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Transferencias Monetarias Condicionadas en la estructura del ingreso de pueblos mayas de México: Jose Maria Morelos y Saban, Quintana Roo[1],[2]

Conditioned Monetary Transferences in Mexico's Mayan Villages income structure: Jose Maria Morelos and Saban, Quintana Roo

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Resumen

Este artículo señala el papel que las transferencias monetarias condicionadas tienen en la estructura del ingreso en comunidades indígenas mayas de Quintana Roo. En la primera parte se analizan conceptos fundamentales sobre el programa *Oportunidades*, mismo que representa el mayor programa de transferencias monetarias condicionadas en México, y posteriormente se analiza, mediante herramientas cuantitativas, la estructura del ingreso en dos comunidades indígenas del municipio José María Morelos en Quintana Roo, México para 2011. Finalmente se hacen recomendaciones de política pública para mejorar programas de este corte.

Palabras clave: estructura del ingreso, transferencias monetarias condicionadas, Quintana Roo, zona maya

Abstract

This article addresses the role that conditioned monetary transferences play in indigenous Mayan communities of Quintana Roo's income structure. The first section of this paper analyzes some fundamental concepts concerning the program *Oportunidades*, which is the main federal program further analyzed through the use of quantitative tools. The 2011 income structure in two indigenous communities in the municipality of Jose Maria Morelos, Quintana Roo, Mexico. Finally, recommendations are made in order to improve public policy and designed elements in this kind of programs.

Keywords: income structure; conditioned monetary transferences; Quintana Roo, Mayan Regio

Introducción

Income structure studies is an exceptionally wide realm in Mexico which represents the edge studies (Navarro and Ayvar, 2014; Aguilar, 2014). Albeit, there are not enough studies which make reference to income structure in indigenous zones in Mexico, and the role that the Conditioned Monetary Transferences (CMT) resulted from federal programs such as *Oportunidades* play in those geographical areas.

All the programs regarding cash transfers come from public politics directed to sectors immersed in poverty and have the purpose of decreasing vulnerability at underprivileged homes, promoting security in people's incomes. Non-existing salary hinders families to have necessary conditions to face economic and financial crisis that are now present (Gagliani, 1987; Holzmann and

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Map 1. Study zone location

Peninsula de Yucatan

Quintana Roo

Municipio de Jose Maria Morelos
Comunidades Seleccionadas

Source: INEGI (2012), Mapoteca digital.

Steen, 2003a; Gourevitch, 2008). Additionally, monetary transfers programs based on Skoufias and McClafferty (2001) have a positive impact due to the fact that they condition the academic training to carry out the monetary transfers and what is expected to decrease and replace the use of resource transfer through salary. That is why the research question is: how important are CMT for the Mayan houses income structure? And the objective of this paper is to enquire how important CMT are in Mayan houses income structure, and estimate the degree of income inequality in the study villages.

Poverty is a consequence of the existence of precarious jobs and the proliferation of low productivity in economic activities and compensations coming from informal economy (Gagliani, 1987; Fitoussi and Rosanvallon, 1997; Wilbacher, Winkler and Endel, 2012; Clark, 2014), and a result of neoliberal policies which reward, privilege and encourage supply over demand that has disrupted the welfare function of the state becoming in this way a helpful but at the same time criminal element of poverty (Clark, 2014). In this sense, "poverty has a major vortices in zones where the tertiary economic activities are succumbed against underemployment that has low quality, temporal and with no collective rights" (Castel, 2001: 48),

and this is the case of Quintana Roo state.

Quintana Roo productive structure is related to two main activities: Agro-forestry and Tourism (Dachary and Burne, 2014); the latter activity has caught a special interest in the academic field. That is to say that this article establishes a case study concerning the productive structure of two Maya villages in Quintana Roo, Mexico that features the household incomes and according to this information it can be analyzed insofar how the incomes are the jobs' results, selling agricultural products, owning businesses, hiring properties and public transferences and the role of the aforementioned situations have. It is crucial to point out that the surveys (explained and justified further addressed) were carried out in 2012 with Maya speaking students' support and the data references the socioeconomic features in the houses in 2011.

The village of Jose Maria Morelos is also the seat of local government having the same name and history of gum-collector campsites and timber merchants by the mid of the last century. This town is between Chetumal, Quintana Roo, and Merida, Yucatan and is located geographically between three urban poles of development in the Peninsula which are Cancun, Playa del Carmen, and Tulum. Quintana Roo has developed agriculture because of the contracts for habanero chili peppers, watermel-

on and papaya greenhouses. This economic activity is related to provision of food and minor tourism services and basic hospital services as well (Dachary and Arnaiz, 1990). The village of Saban has its historical origins in the Caste War in 1847 (Reed, 1971) and is a village with a high level of indigenous population who work in fields. Because of its political and demographic importance, Saban is a City Hall. Both villages were chosen for having the two highest Mayan indigenous population among the municipality.[6]

Chart 1. Demographic Data and IDH in Quintana Roo and study villages, 2005-2010

	Jose Ma. Morelos	Saban
Population	10,424	2,058
HDI	0.7656	0.6638
Alphabetization (2005)	0.9098	0.9017
Complete elementary education	0.2492	0.2793
Marginalization rate (2010)	-0.78022	0.01213
Marginalization degree	High	High

Source: own elaborated with INEGI data (2005, 2011b) and the Statistics, Math and Computer Science Department of Universidad Autonoma de Chapingo.

