TAX REFORM, INCOME DISTRIBUTION AND POVERTY IN BRAZIL: AN APPLIED GENERAL EQUILIBRIUM ANALYSIS

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Carliton Vieira dos Santos2
Sandra Maria do Prado Lima3

ABSTRACT

The main objective of this research is to analyze the effects of changes in the Brazilian indirect taxation system upon personal and regional income distribution in the country, and its importance for the poverty alleviation policies under way, in the short as well as the long run. In Brazil, the 1988 constitution redesigned the national tax system. Since then the “tax reform” issue has been recurrent in the national debate. This research proposal departs from the idea that due to the historical inequality in personal and household income distribution in Brazil and the enormous number of people still below poverty line, any change in the Brazilian tax system should take distributional issues into account. This is a very important issue in the present economic debate in the country, when the new federal government is trying to increase spending in personal transfers as a way of poverty alleviation strategy (the Zero Hunger Program). This kind of strategy must be regarded as a short term one, and must be complemented with more pervasive and market oriented policy changes, as the tax system could be. The general hypothesis to be tested is whether fiscal policy can be an effective instrument to help the poverty alleviation effort currently underway in the country.

The analysis will be carried out with the aid of an inter-regional computable general equilibrium (CGE) model of Brazil, linked to a micro-simulation model developed by

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3 Professor, Universidade Estadual de Londrina – UEL. Currently on leave for MS studies at ESALQ/USP.
Ferreira Filho and Horridge (2004), and will be extended in a number of aspects. The methodology proposed guarantees consistency between the two models at use.

1 Introduction

Many countries have reformulated their tax system in the last 25 years. There are cases of important changes in the United States, Sweden, United Kingdom, Spain, Chile, Mexico, Colombia, Jamaica, Turkey, Sri Lanka, Indonesia, Malaysia, Korea and Singapore, to cite a few. The main motivation for these changes can be found in the very fast world economy changes in the last years, particularly the regional integration of national economies, that demands a tax system sharpened for integration and efficiency goals. But the purpose of a greater equity in income distribution has also been a target in the tax policy changes.

In Brazil, since the promulgation of the 1988’s last constitution that, in a certain sense, redesigned the national tax system, the “tax reform” issue has been recurrent in the national debate. There has been since then a generalized feeling that a broad reform became a necessity in the country. The diagnostics have shown that the Brazilian tax system is complex, expensive, inefficient, socially unfair and stimulating of a “tax competition” among the Brazilian states. Based on this kind of diagnostics many different tax reforms proposals have been sent to the National Congress, but according to Giambiaggi and Além (2001) most of them underestimate the restrictions imposed by the present political and economic scenario.

Due to the general recognition of the complexity of the theme and the associated difficulties, both political and practical, the tax reform debate in the country has recently evolved to a kind of consensus in which any feasible proposal should take account of at least the following aspects:

- Must not imply an increase in the tax burden;
- Must raise a tax collection in line with public sector financing needs;
- Must increase the efficiency and competitiveness of the economy, as well as the strengthening of the federation integrity;
- Must be understood as a continuous process in time;

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4 For more details about reforms in these countries see Auerbach & Slemrod (1997), Palme (1996), Kehoe et al. (1988), and Burgess & Stern (1993).
Must be aligned with the recent transformations in the international environment, mainly with other countries legal and tax systems adaptations.

These points imply that one can’t expect the tax reform to carry dramatic increases of reduction on the country’s fiscal burden. Moreover, the changes will happen gradually, to avoid the political resistance that has been faced in the past whenever the tax reform issue has arisen. And, regarding the last aspect abovementioned, Sandford, quoted by Lima(1999) and Burgess and Stern (1993) point out that one of the common elements of the tax reform in many countries in the last years has been the increase in the share of indirect tax in total tax collection, with reductions in direct taxes shares. In Brazil, where the indirect taxes already represent the largest shares in total tax collection, reform proposals have been concentrated in the improvement and quality of this kind of tax.

A last and important aspect to drive any tax reform initiative in the country refers to the normative character of the tax policy. The design of an optimal tax system must try to relate the goals of the system to the instruments available. This involves the election of priorities in the reform that will guide the tax policies to be implemented. For example, in case of imposing an indirect tribute to consumption it is relevant to know whether the tax rate must be differentiated according to the degree of essentiality of the product, the answer depending of the goals of the policy. If just efficiency is targeted than a uniform tax rate would be preferable, but if any equity considerations are to be taken into account then unequal rates could be chosen.

