

Medeiros , Marcelo; Osório, Rafael Guerreiro; Costa, Joana

**Working Paper**

## Gender inequalities in allocating time to paid and unpaid work: evidence from Bolivia

Working Paper, No. 495

**Provided in Cooperation with:**

Levy Economics Institute of Bard College

*Suggested Citation:* Medeiros , Marcelo; Osório, Rafael Guerreiro; Costa, Joana (2007) : Gender inequalities in allocating time to paid and unpaid work: evidence from Bolivia, Working Paper, No. 495, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY

This Version is available at:

<https://hdl.handle.net/10419/31656>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



---

## Working Paper No. 495

---

# Gender Inequalities in Allocating Time to Paid and Unpaid Work: Evidence from Bolivia

by

Marcelo Medeiros,\*\* Rafael Guerreiro Osório,\*\*\* and Joana Costa\*\*\*

April 2007

---

\* Many ideas in this working paper were presented in 2005 at “The Global Conference on Unpaid Work and the Economy: Gender, Poverty, and the Millennium Development Goals,” organized by the Bureau for Development Policy, United Nations Development Programme, in partnership with The Levy Economics Institute, Annandale-on-Hudson, New York, and later discussed at the International Poverty Centre. The authors would like to thank Diane Elson, Sanjay Reddy, Eduardo Zepeda, Terry McKinley, Karla Correa, Dag Ehrenpreis, and Imraan Valodia for their comments and suggestions.

\*\* International Poverty Centre and CSC/Cambridge University.

\*\*\* International Poverty Centre and University of Brasília.

---

The Levy Economics Institute Working Paper Collection presents research in progress by Levy Institute scholars and conference participants. The purpose of the series is to disseminate ideas to and elicit comments from academics and professionals.

The Levy Economics Institute of Bard College, founded in 1986, is a nonprofit, nonpartisan, independently funded research organization devoted to public service. Through scholarship and economic research it generates viable, effective public policy responses to important economic problems that profoundly affect the quality of life in the United States and abroad.

The Levy Economics Institute  
P.O. Box 5000  
Annandale-on-Hudson, NY 12504-5000  
<http://www.levy.org>

## **ABSTRACT**

This working paper analyzes paid and unpaid work-time inequalities among Bolivian urban adults using time use data from a 2001 household survey. We identified a gender-based division of labor characterized not so much by who does what type of work but by how much work of each type they do. There is a trade-off between paid and unpaid work, but this trade-off is only partial: women's entry into the labor market tends to result in a double shift of paid and unpaid work. We also find very high levels of within-group inequality in the distributions of paid and unpaid work-time for men and women, a sign that, beyond the sexual division of labor, subgroup differentiation is also important. Using decompositions of the inequality in the distribution of total time spent at work, we show that gender plays an important role in determining the proportion of paid to unpaid work done by individuals, but it plays a lesser role in determining the higher total workload of some individuals relative to others.

**Keywords:** Time Use; Domestic Labor; Unpaid Work; Double Shift; Sexual Division of Labor

**JEL Classifications:** J16, J22

## 1. INTRODUCTION

In this paper we are interested in how gender influences the allocation of time among adults and results in inequalities among individuals. The case we will analyze is that of urban Bolivia, an example of an urban population of a developing country in which the incidence of paid work is higher for men than for women, but where more than two thirds of the adult urban female population has a paid job and an even higher proportion of men report doing domestic work.

The available data about time use in developing countries are increasing in quantity but are still limited. Bolivia was one of the few South American countries that collected time use information in the early 2000s. The data we use were collected in a general-purpose household survey; as a consequence we were able to have data with national coverage but with much less detail than would usually be collected by specialized time-use surveys. To examine this data we deploy conventional tools used in income inequality studies and apply them to analyze inequalities in time allocation. It is not our intent to fully explain those inequalities, but to describe them and to understand, to a certain extent, how gender roles influence them.

In this paper we show that the sexual division of labor in Bolivia is characterized mainly by differences in the duration of paid and unpaid work shifts of women and men. This division of labor is associated with a partial trade-off between paid and unpaid labor so that the longer the paid work shift, the shorter the unpaid work shift tends to be, and vice-versa. However, there is no complete substitution of activities; thus, females tend to accumulate a double work shift. The result of this accumulation is that women work more than men in urban Bolivia. We also show that despite the clear gender-based division of labor, women and men do not form homogeneous groups. There is much within-group inequality in time allocation as a consequence of factors other than gender.