Both villages have rural production and a big challenge of growth and regional development; this is explained by Holzman and Steen (2003b) who establish that urbanization brought out two main changes: one is the weakness of traditional and informal mechanisms to get more formal incomes; and two the multiplication of them. This is the reason why conditioned monetary transfers from social programs play an important role especially in indigenous communities and will be further discussed in this paper.

THEORETICAL DISCUSSION OF THE RESEARCH

From the classic theoretical perspective side of the economy, authors such as Ricardo [1817] (1959) and Smith [1776] (1958) state that when the free market is implemented in economic development, it will turn out as being beneficial for all the productive sectors generating better

employment services, more incomes and, as a result, a better social life style as a joint. Other authors like Marx [1867] (1982), Sen (2001) and even Keynes [1936] (2003) state an erroneous classic theory in their proposals because far from getting better life levels, the economic release has increased the gap between developed and underdeveloped countries' life. Creating, in this way, a vicious circle in which countries with low incomes have few opportunities to develop because they do not have the necessary resources, not only for technological innovation or for a better infrastructure to make them competitive, but also the necessary jobs, all the basic services such as health, food and education for their population. Consequently, there is a lack of human capital which goes on indefinitely.

In regards to the information previously mentioned, the relation between income structure and poverty is conditioned by macro social factors based on the state guidelines. These factors need to be related closely to shocking policies, adjustment and stabilization that affect the aggregated demand and benefit the aggregated supply and by micro social factors that are associated typically to strategies that families implement to face the rise of public services' price and food basket, profit loss, salaries and high dependency towards government transfers (Castro and Nevarez, 2014; Zibecchi, 2014; Ostry, Berg and Tsangarides, 2014). In this sense, we can recall what Flores (1961) says about hindrances for poverty release "the total incomes magnitude is inclined to reduce due to the fact that the process of circular and accumulative causation works in a negative way" (p. 89).

The total family's incomes are generally composed by their incomes, capital and public transferences. The incomes' breaking down, based on its origins, is very useful to get to know the inequalities of each product depending on its rubric due to the fact that "in Mexico the major differences in the incomes' distribution are originated in incomes related to salaries and not in the capital product's incomes and properties" (Gollás, 1983: 345). What this means, according to Gollás (1983), is that in terms of wealth redistribution "in Mexico properties must be redistributed and, the national income needs to increase in terms of labor but all together with actions that can decrease disparities in salaries and wages" (p. 345).

What it was previously mentioned gets importance when all the villages are the study object in a rural-in-

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[6] . Quintana Roo's Touristic strategy establishes that the state must be divided in 5 zones: Cancun, which is the most popular beach in Mexico and Latin America; Isla Cozumel; Isla Mujeres; HolBox; Riviera maya which is Playa del Carmen and part of Tulum; Costa Maya which includes from Mahahual to Chetumal; and Zona Maya which includes the central portion of the states where the mayan villages are located and also is the region with less touristic activity, and the major concentration of poverty.

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digenous-peasant area, where there is a lack of capital and technology, and the impossibility to accumulate certain production hinders people's capacity to develop the economy (Vitelli and Borrás, 2013). It means that they only produce family support in certain times that are related to the natural cycles that agriculture experiences.

One of the agriculture's main characteristics is the seasonal variation due to the fact that it determines the unequal labor force along the year. Hence, in a case like this the salary should not be linked to the worker's provisions (Chayanov, 1974). At the moment, the peasants would offer their products on sale on the market, the peasants' economy should transfer their family support's cost along the year based on the agricultural products' prices; nevertheless, this process is not possible when peasants are facing to capitalists' producers on the market who are harvesting having in mind that agricultural workers' cost depend on the season. Boltvinik (2007) believes that this is the way in which peasants should "assume the social cost contemplating their incomes by being employees out of their plots or in different activities which leads to perpetuate poverty" (p. 30). In this sense, grants to the production units are proposed to let them stabilize the labor force through the year and this situation will counteract the agricultural units' value transfer towards the capitalist economy through the seasonal payment in terms of labor (Boltvinik, 2007).

