

Trade Reform and Household Welfare

The Case of Mexico

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Results from a two-step simulation that uses a computable general equilibrium model and detailed consumption and income household data suggest that trade liberalization benefits people in the poorest deciles more than those in the richer ones.



Summary findings

Ianchovichina, Nicita, and Soloaga use a two-step, computationally simple procedure to analyze the effects of Mexico's potential unilateral tariff liberalization. First, they use a computable general equilibrium model provided by the Global Trade Analysis Project (GTAP) as the new price generator. Second, they apply the price changes to Mexican household data to assess the effects of the simulated policy on poverty and income distribution.

By choosing GTAP as the price generator, the authors are able to model Mexico's differential tariff structure

appropriately: almost zero for North American Free Trade Agreement (NAFTA) members and higher tariffs for nonmembers. Even starting with low tariff protection, simulation results show that tariff reform will have a positive effect on welfare for all expenditure deciles. Under an assumption of nonhomothetic individual preferences, trade liberalization benefits people in the poorer deciles more than those in the richer ones.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to study the effects of trade policy on poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at eianchovichina@worldbank.org, anicita@worldbank.org, or isoloaga@worldbank.org. August 2001. (49 pages)

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Trade Reform and Household Welfare: The Case of Mexico

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1. Introduction¹

The analysis of the distributional impact of trade reforms plays an important role in the assessment of who is paying the welfare costs of adjustment, what are the instruments that could be used to eventually alleviate these burdens, and at what aggregate economic costs. The analysis is difficult because trade reforms have macroeconomic linkages, while the effects on income and poverty are inherently microeconomic issues. Researchers have tackled the analysis in many different ways.

Some have used aggregate indicators such as the levels of wages and employment, or the value added in different sectors, in order to assess the effects of different trade regimes on the distribution of income (Beyer et al., 1999; Harrison and Hansen, 1999; Pissarides, 1997).

As these indicators fail to capture the mix of effects on specific households and these households' responses to prices, other researchers have tried more elaborate models that account for the interrelationship between labor markets (rural and urban) and prices of staple agricultural goods. For instance, Ravallion (1989) used a partial equilibrium model to examine the rural welfare distributional effects of changes in food prices under induced wage responses for rural Bangladesh. Levy and van Wijnbergen (1992) also followed this partial equilibrium approach when analyzing income effects on different economic groups after changing production and consumption subsidies on agricultural goods.

Computable general equilibrium (CGE) models offer a more comprehensive way of modeling the overall impact of policy changes on the economy. These models incorporate many important economic linkages and are well-suited to explain medium- to long-term trends and structural responses to changes in development policy. An effort to adapt CGE models to the analysis of different adjustment programs and to estimate the costs of other strategies was made in the late 80's by the Organization for Economic Cooperation and Development (OECD), through the work of Bourguignon, Branson and

¹ Specific figures and calculations of poverty and inequality measures used in this paper are the authors' own and do not necessarily represent or coincide with the views of the World Bank on the matter.

de Melo (1991).² Their “macro-micro” model links the short-run impacts of macroeconomic policies that affect the distribution of income through inflation, interest rate and other asset price changes with the medium-run impacts of structural adjustment policies (i.e. incentive reforms) that affect the distribution of income through relative commodity and factor price changes.

To measure distributive impacts, these extended CGE models map factor income (land, labor and capital) to different types of households (capitalists, big farmers, small farmers, landless workers, modern workers, and workers in the informal sector). The models were applied to analyze different policy changes in several developing countries.³

Comprehensive as they are, these modified CGE models require an important amount of work and resources. However, sometimes the analysis must be carried out in a time frame or under budget restrictions that forbid the development of comprehensive models as those mentioned above, and researchers have to resort to *computationally simple* ways to evaluate the distributional impact of trade and price policy reforms. Research done at the World Bank for Panama (World Bank, 2001a) and, and by Levinsohn et al. for Indonesia, are examples of such approach.⁴ The procedure used in these cases is a straightforward combination of household surveys, which provided the structure of households’ consumption at the moment of the simulation, and of simulated (World Bank studies) or actual (Levinsohn et al.) price changes. The change in the cost of living by segments of the population was then used to assess the impact on income distribution of the various simulations. These indexes, which are Laspeyres cost of living indexes by household, provide an upper bound measurement of the increase in expenditure that would be required for each group to purchase the same quantities of goods as in the base situation.

In the World Bank study of Panama, the re-distributive impact of complete trade and price liberalization for basic food items was simulated using household data from the Living Standard Measurement Study (LSMS). The study adopts a “zero elasticity of

² See Chapter 12 in Dervis, de Melo and Robinson (1982) for a brief description of CGE models that incorporate income distribution.

³ Results from the application of the so called “maquette” can be found in the special issue of World Development, 1991, Vol 19, No. 11. See also research done at IFPRI, for instance by Bautista and Thomas (1997), Minot and Goletti (1998), and Lee-Harris (1999).

⁴ See also the paper by Agénor et al. (2000).

substitution” assumption for producers and consumers of basic agricultural goods, and applies the change in price to quantities of the base period to get the net impact of the price change by household. The new prices are obtained by estimating the border prices of the staple goods in a tariff free scenario.

The World Bank paper on energy price reform in Iran (World Bank, 1998) combines an input-output table, which shows the input structure in the production of all final goods, and a consumer expenditure survey, which shows the amount of each final good purchased by consumers. The overall cost of living effect after a price change on the different household deciles is then calculated. The new prices are also computed as the border prices.

The Indonesian study done by Levinshon et al. (1998) adopts a different approach to get the new prices by using actual price changes, and then predicting how these price changes would have impacted on households’ cost of living, by per-capita income decile.

The common denominator in these last three studies described is their “two-step” structure: they use first a process that generates the new prices (either simulated or actual changes), and second a household survey (HH) to assess the effects on poverty and income distribution.

This paper follows a similar approach. However, in order to get a *computationally simple* way of assessing the re-distributional impact of trade on poverty and inequality, we propose the use of a particular CGE model, the one coming from the Global Trade Analysis Project (GTAP), as the price generator. There are a number of reasons for our choice of methodology for the price generator. First, GTAP is specifically tailored to simulate trade policy changes, and is well suited to take into account the new wave of Preferential Trade Agreements (PTA), such as NAFTA and MERCOSUR. Second, the GTAP database has considerable sectoral and regional detail. It contains input-output information on 24 countries or regions (13 of them developing countries) and 50 sectors and captures differences in intermediate input intensities, as well as import intensities, by use. It is publicly available and regularly updated. Third, if not already in the data set, some countries could be proxied to those in GTAP. Fourth, there are HH surveys available for many of the developing countries already included in GTAP. In addition, we

assess the impact of trade reform not only on income, but also individual welfare assuming non-homothetic preferences.

Section 2 outlines the methodology to be used in the measurements of poverty and inequality. Section 3 provides a brief presentation of the GTAP model, the HH data available for Mexico, and the corresponding matching of categories between them. Section 4 provides an assessment of poverty and tariffs structure in Mexico. Section 5 presents and discusses the results and outlines the sensitivity of the results to various assumptions. Finally, section 6 summarizes the main conclusions.

2. Methodology

The analysis is conducted as follows: first, we compute a series of poverty measures from the existing household data; second, we measure again the poverty levels adjusting them for the price effect of the simulation; third, we adopt the price indexes to analyze the impact that the policy simulation would have on the expenditure side. Finally, we apply both the expenditure and income sides of the simulation to obtain the change in welfare.

2.1 Poverty Indicators and Poverty Lines

A credible measure of poverty is a powerful instrument for focusing the attention of governments and civil society on the living conditions of the poor. Income and consumption levels are usually the most common indicators for measuring living standards. An individual is considered poor if his or her consumption falls below some minimum considered necessary to meet basic needs. The poverty line represents the minimum income or expenditure necessary to fulfill those basic needs. The poverty line is bundled with the concepts of utility, welfare and household characteristics. Briefly, the poverty line can be written as:

$$pv = e(p, x, u_z)$$

In words, the poverty line is the cost efficient consumer's expenditure function e necessary to attain the minimum level of utility u_z compatible with a vector of prices p and household characteristic x .

The choice of a particular poverty line is always debatable. The literature adopts various methods for its calculation.⁵ This study follows the basic needs method. Consequently, the poverty line is the minimum level of expenditure or income that allows the consumption of a pre-determined basket of food goods, scaled up to include non-food needs⁶. To quantify the minimum intake in terms of products, most of the poverty assessments on Mexico refer to two studies: the first one was conducted by the Coordinacion General del Plan Nacional de Zonas Deprimidas y Grupos Marginados (COPLAMAR) using data from the 1977 household survey; the second one, which uses a similar methodology, was developed by the Comision Economica para America Latina y el Caribe (CEPAL) using data collected from the Food and Agriculture Organization (FAO) and the United Nations (UN) in 1981.⁷ In this paper, we use the poverty line calculated by the CEPAL and we use its basket for updating the poverty line after the simulation. The poverty line is updated using the price change of the CEPAL basket from the second through fourth deciles. The CEPAL basket is different for urban and rural households. Therefore, we have different coefficients for changes in rural and urban areas.⁸ The CEPAL study reports two levels of poverty: the poverty line and the indigence line.⁹ The indigence line represents the minimum expenditure necessary to fulfill the basic food budget, and the indigents are defined as persons who reside in a household with such a low income that even if all of it were used to buy nothing but food,

⁵ For an extensive discussion on poverty line construction see: Ravallion (1998).

⁶ The minimum daily calories intake is set at 2165 (FAO/OMS/ONU, 1985)

⁷ CEPAL calculates the per capita minimum requirement while COPLAMAR calculates the basket at the household level. The average household of 4.9 members is comprised of 2.7 adults, 1.66 children (ages 3-14) and 0.47 babies.

⁸ The coefficients used in this paper are coming from CEPAL and are slightly different to the ones used by INEGI/CEPAL.

⁹ The indigence line is also referred to as the extreme poverty line. In almost all developing countries, the poverty line worked out to be twice the indigence line for urban areas, while in rural areas it was calculated as being approximately 75% higher than the indigence line.

the household would still not be able to satisfy completely the nutritional needs of its members. We will make use of this distinction in the calculation of the poverty indexes.¹⁰

To assess poverty, we consider three measures based on the Foster-Greer-Thorbecke (henceforth FGT) class of additively decomposable poverty indexes.¹¹ First, the headcount ratio ($\alpha=0$) is simply the share of the population living below the poverty line. Second, the poverty gap index ($\alpha=1$) captures the distance separating the poor from the poverty line as a proportion of that line (the poor having zero distance). The main weakness of this index is that it does not indicate the severity of poverty. The third measure ($\alpha=2$) is sensitive to the problem of measuring the severity of poverty. Therefore, it is referred to as distribution-sensitive FGT. The sensitive FGT gives heavier weight to the poverty of the very poor than the poverty gap index. The drawback of this index is that it is less straightforward to interpret. It is essentially composed of two parts: an amount due to the poverty gap and an amount due to the inequality among the poor. To analyze inequality issues we compute two more indexes for the income part of the data: the Gini coefficient and the Theil index.¹²

2.2 Price Indexes

To calculate the impact of the policy simulation on the expenditure of the household, we report the results of the most commonly used indexes: the Laspeyres, the

¹⁰ The difference between the poverty lines of rural and urban households derives from the fact that they have different consumption baskets and face different unit prices. We set different poverty lines according to rural and urban classifications in the calculation of the FGT indexes, but we do not report separate results for urban and rural households.

¹¹ These indexes are widely used in the literature for their additive properties and their linkages to the stochastic dominance theory (Foster, Greer and Thornbecke, 1984). The additive properties makes the indexes particularly useful in analyzing population subgroups. The FGT class of poverty measures is formally: $P_\alpha = \sum_{y_i < z} [(z - y_i) / z]^\alpha / n$ where y_i is the per capita consumption of the i th individual, n is the size of the population, z is the poverty line and α is a parameter. The additive property allows us to decompose the measures across population sub-groups.

¹² The Gini coefficient can be written as: $gini = \frac{2 \cdot cov(Y, F(Y))}{\mu}$, where Y is the distribution of per

capita income, $F(Y)$ is its cumulative distribution and μ is the mean of Y . Theil index can be written as:

$theil = \frac{1}{n} \sum \left[\frac{Y_i}{\mu} \cdot \ln \frac{Y_i}{\mu} \right]$, where Y_i is the income of individual i , μ is the average income, and n is the

size of the population. Note that the Theil index is additive.

Paasche, the Fisher and the Törnquist indexes.¹³ The Laspeyres index does not take into account substitutability in consumption. Therefore, it underestimates the decrease and overestimates the increase in the true price index. The Paasche index performs vice-versa: it underestimates the increase and overestimates the decrease in the true price index.¹⁴

2.3 The GTAP Household and welfare measures

2.3.1 GTAP Household

The GTAP model (Hertel, 1997) features a regional superhousehold whose behavior is governed by an aggregate Cobb-Douglas utility function specified over private household consumption, government spending and savings. Thus, in GTAP, the regional superhousehold spends a fixed share of its income on private household consumption, government spending and savings. The model computes the percentage change in per capita utility from aggregate household expenditure for a given country (or region) [$u(r)$] and a money metric equivalent of aggregate utility change, [$EV(r)$]. The utility measure, $u(r)$, indicates changes in welfare of the average individual in region r . The equivalent variation measure, $EV(r)$, summarizes the welfare changes resulting from a policy shock in dollar values.

¹³ The Laspeyres price index is formally defined as: $P_L = \sum_i q_i^0 p_i^1 / \sum_i q_i^0 p_i^0$. The Paasche price index is given by: $P_P = \sum_i q_i^1 p_i^1 / \sum_i q_i^1 p_i^0$. The Fisher price index is defined as:

$$P_F = \sqrt{\frac{\sum_i q_i^0 p_i^1 \sum_i q_i^1 p_i^1}{\sum_i q_i^0 p_i^0 \sum_i q_i^1 p_i^0}}$$

, where q stands for quantity and p for price, i denotes the product group and

the superscript represents the state. The Törnquist price index is given

$$\text{by: } \ln P_T = \sum_i \frac{1}{2} (sh_i^0 + sh_i^1) \ln \left(\frac{P_i^1}{P_i^0} \right), \text{ where } sh \text{ is the budget share.}$$

¹⁴ The Laspeyres and Paasche indexes represent the worst and the best possible scenarios, respectively.

2.3.2 Private demands

Per capita utility from private household expenditures is modeled via a nonhomothetic Constant Different of Elasticities (CDE) function, which is designed to capture differential price and income responsiveness across countries (Hanoch, 1975). Its main virtue is the ease with which it may be calibrated to existing information on income and own price elasticities of demand.

The CDE implicit expenditure function is given by:

$$(1) \sum_{i \in \text{TRAD}} B(i,r) * UP(r)^{\beta(i,r)\gamma(i,r)} * [PP(i,r) / E(PP(r),UP(r))]^{\beta(i,r)} \equiv 1,$$

where $E(.)$ represents the minimum expenditure required to attain a prespecified level of private household utility, $UP(r)$, given the vector of private household prices, $PP(r)$ and traded goods i . Minimum expenditure is used to normalize individual prices, and these normalized prices are then raised to the power $\beta(i,r)$ and combined in an additive form. Under this formulation, as the minimum expenditure can not be factored out of the left-hand side expression, the CDE is an implicitly additive function. Besides capturing nonhomotheticity, a useful feature of the CDE is that it simplifies into a CES when $\beta(i,r) = \beta$ for all i and into a Cobb-Douglas when $\beta = 0$.

2.3.3 The government and savings

GTAP uses an index of current government expenditures to proxy the welfare derived from the government's provision of public goods and services to private households in the region. This index is aggregated with private utility in order to make inferences about regional welfare.

Regarding savings, its inclusion in this static model comes from work done by Howe (1975), who showed that the intertemporal, extended linear expenditure system (ELES) could be derived from an equivalent, atemporal maximization problem, in which savings enters the utility function.

