

DEFINING A MULTIDIMENSIONAL INDEX OF DECENT WORK FOR MÉXICO

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Abstract

According to Mexican Labor Laws and ILO Regulations we build a multidimensional index of decent work using Alkire and Fosters methodology and apply it to panels of the National Survey of Occupation and Unemployment for Mexico (ENOE). This index is multidimensional and takes into account eight dimensions, one monetary and seven non-monetary, which are labor income, hours worked, social security, family care, sufficient work, protection to labor rights, respect to labor rights and job stability. As a result we manage to classify the labor status in four types: decent work, non-decent work, MEL (vulnerable by minimum labor standards) and wage vulnerable.

Resumen

De acuerdo con las leyes mexicanas y las regulaciones de la OIT se construyó un índice multidimensional de trabajo decente usando la metodología de Alkire y Foster aplicada a paneles de la Encuesta de Ocupación y Empleo (ENOE). Es un índice multidimensional que toma en cuenta ocho dimensiones, una monetaria y siete no monetarias, que son ingreso laboral, horas trabajadas, seguridad social, cuidados familiares, trabajo suficiente, protección a los derechos laborales, respeto a los derechos laborales y estabilidad en el empleo. De esta manera se logró clasificar a los trabajos en cuatro tipos: decente, no decente, MEL (vulnerable por Mínimos Estándares Laborales) y vulnerable por salario.

JEL Classification: J20, F33, D63

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1. Introduction

One of the most important challenges that nations face is that of providing good quality employments, where laborer achieves professional development have incentives to be productive and enjoy wellbeing. Achieving this goal involves setting a framework of minimum standards for jobs to be decent. In this research we estimate a multidimensional index of decent work following three main features. The first is the International Labor Organization (ILO) regulations of decent work, second, the Mexican Labor Laws established in the National Constitution and in the Law of Labor; and third, by using the methodology of Alkire and Foster (2011) to construct multidimensional indexes that are consistent across population, and time, among other characteristics.

The present work is unique in the sense that after an exhaustive revision of research on labor regulations we did not find any country with a microeconomic measure of decent work. All literature has so far use national averaged or macroeconomic indicators such as percentage of youth employed to measure decent work (Anker, Chernyshev, Egger, Mehran and Ritter, 2003). The advantage of having a microeconomic indicator is that we can target population in vulnerability, and see their behavior by industry, age, sex, wage type, geographical zone, among other. All this translates in the ability to implement targeted public policies and save financial resources.

The article is divided as follows: in next section we look at the definition of decent work, in sections 3 and 4 we review the international and national labor regulations, respectively. Section 5 analyzes the current labor indicators in the literature. In section 6 we explain the theory behind the multidimensional index. Section 7 describes the data and sections 8 and 9 we specified the monetary and nonmonetary dimensions to be estimated as achievements. Section 10 explains the method used for aggregation and estimate the index. Section 11 presents the results and in section 12 are the conclusions.

2. Decent Work Definitions.

The ILO has as one of its goals to promote opportunities for men and women to have decent work, this means a productive job, with conditions of equality, freedom, security and human dignity (OIT 1999a), where labor rights are protected.¹ In addition, decent work can also be defined as quality jobs where labor rights are enforced and there exist social protection (OIT 1999b). Somavia (2000) defines decent work as productive labor, where human rights are respected, there is insurance protection and there is a possibility to participate in collective decisions. Ermida (2000) considers that the concept of decent work integrated the following aspects: productive and secure labor; labor rights are respected, wages are adequate; there is social protection; and there is social dialog, union freedom, collective negotiation and participation. Anker, Chernyshev, Egger, Mehran and Ritter (2003) establish that there are 6 characteristic of decent work:

1. Job opportunities: every person in legal age to work that decides to work should find a job. This corresponds to all types of job: self-employed, employed and family work (in the regular economy or in the informal sector).²

¹ <http://www.ilo.org/public/spanish/standards/relm/ilc/ilc87/rep-i.htm>

² In Mexico, the National Statistical Office (INEGI) classifies the employed labor force as

2. Freedom; work should not be imposed and workers have the right to affiliate to a labor union.

3. Productive work: related to workers that have the means of subsistence for themselves and their families.

4. Labor equity: refers to the need of workers to have a fair and equitable job, without discrimination at the time of been hired or been employed, and with the capability to conceal family life and work.

5. Labor security: it is related with the need of keep health, pension and means of life that impose limits to be safe.

6. Labor dignity: workers should be treated with respect, they can participate in the decisions of the conditions officered in their current job, defend collectively their interest.

The idea of decent work is valid for all workers, in that sense Bescond, Chataignier y Mehran (2003) establish that:

“.....decent work means different things for different people. For children, it means not to work at all (or at least at some point that it is a barrier to keep studying). For employed adults, it mainly means enough income and not excessive hours. For unemployed people, it means finding a job (quickly) for the elderly, who do not work; it means to receive a pension. For unemployed young people and economically active women it should be considered their relative position with respect to unemployed adults and economically active men, respectively”.

Sen (2000) highlights two important characteristics of ILO definition about decent work. The first is that it has to be universal, in the sense that is for all workers, and the second is the protections of workers' rights according to all the regulations, not only in the labor.³ In the same line Ghai (2005) recognizes that achieving decent work depends on each country culture, traditions, history, socioeconomic structure, level and distributions of resources and development status, among others. Ghai (2003) studies four components of decent work and the interrelation among them: labor rights, employment, social security and social dialog. According to Abramo (2002, 2005 and 2006), decent work implies work without any kind of discrimination.⁴ Another concept of ILO (2010) is job vulnerability which is typified by low income, low productivity and labor conditions that do not accomplish with human rights.

“people with autonomous or independent activities, people with a subordinated paid job or unpaid job (family workers without payment, apprentices, etc.): www.inegi.org.mx/est/contenidos/espanol/.../hogares/sm_enoe.pdf.

In contrast the Mexican Ministry of Labor classifies the employed labor force as according to the relations of the means of production, the commodities property and the services generated through working: a) Paid subordinated employee; b) Employer; c) Independent worker (autonomous); and d) Unpaid worker (without remuneration). http://www.stps.gob.mx/bp/secciones/conoce/areas_atencion/areas_atencion/web/Glosario/glosario.htm

³ Some universal rights are: to work in conditions of freedom and dignity, with gender equality, health insurance, social security, paid holidays, one day off weekly, and labor hours regulated.

