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Poverty Impact of Economic Policies in Argentina: A Dynamic CGE-Microsimulation Analysis

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POVERTY IMPACT OF ECONOMIC POLICIES IN ARGENTINA: A DYNAMIC CGE-MICROSIMULATION ANALYSIS*

REVISED RESEARCH PROPOSAL
PRESENTED TO PEP NETWORK

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ABSTRACT

Argentina has witnessed dramatic changes in its distributional, labor and social conditions in the last three decades. It has had one of the most disappointing social performances in the region, with a sharp increase in poverty, inequality, unemployment, and labor informality. For example, poverty incidence has grown from 19.9 in 1992 to 54.6 in 2003 (CEDLAS, 2004)

* Note that this proposal is an update of the one sent last year with Leonardo Gasparini as the Team Leader.

The main objective of our research proposal is to model the distributional and welfare affects of changes in policy and the economic environment. To this aim we plan to build a (recursive) dynamic computable general equilibrium (CGE) model linked to a microsimulation module that will allow us to capture the “macro-micro” links. We plan to assess the effect of tax reforms, international terms of trade changes, trade liberalization, among others.

This research will be carried out by a team at the Center for Distributional, Labor and Social Studies (CEDLAS) from the Universidad Nacional de La Plata. CEDLAS is a center focused on distribution, labor and social studies from an economic perspective. It was created as part of the Master in Economics Program of the Economic Department, National University of La Plata (UNLP), to carry out research and teaching activities in these fields.

1. MAIN RESEARCH QUESTIONS AND CORE RESEARCH OBJECTIVES

Our main research objectives are: i) to develop a dynamic CGE model of the Argentinean economy with a detailed representation of the labor market calibrated with a recent Social Accounting Matrix; ii) to link the CGE model to a microsimulation module; iii) to use a layered approach to study the poverty impact of a wide range of policies and shocks. With the development of this methodology we will provide insights into the following questions: how different economic policies and external shocks affect aggregate output, sectoral output, employment, government budget, among other relevant variables; how different policies and shocks affect poverty and income distribution; and how sensitive are the results obtained to the assumptions made.

The main focus of our research will be on the impact of some specific shocks. For example, we plan to asses the impact of changes in the export taxes that were put into force during the 2001-2002 Argentinean crisis. In any case, one of our research objectives is to develop a tool that will be able to analyze different types of shocks.

2. KNOWLEDGE GAPS AND SCIENTIFIC CONTRIBUTION OF THE RESEARCH

The CGE methodology is not intensively used in Argentina. In a recent paper, Mercado (2003) surveys only two "institutional" CGE models. Regarding the CGE-microsimulation methodology applied to Argentina, we are aware of only one paper done by an IFPRI team (Díaz-Bonilla et al., 2004) using their Standard Model (Lofgren et al., 2002) linked to a microsimulation module that follows the non-parametric methodology proposed by Ganuza et al. (2002).

Our analysis will differ from IFPRI's in several aspects. The IFPRI team used their standard model with a cash in advance technology to allow the simulation of a currency devaluation

within a real model. We propose to build a (recursive) dynamic CGE model that focuses its attention only on the real side of the economy. They used a 1993 SAM while we plan to build a new one. This is especially important taking into account the economic changes that Argentina experienced during the last years. The IFPRI paper simulates some shocks that Argentina experienced during the 1990s (e.g. unilateral trade liberalization). We will conduct a prospective analysis trying to identify the probable outcome of different counterfactual scenarios (especially) on poverty.

The project will be useful to establish a working group at CEDLAS with the capacity of doing CGE-microsimulation analysis for Argentina. We expect to contribute to the literature with a careful (dynamic) modeling of the labor market both at the CGE level and at the microsimulation level.

3. POLICY RELEVANCE

One of our aims in building a CGE-microsimulation model is to make a practical contribution to the economic decision making in Argentina. In a country with such a huge poverty increase during the last years, it becomes relevant to assess the probable outcome of different economic policies and shocks. This means that we propose a forward-looking analysis of changes in policies and the economic environment. We plan to address some of the issues that are currently being discussed in our country as, for example, changes in some taxes and transfer programs.

4. METHODOLOGY

Computable General Equilibrium models have long been used for poverty analysis. The representative household approach to CGE modeling can not capture the impact of a shock over the whole distribution of income. For this reason, we will link the CGE model to a

microsimulation model that will allow us to map the aggregate results to the individual level using micro-data.