This research proposal departs from the idea that due to the historical inequality in personal and household income distribution in Brazil and the enormous number of people still bellow poverty line, any change in the Brazilian tax system should take distributional issues into account. This is a very important issue in the present economic debate in the country, when the new federal government is trying to increase expending in personal transfers as a way of poverty alleviation strategy (the Zero Hunger Program). This kind of strategy must be regarded as a short term one, and must be complemented with more pervasive and market oriented policy changes, as the tax system could be.

A brief description of the Brazilian tax system

Some studies have argued that the Brazilian tax system is complex, expensive, efficiency limitative, socially unfair, and facilitative of the fiscal war among the states.
These kinds of deficiencies have caused a generalized feeling in the Brazilian society that a fiscal reform is necessary and urgent.

From a fiscal standpoint, however, the capacity of tax collection is regarded as an advantage of the Brazilian tax system. Preliminary data from the 2001 Brazilian National Accounts indicate that the Gross Tax Burden (GTB) in the Brazilian economy reached 33.4% of GDP, or R$400,394.00 millions. The shares of the federal, states and municipal governments in that total were respectively 68.06%, 27.48%, and 4.46%. The Table 1 shows the distribution of the GTB in the year of 2001, discriminating the main taxes.

Table 1. Tax collection in Brazil: main taxes, by government sphere. 2001.

<table>
<thead>
<tr>
<th>Taxes</th>
<th>Value (1 000 000 R$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>Total</td>
<td>400 394</td>
</tr>
<tr>
<td>Taxes linked to production and imports</td>
<td>208 578</td>
</tr>
<tr>
<td>Taxes on commodities</td>
<td>134 967</td>
</tr>
<tr>
<td>Taxes on value added</td>
<td>113 151</td>
</tr>
<tr>
<td>IPI (Industrialized products tax)</td>
<td>18 884</td>
</tr>
<tr>
<td>ICMS (Tax on commodities and services flows)</td>
<td>94 267</td>
</tr>
<tr>
<td>Tariffs</td>
<td>9 024</td>
</tr>
<tr>
<td>Other taxes on commodities</td>
<td>12 793</td>
</tr>
<tr>
<td>Export tax</td>
<td>76</td>
</tr>
<tr>
<td>IOF (Tax on financial operations)</td>
<td>3 553</td>
</tr>
<tr>
<td>Tax on services (ISS)</td>
<td>6 865</td>
</tr>
<tr>
<td>Other</td>
<td>2 298</td>
</tr>
<tr>
<td>Other taxes linked to production</td>
<td>73 611</td>
</tr>
</tbody>
</table>

5 The Brazilian currency is the Real.
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount 1</th>
<th>%</th>
<th>Amount 2</th>
<th>%</th>
<th>Amount 3</th>
<th>%</th>
<th>Amount 4</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes on wage bill</td>
<td>7 010</td>
<td>1.75</td>
<td>7 010</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Contribution to the education wage</td>
<td>3 068</td>
<td>0.77</td>
<td>3 068</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Contributions to Sesi, Sesc, Senai e Senac</td>
<td>3 100</td>
<td>0.77</td>
<td>3 100</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>842</td>
<td>0.21</td>
<td>842</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Other taxes and fees on production</td>
<td>66 601</td>
<td>16.63</td>
<td>59 064</td>
<td>3 504</td>
<td>4 033</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police duty</td>
<td>660</td>
<td>0.16</td>
<td>0</td>
<td></td>
<td>660</td>
<td></td>
<td></td>
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<tr>
<td>Services duty</td>
<td>6 103</td>
<td>1.52</td>
<td>66</td>
<td>3 069</td>
<td>2 969</td>
<td></td>
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<tr>
<td>Contribution to the social investment fund (COFINS)</td>
<td>45 679</td>
<td>11.41</td>
<td>45 679</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Contributions to PIS / PASEP</td>
<td>11 186</td>
<td>2.79</td>
<td>11 186</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td>Others</td>
<td>2 972</td>
<td>0.74</td>
<td>2 133</td>
<td>435</td>
<td>404</td>
<td></td>
<td></td>
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<tr>
<td>Income and property taxes</td>
<td>97 932</td>
<td>24.46</td>
<td>84 986</td>
<td>6 820</td>
<td>6 126</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Personal Income Tax</td>
<td>30 995</td>
<td>7.74</td>
<td>30 995</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms Income Tax</td>
<td>27 657</td>
<td>6.91</td>
<td>27 657</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Taxes on Income and Property</td>
<td>39 279</td>
<td>9.81</td>
<td>26 334</td>
<td>6 820</td>
<td>6 126</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>IPTU (Urban real estate tax)</td>
<td>5 218</td>
<td>1.30</td>
<td>-</td>
<td>156</td>
<td>5 062</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPVA (Vehicles tax)</td>
<td>6 287</td>
<td>1.57</td>
<td>-</td>
<td>6 287</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPMF/CPMF (Contribution on Financial Flows)</td>
<td>17 157</td>
<td>4.28</td>
<td>17 157</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Contribution on Firm’s Profit</td>
<td>8 968</td>
<td>2.24</td>
<td>8 968</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1 650</td>
<td>0.41</td>
<td>209</td>
<td>377</td>
<td>1 064</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution to the Social Security System (private employees)</td>
<td>88 090</td>
<td>22.00</td>
<td>83 496</td>
<td>3 796</td>
<td>798</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution to the Social Security System (public employees)</td>
<td>5 795</td>
<td>1.45</td>
<td>4 126</td>
<td>1 343</td>
<td>325</td>
<td></td>
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</table>