⁴ <http://www.ilo.org/global/topics/decent-work/lang-es/index.htm>

3. International Labor Regulations.

The three-party structure of ILO warranties enforcement by governments, employers and employees, so that the international labor laws establish the basic minimum social norms for participants in the global economy.⁵ These norms are divided in several Agreements that are International Treatments legally binding and can be ratified by the Member States (ILO, 2009).

The Administrative Council of ILO has established eight fundamental agreements that are considered as to cover then principles of human rights in labor matters. The eight Conventions are the following:

1. Forced Labor, 1930 (num. 29).
2. Freedom of association and protection of the right to organize, 1948 (num 87)
3. Right to syndication and collective negotiation, 1949 (num. 98)
4. Equal Remuneration, 1951 (num. 100).
5. Abolition of Forced Labor, 1957 (num.105)
6. Discrimination (employment and occupation), 1958 (num. 111)
7. Minimum Age, 1973 (num. 138)
8. Worst forms of child labor, 1999 (num. 182)

Mexico has not ratified two of the eight Conventions: right to syndication and collective negotiation and minimum age agreement.⁶

4. Mexican Labor Laws.

Currently, the Mexican Labor Laws are being reformed (see Cámara de Diputados, 2012), and they the definition of decent work, until 2006 the Mexican Ministry of Labor use the terminology “dignified work” as synonym of decent work and had not incorporated the decent work definition according to ILO(2006). In the case of Mexico, it’s Political Constitution in addition to the (Federal) labor laws, rules and specifically the article 123 of the 1917 Federal Constitution are the principles of the labor relationships.

After the publication of the Federal Labor Law (LFT) in 1931, the following LFT was published in 1970, since then, it has been reformed in 24 occasions and the last reform proposed was made in September of 2012.and currently it is being discussed in the congress. In this sense, the Labor Law and the autonomy of labor unions is still a process that has not being consolidated in Mexico (Blanke, 2007).

The methodology used to compare the international framework of decent work with the national framework is to take as a reference point the Conventions of ILO that have been ratified by the country members. According to ILO (2008), the ratified Conventions by Mexico are shown in table 1. We can see that Mexico have not ratified seven of the eighteen Conventions. From this conventions the ILO propose that the legal indicator to measure decent work

⁵ <http://www.ilo.org/global/about-the-ilo/decent-work-agenda/rights-at-work/lang-es/index.htm>

⁶ Even when this Convention has not been ratified, Mexico has them in its national constitution.

should take into account at least hours of work, protection to maternity and minimum wages.⁷ Therefore the relevant indicators for ILO are the following:

1. Hours of work: maximum hours of work and paid annual vacations;
2. Protection to maternity: maternity leave (including weeks, replacement rates and coverage) and paternity leave;
3. Minimum wage: marks the procedure to establish minimum wage.

Table 1. Ratified Labor Conventions by Mexico

Decent Work Element	Ratified Agreement in ILO	Mexico (yes ,no)
Labor Opportunities		
Government Agreements in favor of full employment	C. 122	No
Unemployment Insurance	C. 102	YES
Labor that should be abolished		
Child Labor	C. 138, C. 182	No, YES
Forced Labor	C. 29, C. 105	YES, YES
Adequate Income and productive labor		
Minimum legal wage	C. 131	YES
Hours of decent work (Segment A)		
Maximum number of labor	C. 1	No
Social security		
Pensions	C. 102	YES
Incapability to work due to sickness	C. 102	YES
Incapability to work due to an accident	C. 102	YES
Equality of opportunities in labor conditions		
Legislation related to no discrimination due to gender	C. 100, C. 111	YES, YES
Legislation related to no discrimination due to race, ethnicity, religion or national origin	C. 100, C. 111	YES, YES
Combination of work and family life		
Maternity leave	C. 183	No
Labor in a secure environment		
Security in labor and health security	C. 155, C. 102	YES, YES
Inspection in labor	C. 81, C. 129	No, no
Participation		
Union freedom and right to syndication	C. 87	YES
Right to collective bargaining	C. 98	No
Third part consultation	C. 144	YES

Source: Authors' own using ILO information.

⁷ http://www.ilo.org/dyn/travail/travmain.Indicators?p_lang=en.

Taking into account the labor regulation there has been some efforts to measure decent work, but the restriction of nonexistent homogeneous multi-country data bases has result in proxy measures that are not the best and sometimes do not reflect the spirit of decent work but only the condition of being employed or not. The following section presents those efforts.

5. Current Measures of Decent Work.

There is a family of indicators proposed in the literature of decent work that include two dimensions at macroeconomic level to perform comparisons among countries, many of these indicator have been revised by Anker, Chernyshev, Egger, Mehran and Ritter (2003) and are summarized by category in table 2.

Table 2. Ratified Labor Conventions by Mexico

Index	S*	Aggregation
Labor Opportunities		
Activity rate	X	Percentage of the economically active population of a country compared to the population in working age.
Employment rate	X	Percentage of the economically active population that is employed compared to the population in working age
Unemployment rate	X	Percentage of the economically active population that is unemployed compared to the population in working age
Juvenile employment rate	X	Percentage of the economically active population that is unemployed compared to the population in working age, both between 15-24 years old.
Under employment rate	X	Percentage of employed population that work less hours within the number of legal hours.
Non agriculture employment	X	Percentage of paid workers that are not in the agricultural sector.
Inadmissible Job		
Children without education according to their employment status (percentages by age 10-14)	X	Number of children between 10 and 14 years old that are not enrolled in education and work.
Child labor rate: employed and self-employed. (percentages by age)	X	Percentage of children working among those of remunerated work and self-employed.
Remuneration and Productive work		
Low remuneration rate (income per hour lower that the median)		Percentage of workers with wage less than the half of the median wage or are lower of a cutoff
Mean income of professionals.	X	Mean income of professionals.