Economical asymmetries between peasants' labor force and their productive units have been experiencing another type of relation on the market and the social modernization; this relationship has also transformed rural Mexico by using paramount changes related to labor force's characteristics and the incomes and employment's sources. Nonetheless, these variations are intertwined in "an economical and dynamic development process that can be able to diminish poverty. Thus, "the rural zones should resort to external help, in public and private transferences, and cover up the basic necessities of a great part of the population" (Banco Mundial, 2005: 69). In this sense, De la Torre (1994: 150) mentions that "This event is possible due to the fact that the most important income among poor people comes from their jobs and government transferences and not from their goods' resources''.

Despite of the existence of CMT, the inequality, and specially poverty levels do not tend to be decreased

(Aguilar, 2010; Pantoja, 2014; López, 2014) and it is necessary to mention that there is a great level of inequalities among federative entities talking about transferred resources to the governments and the direct expenditure from the federal government, the inequality in public resources per capita from the states is not correlated to the poverty levels (Gourevitch, 2008). The poorest federative entities get the same quantity of money as the rest of the states, variations depend on the population size and there is not a policy in response to the wealthy distribution; therefore, at federal level, the inequality in the distribution of the income in the states increase when transfers are not made in relation to the social exclusion, but in the number of habitants (Banco Mundial, 2005).

Henceforth, it is established that a developmental region counts on the level of household incomes favorably, but it depends on poverty and dependence on no wage income level unfavorably. That is why this research is on an economic approach in which the economic aspect is analyzed about the inequality, incomes' distribution and the role that conditioned cash transfers play having in mind that this research studies a small part of the inequality problem in the worldwide development; hence, it does not try to pretend to generalize, but instead offers a starting point to the analysis of the subject population.

OPORTUNIDADES PROGRAM IN MEXICO

Since last century, Latin American has been the scenery of multiple transformations referring to its social policy. The propensity in its policies has been originated by the assistentialism and authors such as Sottoli (2008) have brought out currency interventions in groups from Latin American countries with a high risk in the socioeconomic structure.

For instance in Honduras, there is the federal program *Programa de Asignación Familiar* which was implemented in 2002 and has cash transfer components focused on 3 sectors: educational, maternal, child health and the elderly; the program *Superemonos* (now it is called *Avancemos)*[7] which was implemented in the year 2000 in Costa Rica, it has an approach towards the educational component throughout an award: the program

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[7] For further information in http://www.imas.go.cr/ayuda_social/avancemos. html

BOLSA Escolar[8] that was implemented in 2001 in Brazil and is focused on child education and does not allow school dropouts; in Jamaica the *Program of Advancement Through Health and Education*[9] was implemented in 2002 and it deals with CMT to students, women, disabled people, poor population and elderly; in Mexico the program which operates conditioned cash transfers as a social policy is called *Oportunidades* (Sottoli, 2008; Vitelli and Borrás, 2013; Beccaria and Maurizio, 2014).

These transference programs were thought as a solution to the economic liberation process (Chomsky, 2009) and the crisis of the 1980's decade in a short term; although, they have not resolved the inequality problem about the household incomes reaching the poverty threshold, the programs have been successful in school enrollment, nutrition, improvements in housing and health services. And women are in charge of receiving and managing the resources (Neckerman and Torche, 2007; Mc Call and Percheski, 2010, Díaz and Turner, 2012).

In this way, the evaluation of these transfer programs tends to focus their viewpoint fundamentally in the "inside" of themselves: benefited population, transfer amounts, required concessions where they are enrolled institutionally, among other aspects. The time of implementation of these programs and the particular economic situation, social and policy where they are developed nowadays (in other aspects, of economic growth, reduction of unemployment and poverty, and also the biggest intervention of the state, and the increment of social expenditure) make necessary to move far beyond the existing knowledge (Skoufias and McClafferty, 2001). During the Ernesto Zedillo's Government in 1997, the federal program *Progresa* was created like an incentive to the poverty trouble which was aroused at that time. In 2001, with Vicente Fox in the government, the *Progresa* program's name changed to *Oportunidades*. Some components of the program changed as well. The modifications about components and the operation of rules were made to fulfill, throughout conditioned cash transfers, the needs of families in extreme poverty, through three components; education, health and nutrition (Székely and Rascon, 2005; Sottoli, 2008).[10]

The educational component is focused on increas-

ing the basic and high education enrolment all the way through conditioned transfers to help children and young people to attend school. Among the main effects of this component, according to authors like Sottoli (2008) it is indeed the increasing of school enrolment and a significant drop on child labor. However, other authors such as González de la Rocha and Escobar (2002) pose that there is a major limitation in gender issues and attendance to school, even when the family's incomes that are gotten from the transfers are higher than the young people's salary.