2.3.4 Changes in private income and in private utility

Changes in private utility are calculated in GTAP as:

$$(2) \text{ } up(r) = \{yp(r) - \sum_{i \in \text{TRAD}} [\text{CONSHR}(i,r) * pp(i,r)]\} / \sum_{i \in \text{TRAD}} \text{CONSHR}(i,r) * \text{INCPAR}(i,r),^{15}$$

where $up(r)$ is the percentage change in private utility in region r , $yp(r)$ is the percentage change in private household income in region r , $\text{CONSHR}(i,r)$ is the share in total consumption of good i , $pp(i,r)$ is the change in the demand price of commodity i , $\text{INCPAR}(i,r)$ is an income expansion parameter, and i sums over the set of traded commodities TRAD consumed by the households. The $\text{INCPAR}(i,r)$ comes from the CDE minimum expenditure function that is used to represent private household preferences in the model and is related to the income elasticity of demand for good i . If preferences are homothetic, the $\text{INCPAR}(i,r)$ equals one for all i . If preferences are not homothetic, the $\text{INCPAR}(i,r)$ are constrained to be strictly positive and are greater than one for superior goods.

When preferences are homothetic, (2) collapses into the difference between a Laspeyres price index for income and a Laspeyres index of expenditures:

$$(3) \text{ } up(r) = yp(r) - \sum_{i \in \text{TRAD}} [\text{CONSHR}(i,r) * pp(i,r)].^{16}$$

We use the Cobb-Douglas form of preferences to check the robustness of our simulation results.

In turn, household's income is defined as the sum of the household's endowments (agricultural land, labor, and capital) times the price of these endowments actually faced by the households:

$$(4) \text{ } \text{INCOME} = \sum_{i \in \text{ENDOWMENT}} \text{QO}(i,r) * \text{PS}(i,r).$$

The change in household income $yp(r)$ is then defined as:

$$(5) \text{ } yp(r) = \sum_{i \in \text{ENDOWMENT}} \text{INCOMESH}(i,r) * ps(r).$$

2.3.5 Our Approach

The key purpose of this paper is to apply formula (2) to the household data in order to derive information on the impact of trade reform on individual welfare. Due to lack of better information, we can not consider variations in $pp(i,r)$ coming from spatial

¹⁵ We follow GTAP's notation. Upper case letters denote levels and lower case denotes changes in percentage.

¹⁶ This is the simplest of all commonly used indicators of welfare and real income. See: Sadoulet and de Janvry (1995).

location or from a poor-rich classification of households. Thus, we assume that $pp(i,r)$ is the same for all households.

Equation (2) takes into account the fact that poor individuals spend a larger proportion of their income on items with lower income elasticities than rich ones to determine the effect of a marginal increase in real income on individual welfare. In effect, formula (2) says that a dollar increase in real income is worth more to the poor individual than to the rich one.

3 Data

We use GTAP to simulate the effects of trade liberalization on Mexico's economy. The simulation results include price changes for products and endowments and changes in domestic demand for products. The model assumes full employment, and therefore endowment supply is fixed.

The GTAP system counts 50 expenditure groups. These groups can be further aggregated according to food, manufacturing, services and other primary products. On the income side GTAP distinguishes between five different sources of income: land, capital, natural resources, skilled and unskilled labor. A more detailed explanation of the GTAP model and a description of GTAP sectors can be found in the GTAP appendix.

This study utilizes the 1996 Mexican National Household Income and Expenditure Survey (ENIGH), which is collected by the Instituto Nacional de Estadística, Geografía e Informática (INEGI). The survey collects a wide range of data. The survey contains detailed expenditure data on a wide set of consumption goods at the household level and detailed information on income at the individual level. Moreover, the survey collects a large array of household characteristics and household members characteristics.

The survey is representative at the national level, and it was drawn using a stratified, multistage and clustered method. To obtain suitable estimators, we make use of the survey weights, and adopt the estimating procedures developed specifically for survey data.¹⁷ In our study, the welfare is measured at the individual level, therefore we make

¹⁷ For a review of statistical methods and issues in the analysis of survey data see Deaton (1997).

use of equivalence scales to adjust the data accordingly. The data appendix further discusses the Mexican household survey.

The matching of GTAP and the household survey represents a challenge. In this type of exercises compromises are the norm more than the exception. In this case, the extremely detailed information that household surveys incorporate and the condensed categories of GTAP require a degree of arbitrariness. On the expenditure side, the GTAP system counts 50 commodity categories while the Mexican household data has about 600 different categories. On the income side, GTAP identifies 5 different income sources, and the household data has 47 categories. In the data appendix, we describe in detail how we aggregated the household data to fit GTAP aggregations. For the most difficult cases, we had to use a certain degree of arbitrariness. Nevertheless, the final results give us a reassuring picture. On the expenditure side, the GTAP domestic consumption shares and the household expenditure shares look very similar at the aggregate level.¹⁸ Figure 1 shows the results of the aggregation. The matching of the service sectors with GTAP categories had problematic results with large differences across sub-sectors. To solve this impasse, we decided to aggregate GTAP service sectors into a single category.¹⁹

GTAP and the household survey use different income categorizations. Therefore, the matching is not as linear as in the expenditure case. The GTAP income composition is calculated according to the national accounts and distinguishes five income categories: land, capital, natural resources, skilled and unskilled wages. The household survey differentiates income according to sources, and in many cases these can be attributed to more than one GTAP category.²⁰ Figure 2 shows the results of the income matching. Differences are large, especially in the share of capital. In GTAP, capital represents more than 60% of total income, while in the case of household data, this share is less than

¹⁸ At a more disaggregate level, the data show some discrepancies. These, however, are restricted to the manufacturing sector in most cases.

¹⁹ In this particular case, the procedure is justifiable by the fact that the price variations within the service sectors are extremely small. Because it may not always be the case, in the aggregation tables at the end of the appendix, we disaggregate across services. For a complete description of the services sector aggregation of GTAP see Huff, McDougall and Walmsley (1999).

²⁰ For example, income from cooperatives should be correctly subdivided into income from wages, capital and land.

20%.²¹ The difficulty of income matching is probably only one of the causes of this discrepancy. Other likely sources of this difference is the income mis-reporting issues that afflict household surveys.²² This problem necessitates a robustness check. To adjust for the underreporting issues, this paper follows the practice of equalizing total income to total expenditure by household. To adjust for the discrepancies between the survey and the GTAP data, we adopt a procedure with which we use the income composition coming from GTAP, while maintaining the distribution of each endowment across households from the household survey. Figure 2 shows the income shares adjusted with this procedure. The matching process ensures that the income categories in GTAP are closely aligned with the aggregate income categories of the household survey. The data aggregation appendix provides a detailed explanation of this procedure.

Table 1 reports the tariff structure for Mexico in 1997 (Estevadeordal, 1999). We updated the GTAP model with the new tariffs taking into account the different tariff structure of NAFTA. The tariff structure is quite detailed. For simplicity, tariffs for food products are set to two levels according to the averages for agriculture products and food products.

4 Poverty and Trade Policy in Mexico

Despite Mexico's status as a middle-income country and member of the OECD, poverty is widespread. Poverty issues in Mexico have been the focus of recent studies at the World Bank.²³ In accordance with the results of those studies, we briefly summarize the basic findings and give a picture of the Mexican society emerging from the 1996 household survey.

The household survey data collected in 1996 shows that poverty is widespread across both the urban and the rural areas and includes slightly less than half of the total population. Moreover, one out of seven individuals is considered indigent. Inequality is

²¹ Even if we attribute all the residual categories- negative savings, transfers and imputed rent, to the capital share, this share will not reach 50%. Also, wages are very well defined in both GTAP and the household survey, but while in GTAP they account for about 30% of income, in the household survey they account for about 50%.

²² For a more detailed discussion see: Rendtel, Langeheine and Berntsen (1998)

²³ For example, studies by the World Bank include Wodon (2000), World Bank (1996) and (1999). Other studies have been conducted by the Inter-American Development Bank (see Lustig and Szekely (1998)).

high, with the poorest 40% of the population collecting about half of the income received by the richest 10%. For the purpose of the analysis, it is useful to know the income and expenditure distribution across the various income deciles. The household survey is very detailed and consumption baskets and income composition can be precisely identified for each population stratum. As we discussed above, we have aggregated the expenditure and income categories to fit the GTAP aggregation. Although, this reduces the precision of the overall picture it makes the data much more tractable. To briefly illustrate the Mexican situation, we report here some descriptive statistics on income and expenditure patterns from the household survey. Also, we report the basic poverty and inequality indicators.

4.1 Consumption

In table 2 we report the consumption shares for the average Mexican household and for each income decile. The average Mexican household consumes, on per capita basis, about 1060 pesos per month, of which a quarter goes for food, a quarter goes for manufactures, and about half is spent on services.²⁴ As expected, the analysis by deciles shows the sharp decrease in the food consumption share as income increases and a parallel rise in the consumption of services.²⁵ The share of expenditures in manufacturing is almost constant across all deciles. At the more disaggregated level, it is possible to observe the different income elasticity across products. The food basket is quite different across deciles. According to the household survey, the poor obtain most of their calories from Cereals and Vegetables. Meanwhile, the richest rely on more expensive foods such as meat and dairy products. Table 3 displays the composition of the food basket across deciles.

Figure 3 illustrates graphically the expenditure levels across deciles. It is striking how most of the wealth is concentrated in the highest deciles. Across deciles, the level of expenditure on services and manufacturing grows much faster than the one for food.²⁶ In particular, the expenditure on services, which is almost non-existent in absolute values

²⁴ The total expenditure corresponds to about \$140US.

²⁵ The category labeled "Residual" contains expenditures which are attributable mostly to investments or transfers. Those categories cannot be matched to any GTAP category.

for the poorest households, grows quickly across the deciles to reach more than 2000 pesos per month for the wealthier deciles. Total expenditure in manufacturing products shows a similar pattern on a smaller scale.

4.2 Income

The composition of income reflected in the survey data is different from the Mexican National Accounts. As explained before, the reason can be attributed partly to the income mis-reporting issue and partly to the problematic matching of income categories due to the different classifications in GTAP and the survey. The household data show that the average Mexican household receives more than half of its income from wages; income from capital is around 20%; income from residual categories such as imputed rent, auto-consumption, transfers and negative savings represents more than 30%. Table 4 presents the income decomposition across deciles. The income composition is very similar across the entire population spectrum, with the only substantial differences being the wage composition and the composition across the residual categories. Analyzing the income composition of the poorest deciles we see that auto-consumption, mostly attributable to production of food for own use, is an important source of income representing more than 15% of income for the poorest 10% of the population. Auto-consumption rapidly declines along the income classes. Income from land represents more than 5% of total income of the poorest deciles. The poor also obtain a large part of their income through unskilled wages and transfers. Interestingly, imputed rent, the opportunity cost of the rent of the own house, is slightly more than 10% for all the classes. This percentage increases slowly across income classes, suggesting that imputed rent indicates well the level of income.

According to the classification of the household survey, wages are the primary source of income for all deciles. A significant part of the income of the poorest deciles comes from unskilled labor, while the richest obtain almost half of their income from skilled labor. The income of the richest deciles is about 4000 pesos per month,

²⁶ Note that manufacturing products and services include items which are necessary to be able to fulfill the basic needs- items or services such as basic tools and transportation.

meanwhile the income of the poorest deciles is 210 pesos per month, definitely below the indigence line.²⁷

4.3 Poverty

The poverty line was set according to the CEPAL study at 635.5 and 548.3 pesos per capita per month for the urban and for the rural population, respectively. The indigence line was set at 317.8 and 313.3 pesos per capita per month, respectively, for the urban and the rural residents.²⁸ Table 5 reports the FGT estimates along with their standard errors. In 1996, about 41% of the Mexican population lived below the poverty line, meanwhile about 13% lived below the indigence line.

4.4 Inequality

The household survey presents a situation where the poorest 20% of the population collect less than 5% of total income. Meanwhile, the richest 10% collect about 40% of total income. Table 6 reports the Theil indexes and the Gini coefficient. The Gini coefficient is 0.465, while the Theil index, which gives more weight to the upper and lower tails, is 0.431.²⁹ We will analyze the change, if any, of those indexes after the simulation.

5 Findings

We set all tariffs to zero. Thus the simulation is closer to a theoretical exercise than a policy study. Nevertheless, setting all tariffs to zero represents a good testing point for checking the outcomes of the model.

²⁷ In US dollars this is \$526 and \$28, respectively.

²⁸ In US dollars, those figures correspond to about 83 (urban) and 72 (rural) dollars a month for the poverty line and to about 41 and 40 dollars a month respectively for the indigence line.

²⁹ It is likely that those numbers are smaller than the actual ones. The fact that we use total expenditure as a proxy for total income will likely reduce the inequality indexes. Compared with other studies, for example Wodon (2000), our numbers are effectively smaller. Wodon (2000), using total income, finds that for Mexico the Gini coefficient is 0.55 and the Theil is 0.52. World Bank poverty assessment 2001 gives an estimate of the Gini coefficient of 0.4826. Nonetheless, what matters for the purpose of this paper are the changes in these levels rather than the levels themselves.

5.1 Price and Quantities

Given the relatively small rates of protection in Mexico, especially within NAFTA, we do not expect large effects resulting from the complete abatement of tariffs. Table 7 reports the price and quantity changes produced by the simulation. As expected, most of the prices show a decline, the exception being meat and services. Quantities domestically consumed move accordingly, with larger surges in sectors where prices dropped more.

The effect of the simulation on the income part results in a decrease of approximately 3 percentage points in factor returns for land and natural resources. Returns to capital and labor increase by about one to one and a half percentage points, in both cases.³⁰

Income parameters are built into GTAP and are related to the income elasticity of each product group. As expected, they are higher for manufacturing and services than for food.³¹

5.2 Income and Consumption

Table 8 reports the price indexes for consumption and income by deciles. The overall price indexes show that, as a consequence of the liberalization, the average expenditure basket slightly decreased, while average income increased by about 1%. On the income side, endowment returns to skilled labor increased more than returns to unskilled labor, and land returns declined. Therefore, rich households, which obtain a large share of income from skilled labor and capital, gain more than the poor ones, in percentage terms. On the expenditure side, the situation reverses. Because of different consumption baskets, the poorer households gain, in percentage terms, more than the richer ones. This effect is due to the overall decrease in the price of food products, which constitute a large proportion of the consumption basket of the poor. For the rich households the discount for food and manufacturing products is compensated by the rise in the price of services, making the price of their consumption basket almost unchanged.

³⁰ The similar increase of the return of those endowments is probably the cause for which the income effect on household is not much different when we check for robustness of income composition.

In the same table we also report the decomposition across sectors of the Laspayres index.³² The results are strongly driven by the consumption shares. Poor households, which consume half of total income in food products, gain mostly due to the decline in food prices.. Meanwhile, the rich households obtain most of their gain from reduction in the prices of manufacturing. Nevertheless, this gain is compensated by the loss of purchasing power in services. On the income side, as expected, the decomposition shows that poor households gain mostly from unskilled labor, and simultaneously lose from the reduced returns to land. The richer households gain mostly from the increased returns to skilled labor.

5.3 Poverty

Table 9 compares the values of the FGT and inequality indexes obtained straight from the survey with the ones obtained after the simulation. The results are in line with what emerged from the price index analysis. The poverty lines have been updated according to the new prices of the minimum expenditure baskets, paid by the household from the second through fourth decile.³³ As expected, poverty measures show a slight reduction in the incidence of poverty. The new level of the headcount index is only half a percentage point lower than the one computed based on the survey. The Gini coefficient and the Theil index show, if any, a minimal increase in inequality.

5.4 Utility

The change in utility is positive across all household centiles. Applying the GTAP output to the household survey produced an average utility increase of about 0.12%. This

³¹ Future work could aim at estimating this parameter for in Mexico.