Table 2. Ratified Labor Conventions by Mexico (continued)

Index	S*	Aggregation
Excessive labor hours (more than 48 hours involuntarily worked)	X	Percentage of workers that when counting all their employments, the worked hours add up to more than 48 weekly hours involuntarily of for economic reasons.
Involuntary Underemployment rate	X	Percentage of employed population that work fewer hours than wanted, within the number of legal hours.
Rate of training in the last 12 months	X	Percentage of paid workers that have received professional formation by the employer or thru a public subsidiary.
Stability and Job security		
Less than a year in current job	X	Percentage of workers that have less than a year in their principal job, by ages.
Temporal job	X	Percentage of paid workers that regard their job as temporal.
Conciliation between work and family life		
Women (20-49) employment rate with children, where children age is lower than compulsory school age.		Percentage women workers between 20 and 49 years old with children in less than scholar age, of the total of women of 20 and 49 years old.
Fair treatment in the place of work		
Segregation rate by sex (nonagricultural sector)		Percentage of nonagricultural employment in the occupations that are predominated by men or women, and the gap index.
Percentage of women in directive positions (nonagricultural sector)		Percentage of women in directive charges with respect to the working women in the nonagricultural sector.
Percentage of women with remunerated work (nonagricultural sector)		Percentage of working women in the nonagricultural sector with respect to the totals of workers in the nonagricultural sector.
Ratio between men and women wages		Ratio between men and women wages that is determined by profession.
Job Safeness		
Deadly accidents rate for labor causes (accidents by every 100,000 remunerated workers)	X	Rate of mortal labor accidents for every 100,000 paid workers.

Table 2. Ratified Labor Conventions by Mexico (continued)

Index	S*	Aggregation
Labor inspection (inspectors per every 100,000 remunerated and insured workers)		Inspectors for every 100,000 paid workers and for every 100,000 insurance paid workers.
Percentage of remunerated and insured workers	X	Percentage of paid workers that have an insurance against labor accidents.
Social Protection		
Public spending in social security (% of GDP)		Percentage of the amount pensions received by the elderly with respect to GDP.
Public spending in monetary transfers to people in vulnerable conditions.		Public expenditure in monetary transfers to persons in needs with respect to the GDP.
Beneficiaries of cash transfers (percentage of poor people).		Proportion of beneficiaries of cash transfers with respect to poor people.
Percentage of population that receive a pension (economic inactive, 65 year old or more).	X	Percentage of population that receive a pension (economic inactive, 65 year old or more) due to a past economic activity. ⁸
Population in a pension fund.	X	Percentage of the economic active population that belongs to a pension fund.
Mean annual pension	X	Mean annual pension as a percentage of the median and minimum income.
Labor relations		
Percentage of workers affiliated to a labor union		Percentage of active population or wage earners that belong to a union.
Percentage of workers covered by collective work negotiation.		Percentage of active population or wage earners that are covered by a wage collective negotiation.
Strikes (by every 1,000 remunerated worker)		Strikes and owners shut downs (for every 1000 paid workers).
Socioeconomic environment of decent work		
Product per worker		Measure or purchasing parity power.
Product growth by worker		Increase in the production per employed population (manufacture industry totals)
Inflation		Inflation (consumer prices)
Composition of employment by economic sector		Composition of employment by economic sector (agriculture, industry, and services)

⁸ This indicator uses the economically inactive population (PEI) because it is a vulnerability condition not having a pension after age 65 when the person is inactive.

Table 2. Ratified Labor Conventions by Mexico (continued)

Index	S*	Aggregation
Income inequality		Relationship between income of the top decile and bottom decile.
Poverty		Percentage of population that lives with less than 1 or 2 dollars per day.
Labor in the informal sector		Percentage of informal nonagricultural employment or urban employment.
Production Increase by worker		Percentage of informal employment nonagricultural sector.

*S is proposed to be measure by women and men.

Source: Authors own using Anker, Chernyshev, Egger, Mehran and Ritter, 2003.

In table 2 we observe that the measures are aggregate measures than can shed light in countries characteristics of work, but it cannot tell individual workers if the type of employment they have is categorized as decent work or not. In the case of Mexico there have been several studies to measure precarious work, but not using the full concept of decent work, and either they still measure at the macro level for one year like Mora (2012) or measures to specific jobs categories like Guadarrama *et. al.* (2011) who measures precarious jobs in dress-making, call centers and professional musician, or autoparts in Martin (2006). Therein lies the need to have a measure than can identified the quality of work for each worker and at the same time can be aggregate to describe the country state of work.

6. Proposal of a Multidimensional Index of Decent Work.

In the literature of multidimensional indexes there is one that has gain strong support for its properties, the index of Alkire and Foster (2011). This index has served as base for some governments and academic institutions to develop multidimensional indexes of poverty, all the different implementations can be found at Oxford Poverty & Human Development Initiative. The index we proposed is composed by several dimensions, and each dimension represents an achievement or could be lack of a good, a service or a property in the set characteristics we are interested in analyzing, for instance having a contract that protects workers' rights will be an achievement. The index applied to labor would be as follows. Assume there is a set of n workers, whose work should be classified taking into account $d \geq 2$ dimensions. Then there is a vector $W = [w_{ij}]$ of size $n \times d$, where w_{ij} is an achievement of worker i in dimension j , where $i = 1, 2, \dots, n$ and $j = 1, 2, \dots, d$. We denote $W_{i\bullet}$ a row vector of workers' achievements and $W_{\bullet j}$ the column or distribution of dimensions of the j achievements.

As we see in the decent work literature there are several dimensions or achievements that would define if a worker has a job classified as decent work, therefore there are at least two dimensions to be considered $d \geq 2$ is fixed, and n is an integer, so that W is a non-negative vector that can be written as $W = \{w \in \mathbb{R}_+^{nd} : n \geq 1\}$.

In addition, according to the labor conventions there should be certain cutoffs that describe whether a dimension has been achieved or not. For instance, if the wage earned by the worker is lower than the minimum wage then a minimum wage dimension has not been achieved by the worker. Therefore, we defined $\varpi_{\bullet,j}$ as the cutoff that discriminates between whether the worker has the achievement of not in that dimension of whether is vulnerable or not in dimension j . And Ω is a vector of dimension specific cutoffs. In order to aggregate and measure the dimensions we need some specific statistic measures that Alkire and Foster (2011) develop. The vector or matrix ν is defined so that the sum of the elements of ν is $|\nu|$, the mean of ν is $\mu(\nu)$, equivalent to divide $|\nu|$ by the total of elements in vector ν , this implies that if we are measuring an individual and eight achievements, we can find a measure of how many achievements are not reached.⁹ Then we need to add the dimensions to check whether the worker has a decent work, this is done by using the identification function that Alkire and Foster (2011) implement from Bourguignon and Chakravarty (2003).