There are three alternatives to capture distributional and poverty effects using a CGE-microsimulation approach: i) integrated, in the sense that everything is within the CGE model (Cockburn, 2001; Emini et al., 2004); ii) layered, (Robilliard et al., 2001; Diaz-Bonilla et al., 2004); and iii) layered with feedback until consistency is reached (Savard, 2003; Ferreira Filho and Horridge, 2004). In our modeling effort we prefer the layered approach for the following reasons:

- Data availability. There is not a national household survey for Argentina that captures income and consumption patterns simultaneously. Although it is possible to match the income and consumption surveys by grouping individuals (e.g. in income brackets), we prefer to work with the whole distribution of incomes.[1]
- We want to model wages and hours of work as dependent on socioeconomic characteristics that are too difficult to capture in a CGE model. We do not prefer the integrated approach mainly because the limits it imposes in terms of microeconomic household behavior. For example, the employment status of the household head can be important in the labor decisions for females and young individuals. As consequence, we will include it as an explanatory variable in their hours of work equation.
- No need of data reconciliation between aggregate magnitudes from household survey and SAM. This is relevant for our research proposal because underreporting of capital income is very important in the Argentinean household survey (Gasparini, 1999). Using the

[1] Expenditures are reported in the Encuesta Nacional de Gastos de los Hogares (ENGH) conducted every 10 years (1986, 1996/7)

layered approach we only need percentage changes in the linking variables to go from the CGE model to the microsimulation model.

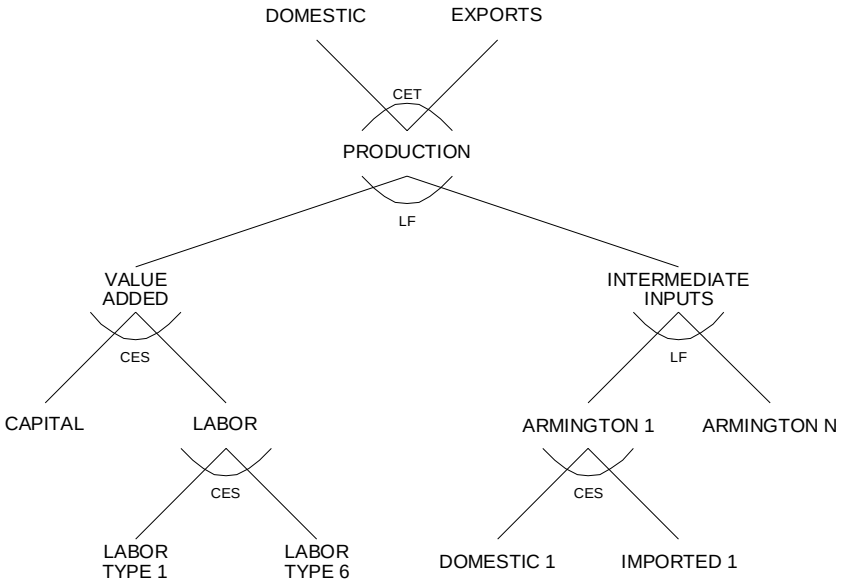
CGE MODEL SPECIFICATION

We plan to build a dynamic CGE model that will allow us to track the effects of economic policies and external shocks on the capital accumulation process. Specifically, we will be able to analyze the endogenous evolution of physical and human capital stocks. We do not prefer the alternative of building a static CGE model because, as said before, we want to account for growth effects in a satisfactory way. A dynamic CGE model can be classified in two groups: intertemporal; and sequential. In the former case, the behavior of economic agents is characterized by perfect foresight (i.e. they know everything within the model about the future). In the last case, economic agents are assumed to have a myopic behavior (i.e. the decisions of economic agents depend on the past and the present not the future). We will follow the sequential approach as a first step in our research agenda.

The recursive dynamic CGE model we plan to build is relatively standard with two exceptions: i) the modeling of the labor market; and ii) the detail in the institutional savings, capital and investment accounts in the SAM that will allow us, among other things, to track the evolution of the government budget. General characteristics of the model are: recursive dynamic, product differentiation by country of origin/destination (Armington, 1969; de Melo and Robinson, 1989), one representative household, perfectly competitive commodity markets, sectoral-specific capital stocks, and different degrees of labor mobility between sectors.

As usual in the CGE literature, our model will decompose the production structure into a series of nested decisions that will allow for a wide range of substitution possibilities between inputs. A preliminary picture of the (urban) production side of the model is presented in the

next figure. We will use standard functional forms to model substitution possibilities. The agricultural sectors will only use rural labor because the lack of information regarding the characteristics of rural employment. The six urban labor categories included in the model will be described next after a short description of the Argentinean labor market. We do not plan to model labor migrations between rural and urban jobs.



For the consumption side we will assume that there is a single (private) representative consumer who allocates his disposable income across the various commodities according to a ELES (Extended Linear Expenditure System) function. This functional form has the advantage of allowing for commodity-specific income elasticities.

The government will be assumed to collect taxes (value added tax, direct taxes, tariffs, export tax, etc.), make and receive transfers, and purchase commodities. Aggregate government expenditure will be assumed fixed in real terms. We will use a Cobb-Douglas utility function for the government consumption of commodities. The behavior of aggregate real investment will depend upon the selected closure rule for the savings-investment balance (i.e. savings driven versus investment driven).