³² This is possible due to the additive property of those indexes. The Laspeyres index can be decomposed

into groups according to: $\sum_i w_i^0 \left(\frac{P_i^1}{P_i^0} \right) = \sum_G \frac{x_G^0}{x^0} \sum_{i \in G} \left[\frac{P_i^0 q_i^0}{x_G^0} \left(\frac{P_i^1}{P_i^0} \right) \right]$, where w is the budget share for good

i and x is total expenditure for group G . The effect of each group G in the change is:

$$\sum_i w_i^0 \left(\frac{P_i^1}{P_i^0} \right) - 1 = \sum_G \frac{x_G^0}{x^0} \left[\sum_{i \in G} \left[\frac{P_i^0 q_i^0}{x_G^0} \left(\frac{P_i^1}{P_i^0} \right) \right] - 1 \right] \text{Pollak (1975).}$$

³³ Poverty lines were reduced by 0.57% and 0.62% for urban and rural households.

is the same value calculated with GTAP. This is indicative that the GTAP data have been matched sufficiently well with the household survey data.

As it turns out from the data, sorting the observations by expenditure is very similar to sorting the observations by food expenditure shares. Because GTAP's income parameters for necessities are smaller than the income parameters for superior goods, the denominator in equation (2) increases monotonically with the level of expenditures. This implies that similar increases in real income (Table 8) translate into larger increases in welfare for the poor individuals than the rich ones. The households that gain the most, in percentage terms, are the ones at the bottom of the income scale. Meanwhile, the richer households gain less.

6 Summary

We use a two step *computationally simple* procedure to analyze the effects of trade liberalization using household survey data for Mexico. First, we use an already available CGE model provided by the Global Trade Analysis Project (GTAP) as the price generator. Second, we apply the changes in prices to the household survey data in order to assess the effects of the policy simulation on poverty and income distribution. By choosing GTAP as the price generator, we are able to model the differential tariff structure quite appropriately (almost zero for NAFTA members and higher tariffs for non-members). Even starting with a low level of tariff protection, simulation results show that the impact of tariff reform on welfare will be positive in general for all expenditure deciles with the poor individuals benefiting proportionately more than the rich ones.

While the proposed methodology offers a simple way to estimate the first-round effects of trade reform, it has a number of limitations. First, the analysis abstracts from changes in the individual's occupational choices in response to changes in prices. These prove to be particularly important in countries where a large number of people make a choice between self-employment in rural areas and employment for wages in urban areas. Second, we assume that price changes are uniform across all income groups. Third, the results reflect price changes that are likely to occur over the medium- to long-run, and therefore could not be indicative of what would happen in the short-run. Fourth, GTAP

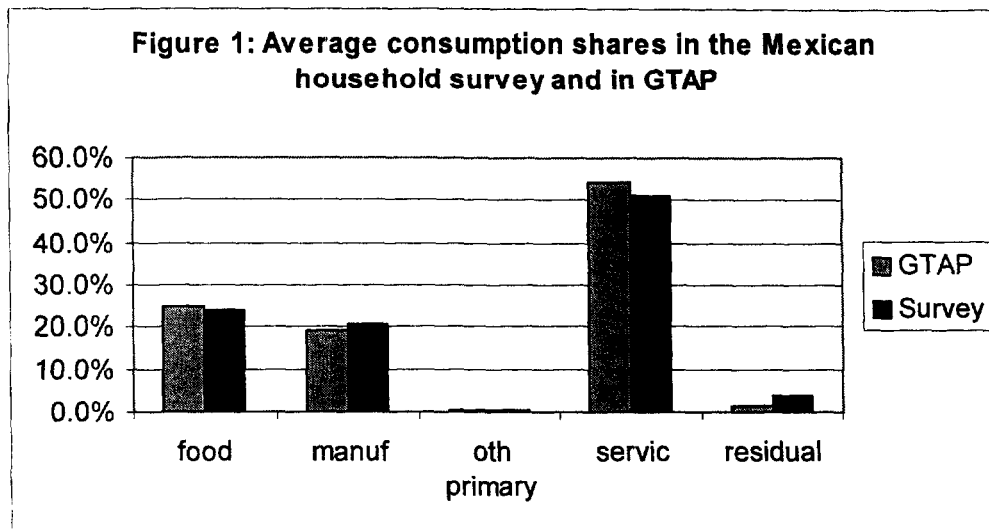
does not account explicitly for the adjustment costs in labor markets. Therefore, the results might underestimate the increase in wages as a result of the trade reform. Fifth, the methodology employs a static CGE model and therefore ignores any dynamic considerations. Thus, our result might underestimate economic growth and the boost to prices in response to trade reform. Sixth, the version of GTAP used in this study does not have a detailed treatment of the public sector. Therefore, we do not consider alternative fiscal policies and instead let the model determine the effect of changes in taxes on income and spending. Finally, in this paper we employ the income elasticity information from GTAP and we assume that the income elasticities of the average consumer are the same across countries. Future work should aim to estimate these elasticities for Mexico and employ them in the analysis of welfare.

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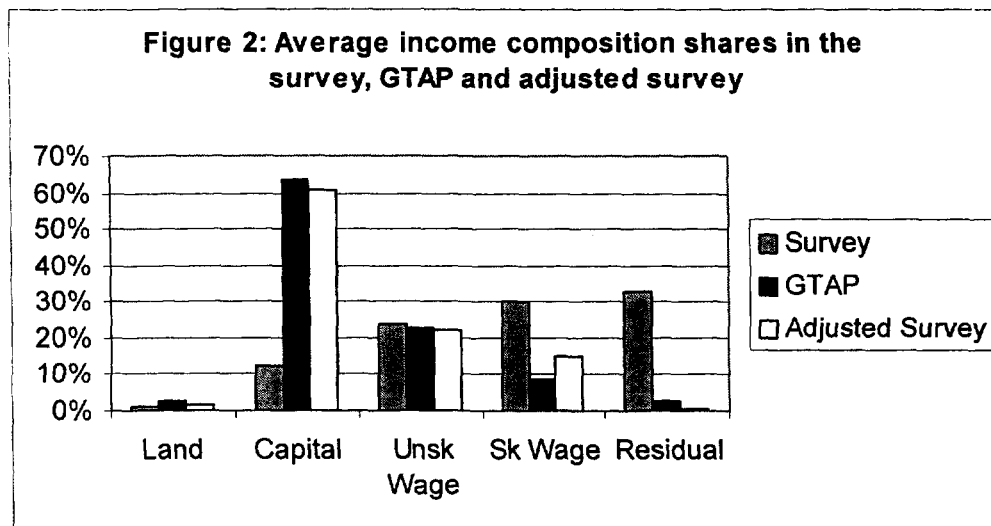
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Source: Own calculations based on ENIGH survey (1996)



Source: Own calculations based on ENIGH survey (1996)

**Table 1:
Mexican Tariff Structure 1997 (simple averages).**

Group Name	Code	ROW	NAFTA
Beverages Tobacco	b_t	27.43	22.50
Bovine, equine, ovine meat	cmt	14.96	3.47
Fish	fsh	18.28	1.46
Cereal grains nec	gro	11.29	1.19
Dairy Products	mil	14.96	4.12
Animal products nec	oap	14.96	4.12
Crops nec	cro	11.29	1.19
Other food	ofd	14.96	4.12
Meat products nec	omt	14.96	4.12
Paddy rice	pcr	11.29	1.19
Sugar	sgr	14.96	4.12
Vegetables	v_f	14.96	4.12
Oils and Fats	vol	14.96	4.12
Wheat	wht	11.29	1.19
Chemical products	crp	11.28	2.16
Electronic products	ele	14.60	0.56
Metal products	fmp	16.01	3.49
Leather products	lea	14.18	3.73
Wood products	lum	17.16	1.46
Motovehicles	mvh	14.98	2.30
Machinery nec	ome	13.77	3.92
Manufactures nec	omf	13.45	1.29
Transport equipment	otn	13.00	1.28
Petroleum, coal products	p_c	8.50	2.16
Paper products	ppp	9.42	1.68
Textiles	tex	15.70	7.06
Wearing apparel	wap	19.62	9.01
Other Primary	o_p	8.50	2.16

Source: INTAL 1997

Table 2:
Consumption shares, overall and by income decile.

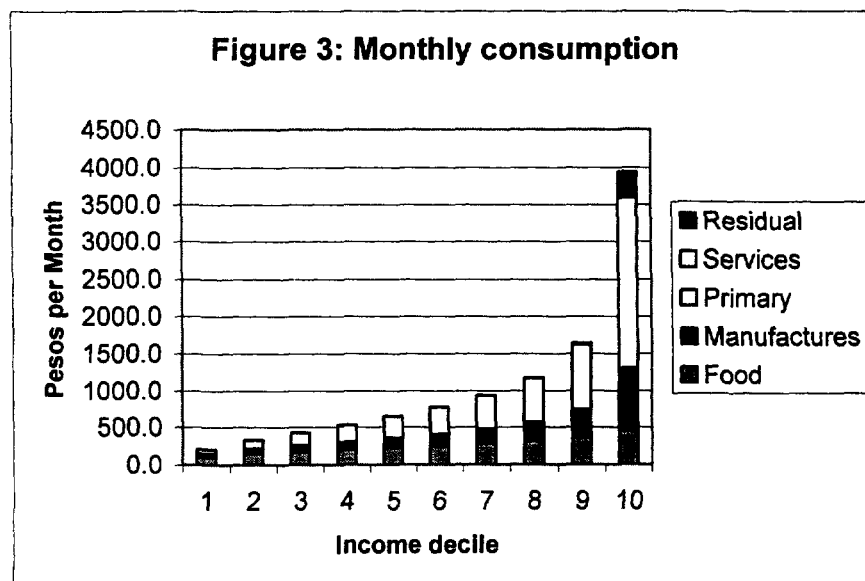
Product group	sector	Overall	Income Deciles									
			1	2	3	4	5	6	7	8	9	10
Beverages Tobacco	food	1.81%	1.59%	2.24%	2.31%	2.44%	2.38%	2.40%	2.44%	2.07%	1.94%	1.15%
Bovine, equine, oth meat	food	2.37%	1.42%	2.43%	2.43%	3.01%	3.27%	3.20%	3.55%	3.09%	2.79%	1.35%
Fish	food	0.37%	0.50%	0.65%	0.47%	0.39%	0.47%	0.40%	0.46%	0.31%	0.42%	0.29%
Cereal nec	food	2.32%	13.40%	9.15%	6.91%	5.10%	4.06%	3.19%	2.37%	1.83%	1.16%	0.43%
Dairy Products	food	2.97%	1.90%	2.90%	3.61%	4.17%	4.08%	3.73%	4.03%	3.77%	3.35%	1.81%
Animal products nec	food	1.13%	2.86%	2.93%	2.61%	2.10%	1.98%	1.63%	1.45%	1.23%	0.88%	0.34%
Crops nec	food	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%
Other food	food	1.96%	3.30%	3.10%	2.86%	2.69%	2.46%	2.24%	2.40%	2.40%	2.07%	1.18%
Meat products nec	food	3.10%	3.83%	4.69%	4.33%	4.88%	4.65%	4.60%	4.18%	3.60%	3.15%	1.59%
Paddy rice	food	0.30%	1.14%	0.87%	0.70%	0.62%	0.50%	0.44%	0.35%	0.30%	0.20%	0.09%
Sugar	food	0.43%	2.04%	1.46%	1.16%	0.81%	0.78%	0.60%	0.44%	0.42%	0.27%	0.10%
Vegetables	food	4.62%	13.61%	10.77%	9.09%	7.99%	7.14%	6.13%	5.69%	4.76%	3.83%	2.00%
Oils and Fats	food	0.71%	2.32%	1.94%	1.81%	1.42%	1.26%	1.04%	0.88%	0.73%	0.49%	0.20%
Wheat	food	1.93%	2.55%	3.05%	3.31%	3.01%	3.02%	2.73%	2.47%	2.38%	1.90%	0.92%
Chemical products	manuf	5.89%	8.99%	8.58%	8.58%	8.33%	7.77%	7.36%	7.04%	6.60%	6.07%	3.73%
Electronic products	manuf	0.54%	0.25%	0.28%	0.25%	0.45%	0.48%	0.45%	0.41%	0.39%	0.55%	0.73%
Metal products	manuf	0.07%	0.08%	0.13%	0.11%	0.12%	0.10%	0.07%	0.06%	0.07%	0.04%	0.05%
Leather products	manuf	1.03%	0.86%	1.02%	1.35%	1.24%	1.22%	1.24%	1.06%	1.08%	1.14%	0.83%
Wood products	manuf	0.55%	0.11%	0.16%	0.24%	0.29%	0.28%	0.34%	0.50%	0.68%	0.58%	0.73%
Motovehicles	manuf	1.98%	0.01%	0.02%	0.05%	0.19%	0.15%	0.41%	0.35%	0.64%	1.29%	4.38%
Machinery nec	manuf	0.92%	0.15%	0.37%	0.33%	0.66%	0.57%	0.73%	0.75%	0.90%	1.17%	1.14%
Manufactures nec	manuf	0.10%	0.05%	0.07%	0.02%	0.05%	0.09%	0.05%	0.06%	0.06%	0.11%	0.15%
Transport equipment	manuf	0.01%	0.00%	0.00%	0.02%	0.01%	0.02%	0.03%	0.02%	0.02%	0.02%	0.01%
Petroleum, coal products	manuf	2.75%	0.24%	0.57%	0.63%	1.07%	1.38%	2.08%	2.13%	2.73%	3.66%	3.65%
Paper products	manuf	3.06%	2.25%	2.93%	3.31%	3.30%	3.41%	3.35%	3.41%	3.26%	3.36%	2.66%
Textiles	manuf	0.26%	0.14%	0.19%	0.20%	0.31%	0.26%	0.20%	0.26%	0.30%	0.27%	0.26%
Wearing apparel	manuf	3.59%	3.10%	3.10%	3.65%	3.28%	3.53%	3.73%	3.49%	3.82%	4.20%	3.39%
Other Primary	primary	0.53%	6.34%	3.32%	1.85%	1.23%	0.96%	0.46%	0.41%	0.17%	0.07%	0.03%
Services	services	51.13%	26.84%	32.88%	37.67%	40.47%	43.35%	46.64%	48.92%	51.82%	53.82%	58.20%
Residual	zresid	3.56%	0.14%	0.17%	0.12%	0.37%	0.38%	0.52%	0.43%	0.58%	1.18%	8.57%
Food		24.03%	50.46%	46.20%	41.61%	38.63%	36.03%	32.35%	30.71%	26.89%	22.47%	11.49%
Manufacturing		21.29%	22.57%	20.75%	20.60%	20.52%	20.24%	20.49%	19.94%	20.71%	22.53%	21.74%
Primary		0.53%	6.34%	3.32%	1.85%	1.23%	0.96%	0.46%	0.41%	0.17%	0.07%	0.03%
Services		51.13%	26.84%	32.88%	37.67%	40.47%	43.35%	46.64%	48.92%	51.82%	53.82%	58.20%
Residual		3.56%	0.14%	0.17%	0.12%	0.37%	0.38%	0.52%	0.43%	0.58%	1.18%	8.57%
Montly Expenditure												
(Pesos per Month)		1060.4	209.7	334.8	427.8	528.0	640.3	770.3	935.0	1177.7	1643.5	3937.1
(US \$ per Month)		139.5	27.6	44.1	56.3	69.5	84.2	101.4	123.0	155.0	216.2	518.0

Source: Own calculation based on ENIGH survey.

Table 3:
Composition of the food basket across deciles.

