

Family wage, gender and unpaid domestic work in Mexico

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Abstract

The male family wage (hereafter "family wage") has been widely discussed as an institution that organizes the division of labor based on sex. This research evaluates the current impact of the family wage on gaps between the sexes in unpaid domestic work in Mexican wage-earning households. According to time-usage data, an indicator is created to measure inequality between the sexes in the distribution of unpaid domestic work, and an econometric analysis is carried out. Thus, approximately one-third of Mexican households still follow the family wage pattern. The results also indicate that the family wage is still a relevant determinant of inequality between the sexes in unpaid work.

Keywords: unpaid domestic work; inequality between the sexes; family wage; PROBIT models.

1. INTRODUCTION

Critical Marxist-feminist and feminist literature has extensively discussed the family wage as an institution that organizes the division of labor by sex and, consequently, as one of the determinants of the gaps between the sexes¹ in unpaid domestic work (Carrasco, 2011; Federici, 2010; Hartmann, 1979; Molyneux, 1979). The main characteristic of this institution would be the breakdown of the working class based on gender criteria: men would focus on salaried labor –producing value and surplus value— and women would engage in unpaid domestic work –(re)producer of the labor force needed by capital (Duque, 2022b). Thus, working-class households would be organized around the duality of men as wage earners and providers on the one hand, and women as unpaid caregivers on the other. This arrangement would also be supported by a whole series of additional institutions, such as social security systems (and the Welfare State itself), trade unions, labor legislation, the Catholic Church, etc. (Pérez, 2019).

Given the precariousness and flexibility of labor, characteristic of the neoliberal stage of contemporary capitalism (Astarita, 2016; Mariña, 2001), as well as the increasing participation of women in paid employment, it has been argued that the importance of the family wage has weakened (Herrero, 2013; Humphries, 2009; Pérez, 2019). In fact, in the case of Mexico, women's participation in paid work, which was only 13% in 1950, 16% in 1970 and 25% in 1981 (Christenson *et al.*, 1989) had reached 40% in 2004 and was estimated at 47% for 2023 (World Bank, 2024).

In this context, this paper aims to empirically assess the current impact of the family wage on gaps between the sexes in unpaid domestic work in wage-earning households in Mexico. To this end, a two-stage analysis was proposed: first, based on data from the 2014 National Time Use Survey (ENUT in Spanish) in Mexico (INEGI 2016),² an indicator was created to measure sex-based inequality in the distribution of unpaid domestic work (TDNR, in Spanish) at the

household level. Subsequently, an econometric analysis was carried out to assess the impact of the family wage on the previously created indicator (in the presence of several control variables).

The article is organized as follows: after the introduction, the second section presents a review of Marxist-feminist literature on gaps between the sexes in the TDNR and the family wage. The third section estimates the indicator of inequality between the sexes in the TDNR (hereinafter referred to as the "inequality indicator" for simplicity) and reports some descriptive statistical results. Subsequently, the fourth section presents the econometric strategy (which uses two complementary models: linear regression with OLS and probit logistic regression) and discusses the empirical results. Finally, the fifth section presents the conclusions.

2. UNPAID DOMESTIC WORK (TDNR IN SPANISH), SEX-BASED DIVISION OF LABOR AND THE FAMILY WAGE

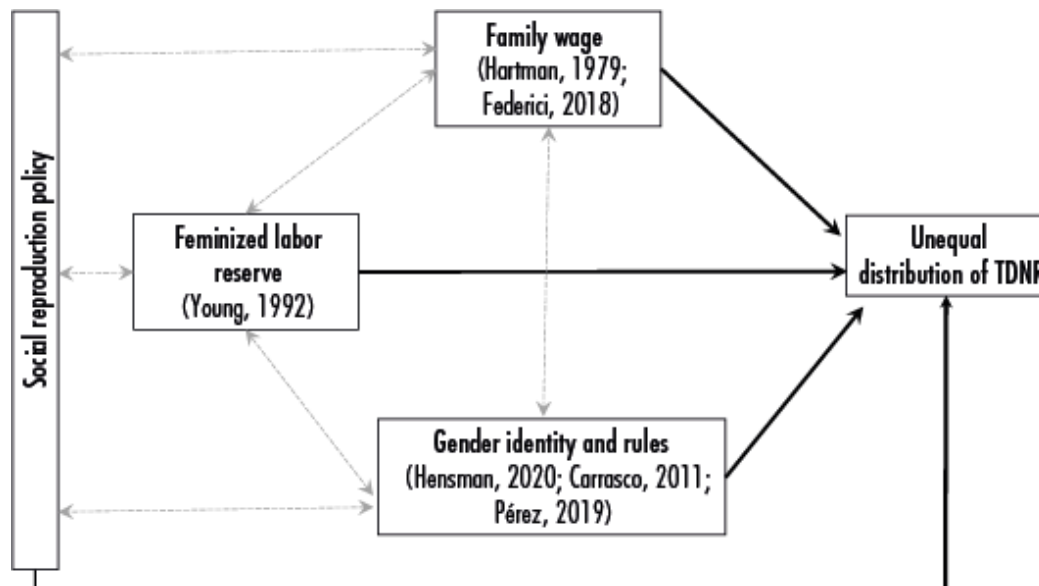
The TDNR covers work applied to the production in households of goods and services (use values) for the members of the household themselves without any type of payment: care services for children, the elderly, the sick or disabled, food preparation, domestic cleaning and laundry services, DIY and home repairs, among other activities. The relevance of TDNR has been recognized by a growing body of economic literature and from different theoretical perspectives. Some of the stylized facts identified include the significant magnitude of TDNR time (both at the aggregate and average levels), its important economic weighting (when it is assigned a monetary value), its unequal distribution between men and women and its close links to a whole series of economic and social aspects such as labor participation, wage inequalities, unemployment and time poverty, among others (Amarante and Rossel, 2018; Folbre *et al.*, 2020; García and Pacheco, 2015; Miranda, 2011; Moos, 2021).

