**First Generation of Structural Reforms in Mexico: Class and Poverty.**

1. **Introduction.**

The complex and persistent transformation in progress of the Latin-American economies, implemented by the structural adjustment reforms, require a fuller and more rigorous understanding of the rate of growth of the productive sectors and the effects that these might have on distributive inequality. However, these issues demand to be clear about the components of inequality that are being analyzed.

On one hand, there are distributional components of economic inequality arising from remuneration system of the productive factors that are implicit in the sectorial effects of the various structural reforms, which include the distribution of income by occupational classes and socio-economic classes. And on the other hand, there are components of economic inequality that deal with the threshold of meeting the individual’s needs, which results in a portion of the population that is going to lag in comparison to the threshold and which is also affected by poverty conditions and extreme poverty or indigence.[[1]](#footnote-1)

In relation to the rate of growth of the productive sectors and economic inequality Buzaglo and Calzadilla (2006, 2008, 2009 and 2010) develop an intersectoral model for Bolivia, in order to analyze a structural reform related to achieving the Millennium Development Goal of halving the rural poverty and destitution by 2015.[[2]](#footnote-2) The model made it possible to analyze the effects of allocation and expansion of the investments regarding sectorial production growth, the structure of distribution of the factorial income and the economy’s potential of reducing poverty and indigence of the population.

The authors conclude, in relation to the structural economic reform of reduction of the external debt of Bolivia, that the major changes in the evolution of economic inequity were three. Firstly, a moderate decrease in the size of the classes of skilled workers, non-skilled workers and rural workers, and correspondingly an increase of the relative weight of informal workers. Secondly, an increase in the level of poverty. Thirdly, indigence experienced a moderate decrease (a reduction of only 5 percentage points until 2015, instead of the 25 that would reduce the indigence by half).[[3]](#footnote-3)

Using this model, we want to know what effects had the First Generation Structural Economic Reforms in Mexico –that took place between 1982 and 1994—on the dynamics of occupational classes, poverty and indigence.[[4]](#footnote-4)

The first generation economic reforms had as an objective to stabilize the economy and boost growth, but also responded to the need to solve other problems such as economic inequality. For this reason, a number of structural adjustments took on several levels. First, the *External Debt Renegotiation* expected would reduce the amount and serving of it offering greater certainty to the economy, encouraging the inflow of external resources in the form of foreign direct investment (FDI) and acting directly on the growth of industrial production and indirectly on the distribution of income. Secondly, the *Privatization of Public Enterprises* aimed at improving public finances and increase social spending by the government to improve the conditions of poverty and economic inequality. And third, the *Trade Liberalization* it aimed: to suppress inflation, give greater dynamism to exports and imports and benefit the labor sector. These three processes of economic reforms produced heterogeneous effects on growth between economic sectors, the evolution of the occupational categories and levels of poverty and indigence of the population.

The application Buzaglo and Calzadilla’s model, the analysis of the processes of structural change and economic inequality in Mexico, implies a redefinition of the same in two dimensions. In the conceptual plane, the concept of “social classes” is replaced by the income class or occupational class, and a refinement of the behavior of block production and foreign trade is added. Additionally, in the computational plane, the computer program that is used for the model is STELLA/Ithink( 9.1.4 ). This program allows for easier, versatile and intuitive programming than the textual or numerical objects to perform simulations.

The text is organized into eight sections. The second section sets the structure and logic of the operation of the model of dynamic macroeconomic consistency. The third section formalizes analytically kinds of income or occupations classes and kinds by levels of income in the model. In the fourth section presents and exhibits the dynamic programming model. The fifth section describes the economic reforms of the first generation. In the sixth section is empirically defined kind of occupation. In the sixth section is the calibration of the model, the baseline scenario and performs analysis of the impact of structural reforms on the evolution of classes, poverty and indigence. Finally, in the eighth section there are the conclusions.

1. **Structure and Functioning of the Multisectorial Model Distribution**

Buzaglo and Calzadilla’s multisectorial dynamic model (op. cit) aims to incorporate a series of conceptual developments of the economic theory in an applied perspective[[5]](#footnote-5). The structure of the macroeconomic dynamic consistency model includes 8 blocks presented in Figure 1.

**Figure No.1: Dynamic Multisectoral Model Diagram**

Economic Equity

Labor Market

Income

External Debt

Saving-Investment

Production

Consumption

External Balance

Comercio Exterior

Source: Self made based on Lecuanda (2000).

The production block is the basic and dynamic nucleus this is where the functioning of the model begins. In this block, the initial production level is determined, which is modified in accordance with the growth of the production equation, which depends on the coefficients capital-output multiplied by average product total savings over external debt. Based on these coefficients, an accumulation of wealth and capital in each sector can achieve a certain level of production, assuming installed capacity given a level of production.

The matrix of technical coefficients determines, under the non-replacement principle of productive inputs, which characterize the Leontief model, the intersectorial flows of goods and services, both produced domestically and imported. It establishes as residue in each sector the value added or generated income in the present production process.