Taking the classification of taxes into direct and indirect, the Brazilian GTB in 2001 has the following distribution, as it can be seen: 52.9% indirect taxes and 47.91% direct tax. It is possible to see here an important characteristic of the Brazilian tax system: the great
importance of taxes on production and flows of commodities and services in the economy. The large share of these indirect taxes in total becomes a serious problem, as there are evidences of the existence of a high degree of regressiviness in this system (to be seen in what follows). The tax burden on income (personal and firms), on the other hand, is considered relatively low (14.95%), just as the tax burden over properties and inheritances (about 3% of GTB), a serious aspect if one takes into account the very high income concentration in the country.

The tax with the highest collection in Brazil is the ICMS (Tax on the Circulation of Commodities and Services), a state tax, with about 32.54% of the GTB in 2001, while the main municipal tax, the ISS (Tax on Services) accounted for just 1.71% of GTB in the same year.

And, finally, the distribution of the total tax collection over commodities in Brazil in 2001 had the following incidence: 50.41% on intermediate consumption and 49.59% over final demands.

3 **The problem and its importance: main research questions and literature review.**

Many recent researches have showed empirical evidence about the negative effects of income distribution and assets property to economic growth. These results suggest that inequality reduction would be important to Latin-American countries to achieve higher growth rates. In Brazil this would be specially true since the country exhibits one of the world’s highest inequality levels, with about one third of its total population still bellow poverty line, according to Barros et al (2001).

The studies about distributive gains arising from tax systems changes are gaining momentum in the international literature. In Brazil, however, the theme has been relatively less analyzed. One of the few studies in the country with this approach is due to Eris et all (1983), who analyzed the effects of the main federal and state taxes in the Brazilian tax structure upon income distribution in the country. The effects where captured through the

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7 See, for example, Kehoe (1988), Schwarz & Gustafsson (1991), Palme (1996), Leung et al. (1999), Wagstaff et al. (1999) and Mayeres & Proost (2001).
comparison of two different states of the economy: the actual one and the simulated one, where the taxes under study were removed. In their conclusion they have point out to the regressive character of the system.

Souza (1996) tried to measure the allocative and distributive costs of the Brazilian tax structure. The main interest of the study was to compare the marginal costs in terms of welfare associated to the main indirect taxes in Brazil. The results showed that the extremely high income inequality in the Brazilian economy, which was reflected in the household consumption patterns, would justify the adoption of tax structure differentiation based on commodities, instead of a uniform system. The author also points out that the construction of a general equilibrium model would contribute to a better understanding of the right directions to implement the changes in the tax system.

In a effort to subsidize the discussion about changes in the Imposto de Circulação de Mercadorias (ICMS, one of the most important Brazilian taxes, a value added tax) Tomich et al (1998) used a partial equilibrium model to analyze the effects of the reduction of that tax upon the cost of the consumption bundle and the income of poor households. The study also addressed the associated tax revenue loss. The results indicated net social benefits associated to the reduction in the ICMS tax rate, due to the high share of food in those households’ consumption bundle.