The paper is divided into five sections including this introduction. The next section briefly points out the relevance of time allocation analysis for development policies and the third section deals with data issues, the definitions of the analytical concepts deployed, and the methodology of our decompositions. In the fourth section we present the results of the study, using decompositions to show how the incidence and the duration of paid and unpaid work affect gender inequalities in work-time allocation. We also look more closely at within-group inequalities. The fifth section features our concluding remarks.

## **2. TIME-USE INEQUALITIES MATTER**

In recent decades women in many countries have experienced increased freedom in defining what to do with their own lives, including participation in the labor market. However, this has not been accompanied by a reduction of their obligations in the domestic realm. Many women who have overcome the barriers that prevented previous generations from full access to the labor market have shouldered a double work shift. This has meant less time for studying, resting, engaging in social relations, and so on.

Such “time deprivation” is indeed a problem, but the consequences of a differentiation in the patterns of time allocation extend far beyond it, affecting also women’s economic autonomy. Time is a scarce resource and thus its allocation implies trade-offs. One of these trade-offs is between domestic and market work. Many women still have their autonomy restricted because much of their time is committed to caring for their households, reducing time that could be used for paid work.

There is little doubt that time allocation is a key issue in gender studies. The gender division of labor gives rise not only to exploitation at work but also to other types of inequality (Firestone 2003). Besides, as the work of Friedan (2001) showed, the division of labor has both immediate and long-term impacts on well being as it affects personal development and trajectories.

If we see development as a process of expanding freedoms, then gender inequality in time allocation also becomes an important matter for the definition of development strategies. Most development strategies, however, tend to ignore the impact that various alternatives have on the allocation of time. As development is usually associated with more “consumption power,” development policies are inclined to seek increases in employability and productivity of paid workers, neglecting the dimension of unpaid work. Policies seldom aim at the reduction of domestic workloads or the increase in the productivity of household work.

Notwithstanding, we argue that time inequalities matter and that by studying time allocation we will be able to have a better understanding of what can be done to reduce several other inequalities in society, particularly gender related inequalities. In this paper we intend to show that, on average, paid and unpaid work consume most of the time of the adult population but the allocation of time is associated with high inequalities both between and within gender groups.

### **3. METHODOLOGY**

#### **3.1. Data and Definitions**

This study was based on the unit-level datasets of the Bolivian general household survey, the Encuesta de Mejoramiento de Condiciones de Vida (MECOVI), fielded in 2001 by the Instituto Nacional de Estadística (INE). The MECOVI is not a time-use survey but its 2001 round does have sections on market labor and domestic activities. For household members over the age of seven, the survey records the time (hours per day and days per week) spent over a week in various activities and records whether these activities are done simultaneously. In this study we measure time spent in activities in hours per week (h/w).

The way that the survey classifies some activities as “domestic work” or “work for production of goods and services” is somewhat arbitrary since domestic work also might involve the production of goods and services. Yet, in view of the fact that we are dealing only with the urban population, domestic work is to be understood as mostly unpaid work oriented towards the family’s own consumption—ranging from cooking to house repairs—while “production of goods and services” tends to mean market oriented work, which is paid. This last category includes work that receives nonmonetary payment, work that is paid indirectly (when one member of the family receives payment for all of the family’s work) and the paid domestic work of servants.

Both men and women need to spend time in various activities in order to sustain their basic biological functions. It is very difficult to define how much time this should be. On average a typical adult is recommended to sleep for eight hours a day (Ting and Malhotra 2005; Heslop et al. 2002) and to this we should add time for other self-care activities. As a reference, the average time for personal care and nutrition in Thailand is 2.3 hours a day and in the United States it is 2.02 hours (NSOT 2001; USBLS 2004). Therefore, it is reasonable to assume that, on average, at least 10 hours per day or 70 hours per week are needed to maintain a person’s biological functioning. This obviously does not consider the need to work to provide food, care for others, and so on. Because we will be measuring time use over the week, from now on, two benchmarks are important: the total time available in one week, 168 hours, and (discounting the 70 hours) the maximum time available for work in a week, 98 hours.

To deal with the reporting of extreme work shifts that we consider unrealistic, we assumed that even in extreme conditions, individuals have to regularly spare at least 8 hours a day for resting, personal hygiene, and nourishment. As a result, we imposed a ceiling of 112 hours per week for both paid and unpaid labor time, which corresponds to 16 hours a day for seven days a week.

It is obvious that the data we use here are limited, particularly for tackling issues such as child labor, farm labor, and community work, just to name a few. To avoid those limitations, and in view of the fact that our main focus is on gender inequalities in time use, we restricted the study to the subsample of Bolivian urban adults. We considered adults as those aged 20 to 59 years.

