

IMPACTS OF A TAX ELIMINATION ON CONSUMPTION OF FOOD AND AGRICULTURAL PRODUCTS IN BRAZIL

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INTRODUCTION

Inequality

- Income
- Regions

Government Functions

- Resources allocation
- Economic stabilization
- Income distribution

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Taxes

- There is two types of taxation. One is direct from the income and the other is indirect, from the consumption bundle the economics agents buy.
- tax on consumption goods tends to be regressive and income taxation is generally progressive.

Some facts about taxation

- The poorest 10% of society pays 44.5 % more taxes than the 10% of the Brazilian richest population.
- The smaller the household income level, the more income is spent on food.
- Families with income up to R\$ 830,00 spend 27.8 % of income on food, while families with income over R\$ 10.375,00 spends only 8.5% of income on food expenses.

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Inequality and taxes

- Davoodi, Gupta and Chu (2000) and Woo et al. (2013) point out that inequality in income distribution can be explained by the level, tax progressiveness.
- Fernandes, Cunha and Vasconcelos (2018) indicate that higher spending on social assistance and social security promotes lower inequality rate.
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Objectives

- The main objective is to analyze the impact of withdraw of in the final consumption of agricultural products and food.
- The second simulation is about the the reestablishment of government accounts by a income transference by the top three income classes.
- As a secondary objective the factor mobility between regions is discussed.

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PAEG

- To achieve the objectives a Computable General Equilibrium Model, the Brazilian Equilibrium General Equilibrium Analysis Project (PAEG) is used.
- PAEG is an analytical set of static multiregional and multisectoral general equilibrium based on GTAP *in* GAMS.

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Sectors	Regions
Rice (pdr)	Brazil – North (N)
Corn and others cereals (gro)	Brazil – Northeast (NE)
Soy and other oilseeds (osd)	Brazil – Midwest (MD)
Sugar Industry (c.b)	Brazil – Southeast (SE)
Meat and live animals (oap)	Brazil – South (S)
Milk and Dairy Products (rmk)	Rest of Mercosul (RMS)
Other agricultural products (agr)	United States (USA)
Foods (foo)	Rest of NAFTA (RNF)
Textile industry (tex)	Rest of America (ROA)
Clothing and footwear (wap)	Europe (EUR)
Wood and Forniture (lum)	China (CHN)
Paper industry (ppp)	Rest of the world (ROW)
Chemical, ruber and plastics (crp)	
Manufactures (man)	
Electricity, gas and distribution(siu)	
Trade (trd)	
Transport (otp)	
Public administration (adm)	

Income classes in the model

Class 1 - up to R\$ 400,00;

Class 2 - from R\$ 400,00 up to R\$600,00;

Class 3 - from R\$ 600,00 up to R\$ 1000,00;

Class 4 - from R\$ 1000,00 up to R\$ 1200,00;

Class 5 - from R\$ 1200,00 up to R\$ 1600,00;

Class 6 - from R\$ 1600,00 up to R\$ 2000,00;

Class 7 - from R\$ 2000,00 up to R\$ 3000,00;

Class 8 - from R\$ 3000,00 up to R\$ 4000,00;

Class 9 - from R\$ 4000,00 up to R\$ 6000,00;

Class 10 - above R\$ 6000,00.

General Equilibrium

- Each region is represented by a final demand structure composed of public and private expenditure on goods and services.
- The database includes bilateral trade flows between countries and regions, as well as transportation costs, import tariffs and export taxes (or subsidies) .
- All variables have a value determined by the model, where each equilibrium price is associated with the market equilibrium condition.
- There is no unemployment in the model, so factor prices are flexible.

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Shocks in the model

Model Parameters

The model parameter that represent household consumption rates inside the region itself is $rtpd(i, r)$ and outside the region is $rtpi(i, r)$.

The parameters representing the taxes (icms, ipi and iss) are $icms(i, j, r)$ and $ipi_iss(i, j, r)$.

Shocks

In order to remove the tax from rice(pdr) in the region in Brazil (bra region) we can add those lines :

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rtpd("pdr", bra) =  
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Scenarios

The shocks represent that the new rate on the final consumption of imported products ("*cf*") in each Brazilian region ("*bra*") will be equal to the initial rate (*rtpi0*) minus taxes (*icms*, *ipi* and *iss*) in the food and agricultural sectors. The analysis will be done in three scenarios:

- When only taxes are removed , we can see the mobility of factors between regions;
- There is the break down of families in 10 income classes, which makes us observe the welfare gain in each of the classes;
- The third scenario simulates a income transfer from classes 8, 9 and 10 to the government.