Since the late 1960s, Marxist-feminist literature has extensively discussed the nature of TDNR,³ its unequal distribution by sex, and its relationship to capital valorization/accumulation (Duque, 2022b; Hensman, 2020; Jefferson and King, 2001; Vogel, 2000). Based on these discussions, it can be argued that the magnitude (number of hours of TDNR performed by the household) and the distribution of TDNR (allocation of the TDNR burden among different household members) are, analytically, two different problems and that they therefore have different determinants. Thus, for Quick (2020), determining the allocation of work between unpaid domestic production, capitalist production and small-scale commercial production is a different problem from the allocation of work by sex or age within each of these types of production. Meanwhile, for Duque (2021 and 2022a), the magnitude of TDNR (weekly hours of TDNR performed per household) is determined by the existing gap between social reproduction requirements and salary goods, i.e., by the deficit in basic goods. The distribution of TDNR between members of each household is based on several criteria, one of the main ones being sex.

Marxist-feminist literature (predominantly theoretical) has discussed several factors that influence greater or lesser inequality in the distribution of TDNR between men and women. Thus, according to Hartmann (1979), the family wage—associated with the sex-based role of the male worker as the sole breadwinner of the household—is the main determinant of the unequal distribution of TDNR, a position also shared by Federici *et al.* (2018). Meanwhile, Young (1992) insists that the sex-based division of labor—and the feminization of TDNR—would be associated, in turn, with the need of capitalism to find a criterion for dividing the workforce. Consequently, this author links the feminization of TDNR to a feminized labor reserve (industrial reserve army). Meanwhile, according to Hensman (2020), Carrasco (2011), and Pérez (2019), the unequal distribution of TDNR can be explained mainly by gender identities constructed through different socialization processes for boys and girls, in which different gender roles and relationships are constructed.

As can be seen in Figure 1, the three main explanations (in Marxist-feminist and critical feminist literature) for the unequal distribution of TDNR are summarized, also adding the important role of social reproduction policy (SRP).⁴ SRP has a direct impact on the distribution of TDNR (through the provision of care services to households) and an indirect impact through labor legislation, reproductive rights, social security systems, public education, pensions, etc., all of which ultimately affect family wages, the feminization of the labor reserve and gender identities and norms.

Figure 1. Fundamental determinants of the unequal distribution of TDNR in Marxist-feminist literature



Source: prepared by the author.

It is important to note that, despite theoretical debates about the nature of the unequal distribution of TDNR (whether it is the product of a dual system of capitalism/patriarchy, or a unified system of exploitation/oppression, like in the theory of social reproduction), at a more concrete level of discussion, the three explanations are largely complementary and co-dependent. They are complementary because, empirically, all three can simultaneously influence the unequal distribution of TDNR. Similarly, in conceptual terms, none of the three excludes the other two. Thus, the existence of the family wage (as a patriarchal institution that organizes the sexual division of labor) is compatible with a feminized labor reserve, as well as with a marked gender identity where the masculine is associated with paid work and the feminine with unpaid work. Hence, in Figure 1, alongside the strong "causal" lines (in black), internal relationships between the co-determinants (dotted lines in gray) are also shown.

Finally, most of the empirical literature that has studied gender inequality in TDNR (usually from theoretical perspectives different to Marxist-feminist) places its unit of analysis at the individual level. I.e., the average time spent by men and women (from different households) on TDNR is estimated and compared in order to calculate gaps between the sexes and explore some of their determinants (Addati *et al.*, 2018; Amarante and Rossel, 2018; García, 2017; Santoyo *et al.*, 2014). Although this procedure has made it possible to highlight the enormous and persistent gaps between the sexes in the distribution of TDNR—while at the same time producing easily interpretable results—it has a significant limitation: it combines and confuses the determinants of magnitude on the one hand with those of the distribution of TDNR on the other. Thus, sociodemographic characteristics of individuals (age, sex, educational level, occupational status, etc.) and household characteristics (number of adults, children, income, etc.) are mixed as "determinants" of TDNR time at the

individual level, without clearly establishing which variables determine the extent of TDNR at the household level and which influence its unequal distribution among individuals. This is problematic because, from our perspective, households that require the same amount of TDNR for their social reproduction (e.g., x hours per week) may divide that amount between the men and women in the household in different ways.

