FISCAL POLICY TOWARDS GREEN GROWTH IN EMERGING ECONOMIES: THE CASE OF BRAZIL

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Introduction & background

- Addressing climate change & longstanding challenges of development
  - "*We are not in the face of new problems, but of old problems that have become more severe*" Raul Prebisch
- Green growth & green leapfrogging
  - Source of economic and social development
  - Driver of environmental protection
  - Avoid carbon lock-in
- Can fiscal policy promote green growth in emerging economies?

Why Brazil?

- Prominent role in the economy
  - In 2011, it became the sixth largest economy in the world (World Bank)
  - In less than 10 years Brazil has doubled its share of the global GDP (from 1.5% in 2003 to 3.3% in 2011) (World Bank)
- Social improvements
  - Reduced extreme poverty by 75% in 10 years (UN-FAO)
  - Removed from World Hunger Map (UN-FAO)
- Green power & environmental challenges
  - Large proportion of world's forests, water, biodiversity
  - Ever increasing fossil fuel burning (global share of GHG emissions increased twofold over the past 50 years) (World Bank)
  - Increased deforestation

Brazil's fiscal system: overview

- Brazil x OECD
  - Tax revenue (%GDP): 34,9% x 34%
  - Subnational taxes (% revenue): 29% x 12%
  - Indirect taxes (% revenue): 44% x 32%
- The most complex tax system in the world (World Bank)

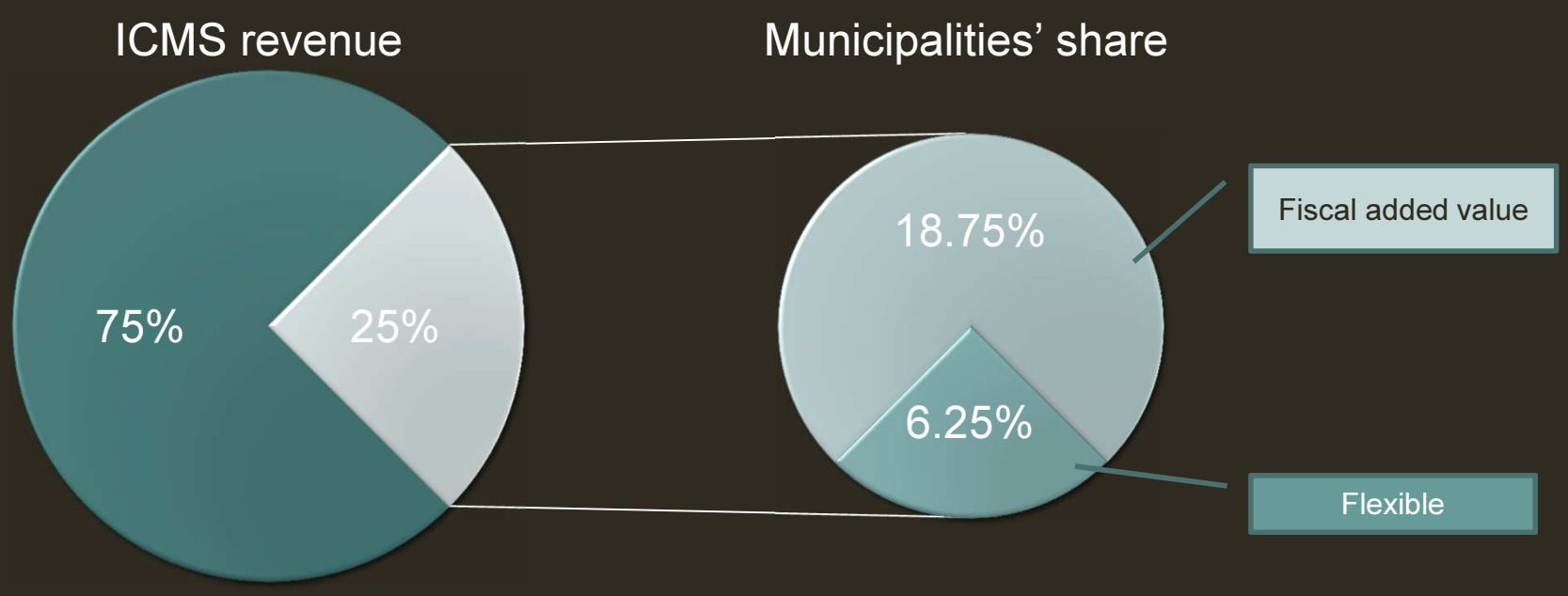
Legal perspectives for a GFP

- Can taxes be used to induce environmentally-friendly behaviour? Which ones and how?
- Can the revenue raised by taxes further support green economy? Which ones and to what extent?