Product group	Income Deciles									
	1	2	3	4	5	6	7	8	9	10
Bovine, equine, ovine meat	2.91%	5.54%	6.19%	8.33%	9.71%	10.67%	12.54%	12.45%	13.59%	13.09%
Fish	1.02%	1.47%	1.19%	1.07%	1.40%	1.34%	1.62%	1.24%	2.06%	2.81%
Cereal grains nec	27.43%	20.82%	17.58%	14.09%	12.06%	10.66%	8.38%	7.35%	5.66%	4.18%
Dairy Products	3.88%	6.60%	9.19%	11.51%	12.11%	12.46%	14.25%	15.20%	16.32%	17.50%
Animal products nec	5.86%	6.66%	6.64%	5.81%	5.87%	5.46%	5.14%	4.94%	4.30%	3.31%
Crops nec	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	0.04%	0.04%	0.23%
Other food	6.75%	7.06%	7.28%	7.43%	7.30%	7.48%	8.49%	9.66%	10.08%	11.44%
Meat products nec	7.83%	10.68%	11.03%	13.48%	13.81%	15.36%	14.78%	14.51%	15.33%	15.36%
Paddy rice	2.33%	1.99%	1.79%	1.71%	1.48%	1.48%	1.22%	1.21%	1.00%	0.90%
Sugar	4.17%	3.32%	2.96%	2.24%	2.32%	2.01%	1.56%	1.71%	1.32%	0.93%
Vegetables	27.85%	24.50%	23.14%	22.07%	21.20%	20.48%	20.13%	19.16%	18.64%	19.37%
Oils and Fats	4.75%	4.41%	4.59%	3.93%	3.75%	3.47%	3.10%	2.93%	2.39%	1.98%
Wheat	5.22%	6.95%	8.42%	8.32%	8.98%	9.11%	8.73%	9.60%	9.27%	8.91%

Source: Own calculation based on ENIGH survey.



Source: Own calculation based on ENIGH survey (1996)

Table 4:
Income distribution, overall and by income decile.

Endowment Factor	Overall	Income decile									
		1	2	3	4	5	6	7	8	9	10
Land	1.63%	5.50%	2.56%	2.11%	1.38%	1.34%	0.92%	0.62%	0.58%	0.41%	0.83%
Capital	11.74%	12.57%	13.47%	11.81%	10.31%	11.70%	11.23%	10.65%	10.71%	11.05%	13.88%
Unsk Wage	35.78%	42.05%	47.43%	47.60%	47.25%	43.18%	40.13%	36.58%	28.97%	18.65%	5.94%
Sk Wage	17.99%	1.33%	2.38%	6.37%	10.23%	12.25%	16.59%	21.27%	26.61%	38.01%	44.89%
Negative Savings	4.38%	1.83%	2.76%	2.41%	3.11%	3.59%	3.84%	4.37%	4.58%	6.64%	10.70%
Transfers	11.04%	8.88%	10.65%	12.35%	11.32%	12.24%	12.37%	10.70%	12.79%	10.55%	8.51%
Autoconsumo	4.21%	15.94%	8.15%	4.79%	3.69%	2.91%	1.82%	1.61%	1.53%	1.15%	0.53%
Imputed rent	13.23%	11.89%	12.59%	12.56%	12.70%	12.78%	13.10%	14.19%	14.23%	13.53%	14.72%
Total	1060.4	209.681	334.842	427.773	527.975	640.281	770.316	934.957	1177.73	1643.49	3937.09

Source: Own calculation based on ENIGH survey.

Table 5:
Foster-Greer-Thorbecke indexes (hh survey)

FGT index	Poverty		Indigence	
	Estimate	Standard Error	Estimate	Standard Error
Head Count	0.4123	0.0064	0.1292	0.0047
Poverty Gap	0.1422	0.0030	0.0345	0.0018
Distribution Sensitive	0.0667	0.0020	0.0139	0.0010

Source: Own calculation based on ENIGH survey.

Table:6
Inequality Measures (hh survey)

Inequality Measure	Estimate
Theil T	0.4310
Gini coefficient	0.4645

Source: Own calculation based on ENIGH survey.

TABLE 7:**Simulation effects on price and quantities consumed (percentage point change)**

CATEGORY	change in price	change in quantity	value of the income parameter ³⁴
Expenditure			
Wheat	-4.27	0.15	0.02
Cereal nec	-0.22	0.04	0.02
Vegetables, fruit, nuts	-0.02	0.06	0.39
Crops nec	-1.6	0.34	0.39
Animal products nec	-0.03	0.05	0.21
Fishing	-0.04	0.06	0.39
Other Primary	-0.28	0.2	1.26
Bovine cattle, sheep, horse meat prods	0.14	0.03	0.21
Meat products nec	0.09	0.03	0.21
Vegetable oils and fats	-4.57	0.9	0.39
Dairy products	-1.42	0.26	0.29
Processed rice	-0.75	0.06	0.02
Sugar	-0.07	0.06	0.39
Food products nec	-0.65	0.17	0.39
Beverages and tobacco products	-0.46	0.2	0.78
Textiles	-0.82	0.3	0.71
Wearing apparel	-2.47	0.78	0.71
Leather products	-0.66	0.38	1.31
Wood products	0.26	-0.04	1.31
Paper products, publishing	-0.65	0.37	1.31
Petroleum, coal products	-0.2	0.17	1.31
Chemical, rubber, plastic products	-1.17	0.61	1.31
Metal products	-2.24	1.11	1.31
Motor vehicles and parts	-4.21	1.68	1.24
Transport equipment nec	-0.37	0.21	1.24
Electronic equipment	-3.21	1.28	1.03
Machinery and equipment nec	-5.43	2.15	1.03
Manufactures nec	-3.27	1.31	1.03
Services	0.97	-0.3	1.25
Income	CDE		
Land	-3.09		
UnSkilled Wages	1.45		
Skilled Wages	1.74		
Capital	1.51		
NatRes	-3.35		

³⁴ These parameters reflect the structure of the income-consumption path embedded in GTAP's demand function: higher income elasticities for superior goods.

Table 8:
Price indexes for consumption and income.

CDE		Income Decile									
Consumption	Overall	1	2	3	4	5	6	7	8	9	10
Laspeyres	0.9992	0.9970	0.9973	0.9976	0.9978	0.9984	0.9987	0.9992	0.9994	0.9996	1.0001
L_food	-0.0020	-0.0031	-0.0031	-0.0032	-0.0030	-0.0027	-0.0026	-0.0024	-0.0022	-0.0017	-0.0009
L_manuf	-0.0035	-0.0023	-0.0025	-0.0027	-0.0028	-0.0029	-0.0029	-0.0029	-0.0032	-0.0038	-0.0045
L_prim	0.0000	-0.0002	-0.0001	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
L_serv	0.0047	0.0025	0.0030	0.0035	0.0037	0.0040	0.0043	0.0046	0.0048	0.0051	0.0055
Paache	0.9991	0.9969	0.9973	0.9975	0.9978	0.9983	0.9987	0.9992	0.9994	0.9995	1.0000
Fischer	0.9991	0.9970	0.9973	0.9976	0.9978	0.9983	0.9987	0.9992	0.9994	0.9995	1.0000
Törnquist	0.9991	0.9970	0.9973	0.9976	0.9978	0.9983	0.9987	0.9992	0.9994	0.9995	1.0000
Income											
Laspeyres	1.0114	1.0081	1.0092	1.0100	1.0104	1.0107	1.0110	1.0113	1.0115	1.0120	1.0123
L_land	-0.0004	-0.0015	-0.0011	-0.0008	-0.0006	-0.0005	-0.0004	-0.0003	-0.0002	-0.0002	-0.0001
L_capital	0.0017	0.0017	0.0018	0.0017	0.0017	0.0017	0.0017	0.0016	0.0017	0.0017	0.0018
L_unsk_wages	0.0038	0.0063	0.0067	0.0069	0.0067	0.0064	0.0057	0.0053	0.0044	0.0029	0.0010
L_sk_wages	0.0048	0.0002	0.0004	0.0009	0.0014	0.0018	0.0027	0.0033	0.0043	0.0064	0.0081
L_residual	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0014	0.0013	0.0013	0.0015
LasplNC-LaspCON	0.0122	0.0111	0.0119	0.0124	0.0126	0.0124	0.0123	0.0121	0.0120	0.0125	0.0122

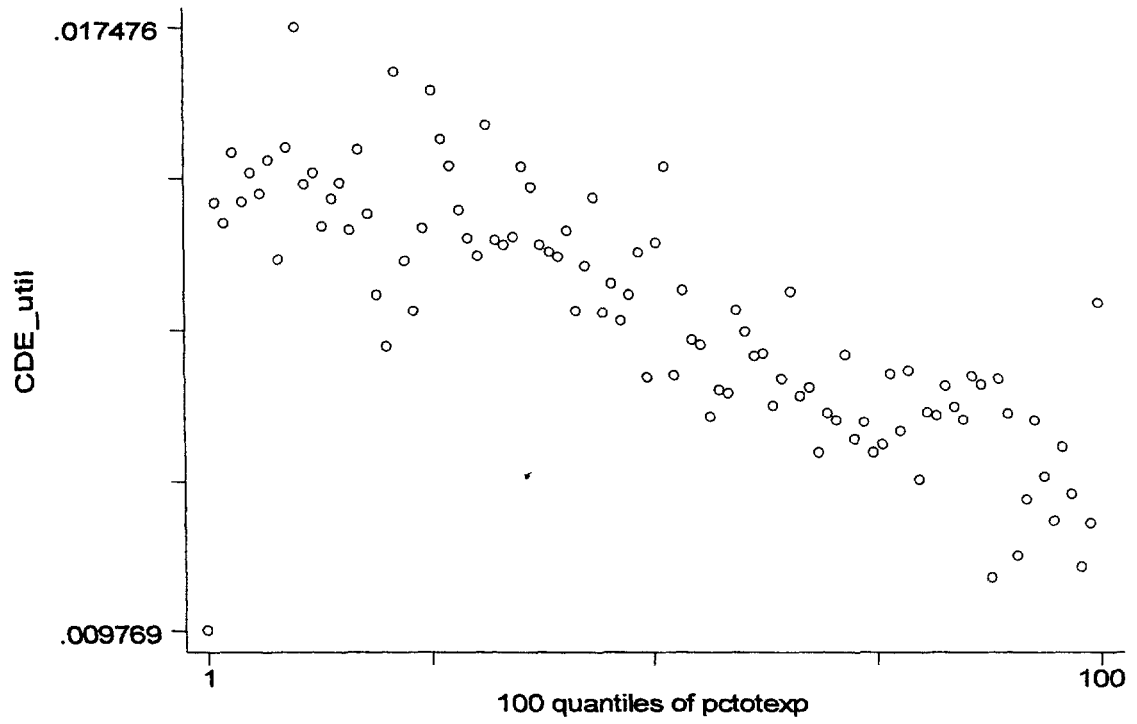
Source: Own calculation based on ENIGH survey.

Table 9:
FGT indexes and inequality measures before and after the simulation.

FGT index	Poverty		Indigence	
	Estimate	Standard Error	Estimate	Standard Error
Head Count pre-simulation	0.4117	0.0064	0.129	0.0047
Head Count post-simulation	0.4058	0.0064	0.1239	0.0046
Poverty Gap pre-simulation	0.1419	0.003	0.0345	0.0018
Poverty Gap post-simulation	0.1379	0.003	0.0332	0.0018
Distribution Sensitive pre-simulation	0.0665	0.002	0.0139	0.001
Distribution Sensitive post-simulation	0.0644	0.002	0.0133	0.001
Inequality				
Gini coefficient pre-simulation	0.4642			
Gini coefficient post-simulation	0.4649			
Theil T pre-simulation	0.4302			
Theil T post-simulation	0.4316			

Source: Own calculation based on ENIGH survey.

Figure 4. Utility changes across income percentiles



APPENDIX 1: The GTAP Model

The GTAP model (Hertel, 1997) is a standard multi-region applied general equilibrium model. It has perfectly competitive markets, constant returns to scale technology, and a supply-side that emphasizes the role of inter-sectoral factor mobility in the determination of sectoral output. Product differentiation between imports and domestic goods, and among imports by region of origin, allows for two-way trade in each product category, depending upon the ease of substitution between products from different regions.

Regional household behavior is governed by an aggregate Cobb-Douglas utility function specified over composite private consumption, composite government purchases, and savings. The motivation for including savings in the static utility function derives from Howe's work which showed that the intertemporal, extended linear expenditure system (ELES) could be derived from an equivalent, atemporal maximization problem, in which savings enters the utility function. Private household demands are derived from a constant difference elasticity (CDE) implicit expenditure function (Hanoch, 1975). The non-homothetic CDE preferences are easily transformed into CES or Cobb-Douglas preferences via an appropriate choice of parameters in the preference function.

Land, labor, and capital are fully employed, and all returns to these factors accrue to households in the region in which they are employed. Global investment is allocated across regions in order to equate expected rates of return. The sum of regional investment equals global investment, which in turn must equal the sum of regional savings.

We use the GTAP model in order to simulate the effects of trade liberalization on Mexico's economy, and specifically on different types of households in the region. The idea is to use the results from the global trade model jointly with detailed information from a household survey in Mexico in order to make inferences about the welfare impact of trade liberalization on various income groups. There are a number of reasons for our choice of methodology.

First, our goal is to propose a methodology that is easy to execute and apply in the context of any country. Typically, the welfare analysis of trade policies on domestic consumers is conducted using one-region models that have multiple households, sophisticated representation of preferences, and a detailed treatment of the domestic government sector. However, the construction of these single region economy models is often a complex task that requires modeling expertise and in many cases, country-specific data. By contrast, with the GTAP model, the implementation of trade policy shocks is a standard task that is performed with a push of a button.

Second, trade policies typically affect more than one region and the use of detailed single region models would not capture well changes in the pattern of specialization and trade flows due to a trade policy shock. In addition, if we were to study the domestic impact of trade liberalization in the rest of the world, we would need a multi-region applied general equilibrium model in order to capture endogenously the impact of the trade policy shock on the economy in question.

Third, the GTAP database has considerable sectoral and regional detail. It contains input output information on more than 45 sectors and captures differences in intermediate input intensities, as well as import intensities, by use. It is publicly available and regularly updated.

There are two features of this treatment that need to be kept in mind when interpreting the results. GTAP has only one aggregate private household. The government household preferences differ from those of the private household. The government household allocates its revenue based on a Cobb-Douglas utility function, and government spending is a constant share of income. Since the model does not keep track explicitly of government revenue, changes in tax revenue are treated as changes in regional income, and affect private household spending, government household spending, and savings. Thus, a portion of the tax revenue is always transferred to the private household and this transfer leads to changes in both private spending and savings.

The second feature of the model that might affect our results is the treatment of skilled and unskilled labor. The model assumes full employment and forces wages to adjust instead. With a change in the standard macro closure, it is possible to reverse this treatment and adjust the supply of labor while keeping wages fixed in the short run. This allows us to study the response of labor supply to the trade policy shock over the short run.

List of commodities in Version 4 of GTAP Database.