The identification function $\rho : \mathfrak{R}_+^d \times \mathfrak{R}_{++}^d \rightarrow \{0, 1\}$ that maps the vector $W_{i\bullet}$ of achievements of worker i and the vector of dimensions cutoffs $\Omega \in \mathfrak{R}_{++}^d$ so that the workers job can be categorized as:

$$\begin{aligned}\rho(w_{i\bullet}, \Omega) &= 1 \quad \text{if worker } i \text{ has non decent work and} \\ \rho(w_{i\bullet}, \Omega) &= 0 \quad \text{if worker } i \text{ has a decent work}\end{aligned}$$

When we apply ρ to each vector of workers achievements we obtain the set $\Omega \in \{1, \dots, n\}$ of persons that have non decent work according to $W = [w_{ij}]$ given Ω . Therefore, to aggregate all workers we take the given ρ and associate the matrix $W = [w_{ij}]$ to Ω into a general measure of non-decent work denoted $\mu(Y, \Omega)$.

Taking into account the conventions in the case of Mexico, we identified whether the workers have a decent work according to eight achievements: 1) hours worked, 2) social security, 3) combining work and family life, 4) sufficient work (not voluntary unemployment), 5) protection to labor rights, 6) respect to labor rights, 7) job stability and 8) minimum wage. When the persons work does not accomplish with an achievement or many of them, we should have a measure to quantify to what extent or how many achievements make a job be “non-decent work”. There are basically three criteria: union, intersection and something in between.

Let ρ be the number of non-achievements, a person with non-decent work in a “union” approach would be the one with at least one dimension non achieved, in notation it would be that $\rho(w_{i\bullet}, \Omega) = 1$ if and only if $p \geq 1$. In this approach the more dimensions considered, the more likely all the population would have a non-decent work, and it will be very difficult to distinguish among the worst type of non-decent work and the ones with only one dimension non achieved. Therefore, the “union” approach overestimates the number of workers with non-decent work.

⁹ We can define the vector g of deprivations as in Alkire & Foster (2011) but this vector takes relevance only when we define the measures of gaps and deep, which are beyond the scope of this paper that focus on the initial count measure.

On the “intersection” approach job is classified as “non-decent work” if all the dimensions are not achieved, this means $\rho(w_{i\bullet}, \Omega) = 1$ if and only if $p = d$ the handicap of this approach is that there will be few workers whose job dimensions are no achieved simultaneously.

The alternative is to set an intermediate approach where $1 < p < d$. If we set $k = 1, \dots, d$, let be such that it identifies the persons job as “non-decent work” if the number of job desirable dimensions are no achieved. This means:

$$\begin{aligned} \rho_k(w_{i\bullet}, \Omega) &= 1 \text{ if } p_i \geq k \\ \rho_k(w_{i\bullet}, \Omega) &= 0 \text{ if } p_i < k \end{aligned}$$

Alkire and Foster (2011) called this method the method of dual cut off, the internal cutoff is $\Omega \in \mathfrak{R}_{++}^d$ and the external cutoff is $k = 1, \dots, d$. For example, and internal cutoff $\varpi_{\bullet 2}$ could be the number of worked hours permitted by labor laws, and another cutoff $\varpi_{\bullet 1}$ could be the minimum wage; whereas the external cutoff would be whether we would consider the work is non-decent if one of two dimensions are no achieved , or both are non-achieved ($k = 1$ or $k = 2$). The method have several advantages, but one of the most important is that it works not only for ordinal data but also for cardinal data, so that achievements could be of both types.

Similar methods of identifying deprivation or achievement are used, for instance in Alkire & Santos (2011), who measure Multidimensional Poverty Index (MPI) for 104 developing countries, using three broad dimensions: health, education and living standards.

The current debate is not where to set the cutoff but whether when aggregating the number of internal cutoff we should give the same weight or different weights to each cutoff. According to Thorbecke (2008), if there is not enough information about the weighting, the best is to weight equally. In CONEVAL (2009), the multidimensional index can be weighted equally if the dimensions are rights stated in the Law, so that every human right weights the same, and none is better than the other. In the case of decent work the eight dimensions are rights, so we can weight them equally.

7. Micro Data for the Multidimensional Index Applied to Mexico.

In order to quantify the decent work in Mexico we use the National Survey of Occupation and Employment (ENOE¹⁰) that has available the following dimensions for each quarter since January 2005:

1. Labor Income.
2. Hours worked.
3. Social Security.
4. Labor and family benefits.
5. Involuntary under employment.
6. Labor rights protection.
7. Respect to labor rights.
8. Job stability.

¹⁰ Encuesta Nacional de Ocupación y Empleo. It is conducted quarterly by the National Statistic Office in Mexico (INEGI).

Every dimension is composed by several indicators, and the cutoff for each dimension was set according to the labor Laws that rule in Mexico. To calculate specific dimensions like job stability, we need to know whether the person remained working in the same job for at least one year, so we used the whole set of ENOE panels. In what follows we explained the methodology.

ENOE has 120,260 observations every quarter. Each quarter the sample is rotated so that each person interviewed remain in the sample for 5 quarters. The survey is divided in 5 data files: housing, households, socio demographics, occupation and employment. The survey interviews people from 12 years old and more, although, the INEGI publishes information for population of 14 year old and more as by Law that is permitted labor age. The reference period for the socio demographic characteristics is from the moment of the interview and the previous week for the economic characteristics.

The survey has three different questionnaires of occupation and employment, and the socio demographic. Therefore for working with the variables we homogenized the variables names taking as base the more recent questionnaires which are the first quarter of 2011.

In table 3, we show the different versions of the questionnaires, the main difference is the number of questions between the extended and basic questionnaires, for example, some labor benefits, in the main job are only asked in the extended questionnaires. In addition, there are some questions that appear in different quarters, for instance, if the worker has popular insurance (seguro popular), or if she/he belong to a labor union. These differences in questionnaires restrict whether a variable can be use of not during the whole panel.

Table 3. Classification of ENOE Questionnaires

Version	Expanded Questionnaires Occupation and employment by quarter (T)	Basic Questionnaire Occupation and employment by quarter (T)	Socio-demographic Questionnaires By quarter (T)
Version 1	T-105 T-205 T-305 T-405 T-106 T-206	T-306 T-406 T-107	T-105 A T-408
Version 2	T-207 T-208	T-307 T-407 T-108 T-308 T-408	T-109 and on
Version 3	T-109 T-110 T-111	T-209 T-309 T-409 T-210 T-310 T-410 T-211	

Source: Authors' calculation using ENOE.

We build the panels with the information of the workers that enter in the first quarter (T-1 year) of each year and is out of the sample in the first quarter of the next year (T-1 year +1). From 2005 a 2011 we construct 6 panels, (see table 4).