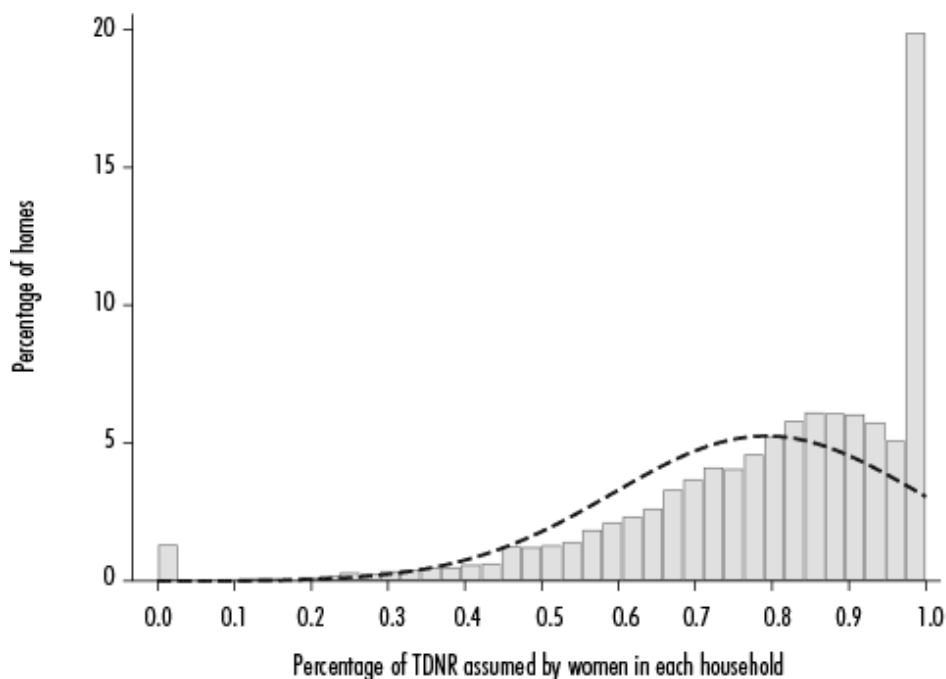
3. TDNR GENDER INEQUALITY INDICATOR

Next, we will examine the unequal distribution of TDNR using households as the unit of analysis, i.e., the basic unit of social reproduction of the workforce. To this end, the rest of this section will focus on constructing an indicator to measure this inequality.

The first step in constructing the inequality indicator is to estimate women's participation in TDNR in each working household. I.e., in each household, the percentage of TDNR performed by women in that household is estimated.⁵ To this end, data from the 2014 Mexican time use survey (INEGI, 2016) is used. Likewise, only "pure" working households are analyzed, i.e., those with at least one wage-earning worker and no employer or self-employed worker. As a result, the final sample size corresponds to 7,471 "pure" working households, which, in population terms, would be equivalent to 47.8% of Mexican households in 2014.

First, it is striking that of the 7,471 Mexican working households in the sample, 8% did not include women. For the remaining 91.9% of households (with at least one woman), Figure 2 shows their distribution according to the percentage of TDNR performed by women (the dotted line corresponds to the normal approximation of this distribution). We can see that women assume 50% or less of the TDNR burden in only 8.3% of Mexican working households. In all other working households, women assumed more than half of this burden. In fact, the median distribution was 83.7%. This means that in half of working households, women took on more than 83.7% of the TDNR burden. This is clearly seen in the negative skew of the distribution (see Figure 2).

Figure 2. Distribution of Mexican working households according to the percentage of TDNR performed by women, 2014



*Notes: working households with at least one woman.
Source: prepared by the author based on the ENUT Mexico 2014 (INEGI, 2016).*

Two other statistics related to distribution complement the above picture: the 25th percentile is 69.4%, while the 75th percentile is 94.6%. The first figure implies that in 75% of Mexican working households, women performed more than 70% of the TDNR, while the latter figure indicates that in a quarter of working households, women performed almost all of the TDNR. In fact, as shown in the last column of Figure 2, in about 20% of households, women performed 100% of the TDNR. On this basis, we can conclude that there is a marked sex-based division of TDNR, with women doing most of it in the majority of working households. However, and this is important, the degree of concentration of TDNR among women is not consistent; it changes across the different working households.

This heterogeneity is due not only to differences in the degree of inequality between the sexes, but also to the diversity in the sex-based composition of households. i.e., not all working households have the same number or percentage of women (it was previously noted that 8% of Mexican working households had no women). Table 1 shows that 33.9% of working households had only one woman, while 32.6% had two women and 25.4% had three or more women.⁶

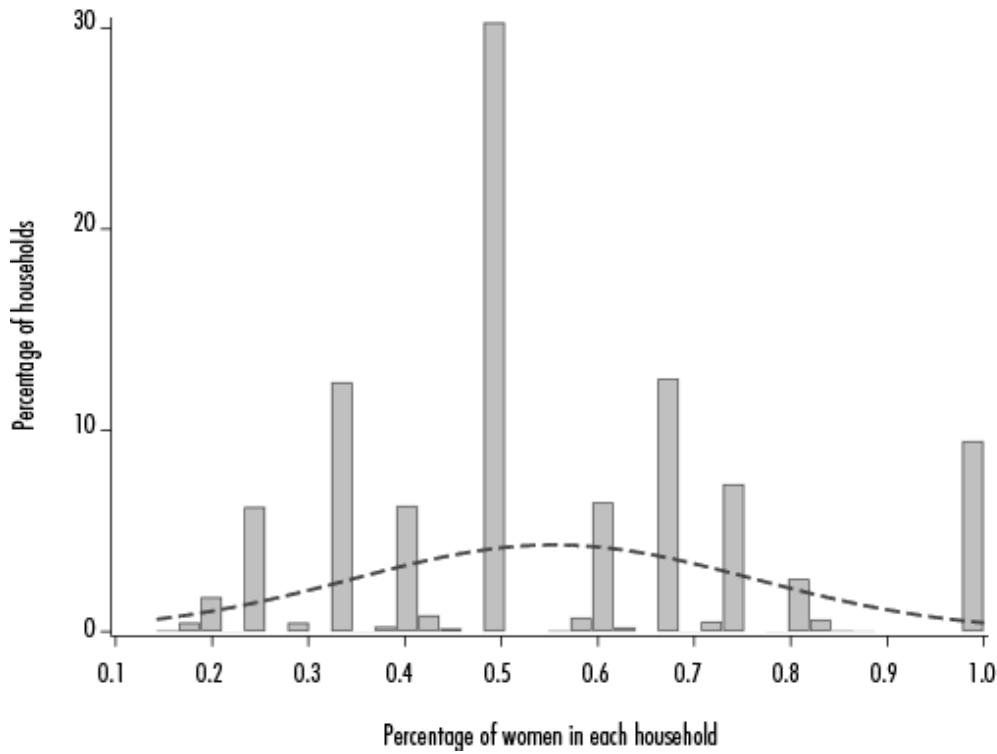
Table 1. Working households by number of women in each household, Mexico 2014