In the block of the income (or value added) the sectorial production is distributed among the production factors. Specifically, the income generated in each sector is channeled according to factorial or functional distribution parameters distribution between wages, operating surplus and net indirect taxes, stratified by economic sectors. Thus, the matrix of coefficients of the sectorial income distribution can be treated as a normative or matrix of primary sectorial income distribution.

In the same block, another secondary income distribution matrix defines the part of the factorial income that turns into the available household and government income, in this matrix consider all income redistribution operations that involve direct taxes, transfers, taxes and social security benefits, and net payments to foreign factors (foreign debt services and compensation to workers) are considered – all implicitly.

In the consumption block, once disposable income is specified, consumption functions are generated by income levels of households, government and the total. In this block, government disposable income is consumed in the types of products that are defined in a vector of spending by the government services sector. Meanwhile, groups of households by income levels have a pattern of consumption based on an average propensity to specific consumption in each income group, incorporating thus, the specificities of spending patterns of the population.

At the same time, the total expenditure of each home group is dedicated to consumer goods which are distributed according to fixed (budgetary) coefficients between different goods, highlighting the difference between basic and non basic demnds goods and traits that are profiled by unequal distributions of disposable income of socioeconomic groups.

The saving and investment block determines the growth balance. The difference among disposable income (from each group; home and government) and the final consumption expenditure constitutes the gross internal (domestic) savings. This variable, therefore, is determined by the peculiar relationship of technology, labor markets, competition and concentration between markets, institutional heterogeneity, distribution and redistribution of income, consumption patterns and other economic policy measures.

Additionally, this model includes foreign savings determined by national income, distributed between households and the government. The total savings becomes sectorial investments assigned through public policy and private returns. This investment, by the use of the accelerator principle, will generate sectorial output growth for the next period and the cycle restarts itself.

The external debt model, relates to the specific restriction of the international finance market in each period and with the external debt policy and foreign investment that determines a level of external savings additional to the investment funds. This fund is distributed by the model between the different sectors, according to their productive performance in pervious periods, considering also, the accumulation cycle of each economic sector and the investment behavior of each economic sector and other macroeconomic variables (interest rates, exchange rates, etc.).

The external balance block “closes the model”. After establishing sectorial demands for intermediate consumption (measured by the technical coefficients), government consumption, final consumption of households and investment demand (determined by the distribution by origin of the sectorial investment).These are subtracted from the total supply domestic sector. Thus the "surplus deals" are obtained. If these offers are positive, meaning, if the domestic supply in a sector exceeds domestic demand in it, the surplus is exported. Conversely, if these surpluses deals are negative, they are covered by imports. It include the functions of sectorial imports of capital goods, intermediate inputs and non competitive, and also the functions of sectorial exports.[[6]](#footnote-6)

This way, foreign trade is the mechanism that balances supply and demands. This means, any deficit or surplus of domestic production is channeled through imports and exports, thus maintaining a balance in amounts, without altering prices.

The employment block has implications on the distribution indicators of the household income. It is assumed that employment is proportional to labor requirements by household groups and to the sectorial production (output). Similarly, it is assumed that there is an unlimited supply of workers, this way, labor demand is always satisfied and there is no technological progress because the only source of employment growth is the accumulation of capital.

Regarding economic equity block, a poverty index and an index of incidence or extent of poverty is calculated. In this block, the measurement of poverty is done by a line of poverty methods, which consist of establishing based on household income, if they are able to satisfy through the purchase of goods and services a set of basic nutritional needs and non nutritional needs considered essential (conceived as fixed income value). Also, the incidence or extent of poverty in a period expresses the percentage of households that do not reach the level of the poverty line.

In summary, the logic of the dynamic input output model is based on a fixed behavior regarding household and government consumption, based on the income effect more so than the substitution effect. Furthermore, the global amount of annual investment is defined by the budget constraints and itssectorial distribution (location) includes a delayed accelerated effect depending on the recent production performance of each sector.

**III. Classes and Poverty in the Multisectorial Model**

The multisectoral model represents a dynamic version of the Social Accountability Matrix (SAM). This means the model describes in actual time, all the variables that integrate it. Additionally, it implies that the variables respect the identities and the consistent relationships, in a given period and between them.

Similarly, like a SAM type scheme, the sectorial model distributes income or value added generated in the production, between the different productive factors and the different institutional categories. This way, the distribution coefficient matrix of the primary sector income may be treated as a normative matrix or an instrument of *distributive policy* matrix.

The coefficient of primary income sectorial distribution can assume different specifications. One type of specification is used to analyze the distribution of income between different kinds of *income class or occupational categories.*[[7]](#footnote-7) This type of sectorial disaggregation by income class is important for understanding the dynamics of growth and economic development. Another type of specification is required for the analysis of poverty and indigence and the policies to reduce poverty. This requires a representation of the *households by groups of income*, so that they can determine how many households are below the poverty line for different levels of the sector's production (output), associated to different structural adjustment reforms. As is evident , an occupational category may include poor and non poor households.