Siqueira et al. (2000) analyzed the regressiveness of taxes over consumption in Brazil, using a partial equilibrium model and different assumptions. The effective tax rates were calculated, and the results showed that the tax burden over food items was highly regressive, a result that agreed with the previous study. The same sort of conclusion was supported by the study of Vianna et al (2000), who used a partial equilibrium model to address the issue of regressiveness of the Brazilian tax system. According to the authors, the progressiveness of the direct tax system did not compensate the regressiveness of the indirect system, mainly due to the high tax burden over consumption. Besides that, the regressiveness of tax system was found to be more severe in the metropolitan areas located in the poorest regions in the country. Even though not explicitly pointed by the authors, the results suggest that a reduction in the indirect tax rate could contribute not just to an improvement in the personal distribution of income, but to the regional distribution as well.
Magalhães (2001), also in a partial equilibrium environment found similar results, adding that the elimination of indirect taxes on food would be enough to drive out of poverty a large number of households. The main conclusion of these authors is that the tax policy has a high potential to deal with poverty reduction issues, yet to be explored. Notwithstanding that, the authors also call the attention to the limitation of the study, mainly related to the partial equilibrium approach used.

Ornellas (1995) and Fochetzatto (2003), on the other hand, used general equilibrium models to analyze the impacts of tax structure changes upon the Brazilian economy, both with national models. Ornelas (1995) investigated the effects upon income distribution and the general effects on the economy of changes (reductions) in the rates of indirect taxes on the agricultural sector. The model distinguished eight productive sectors and 10 income deciles. The results showed that those changes would worsen the income distribution in Brazil, through the increase in land rents. The lower income households, however, would benefit the most, through the commodities price effect.

The study of Fochetzatto (2003), on the other hand, analyzed the effects of five different options of tax policy, focusing on the functional distribution of income. The author used a CGE model with twelve sectors, and three household groups: rural households, urban households deriving income from wages, and urban capitalists households, deriving income from returns to capital. The main conclusions of this study was that a reduction in indirect taxes compensated by an increase of direct taxes on high income households would favor income distribution. The AGE model used was a national model, with no regional detail.

As it can be seen, there is still a reduced number of empirical studies in Brazil on this theme of increasing importance, namely the distributive aspects of the tax system. The models reviewed so far are quite aggregated for the possibilities of an applied model, and have no regional details. A contribution in this direction is the main purpose of this study.

4 Core research objectives

The main objective of this research is to analyze the effects of changes in the Brazilian indirect taxation system upon personal and regional income distribution in the country, and its importance for the poverty alleviation policies under way, in the short as well as the long
run. The general hypothesis to be tested is whether fiscal policy can be an effective instrument to help the poverty alleviation effort currently underway in the country.

Additionally, a study on primary factors returns in the Brazilian agriculture will support parameter estimation for the AGE model to be used.

5 Knowledge gaps to be addressed

The empirical evidences arising from the abovementioned studies and their limitations point to the relevance of addressing to which extent changes in the indirect taxation in the Brazilian economy can contribute to an improvement in income distribution and poverty reduction in the country, and of its implications to economic growth targets. This is a largely unexplored issue in the national literature, due to its complexity. There is a virtual lack of empirical evidence on the subject, and this is certainly one of the difficult aspects of the problem: it is difficult to have a general agreement about tax structure effects when quantitative information is lacking. In this sense, questions like “should the tax be charged to intermediate inputs or not” or “should food be less taxed than non-food” are largely explored through non-quantitative arguments that are, in general, loosely founded on theory and facts. The CGE approach is suitable for the problem at hand, and can contribute significantly for the debate.

Moreover, inequality in Brazil has also a very important regional dimension. An issue of particular interest, then, would be how these impacts of tax structure changes upon poverty and income distribution would arise at the sub-national (state) level inside the country, since a central point in the tax reform debate in Brazil is what is called the “fiscal war” among the Brazilian states. Contributions in this direction are the main objective of this proposed research.

And, finally, the knowledge of key structural parameters will have to be directly addressed. Like most of the IO country tables, in the Brazilian data the returns to land are included in the Gross Operational Returns. Factor shares, however, are crucial for the distributional results. This research then will also directly estimate factor returns in the agriculture sector, since this information is not available in the Brazilian literature. This is

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8 In the fiscal war individual states engage in tax exemptions to attract new industries to their territory. This is one of the most important debates nowadays in the Brazilian Congress. The Federal Government is trying to enforce laws to stop this “war”.

an important step in the study, since occupation in agriculture accounts for an important share of poverty in the country.