Health and nutrition components work in a similar way. They focus on providing attention and preventive medicine for all the members of each family that are included in the registration of the program. The benefits are received through the *Secretaría de Salud Federal* and the *Instituto Mexicano del Seguro Social*. In the case of the nutrition component there is a cash support to improve the quality of food for the families, as well as food supplements to prevent and eradicate the malnutrition from the Mexican infancy. For these components Levy and Rodríguez (2004) and Székely and Rascón (2005) pose that while there has been an improvement in food and nutrition issues, there has also been an increase in conflict cases and family violence for the manage and transfers' expenses, and for all the components women are the ones who get the cash support.

According to the *Secretaría de Desarrollo Social's (Sedesol)* data from the year 2000 to 2012, the quantity of municipalities in the country that have been benefited with *Oportunidades* has reported an increase (See graph 1) and Quintana Roo has the same situation, where just a municipality lacks of the *Oportunidades* program (graph 2).

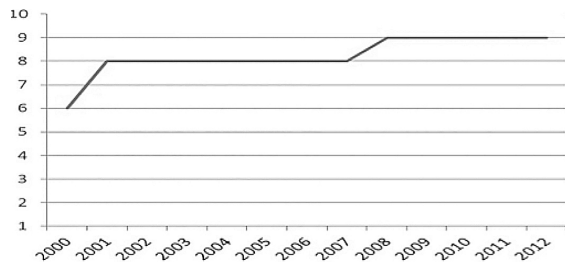**Graph 1: Historical coverage of *Oportunidades* program in municipalities of Mexico (2010-2012)**
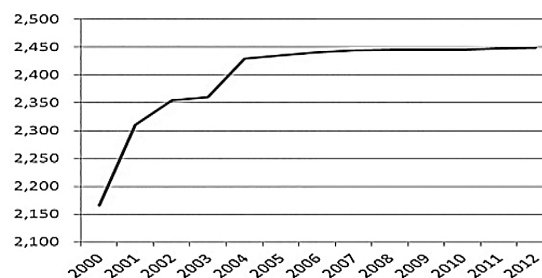
Source: elaborated from Sedesol data (2013).

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[8] For further information see: http://www.mds.gov.br/bolsafamilia

[9] For further information see: http://www.mlss.gov.jm/pub/index.php?artid=23

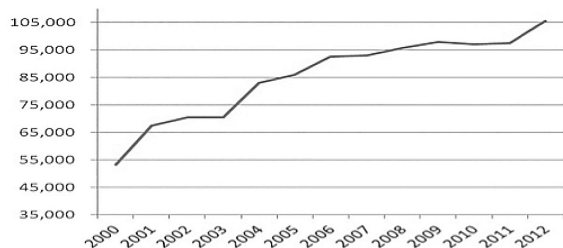[10] In 2014 the program changed its name to *Prospera*.

Graph 2: Historical coverage of *Oportunidades* program in municipalities of Quintana Roo (2010-2012)

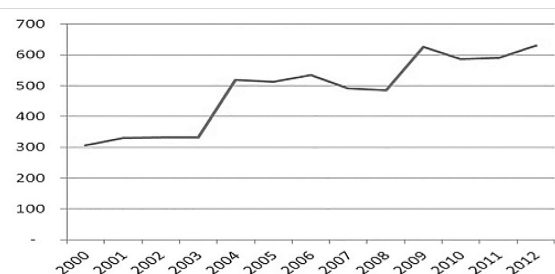Source: elaborated from Sedesol data (2013).

Respecting to the number of benefited communities and families as well as in Mexico (graph 3 and 4) as in Quintana Roo (graph 5 and 6) in the period of 2000–2012 there is a remarkable difference in the coverage. Undoubtedly, this represents a challenge for Mexico, because in a short term, this kind of programs have not taken down the poverty and inequality in the incomes like it was thought to; and in long term, the increase of benefited families and communities would produce a heavier tax burden for government funds.

Graph 3: Historical coverage of *Oportunidades* program in the villages of Mexico (2010-2012)
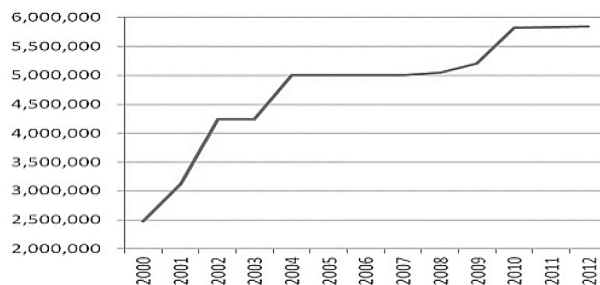

Source: elaborated from Sedesol data (2013).

**Graph 4: Historical coverage of *Oportunidades* program in the villages of Quintana Roo (2010-2012)**

Source: elaborated from Sedesol data (2013).

Graph 5: Historical coverage of *Oportunidades* program in the families of Mexico (2010-2012)

Source: elaborated from Sedesol data (2013).