Since it is required to analyze the behavior of economic inequality induced by structural adjustment programs, we can start from the distribution coefficient matrix of the primary sector definition such as $V\_{t}$ of order (100 *x n*), 100 being the levels of income of the population ordered by percentiles and *n* is the sectors, corresponding to period *t*. Then, the household income percentile determines how much households are on poverty line. It can be written as:

$$y\_{t}=V\_{t }x\_{t}$$

where $y\_{t }$ represents a vector of order (100 x 1), which is the household income percentiles, and $x\_{t}$ is a vector of order (n x 1) of gross production sector. However, we also need to find the distribution of income among occupational categories in each economic sector. For this, the $V\_{t} $matrix must be converted to a $J\_{t}$ matrix of order (*k x n*), of occupational classes *k* and *n* sectors of economic activity. To perform this transformation, a diagonal matrix of n sub matrices, named $H\_{t}$ can be introduced. It describes the income distribution by percentiles for each one of the *k* classes of income in each sector. If the matrices are properly conditioned, we can obtain: $H\_{t }$*x*$ V\_{t}$ = $J\_{t}.$[[8]](#footnote-8)

In the model, another important aspect is the emphasis on the determinants of economic growth. As in the input-output dynamic model is made dependent growth, both added and sectorial level of the volume and the efficiency of the investment, the last one reflects the marginal production response to increased productive capacity. This implies that investment, its magnitude and efficiency, are determinants of structural change in the economy, this changes in the proportions in which the various sectors are involved in the total production. This process of structural change is one of the characteristics of real economic evolution, in which the relative weight of the different economic sectors changed systemically, which is an aspect not often considered in models of multisectorial growth.

The *investment policy* influences the growth and structural changes of the economy. This is a wide concept that incorporates various forms that public sector can influence directly or indirectly the investment’s behavior. The concept incorporates the public investment in regards to infrastructure and public companies, as well other types of stimuli related to subsidies or incentives to the private initiative. This way, investment decisions are influenced by the public expenditure.

The model allows the analysis of the *external debt policy*, which by definition equals the deficit of the current account (or net lending in the national accounting system). External savings is added to the current domestic savings, increasing (at an equal cost to the interest rate) the capacity of economic investment. The external debt is the accumulation, from the initial amount of debt, of the net external savings at given time horizons, taking into account the interest rate effects.

In sum, the distributive scheme, the investment pattern and the foreign borrowing pattern form what can be seen as a *structural adjustment strategy*. In other words, a structural adjustment strategy is a combination of specific values for each one of the three components at a time.

**IV. Programming and InformaticWriting of the Multisectorial Model**

In terms of software, there is a change from Buzgalo and Calzadilla *op cit*, thus the model was designed in Stella / IThink (9.1.4). This software allows programming from causal diagrams (object code) and supports the use of variables in matrix form and stochastic specifications thereof. Graph 1 presents the causal diagram of the intersectorial and intertemporal model. The large boxes represent the different blocks in the model, each one contains the variables that form them. Each circle in the causal diagram represents a variable, and has a numerical specification if it is an initial value, an algebraic expression or if obtained from other variables. The shaded circles represent matrix variables; rectangles show the cumulative variables, and thicker arrows than always reach them represent growth flows. The object code of the program is translated into a source code (a set of lines of text that are the instructions that the computer must follow), whichdefines the model. Therefore, in the source code, the multisectoral dynamic model performance is entirely described.

The causal diagram displays the circular flow between production and investment. In the middle part of the diagram production generates income that is distributed between consumption and savings (private and public), and through their respective propensities, levels of consumption and savings are determined. Total savings, including internal and external, becomes investment (private and public) found in different sectors. The effectiveness of investment and external debt is which causes growth in the internal sectorial production, closing this way the cycle. At the bottom of the diagram, the trade balance is calculated which plays an important role, this is the mechanism that “empties the market”. That is, any deficit or surplus of internal sectorial production is channeled through foreign trade, either through imports or exports respectively, thus managing to maintain balanced amounts. Finally, in the upper part of the diagram, the level of employment is included. This depends on the internal production and the requirements of the job (productivity), and the economic equity block, which is determined by the sectorial production levels, the income and the distribution between the income classes and the labor productivity.

Finally, the estimation of the model requires a detailed treatment of data; it needs information that is not always available, at least in terms of classifications and nomenclatures used in national accounting scheme[[9]](#footnote-9). The necessary data for the building of the model is shown in text’s appendix.

Graph1. Casual Diagram of the Multisectorial Model



Source: Self Made based on Lecuanda (2000)

**V. First Generation Economic Structural Reforms in Mexico**

In Mexico, the 1982 crisis represents a turning point in the path of development; three serious economic problems are made evident: the strong external debt contracted by the State since 1960, economic dependence on oil revenues and the imbalance of the domestic (internal) market. These problems led to inflation, poverty, unemployment and economic stagnation. It was therefore proposed, first, the rethinking of the State itself, its functions and its level of economic and social performance. Secondly, it established the free access of national and international private capital in the country. In other words, a change of a development model was proposed.

With the aforementioned information, a series of structural reforms in 1982 to 1994 were conducted, they were called “first generation structural reforms”. Their objectives were to stabilizing the economy and boost the growth, although they additionally responded to the need to solve other problems such as economic inequity.