6 Methodology

The analysis will be carried out with the aid of an inter-regional computable general equilibrium (CGE) model of Brazil, linked to a micro-simulation model developed by Ferreira Filho and Horridge (2004), and will be extended in a number of aspects. The approach to be pursued takes advantage of the same general idea raised by Savard (2003) to overcome the difficulties posed by traditional AGE modeling for poverty analysis: the use of a CGE model linked to a micro-simulation model, but with a bi-directional linkage between them that would guarantee a convergence of solution for both models. Savard (2003) links the models by running them in a repeated sequence of CGE-MS model runs, first computing the CGE simulation, then the MS model simulation, in a looping way, until convergence occurs. The main advantages of this approach are that: there is no obligation to scale microeconomic data to match the aggregated macro data; we can accommodate more households in the MS model; and the MS model may incorporate discrete-choice or integer behavior that might be difficult to incorporate in the CGE model.

Ferreira Filho and Horridge used in their study a static inter-regional model of Brazil based on the well-known ORANIG model of Australia (Horridge, 2000). This non-linear model is written in linearized form, solved with the GEMPACK software, and distinguishes between 42 sectors and 52 commodities\(^9\); 10 labor occupational categories; and 27 regions inside the country, using a top-down technology. The CGE model was calibrated with data from the Brazilian economy for 1996, obtained from two main sources: the 1996 Brazilian Input-Output Matrix (IBGE. [http://ibge.gov.br](http://ibge.gov.br)), and the Brazilian Agricultural Census (IBGE, 1996). On the income generation side of the model, workers are divided into 10 different categories (occupations), according to their wages. These wage classes are then assigned to each regional industry in the model. Together with the revenues from other endowments (capital and land rents) these wages will be used to generate household incomes. The CGE model was extended to cover 270 different expenditure patterns, composed of 10 different income classes in 27 regions.

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\(^9\) One of the activities (Agriculture) produces 11 commodities.
7 Extensions to the previous model

This study will extend the previous modeling effort in two main directions. First, a different CGE model will be used. The proposed model has the theoretical structure of the TERM model (Horridge, 2004) a full “bottom-up” inter-regional model of Brazil. Traditionally, “bottom-up” modeling restricts the dimensionality of the analyses of regions and/or sectors, due to the size of the model that easily becomes computationally too expensive to run. The TERM model however takes advantage of recent developments in storing margins matrices, what makes it feasible for very disaggregated approaches. The geographical concentration of economic activity in Brazil may affect considerably the results of some policies shocks, being the “bottom-up” approach a natural one for inter-regional modeling, when some of the policy shocks arise at sub-national level. The extra effort required in calibration would be worthwhile in this case.

It should be noted that there are no official trade matrices across states in Brazil to be directly used in the model. These matrices will have to be estimated, based on an aggregated inter-state indirect tax flow matrix and gravitational methods.

And the second point in which the previous work of Ferreira Filho and Horridge (2004) will be extended is the inclusion of a detailed representation of the government sector, due to the aim of this study. This will allow the analyses of the impacts of policy changes on government accounting, both at federal and at state levels.

8 Data requirements and sources

There are two main sources of information for the household micro-simulation model: the Pesquisa Nacional por Amostragem de Domicílios –PNAD (National Household Survey – IBGE, 2001), and the Pesquisa de Orçamentos Familiares- POF (Household Expenditure Survey, IBGE, 1996). The PNAD contains information about households and persons, and shows a total of 331,263 records. The main information extracted from PNAD were wage by industry and region, as well as other personal characteristics such as years of schooling, sex, age, position in the family, and other socio-economic characteristics.

The POF, on the other hand, is an expenditure survey that covers 11 metropolitan regions in Brazil. It was undertaken during 1996, and covered 16,014 households, with the

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10 See more information about the TER M model in www.monash.edu.au/policy.
purpose of updating the consumption bundle structure. In this survey is possible to get the expenditure patterns of 10 different income classes, for the 11 regions. This pattern then is assigned to each individual PNAD household, according to each income class. As for the regional dimension, the 11 POF regions were mapped to the larger set of 27 CGE regions. Here it must be stressed that the POF survey just brings information about urban areas (the metropolitan areas of the main state capitals).

The study about factor returns in agriculture will be carried out with information from the Brazilian 1996 agricultural Census. And, finally, as for the government accounting, the public sector statistics are readily available in the main Brazilian Statistical Agency (IBGE – Instituto Brasileiro de Geografia e Estatística).