Graph 6: Historical coverage of *Oportunidades* programs in families of Quintana Roo (2010-2012)
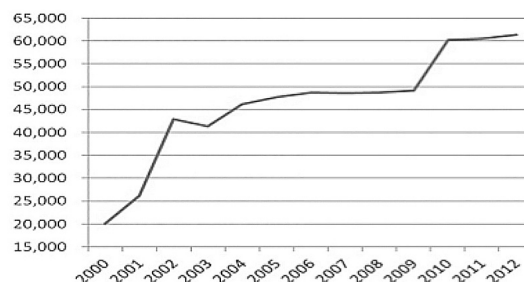
Source: elaborated from Sedesol data (2013).

IMPLEMENTED METHODOLOGY

For the income structure, the total variable income (TI), which was built up, depends on the dimensions of current monetary incomes (MI) and the non-monetary current income (NMI), which is expressed:

$$TI = MI + NMI$$

TI is defined based on the *Instituto Nacional de Estadística Geografía e Informática*, (INEGI, 2005) which makes the National Household Income and Expense Survey (ENIGH) the TI is defined as "payments in cash or in species during the reference period in favor of an employed status in a company, being employed by a boss. It includes incomes in cash or in any kind of an agricultural business or not agricultural. The yields are derived from the cooperative production and as well as the incomes resulting from the possession of physical assets and not physical ones, the received transfers received and other current incomes.

It involves perceptions for retirement savings, the sale of real states, personal property or physical assets or none-physical, the provision of capital invested, transfers and funding received the recovery of loans given to other units that are external to the household. It also takes into account, the estimated value at retail prices of products and services received for other households, nonprofit institution or as part of the wage employment of self-consumption and self-supplying" (INEGI, 2005: 409). Besides, just as with ENIGH, it is the estimation about renting a house that would have to be paid if it were necessary in case that the family did not have an own home.

The survey design which was implemented is based on the questionnaire of *Encuesta Nacional a Hogares Rurales de México* (ENHRUM), due to this survey takes up the same variable of the ENIGH, but its questionnaire is focused on rural communities of Mexico with similar features to the study case. In this way, 25 houses of the communities in study[11] were selected randomly. So, this current study does not pretend to generalize, but it expects to be a reference that could work as starting point for future research.

The survey structure counts the houses' features, in order to identify which are the particularities of each region far beyond what it is reported in census and statistics; and, it argues the productive structure to build up the variables of the Total Income, as it is done by ENIGH, in such way that would be possible the calculating of Gini index at a community level.

Some authors such as De la Torre (1994) and Reygadas (2004) highlight that the income structure is affected by income inequality which is generated in regards to the individuals' abilities to produce and retain wealth and this process has its origins external fact which affect productivity and internal which are related to efficiency. Hence, De la Torre says that in Mexico "the inequality between poor people is lower than with people who get middle and high incomes (...) This effect is possible because the most important income for poor people is the one that comes from their job and government transfers and not from the incomes of their properties" (De la Torre, 1994: 149-150). This relationship among income inequality, CMT dependence and poverty justify the estimation of the income inequality.

So, the inequality was taken as dependent variable for this study, which is defined as "fundamental disparity that allows to a person some material options, but these are refused to others" (Ray, 1998: 162), and the incomes dimension of the target communities were taken for the analysis. The same rate was used to study the inequality that would explain how this variable is distributed between a set of individuals. Within the inequality group rates that exist, the Gini index was measured to estimate the magnitude of inequality in the income of the region, as it has already mentioned by Medina "Throughout the history of economic analysis, (...), there seems to be a consensus, in the fact that the indicator that has been the most accepted in the empiric works is the coefficient denominated of Gini Concentration" (Medina, 2001: 7), It is also added to its "facility calculus and interpretation" (Medina, 2001: 5).

The Gini coefficient may take values between 0 and 1 "where if these values are observed that are closed to 0, it means that there is lower inequality but if values are closed to 1 there is a higher inequality in the incomes distribution" *(Consejo Nacional de Evaluación de la Política de Desarrollo Social* [Coneval], 2012: 26). Setting in a context the observation of the case studied, the community was considered unequal, which Gini Index is over the state and national inequality, in the last data available (0.4750 state and 0.5100 national for 2010)[12] and less unequal when it is below to this national and state indicator. This approach allows to identify a numeric value which its interpretation is far wide of a distribution's observations about a perfect situation of equality. Mathematically is expressed:

$$G = \frac{1}{2n^2 U} \sum_{j=1}^{m} \sum_{k=1}^{m} n_j\, n_k \left| y_j - y_k \right|$$

According to Ray (1998: 177) "In a summary form, the inequality income is G, n is the number of people, y_j and y_k belong to each people's income and the parameter U represents the average per capita income as a whole. In the other hand, the divided total income by the total number of people" and It can be expressed as:

$$U = \frac{1}{n} \sum_{j=1}^{m} n_j y_j$$

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[11] Further information in http://precesam.colmex.mx/images/secundaria/ENHRUM/ENHRUM/Encuenta_Hogares2.htm