First, the negotiation of external debt began in 1982, continued in 1986 and ended in 1990. It is a process of structural adjustment to which the country committed with the international financial institutions to lower government transfers to the rest of the world. It was expected that the negotiation of foreign debt allowed to reduce it in the service and size, providing greater certainty to the economy, encouraging the inflow of external resources in the form of Foreign Direct Investment (FDI), and directly affecting the economic growth of the industrial production and indirectly over the distribution of income in the population (Hernández, et at, 2014).

Secondly, the privatization of public enterprises started in 1984 and accelerated between 1988 and 1989. The commitment of the country was to improve the structure of public finances. It was believed that privatization of public enterprises would strengthen the public finances; it would help improve public sector efficiency and properly channel government social spending to improve the conditions of poverty and economic inequality. Moreover, privatization would only be an exchange of public actives for private, and how the exchange would be above its real value and an increase of wealth to be channeled into social investment (Andrade, 2013) would occur.

Thirdly, trade liberalization began in 1985 with the adhesion of Mexico to the GATT (General Agreement on Trade and Tariffs) and ended in 1994 with the signing of NAFTA (North American Free Trade Agreement) with the United States and Canada. This process was aimed to dismantle the commercial restriction, as well as the level and dispersion of the tariffs, with the belief that it would make the national economy more efficient and modern and it would repress the price growth (those associated to high tariffs). With this, it was expected that the trade liberalization would generate a more dynamic export sector and it would directly benefit the labor sector (Andrade, 2013).

**VI. Occupational Classes and Poverty in Mexico**

Before simulating the structural adjustments in the multisectorial model, we must emphasize that the analysis of economic equity requires to conceptually establish the definition of occupational classes. “Socio occupational classes” are conceptually understood as groups of people defined by their position in the labor market, this means, the position being studied is related to the occupation variable. To distinguish occupation, certain criterion are taken into account, such as the qualities particular to them (rating, manual activity or not, etc), as well as the role in the organization of work process (autonomy or control over others, etc).This is why the model incorporates a conceptual change in regards to Buzaglo and Calzadilla op. cit., it replaces the concept of social classes with income classes or occupational categories.[[10]](#footnote-10)

For use in Mexico, the main component of the adopted definition of “income class” is the modified version of occupational categories from the National Household Income and Expenditure Survey (Encuesta Nacional de Ingresos y Gastos de Hogares, ENIGH, 1994). This survey originally generates data about the income by the occupational position:[[11]](#footnote-11)1) Agricultural worker or non agricultural worker, 2) Rural laborer or sharecropper, 3) Entrepreneur, employer, or business owner (1 to 5 employees), 4) Entrepreneur, employer, or business owner (6 or more employees), 5) Freelancer, 6) Unpaid family worker of a business that belongs to a property owner, 7) Unpaid family worker of the employee, 8) Unpaid worker in a business that is not owned by the household, or 9) Member of a cooperative. However, this does not reflect the concept of relevant income class from the socioeconomic point of view, so it needs to be complemented to reflect the particular relationship between workers and owner in the productive process.

For approaching the categories of occupational classes we use the survey ENIHG and adopted three criteria: rural/urban status, years of education, and existence of an employment contract. These three criteria allow us to re - classified in six categories: I) Urban pattern, II) Rural pattern; (III) Qualified worker; (IV) Unqualified worker; V) Informal worker and VI) Rural worker; then we complement the occupational categories with the average income, i.e., income per capita by occupation category.[[12]](#footnote-12)

Table 1 shows the distribution of the sample and the expanded sample of occupational categories from the ENIGH (1994)[[13]](#footnote-13). In the table, we can observe that the majority of the occupational classes are composed of skilled workers and non skilled workers (or rural workers).

Table 1. Distribution and sample size by income class, ENIGH (1994)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Occupational Class | Household Sample | Expanded Sample | % |
| I | Urban Owner | 412 | 769,910 | 4.2 |
| II | Rural Owner | 334 | 333,969 | 1.8 |
| III | Skilled Worker | 2,491 | 4,679,468 | 25.6 |
| IV | Rural Worker | 5,191 | 7,573,929 | 41.4 |
| V | Farm Worker | 1,355 | 3,373,726 | 8.6 |
| VI | Informal Worker | 2,213 |  | 18.4 |
|  | Total | 11,996 | 18,313,653 | 100.0 |

 Source: INEGI (1994)

According to the adopted definition of occupational classes, we can establish that the interior of each occupational category includes two different levels of household income. Table 2 shows that in each of the different occupational levels have different levels of poverty and indigence existing.

Table 2. Distribution of income class, poverty and indigence, ENIGH (1994)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Class | Class | MeanIncome a\_/ | Poverty Percentage b\_/ | Indigence Percentage c\_/ |
| I | Urban Owner | 4,889 | 9.0 | 2.1 |
| II | Rural Owner | 1,142 | 54.1 | 25.9 |
| III | Skilled worker | 3,663 | 8.9 | 0.9 |
| IV | Rural Worker | 1,428 | 44.3 | 19.0 |
| V | Informal Worker | 1,152 | 39.1 | 11.9 |
| VI | Farm Worker | 614 | 77.9 | 44.1 |
|  | Total | 1,956 | 35.9 | 14.6 |

Notes: a\_/ annual income in dollars, b\_/ Income less than 2 dollars a day and c\_/ Income less than a dollar a day

From this table, 3 observations can be made: 1) the urban owner and the skilled workers have middle income levels almost 3 and 2 times higher than the average national and in them there are levels of poverty and indigency; 2) the urban owner and educated workers have similar middle income levels, meanwhile the last category is six times lower; and 3) the rural workers are the one who suffer most from the poverty problem.