No.	Sector	Code	Description
1	Food	pdr	Paddy rice
2	Food	wht	Wheat
3	Food	gro	Cereal grains nec
4	Food	v_f	Vegetables, fruit, nuts
5	Food	osd	Oil seeds
6	Food	c_b	Sugar cane, sugar beet
7	Primary	pfb	Plant-based fibers
8	Food	ocr	Crops nec
9	Food	ctl	Bovine cattle, sheep and goats, horses
10	Food	oap	Animal products nec
11	Food	rmk	Raw milk
12	Primary	wol	Wool, silk-worm cocoons
13	Primary	for	Forestry
14	Food	fsh	Fishing
15	Primary	col	Coal
16	Primary	oil	Oil
17	Primary	gas	Gas
18	Primary	omn	Minerals nec
19	Food	cmt	Bovine cattle, sheep and goat, horse meat prods
20	Food	omt	Meat products nec
21	Food	vol	Vegetable oils and fats
22	Food	mil	Dairy products
23	Food	pcr	Processed rice
24	Food	sgr	Sugar
25	Food	ofd	Food products nec
26	Food	b_t	Beverages and tobacco products
27	Manufacturing	tex	Textiles
28	Manufacturing	wap	Wearing apparel
29	Manufacturing	lea	Leather products
30	Manufacturing	lum	Wood products
31	Manufacturing	ppp	Paper products, publishing

32	Manufacturing	p_c	Petroleum, coal products
33	Manufacturing	crp	Chemical, rubber, plastic products
34	Manufacturing	nmm	Mineral products nec
35	Manufacturing	i_s	Ferrous metals
36	Manufacturing	nfm	Metals nec
37	Manufacturing	fmp	Metal products
38	Manufacturing	mvh	Motor vehicles and parts
39	Manufacturing	otn	Transport equipment nec
40	Manufacturing	ele	Electronic equipment
41	Manufacturing	ome	Machinery and equipment nec
42	Manufacturing	omf	Manufactures nec
43	Services	ely	Electricity
44	Services	gdt	Gas manufacture, distribution
45	Services	wtr	Water
46	Services	cns	Construction
47	Services	t_t	Trade, transport
48	Services	osp	Financial, business, recreational services
49	Services	osg	Public admin and defence, education, health
50	Services	dwe	Dwellings

Appendix 2: Mexican Household Survey

This study utilizes the 1996 Mexican National Household Income and Expenditure Survey (ENIGH). The survey was collected by the Instituto Nacional de Estadística, Geografía e Informática (INEGI). The survey is stratified, multistage and clustered. The final sampling unit is the household. The survey was collected from May to October 1996 and reports data for 14,042 households, which are representative of the entire population. The survey includes income, consumption, household characteristics and individual characteristics. The income data and especially the consumption data are very disaggregated. The survey reports 43 income categories subdivided into monetary, non-monetary and financial income. The consumption data consist of more than 600 different entries, about half of which are food items. Food and manufacturing products and services are finely disaggregated. The observations for which there was no information on expenditure or income for any category were dropped.³⁵

Since household size is not the same across income levels, and because the welfare measures are concerned with the well-being of individuals, all data were converted to a per capita basis. This measure of individual welfare still doesn't have a firm theoretical and empirical basis for the construction of equivalence scales. This paper adopts the standard practice of dividing household income and expenditure by its residents, with children of age 14 or less counting as half of adults. Also, to reflect economies of scale within the household, we scaled this measure to the power of 0.9.³⁶

The measure of total household income is equal to the summation of financial, monetary and non-monetary income. Non-monetary income includes payment in kind, gifts and imputed value of rent. Each classification of income was converted on a quarterly basis and adjusted for inflation. The income expenditure survey provides no information on

³⁵ This resulted in discarding about 1% of the total number of observations.

asset ownership. Thus, it is insufficient to make direct connections between income and expenditure patterns, and between asset ownership and productive activity.³⁷ Total household consumption is calculated as the sum of monetary and non-monetary expenditures. By definition and standard practice in household survey analysis, non-monetary expenditure equals non-monetary income.³⁸ The total amount for each expenditure category is calculated on a quarterly basis in the same way as income.

In household surveys the data on income is usually underreported.³⁹ This, together with the lifecycle consumption hypotheses, drove us to adopt the standard procedure of using total expenditure as a proxy for income.⁴⁰

³⁶ For a more detailed discussion see Deaton (1997) and Wiggins, Preibish and Proctor (1999). The substance of the results did not change when total income was divided by the actual number of household members.

³⁷ The survey does not give enough information to make it possible to match income data to the economic sectors. Therefore, it is impossible to calculate household specific income effects due to price changes in particular sectors.

³⁸ That is, auto-consumption goods and services must be recorded properly in both income and expenditure.

³⁹ For example, see Lustig and Mitchell (1995).

⁴⁰ See, for example, Levy (1991) and Sarris (1993).

Appendix 3: Data aggregation

The matching of the household survey classification to GTAP categories consists of two different exercises: consumption matching and income matching. On the expenditure side, the GTAP system has 50 commodity categories, while the household data includes about 600 different categories. The matching of the expenditure side of the two data sets was facilitated by the use of concordance tables provided by the GTAP website (www.gtap.org).⁴¹ This conversion solves the aggregation problem for most of the food, manufacturing and other primary sectors. The matching of the service sectors was more difficult to obtain, due to the various possible interpretations of services acquired by the households and the GTAP classification. Therefore, we decided to aggregate all the services in one category. This may seem like a bigger problem than it is. Because in our simulations the change in price is never very different across the various service categories of GTAP, this reduces errors due to aggregation.

The matching of the income part of the data with GTAP categories was more problematic. GTAP uses five different endowment categories, while in the household survey data there are more than 40. In addition, the two data sets adopt different systems in classifying income. Therefore, they are more difficult to match and require some degree of arbitrariness. GTAP income is divided into land, capital, skilled labor, unskilled labor and natural resources.⁴² The attained level of education is the variable that allow us to distinguish between skilled and unskilled labor. An individual is considered skilled if he had completed secondary school or technical education.⁴³ The household survey divides income into different categories, some of which are not univocally or clearly attributable to any single GTAP category. Many of those household income categories must be attributed to two or more GTAP categories. To calculate the correct sharing

⁴¹ In particular, we made use of the HS to GTAP conversion tables available at the GTAP website.

⁴² We do not match any household survey income category to the GTAP income category – natural resources. Even if some household income categories could be matched at least in part with income from natural resources we decided not to do so because the GTAP aggregation of natural resources is mainly mining sectors and oil which do not have a direct correspondent in the household survey categories.

⁴³ The household survey reports detailed information on the education attained by each individual. It takes usually 9 years to complete secondary school.

coefficients, we use the input output tables of GTAP.⁴⁴ In the household data, there are various categories that cannot be matched with those of GTAP. These consist mainly of transfers and negative savings, whose average income flow we assume do not vary with the simulation.⁴⁵ We report the aggregation tables and the sharing coefficients at the end of this appendix.

Income is usually underreported in the household surveys, and total expenditures usually exceed total income. This factor, together with consumption smoothing issues prompted us to use total expenditure as a proxy for total income. Nevertheless, we still maintained the income structure of the household data. It is likely that different income categories have different degrees of underreporting. Looking at the income composition of the survey data, it is very different from the share of GTAP income categories. Because of the mis-reporting issues mentioned above, as a robustness check we relied on the GTAP endowment structure, nevertheless still maintaining the distribution of the endowments across households.⁴⁶ To do so, we first applied the income shares from GTAP to the total economy income from the household data to obtain new income levels by endowments. Then we redistributed the income generated by each endowment across the different households according to the share of participation of that particular household in that income source. Finally, to obtain total income for each household, we applied the new income composition to total expenditure.⁴⁷

⁴⁴ For example, the category “income from own business” must be allocated between income from capital and income from wage. We use the average GTAP coefficient for the service sector to calculate the correct shares.

⁴⁵ We relax this assumption for the robustness check, and let these income sources to vary with return to capital without finding appreciable changes in the results.

⁴⁶ We maintain the endowment distribution across households by assigning to each household the share of endowment from the survey data. That is, we control for the fact that the distribution of each endowment is different across the income percentiles.

⁴⁷ Formally, we set $nsh_{i,e} = \frac{sh_e^i \cdot er_e}{\sum_e (sh_e^i \cdot er_e)}$, where sh is the participation share of household i in the total

endowment e , er is the endowment e total return (in levels) according to GTAP shares and nsh is the new share of endowment e for the household i . Then we applied nsh to total household expenditure to obtain the household income from each endowment.

GTAP/HH SURVEY AGGREGATION TABLES

CLASSIFICATION OF EXPENDITURE

GTAP Sector	GTAP Group	GTAP CODE	Household survey classification
		Clave	Product name
			ALIMENTOS, BEBIDAS Y TABACO
			A.- Alimentos
			1.- Cereales
Food	Cereal	GRO A001	Maíz en grano, pozolero, palomero
Food	Cereal	GRO A002	Harina de maíz
Food	Cereal	GRO A003	Masa de maíz
Food	Cereal	GRO A004	Tortilla de maíz
Food	Cereal	GRO A005	Fécula de maíz (maicena, polvo para atole)
Food	Cereal	GRO A006	Otros productos de maíz: tostadas, hojuelas, pinole, etc.
Food	Wheat	WHT A007	Harina de trigo (refinada o integral)
Food	Wheat	WHT A008	Tortilla de harina
Food	Wheat	WHT A009	Galletas saladas
Food	Wheat	WHT A010	Galletas dulces
Food	Wheat	WHT A011	Pan blanco incluya pan molido
Food	Wheat	WHT A012	Pan de dulce
Food	Wheat	WHT A013	Pan de caja
Food	Wheat	WHT A014	Pan de marca (panecillos y pasteles)
Food	Wheat	WHT A015	Pasta para sopa
Food	Wheat	WHT A016	Otros productos de trigo: pasta para fritura, hojuelas, harina preparada, etc.
Food	Rice	PCR A017	Arroz en grano
Food	Rice	PCR A018	Otros productos de arroz: harina, tostado, etc.
Food	Cereal	GRO A019	Avena
Food	Cereal	GRO A020	Otros cereales: centeno, cebada, etc.
Food	Cereal	GRO A021	Frituras procesadas de trigo o maíz
			2.- Carnes
			a) De res y ternera
Food	Meat: cattle sheep goats horses	CMT A022	Bistec y milanesa
Food	Meat: cattle sheep goats horses	CMT A023	Pulpa (trozo y molida)
Food	Meat: cattle sheep goats horses	CMT A024	Coccido o retazo con hueso
Food	Meat: cattle sheep goats horses	CMT A025	Lomo y filete
Food	Meat: cattle sheep goats horses	CMT A026	Cortes especiales: t-bone, roast beef agujas, etc.
Food	Meat: cattle sheep goats horses	CMT A027	Chuleta y costilla
Food	Meat: cattle sheep goats horses	CMT A028	Visceras: hígado, riñones, sesos, corazón, medula y otras partes de res
			b) De puerco
Food	Meat product nec	OMT A029	Lomo y pierna
Food	Meat product nec	OMT A030	Chuleta y costilla
Food	Meat product nec	OMT A031	Pulpa, bistec, trozo y molida
Food	Meat product nec	OMT A032	Visceras: hígado, riñones, sesos, corazón, medula y otras partes de puerco
Food	Meat product nec	OMT	c)
			Aves
Food	Meat product nec	OMT A033	Pollo en piezas
Food	Meat product nec	OMT A034	Pollo entero
Food	Meat product nec	OMT A035	Gallina entera o en piezas
Food	Meat product nec	OMT A036	Visceras: corazón, hígado, etc., y otras partes del pollo
Food	Meat product nec	OMT A037	Otras aves: pavo, pichón, pato, etc.
Food	Meat product nec	OMT	d) Otras carnes
Food	Meat product nec	OMT A038	Carnero y borrego
Food	Meat product nec	OMT A039	Cabrito
Food	Meat product nec	OMT A040	Otros: conejo, venado, iguana, etc.
Food	Meat product nec	OMT	e) Carnes procesadas
Food	Meat product nec	OMT A041	Jamón
Food	Meat product nec	OMT A042	Tocino
Food	Meat product nec	OMT A043	Salchicha
Food	Meat product nec	OMT A044	Chorizo y longaniza
Food	Meat product nec	OMT A045	Carnes enchiladas o ahumadas
Food	Meat product nec	OMT A046	Queso de puerco
Food	Meat product nec	OMT A047	Carne de res seca: cecina, machaca, rallena, etc.
Food	Meat product nec	OMT A048	Otros: pastel de pollo, salami, mortadela, etc.
			3.- Pescados y mariscos
			a) Pescados y mariscos frescos
Food	Fish	FSH A049	Huachinango
Food	Fish	FSH A050	Mojarra
Food	Fish	FSH A051	Robalo
Food	Fish	FSH A052	Mero
Food	Fish	FSH A053	Cazón, liza y bagre
Food	Fish	FSH A054	Camarón
Food	Fish	FSH A055	Otros pescados y mariscos: trucha, jaiba, ostión, almeja, etc.
			b) Pescados y mariscos procesados
Food	Other food nec	OFD A056	Sardinas
Food	Other food nec	OFD A057	Atún
Food	Other food nec	OFD A058	Secos: bacalao, charal, camarón, etc.
Food	Other food nec	OFD A059	Otros: abulón, ostión, pulpo, etc.

		4.- Leche y derivados
		a)
		Leche
Food	Dairy Products	MIL A060 Pasteurizada
Food	Dairy Products	MIL A061 No pasteurizada (branca)
Food	Dairy Products	MIL A062 Evaporada
Food	Dairy Products	MIL A063 Condensada
Food	Dairy Products	MIL A064 En polvo (entera o descremada)
Food	Dairy Products	MIL A065 Maternizada
Food	Dairy Products	MIL A066 Otras: cabra, burra, etc.
Food	Dairy Products	MIL b) Quesos
Food	Dairy Products	MIL A067 Fresco
Food	Dairy Products	MIL A068 Chihuahua
Food	Dairy Products	MIL A069 Oaxaca y asadero
Food	Dairy Products	MIL A070 Manchego
Food	Dairy Products	MIL A071 Amarillo
Food	Dairy Products	MIL A072 Anejo y colija
Food	Dairy Products	MIL A073 Requesón
Food	Dairy Products	MIL A074 Otros: enchilado, gruyere, parmesano, holandés, crema, etc.
Food	Dairy Products	MIL c) Otros derivados de la leche
Food	Dairy Products	MIL A075 Crema
Food	Dairy Products	MIL A076 Mantequilla
Food	Dairy Products	MIL A077 Otros: yoghurt, jocoque, etc.
		5.- Huevos
Food	Other animal product	OAP A078 Gallina
Food	Other animal product	OAP A079 Otros: tortuga, pato, pavo, etc.
		6.- Aceites y grasas
Food	Vegetable oil and fats	VOL A080 Aceite vegetal
Food	Vegetable oil and fats	VOL A081 Manteca vegetal
Food	Vegetable oil and fats	VOL A082 Manteca de puerco
Food	Vegetable oil and fats	VOL A083 Margarina
Food	Vegetable oil and fats	VOL A084 Otros: aceite de oliva, enjundia, etc.
		7.- Tubérculos
Food	Vegetables	V_F A085 Papa
Food	Vegetables	V_F A086 Harina de papa para puré
Food	Vegetables	V_F A087 Otros: camote, yuca, ñame, betabel, etc.
Food	Vegetables	V_F A088 Papas fritas en bolsa
Food	Vegetables	V_F 8.- Verduras, legumbres, leguminosas y semillas
Food	Vegetables	V_F a) Verduras y legumbres frescas
Food	Vegetables	V_F A089 Tomate rojo (jitomate)
Food	Vegetables	V_F A090 Tomate verde
Food	Vegetables	V_F A091 Chile serrano y jalapeño
Food	Vegetables	V_F A092 Chile poblano para rellenar
Food	Vegetables	V_F A093 Otros chiles: habanero, árbol, etc.
Food	Vegetables	V_F A094 Cebolla
Food	Vegetables	V_F A095 Ajo
Food	Vegetables	V_F A096 Aguacate
Food	Vegetables	V_F A097 Repollo o col
Food	Vegetables	V_F A098 Lechuga
Food	Vegetables	V_F A099 Zanahoria
Food	Vegetables	V_F A100 Pepino
Food	Vegetables	V_F A101 Ejote
Food	Vegetables	V_F A102 Chicharo
Food	Vegetables	V_F A103 Elote
Food	Vegetables	V_F A104 Chayote
Food	Vegetables	V_F A105 Calabacitas
Food	Vegetables	V_F A106 Nopales
Food	Vegetables	V_F A107 Verdolagas, espinacas y acelgas
Food	Vegetables	V_F A108 Perajil
Food	Vegetables	V_F A109 Cilantro
Food	Vegetables	V_F A110 Epazote, pápalo y apio
Food	Vegetables	V_F A111 Verduras mixtas en bolsa
Food	Vegetables	V_F A112 Otros: alcachofa, quelites, romeritos, rábanos, poro, etc.
Food	Vegetables	V_F b) Verduras y legumbres procesadas
Food	Vegetables	V_F A113 Chiles envasados
Food	Vegetables	V_F A114 Chiles secos o en polvo
Food	Vegetables	V_F A115 Verduras envasadas (incluya aceitunas)
Food	Vegetables	V_F A116 Verduras y legumbres congeladas
Food	Vegetables	V_F c) Leguminosas
Food	Vegetables	V_F A117 Frijol
Food	Vegetables	V_F A118 Garbanzo
Food	Vegetables	V_F A119 Otras: lentejas, haba, etc.
Food	Vegetables	V_F d) Leguminosas procesadas
Food	Vegetables	V_F A120 Frijol (en caja o lata)
Food	Vegetables	V_F A121 Otras leguminosas (en lata o secas)
Food	Vegetables	V_F e) Semillas
Food	Vegetables	V_F A122 Semillas a granel (nuez, piñón, almendra, cacahuete, etc.)
Food	Vegetables	V_F A123 Semillas envasadas (nuez, piñón, almendra, cacahuete, etc.)
Food	Vegetables	V_F 9.- Frutas