Table 4. Panels of ENOE from the first quarter of 2005 to the first quarter of 2011

Panel	Quarters				
Panel 2005	T-105	T-205	T-305	T-405	T-106
Panel 2006	T-106	T-206	T-306	T-406	T-107
Panel 2007	T-107	T-207	T-307	T-407	T-108
Panel 2008	T-108	T-208	T-308	T-408	T-109
Panel 2009	T-109	T-209	T-309	T-409	T-110
Panel 2010	T-110	T-210	T-310	T-410	T-111

Source: Authors' calculation using ENOE.

We use the definitions to construct variables according to the official methodology of INEGI, for the population employed, not employed, inactive but disposable and inactive non disposable, under employed, for the age groups: (12-13), (14-16), (17-18), (19-24), (25-29) and; (65 and more).

To make comparable the monetary indicators the labor income is deflated taking as base year the first quarter of 2005. The Price index of commodities is used (INPC) using the methodology of CONEVAL when calculating the labor poverty tendency index (ITLP)¹¹. After the deflating each panel we add the ITLP.

The indicators of the dimensions to calculate multidimensional decent work are estimated for the employed population taking as reference their main work, as the secondary work is not surveyed completely in the questionnaires, this means we typified the work of the person in their main job, for this classification we used eight achievements, one monetary and seven non-monetary.

8. Monetary Indicators: Labor Income.

To estimate the achievement of having a wage that complies with labor regulations, which in Mexico implies that minimum wage is the base and no less than that. We use two alternative cutoffs for this achievement: 1) minimum wage as base, and 2) labor poverty line.

8.1 Minimum Wage Cut off

Using the cutoff of minimum wage $\varpi_{\bullet,1}$ we would say that the person did not achieve to have a wage according to the Mexican Law if his/her wage is lower than this cut off. $\varpi_{\bullet,1}$ is defined for each geographical zone and is based in is based in Bhorat, Kanbur and Mayet (2010). To count how many workers have a wage below the minimum wage, we perform the following calculations.

- a. We revise the payment per hour using the minimum wage salary per geographical zone of ENOE, and we convert it to its equivalent of daily legal wage.¹²

¹¹ INPC used by CONEVAL can be found in <http://www.coneval.gob.mx> and the link of "ITLP".

¹² With this procedure we reassure that the hourly wage paid to the worker is the legal rate, and we compare it with ENOE (ing_{x_hrs}). Here we distinguish between those workers that did not report wage are coded as missing values. Notwithstanding, even when the worker do not report monthly wage, INEGI imputes a wage equal to zero and that bias the indicator of workers mean wage, so we should change that zero value to missing value.

$$\text{wag_lega_hrs} = \text{wage} / ((48/7) * 30)$$

b. We calculate the wage paid per hour, according to monthly income reported and the working hours per week (hrs_tp)

$$\text{paid_income} = \text{income} / ((\text{hrs_tp}/7) * 30)$$

c. Then, with this paid_income we calculated the monthly payment that the worker would receive if he had a decent job, w , that is, if we consider the 48 hours worked per week.¹³

$$w = \text{paid_income} * (48/7) * 30$$

d. The construction for the achievement a wage according to the labor law, or dimension of violation to minimum wage $\varpi_{\bullet 1}$ is calculated as follows, where V_MW stands for Violation to Minimum Wage-

$$V_MW = \begin{cases} 1 & \text{if } w < \varpi_{\bullet 1} \\ 0 & \text{if } w \geq \varpi_{\bullet 1} \end{cases}$$

8.2 Index of Labour Poverty Tendency Cut off

A second monetary index can be calculated using the Index of Labor Poverty Tendency Line (ITLP), estimated officially by CONEVAL (2010). ITLP is quarterly indicator that shows the proportion of people that with their labor income cannot buy the food basket with their labor income. ITLP uses ENOE data to sum up all labor income earned monthly in each household, and divides the total among household members, and then compare this income with the food basket price.

We define the achievement in this dimension as zero if the per capita labor income is above the food basket cutoff, basically is the complement of ITLP, so we denote it as $ITLPC$ where $TLP^C = 1$ if the person is poor due to their labor income.

9. Indicators for Labor Vulnerability due to Labor Laws violations.

Labor Laws are very specific about each labor characteristics regulations by age, industry, sector, working hours every day as seen in previous sections. For instance, Mexican Laws indicate that labor of minors, of person below the working age (14 year old) should be abolished. Notwithstanding we can find many cases where this age regulation is violated and we will typified the vulnerability this age group. Therefore, the population studied cover ages 12 to 65 years old.

9.1 Hours Worked.

According to Article 123, Chapter A of the Mexican Constitution, all workers should have a maximum labor day of eight hours, and seven hours if

¹³ We consider only the limit of legal working hours in a normal day, because when trying to include the 3 extra hours that by law are permitted at a higher wage we find that ENOE do not capture that differential in wage for the extra hour.

$$V_SS = \begin{cases} 1 & \text{if } \varpi_3 \text{ is not achieved because do not have credit to buy a house} \\ 1 & \text{if } \varpi_3 \text{ is not achieved because do not have a pension Fund} \\ & \text{(SAR /AFORE)} \\ 1 & \text{if } \varpi_3 \text{ is not achieved because do not have health services} \\ 0 & \text{if } \varpi_3 \text{ is achieved} \end{cases}$$

A second analysis of variance with principal components, help us to see that these three variables are the ones that explain most of the variance of this dimension. Therefore, the indicator of not achieving social security gives a 64.86% of persons without the achievement. When we cross this indicator with minimum wage achievement or ITLP achievement, the results were very similar.

9.3 Combination of Work with Family Life.

In Articles 164, 165 and 166 of the Federal Labor Law (FLL) underline that women and men have the same obligations and rights. They stipulate the fundamental protection to maternity. We propose an index that takes into account men and women who have the benefit of child care.¹⁷ The indicator for this dimension considers that there is a Violation in Family Life non Conciliated (V_FL) when the benefits of child care and maternity leave are not provided by the employer. So that $\varpi_{\bullet 4}$ is not achieved.

$$V_FL = \begin{cases} 1 & \text{if } \varpi_4 \text{ is not achieved because child care is not provided} \\ 1 & \text{if } \varpi_4 \text{ is not achieved because does not have maternity leave} \\ 0 & \text{if } \varpi_4 \text{ is achieved} \end{cases}$$

9.4 Sufficient Work.

This indicator measures the person that is under-employed. By ENOE's definition, the workers that having a job are looking for a second job, or declare to look for more hours to work. Therefore, a violation to the achievement $\varpi_{\bullet 5}$ of sufficient work will be defined as:

$$V_SW = \begin{cases} 1 & \text{if } \varpi_{\bullet 5} \text{ is not achieved as the person is under - employed} \\ 0 & \text{if } \varpi_{\bullet 3} \text{ if achieved} \end{cases}$$

9.5 Rights Protection.

The Article 123, Section A, Fraction XXII of the Mexican Constitution indicates that when an employer fires an employee without a justified reason or because the employee enrolled in a labor union, or participated in a strike will be obligated to accomplish with the terms of work, whether there is an indemnization established or the equivalent to 3 months of work. We consider that any indemnizations is better accomplished if the worker has a signed contract, therefore, we account for the contract declared in ENOE. The dimension of rights protection is violated if the achievement $\varpi_{\bullet 6}$ of having a contract is not achieved.