We plan to use the Armington assumption to model foreign trade because it allows two-way trade flows. We will use a sectoral CES (Constant Elasticity of Substitution) “import aggregation” functional form on the import side while, on the export side, a sectoral CET (Constant Elasticity of Transformation) “export transformation” function will be used.

THE BETWEEN-PERIOD SPECIFICATION

The model will be formulated as a static model that is solved sequentially over time. In each period the following variables will be updated: physical sectoral capital stocks; population; labor force disaggregated by skill level; public domestic and foreign debt; private foreign debt; LES (linear expenditure system) minimal consumption; and technological change.

The process of physical capital accumulation will be endogenous with previous-period investment generating new capital stock for the subsequent period. Although the allocation of new capital across sectors will be influenced by each sector’s initial share of aggregate capital income, the final sectoral allocation of capital in the current period will depend on the capital depreciation rate and on sectoral profit-rate differentials from the previous period. Sectors with above (below) average capital returns will receive a larger (smaller) share of total investment than their share in capital income. A similar approach is followed by Thurlow (2004) in his extension of the IFPRI Standard Model.

Population growth will be exogenously imposed on the model based on separately calculated growth projections. We will make a distinction between total population and the labor force. As a first step in model development, we will assume an exogenous growth path for the labor supply with skilled labor growing faster than unskilled labor. Then, we will move to the assumption that the growth in the supply of each labor type depends on their wage differentials. For example, if the wage of skilled workers increases relative to that of unskilled

workers, we will expect an increase in the supply of skilled workers relative to that of unskilled workers.

Foreign debt, disaggregated by domestic institution, will be the sum of old debt and new borrowing (which may be negative). For government (domestic) bonds, the new stock held by the different institutions will be the sum of old stock and new borrowing (which may also be negative).

For TFP growth we will play around with different assumptions. For example, we may assume that it is positively related to the trade-GDP ratio which is the most common indicator of trade openness.

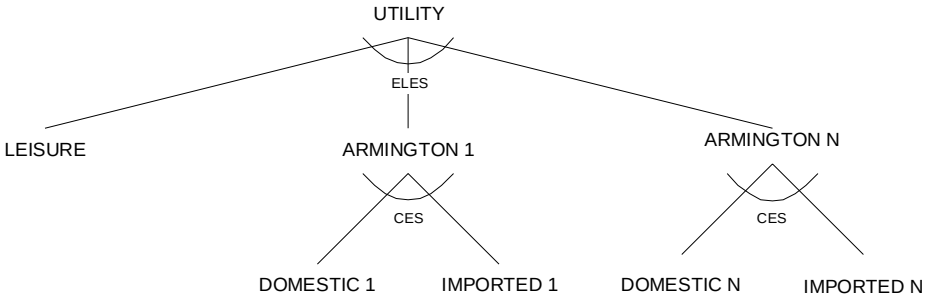
In order to trace the impact of the simulated shocks over the stock of foreign and domestic debt of each institution, we will use specific saving and capital accounts for each institution (households, government, rest of the world) included in the model. This aspect of the model will require the construction of a very detailed SAM with respect to institutional links between savings and investment.

We will experiment with different assumptions about factor mobility between sectors. We will also try different alternatives for the three macro closures that are usually present in a CGE model: i) trade balance; ii) savings-investment; and iii) government budget. A schematic presentation of the macro closures alternatives we are thinking of can be found in Robinson (2003). We will apply the sensitivity analysis methodology of Harrison and Vinod (1992) to the issue of macro closure. We will apply the same methodology to study the sensitivity of results to parameters (i.e. elasticities) values.

We do not provide a more detailed description of model characteristics (e.g. equation listing) because some modeling issues will be decided during the course of model and Social Accounting Matrix building.

Our attention will focus on the labor market modeling because it is the main channel of interaction between the CGE model and the microsimulation model. The link between both modeling stages will be made trough the mapping of changes in wages and employment and product prices from the CGE to the microsimulation. To model the labor market in the CGE model we will follow some of the alternatives proposed by Thierfelder and Shiells (1997), Maechler and Roland-Holst (1997), and Annabi (2003).

A desirable characteristic in our model is to have an endogenous unemployment. We will formulate the model combining the efficiency wage literature with an endogenous labor suply. The efficiency wage literature tries to explain why it is in the interest of firms to pay a wage that is above the competitive wage. We will follow the theoretical work of Shapiro and Stiglitz (1984) assuming that urban firms pay an efficiency wage higher than the market-clearing wage. We will introduce these two features one at a time during model development. The labor-leisure choice will be modeled according to an ELES utility function as in de Melo and Tarr (1992). We will assume a minimal level of leisure in the utility function along with a minimal level consumption of each good. The next figure shows the representative household decision tree.