Food	Vegetables	V_F	a) Frutas frescas
Food	Vegetables	V_F	A124 Naranja
Food	Vegetables	V_F	A125 Limón
Food	Vegetables	V_F	A126 Otros cítricos: lima, toronja, mandarina, etc.
Food	Vegetables	V_F	A127 Plátano tabasco
Food	Vegetables	V_F	A128 Otros plátanos: macho, dominico morado y manzano
Food	Vegetables	V_F	A129 Manzana o perón
Food	Vegetables	V_F	A130 Pera
Food	Vegetables	V_F	A131 Durazno y chabacano
Food	Vegetables	V_F	A132 Ciruela
Food	Vegetables	V_F	A133 Fresa
Food	Vegetables	V_F	A134 Guayaba
Food	Vegetables	V_F	A135 Mango
Food	Vegetables	V_F	A136 Mamey
Food	Vegetables	V_F	A137 Papaya
Food	Vegetables	V_F	A138 Melón
Food	Vegetables	V_F	A139 Sandía
Food	Vegetables	V_F	A140 Piña
Food	Vegetables	V_F	A141 Jicama
Food	Vegetables	V_F	A142 Uva
Food	Vegetables	V_F	A143 Otras: guanabana, granada, tuna, higo, coco, tamarindo, etc.
Food	Vegetables	V_F	b) Frutas procesadas
Food	Vegetables	V_F	A144 Almibar o conserva: durazno, mango, piña, cereza, etc.
Food	Vegetables	V_F	A145 Cristalizadas y secas: pasitas, dátiles, chabacano, etc.
Food	Vegetables	V_F	A146 Otras: frutas endulzadas, enchiladas, etc.
			10.- Azúcar y mieles
Food	Sugar	SGR	A147 Azúcar (blanca y morena)
Food	Other food nec	OFD	A148 Miel de abeja
Food	Other food nec	OFD	A149 Otras: glass, moscabada, piloncillo, miel de maíz, etc.
			11.- Café, té, chocolate
Food	Other food nec	OFD	A150 Café tostado (en grano o molido)
Food	Other food nec	OFD	A151 Café sin tostar (en grano)
Food	Other food nec	OFD	A152 Café soluble o instantáneo
Food	Other food nec	OFD	A153 Hojas para té (manzanilla, naranja, etc.)
Food	Other food nec	OFD	A154 Té soluble o instantáneo
Food	Other food nec	OFD	A155 Chocolate en tableta o en polvo
Food	Other food nec	OFD	A156 Otros: cocoa, etc.
			12.- Especies y Aderezos
Food	Other food nec	OFD	A157 Sal
Food	Other food nec	OFD	A158 Pimienta, clavo y comino
Food	Other food nec	OFD	A159 Canela
Food	Other food nec	OFD	A160 Mayonesa
Food	Other food nec	OFD	A161 Mostaza
Food	Other food nec	OFD	A162 Salsa catsup
Food	Other food nec	OFD	A163 Salsas picantes
Food	Other food nec	OFD	A164 Mole
Food	Other food nec	OFD	A165 Concentrados de pollo y tomate
Food	Other food nec	OFD	A166 Vinagre
Food	Other food nec	OFD	A167 Otros condimentos: aderezos, ablandadores, polvo para hornear
			13.- Otros alimentos
			a) Alimentos preparados para bebé
Food	Other food nec	OFD	A168 Alimentos colados y picados de cualquier combinación
Food	Other food nec	OFD	A169 Cereales, sopas y galletas para bebé
Food	Other food nec	OFD	A170 Jugos de frutas y verduras de cualquier combinación
			b) Alimentos preparados (para consumir en casa)
Food	Other food nec	OFD	A171 Carnitas y chicharrón
Food	Other food nec	OFD	A172 Pollos rostizados
Food	Other food nec	OFD	A173 Barbacoa
Food	Other food nec	OFD	A174 Birria
Food	Other food nec	OFD	A175 Pizzas
Food	Other food nec	OFD	A176 Otros: sopa, guisados, ensaladas, tortas, encurtidos, etc.
			c) Alimentos diversos
Food	Other food nec	OFD	A177 Chapulines, gusano de maguey, etc.
			d) Dulces y postres
Food	Other food nec	OFD	A178 Gelatinas, flanes y pudines en polvo
Food	Other food nec	OFD	A179 Gelatinas, flanes y pudines
Food	Other food nec	OFD	A180 Paletas, caramelos y otras golosinas
Food	Other food nec	OFD	A181 Cajetas, jamoncillos y dulces de leche
Food	Other food nec	OFD	A182 Mermeladas, ates, jaleas y crema de cacahuete
Food	Other food nec	OFD	A183 Helados y nieves
Food	Other food nec	OFD	A184 Otros: chilacayote, cocada, visnaga, alegrías, etc.
			14.- Servicio de molino
Food	Other food nec	OFD	A185 Nixtamal y otros
Food	Other food nec	OFD	A186 Gastos conexos para preparar alimentos
			15.- Alimentos para animales domésticos
Food	Other food nec	OFD	A187 Animales de esparcimiento
Food	Other food nec	OFD	A188 Animales para trabajo y de producción
			16.- Bebidas

			1.- Bebidas no alcohólicas
Food	Beverages and tobacco	B_T	A189 Refrescos o bebidas con o sin gas y jugos naturales
Food	Beverages and tobacco	B_T	A190 Agua mineral (con o sin sabor)
Food	Beverages and tobacco	B_T	A191 Jugos y néctares enlatados
Food	Beverages and tobacco	B_T	A192 Agua purificada
Food	Beverages and tobacco	B_T	A193 Concentrado y polvo para preparar agua
Food	Beverages and tobacco	B_T	A194 Otros: hielo, granadina, jarabe natural, etc.
Food	Beverages and tobacco	B_T	2.- Bebidas alcohólicas
Food	Beverages and tobacco	B_T	A195 Cerveza
Food	Beverages and tobacco	B_T	A196 Brandy
Food	Beverages and tobacco	B_T	A197 Pulque
Food	Beverages and tobacco	B_T	A198 Tequila
Food	Beverages and tobacco	B_T	A199 Whisky
Food	Beverages and tobacco	B_T	A200 Ron
Food	Beverages and tobacco	B_T	A201 Aguardiente, mezcal, sotol
Food	Beverages and tobacco	B_T	A202 Vinos de mesa
Food	Beverages and tobacco	B_T	A203 Otros: sidra, romope, jerez cremas, vodka, etc.
Food	Beverages and tobacco	B_T	A204 Bebidas preparadas
			B.- Alimentos y bebidas consumidas fuera del hogar
Services	Recreation and other services	ROS	A205 1) Desayuno
Services	Recreation and other services	ROS	A206 2) Comida
Services	Recreation and other services	ROS	A207 3) Cena
Services	Recreation and other services	ROS	A208 4) Entrecomidas
			C.- Tabaco
Food	Beverages and tobacco	B_T	A209 Cigarros
Food	Beverages and tobacco	B_T	A210 Puros
Food	Beverages and tobacco	B_T	A211 Tabaco (en hoja y picado)
			TRANSPORTE PUBLICO
Services	Transport nec	OTP	B001 Metro
Services	Transport nec	OTP	B002 Autóbús
Services	Transport nec	OTP	B003 Trolebús, tranvía
Services	Transport nec	OTP	B004 Colectivo (pesero)
Services	Transport nec	OTP	B005 Taxi, radio taxi (sitio)
Services	Transport nec	OTP	B006 Autóbús foráneo
Services	Transport nec	OTP	B007 Otros (bono de transporte, carretas; etc.)
			LIMPIEZA Y CUIDADO DE LA CASA
			A. Artículos de limpieza y cuidado de la casa
Manufacturing	Chemical rubber plastic prods	CRP	C001 Detergentes
Manufacturing	Chemical rubber plastic prods	CRP	C002 Jabón de barra
Manufacturing	Chemical rubber plastic prods	CRP	C003 Blanqueadores
Manufacturing	Chemical rubber plastic prods	CRP	C004 Limpiadores (en polvo o líquido)
Manufacturing	Chemical rubber plastic prods	CRP	C005 Papel sanitario
Manufacturing	Chemical rubber plastic prods	CRP	C006 Servilletas y papel absorbente
Manufacturing	Chemical rubber plastic prods	CRP	C007 Platos y vasos desechables, papel aluminio y encerado
Manufacturing	Chemical rubber plastic prods	CRP	C008 Escobas y trapeadores
Manufacturing	Chemical rubber plastic prods	CRP	C009 Fibras, estropajos y escobetas
Manufacturing	Chemical rubber plastic prods	CRP	C010 Jergas y trapos de cocina
Manufacturing	Chemical rubber plastic prods	CRP	C011 Cerillos
Manufacturing	Chemical rubber plastic prods	CRP	C012 Pilas
Manufacturing	Chemical rubber plastic prods	CRP	C013 Focos
Manufacturing	Chemical rubber plastic prods	CRP	C014 Cera y limpia muebles
Manufacturing	Chemical rubber plastic prods	CRP	C015 Insecticidas
Manufacturing	Chemical rubber plastic prods	CRP	C016 Desodorante ambiental y sanitario
Manufacturing	Metal Products	FMP	C017 Recipientes de lámina (cubetas, tinas, etc.)
Manufacturing	Chemical rubber plastic prods	CRP	C018 Recipientes de plástico (cubetas, tinas, mangueras, etc.)
Manufacturing	Chemical rubber plastic prods	CRP	C019 Otros artículos: suavizantes de telas, etc.
			B. Servicios para el hogar
Services	Recreation and other services	ROS	C020 Servicio doméstico
Services	Recreation and other services	ROS	C021 Lavandería
Services	Recreation and other services	ROS	C022 Tintorería
Services	Recreation and other services	ROS	C023 Jardinería
Services	Recreation and other services	ROS	C024 Otros servicios: fumigación, etc.
			CUIDADOS PERSONALES
			A. Artículos para el cuidado personal
Manufacturing	Chemical rubber plastic prods	CRP	D001 Jabón de tocador
Manufacturing	Chemical rubber plastic prods	CRP	D002 Lociones y perfumes
Manufacturing	Chemical rubber plastic prods	CRP	D003 Pasta dental y enjuague bucal
Manufacturing	Chemical rubber plastic prods	CRP	D004 Champús, tintes y enjuagues
Manufacturing	Chemical rubber plastic prods	CRP	D005 Desodorante
Manufacturing	Chemical rubber plastic prods	CRP	D006 Crema, brillantina y crema para afeitarse
Manufacturing	Chemical rubber plastic prods	CRP	D007 Navajas y rastrillos para afeitarse
Manufacturing	Chemical rubber plastic prods	CRP	D008 Polvo y maquillaje facial
Manufacturing	Chemical rubber plastic prods	CRP	D009 Sombra, lápiz labial y de cejas, delineador, etc.
Manufacturing	Chemical rubber plastic prods	CRP	D010 Artículos de tocador para bebé
Manufacturing	Chemical rubber plastic prods	CRP	D011 Pañuelos desechables
Manufacturing	Chemical rubber plastic prods	CRP	D012 Pañales desechables
Manufacturing	Chemical rubber plastic prods	CRP	D013 Toallas sanitarias
Manufacturing	Chemical rubber plastic prods	CRP	D014 Cepillo, peine y cepillo dentífrico
Manufacturing	Machinery and Equipment	OME	D015 Artículos eléctricos (rasuradora, secadora, etc.)
Services	Recreation and other services	ROS	D016 Reparación y/o mantenimiento de artículos anteriores
Manufacturing	Chemical rubber plastic prods	CRP	D017 Otros: esmaltes y limas para uñas, pasadores, etc.
			B. Servicios para el cuidado personal