### 3.2. Decomposition of Total Time

The averages of total time spent at work in the population can be decomposed in terms of the incidence of each activity and the duration of each type of work shift. By incidence we mean the proportion of the adult population engaged in one or another type of work. By duration we mean the average hours dedicated to the activity by those who do it:

$$\frac{T}{N} = \sum_{l=1}^2 \frac{W_l}{N} \cdot \frac{T_l}{W_l} \quad (1)$$

Where T is the total time devoted to work; N the total population size; W the number of workers; and l the type of work (unpaid = 1 or paid = 2).

Letting  $\bar{T}$  represent the average of total time spent at work, p the incidence of labor types, and  $\mu$  the duration of work shifts, we can rewrite (1) as:

$$\bar{T} = \sum_{l=1}^2 p_l \mu_l \quad (2)$$

Equation (2) allows us to determine the weight of each factor component in the average of total time spent at work.

## 4. RESULTS

### 4.1. Duration and Incidence of Work

Bolivian adults spend about one-third of their time working, be it market oriented paid labor or unpaid domestic labor. In 2001, as shown in Table 1, adults allocated an average of slightly over 56 hours per week (h/w) to work, which represent 34 percent of the 168 hours available in a week, or 57 percent of the 98 hours available for work in a week.

Proportionally, paid work has a higher importance than unpaid work in the total (33.6 total hours versus 22.7 total hours). This result occurs despite the fact that there are more

people doing unpaid labor. The reason is that the longer duration of paid work shifts is more than sufficient to compensate its significantly lower incidence in the population.

**TABLE 1**

**Decomposition of the Average Total Work Hours per Week for Urban Adults, Bolivia 2001**

Total work Average	Unpaid			+	Paid		
	<i>Incidence (<math>p_1</math>)</i>	*	<i>Duration (<math>\mu_1</math>)</i>		<i>Incidence (<math>p_2</math>)</i>	*	<i>Duration (<math>\mu_2</math>)</i>
56.3412	0.9179	*	24.7822	+	0.7215	*	46.5604
=	22.7472			+	33.5940		

**Source:** Bolivia, Instituto Nacional de Estadística, Encuesta de Mejoramiento de Condiciones de Vida, 2001.

**Note:**  $p_1$  and  $p_2$  are the incidences of, respectively, unpaid and paid work, as a proportion of the total population;  $\mu_1$  and  $\mu_2$  the mean durations of work shifts of paid and unpaid labor in hours per week.

As Table 1 shows, about 60 percent of the total time is employed in paid work whereas the remaining 40 percent go to unpaid work. Decomposing the average by equation (2), we find that the incidence of unpaid labor (92 percent) is much higher than that of paid labor (72 percent). Conversely, the average duration of paid work shifts (47 h/w) is higher than that of unpaid labor (25 h/w). In other words, on average there are more Bolivians doing unpaid work, but for less time; and fewer of them doing paid work, but for more time.

#### **4.2. Between Groups—Gender Inequalities in the Total Workload**

Every individual is endowed with the same 24 hours per day, but the way people use their time for different activities is varied and determined by their social roles. In the case of Bolivian urban adults, the influence of gender roles on the allocation of time to work is clear. First, on average, women work more than men. The data presented in Table 2 (page 7) show that the average number of hours per week allocated to work by Bolivian women is 10 hours higher than men's. Discounting 10 daily hours for resting and personal care, men allocate 52 percent of their net time to work, while women allocate 62 percent. This heavier workload is basically due to the accumulation of paid and unpaid activities, that is, to the fact that women are submitted to a double shift of work.

This higher average is not the mere statistical result of a small but more heavily burdened group of women on the total. Looking at the entire distribution, we can see that women systematically work more than men. If we rank the male and female populations according to the amount of time people work, we always find that no matter the share of the population chosen, the cumulative workload of women is always higher than that of men.

To show this, we will use a graphical representation of inequality that gathers information about the shape and the level of men's and women's workload distributions, i.e., the