9 Results dissemination strategy

Part of this research will become the doctoral dissertation of one of the authors (Carliton Vieira dos Santos). As so, it will be included in the University of Sao Paulo’s Digital Thesis Bank, publicly available at the university’s website. The same will happen with the study about factor returns in agriculture, which will become the MS dissertation of Sandra Maria do Prado Lima.

Results of this research will also be disseminated through publications in the main Brazilian economic journals. Besides that, at least three other conferences will be aimed: two in Brazil (the ANPEC – National Association of Graduation in Economics conference and the SOBER – Rural Economics and Sociology Society Conference) and other abroad (the GTAP conference). Other conferences will be also considered, like the conference of the European Regional Economics Association.

And, finally, policy seminars on the topic will be envisaged specially in the IPEA – Applied Economic Research Institute, located in the Brazilian Ministry of Planning, as well as local graduate seminars and other policy seminars inside the country.

10 Prior training and experience of the team members

Joaquim Bento de Souza Ferreira Filho is a professor in the department of Economics, Sociology and Management at the Escola Superior de Agricultura “Luiz de Queiroz”, University of Sao Paulo, Brazil (ESALQ/USP). His teaching activities include courses in

Production Economics, Microeconomics and General Equilibrium Modeling at graduate level, and Microeconomics and Agricultural Policy at undergraduate level. His research activities include CGE modeling since his doctoral dissertation work in 1995. Since then he’s been publishing in the area, in different topics. He is an alumni of the Paradi School, in the 1997 course held in Paris, at ENSAE. He spent a sabbatical year in 2002 at the Centre of Policy Studies – COPS, Monash University, Melbourne, Australia, working in close association with Dr. Mark Horridge, who’s been co-authoring his latest works. Together they developed part of the approach here proposed, which consists of a micro-simulation technique integrated with CGE modeling.

Carliton Vieira dos Santos is a professor at the Universidade Estadual do Oeste do Paraná (UNIOESTE), currently on leave in a doctoral program at the ESALQ/USP, under supervision of Prof. Joaquim Bento de Souza Ferreira Filho. His present field of research consists in the analyses of the regional impacts of fiscal policies, with the aid of the bottom-up inter-regional EGC model mentioned previously.

Sandra Maria do Prado Lima is a junior professor at the Universidade Estadual de Londrina, UEL, currently on leave for MS studies under supervision of Prof. Joaquim Bento de Souza Ferreira Filho. Her present field of studies, which is the theme of her MS dissertation, is the analysis of factor returns in the Brazilian agriculture. This will be accomplished through an econometric study, with data from the Brazilian 1996 Agricultural Census. It is expected, however, that she will participate in all stages in this research, as discussant and the team member specialized in the Census data.

11 List of previous research projects related to this proposal

This proposal comes in line with a research area initiated in 2002 by Prof. Joaquim Bento de Souza Ferreira Filho, in his post-doctoral stage in the Centre of Policy Studies. The main projects related so far were:

As described before, the current proposal seeks a considerable improvement in the analytical capacity for understanding the policy impacts on poverty and income distribution through modeling. The inclusion of a detailed description of federal and state governments accounting in the modeling, as well as the “bottom-up” effects obtained through the introduction of trade matrices between regions will be important developments and may highlight uncovered aspects of the problem, which is too complex to be approached directly without an integrated tool. And, finally, no other sources of funds have been or will be sought for this project.

12 Expected capacity building

Applied general equilibrium modeling is under its early development stages in Brazil, with a few researchers working actively in the area. This research will contribute to the consolidation of the CGE modeling group located at the Centro de Estudos Avançados em Economia Aplicada (Center of Advanced Studies in Applied Economics) – CEPEA, which is the research center of the economics department at the ESALQ/USP (http://www.cepea.esalq.usp.br). The modeling area in the center is leaded by Prof. Joaquim Bento de Souza Ferreira Filho, and has now several graduate students both at masters and doctoral levels working in the CGE area, in themes ranging from trade to fiscal policy, economic integration and environmental issues.

The CEPEA is committed with the idea of making publicly available its researches, and a modeling area in its website is being structured to make models, as well as databases, available. As a medium term strategy, the modeling group is developing a research network
in the country, to increase research efficiency and avoid double efforts on modeling. In this way, this research is an important step in capacity building for fiscal policies analysis, a whole new branch in the modeling group efforts.

In this sense, Carliton and Sandra will integrate the network on their universities, located in one of the most important agricultural states in Brazil, the Parana state. Once back to their institutions of origin, they will also be advisers of other graduate and undergraduate students, what will multiply the benefits of this capacity achieving effort.

13 References