Services	Recreation and other services	ROS	D018	Corte de cabello y peinado	
Services	Recreation and other services	ROS	D019	Baños y masajes	
Services	Recreation and other services	ROS	D020	Permanentes y tintes	
Services	Recreation and other services	ROS	D021	Manicura	
Services	Recreation and other services	ROS	D022	Otros servicios: rasurar, depilar, etc.	
EDUCACION, CULTURA Y RECREACION					
A. Servicios de educación					
Services	Pub admin defence health education	OSG	E001	Preprimaria	
Services	Pub admin defence health education	OSG	E002	Primaria	
Services	Pub admin defence health education	OSG	E003	Secundaria	
Services	Pub admin defence health education	OSG	E004	Preparatoria, vocacional o normal	
Services	Pub admin defence health education	OSG	E005	Superior (Licenciaturas, Médicos, etc.)	
Services	Pub admin defence health education	OSG	E006	Posgrado (Maestrías, doctorados, especialidades)	
Services	Pub admin defence health education	OSG	E007	Carrera técnica o comercial	
B. Servicios de educación					
Services	Pub admin defence health education	OSG	E008	Estancias infantiles (excepto preprimaria)	
Services	Pub admin defence health education	OSG	E009	Enseñanza adicional	
Services	Pub admin defence health education	OSG	E010	Educación especial para discapacitados	
Services	Pub admin defence health education	OSG	E011	Internados	
Services	Pub admin defence health education	OSG	E012	Cuidado de niños (Persona particular)	
Services	Transport nec	OTP	E013	Transporte escolar	
C. Artículos educativos					
Manufacturing	Paper Products Publishing	PPP	E014	Libros para la escuela	
Manufacturing	Paper Products Publishing	PPP	E015	Material escolar: cuadernos, carpetas, etc.	
Manufacturing	Electronic equip	ELE	E016	Equipo escolar: máquinas de escribir, calculadoras, etc.	
Manufacturing	Paper Products Publishing	PPP	E017	Material para actividades tecnológicas (educación formal)	
Manufacturing	Paper Products Publishing	PPP	E018	Material para Educación Técnica	
Manufacturing	Paper Products Publishing	PPP	E019	Material para Educación Adicional	
Services	Recreation and other services	ROS	E020	Reparación y/o mantenimiento de equipo escolar	
D. Artículos de cultura y recreación					
Manufacturing	Paper Products Publishing	PPP	E021	Enciclopedias y libros (excluya los de la escuela)	
Manufacturing	Paper Products Publishing	PPP	E022	Periódicos	
Manufacturing	Paper Products Publishing	PPP	E023	Revistas	
Manufacturing	Machinery and Equipment	OME	E024	Audiocassete, discos y discos compactos	
Manufacturing	Machinery and Equipment	OME	E025	Otros	
E. Servicios de recreación					
Services	Recreation and other services	ROS	E026	Cines	
Services	Recreation and other services	ROS	E027	Teatros y conciertos	
Services	Recreation and other services	ROS	E028	Bares y Centros nocturnos (incluye alimentos, bebidas tabaco, cover, propinas, etc.)	
Services	Recreation and other services	ROS	E029	Espectáculos deportivos	
Services	Recreation and other services	ROS	E030	Lotería y juegos de azar	
Services	Recreation and other services	ROS	E031	Cuotas a: centros sociales, asociaciones, clubes, etc.	
Services	Recreation and other services	ROS	E032	Servicio de televisión por cable, satélite, pago por evento y paquetes.	
Services	Recreation and other services	ROS	E033	Renta de: cassetes para video juego, discos compactos y video cassette.	
Services	Recreation and other services	ROS	E034	Otros gastos de recreación: circos, museos, ferias, juegos mecánicos, balnearios, etc.	
COMUNICACIONES Y SERVICIOS PARA VEHICULOS					
A. Comunicaciones					
Services	Transport nec	OTP	F001	Teléfono particular	
Services	Transport nec	OTP	F002	Teléfono público	
Services	Transport nec	OTP	F003	Correo: estampillas, paquetería, etc.	
Services	Transport nec	OTP	F004	Telégrafo	
Services	Transport nec	OTP	F005	Otros: Telex, giros, fax público, etc.	
B. Combustible, Mantenimiento y Servicios para vehículos					
Manufacturing	Petroleum coal products	P_C	F006	Gasolina, diesel o gas	
Manufacturing	Petroleum coal products	P_C	F007	Aceites y lubricantes	
Services	Recreation and other services	ROS	F008	Pensión y Estacionamiento	
Services	Recreation and other services	ROS	F009	Lavado y engrasado	
Services	Recreation and other services	ROS	F010	Otros servicios: encerado, reparación de llantas, etc.	
VIVIENDA Y SERVICIOS DE CONSERVACION					
A. Vivienda					
1. Propia					
Services	Dwellings	DWE	G001	Valor estimado del alquiler	Only in autoconsumo
Services	Dwellings	DWE	G002	Cuota pagada	
Services	Water	WTR	G003	Agua	
Services	Dwellings	DWE	G004	Impuesto predial	
2. Rentada o alquilada					
Services	Dwellings	DWE	G005	Alquiler	
Services	Water	WTR	G006	Agua	
3. Recibida como prestación					
Services	Dwellings	DWE	G007	Valor estimado del alquiler	Only in autoconsumo
Services	Water	WTR	G008	Agua	
Services	Dwellings	DWE	G009	Cuota o pago por la vivienda	
4. Prestada					
Services	Dwellings	DWE	G010	Valor estimado del alquiler	Only in autoconsumo
Services	Water	WTR	G011	Agua	
Services	Dwellings	DWE	G012	Impuesto predial	
5. Alquiler de terrenos para uso exclusivo de la vivienda					
Services	Dwellings	DWE	G013	Alquiler	
Services	Water	WTR	G014	Agua	
6. Otra situación de la vivienda					
Services	Dwellings	DWE	G015	Valor estimado del alquiler	
Services	Dwellings	DWE	G016	Cuota, renta o pago por la vivienda	

Services	Water	WTR	G017	Agua
Services	Dwellings	DWE	G018	Impuesto predial
				7. Sólo para hogares adicionales
Services	Dwellings	DWE	G019	Cuota, renta o pago por la vivienda
Services	Water	WTR	G020	Agua
Services	Dwellings	DWE	G021	Impuesto predial
				B. Servicios por conservación
				1. Cuota por servicios de conservación
Services	Dwellings	DWE	G022	Recolección de basura
Services	Dwellings	DWE	G023	Cuotas de vigilancia
Services	Dwellings	DWE	G024	Cuotas de administración
Services	Dwellings	DWE	G025	Otros servicios
				2. Electricidad y combustible
Services	Electricity	ELY	G026	Energía eléctrica
Services	Gas distribution	GDT	G027	Gas
Primary	Oil	OIL	G028	Petróleo
Primary	Coal	COL	G029	Carbón
Primary	Forestry	FOR	G030	Leña
Manufacturing	Petroleum coal products	P_C	G031	Combustible para calentar
Manufacturing	Chemical rubber plastic prods	CRP	G032	Velas y veladoras
Manufacturing	Chemical rubber plastic prods	CRP	G033	Otros combustibles: cartón, papel, etc.
				PRENDAS DE VESTIR, CALZADO Y ACCESORIOS
				A. Para personas de 3 años y más
Manufacturing	Wearing apparel	WAP	H001	Pantalones para hombre de fibras sintéticas
Manufacturing	Wearing apparel	WAP	H002	Pantalones para hombre de mezclilla
Manufacturing	Wearing apparel	WAP	H003	Otros pantalones para hombre
Manufacturing	Wearing apparel	WAP	H004	Pantalones para mujer de fibras sintéticas
Manufacturing	Wearing apparel	WAP	H005	Pantalones para mujer de mezclilla
Manufacturing	Wearing apparel	WAP	H006	Otros pantalones para mujer
Manufacturing	Wearing apparel	WAP	H007	Camisas para hombre
Manufacturing	Wearing apparel	WAP	H008	Playeras para hombre
Manufacturing	Wearing apparel	WAP	H009	Blusas y playeras para mujer
Manufacturing	Wearing apparel	WAP	H010	Trajes
Manufacturing	Wearing apparel	WAP	H011	Sacos para hombre
Manufacturing	Wearing apparel	WAP	H012	Vestidos
Manufacturing	Wearing apparel	WAP	H013	Conjuntos
Manufacturing	Wearing apparel	WAP	H014	Faldas
Manufacturing	Wearing apparel	WAP	H015	Suéteres
Manufacturing	Wearing apparel	WAP	H016	Abrigos
Manufacturing	Wearing apparel	WAP	H017	Chamarras y chaquetas
Manufacturing	Wearing apparel	WAP	H018	Calzoncillos y truzas
Manufacturing	Wearing apparel	WAP	H019	Camisetas
Manufacturing	Wearing apparel	WAP	H020	Calcetines, calcetas y mallas
Manufacturing	Wearing apparel	WAP	H021	Pantaletas
Manufacturing	Wearing apparel	WAP	H022	Brasieres y fajas
Manufacturing	Wearing apparel	WAP	H023	Fondos y corpiños
Manufacturing	Wearing apparel	WAP	H024	Medias, pantimedias y tobimedias
Manufacturing	Wearing apparel	WAP	H025	Pijamas y camisones
Manufacturing	Wearing apparel	WAP	H026	Batas
Manufacturing	Wearing apparel	WAP	H027	Gabardinas
Manufacturing	Wearing apparel	WAP	H028	Impermeables y mangas
Manufacturing	Wearing apparel	WAP	H029	Uniformes y prendas de vestir para actividades educativas, artísticas y deportivas
Manufacturing	Wearing apparel	WAP	H030	Vestimenta para eventos especiales derivados de la educación
Manufacturing	Wearing apparel	WAP	H031	Telas, confecciones y reparaciones
Manufacturing	Wearing apparel	WAP	H032	Otras prendas para hombre (corbatas, etc.)
Manufacturing	Wearing apparel	WAP	H033	Otras prendas para mujer (rebozo, etc.)
				B. Para menores de 3 años
Manufacturing	Wearing apparel	WAP	H034	Pañales de tela
Manufacturing	Wearing apparel	WAP	H035	Calzones de hule
Manufacturing	Wearing apparel	WAP	H036	Pantalones
Manufacturing	Wearing apparel	WAP	H037	Vestidos, trajes y mamelucos
Manufacturing	Wearing apparel	WAP	H038	Blusas y playeras
Manufacturing	Wearing apparel	WAP	H039	Suéteres y chambritas
Manufacturing	Wearing apparel	WAP	H040	Camisetas
Manufacturing	Wearing apparel	WAP	H041	Calzones de tela
Manufacturing	Wearing apparel	WAP	H042	Calcetines y calcetas
Manufacturing	Wearing apparel	WAP	H043	Pijamas y batas
Manufacturing	Wearing apparel	WAP	H044	Telas, confecciones y reparación
Manufacturing	Wearing apparel	WAP	H045	Otras prendas para bebé: baberos, delantales, fajillas, etc.
				C. Calzado y su reparación
Manufacturing	Leather products	LEA	H046	Zapatos de piel para hombre
Manufacturing	Leather products	LEA	H047	Zapatos de piel para mujer
Manufacturing	Leather products	LEA	H048	Zapatos de piel para menores de 3 años
Manufacturing	Wearing apparel	WAP	H049	Zapatos de plástico para hombre
Manufacturing	Wearing apparel	WAP	H050	Zapatos de plástico para mujer
Manufacturing	Wearing apparel	WAP	H051	Zapatos de plástico para menores de 3 años
Manufacturing	Wearing apparel	WAP	H052	Tenis
Manufacturing	Wearing apparel	WAP	H053	Otros tipos de calzado: huaraches, etc.
Services	Recreation and other services	RQS	H054	Servicios de limpieza y reparación de calzado
Manufacturing	Wearing apparel	WAP	H055	Otros: agujetas, cremas, cepillos, etc.
				D. Accesorios y efectos personales
Manufacturing	Leather products	LEA	H056	Sombreros, gorros y cachuchas

Manufacturing	Leather products	LEA	H057	Bolsas
Manufacturing	Leather products	LEA	H058	Portafolios
Manufacturing	Leather products	LEA	H059	Cinturones, carteras, monederos
Manufacturing	Wearing apparel	WAP	H060	Joyería de fantasía
Manufacturing	Wearing apparel	WAP	H061	Relojes de pulso
Manufacturing	Wearing apparel	WAP	H062	Encendedores, cigarreras y polveras
Manufacturing	Wearing apparel	WAP	H063	Otros accesorios: diademas, lentes oscuros, etc.
Manufacturing	Wearing apparel	WAP	H064	Artículos y accesorios para el bebé.
Services	Recreation and other services	ROS	H065	Reparación y/o mantenimiento de los artículos anteriores(especifique)
CRISTALERÍA, BLANCOS Y UTENSILIOS DOMESTICOS				
A. Cristalería, vajillas y utensilios domésticos				
Manufacturing	Chemical rubber plastic prods	CRP	I001	Vajilla completa de cristal, barro, plástico, etc.
Manufacturing	Chemical rubber plastic prods	CRP	I002	Piezas sueltas de vajilla de cristal, barro, plástico, etc.
Manufacturing	Chemical rubber plastic prods	CRP	I003	Recipientes o cajas de plástico para la cocina
Manufacturing	Chemical rubber plastic prods	CRP	I004	Vasos, copas y jarras de cristal, plástico, cerámica, etc.
Manufacturing	Chemical rubber plastic prods	CRP	I005	Cubiertos
Manufacturing	Chemical rubber plastic prods	CRP	I006	Objetos ornamentales
Manufacturing	Chemical rubber plastic prods	CRP	I007	Accesorios de hule y plástico: jabonera, tapetes, etc.
Manufacturing	Chemical rubber plastic prods	CRP	I008	Reloj de pared o mesa
Manufacturing	Metal Products	FMP	I009	Batería de cocina y piezas sueltas
Manufacturing	Metal Products	FMP	I010	Olla express
Manufacturing	Metal Products	FMP	I011	Otros utensilios: tijeras, abrelatas, pinzas para hielo, etc.
Manufacturing	Metal Products	FMP	I012	Herramientas: pinzas, martillo, taladro, etc
Services	Recreation and other services	ROS	I013	Reparación y/o Mantenimiento de los artículos anteriores
B. Blancos, mantelería y artículos de mercería				
Manufacturing	Textiles	TEX	I014	Colchones
Manufacturing	Textiles	TEX	I015	Colchonetas
Manufacturing	Textiles	TEX	I016	Cobertores y cobijas
Manufacturing	Textiles	TEX	I017	Sábanas
Manufacturing	Textiles	TEX	I018	Fuadas
Manufacturing	Textiles	TEX	I019	Colchas
Manufacturing	Textiles	TEX	I020	Manteles y servilletas
Manufacturing	Textiles	TEX	I021	Toallas
Manufacturing	Textiles	TEX	I022	Cortinas
Manufacturing	Textiles	TEX	I023	Telas, confecciones y reparaciones de artículos para el hogar
Manufacturing	Chemical rubber plastic prods	CRP	I024	Hilos, hilazas y estambres
Manufacturing	Chemical rubber plastic prods	CRP	I025	Agujas, cierres, botones y broches
Manufacturing	Manufactures nec	DMF	I026	Otros artículos: hamacas, almohadas, cojines, secadores, etc.
CUIDADOS DE LA SALUD				
A. Atención primaria o ambulatoria (no hospitalaria ni embarazo)				
Services	Pub admin defence health education	OSG	J001	Consultas médicas
Services	Pub admin defence health education	OSG	J002	Consultas dentales
Services	Pub admin defence health education	OSG	J003	Consultas con el oculista, optometrista u oftalmólogo
Services	Pub admin defence health education	OSG	J004	Medicamentos recetados y vacunas
Services	Pub admin defence health education	OSG	J005	Análisis clínicos
Services	Pub admin defence health education	OSG	J006	Rayos X, Ultrasonidos, Tomografías, Electroencefalogramas etc.
Services	Pub admin defence health education	OSG	J007	Hierbas medicinales, amuletos y remedios caseros
Services	Pub admin defence health education	OSG	J008	Servicios no profesionales (curandero, huesero, etc.)
Services	Pub admin defence health education	OSG	J009	Otros: ambulancias, aplicaciones de inyecciones, etc.
B. Atención hospitalaria (no incluye parto)				
Services	Pub admin defence health education	OSG	J010	Honorarios por servicios profesionales
Services	Pub admin defence health education	OSG	J011	Medicamentos recetados
Services	Pub admin defence health education	OSG	J012	Análisis clínicos
Services	Pub admin defence health education	OSG	J013	Estudios Médicos: Rayos X, Ultrasonidos, Tomografías, Electrocardiogramas
Services	Pub admin defence health education	OSG	J014	Hospitalización
Services	Pub admin defence health education	OSG	J015	Otros: ambulancias, etc.
C. Servicios médicos y medicamentos durante el embarazo				
Services	Pub admin defence health education	OSG	J016	Consultas médicas
Services	Pub admin defence health education	OSG	J017	Servicios de partera
Services	Pub admin defence health education	OSG	J018	Medicamentos recetados
Services	Pub admin defence health education	OSG	J019	Análisis clínicos
Services	Pub admin defence health education	OSG	J020	Estudios médicos, rayos X, ultrasonido, etc.
Services	Pub admin defence health education	OSG	J021	Servicios no profesionales (comadrona, bruja, etc.)
Services	Pub admin defence health education	OSG	J022	Hierbas medicinales, remedios caseros y otros
Services	Pub admin defence health education	OSG	J023	Hospitalización durante el embarazo no parto
Services	Pub admin defence health education	OSG	J024	Otros: Aplicación, inyecciones, ambulancias
D. Servicios médicos durante el parto				
Services	Pub admin defence health education	OSG	J025	Honorarios por servicios profesionales
Services	Pub admin defence health education	OSG	J026	Servicios de partera
Services	Pub admin defence health education	OSG	J027	Medicamentos recetados
Services	Pub admin defence health education	OSG	J028	Hospitalización, sanatorios, clínicas, etc.
Services	Pub admin defence health education	OSG	J029	Análisis clínicos
Services	Pub admin defence health education	OSG	J030	Estudios médicos, rayos X, ultrasonido, etc.
Services	Pub admin defence health education	OSG	J031	Servicios no profesionales (comadrona, curandero, etc.)
Services	Pub admin defence health education	OSG	J032	Otros: ambulancias, etc.
E. Medicamentos sin receta				
Manufacturing	Chemical rubber plastic prods	CRP	J033	Material para primeros auxilios (algodón, gasa, jeringas, etc.)
Manufacturing	Chemical rubber plastic prods	CRP	J034	Anticonceptivos
Manufacturing	Chemical rubber plastic prods	CRP	J035	Vitaminas
Manufacturing	Chemical rubber plastic prods	CRP	J036	Analgésicos, Antidiarréicos, Antibióticos,
Manufacturing	Chemical rubber plastic prods	CRP	J037	Jarabes, tónicos y brebajes

