c = \begin{bmatrix} c^1 \\ \vdots \\ c^R \end{bmatrix};\ e = \begin{bmatrix} e^1 \\ \vdots \\ e^R \end{bmatrix}$$

household expenditures with domestic tourism

Other household expenditures

Other final demand expenditures

Interregional input-output analysis

$$x^1 = B^{11}(v^{11} + \cdots + v^{R1} + c^1 + e^1) + \cdots + B^{1R}(v^{1R} + \cdots + v^{RR} + c^R + e^R)$$
$$\vdots$$
$$x^R = B^{R1}(v^{11} + \cdots + v^{R1} + c^1 + e^1) + \cdots + B^{RR}(v^{1R} + \cdots + v^{RR} + c^R + e^R)$$

We obtain information of domestic tourist expenditures from the domestic tourism module, allowing us to treat *v* as a matrix which provides the monetary values of expenditures of tourists coming to domestic region *r* from domestic region *s*

We can then compute the contribution of expenditures with domestic tourism on regional output

We will concentrate our analysis on the contribution of *v* to *x*

Financing schemes

Given regional household budget constraints, resources allocated to tourism activities crowd out other types of consumption (present or future)

(i) **reductions in personal savings**, considering only the systemic effects of *v*, which gives the upper bound for the multiplier effects of expenditures in the short run in this modeling context

(ii) **simultaneous monetary-equivalent reductions in consumption in the respective origin regions**, representing an induced substitution effect in the consumption basket of travelers according to household consumption patterns provided in *c*

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The survey

Based on a series of over 37,000 interviews with urban households using a randomized sampling design focusing on potential travelling households

It includes detailed regional information on the social status of the travellers, on their motives to travel, on their **origins and destinations**, the length of stays, and on **the distribution of their spending on different items** such as accommodation, restaurants, transportation, entertainment, etc.

The survey was commissioned by the Ministry of Tourism in Brazil and was conducted by the Institute of Economic Research Foundation – FIPE – from the University of Sao Paulo.

Definitions

From the existing types of households trips considered in the survey – routine trips, excursion/one-day trips, international trips, and domestic trips – only the latter was considered in our calculations.

Therefore, the concept of domestic tourism in our study relates only to **domestic trips reported by households with at least one overnight in the destination** (39.4% of the interviewed households engaged in this type of travel).

Insofar that the survey's focus is on domestic tourism, especially the **demand side**, we were able to organize the micro data and **expand the sample** in such a way to generate the necessary information to consolidate a matrix of origin-destination expenditure profiles at the macro-regional level for the **year 2007**, and, thus, calibrate the matrix *v*

The *v* matrix

Domestic Tourists Expenditures in Brazil, by Origin-Destination Flows (in BRL millions) - 2007

		Destination					Total
		North	Northeast	Southeast	South	Center-West	
Origin	North	316,77	212,51	263,59	63,62	136,57	993,07
	Northeast	61,51	1.438,24	751,57	110,59	110,60	2.472,51
	Southeast	163,07	3.124,31	4.947,93	814,07	517,31	9.566,69
	South	20,93	349,62	397,42	2.163,94	113,16	3.045,07
	Center-West	81,53	579,21	360,34	266,72	384,24	1.672,05
	Total	643,81	5.703,89	6.720,86	3.418,95	1.261,88	17.749,39

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Strategy

We used equation (5) to evaluate the role played by each origin-destination tourist flow in generating the model's results.

$$x^1 = B^{11}(v^{11} + \cdots + v^{R1} + c^1 + e^1) + \cdots + B^{1R}(v^{1R} + \cdots + v^{RR} + c^R + e^R)$$
$$\vdots$$
$$x^R = B^{R1}(v^{11} + \cdots + v^{R1} + c^1 + e^1) + \cdots + B^{RR}(v^{1R} + \cdots + v^{RR} + c^R + e^R) \quad (5)$$

For each regional interaction, we calculated its contribution to the total outcome in terms of national and regional gross output.

We first examined the national effects. We then looked at the effects on regional inequality, through the differential impacts on gross regional output for the five Brazilian macro regions (North, Northeast, Southeast, South, and Center-West).