In the process of model calibration (Mansur and Whalley, 1984) we will combine the SAM dataset with estimations of the relevant (substitution) elasticities, Frisch parameter, etc. In those cases where estimations are not available, we will attempt "educated guesses" of their values.

In any case, CEDLAS team will very much appreciate PEP members advice on the model development process.

ARGENTINEAN LABOR MARKET: BASIC FACTS

Three facts experienced by the Argentinean labor market during the 1990s are the most relevant for our modeling choice: i) increase in the wage gap between unskilled and skilled workers; ii) increase in the labor force participation of female and young individuals; and iii) increase in the unemployment rate. In what follows we briefly describe each of this facts in order to motivate our split of the urban labor force into six categories.

Many authors have highlighted the substantial increase in the wage gap between skilled and unskilled workers in Argentina (Galiani and Sanguinetti, 2003; Gasparini 2003). Workers with at least some superior education earned two times more than those with incomplete high school or less in 1992. That gap increased to 2.9 by 1998 and today remains around that value. The increase in the wage premium is the consequence of both a wider wage gap and a greater difference in hours of work. While in 1992 a low-educated adult worked on average 5 hours a week more than a high-educated person, by 2003 that difference completely vanished.

Argentina has witnessed large changes in labor force participation. Labor force participation increased several points in the last decade. This large increase is mainly the consequence of an enormous flow of low and semi-skilled prime-age women into the labor market. While in 1992 around 46% of adult women were in the labor market (either employed or unemployed),

ten years later that fraction was higher than 56%. This increase was shared neither by men, nor by youngsters (16-25), nor by the skilled, who all reduced their labor market participation, especially between 1998 and 2003. Only the elderly (aged 65 +) substantially increased their participation in the labor market. This massive entry of women into the labor market is one of the most noticeable labor facts of the last decade. This phenomenon was particularly important in the 1990s. During the 1980s labor market participation stayed roughly constant. It was in the period 1991-1999 when this variable went substantially up. Despite a remarkable economic growth, the employment rate fell during the 1990s. The drop, however, was not large: 1 point between 1992 and 1998.

Probably the most remarkable fact in the Argentina's labor markets of the last decade is the dramatic increase in unemployment. Unemployment sharply increased until 1996, first in the framework of an economic boom (1991-1994), and then during a recession (1995-1996). The unemployment rate stabilized around 12% by the end of the 1990s. But that situation did not last long: the economic crisis pushed this variable up again to levels around 18%. The recent period of economic growth is lowering the unemployment rate. The increase in unemployment during the 1990s was the consequence of a sharp increase in labor market participation facing a constant employment rate. Instead, the increase in unemployment in the 2000s is mainly the consequence of the employment fall associated to the economic crisis.

The increase in unemployment was similar for women and men. However, as we have seen above, the factors behind these behaviors are very different. Employment increased for women, but not enough to absorb all women who entered the labor market. In contrast, some men left the labor market, but male employment fell at a higher rate, thus increasing unemployment. During the 1990s the increase in unemployment was particularly harsh for the unskilled, while the recent crisis hit especially the semi-skilled.

Following the above discussion the urban labor force will be first divided in two socio-demographic groups: prime-age males (this type of workers tend to have high attachment to the work place) and females/young/elderly individuals (have different reasons to enter the labor force). Each of these two categories will be further disaggregated according to skill level defined as follows: i) *unskilled*, less than secondary complete; ii) *semi-skilled*, secondary complete and college incomplete; iii) *skilled*, college complete.

Using this last disaggregation we will be able to match each skill level with one (completed) school level. As a consequence, the skill level with which each individual enters the labor force will depend on the amount of years that he stayed in the school system. For example, those individuals that remain in the school system for 12 years will enter the labor force as unskilled workers.[2]

We may try a further disaggregation of the second socio-demographic group depending on sample size. We should remember that data from a household survey will be used to disaggregate the labor payments reported in the input-output tables. We expect this six labor categories will allow us to capture the functioning of the Argentinean (urban) labor market.

MICROSIMULATION MODEL

The two methodologies will be used in a sequential fashion. The (macro) CGE model communicates with the microsimulation model by generating a vector of prices, wages, and aggregate employment variables such as labor supply and unemployment. The functioning of the labor market thus plays an important role. The dynamic nature of the CGE model will

[2] In Argentina it takes 7 and 5 years to complete the primary and secondary educational levels, respectively.

allow us to track the effect of economic policies and external shocks on poverty and inequality on a period by period basis.