[12] Data is taken from: The poverty report and assessment in the state of Quintana Roo, 2012. Published by Coneval and available electronically in: <http://desarrollosocial.guanajuato.gob.mx/coneval/informe-quintana-roo.pdf>

Results

After the questionnaires were applied, they were taken to the process with statics package Stata and Gretl in order to measure the distribution of incomes between the households and the main indicators on the same subjects. It is observed how the product's retributions from the sale of agricultural products have declined, and this means that population who are economically active, have left working in the fields on their own, in other words even if José Maria Morelos and Saban population are working mainly in the farming sectors, they are working just as farmers, leaving aside or alleviating the production on their own. It was thought according to Boltvinik (2007) that it is too risky for Mayan rural environment and also for the Mexican area in general due to the fact that the farmers are becoming the labor force and they stopped being the producers.

Results for Saban, Quintana Roo, 2011

With regard to the incomes' structure of the Saban households 2011, which basically these depend on two headings that explain the 75% of the variable TI. The heading which concerns to the transfers (CMT and private) explains the 37% of the total, which makes the houses being dependents on the government programs which were implemented in the fight against poverty. The total incomes of the sale of agricultural products is hardly a 19%, while the salaries are the main source of income with 38%, which is because of the proletalization process of the agricultural workers, whom have left to be producers for being paid agricultural workers (Boltvinik, 2007); therefore, their incomes do not depend on the quantity of products that may take place in the market, but it depends on the daily-paid price in reward of the agricultural productions. (See graph 7)

Graph 7: Incomes' Structure of Saban, Quintana Roo 2011

Source: own elaboration based on surveys carried out in the field work.
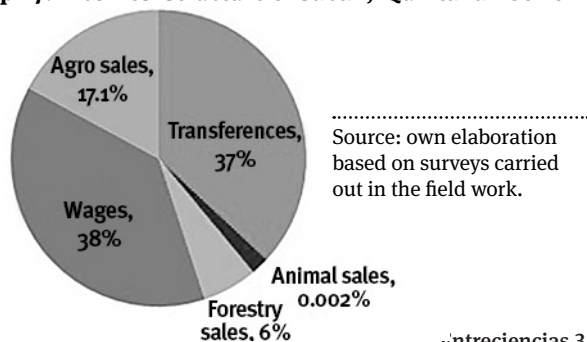
From the surveyed total households in Saban, just two are above the patrimony poverty line,[13] and three the poverty in capabilities and finally 13 households are below the food poverty; in other words, it means that altogether the incomes generated by those households are not enough to meet their feeding needs (see graph 8). Hence, a constant scarcity can be observed in the Saban village, where the prosperous households have the atypical features and not the majority. The community has an average income of de $32'251, 82 pesos each year, where the difference between the richest household and the poorest is 4, 6 times.

Graph 8: Household income regarding to the poverty lines in Saban 2011
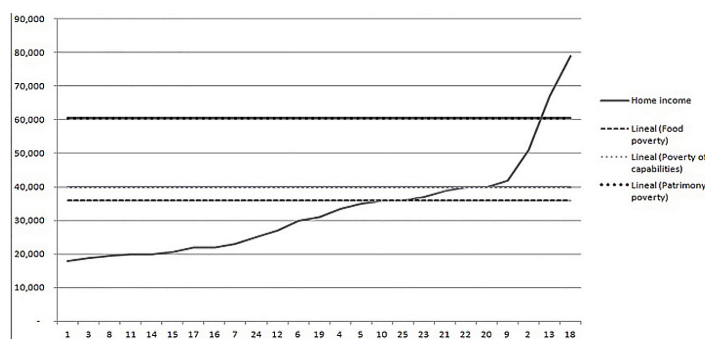
Source: own elaboration based on the surveys carried out in the field work and the poverty lines taken from Coneval.

Also, regarding to the incomes distribution of the households in Saban, the Gini coefficient = 0.2442 which value is lower than the state and national. The Gini coefficient measured for the income variable has a standard error of 0,0363 and a confidence interval from 0,1686 to 0,3198 with a 95% of reliability (Chart 2), which means that there is income equality among the population, but, that does not imply high wages, on the contrary, wages level in Saban are very low.

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[13] The poverty lines are measured based on the incomes, and are defined as: Food poverty: Inability to get basic food basket, even if the total of the available incomes are used to buy juts the basket. Poverty of capabilities: Insufficient income to obtain the basic food basket and to carry out the necessary expenditures in relation to health and education, even all the total incomes will be only regarding to these expenditures. Patrimony poverty: Insufficient of the available income to obtain the food basket, and to accomplish such expenditures like health, clothing, households, transportation and education, even the total income of the house is used to get all these goods and services. For further information, click on http://www.coneval.gob.mx/cmsconeval/rw/pages/medicion/glosario.es.do

Chart 2: Gini's coefficient calculation of the 2011 total household income in Saban, Quintana Roo expresses 95% of reliability

Variable	Gini Muestral	Gini Poblacional	Error Estándar	Límite Interior	Límite Superior
Gini: Ingreso Hogares	0.2442	0.2559	0.0363	0.1686	0.3198

Source: own elaboration taken the variable of total household income based on the survey of the field work in this research and calculations performed in Stata and its complement DASP.