¹⁷ We do not restrict the persons by their childrens age, as we think that one of the barriers to have children is not to have this labor benefit.

$$V_C = \begin{cases} 1 & \text{if } \varpi_6 \text{ is not achieved as does not have a contract} \\ 0 & \text{if } \varpi_6 \text{ is achieved} \end{cases}$$

9.6 Respect to Labor Rights

The Mexican Constitution highlights the Article 123, section A, Fraction IX that establishes that workers should have the right to utilities participation, while Fraction XII, and establishes that employees should provide labor capacitation. It is a right to receive yearly bonus (Aguinaldo) and paid holydays.

In the case of the 14 to 16 year olds have the right to work in a safety place that do not affect in a negative way their health and integrity. According to LFT, Articles 173, 174 and 175 indicate that their work should be supervised; and they should have a medical certificate that these teenagers are adequate for the job. It is forbidden to employ minor of 16 years old in insecure places.

The law also specifies that the 18 year olds or less should not work in night Jobs. The indicator to measure the non-achievement of respect to labor rights $\varpi_{\bullet 7}$ or violation to labor rights (V_R) is the following.

$$V_R = \begin{cases} 1 & \text{if } \varpi_7 \text{ is not achieved as the sector is alcohol related, bad} \\ & \text{manners, non supervised, unhealthy, night job in non} \\ & \text{industrial sector and age } \in [12 - 16) \\ 1 & \text{if } \varpi_7 \text{ is not achieved as it is a night job in the industrial} \\ & \text{sector and age } \in [12 - 18] \\ 1 & \text{if } \varpi_7 \text{ is not achieved as not have yearly compensation} \\ & \text{(aguinaldo)} \\ 1 & \text{if } \varpi_7 \text{ is not achieved as does not have paid vacations} \\ 1 & \text{if } \varpi_7 \text{ is not achieved as does not have utility share and is} \\ & \text{in the private sector} \\ 1 & \text{if } \varpi_7 \text{ is not achieved as work on Sunday and age} \\ & \text{ } \in [12, 16] \\ 0 & \text{if } \varpi_7 \text{ is achieved} \end{cases}$$

9.7 Labor stability

This indicator measures the percentage of people that have in their job less than a year, or if the worker has more than a year but has a temporal contract which do not allows for accumulating years of benefits. The violation to the dimension of labor stability (V_ST) $\varpi_{\bullet 8}$ is calculated as follows.

$$V_ST = \begin{cases} 1 & \text{if } \varpi_{\bullet 8} \text{ is not achieved because the worker has less than} \\ & \text{1 year in the job} \\ 1 & \text{if } \varpi_{\bullet 8} \text{ is not achieved because the worker has more than} \\ & \text{year in the job but has a temporal contract} \\ 0 & \text{if } \varpi_{\bullet 8} \text{ is achieved because has at least year and the} \\ & \text{job is permanent} \end{cases}$$

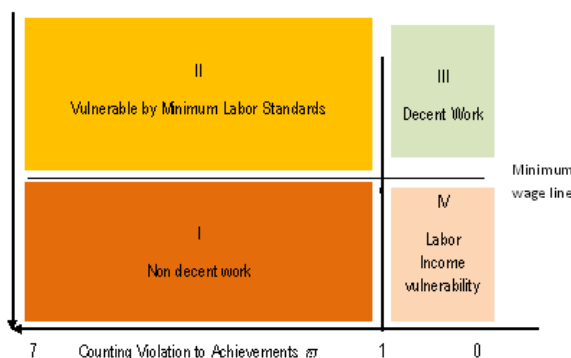
10. Proposition to Aggregate the Dimensions.

One of the debates in the literature of multidimensional indexes is what weight should take each dimension to aggregate, most papers in the literature use the standard aggregation Foster-Greer-Thorbecke (1984) and this index keeps the properties of comparability through time. It is also necessary to aggregate in such a way that the interdependence between the single dimensions can be analyzed and that they are consistent with the threshold that separates vulnerable from non-vulnerable.

In the revision of the Federal Labor Law and the ILO regulations, all dimensions are equally important as they are workers rights; this means they weight the same in an aggregate index. One multidimensional index that aggregated the dimensions giving equal weights because they represent equal rights is the aggregation method of the multidimensional poverty in Mexico, proposed by CONEVAL (2009). This method of aggregation has been probed an effective tool when we consider human rights, like in our case. The index aggregates under this principle becomes an effective measure of achieving rights.¹⁸

To start the aggregation for each individual i we count the number of dimensions with value of 1, according to the 7 nonmonetary indicators: 1) hours worked, 2) social security, 3) work and family life, 4) sufficient work, 5) protection to labor rights, 6) respect to labor rights, and 7) job stability. Those workers with at least one violation the achievements ϖ_i where $i = 2, \dots, 8$, plus the violation to minimum wage ϖ are classified as **worker with non-decent work**. In figure 1 these workers are represented in quadrant I. We observe in figure 1 in the horizontal axis the violations to achievements that increase from right to left. We count the violations to ϖ_i where $i = 2, \dots, 8$, and in the vertical axis we see whether minimum wage achievement ϖ_1 is violated or not.

Figure 1. Decent Work Quadrants



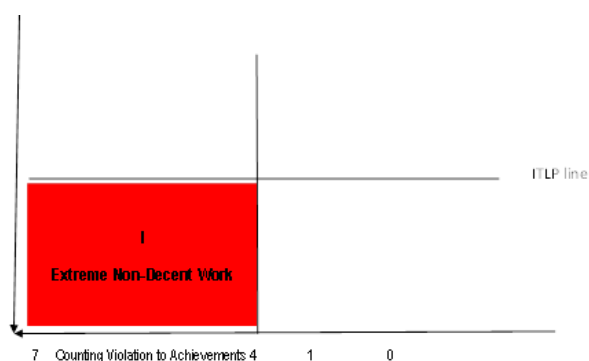
Source: authors own (2012).