<i>Women per household</i>	<i>Number of households</i>	<i>Percentage</i>
None	599	8.0
1	2 534	33.9
2	2 438	32.6
3	1 307	17.5
4	451	6.0
More than 4	142	1.9
Total	7 471	100.0

Source: prepared by the author based on the ENUT Mexico 2014 (INEGI, 2016).

Meanwhile, Figure 3 reports the distribution of Mexican working households according to the percentage of women they comprise (again, the dotted line corresponds to the normal approximation of the distribution). We can see that in 27.9% of households, women represent half of the members. However, in the remaining households, they are either the majority or the minority. Thus, in 34.6% of working households, women account for less than half of the household members, while in 37.5% they account for more than half. Furthermore, 8.7% of households are composed solely of women.

Figure 3. Distribution of Mexican working households according to the percentage of women, Mexico 2014



*Notes: Working households with at least one woman.
Source: Prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).*

One implication of the above results is that the percentage share of women in TDNR in each household is an insufficient indicator of inequality between the sexes in the distribution of TDNR. This point can be illustrated with a numerical example: if we consider a household where women perform approximately 50% of TDNR, at first glance, this household could be classified as equal in terms of the sex-based distribution of TDNR. However, this interpretation would only be valid if women also represented half of the household members. On the contrary, if—continuing with the example—they only represented 30%, then they would be overrepresented in the TDNR burden. In comparison, men in that household would assume half of the TDNR, but they represent 70% of the household members. They are therefore underrepresented, in a clearly unequal and unfavorable situation for the women in that household.

It is therefore necessary to develop an indicator that reflects the sex-based distribution of TDNR but adjusted to the diverse composition of households.⁷

Construction of the indicator of inequality between the sexes in TDNR

The proposed indicator for measuring inequality between the sexes in the distribution of TDNR (per household) is as follows:

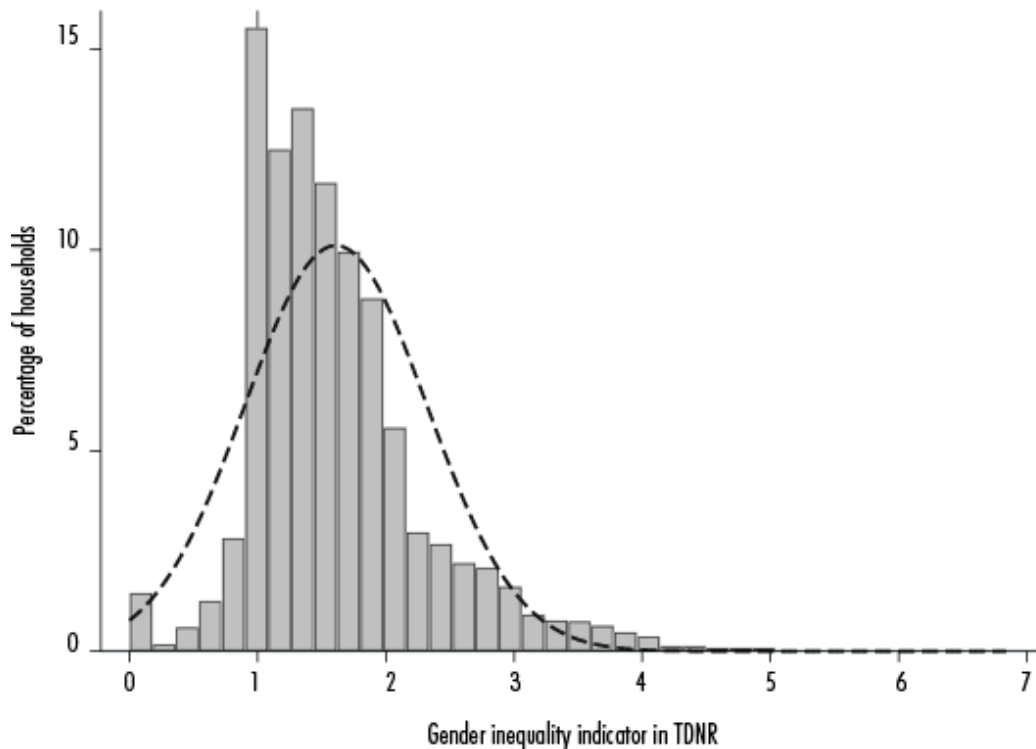
$$\sigma_i = \frac{h_{mi}/h_i}{m_i/n_i} \quad (1)$$

Where σ_i is the indicator for each working household i , h_{mi} is the amount of TDNR performed by women in household i , h_j is the total amount of TDNR performed in household i . Thus, the numerator of the indicator is the proportion of TDNR performed by women in household i . Meanwhile, the denominator shows the proportion of women in household i , where m_j is the number of women in household i ; n_j is the number of people (of both sexes) in household i .⁸