Taxes types	Opportunities	Limitations
Levies	Levies could be adjusted to favour environmentally friendly behaviour through fiscal incentives, by means of tax exemptions and deductions for non-polluting activities. They could also be adjusted to place a higher burden on polluting activities, for example by using pollution as a component of the tax base.	Revenues raised from levies cannot be specifically destined or earmarked for environmental protection. If the revenues were used to promote the fossil fuel industry, for example, this type of taxation would be ineffective.
Fees	Resources raised from fees could finance additional governmental action to protect the environment through the provision of public services. New fees could be created to finance, for example, environmental recovery programs.	Even though revenues raised from fees could help finance public action, they would need to be clearly linked to the provision of a public service that is specific and divisible, such as sewage treatment. Resources raised from fees can only be used to cover the cost of the associated public service.
Contributions	Contributions (in the economic domain) could promote fiscal incentives for environmentally friendly behaviour, for example by relieving tax on sustainable businesses. Revenues raised through contributions could be allocated to environmental improvement.	Revenues from contributions could be earmarked to finance public activities related to environmental improvement; however, such activities must be directed to the industrial sector from which the revenue originated.
Improvement contributions	Public works that lead to environmental improvements, such as the creation and expansion of natural parks, could be financed by improvement contributions.	Such taxes could only be applied when the public work in question also led to an appreciation (in monetary terms) of nearby real estates. Revenues raised from improvement contributions could only be used to compensate the cost of the associated public work.
Compulsory loans	Extreme environmental events or ecological disasters could configure calamity and thereby justify the creation of compulsory loans that would finance measures to neutralize or alleviate their perverse effects.	It is debatable whether environmental disasters would configure as calamity. The resources would be short term and would have to be returned to the taxpayer.

Lessons learned: ICMS-e

- ICMS: subnational taxation due on purchase or transport of merchandise



- Adoption of environmental protection criteria to allocate the flexible portion (6.25%) of ICMS revenue to municipalities.

Lessons learned: ICMS-e

- Impact
  - Parana state: early adopter (1991)
    - 3389.92% increase in municipal protected areas
    - 826.44% increase in state protected areas
    - Protected area management and governance enhanced
    - Improvements in terms of biodiversity conservation
  - Minas Gerais and 5 Amazonian states report effectiveness
  - Today, 16 (out of 26) states adopt ICMS-e
- Factors behind success
  - Simple to achieve: minor amendments in subnational legislation
  - Replicability: allocation of a small proportion of revenue obtained through existing taxes according to environmental protection criteria has proven effective and can be reproduced in other states and countries
- Policy recommendations
  - Implementation of GFP instruments at subnational level
  - ICMS-e adopted in other states
  - Other tax exemptions to clean business
  - Coordination among states and Federal government to maximize impact

Lessons learned: IR-e

- IR: federal level income tax
- IR-e
  - Proposed new legislation in the National Congress
  - IR deductions for individuals and legal entities in proportion to donations and sponsorships made to non-profit entities to support environmental protection projects
  - Similar to other areas, such as culture
  - 2015 marks 10 years of debate under the National Congress
- Symbolic of how challenging it can be to approve new legislation at Federal level

Lessons learned: IR-e

- Challenges to approve IR-e
  - Fiscal imbalance
  - Dispute for the management and supervision of the donations and sponsorships
  - Risk of diversion of resources from its original purposes
- Policy recommendations
  - IR-e is a relevant proposal and its approval should be sought by:
    - Keeping deductions within limits of the Fiscal Responsibility Law
    - Chanel resources to the National Environment Fund (FNMA)
    - Creating control mechanisms to mitigate the risk of resource misuse
  - Federal government should expand scale and scope of GFP instruments
    - Restore CIDE and allocate resources to environmental protection
    - Promote coordinated, explicit and foreseeable green industrial policy via differenciated IPI rates according to pollution potential

Overall impact: econometric evidence

- Objective: econometrically test the impact of selected fiscal instruments on the uptake of environmentally friendly technologies by businesses, i.e. green innovation
- Literature survey presents growing evidence that the uptake of green technologies presents a positive effect on competitiveness
  - Reduced costs and/or quality enhancement
  - Increased added value
  - Improved operational performance
- This indicates that green growth can be a development alternative in Brazil
- What is the impact of fiscal policy on green innovation?

Overall impact: econometric evidence

- Hypotheses and model development
  - A: the overall fiscal system does not present a strong, consistent impact on the uptake of green technologies
    - $GI_i = \beta_0 + \beta_1 TT_i + \beta_2 GS_i + \beta_3 AV_i + \beta_4 OC_i + \varepsilon_i$
  - B: specific fiscal instruments that are already being used to promote environmental protection, particularly the ICMS, impact green innovation
    - $GI_i = \beta_0 + \beta_1 II_i + \beta_2 IPI_i + \beta_3 ICMS_i + \beta_4 GFRD_i + \beta_5 GFIL_i + \beta_6 GFP_i + \beta_7 GFKG_i + \beta_8 AV_i + \beta_9 OC_i + \varepsilon_i$
- Multiple regression analysis was performed on a cross-sectional database at industry-level (24 industries in the manufacturing sector) relative to 2005 (latest available data)

Results

Dependent variable: GI	Model A	Model B
Independent variables	Coefficient	Coefficient
Constant	-0.3603	0.0176
TT	0.0097	
GS	0.4276***	
II		0.0529
IPI		-0.0664**
ICMS		0.0918***
GFRD		0.6381***
GFIL		-0.2054
GFPU		-0.3204
GFKG		0.5421***
AV	0.0418***	0.0278***
OC	-0.0239*	-0.0366***
R^2	0.7640	0.9422
P > F	0.0001	0.0000

Concluding remarks

- From a legal viewpoint, there is a number of opportunities for green fiscal instruments that can advance the transition to a green economy. GFP is not unattainable; in fact, there are instruments that can be readily implemented to promote green growth – some of which are already in use
- Several cases of the successful deployment of green taxes can be found at the subnational-level, while initiatives at the federal-level seem to encounter challenges. Subnational taxes could be a more viable path for GFP in the short term, while federal-level fiscal measures should be sought as part of a longer-term GFP strategy
- Econometric evidence indicates that fiscal instruments have a critical role in the transition to green technologies
- Fiscal policy is key to promote green growth in Brazil as an emerging economy

THANK YOU

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CAPES