¹⁸ Other type of weights takes into account the quality of the right, in this case the ENOE Survey does not provide the quality of the right, for instance the quality of the nursery service provided to the children of the workers, or the quality of the social security.

In the quadrant II are the workers classified as workers whose **Minimum Labors Standards** are violated (MEL¹⁹). These are the workers that have at least one violation of a non-monetary achievement ϖ_i where $i = 2, \dots, 8$. The workers who do not suffer from any violation to ϖ_i , where $i = 1, \dots, 8$, are classified as having a decent work, and are depicted in quadrant III. Finally, in quadrant IV are those workers whose income is below the minimum wage, this means that have ϖ_1 violated and are reported as **labor income vulnerable**.

In addition, we take into account the classification of extreme non-decent work, which classifies the worker in this category if he suffers from at least four violations to non-monetary achievements and the wage is below the ITLP. Figure 2 shows the quadrant for this extreme case.²⁰

Figure 2. Extreme Non-Decent Work Quadrant



Source: authors own (2012).

11. Results.

Using ENOE, as discussed in section 7, the results of classifying the vulnerability of Mexican workers are presented in general and also by age, sex, and vulnerability.

11.1 Quadrants and Dimensions Resulting from 2005 and 2011.

The period of study as specified in section 7, goes from the first quarter of 2005 to the first quarter of 2011, and covers six panels of workers that are followed for five quarters each.²¹ We found that only about 5% of the Mexican labor force has had decent work in this period, and about 25% to 28% has a non-decent work. Vulnerability in labor standards is the highest with around 68 of the workers being MEL, this group shows a decreasing tendency but non-decent work shows an increasing pattern from 2005 to 2011. The percentage of vulnerable by labor wage decreased from 5.3 to 4%, even when it seems like a substitution effect to pass from this group to Non-Decent work. After the crisis of 2008 non-decent work increased 1.6 percentage points and the decreased

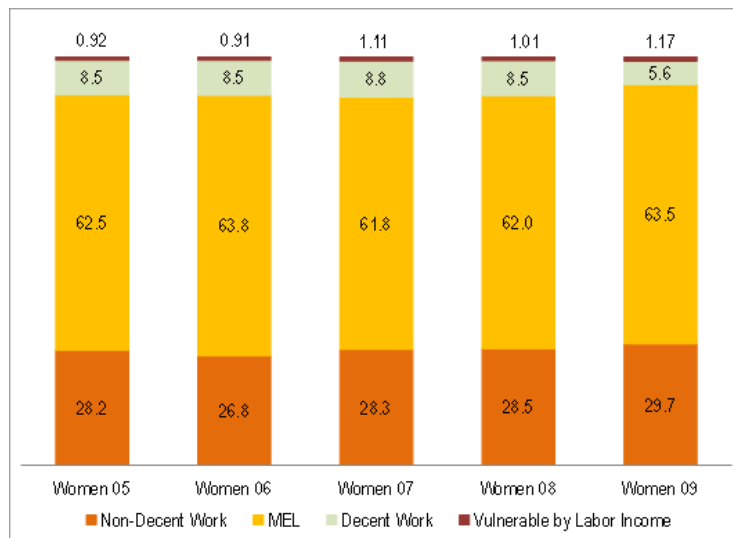
¹⁹ In Spanish this is vulnerable by “Mínimos Estándares Laborales” (MEL).

²⁰ ITLP as defined in previous sections is the index of Labor Tendency of Poverty.

²¹ Every panel starts on January of one year and end up on March of the following year.

0.2 percentage points, but has not recuperated to its lower percentage in 2006. This show that macroeconomic environment has had an impact in labor quality.

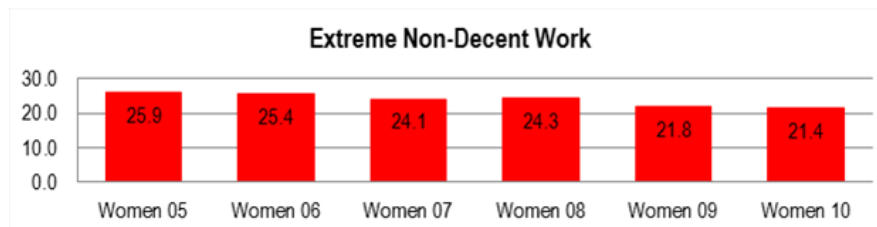
Graph 1. Quadrants of Decent Work for population from 12 to 65 years old.



Source: Authors' own calculation using ENOE, for space purposes we graph the second quarters of each panel.

In the case of extreme decent work, it has decreased over time, this help us to understand that labor violation to non-monetary achievements has not increased beyond 4 and that wages paid had not decreased to the extreme of not been able to buy the basket of wellbeing “bienestar” defined by CONEVAL.

Graph 2. Quadrant of Extreme Non Decent Work for population 12 to 65 years old.



Source: Authors' own calculation

Both graphs show that there is high vulnerability in the labor market in Mexico, and that we can take, for instance the aggregate measure to say that Mexico has currently almost 30% of its workers with a non-decent work. Of course this definition of labor quality is a standard proposed by ILO and signed in its agreements not only by Mexico but by the majority of countries with conventions with ILO. Whether reaching better job standards for the Mexican population can be achieved depend on how difficult and how expensive is for employers and the Mexican State to improve labor quality, and here is where the multidimensional measure help us to target where to start first.

For instance, if we want to see whether remunerated employees are the most violated in labor standards we can look at the number of violations per worker status. Table 5 shows that 50% of remunerated employees suffer between 3 and 4 labor violations in comparison with more than 90% for the same number of dimensions in the rest of the categories.

Table 5. Number of Violation to Achievements in Dimension for Panel 2005

Number of Violations to Achievements	Total	Remunerated Employee	Employer	Self-Employed	Non remunerated
0	5.6%	9.2%	0.0%	0.0%	0.0%
1	15.4%	25.1%	0.0%	0.0%	0.0%
2	8.5%	13.8%	0.5%	0.0%	0.6%
3	29.4%	12.0%	66.4%	58.2%	46.1%
4	33.2%	28.7%	31.4%	39.2%	50.7%
5	7.5%	10.6%	1.7%	2.6%	2.6%
6	0.4%	0.7%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%

Source: authors own (2012).