The interpretation of the indicator is as follows: if it takes a value less than 1, this would indicate a distribution of TDNR favorable to women, as they would assume a TDNR burden proportionally lower than their relative participation in the household. For example, if women make up half of the household members but perform 30% of the TDNR, the indicator would take the value of $\sigma_j = 0.3/0.5 = 0.6$. In contrast, if the indicator takes a value greater than 1, this would indicate a distribution of TDNR unfavorable to women, as they would assume a TDNR burden proportionally greater than their participation in the household. For example, if half of the members of a household are women, but they perform 70% of the TDNR, the indicator would take the value of $\sigma_j = 0.7/0.5 = 1.4$. Thus, the higher the indicator (the further it is from 1), the more unequal the distribution of TDNR in working households. Finally, values equal to or very close to 1 in the indicator would reflect an equal distribution of TDNR (adjusted for heterogeneity in the sex-based distribution of households).⁹

Figure 4 shows the distribution of Mexican working households (with at least one woman) according to the proposed indicator. We can see that only 17.5% of them had a value less than or equal to 1 on the indicator, i.e., a TDNR distribution that was either equitable or favorable to women. Thus, by adjusting for the sex-based distribution of households, a more accurate measure of inequality in the distribution of TDNR is obtained, compared with the results initially reported in Figure 2.

Figure 4. Distribution of working households according to the degree of inequality between the sexes in the distribution of TDNR, Mexico 2014



Note: working households with at least one woman.
 Source: prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

In any case, the results reveal a strong inequality between the sexes in the distribution of TDNR in Mexican working households. In 82.5% of them, the indicator was greater than 1, i.e., women assumed a burden of TDNR that was more than proportional to their participation in the household. In fact, throughout the distribution of households, the average value of the indicator is 1.61, while in 25% of households (at the far right of the distribution) the value of the indicator was greater than 1.91.

Descriptive statistics

Table 2 shows the percentage distribution of Mexican working households according to the number of men and women earning wages in each household. It shows that, in 2014, 36.5% of Mexican working households (with at least one woman) were subject to the family wage, i.e., they had only one male wage earner. Although this is a significant figure, it shows that the majority of working households (the remaining 63%) depended on other forms of wage-related income.

Table 2. Percentage distribution of Mexican working households according to the number of men and women in paid employment in each household, 2014

		<i>Female wage earners</i>			
		<i>None</i>	<i>One</i>	<i>2 or more</i>	<i>Total</i>
Male wage earners	None	0.0	17.3	3.5	20.8
	One	36.5	26.0	3.2	65.7
	2 or more	6.4	5.5	1.6	13.5
	Total	42.9	48.8	8.3	100.0

Source: prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

In fact, in 57.1% of households (48.8% + 8.3%), there was at least one female wage earner; in 26% of households, there was one female and one male wage earner; and in 17.3%, there was only one female wage earner (mainly single-parent households). Meanwhile, 46.2% of households had two or more wage earners (men and/or women). This heterogeneity in the structure of Mexican working households has an impact on inequality between the sexes in the distribution of TDNR. Table 3 shows the average values of the σ indicator (see equation 1) for the different types of households.

Table 3. Degree of inequality in TDNR (average values in the σ indicator) according to the number of male and female wage earners in paid employment in each household, Mexico 2014

		<i>Female wage earners</i>			
		<i>None</i>	<i>One</i>	<i>2 or more</i>	<i>Total</i>
<i>Male wage earners</i>	<i>None</i>	N/A	1.33	1.18	1.30
	<i>One</i>	1.75	1.54	1.33	1.64
	<i>2 or more</i>	2.11	1.81	1.51	1.92
	<i>Total</i>	1.80	1.49	1.30	1.61

Source: prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

While the general average for the σ indicator was 1.61, in households subject to the family wage, this indicator was 1.75, thus showing high inequality between the sexes in the distribution of TDNR. The type of household with the greatest inequality was that with two or more male wage earners and no female wage earners, with $\sigma = 2.11$. In contrast, households with two or more female wage earners (and no male wage earners) had a fairly low level of inequality (1.18), although these households represented only 3.5% of working households (see Table 2). It is striking that even in households where both men and women are wage earners, there is marked inequality in the distribution of TDNR (σ values between 1.33 and 1.81).

In light of the theories discussed above (see Figure 1), it appears that the family wage (Hartmann-Federici approximation) does indeed contribute to greater inequality between the sexes in the distribution of TDNR. However, its effect is not absolute: unequal distribution in TDNR also occurs in households that are not subject to the family wage, which in all other respects are the majority. Meanwhile, based on Young's (1992) approximation, it can be seen that as the number of female wage earners in the household increases—and, consequently, fewer women in the labor reserve—, inequality in TDNR decreases: in households with no female wage earners, σ takes the value of 1.8, while in households with one female wage earner, σ decreases to 1.49 and, finally, in those with two or more female wage earners, σ reaches a value of 1.3.

The above results, although suggestive, are in any case preliminary. The averages reported in Table 3 are not subject to control variables or any statistical significance tests. To address both limitations, an econometric regression analysis is presented below.

4. ECONOMETRIC RESULTS

Based on the above discussion, we evaluate several determinants of the unequal distribution of TDNR in Mexican working households. However, due to information constraints, the objective is relatively modest. We focus only on estimating the direct impact of the family wage and the feminized labor reserve on the inequality indicator in TDNR calculated in the previous subsection (see equation 1). Unfortunately, there is no information available to quantitatively estimate gender identity and, consequently, its impact on the distribution of TDNR. In empirical terms, comparison with other countries and social reproduction policies falls outside the scope of this research.