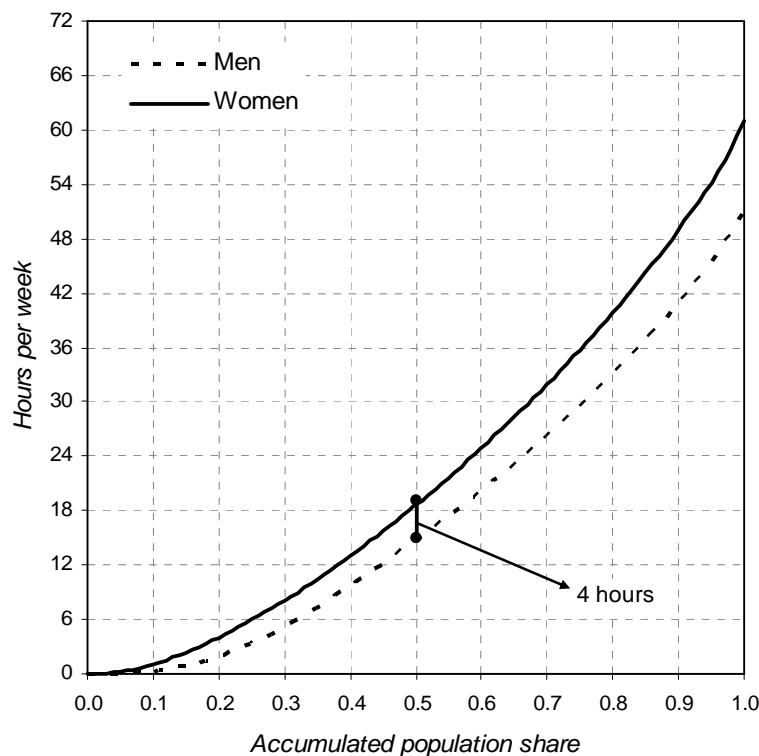


generalized Lorenz curve as depicted in Chart 1. The curves in the chart illustrate the distribution of the workloads of men and women. Differently from the conventional Lorenz curve, the generalized Lorenz curve displays on the vertical axis absolute instead of relative values because the generalization multiplies the Lorenz curve by the mean of the distribution. Therefore, it is a device that shows the cumulative workload up to a given share of the population ordered by total time at work.

For instance, Chart 1 allows us to state that the half of the Bolivian urban adult women that commit less time to work spend on average 19 h/w working, while the equivalent half of the male population devote an average 15 h/w to work—a four-hour gap. This difference tends to increase as we move to higher shares of the population. Since the generalized Lorenz curve of women clearly dominates that of men, because the former always lies above the latter, we can state with certainty that the cumulative workload of Bolivian urban adult women is higher than that of men, regardless of the point of the distribution that we assess.

## CHART 1

**Generalized Lorenz Curves for Total Work Time, by Gender, for Urban Adults, Bolivia 2001**



**Source:** Bolivia, Instituto Nacional de Estadística, Encuesta de Mejoramiento de Condiciones de Vida, 2001.

What is behind this difference in averages? One average can be higher than another due to more people working, people working for longer, or a combination of the two. By breaking down the averages using equation (2), we are able to determine the role of each of these factor components in determining the mean. Table 2 shows the results of this decomposition.

The incidence and, more importantly, the duration of the paid and unpaid activities show a clear sexual division of labor in Bolivia. The incidences tell us that almost all, 98 percent, urban adult women do unpaid labor. Among males we also find a high incidence of unpaid labor, even higher than that of their own paid labor, but still lower than the unpaid labor of females. Yet, it is the duration of unpaid labor that characterizes it as a predominantly feminine activity: it is more than three times higher among women.

**TABLE 2**

**Decomposition of the average work time according to type of work, by gender, for urban adults, Bolivia 2001**

Sex	Total Work (average)	Unpaid			+	Paid		
		<i>Incidence (<math>p_1</math>)</i>	*	<i>Duration (<math>\mu_1</math>)</i>		<i>Incidence (<math>p_2</math>)</i>	*	<i>Duration (<math>\mu_2</math>)</i>
Male	51.0538	0.8442	*	10.7184	+	0.8246	*	50.9429
				9.0487	+			42.0051
Female	61.0585	0.9836	*	35.5516	+	0.6296	*	41.4397
				34.9687	+			26.0898

**Source:** Bolivia, Instituto Nacional de Estadística, Encuesta de Mejoramiento de Condiciones de Vida, 2001.

**Note:**  $p_1$  and  $p_2$  are the incidences of, respectively, unpaid and paid work, as a proportion of the group population;  $\mu_1$  and  $\mu_2$  the mean durations of work shifts of paid and unpaid labor in hours per week.

With regard to paid labor, a different picture emerges: this activity is more masculine since both the incidence and the duration of the work shift are higher among men. It is clear that most of the gender difference in average work time has its origin in the duration of the shifts of unpaid labor and in the incidence of paid labor. The average Bolivian woman commits 26 h/w to paid labor and 35 h/w to unpaid labor whereas the average man dedicates 42 h/w to paid labor and 9 h/w to unpaid labor.

To illustrate how the differences in incidences and duration influence the workload, Table 3 presents some simple counterfactual simulations using the factors shown in Table 2. The simulation consists of switching factors, one at a time, to estimate what would happen to the work time averages if the patterns of work of men were like those of women and vice-versa.