Table 6 shows that from the workers that suffer minimum wage violations 30% are employees and 40% self-employed, similar for social security violation, this is mainly suffered by employees 43% and self-employed 36%. In general, employees are the ones who present higher percentages in each violation and the self-employed the second most vulnerable group. In the case of protection to labor rights and job stability, we can see that this two dimensions accrued only to employees as self-employed worked and employers do not have this violation at any time as they do not need a contract with themselves and the time they have been in the job they own has been “forever”. Some important questions that arise are whether this pattern is replicated for all types of industries or sectors, or whether non-decent job is mostly seen in a particular level of education, or does it applied to all ages and both sexes. For space motives we will only present the answers to these questions but the tables and graphs are available from author on request.

Table 6. Violation to Achievements by Worker Status for Panel 2005

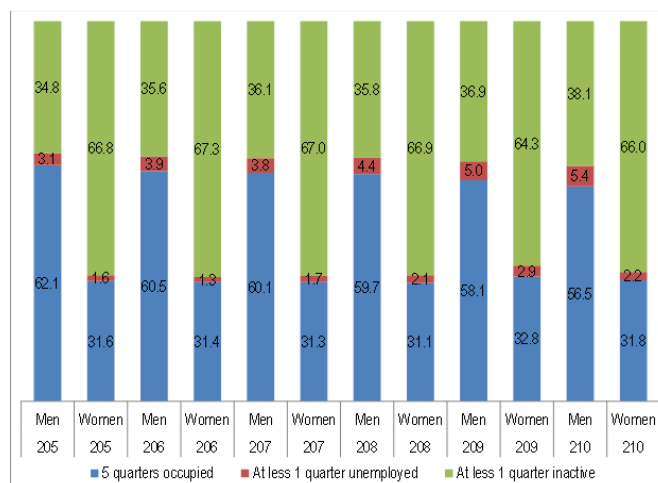
Workers		Total	Remunerated Employee	Employer	Self-Employed	Non remunerated
Monetary Achievements						
Violation to Minimum Wage	Non Violation	100%	73.1%	5.2%	21.7%	0.0%
	Violation	100%	30.2%	4.9%	40.0%	24.9%
Violation due to ITLP	Non Violation	100%	69.0%	5.5%	21.3%	4.2%
	Violation	100%	45.6%	4.3%	38.1%	12.0%
Non Monetary Achievements						
Hours Worked	Non Violation	100%	67.4%	4.8%	23.3%	4.5%
	Violation	100%	41.8%	5.9%	37.9%	14.4%
Social Security	Non Violation	100%	100.0%	0.0%	0.0%	0.0%
	Violation	100%	47.3%	6.9%	36.5%	9.2%
Work and Family life	Non Violation	100%	100.0%	0.0%	0.0%	0.0%
	Violation	100%	58.3%	5.5%	28.9%	7.3%
Sufficient Work	Non Violation	100%	62.6%	5.1%	25.6%	6.8%
	Violation	100%	47.6%	5.3%	40.6%	6.4%
Protection to Labor Rights	Non Violation	100%	100.0%	0.0%	0.0%	0.0%
	Violation	100%	100.0%	0.0%	0.0%	0.0%
Respect to rights	Non Violation	100%	99.8%	0.1%	0.0%	0.1%
	Violation	100%	38.3%	8.1%	42.8%	10.8%
Job Stability	Non Violation	100%	100.0%	0.0%	0.0%	0.0%
	Violation	100%	100.0%	0.0%	0.0%	0.0%

Source: authors own (2012).

Is this pattern replicated for all types of industries or sectors? We found that professions related to agriculture and personal services are the one that make more than 50% of the workers with non-decent work. Whether non-decent job is mostly seen in a particular level of education, we found that in 2011 27% of the population with non-decent work had middle or higher education, and that this percentage used to be 17% in 2005, therefore, having higher education may allowed to be in the job market but not necessarily with a decent job.

When we analyzed men and women separately we observed that women are more wage vulnerable than men, but men suffer more violation to their non-monetary achievements than women. This finding is in line with the finding of Chávez-Ortega-Sánchez (2011) where using the multidimensional poverty index of CONEVAL, they found that women are in higher proportion income poor than men, but men suffer more non-monetary deprivation in the dimensions, than women. One important difference between men and women is job stability, when we see the numbers of job stability for the total of non-decent work, it seems every quarter is stable from 2005 to 2011, but when we look at the differences in sex, around 66% of women with not decent work were at least on quarter unemployed during the year she was followed in the panel, against around 35% of men.

Graph 3. Non Decent Work for population 12 to 65 years old by sex and job duration.



The different ways this methodology helps us to answer questions about job vulnerability and to look for answers by analyzing the dimension by demographic and economic characteristics opens a big study area.

12. Conclusions.

This article finds a solution to the need of having a measure that quantifies decent work at the micro level, using panel data of labor surveys and a multidimensional methodology that allows us to aggregate the dimensions of labor vulnerability. These dimensions when aggregated constitute the measure of decent work according to ILO and that Mexico has agreed to accomplish. The aggregation methodology used in this article is based on Alkire and Foster (2011), and assumes that the eight dimensions of labor rights have the same weight: 1) hours worked, 2) social security, 3) work and family life, 4) sufficient work, 5) protection to labor rights, 6) respect to labor rights, 7) job stability and 8) wage. A person's work is categorized as non-decent if his/her wage does not reach at least the minimum wage and at least one of the labor rights is violated, once each worker has been classified, we aggregate the number of workers according to their decent work achievement in four quadrants: decent work, non-decent work, minimum standard violation (MEL) and vulnerable by income labor. To our knowledge this is the first multidimensional decent work index that exists. The results show that around 29% of the workers of Mexico have a non-decent work, and that around 60% are MEL (at least suffer from one violation to labor rights stated by Law). This means that labor conditions in Mexico need to improve. Whether decent work is or not a desirable standard that all countries should achieve, it was established by the International Labor Organization as a measure of labor wellbeing, and as such, it shows if a country's labor regulations bind with it. Whether the decent work definition is too high to be achieved and makes inflexible labor, is not the topic of this study, but it is to

show that if Mexico wants to accomplish this labor standard it is far from it. We conclude this because from the eight dimensions we measure, we found that even when social security provision is one the most violated dimension, providing it do not disappear the non-decent work as there still other dimensions that are a precondition to have social security, like having labor rights protection through a contract.

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