Multiple linear regression by OLS

Two complementary methods were used in the econometric analysis in this section. First, the previously estimated σ indicator was used as the dependent variable in a multiple regression analysis using Ordinary Least Squares (OLS). Second, a dichotomous (dummy) variable was constructed that classifies working households according to whether they have a value less than or equal to 1, on the one hand, and those with a value greater than 1, on the other. Then, based on this dichotomous variable, a logistic regression analysis (PROBIT) was performed to assess which variables increase or decrease the probability of a household having a distribution that is equitable/favorable to women, $\sigma \leq 1$, or unfavorable to them, $\sigma < 1$. The same explanatory and/or control variables were used in both analyses (see Table 4).

Table 4. OLS estimation, Mexico 2014

<i>Independent variables</i>	<i>Dependent variable: σ indicator (inequality between the sexes in the distribution of TDNR)</i>			
	<i>Coefficients</i>	<i>Standard errors</i>	<i>t statistic</i>	<i>Probability value</i>
Household with family wage	0.1038***	0.0223	4.65	0.0000
Women per household	-0.6467***	0.0126	-51.44	0.0000
Women wage earners per household	0.0466***	0.0152	3.06	0.0020
TDNR	0.0002	0.0002	0.75	0.4530
Household income (ln)	-0.0647***	0.0093	-6.97	0.0000
Persons in the household	0.3872***	0.0095	40.80	0.0000
Rural households	0.0438***	0.0167	2.62	0.0090
Constant	1.9279***	0.0808	23.86	0.0000
General significance tests:				
F statistic (7.6600)	456.8			
<i>p-value</i>	0.0000			
R ²	0.4908			
Observations (households)	6 608			

Notes: Statistics for "pure" working households with at least one woman. Standard errors robust to heteroscedasticity. ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

Source: Prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

The OLS specification is as follows:

$$\sigma_i = \beta_0 + \beta_1 SF_i + \beta_2 M_i + \beta_3 M_{Ai} + \beta_4 h_i + \beta_5 \ln(Y_i) + \beta_6 n_i + \beta_7 R_i + e_i$$

Where:

- σ_i = indicator of inequality between the sexes in the distribution of TDNR (equation 1). SF_i = dichotomous variable (dummy) that takes the value 1 if household i is subject to the family wage and 0 in all other cases.
- M_i = number of women in household i .
- M_{Ai} = number of female wage earners in household i .
- h_i = total extent of TDNR in household i .
- $\ln(Y_i)$ = natural logarithm of monetary income of household i .
- n_i = number of persons in household i .
- R_i = dichotomous (dummy) variable that takes the value 1 if household i is rural and 0 if it is urban.
- e_i = stochastic error term.

The results of the OLS regression analysis, using data from the 2014 Mexico ENUT, are reported in Table 4.¹⁰ In principle, we can see that the effect of the family wage on inequality in TDNR is empirically robust: even in the presence of control variables, households with a family wage have an inequality indicator 0.103 higher than all other types of households. This difference is also statistically significant at 1%, as reported by the t -statistic. This implies preliminary empirical evidence in favor of the Hartmann-Federici hypothesis, although with the caveat that the family wage is not the only (or main) determinant of the unequal distribution of TDNR between men and women in Mexico.

Secondly, it can be observed that, as the number of women in the household increases, inequality in the distribution of TDNR decreases. This effect is statistically significant (at 1%) and quantitatively relevant since an additional woman in the household reduces the σ indicator by 0.64 on average. This result could suggest that, in line with the arguments of Hensman (2020), Carrasco (2011) and Pérez (2019), in households with a higher proportion of women, the roles of the sexes appear to be less strict and, consequently, there is a less unequal distribution of TDNR. These results appear to be consistent with the estimates of Martínez (2018), who, also using the 2014 ENUT Mexico, found that women in extended households tend to carry out less TDNR than those in single-parent and nuclear households (where there are fewer women).

It could also be suggested that as the number of women in the household increases so does their correlation of forces in comparison with men. It is also striking that the number of female wage earners (bearing in mind that this is controlled by the number of women and people in the household) has a positive impact on inequality between the sexes in TDNR, i.e., contrary to the hypothesis inspired by Young (1992) in which, as the number of female wage earners in the household increases, inequality between the sexes in the TDNR increases. However, although this result is statistically significant (at 1%), its practical impact is basically irrelevant: the coefficient for this variable is only 0.046. Consequently, and contrary to what the descriptive statistics in Table 3 suggest, the number of female wage earners in the household does not seem to have a significant effect on the distribution of TDNR.

The magnitude of TDNR does not have a statistically significant effect on the degree of inequality in its distribution. I.e., the separation between the determinants of the magnitude of TDNR, on the one hand, and the determinants of the distribution of TDNR, on the other, is not only a theoretical analytical strategy but also an empirical feature of Mexican

working households. Of course, the generalization of this result (the empirical independence of the magnitude and distribution of TDNR) will require additional studies in other countries, with complementary databases and methodologies (an effort that goes beyond the scope of this research).

Regarding control variables, the effect of household income is striking. The estimated coefficients indicate that, on average, when income increases by 10%, the σ indicator decreases by 0.64. This result is statistically significant (at 1%) and implies that working households that are better off materially exhibit less unequal sex-based division of labor, perhaps because they can hire care services in the market or hire paid domestic staff (mostly carried out by women). On the other hand, as the number of people in the household increases, on average, inequality in the distribution of TDNR tends to grow. Finally, working households located in rural areas tend to show greater inequality between the sexes in TDNR.