**VII. Base Scenario and Structural Adjustment in Mexico**

In the dynamic intersectorial model the simulation is a result of the change in the value of certain parameters, vectors or matrices, in order to describe the processes of structural economic reforms and to calculate the effect on economic inequality. These variants’ results are analyzed in comparison with the reference scenario.

The reference scenario represents a projection of the *status quo*. In particular, assume the following exogenous parameters: debt is equivalent to 18.3% of GDP and that it increases at a rate of interest fixed 6.25%, a debt relief of 1% of GDP, a total GDP of 1, 254'242 ' 035.5 billions of pesos and a total population of 90'265, 775 inhabitants. Besides that, 1) public sector investment policy maintains the same composition of the year 1993 and 2) income distribution policy does not change. The simulation period is 12 years from 1993 to 2006.

Table 3. Exogenous Coefficients of the Multisectorial Model

|  |  |  |
| --- | --- | --- |
| Variable Description | Estimate | Information sources |
| Initial GDP of sector *i* | MIP, 1994 | Fuentes and Brugués (1994) |
| Initial External Debt | $ 229’526,292.1 a\_/ | SHCP, IV Government Report |
| Debt Reduction Capacity of Mexican Economy | 0.01 ó 1% of GDP | SHCP. IV Government Report |
| Interest Rate of Debt Growth | 0.0665 | Jhabvala, F (1991) |
| Distribution Coefficients of Public Investment | Several DataTable 4 | INEGI (1998) |
| Initial Population | 90’265,775 | CONAPO |
| Population Growth Rate | 0.0195 | CONAPO |
| Tariff Rate per sector | Several Data | SECOFI (1993) and Lecuanda (2000) |

 Note: a\_/ Amount of debt in thousands of pesos. Represents 18.3% of GDP in 1993.

We must observe that the structural adjustments demanded the reduction of the role of the State as a source of stimulation and orientation of public investment and the income distribution factor was left in the hands of the market. Table 4 presents the distribution pattern of public sector investment in the period 1993-1997. Table 4 shows that sectors such as oil, electricity, transport, communications and basic petrochemical showed an increased weight in the distribution of public investment at the time. While sectors such as agriculture and livestock had a weight decreasing in time.

Broadly speaking, we can say that the expected distribution of public investment focusing on a few strategic sectors generate one higher macroeconomic growth, but that the distribution of welfare became worse. For this reason, was proposed as a policy priority combat economic inequality

Table 4. Coefficients of Sectorial Public Investment Distribution, 1993-1997

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sectors | 1993 | 1994 | 1995 | 1996 | 1997 |
| Agriculture | 0.034 | 0.032 | 0.029 | 0.028 | 0.030 |
| Livestock, Forestry, Hunting and Fishing | 0.019 | 0.017 | 0.016 | 0.016 | 0.015 |
| Oil | 0.159 | 0.151 | 0.204 | 0.208 | 0.197 |
| Manufacturing Industry  | 0.001 | 0.001 | 0.001 | 0.000 | 0.000 |
| Electricity | 0.126 | 0.120 | 0.162 | 0.164 | 0.157 |
| Basic Petrochemicals | 0.029 | 0.028 | 0.037 | 0.038 | 0.036 |
| Construction  | 0.004 | 0.004 | 0.004 | 0.004 | 0.003 |
| Commerce | 0.005 | 0.004 | 0.003 | 0.000 | 0.000 |
| Transport | 0.090 | 0.092 | 0.090 | 0.088 | 0.105 |
| Communications | 0.030 | 0.031 | 0.030 | 0.030 | 0.030 |
| Public Administration | 0.004 | 0.003 | 0.003 | 0.003 | 0.003 |
| Other Services | 0.491 | 0.526 | 0.417 | 0.417 | 0.392 |

 Source: Lecuanda, 2000 page 141 starting from The Income and Expenditure in Mexico. INEGI.

The reference scenario is contrasted with the scenario involving the restructuring of foreign debt. In particular, because the baseline simulation considers the amount of the negotiated debt and the fixed interest rate of 6.25%, the model of the restructuring of the external debt with modifications was simulated as follows: 1) decrease the amount of debt at 8% of GDP; 2) decrease in the interest rate to 4.75%; 3) decrease in the proportion of foreign savings by 20%; 4) equal orientation of public sector investment; and 5) a coefficient of debt reduction equal to 4% of the GSP (control variable).