The Lorenz's curve for the households' income variable of Saban in 2011 shows a quite close distribution to the slope of 45° that means an equitable income distribution to every decile of the population (see graph 9). Consequently, in this community although the income is distributed in an equitable way, it is because of a widespread level of the poverty in the village.

Graph 9: Lorenz's curve for the household's income variable in Saban Quintana Roo, 2011
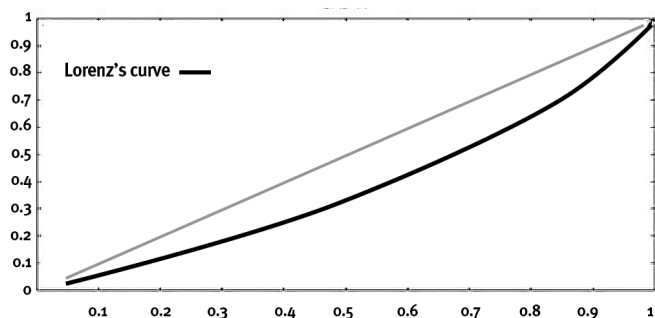

Source: own elaboration taken the variable of total household income based on the survey of the field work in this research and performed Gretl calculations.

Results for Jose Maria Morelos, Quintana Roo, 2011

In the structure of incomes in the Jose Maria Morelos village, the main amount of household incomes is observed due to the salaries; besides of the farming activities that are also remarkable which sales explain the 32%. It is highlighted that the transfers are barely important for the households in Jose Maria Morelos, their amount is below the incomes from properties and lands (see graph 10). Given that, this village has a productive structure less dependent on the cash transfers.

Graph 10: Income structure of Jose Maria Morelos, Quintana Roo 2011
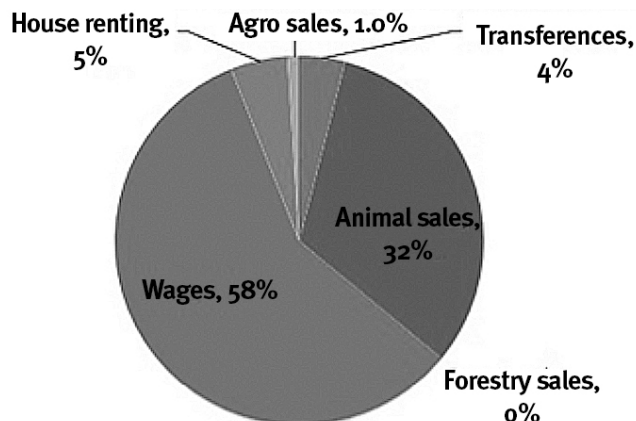
Source: own elaboration based on the carried out surveys in the field work.

Jose Maria Morelos (graph 11) has an income average for each household of $104.397,47 MXP every year; nevertheless, six of the households which were surveyed do not have enough incomes to go over the food poverty line, (almost half of Saban population) and just five households are over the patrimony poverty. Within the sampling, a household was interviewed that belongs to a stockbreeder of the region, whose incomes are the highest observed value ($819.000,00 for year) and making the difference between the richest and poorest household and the richest is 40 times.

Graph 11: Households' incomes regarding to the poverty lines in Jose Maria Morelos, 2011
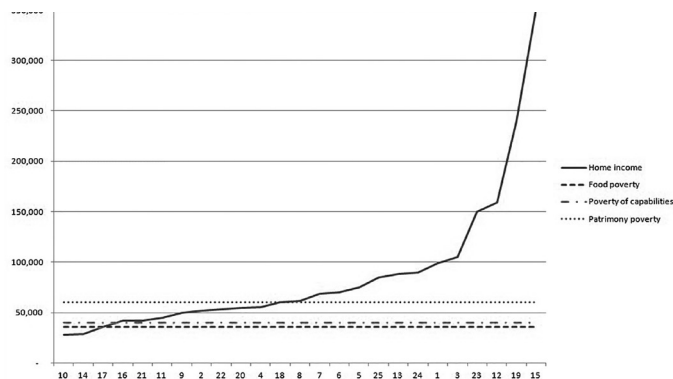
Source: own elaboration based on the carried out surveys in the field work.