Logistic regression: PROBIT model

As already indicated, the following dichotomous variable σ_d_i is constructed from the variable σ :

$$\sigma_d_i = \begin{cases} 0, & \sigma > 1 \\ 1, & \sigma \leq 1 \end{cases} \quad (3)$$

This takes the value of 1 in households where the distribution of TDNR is equal or favorable to women ($\sigma \leq 1$) and 0 when the distribution is unfavorable to women ($\sigma > 1$). Based on this variable, the probability of a Mexican working household being in one group or the other is modeled as a function of the previously used variables (see Tables 4 and 5) using a PROBIT model:

$$P(\sigma_d_i = 1 | \mathbf{X}) = G(\beta_0 + \beta_1 + \beta_2 + \dots + \beta_k X_k) = G(\mathbf{X}'\boldsymbol{\beta}) \quad (4)$$

Where the probability (P) that a working household has an equal / favorable distribution for women ($\sigma_d_i = 1$) depends on a vector of variables \mathbf{X} , while G is a function that only takes values between 0 and 1 for all real numbers (Z): $0 < G(z) < 1$.

The results of the PROBIT model are shown in Table 5 and as can be seen, are broadly consistent with the results of the previous OLS estimation. First, the existence of a family wage reduces the probability of belonging to a household with a favorable/equitable distribution of TDNR for women. This result is statistically significant and consistent with the results of the OLS estimates and the Hartmann-Federici hypothesis.

Table 5. Results of the PROBIT model, Mexico 2014

<i>Explanatory variables</i>	<i>Dependent variable: σ_{d_i}</i>							
	<i>PROBIT parameters</i>				<i>Average marginal effects</i>			
	<i>Coefficients</i>	<i>EE</i>	<i>z</i>	<i>P > z</i>	<i>EMP</i>	<i>EE</i>	<i>z</i>	<i>P > z</i>
HSF	-0.550***	0.075	-7.36	0.000	-0.108***	0.014	-7.45	0.000
Women	0.857***	0.037	23.43	0.000	0.168***	0.007	25.32	0.000
Female salaried employees	-0.172***	0.055	-3.10	0.002	-0.034***	0.011	-3.10	0.002
TDNR	-0.004***	0.001	-4.90	0.000	-0.001***	0.000	-4.93	0.000
Income (ln)	-0.000	0.029	-0.01	0.992	0.000	0.006	-0.01	0.992
Persons	-0.780***	0.029	-26.86	0.000	-0.153***	0.005	-29.63	0.000
HR	-0.219***	0.063	-3.47	0.001	-0.043***	0.012	-3.48	0.000
Constant	0.585**	0.252	2.32	0.020	-	-	-	-
Observations	6 608							
Wald Chi2 (7)	1 600.1							
Probability > chi2	0.0000							
McFadden's R ²	0.2623							
R ²	90.15%							

Notes: Statistics for "pure" working households with at least one woman. EE = standard errors. EMP = average marginal effects. HSF = households with family wage. HR = rural households. ***, **, and * indicate statistical significance at 1.5% and 10%, respectively.

Source: prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

As the number of women in the household increases, the probability of a favorable/equitable distribution of TDNR for women rises. Again, this result is statistically significant and consistent with the OLS estimates. A similar situation arises with the number of female wage earners: although it is a statistically significant variable, which tends to decrease the probability of $\sigma_{d_i} = 1$, the magnitude of the average marginal effect, -0.034, is too small to be considered an economically relevant variable (as in the OLS estimates).

Unlike the OLS estimates, in the PROBIT model, the magnitude of TDNR is a statistically significant variable (at the 1% significance level). However, as with the female wage earner variable, the practical significance of this variable is almost nil since the average partial effect is -0.001. Therefore, this result is very weak and, moreover, consistent with the empirical independence between the magnitude and distribution of TDNR derived from the OLS results.

Regarding the control variables, the effect of household monetary income is not statistically significant (in contrast to the OLS results), while the number of people in the household does have a significant effect, both statistically and economically: this variable tends to decrease the probability of $\sigma_{d_i} = 1$. Finally, rural location is statistically significant

and significantly reduces the probability that a Mexican working household will have a favorable/equitable distribution in favor of women.

5. CONCLUSIONS

The text addressed the problem of unequal sex-based distribution of TDNR in Mexican working households. While most empirical studies on this subject confuse the magnitude and distribution of TDNR—by assuming the individual as the unit of analysis—a household indicator was proposed to measure the unequal distribution of TDNR between men and women. This revealed a significant inequality between the sexes in the distribution of TDNR in Mexican working households. In 82.5% of these households, women assumed a burden of TDNR that was more than proportional to their participation in the household. However, significant differences were also identified in the degree or depth of this inequality across households.

In line with the main hypotheses of Marxist-feminist literature on the subject, a cross-sectional econometric analysis was conducted using two models (OLS and PROBIT) to assess the impact of the family wage and the feminization of the labor reserve on the degree of inequality between the sexes in the distribution of TDNR. Empirically robust evidence was also found of the direct effect of the family wage on the gap between the sexes in TDNR. In contrast, the number of female wage earners per household does not seem to have a significant effect on the distribution of TDNR. Finally, evidence was obtained that the magnitude of the TDNR does not have a statistically significant effect on the degree of inequality in its distribution, i.e., the separation between the determinants of the magnitude of the TDNR, on the one hand, and the determinants of the distribution of TDNR, on the other, is not only a theoretical analytical strategy but also an empirical feature of Mexican working households.

The methodological proposal implemented here, as well as its empirical findings, have several implications for recent literature on TDNR in Mexico. First, it confirms the conclusion reached by Pedrero (2018) that "even in households where men and women share the role of 'breadwinner,' he remains the household head, and she remains the homemaker." However, it was found that households organized around the family wage are also an important part of the landscape of Mexican households. This supports the author's suggestion regarding the need to reduce TDNR time, the paid workday, and commute times (Pedrero, 2018). The results of this research can also be framed in, and further develop, the characterization given by Orozco-Rocha and González-González (2021) regarding the Mexican welfare regime based on the simultaneous process of familiarization and feminization of care work.