Additionally, the reference scenario is compared with the strategy of privatization of public enterprises. In the original model, the public income variable contains indirect taxes and operating surplus. In particular the scenario considers the “tax savings” measured by the operating surplus by the privatization with the following modifications: 1) operating surplus are equivalent to 0.1 % of annual GDP; 2) a rate of debt relief of 1% of GDP; and 3) the composition of the parameters of the distribution of public investment is changed from the structure of 1993 to the 1997 version, which considers the withdrawal of public investment in non-strategic sectors of government.

Finally, the baseline scenario is compared to the process of commercial liberalization of unilateral and multilateral trade. In particular, according to the theory of international trade, the trade liberalization process would cause a change in the structure of intermediate demand, and this would imply a change in the trade balance (exports and imports). The intermediate demand expressed as the product of technical coefficients and sectorial production (output), decided to affect it according to the base rates of sectorial tariff reduction and it’s speed agreed in the Official North American Free Trade Agreement (Texto Oficial del Tratado de Libre Comercio de América del Norte, SECOFI, 1993b) and it is combine with the distribution of the public investment sector of 1997. This scenario can be called “free trade”.

The results of simulations related to the structural change of economic model promoted by the reforms of economic adjustment in the period 1994-2006, point out that they were not successful in full. Broadly speaking, the results of the simulations described one economy that maintained control of external indebtedness, gender tax savings and increased international trade. However, this presents a slow average macroeconomic growth, weak economy to expand sectorial productive capacity, generation of employment and promotion of social welfare.

These three processes of economic reforms produced heterogeneous effects in growth between economic sectors and influenced in different ways on the level and distribution of income. Table 5 shows the results of the simulations of the variables mean income division of occupational classes and the percentage of employment (EAP[[14]](#footnote-14)), for the year 1994 and 2006 in each of the three scenarios.

Table 5. Distribution of Occupational Classes by Mean Income and EAP Percentage

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Baseline ScenarioYear 1994 | External Debt Renegotiation Year 2006 | Privatization of Public EnterprisesYear 2006 | Trade LiberalizationYear 2006 |
| Class | Mean Income | EAP% | Mean Income | EAP% | Mean Income | EAP% | Mean Income | EAP% |
| I | 4,889 | 3.4 | 3,745 | 3.6 | 4,184 | 3.7 | 4,188 | 3.9 |
| II | 1,142 | 2.8 | 1,133 | 1.7 | 1,287 | 1.6 | 901 | 1.5 |
| III | 3,663 | 24.8 | 2,126 | 25.7 | 2,376 | 26.1 | 2,219 | 26.5 |
| IV | 1,428 | 43.3 | 846 | 32.4 | 946 | 32.2 | 782 | 33.1 |
| V | 1,152 | 18.4 | 995 | 27.3 | 1,113 | 27.8 | 891 | 37.5 |
| VI | 614 | 11.3 | 574 | 9.3 | 645 | 9.3 | 458 | 8.5 |
| Total | 1,958 | 100.0 | 1,433 | 100.0 | 1,758 | 100.0 | 1,613 | 100 |

Source: Direct Information.

Comparing the scenarios of structural reforms with the baseline scenario, we note that long-term changes in the level of average income and the structure of the occupational categories show (I) a drop in average income in all categories, (II) an increase of size categories of skilled workers (III) and informal workers (IV), and correspondingly a significant drop in the importance of workers (V) and rural workers. In addition, a slight increase in urban owners (I) and a slight decrease in rural owners II).

The stage of restructuring of debt relative to the baseline scenario is worse, because although despite the increase in sectorial production achieved through public investment that will be saved by not paying debt, by the incoming of the economy’s external savings, along with some of the savings applies to social programs, the redistributive effects are negative. The average income falls 27% at the end of the period and those who further declined in average income are the workers (41%) and skilled workers (42%).

There is a structural change in the occupational categories that allows upward mobility of people in the categories of Rural Owners (3.6%) and skilled workers (25.7%) and correspondingly a decrease of the EAP in the workers (32.4%) and Rural Workers (9.3%); which might be found under the informal workers (27.3%) trying to avoid poverty.

In regards to the privatization of public enterprises scenario compared to the baseline scenario, it is slightly worse. It is a favorable situation for the occupational categories of lower income and disadvantaged sectors. Here, the production and employment grow at rates slightly below the baseline scenario. The amount of debt is controlled and allows public investment at all levels (strategic and disadvantaged). The average income level falls by 10%, but increases in the categories of Rural owners (13%) and rural workers (5%) at the end of the period. [[15]](#footnote-15)

The main change in the evolution of occupational categories was the tiniest increment in Rural Owners (3.7%), skilled workers (26.1%) and a massive increase of informal workers (27.8%).

Finally, the trade liberalization scenario contrasted with the baseline scenario is moderately worse. The trade reform has effects on the variables production (output), employment and income in the early stages of implementation. In later stages, these benefits decrease when the sectors fall in levels of excessive imports because of their dependence on intermediate goods and capital.

Regarding the distribution of the benefits of occupational classes, these concentrate on the urban property owners’ classes, and in general, there are direct benefits in the employment, as shown in by the increase in size of the occupational categories of urban owners (3.9%) and skilled workers (26.5%) and a moderate decrease in the importance of the workers category (33.1%) and rural workers (9.5%).