Manufacturing	Chemical rubber plastic prods	CRP	J038	Otros medicamentos sin receta
				F. Aparatos ortopédicos y terapéuticos
Manufacturing	Machinery and Equipment	OME	J039	Anteojos y lentes de contacto
Manufacturing	Machinery and Equipment	OME	J040	Placas y puentes dentales
Manufacturing	Machinery and Equipment	OME	J041	Aparatos para sordera
Manufacturing	Machinery and Equipment	OME	J042	Otros aparatos: ortopédicos (muletas, sillas de ruedas, etc.)
Services	Recreation and other services	ROS	J043	Reparación y/o Mantenimiento de los aparatos anteriores(especifique) G. Seguro médico
Services	Insurances	ISR	J044	Cuotas a hospitales o clínicas
Services	Insurances	ISR	J045	Cuotas a compañías aseguradoras
				ENSERES DOMESTICOS Y MANTENIMIENTO DE LA VIVIENDA
				A. Enseres domésticos
Manufacturing	Machinery and Equipment	OME	K001	Ventilador
Manufacturing	Machinery and Equipment	OME	K002	Aparatos telefónicos
Manufacturing	Machinery and Equipment	OME	K003	Aparatos de aire acondicionado
Manufacturing	Machinery and Equipment	OME	K004	Máquina de coser
Manufacturing	Machinery and Equipment	OME	K005	Cocina integral
Manufacturing	Machinery and Equipment	OME	K006	Estufa de gas
Manufacturing	Machinery and Equipment	OME	K007	Estufas de otros combustibles (petróleo, carbón, etc.)
Manufacturing	Machinery and Equipment	OME	K008	Refrigerador
Manufacturing	Machinery and Equipment	OME	K009	Licudadora
Manufacturing	Machinery and Equipment	OME	K010	Batidora
Manufacturing	Machinery and Equipment	OME	K011	Plancha
Manufacturing	Machinery and Equipment	OME	K012	Extractor de jugos
Manufacturing	Machinery and Equipment	OME	K013	Lavadora
Manufacturing	Machinery and Equipment	OME	K014	Aspiradora
Manufacturing	Machinery and Equipment	OME	K015	Calentador de gas
Manufacturing	Machinery and Equipment	OME	K016	Calentador de otros combustibles
Manufacturing	Machinery and Equipment	OME	K017	Lámparas eléctricas
Manufacturing	Machinery and Equipment	OME	K018	Lámparas de otros combustibles
Manufacturing	Machinery and Equipment	OME	K019	Otros aparatos: tostador, calefactor, orno de microondas, etc.
Services	Recreation and other services	ROS	K020	Reparación y/o mantenimiento de los artículos anteriores (especifique)
				B. Muebles
Manufacturing	Wood Products	LUM	K021	Juego de recámara
Manufacturing	Wood Products	LUM	K022	Piezas sueltas de recámara (camas, tocadores, literas, cunas, cómodas, buros, roperos, etc.)
Manufacturing	Wood Products	LUM	K023	Juego de comedor o antecomedor
Manufacturing	Wood Products	LUM	K024	Piezas sueltas para comedor o antecomedor (mesa, silla, etc.)
Manufacturing	Services	LUM	K025	Juego de sala
Manufacturing	Wood Products	LUM	K026	Piezas sueltas para sala (mesa de centro, etc.)
Manufacturing	Wood Products	LUM	K027	Muebles para cocina (gabinete, mesa, etc.)
Manufacturing	Wood Products	LUM	K028	Alfombras y tapetes
Manufacturing	Wood Products	LUM	K029	Otros muebles: librero, escritorio, mesa para t.v., etc.
Manufacturing	Recreation and other services	ROS	K030	Reparación y/o mantenimiento de los artículos anteriores(especifique)
				C. Mantenimiento, reparación y ampliación de la vivienda que habita el hogar.
Services	Dwellings	DWE	K031	Materiales para: reparación, mantenimiento y ampliación
Services	Dwellings	DWE	K032	Servicios de: reparación, mantenimiento y ampliación, etc.
				D. Mantenimiento, reparación, ampliación y construcción de la vivienda que no habita el hogar.
Services	Dwellings	DWE	K033	Materiales para: reparación, mantenimiento, ampliación y construcción
Services	Dwellings	DWE	K034	Servicios para: reparación, mantenimiento, ampliación y construcción
				ARTICULOS DE ESPARCIMIENTO
				A. Artículos y equipo audiovisual
Manufacturing	Electronic equipment	ELE	L001	Radio y radio despertador sin tocacintas
Manufacturing	Electronic equipment	ELE	L002	Estéreo o modular
Manufacturing	Electronic equipment	ELE	L003	Grabadora con o sin despertador excepto con disco compacto
Manufacturing	Electronic equipment	ELE	L004	T. V. blanco y negro
Manufacturing	Electronic equipment	ELE	L005	T. V. color
Manufacturing	Electronic equipment	ELE	L006	Videocassetera
Manufacturing	Electronic equipment	ELE	L007	Computadora
Manufacturing	Electronic equipment	ELE	L008	Antena parabólica
Manufacturing	Electronic equipment	ELE	L009	Accesorios: bocinas, audífonos, antena aérea, etc.
Manufacturing	Electronic equipment	ELE	L010	Videocassetes
Manufacturing	Electronic equipment	ELE	L011	Reproductor de discos compactos para vehículo y auto estéreo
Manufacturing	Electronic equipment	ELE	L012	Reproductor de disco compacto
Manufacturing	Electronic equipment	ELE	L013	Alquiler de t.v. y equipo
Manufacturing	Electronic equipment	ELE	L014	Otros aparatos: regresadora de video, reproductor de cassette personal (walkman), etc.
Services	Recreation and other services	ROS	L015	Reparación y mantenimiento de los artículos anteriores
				B. Equipo fotográfico y de video
Manufacturing	Electronic equipment	ELE	L016	Proyectores
Manufacturing	Electronic equipment	ELE	L017	Cámaras fotográficas y de video
Manufacturing	Electronic equipment	ELE	L018	Material fotográfico, películas, lentes, etc.
Manufacturing	Electronic equipment	ELE	L019	Otros artículos y servicios: tripie, alquiler de equipo: proyectores, etc.
Services	Recreation and other services	ROS	L020	Reparación y mantenimiento de los artículos anteriores
				C. Otros artículos de esparcimiento
Manufacturing	Manufactures nec	OMF	L021	Juguetes
Manufacturing	Manufactures nec	OMF	L022	Juegos electrónicos, videojuegos
Manufacturing	Manufactures nec	OMF	L023	Instrumentos musicales
Manufacturing	Manufactures nec	OMF	L024	Artículos de deporte y cacería
Food	Crops nec	OCR	L025	Artículos de jardinería: plantas, flores, macetas, tierra, abono, etc.
Services	Recreation and other services	ROS	L026	Reparación y mantenimiento de los artículos anteriores (especifique)
Manufacturing	Manufactures nec	OMF	L027	Compra y cuidado de animales domésticos (excluya alimentación)
				TRANSPORTE

			A. Servicios de transporte
Services	Transport nec	OTP M001	Transporte foráneo
Services	Transport nec	OTP M002	Transporte ferroviario
Services	Transport nec	OTP M003	Transporte aéreo
Services	Transport nec	OTP M004	Servicios de carga y mudanza
Services	Transport nec	OTP M005	Cuotas de autopista
Services	Transport nec	OTP M006	Otros: lancha, barco, carreta, alquiler de vehiculos, etc
			B. Adquisición de vehiculos de uso particular
Manufacturing	Motor Vehicles	MVH M007	Automóvil y/o Guayin
Manufacturing	Motor Vehicles	MVH M008	Camioneta (Pick Up)
Manufacturing	Motor Vehicles	MVH M009	Motoneta y motocicleta
Manufacturing	Transport Equipment	OTN M010	Bicicleta
Manufacturing	Transport Equipment	OTN M011	Otros: remolque, lancha, etc.
			C. Refacciones, partes, accesorios y mantenimiento de vehiculos
Manufacturing	Motor Vehicles	MVH M012	Llantas
Manufacturing	Motor Vehicles	MVH M013	Acumulador
Manufacturing	Motor Vehicles	MVH M014	Refacciones: bujías, bandas, filtros, etc.
Manufacturing	Motor Vehicles	MVH M015	Partes de vehiculos: vidrios, salpicadera, etc.
Manufacturing	Motor Vehicles	MVH M016	Accesorios: espejos, manijas, antenas, etc.
Services	Recreation and other services	ROS M017	Servicio de afinación, alineación y balanceo
Services	Recreation and other services	ROS M018	Otros servicios: ajuste de motor, de frenos, hojalatería, pintura, etc.
			OTROS GASTOS
			A. Gastos diversos
Services	Business services	OBS N001	Servicios profesionales: abogados, notarios, arquitectos, etc. (no incluya médicos)
Services	Business services	OBS N002	Funerales, cementerios
Services	Recreation and other services	ROS N003	Paquetes para fiesta (salón, comida, orquesta)
Services	Recreation and other services	ROS N004	Gastos turísticos: paquetes, hospedaje, alimentos, tours, etc.
Services	Recreation and other services	ROS N005	Hospedaje o alojamiento (con o sin alimento)
Services	Pub admin defence health education	OSG N006	Gastos en cargos comunales para festividades locales
Services	Pub admin defence health education	OSG N007	Contribuciones para obras de servicio público local
Services	Insurances	ISR N008	Seguros de automóvil
Services	Insurances	ISR N009	Seguros contra incendio, daños, riesgos, educación y seguro de vida
Services	Business services	OBS N010	Otros gastos diversos no comprendidos en las categorías anteriores (especifique)
			B. Transferencias
Residual	Savings	SAV N011	Indemnizaciones pagadas a terceros
Residual	Savings	SAV N012	Pérdidas y robos en dinero (excluya negocios)
Residual	Savings	SAV N013	Ayuda a parientes y personas no miembros del hogar (en dinero)
Residual	Savings	SAV N014	Contribuciones a instituciones benéficas, iglesias, cruz roja (en dinero), incluye los servicios eclesiásticos
Services	Pub admin defence health education	OSG N015	Servicios del sector público: expedición de pasaportes, actas, títulos, etc.
Services	Pub admin defence health education	OSG N016	Trámites para vehiculos: licencias, tenencias, placas, verificación vehicular, etc
			EROGACIONES FINANCIERAS Y DE CAPITAL
Residual	Savings	SAV Q001	Depósitos en cuentas de ahorros, tandas, cajas de ahorro, etc.
Residual	Savings	SAV Q002	Préstamos a terceros
Residual	Savings	SAV Q003	Pagos a Tarjeta de Crédito Bancaria o Casa Comercial
Residual	Savings	SAV Q004	Pago de deudas a la empresa donde trabajan y/o a otras personas o instituciones (excluya Créditos Hipotecarios)
Residual	Savings	SAV Q005	Compra de monedas nacionales o extranjeras, metales preciosos, alhajas, obras de arte, etc.
Residual	Savings	SAV Q006	Seguro de Vida
Residual	Savings	SAV Q007	Herencias, dotes y legados
Residual	Savings	SAV Q008	Compra de casas, condominios, locales o terrenos que no habite el hogar
Residual	Savings	SAV Q009	Compra de terrenos, casas o condominios que habita el hogar
Residual	Savings	SAV Q010	Pago de hipotecas de bienes inmuebles: casas, terrenos, edificios, etc.
Residual	Savings	SAV Q011	Otras erogaciones no consideradas en las preguntas anteriores, especifique
Residual	Savings	SAV Q012	Compra de maquinaria, equipo, animales destinados a la producción, etc utilizados en negocios propiedad del hogar
Residual	Savings	SAV Q013	Balance negativo en negocios propiedad del hogar no agropecuario y agropecuario
Residual	Savings	SAV Q014	Compra de valores: cédulas, acciones y bonos
Residual	Savings	SAV Q015	Compra de marcas, patentes y derechos de autor
Residual	Savings	SAV T	Other transfers

**CLASSIFICATION
OF INCOME**

GTAP Sector

Household Sector

INGRESOS NETOS DEL HOGAR

A. Ingresos netos por remuneraciones al trabajo

P001	Sueldos, salarios, jornal y horas extras
P002	Comisiones, propinas y destajo
P003	Aguinaldo, gratificaciones, premios y recompensas adicionales
P004	Primas vacacionales y otras prestaciones en efectivo
P005	Reparto de utilidades

B. Ingresos netos de negocios propios

		endowment shares (from i/o tables)		
		Land	Wages	Capital
P006	Negocios industriales		28%	72%
P007	Negocios comerciales		35%	65%
P008	Prestación de servicios		35%	65%

Wages Land and Capital	P009	Producción agrícola	17%	36%	47%
Wages Land and Capital	P010	Producción pecuaria y derivados	17%	36%	47%
Wages Land and Capital	P011	Producción forestal	17%	36%	47%
Wages Land and Capital	P012	Recolección de flora, productos forestales y caza	17%	36%	47%
Wages and Capital	P013	Acuicultura y pesca		28%	72%
Wages Land and Capital	C. Ingresos netos por cooperativas				
Wages Land and Capital	P014	Sueldos o salarios	5%	36%	59%
	P015	Ganancias o utilidades	5%	36%	59%
	D. Ingresos netos por renta de la propiedad				
Capital	P016	Alquiler de tierras y terrenos			
Capital	P017	Alquiler de casa, edificios, locales y otros inmuebles			
Capital	P018	Intereses provenientes de inversiones a plazo fijo			
Capital	P019	Intereses provenientes de cuentas de ahorro			
Capital	P020	Intereses provenientes de préstamos a terceros			
Capital	P021	Intereses provenientes de acciones, bonos y cédulas			
Capital	P022	Alquiler de marcas, patentes y derechos de autor			
	E. Transferencias				
Wages	P023	Jubilaciones y/o pensiones			
Transfers	P024	Indemnizaciones recibidas de seguros contra riesgos y terceros			
Transfers	P025	Indemnizaciones por despido y accidentes de trabajo			
Transfers	P026	Becas y donativos provenientes de instituciones			
Transfers	P027	Regalos y donativos originados dentro del país			
Transfers	P028	Ingresos provenientes de otros países			
Land	P029	Beneficio de PROCAMPO			
	F. Otros Ingresos corrientes				
Negative Savings	P030	Venta de vehículos, aparatos eléctricos de segunda mano, etc.			
Negative Savings	P031	Otros ingresos corrientes no considerados en los anteriores			
	PERCEPCIONES FINANCIERAS Y DE CAPITAL				
Negative Savings	P032	Retiro de inversiones, ahorros, tandas, cajas de ahorros, etc.			
Negative Savings	P033	Ingresos por préstamos a terceros que hizo a otras personas no miembros del hogar			
Negative Savings	P034	Préstamos de personas no miembros del hogar o instituciones (excluya préstamos hipotecarios)			
Negative Savings	P035	Venta de monedas, metales preciosos, joyas y obras de arte			
Negative Savings	P036	Venta de valores, acciones, cédulas y bonos			
Negative Savings	P037	Venta de derechos de autor, patentes y marcas			
Negative Savings	P038	Herencias, dotes, loterías y legados			
Negative Savings	P039	Venta de casas, terrenos, condominios, etc.			
Negative Savings	P040	Venta de maquinaria, equipos, animales destinados a la producción, vehículos, etc. utilizados en el negocio propiedad del hogar			
Negative Savings	P041	Préstamos hipotecarios por bienes inmuebles: casas, terrenos, edificios y locales			
Negative Savings	P042	Seguros de vida			
Negative Savings	P043	Otras percepciones de capital no consideradas en las anteriores			

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