Finally, continuing the dialogue with recent literature on TDNR in Mexico, future lines of research can be proposed. Thus, based on the study by Luqueño and Alarcón (2021), which addresses gender inequalities by breaking down the different activities that make up TDNR, the inequality indicator proposed in this article can also be applied to separate activities. At the same time, the impact of the family wage on specific groups of activities in TDNR could be estimated in order to assess possible differences and asymmetries. Furthermore, based on the work of Orozco-Rocha and González-González (2021), the relationship between the family wage and the effective demand for external care services could be estimated.

Finally, it should be noted that some of the limitations of this study may be overcome in future research. Thus, the cross-sectional nature of the data used here prevents the analysis of dynamics and temporal changes, which can be addressed in studies that incorporate data from the 2002, 2009, 2024, and 2019 ENUT surveys and use appropriate econometric methodologies (such as differences-in-differences). This study focused only on households that depend solely on wages, although it could be expanded to include households that combine members earning a wage and those who are self-employed (simple market production).

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ANNEX

Table A1. Heteroscedasticity tests

<i>Test</i>	<i>Chi2</i>	<i>Probability value</i>
Breusch-Pagan	2 313.09	0.0000
White	1 814.05	0.0000

Notes: The null hypothesis for both tests is homoscedasticity.

Source: Prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

Table A2. Variance Inflation Factor (VIF) Tests

<i>Variable</i>	<i>VIF</i>	<i>1/VIF</i>
Female wage earners	2.69	0.371623
Persons in the household	2.48	0.403804
Households with family wage	2.45	0.407473
Women per household	2.21	0.452243
TDNR	1.46	0.684032
Household income (ln)	1.26	0.791128
Rural households	1.14	0.878359
Average VIF	1.96	

Notes: The null hypothesis for both tests is homoscedasticity.

Source: Prepared by the author based on ENUT Mexico 2014 (INEGI, 2016).

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¹ The terms “gaps between the sexes” and “inequality between the sexes,” although relatively uncommon in specialized literature, are used here instead of the more common terms “gender gaps” and “gender inequality” because the data used (from the 2014 ENUT) does not provide sufficient information to analyze the gender category, only gaps between the sexes (men and women). We are grateful for the comments of an anonymous reviewer who drew attention to this point.

² Although data is available for the 2019 ENUT, it was decided to use the 2014 ENUT in order to provide results that are directly comparable with the extensive literature on TDNR and time use in Mexico that has used the same database (Luqueño and Alarcón, 2021; Martínez, 2018; Orozco-Rocha and González-González, 2021; Pedrero, 2018; Romo, 2020).

³ Neoclassical literature has also studied the TDNR and its distribution by sex, mainly based on the work of Becker (1965, 1985, and 2009), Gronau (1977 and 1986), and Apps (2004); Apps and Rees (1996 and 1997). These neoclassical models have several theoretical limitations. On the one hand, models that assume an aggregate family utility function contradict the very principles of neoclassical methodological individualism, since members of a household (with different ages, sex and education) have different preferences and priorities that cannot be coherently aggregated into a single-family utility function. On the other hand, Becker's model (1965) takes gaps between the sexes in wages and domestic productivity as given, without addressing their nature, i.e., whether they are biologically or socially constructed (Folbre, 2004). Similarly, intra-household negotiation models, while not sharing the limitations of the Beckerian approach, do not address the determinants of the magnitude of the TDNR and focus only on its distribution. These specific limitations, as well as more general ones regarding the neoclassical paradigm as a whole (Lee and Keen, 2004; Weeks, 2009), support the importance of approaches based on heterodox economic theories such as Marxist political economy and critical feminism.

⁴ Duque García (2023) defines social reproduction policy as “the set of actions taken by the state to *regulate and influence* the process of reproducing the workforce in accordance with the *general* requirements of capital valorization, accumulation, and governance, all within the limits imposed by the class struggle at a given time and place” (p. 80, italics in the original).

⁵ Salazar-Díaz (2022) recently used this indicator for Colombia. However, that study only took into account households composed of heterosexual couples where both partners are income earners.

⁶ This does not include women who provide paid care and domestic work in households.

⁷ The diversity of households is not limited to the sex-based composition of their members. Some additional elements (of a socioeconomic nature) will be incorporated into the econometric analysis.

⁸ The ENUT design allows members belonging to each household to be identified. The indicator (1) incorporates TDNR times and persons without any age restrictions, since minors also participate in TDNR.

⁹ One of the limitations of the proposed indicator is that it does not take into account the complexity or difficulty of the different activities that make up TDNR. Thus, a household with a positive indicator may still present qualitative inequalities in the distribution of TDNR to the extent that women take on, for example, the most difficult, intense, and/or unpleasant tasks, in contrast to men.

¹⁰ The results of the regression diagnosis (tests for heteroscedasticity and multicollinearity) are reported in the appendix. There, we observe evidence of heteroscedasticity; therefore, the standard errors reported in Table 5 correspond to standard errors that are robust to heteroscedasticity (taking advantage of the asymptotic properties of the OLS estimator). Meanwhile, the variance inflation factor (VIF) test shows that there are no multicollinearity issues. Finally, according to the asymptotic properties of least squares (and the large sample size used here), it is not necessary to assume normality in the model's population errors (Greene, 2018; Wooldridge, 2002).