In order to achieve consistency with the CGE results, we will follow the Robilliard et al. (2001) approach by adjusting all individual wage rates within a given labor market segment by the same percentage. We will follow a similar procedure to adjust hours of work in such a way as to obtain employment percentage changes that match those from the CGE experiment. The value of the poverty line will be determined endogenously within the CGE model as in Decalawé et al. (1999). This is possible because all the commodity prices are endogenous in the CGE model. This will be another channel of interaction between both models.

The microsimulation module will follow the parametric approach of Gasparini et al. (2004). A wage equation and an "hours of work" equation will be estimated for each of the urban labor categories included in the CGE model. The estimations will be used to compute changes in individual labor incomes to match the aggregate percentage changes obtained at the CGE stage. With these counterfactual earnings we will calculate counterfactual standard inequality and poverty indicators such as Gini Coefficient and Poverty Headcount FGT Index.

The microsimulation model will generate solution values of individual labor supplies and wages such that aggregate percentage changes are consistent with the results from the CGE model. It is through the parameters (constants) of the estimated equations that most of the results if the CGE model will be transmitted to the microsimulation module.

We will not need to assure complete consistency (i.e. that absolute aggregate magnitudes are equal) between the data sets used at the two modeling stages. Only the percentage deviations from the benchmark are transmitted from the CGE model to the microsimulation model.

We now present a short description of the labor market modeling at the microsimulation stage. Let's denote with L_i the number of hours worked by person i, and with w_i the hourly

wage perceived. Total labor income is given by $Y_i = L_i w_i$. The number of hours of work L_i comes from a utility maximization process, which determines optimal participation in the labor market, whereas wages are determined by market forces. The estimation stage specifies models for wages and hours of work which are used to simulate counterfactual labor incomes as described above.

The econometric specification of the model is similar to the one used by Bourguignon et al. (2001), which corresponds to the reduced form of the labor decisions model originally proposed by Heckman (1974). In this work, Heckman shows how it is possible to derive an estimable reduced form starting from a structural system obtained from a utility maximization problem of labor-consumption decisions. Leaving technical details aside, the scheme proposed by Heckman has the following structure. Individuals allocate hours to work and domestic activities (or leisure) so as to maximize their utility subject to time, wealth, wages and other constraints. As usual, the solution to this optimization problem can be characterized as demand relations for goods and leisure as functions of the relevant prices. Under general conditions it is possible to invert these functions to obtain prices and wages as functions of quantities of goods and leisure consumed (or its counterpart, hours of work). In particular, the wages obtained in this fashion (denoted as w^*) are to be interpreted as marginal valuations of labor, which will be a function of hours of work and other personal characteristics, and represent the minimum wage for which the individual would accept to work a determined number of hours. In equilibrium, if the individual decides to work, the number of hours devoted to labor should equate their marginal value w^* with the wage effectively perceived. On the contrary, if the individual decides not to work it is because this marginal value is greater than the wage offered, given her personal characteristics.

This discussion suggests how to determine wages asked by individuals. In parallel it is possible to model market determinants of wages offered (w) as function of characteristics such as years of education, experience and age as a standard Mincer equation (Mincer, 1974). In equilibrium it is assumed that the number of hours of work adjusts to make $w=w^*$.

The demand-supply relations discussed so far are structural forms in the sense that they reflect relevant economic behavior in which wages offered and asked depend on the number of hours of work. Under general conditions it is possible to derive a reduced form for the equilibrium relations, in which wages and hours of work are expressed as functions of the variables taken as exogenous. In this way, the model has two equations, one for wages (w^*) and one for the number of hours of work (L^*), both as function of factors taken as given which affect wages (X_1) and hours (X_2), which may or may not have elements in common. The error terms ε_1 and ε_2 will represent non-observable factors affecting the determination of endogenous variables.

According to the characteristics of the problem, for a particular individual we observe positive values of w^* and L^* if and only if the individual actually works. If the person does not work, we only know that the offered wage is smaller than the salary asked. Consequently, the reduced form model for wages and hours of work is specified as:

$$w_i^* = X_{1i}\beta + \varepsilon_{1i}$$

$$L_i^* = X_{2i}\lambda + \varepsilon_{2i}$$

with

$$i = 1,\ldots,N$$

$$w_i = w_i^* \qquad \text{if} \qquad L_i^* > 0$$

$$w_i = 0 \qquad \text{if} \qquad L_i^* \leq 0$$

$$L_i = L_i^* \qquad \text{if} \qquad L_i^* > 0$$

$$L_i = 0 \qquad \text{if} \qquad L_i^* \leq 0$$

where w_i and L_i correspond to observed wages and hours of work, respectively. This notation emphasizes that, consistently with the data used for the estimation, observed wages for a non-working individual are zero.

We will estimate mincerian log hourly earnings functions using the Heckman procedure to correct for sample selection. Some of the explanatory variables that will be included in the equations are a gender dummy, age and age squared, regional dummies, etc. The selection equation will also include marital status, number of children, and a dummy that takes the value 1 when the individual attends school. Following Bourguignon et al. (2001) it will be assumed that labor market participation choices are made within the household in a sequential fashion. Female and young individuals take the heads labor market status into consideration to decide whether to enter the labor market or not.