National results: “a zero-sum game”

(1) Impacts of tourism expenditures considering the typical input-output total effects based on the information of matrix *v* and the Leontief inverse

(-)

(2) Total impacts of the hypothetical foregone home consumption

(=)

(3) Net multiplier effects, which include short-run resources constraints in the system

National results (1)

Gross Total Effects of Tourist Expenditures on National Output, by Origin-Destination Flows (in BRL millions)

		Destination					Total
		North	Northeast	Southeast	South	Center-West	
Origin	North	502,57	342,13	420,72	104,08	220,64	1.590,14
	Northeast	99,73	2.314,97	1.232,59	181,28	181,29	4.009,85
	Southeast	267,88	5.088,38	8.269,18	1.352,49	856,17	15.834,10
	South	34,28	562,09	637,82	3.577,41	187,18	4.998,78
	Center-West	132,71	940,87	594,80	438,77	629,49	2.736,64
	Total	1.037,17	9.248,44	11.155,11	5.654,02	2.074,76	29.169,50

National results (2)

Total Effects of Foregone Home Consumption on National Output, by Origin-Destination Flows (in BRL millions)

		Destination					Total
		North	Northeast	Southeast	South	Center-West	
Origin	North	-507,33	-340,36	-422,16	-101,90	-218,73	-1.590,47
	Northeast	-97,84	-2.287,70	-1.195,47	-175,91	-175,93	-3.932,86
	Southeast	-262,46	-5.028,37	-7.963,37	-1.310,20	-832,57	-15.396,97
	South	-33,91	-566,55	-644,01	-3.506,61	-183,38	-4.934,46
	Center-West	-132,91	-944,20	-587,41	-434,79	-626,37	-2.725,68
	Total	-1.034,44	-9.167,18	-10.812,43	-5.529,41	-2.036,97	-28.580,44

National results (3)

Net Total Effects of Tourist Expenditures on National Output , by Origin-Destination Flows (in BRL millions)

		Destination					Total
		North	Northeast	Southeast	South	Center-West	
Origin	North	-4,75	1,77	-1,44	2,18	1,91	-0,34
	Northeast	1,88	27,27	37,12	5,37	5,36	76,99
	Southeast	5,42	60,01	305,81	42,29	23,60	437,13
	South	0,37	-4,47	-6,19	70,80	3,80	64,32
	Center-West	-0,20	-3,32	7,39	3,98	3,12	10,96
	Total	2,73	81,26	342,68	124,61	37,79	589,07

Regional results (3)

Net Total Effects of Tourist Expenditures on Regional Output of the Southeast, by Origin-Destination Flows (in BRL millions)

		Destination					Total
		North	Northeast	Southeast	South	Center-West	
Origin	North	-105,72	-79,52	260,43	-21,89	-40,76	12,54
	Northeast	-11,63	-365,25	862,34	-23,59	-14,61	447,26
	Southeast	-180,56	-3.623,75	1.063,87	-928,95	-551,45	-4.220,84
	South	-3,39	-81,55	447,50	-455,06	-14,26	-106,77
	Center-West	-29,61	-240,86	349,66	-105,07	-129,60	-155,48
	Total	-330,92	-4.390,93	2.983,81	-1.534,55	-750,69	-4.023,29

Regional results (3)

Net Total Effects of Tourist Expenditures on Regional Output of the Northeast, by Origin-Destination Flows (in BRL millions)

		Destination					Total
		North	Northeast	Southeast	South	Center-West	
Origin	North	-35,71	254,28	-41,66	-10,10	-19,40	147,41
	Northeast	-53,20	641,43	-684,75	-101,04	-99,20	-296,78
	Southeast	2,71	4.147,47	-111,15	-25,97	-7,81	4.005,26
	South	0,68	467,28	-5,52	-27,08	0,41	435,76
	Center-West	-1,16	752,70	-20,84	-16,78	-17,21	696,72
	Total	-86,68	6.263,16	-863,92	-180,96	-143,22	4.988,37

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Summary

Total net multiplier effects of domestic tourism at national level lead to a zero-sum game, but regional distributive effects are significant

Domestic tourism can be considered as an important channel to produce a more efficient allocation of resources and reduce inequality among regions in Brazil

From a policy perspective, supporting interregional tourism in Brazil would produce a general redistributive effect

- More investments in tourism infrastructure in the Northeast would still be needed to increase the region's attractiveness (behavior of domestic tourists using a choice model of touristic destination).

Next steps

Introduction of the foregone home consumption effects represents only a rough first order approximation of tourists decisions under budget constraints

There is a need to go one step further and develop interregional **CGE models**, which not only deal with regional interaction within a country and spatial feedbacks but also explicitly consider broader resource constraints and price effects.

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