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RESULTS

Impact of welfare taxes on food and agricultural products

Region	Welfare	GDP	Govern_R	Govern_F
North	0.204%	0.142%	-0.641%	-0.207%
Northwest	0.165%	0.111%	-0.547%	-0.207%
Midwest	0.194%	0.167%	-0.735%	-0.207%
Southeast	0.060%	0.085%	-0.357%	-0.207%
South	0.273%	0.215%	-0.831%	-0.207%

RESULTS

Impact of food and agriculture tax withdrawal on factor mobility among Brazilian regions

Factor*	North	Northeast	Midwest	Southeast	South
Labor	0.12	-0.13	1.25	-0.54	0.92
Capital	0.10	-0.11	1.22	-0.62	0.93

* - percentage change

RESULTS

Impact of food and agriculture tax withdrawal on Brazilian regions

Region	Welfare	GDP	Govern_R	Govern_F
North	0.331%	0.206%	-0.570%	-0.178%
Northeast	0.064%	0.005%	-0.607%	-0.178%
Midwest	1.334%	1.365%	0.133%	-0.178%
Southeast	-0.443%	-0.458%	-0.750%	-0.178%
South	1.232%	1.146%	-0.214%	-0.178%

RESULTS

Impact of the withdrawal of taxes on the consumption of food and agricultural products in the economic well-being of families in the Brazilian regions

Income Classes	North	Northeast	Midwest	Southeast	South
Class 1	0.574%	0.615%	0.931%	0.251%	1.161%
Class 2	0.721%	0.506%	0.854%	0.362%	0.963%
Class 3	0.688%	0.494%	0.847%	0.402%	0.793%
Class 4	0.637%	0.425%	0.678%	0.347%	0.623%
Class 5	0.469%	0.740%	0.601%	0.325%	0.734%
Class 6	0.385%	0.337%	0.597%	0.281%	0.629%
Class 7	0.350%	0.267%	0.604%	0.212%	0.450%
Class 8	0.327%	0.189%	0.598%	0.216%	0.431%
Class 9	0.262%	0.231%	0.353%	0.169%	0.423%
Class 10	0.169%	0.148%	0.234%	0.126%	0.253%

RESULTS

Compensation Generated by High Income Classes

Region	Consumption H	Consumption Govt	GDP
Northeast	0.004%	0.342%	0.124%
North	-0.007%	0.313%	0.088%
Midwest	-0.004%	0.452%	0.154%
Southeast	-0.016%	0.214%	0.067%
South	0.019%	0.433%	0.161%

RESULTS

Impact of tax removal with upper classes income transfer

Income Classes	North	Northeast	Midwest	Southeast	South
Class 1	0.572%	0.613%	0,931%	0,251%	1,161%
Class 2	0.719%	0.504%	0,854%	0,362%	0,963%
Class 3	0.685%	0.490%	0,846%	0,403%	0,792%
Class 4	0.634%	0.422%	0,679%	0,348%	0,622%
Class 5	0.466%	0.370%	0,602%	0,325%	0,734%
Class 6	0.384%	0.334%	0,597%	0,281%	0,629%
Class 7	0.350%	0.266%	0,606%	0,212%	0,451%
Class 8	-0.637%	-1.222%	-0.742%	-0.236%	-0.671%
Class 9	-0.437%	-0.703%	-1.075%	-0.202%	-0.328%
Class 10	-0.583%	-0.201%	-0.168%	-0.154%	-0.264%

RESULTS

Changes in aggregated welfare

Income Classes	North	Northeast	Midwest	Southeast	South
1 to 7	0.260	0.528	0.412	0.964	0.628
8 to 10	-0.256	-0.546	-0.418	-1.122	-0.577
Welfare	0.004	-0.018	-0.006	-0.158	0.051

CONCLUSIONS

Tax elimination only

- Increase in overall welfare and GDP;
- Decrease in the government budget;
- There is capital and labor transference to regions with economic activities related to tax withdraw

Welfare through income classes

- Welfare increases in all income classes decreasingly, the lower the income class higher the increase.
- Relatively greatest increase in Midwest, but in absolute terms this can change substantially

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Tax elimination and income transfers

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- Its is unlikely to change fiscal policy with economic or political crisis.
- Stabilizing function of Government cannot be observed.

Concluding remarks

- The simulations shows a increase in welfare through the removal of taxation;
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- The results indicate that a reduction of taxation on food products and the progressive income tax can improve the welfare of the economy.

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