Now we want to know what effects had different strategies on occupational poverty and indigence to the inside of each class. Table 6 shows the results of the simulations of the poverty and indigence for the year 1994 and 2006 in each of the three scenarios.

Table 6. Distribution of Occupational classes by Poverty and Indigence.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Baseline ScenarioYear 1994 | External Debt Renegotiation Year 2006 | Privatization of Public EnterprisesYear 2006 | Trade LiberalizationYear 2006 |
| Class | Poverty% | Indigence% | Poverty% | Indigence% | Poverty% | Indigence% | Poverty% | Indigence% |
| I | 9.0 | 2.1 | 15.5 | 3.5 | 15.1 | 3.2 | 14.3 | 3.2 |
| II | 54.1 | 25.9 | 54.6 | 36.2 | 58.0 | 31.9 | 61.9 | 45.6 |
| III | 8.9 | 0.9 | 19.5 | 3.6 | 19.2 | 3.2 | 18.9 | 3.4 |
| IV | 44.3 | 19.0 | 56.8 | 28.0 | 57.1 | 25.1 | 55.6 | 30.3 |
| V | 39.1 | 11.9 | 60.7 | 21.4 | 59.6 | 19.2 | 44.2 | 23.9 |
| VI | 77.9 | 44.1 | 80.4 | 52.2 | 80.4 | 46.5 | 87.9 | 65.4 |
| Total | 35.9 | 14.6 | 46.2 | 20.8 | 46.3 | 18.6 | 44.6 | 22.7 |

Source: Direct Information.

The strategy of restructuring the debt to be considered a coefficient of high debt relief of 4% caused a strong decrease in growth sectors and employment and as you can see from the picture, the measurements of poverty and destitution show a worsening of the level and distribution. Poverty (46.2%) and poverty (20.8%) increased significantly in the period and poverty is concentrated in rural classes (80. 4%) and informal workers (60.7%).

The strategy of privatization of public enterprises take into account a controlled amount of debt and a low level of debt relief of 1% allowed the growth of all sectors and employment and as result shows in table 6, is achieved a better control of the growing inequality of poverty and indigence. Poverty (18.3%) increases to a lesser extent in the period and the best thing is that this affects less kinds of rural workers (46.5%), informal workers (19.2%) and workers (25.1%).

The strategy of trade openness to unprotect sectors not prepared yet for the international competition causes many sectors reduce their production or show a strong increase in its imports and as you can see from the picture the poverty and indigence reach greater deterioration in its level and distribution. Poverty (44.6%) and poverty (22.7%) increased significantly in the period and poverty is concentrated in rural classes (87.9%) and informal workers (65.4%) and workers (23.9%).

In 2006 under a strongly Orthodox approach to stabilization of the economic crisis of 2001-2003, the Mexican Government proposed a second generation of reforms

**VIII.** **Conclusions**

This paper explores the changes in the rate of growth of the productive sectors of the Mexican economy by the implemented by first generation structural adjustment processes found between the periods of 1983 and 1994, such as the renegotiation of the external (foreign) debt, privatization of public enterprises and trade liberalization, and the effects that they have on the distributional equity.

The dimensions of changes in distributional equity (structure of occupational classes, poverty and indigence) are influenced by the replacement of the state as a source of stimuli and orientation of the economic policy that was left in hands of the market to make a more efficient allocation of resources. Additionally, it allows the free movement of capital and goods between countries.

In the period, the change of the economic model and the implementation of economic structural adjustment programs, affect the average rate of growth of the production sectors. This meant that, although mobility between occupational classes has not completely stopped, it changes its rhythm and composition.

The main change in the evolution of occupational classes in the simulation period, would be a decrease in the size of the rural working class and laborers, correspondingly it would increase the relative importance of informal workers.

The change of the rural working and laborer workers has a very specific meaning, due to a rapid reduction of the occupations of public sector and the abandonment of the occupational and agricultural programs. The privatization of these occupational classes is a major shift of importance for the social structure, not only from the standpoint of labor (the forms of labor hiring and the position structure is very different), but also in the socio-political plan.

The increase in occupational classes signals an increase in the size of the whole group, it does not refer to its level of lifestyle or income. If one reviews the average incomes of all the strata, they would be stagnant. Furthermore, the analysis of poverty and indigence indicates the increase in these occupational classes for the different sectors of the production.