MACRO-MICRO INTERACTION

We plan to run the CGE model for at least 15 periods. At the micro-simulation level we will produce a counterfactual household income distribution for each time period of the simulation. The microsimulation involves, in each time period, the following five steps: i) households reweighing in order to reflect the population change; ii) labor supply adjustment according to between-period CGE results; iii) labor supply and unemployment rate adjustment according to within-period CGE results; iv) sectoral employment change; v) wage changes; vi) price changes.

This sequence for introducing changes in some labor market characteristics is similar to that of Vos et al. (2002). The econometric estimations will be used for steps (iii) and (v). For step

(iv) we will randomly select the individuals that change their sector of employment. The last step involves a change in the poverty line in order to reflect the price movement of different goods. Discussion with PEP members over these issues will be very much appreciated.

For the sensitivity analysis of results we plan to follow Harrison and Vinod (1992) for the CGE stage and to use bootstrap techniques to evaluate the statistical significance of the microsimulation results.

SCENARIOS

The basic scenarios that we plan to simulate include the following ones: modifications in the export taxes that were put into force during the recent economic crisis; modifications of the value added tax (e.g. lower rates for some goods combined with a compensatory increase in the income tax rate); changes in the terms of trade (i.e. decrease in the price of Argentina main export products); and modification (i.e. reductions) in poverty-alleviation programs (e.g. Plan Jefes de Hogar). All these scenarios will be formulated as forward-looking experiments. We will not attempt to explain Argentinean past experience.

We expect to obtain results in terms of aggregate welfare, sectoral output, sectoral trade, unemployment, terms of trade, commodities prices, wages, among others from the CGE model. Using the microsimulation module we will obtain results in terms of inequality and poverty.

We consider the macro-micro framework particularly well-suited for the questions at hand. The CGE model will capture some of the main features of structural change and the relative price changes accompanying them. The microsimulation, in turn, will allow for a detailed empirical assessment of the household income response to those changes.

We plan to use GAMS (General Algebraic Modeling System) to code our CGE model and STATA to code our microsimulation model.

5. DATA REQUIREMENTS AND SOURCES

The data requirements are the usual for this type of methodology: i) a Social Accounting Matrix (SAM) to calibrate the CGE model; and ii) micro-data from a household survey to conduct the microsimulations.

A variety of data sources are required to build a SAM. The SAM will be constructed with 2004 as the base year. As our starting point we will use a 2003 SAM built during the last year. In the process of building a Social Accounting Matrix for Argentina we plan to use information from the following sources:

- The 1997 (latest available) input-output tables constructed by the National Institute of Statistics and Censuses (INDEC, 2001).
- National Accounts information regarding private consumption, investment, value added by sector, public consumption, balance of payment statistics, among others. This information will be used to update the input-output tables.
- Information regarding public budget. This will include information about current public expenditures that include, among other things, transfer to households, changes in domestic and foreign debt, among others.
- Information regarding tax revenues generated by each tax instrument. In particular, value added tax, export tax, import tax, direct taxes, activity taxes, and other indirect taxes.
- Information regarding the type of labor (by skill/educational level/gender) that is demanded by each sector. This disaggregation of the firms labor demand will allow a better modeling of the link between the CGE model and the microsimulation module.

Since the December 2001 crisis, the Argentinean economy experienced important structural changes: almost 200% increase in the exchange rate; public debt default; restrictions on bank deposits withdrawal; 40.5% inflation during 2002; and 10.9% reduction of the real GDP during 2002. Taking this into account, we plan to construct a SAM for Argentina as current as possible. We will try to build a SAM as disaggregated as possible and later decide which sectoral aggregation we will use in our CGE model. Compared to a static standard SAM, the SAM we plan to build will provide details on the institutional links between savings and investment. CEDLAS team will very much appreciate PEP members advice on the SAM building process.

In building the microsimulation model we will use the Encuesta Permanente de Hogares (EPH), the main household survey in Argentina. The EPH is carried out by the INDEC. It now covers 31 urban areas (all the urban areas with more than 100,000 inhabitants) which are home of 71% of the Argentine urban population. Since the share of urban areas in Argentina is 87.1%, the sample of the EPH represents around 62% of the total population of the country. The EPH gathers information on individual sociodemographic characteristics, employment status, hours of work, wages, incomes, type of job, education, and migration status. The microdata of the EPH is available for the Greater Buenos Aires (GBA) since 1974. The rest of the urban areas have been added during the last three decades. The EPH has been traditionally carried out twice a year, in May and October. During 2003 a major methodological change was implemented by INDEC, including changes in the questionnaires and in the frequency of the survey visits. So far, only a reduced version of the dataset of the new EPH-Continua (EPHC) has been released to the public. The number of observations (individuals) has changed from around 90,000 in the late 1990s to around 60,000 in the early 2000s, and back to 90,000 in the new EPHC. The EPH will be also used to split labor categories in the SAM building process.