**TABLE 3**  
**Simulated Mean Workload for Urban Adults, Bolivia 2001**

Labor	Switched factor (males/ females)	Simulated workload		Deviance from observed averages	
		Male	Female	Male	Female
Unpaid	<i>Incidence (<math>p_1</math>)</i>	52.5478	56.1030	1.4940	-4.9554
	<i>Intensity (<math>\mu_1</math>)</i>	72.0184	36.6325	20.9646	-24.4260
Paid	<i>Incidence (<math>p_2</math>)</i>	41.1215	69.1379	-9.9323	8.0794
	<i>Intensity (<math>\mu_2</math>)</i>	43.2179	67.0416	-7.8359	5.9831

**Source:** Bolivia, Instituto Nacional de Estadística, Encuesta de Mejoramiento de Condiciones de Vida, 2001.

**Note:**  $p_1$  and  $p_2$  are the incidences of, respectively, unpaid and paid work, as a proportion of the group population;  $\mu_1$  and  $\mu_2$  the mean durations of work shifts of paid and unpaid labor in hours per week.

Large differences in the existing working patterns would occur if men and women were to switch the duration of the unpaid work that they do. If the unpaid work shifts of men were as lengthy as women's, the average male unpaid work time would increase by 21 h/w, thereby augmenting their total work time from 51 h/w to 72 h/w. Conversely, if women started doing unpaid labor with the same duration of work shifts as men, they would have their average unpaid work time reduced by 24 h/w. That is, their total work time would fall from 61 h/w to only 37 h/w. Switching paid work shifts would bring much less impressive, but still important, results. Men would have their average paid work shift reduced by about 8 h/w whereas women would experience an increase of about 6 h/w.

What really differentiates men and women in terms of unpaid work is the time that persons of each gender spend on it. Since almost everyone declares doing some sort of domestic work during the week, switching men's and women's incidences of unpaid work would not significantly change their workloads. The unpaid work time of men would rise by 1.5 h/w and women's would fall by about 5 h/w. Nevertheless, differences in the participation in the labor market are evident when we proceed with the simulations. If males were withdrawn from the labor market to the degree that women are, they would see a decrease of 10 h/w. For women, the equivalent change in the opposite direction would increase their paid work effort by about 8 h/w.

Examining the deviations from the observed averages shows that the duration of the shifts of unpaid work is the principle factor that influences the gender inequality in workloads, followed by the incidence of paid work. The intensity of paid work is only slightly less important than the incidence of paid work. Since the incidence of unpaid work is high for both males and females, it is less important for gender differentiation than the other factors, although it does have a non-negligible effect.

### **4.3. Within-Group Inequalities**

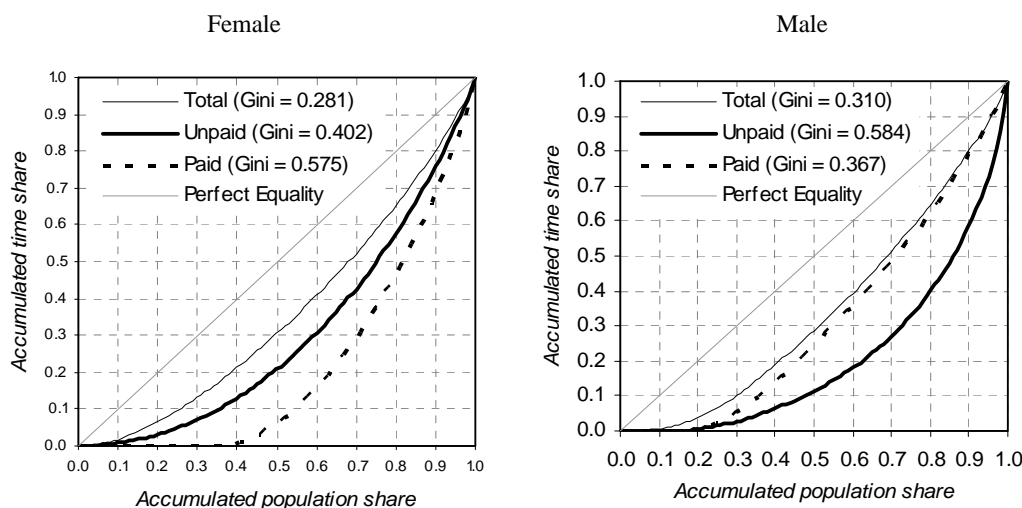
In the previous section we looked at differences between gender groups. Although we can use averages to be assertive about the existence of a clear gender-based division of labor in Bolivia, these averages mask high levels of inequality in time allocation within each gender group. In this section, we turn to the analysis of the within-group inequalities by comparing women to other women and men to other men. To represent these inequalities we produced Lorenz curves for the distribution of the time spent in each activity, separately for males and females, as depicted in Chart 2. The Lorenz curve is the appropriate tool for the comparisons in this section because it is not affected by the absolute levels of the distributions (i.e., the number of hours worked).