Finally, it is important to note that classes with very high incomes cannot be adequately perceived from ENIGH tools such as surveys and censuses. This is an unfinished social investigation, not only for Mexico, but all Latin America

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APPENDIX

**Statistical Information of the Multifactorial Model**

The basic satistical information used to estimate and quatify the different blocks that make up the multisectorial model, are presented next:

Table 3. Statistics of the Growth and Distribbution of the Multifactorial Model

|  |  |  |
| --- | --- | --- |
| Variable | Source | Dimension |
| Input-Output technical coefficient | INEGI a\_/ | 12 x 12 |
| Distribution of income coefficients (or added values) primary section in percentiles | ENIGH b\_/ | 100 x 12 |
| Number of households by income level | ENIGH | 100 x 12 |
| Income distribution coefficients (or value added) in primary sector in tenths | ENIGH b\_/ | 10 x 12 |
| Sectoral coefficients of direct taxes , indirect taxes and other industry | INEGI | 12 x 1 |
| Wages, salaries and gross operating surplus | INEGI | 12 x 1 |
| Income sectors and income levels | ENIGH | 12 x 10 |
| Coefficients of marginal propensities to consume of households by socio-economic classes | INEGI | 12 x 10 |
| Marginal propensity of government consumption | INEGI | 1 x 10 |
| Capital ratios increase production | INEGI | 12 x 1 |
| Coefficients investment demand | INEGI | 12 x12 |
| Distribution coefficients of public investment | INEGI |  12 x 1 |
| Imports of intermediate goods and capital by Industry | 4to Informe de Gobierno a\_/ | 12 x 1 |
| Coefficients imports of intermediate inputs and capital by origin | INEGI | 12 x 12 |
| Coefficients imports of intermediate inputs and capital by destination | INEGI | 12 x 1 |
| Position in employment by sector and type of income | INEGI | 12 x 7 |
| Number of households by income class | ENIGH | 12 x 7 |
| Sectorial rates of change in productivity | INEGI | 12 x 1 |
| Labor-output ratios | Lecuanda c\_/ | 12 x10 |

Notes: a\_/ Instituto Nacional de Estadística y Geografía; b\_/ Encuesta Nacional de Ingreso y Gasto de los Hogares; c\_/ Lecuanda (2000); y d\_/ Poder Ejecutivo Federal 4to informe.

1. The inequality components are not only economic but also social. That is, those dealing with the distribution of economic and social goods pertaining to traits that are attributed to people, regardless of their talents or skills; for example, ascriptive inequalities, such as those of gender or ethnicity (Oxfam, 2014). [↑](#footnote-ref-1)
2. Bolivia was selected for a program to Reduce Foreign Debt (Programa de Reduccion de Deuda Externa), which conditions it must also go through a Program to Reduce Poverty. This last one, in particular, was aimed to reduce e poverty from 36.7% to 17.5%) and to reduce indigence from 81.6% to 52.0%. [↑](#footnote-ref-2)
3. These results correspond to the official baseline scenario called Bolivian Strategy for Poverty Reduction (BSRP) which consists on the policy of External Debt reduction and the same intersectorial pattern of public investment and the intersectorial income (Buzaglo and Calzadilla, 2010; p. 12) [↑](#footnote-ref-3)
4. In Mexico, there are three generations of structural reforms: the first generation that is between 1985 and 1994, the second generation from 1994-2006 and the third that begins in 2012 (Trejo and Andrade, 2013). The main changes from the first generation include less state involvement in the economy and the free access of domestic and international private capital. Both process led to profound change in the country (Trejo and Andrade, 2013). [↑](#footnote-ref-4)
5. Among the theoretical framework of dynamic multisectorial model is in the first instance with the input-output Leontief scheme. In addition, the model employs the incremental capital-output ratios to generate dynamic, establishing a conceptual affinity with the Harrod-Domar model , the AK model and Marxist reproduction schemes. The model is algebraically described in Buzaglo and Calzadilla (2009). [↑](#footnote-ref-5)
6. This way, any deficit or surplus of domestic production is channeled through imports and exports, thus maintaining the balance in amounts without changing prices. [↑](#footnote-ref-6)
7. Originally Kaldor (1956) and Miyasawa and Masegi (1963) introduced this approach and defined the distribution coefficients of sectorial income by income class (for example, capitalists, workers, etc.) which have different consumption patterns and savings. See Batey and Rose (1998). [↑](#footnote-ref-7)
8. For algebraic details please see Appendix in Buzaglo y Calzadilla, 2010; p. 33. [↑](#footnote-ref-8)
9. It is worth mentioning that model is based on the sectorial structure and representation of the behavior of productive agents described from the qualitative point of view, in the system of national accounts of the country and the input-output matrix. However, we had to indirectly estimate some items. [↑](#footnote-ref-9)
10. The authors define social classes as "... groups of people defined by their position in the relations of ownership of means of production and labor markets" ( Buzaglo and Calzadilla , 2010 , p . 4) .However , it is an approach that does not fully justify the use of the concept of social class, because the income surveys of the households allow capturing very indirectly the property of means of production variable. [↑](#footnote-ref-10)
11. The income measure used was the sum of labor remuneration of all household members. The remunerations include wages, salaries and profits due to own labor (Lecuanda, 2000). [↑](#footnote-ref-11)
12. The approach to occupational categories based on the survey takes kinship relation to household head and its position in the occupation, economic branch, and if they received any income during the last six months. [↑](#footnote-ref-12)
13. According a document of the 1994 ENIGH, the estimates obtained from this data are nationally representative. [↑](#footnote-ref-13)
14. Economically Active Population. [↑](#footnote-ref-14)
15. Not that the results are conditioned to the distribution coefficients of public investment. This indicates that the privatization reforem is not redistributive by itself, but must be accompanied by a public investment strategy so redistribution of income can be present. [↑](#footnote-ref-15)