There is no alternative to the use of the (urban) EPH. As a consequence, we should stress that no attempt will be made to reconcile the household survey data with the national accounts. Recall that the results from the CGE will be transmitted to the microsimulation model as deviation from base values.

All the required information described in this section is easily available to the CEDLAS team members.

6. DISSEMINATION STRATEGY

The team members usually present their research results in several forums like i) meetings of The Latin American and Caribbean Economic Association (LACEA), Econometric Society (LAC), Network of Inequality and Poverty (World Bank / Inter-America Development Bank / LACEA) and Asociación Argentina de Economía Política (AAEP); and ii) seminars at Universidad de La Plata, Princeton University, Universidad de San Andrés, Universidad Torcuato Di Tella, Universidad del CEMA and Universidad de Cuyo. The results will be posted at CEDLAS web site. The team leader is usually consulted by the media in themes related to income distribution and poverty. He has written many non-technical articles. The results will be available to policy-makers in the form of short policy briefs. Because some of the team members already worked/are currently working for different government agencies, there will be also personal transmission of project results to policy-makers.

Luciano Di Gresia works at the Ministry of Economy and Production where government officials showed particular interest in taking into account the general equilibrium effects when assessing the likely impact of tax reform. For example, they are interested in estimating the poverty and inequality impact of reducing the value added tax rate on food commodities at the same time that the income tax rate is increased.

Martín Cicowiez works at the Ministry of Foreign Affairs, International Trade and Worship where trade negotiators showed interest in i) moving from a static to a dynamic evaluation of different trade policies and ii) assessing the likely impact on poverty and inequality of different trade policies.

We are aware that government officials at the Ministry of Work, Employment and Social Security and the Central Bank are considering the use of the CGE methodology. As a result, our research proposal should be of interest for them too.

7. SHORT LIST OF KEY REFERENCES

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8. LIST OF TEAM MEMBERS

- Martín Cicowiez (male, 29) (Director). He is currently working as a part-time economist at the Center for International Economics at the Ministry of Foreign Affairs where he developed a CGE model calibrated with the GTAP (Global Trade Analysis Project) database for the assessment of trade policy options for Argentina. He also developed some computable partial equilibrium models for trade policy analysis. At CEDLAS, he worked in projects using microsimulation techniques. He developed a simple CGE model for Argentina for his master's thesis. Has experience in computer-programming languages. He is currently involved in the development of the World Bank's MAMS (MAquette for MDG Simulation; MDG = Millennium Development Goal) model (Lofgren, 2004).

- Luciano Di Gresia (male, 33). He is currently working at the Ministry of Economy and Production. At CEDLAS, he is currently working in a project that involves a CGE model. He will be responsible for coordinating the SAM building process. Has extensively worked with Argentinean data in general. Specifically, with public sector information. Has advance knowledge of the GAMS software. Has experience in computer-programming languages.

- Ana Pacheco (female, 26). She worked in many projects at CEDLAS processing and analyzing different databases. Has some basic knowledge of the macro-micro approach..

- Leonardo Gasparini (male, 39). He worked in many projects related to income distribution and poverty issues. He developed a microecnometric decomposition (microsimulation) model for Argentina. He leads many projects done/being done at CEDLAS most of which require household surveys analysis. He will participate in all stages of the project.

- Mariana Marchionni (female, 34). He developed some microeconometric decomposition (microsimulation) models for Argentina. She worked in many different projects that required household surveys analysis. She is a specialist in microeconometrics.
- Georgina Pizzolito (female, 30). She worked in many projects at CEDLAS processing and analyzing different databases. Has some basic knowledge of GAMS.

9. EXPECTED CAPACITY BUILDING

During the last years all team members had work in many projects related to poverty and income distribution analysis. Most of this work was done using micro-data. With this project we expect to develop the capacity to build a computable general equilibrium model. In terms of literature references, we will follow Shoven and Whalley (1992), Decalawé at al. (1999), annaba et al. (2004), Robilliard et al. (2001), among other authors that have built CGE models.

Some of the team members will specialize in the SAM building process following the work of (Round, 2003; Reiner and Roland-Holst, 1997; Ballard at al., 1985; St-Hilaire and Whalley, 1983). This stage will also involve the process of reconciling data from different sources. For this task we plan to follow the Cross Entropy approach developed by Robinson et al. (2001). We may also use the more traditional RAS method (Bacharach, 1971).