Chart 2 shows quite high levels of inequality in the distribution of time allocated to paid and unpaid labor both among males and among females. The patterns of the distributions of each activity are different but are not the outcome of the interaction between paid and unpaid labor in terms of total work time. A quick comparison of the two panels shows that the most unequal distribution among women is that of time in paid labor whilst for males it is that of unpaid labor. But with regard to the distribution of total time at work, the shapes of the curves are approximately the same. What is behind this result?

Almost 40 percent of the urban adult women do not take part in the labor market and many have only part-time jobs. This results in extremely high levels of inequality in the distribution of time spent in paid work. About half of all time allocated by females to paid work is spent by only one-fifth of the women. This suggests that participation and employment rates are insufficient indicators for the analysis of female labor market participation. The distribution of unpaid work time is less—but still very—unequal: although almost every woman does some domestic work, half of all unpaid work time is accounted for by one-quarter of women. The Lorenz curve for female total work shows much less inequality. This occurs because many women cannot have long paid work shifts (if any) due to their role as providers of unpaid work.

## CHART 2

### Total Paid and Unpaid Work Lorenz Curves by Gender for Urban Adults, Bolivia 2001



**Source:** Bolivia, Instituto Nacional de Estadística, Encuesta de Mejoramiento de Condiciones de Vida, 2001.

Among males, time spent in unpaid work is much more unequally distributed than it is among females. About one-fifth of men do not do any type of unpaid work and half of all male unpaid work time is accounted for by little more than one-seventh of men. Conversely, most men have a paid job and tend more to work full time in shifts of similar durations. However, these shifts are not completely uniform. Participation and employment rates tend to reflect better what happens among males than what happens among females. The much less unequal Lorenz curve for male total work time also indicates a gender specialization, that is, males reduce their unpaid work shifts due to their paid work efforts.

The Lorenz curves for the distributions of total time at work of Bolivian urban men and women have a similar shape because of a partial trade-off between paid and unpaid work. That is, adults who have long work shifts of paid labor tend to have short shifts of unpaid labor, and vice-versa. This trade-off expresses a gender division of labor in which both men and women do both paid and unpaid work, but the duration of the work shifts in each of the activities tends to be differentiated by gender. In other words, the division of labor that traditionally was characterized by a polarization between the clear roles of the male breadwinner and the female housekeeper has changed, but not completely. Now it is characterized by a partial specialization.

The substitution of activities is not complete and the result is a gender gap in the total workload, as we have seen above. As in other countries (Gershuny, Bitman, and Brice 2005), for Bolivian women, the increase in the workload due to paid work is associated with a less than proportional decrease in unpaid work time. Conversely, for males, a decrease in paid work—

unemployment, for instance—is not followed by an equivalent rise in time spent in domestic activities.

The high levels of inequality in the distributions of paid and unpaid work time among both men and women restrict the possibility of strong generalizations based only on the gender division of labor. Most likely, there are other dimensions of social stratification—such as those based on having children, having certain family attributes, or belonging to a social class—which influence most of the way that time is allocated. To evaluate the weight of these dimensions vis-à-vis gender, we will decompose total inequality into within-group and between-group shares in the next section.

#### **4.5. Decomposing Inequality within and between Groups**

There is a clear pattern of time allocation distinguishing gender groups. Still, time is also allocated differently by persons of the same sex. For example, some women do much more paid work than others. Therefore, we may speak of inequality between groups—all men compared to all women—and also of inequality within groups—men compared to men and women compared to women. By decomposing total inequality into between-group and within-group inequalities, we are able to better gauge the importance of gender in determining how time is allocated.

The Gini coefficient is not perfectly decomposable by groups but the set of the generalized entropy inequality measures is. The most well known measure of this family is the Theil-T index. In its decomposition<sup>1</sup> the contribution of within-group inequalities to total inequality is weighted by the share of the unequally distributed attribute—the time accounted for by each group, in our case. We present the measures for each distribution along with the decompositions in Table 4.

Table 4 is divided into three groups of four rows, one group for each distribution. The first row, Theil-T, presents the inequality measure calculated just for men, just for women, and then for both genders together. The next row, “Share of total time,” presents the share of the total time held by each group. The row “Decomposition of Theil-T” presents the decomposition of the total Theil-T for each type of work, in absolute values. Those are obtained by multiplying the gender group Theil-T by the share of total time held by the group. The between-group inequality measure is obtained by subtracting the absolute contributions of the inequality within each gender group from the inequality measure in each type of work. The next row, “% Contribution to inequality,” is just the previous row expressed as a percentage of the total Theil-T: it gives the relative contribution of each component.