Relating to the households' incomes distribution in

Jose Maria Morelos the Gini's coefficient has a value of 0,5231, which is in fact higher than the state and the village of Saban, but nearly the same to the national. The Gini's coefficient measured for the income variable has a standard error of 0, 1104 and a confidence interval from 0, 2935 to 0, 7527 with a 95% of reliability that the Gini's coefficient has a value that could be placed between that interval (see chart 3). The Gini Index calculation for this village shows up the wide inequality in the income distribution which is suspected to cause the magnitudes of the highest and lowest values.

Chart 3: Gini´s coefficient calculation of the Total Income of the year 2011 in the households of Jose Maria Morelos, Quintana Roo shows a 95% of reliability

Variable	Gini Muestral	Gini Poblacional	Error Estándar	Límite Interior	Límite Superior
Gini: Ingreso Hogares	0.5231	0.5480	0.1104	0.2935	0.7527

Source: own elaboration taken from the Total Income variable of households based on the survey from the field work in this research and performed calculation in STATA and its complement DASP.

The Lorenz's curve for the income variable of Jose Maria Morelos' households in 2011, shows a distribution quite distant to the slope of 45°; which means a distribution of the equitable income to each decile of the population, specially to the last two deciles that accumulate almost 60% of the total incomes in the village (see graph 12). Hence, this community is different from Saban, because it has a larger quantity of wealth that is distributed between the households in an unequally way.

Graph 12: Lorenz' curve of the Total Income Variable of the Jose Maria Morelos, Quintana Roo's households in 2011
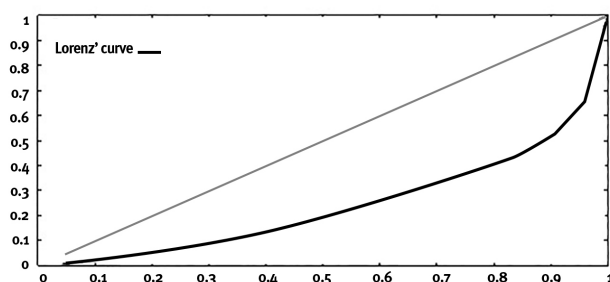
Source: own elaboration based on the total income variable of the households based on the surveys form the field work in this research and the performed Gretl calculation.

FINAL CONSIDERATIONS

In the household incomes', what the authors have called agricultural proletarization or depeasantization structure of the analyzed villages can be observed (Boltvinik, 2007); despite the fact that they have a productive agricultural structure, the household incomes are explained based on salary in the same way that other relevant authors mention such as Banco Mundial (2005), McCall and Percheski (2010) and Ostry, Berg and Tsangarides (2014) among others have assessed the household incomes and in the specific case of Saban. It is viewed as a great dependence in CMT that are not oriented to counteract the seasonality which features the income that come from agricultural workers, not even the land tenure in a smallhoder kind or the technification of the productive units, but the household´s survival options.

 In this sense, Saban, as almost its entire population are peasants, not only is it vulnerable to a little diversified productive structure, but it also depends on CMT that let Saban survive and its state and federal allocations are not connected to administrative reasons regarding to marginalization or poverty and this is stated by Gollás (1983), Chayanov (1974), De la Torre (1994), and Reygadas (2004).

Based on the inequality results in regards to the incomes, the analysis to different aggregation levels in geographic terms has become important because the Gini's coefficient calculations show tremendous differences related to the national, state and even locally magnitude. Therefore, the public policies should be differentiated in relation to the productive and social structure of both villages due to the fact that nowadays national policies and state supports are applied to Saban and Jose Maria Morelos.

Nevertheless, this research clearly demonstrates that even in a municipal level generalizations cannot be made for villages that have specific problems. Meanwhile in Saban, a higher income level needs to be generated, and in Jose Maria Morelos redistributive polices related to the incomes need to be engendered as well. In both villages, a bigger social development is necessary to increase the education levels of the population in general as well as the productive diversification to change the agriculture products that are produced in the region and the population from these villages can accumulate and generate

their own resources.

It is indispensable to call, as Ruvalcaba (2012) points out, the Mexican government to identify the most vulnerable social groups in order to design sensible and effective public policies which allow those groups to overcome their disadvantages. Public policies designers must, based on social issues, locate assistance policies inside the frame of the welfare regimens which they are part of (labor markets, familiar features and dynamics and places of the state performance). These components are the main pillars, and not the assistance policy, for going further, getting stuck or going back in a substantive reduction and sustainable poverty and the inequality fundamentally. In this manner, it is essential to problematize an approach in poverty and the inequality reduction that is focused on occasions of assistance policy that are excessive and exclusive. What is more, the exclusive gaze of the inner programs tend to favor the individual perspectives and to criminalize the poor populations in particular the ones that are benefited to the non-contributory transfers. Despite the improvements in various social indicators, the place where under privileged people develop their lives not only in the Maya zone, but also in our whole continent continues full of enormous situations that tend to strengthen the inequalities in relation to the incomes impeding regional economic development.

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