All the team members will participate in the general design of the CGE-microsimulation model. The CGE model will be coded in GAMS (Brooke et al., 1998) while the microsimulation model will be coded in STATA. In both cases the project will help to develop the capacities needed to build both type of models in all team members.

It should be stressed that we plan this project to be the starting point of an economy-wide applied policy modeling research agenda at the Center for Distributional, Labor and Social

Studies (CEDLAS). We expect this project will help to develop of a CGE-microsimulation modeling group at CEDLAS not restricted to team members.

10. ETHICAL, SOCIAL, GENDER OR ENVIRONMENTAL ISSUES OR RISKS

The proposed research has no ethical, social, gender or environmental issues or risks. It will tackle poverty-related issues without discrimination.

11. LIST OF PROJECTS IN RELATED AREAS INVOLVING TEAM MEMBERS

CGE RELATED PROJECTS

Current activities

Cicowiez, Di Gresia, and Gasparini. Assessing Development Strategies to Achieve the Millennium Development Goals in Latin America. Funding institution: UNDP.

Cicowiez. He is currently involved in the development of the World Bank's MAMS (MAquette for MDG Simulation; MDG = Millennium Development Goal) model (Lofgren, 2004).

Recent activities

- Cicowiez. 2004. El Acuerdo de Libre Comercio Mercosur-CAN: Una Evaluación Cuantitativa. Funding institution: ECLAC.
- Cicowiez. 2004. Impacto del ALCA sobre la Economía de los Países Miembros de la ALADI: Un Análisis de Equilibrio General. Funding institution: ALADI.
- Cicowiez. 2004. The Atlantic Triangle: A Computable General Equilibrium Analysis of Mercosur Agreements with FTAA and EU. Journal of Law and Economics in Internacional Trade.

- Cicowiez. 2003. Effects on Mercosur of the FTAA and the Mercosur-European Union Agreement: A Computable General Equilibrium Analysis. Funding institution: Mercosur Chair of Sciences Po and Working Group on EU-Mercosur Negotiation (WG).
- Cicowiez. 2001. La Economía Bonaerense Frente al Proceso de Integración Continental: Posibles Impactos de la Conformación del ALCA. Funding institution: Maestría en Finanazas Públicas de la Universidad Nacional de La Plata.

MICROSIMULATION AND MICRO-DATA RELATED PROJECTS

Current activities

- Gasparini, and Cicowiez. 2005. Rural Areas and MDGS in Latin America. Funding institution: UNDP.
- Gasparini et al. 2005. Growth and Income Poverty in Latin America and the Caribbean. 2005 LAC Flagship Report. Funding institution: World Bank.
- Gasparini et al. 2005. Socio-Economic Database for Latin America and the Caribbean (SEDLAC). Funding institution: World Bank.

Recent activities

- Gasparini, and Cicowiez. 2004. Ethnicity and MDGs in Latin America. Funding institution: United Nations Development Program.
- Gasparini, Pizzolito, and Pacheco. 2004. Trade and Labor Outcomes in Rural Latin America. Background paper for the World Bank LAC Flagship Report 2004.
- Gasparini, Pizzolito, and Pacheco. 2004. Rural Development, Labor Outcomes and Education in Latin America. Background paper for the World Bank LAC Flagship Report 2004.

- Gasparini, Cicowiez, and Marchionni. 2004. Inequality Determinants in Argentina. PICT Project of the Scientific and Technological Research Agency. (PICT 02-08623).
- Gasparini, Cicowiez, and Marchionni. 2004. Bulletin on Distributive Statistics. PICT Project of the Scientific and Technological Research Agency. (PICT 02-08623).
- Gasparini, and Pizzolito. 2004. Monitoring the Socio-Economic Conditions in Argentina, Chile, Paraguay and Uruguay. Funding institution: World Bank.
- Marchionni. 2004. Urban Female Employment in Argentina. Educate Girls Globally (EGG). Funding institution: Inter-American Development Bank.
- Gasparini. 2003. Argentina's Distributional Failure: the Role of Globalization and Public Policies. Funding institution: Inter- American Development Bank.
- Gasparini, Cicowiez, Pizzolito, and Pacheco. 2003. Different Lives: Inequality in Latin America and the Caribbean. World Bank LAC Flagship Report 2003.
- Gasparini, Pizzolito, and Pacheco. 2003. Social Protection and Employment in Latin America: An Analysis Based on Household Surveys. Funding institution: International Labor Organization (ILO).
- Gasparini, Cicowiez, and Marchionni. 2003. Distributional Changes in Bolivia: A Microeconometric Decompositions Analysis. Prepared for the World Bank – Poverty Assessment of Bolivia.

A complete list of each team member publications and research projects can be found in the CVs posted to the PEP web site. Some of the papers written by team members can be found at the CEDLAS web site in <*www.depeco.econo.unlp.edu.ar/cedlas* >.