---

1. For a presentation of this decomposition, see Theil (1967).

When we decompose this index by gender, we find that 34 percent of the total inequality in time spent in unpaid work is due to net differences between women's and men's allocations of time. The same decomposition, applied to the inequality in time spent in paid work, indicates that between-group inequality is responsible for only six percent of the total inequality. The results of these decompositions highlight the fact that the gender division of labor in Bolivia is marked particularly by a differentiation of how much unpaid labor is done by each person.

However, because of the trade-off between paid and unpaid labor and the very high levels of heterogeneity among men and women, the disparities between genders are not as important as within-group differences in explaining overall inequality in the allocation of total time to work. In fact, gender accounts for a small share of total work-time inequality, namely, only 2.4 percent. The inequality within each gender group contributes a similar percentage, namely, about 49 percent, to total work time inequality. For unpaid work time, inequality among women accounts for about 43 percent of total inequality; and for paid work, inequality among women accounts for about 57 percent.

**TABLE 4**

**Theil-T Measure of Inequality and its Gender Decomposition for the Distributions of Total Work Time, Time Spent on Paid Labor and Time Spent on Unpaid Labor, for Urban Population 20–59 years-old, Bolivia 2001**

Distribution		Between men and women	Within men	Within women	Total Inequality
<b>Total work time</b>	<i>Within group Theil-T</i>		0.1843	0.1385	<b>0.1620</b>
	<i>Share of total time</i>		42.73%	57.27%	100.00%
	<i>Decomposition of Theil-T</i>	0.0039	0.0787	0.0793	0.1620
	<i>% Contribution to inequality</i>	<b>2.43%</b>	<b>48.61%</b>	<b>48.96%</b>	<b>100.00%</b>
<b>Unpaid work time</b>	<i>Within group Theil-T</i>		0.6246	0.2694	<b>0.5125</b>
	<i>Group share of total time</i>		18.76%	81.24%	100.00%
	<i>Decomposition of Theil-T</i>	0.1765	0.1171	0.2189	0.5125
	<i>% Contribution to inequality</i>	<b>34.43%</b>	<b>22.86%</b>	<b>42.71%</b>	<b>100.00%</b>
<b>Paid work time</b>	<i>Within group Theil-T</i>		0.2879	0.6345	<b>0.4581</b>
	<i>Group share of total time</i>		58.96%	41.04%	100.00%
	<i>Decomposition of total Theil-T</i>	0.0280	0.1697	0.2604	0.4581
	<i>% Contribution to inequality</i>	<b>6.11%</b>	<b>37.05%</b>	<b>56.85%</b>	<b>100.00%</b>

**Source:** Bolivia, Instituto Nacional de Estadística, Encuesta de Mejoramiento de Condiciones de Vida, 2001.

Although it is important to explain differences in the patterns of allocation of paid and unpaid work, gender is, comparatively, a less important variable for explaining why the total workload is unequally distributed in society. Much of the total inequality in paid, unpaid, and total work time is located within—not between—gender groups. It is not the goal of our study to identify the determinants of these inequalities, but we speculate that they are likely to be related to the demographic composition of families and their position in the class structure.

Three remarks are warranted about the results of these decompositions. First, it should be stressed that the 34 percent of total inequality in unpaid work time accounted for by gender is a very high share for a binary division of the population by a single variable. For the sake of comparison, such a value is almost six times higher than the one calculated for paid work using the same partition by sex. Usually, the smaller the number of partitions, the smaller the share of between-group inequality, but the high share observed is not common even when the population is partitioned in several groups. For instance, switching the focus to the position of individuals in the life cycle produces even more modest results: only two percent of unpaid work inequality is due to differences between age groups despite the fact that in this case we are partitioning the society into 40 groups.

Second, although gender accounts for a small share of total inequality, the consequences of gender differences for total time allocation are not negligible. As we saw before, they result in a total work effort of women that, on average, is 10 h/w higher than men's. The gender share is proportionally small because inequalities within groups are very high. If men and women formed more homogeneous groups, the gender (between-group) share of total inequality would probably increase substantially above the observed two percent.

Finally, although the gender differences in the patterns of work-time allocations confirms that there is a clear gender division of labor in the Bolivian society, we must introduce a word of caution about the difference between the decompositions above and any inferences about causality. Stating that inequality between men and women accounts for 34 percent of total inequality in unpaid work time does not mean, in net terms, that gender inequalities determine 34 per cent of the total inequality in time allocation between persons. This decomposition does not take into account several other variables that could affect time allocation by increasing or reducing the net effect that gender has on total time use.



## 5. CONCLUSION

The way that people allocate time affects inequalities in various dimensions. Allocation of work time is particularly important, as work is one of the main activities of adults. This allocation is bounded by several constraints, among them social roles, particularly the ones related to gender. Also, since certain activities bring more advantages than others, gender roles in work time allocation end up influencing the well-being of men and women in many spheres of life.

There is little doubt about the importance of work for the understanding of time-use patterns. In our study we found that on average Bolivian urban adults spend about one third of their time working in either market oriented paid labor or unpaid domestic labor. Discounting the time needed for rest and caring for oneself, the total rises to more than half of the maximum time a person has available to use in all of his/her social activities.

Moreover, paid work and unpaid work have approximately the same importance in time allocation. Although there are more people doing unpaid labor, the longer duration of paid work shifts is enough to compensate for its lower incidence in the population. As a result, paid work has a higher weight in total time allocation in Bolivia. In terms of the total time employed in work, paid work represents 60 percent.

The incidence of unpaid work among urban adults is high. The rates of activity of males and females in this sphere are even higher than the ones found in paid work. In spite of a gap of 15 percentage points in participation rates, the gender differentiation in unpaid work occurs more in the duration of the shifts: women tend, on average, to have unpaid work shifts that are more than three times higher than those of men. Regarding paid work, the gender differences are more pronounced in terms of incidence. The gender participation gap approaches 20 percentage points, but the duration of the shifts, although shorter for women, are not as substantially different as they are for unpaid work.

When comparing men to men and women to women, we find much intra-group inequality in the distributions of paid and unpaid work time. About half of all unpaid work time is accounted for by one-quarter of women and half of all time allocated by females to paid work is accounted for by only one-fifth of them. Among males, time spent in unpaid work is much more unequally distributed than it is among females: one-fifth of men do not do any type of domestic work and half of all male unpaid work time is accounted for by little more than one-seventh of them.

However, when the distribution of total time at work is considered, the levels of inequality are much lower for both males and females. Behind this result is a partial trade-off

between paid and unpaid work. The longer the paid work shift of adults, the shorter tends to be their unpaid work shifts, and vice-versa. This trade-off is accompanied by a specialization that expresses the gender division of labor prevailing in Bolivia. As in other countries, men tend to specialize in paid work while women do so in unpaid work. Nevertheless—and, again, as in other countries—this trade-off is not a mere reproduction of the classic role models of “male breadwinner” and “female housekeeper.”

What characterizes gender differences is not only who does one particular type of work, but mainly how much work that person does. By a partial trade-off we mean there is no complete substitution between paid and unpaid work. Women have entered the labor market and men have increasingly assumed responsibilities for domestic work. But for women this has resulted mostly in an increased workload. On average, women work more than men, due basically to a double shift of work, that is, an accumulation of both paid and unpaid work responsibilities.

The high levels of within-group inequality in the distributions of paid and unpaid work time for both men and women limit the explanatory power, at the individual level, of the gender division of labor. Gender is an important variable for explaining how much paid and unpaid work is done by individuals, but is proportionally less important for explaining why some people work more than others. In fact, due to the extremely high levels of within-group inequality among women and among men, only a small share of total work-time inequality is explained by the inequality between men and women. Evidently, there are other dimensions of social stratification determining how much work individuals undertake. We believe that further research might provide better explanations by examining, for example, the demographic composition of families and their position in the class structure.

## REFERENCES

- Firestone, S. 2003. *The dialectic of sex, the case for feminist revolution*. New York: Farrar, Straus, and Giroux.
- Friedan, B. 2001. *The feminine mystique*. New York: W. W. Norton and Company.
- Gershuny, J., M. Bittman, and J. Brice. 2005. "Exit, voice and suffering: do couples adapt to changing employment patterns?" *Journal of Marriage and the Family* 67(August): 656–65.
- Heslop, P., G. D. Smith, C. Metcalf, J. MacLeod, and C. Hart. 2002. "Sleep duration and mortality: the effect of short or long sleep duration on cardiovascular and all-cause mortality in working men and women." *Sleep Medicine* 3: 305–314.
- National Statistics Office Thailand (NSOT). 2001. Time Use Survey. Bangkok: NSOT.
- Theil, H. 1967. *Economics and information theory*. Amsterdam: North Holland Publishing Company.
- Ting, L. and A. Malhotra. 2005. "Disorders of Sleep: An Overview." *Primary Care: Clinics in Office Practice* 32: 305–318.
- United States Bureau of Labor Statistics (USBLS). 2004. American Time Use Survey (ATUS). Washington D.C.: USBLS.