

## Trade-off between domestic and labor markets in Senegal

Latif Dramani\*

\* CREFAT, University of Thiès, Senegal

Correspondance: latif.dramani@gmail.com

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### Abstract

In search of well-being, families devote considerable time to domestic activities, including cooking, cleaning, laundry and care for both children and seniors. Yet, these various domestic activities, called “domestic production”, are not regarded as an income-generating economic activity and are not sufficiently taken into consideration in national accounts. The work by Stiglitz et al. (2009) highlights the need to measure domestic production, which should be taken into account in the calculation of households’ living standards.

In this study, the National Time Transfer Account (NTTA) methodology was used to measure the time spent on domestic activities, based on data from the 2011 ESPS II survey. The results showed that the time spent on domestic work averages 7 hours a day for women, while it is 30 minutes a day for men. The survey also showed that the level of men’s participation in the paid labor market is significantly higher (55.2%) than that of women (34.3%). Moreover, estimates of individual contributions to the formation of wealth show that in 2011 women and men produced 35% and 65% of the labor income, respectively. On the other hand, turning to the domestic work, women produced 63% of the domestic output and men the remaining 37%.

These results show the existence of an implicit trade-off in households between domestic and paid work. Hence, in a world where time is increasingly being monetized, it is interesting to wonder about the future of domestic work in Senegal and, more generally, in Africa.

**keywords:** Senegal, labor market, domestic market, gender inequalities, National Transfers Accounts methodology, National Time Transfer Account methodology.

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### 1. Introduction

In Senegal, the labor market is characterized by many imbalances. The youth unemployment rate remains high among both men and women, and the economic sector is highly informal.

According to the latest General Census of Population, Housing, Agriculture and Breeding (RGPHAE), in 2013 the official unemployment rate in Senegal was 25.7%. A main reason for the weakness of the Senegalese economy is the scarcity of household savings. This failure is directly related to the low income generated by the labor market, which is not sufficient to cover the consumption and generate savings for investments. However, these are not the only difficulties

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faced by this sector.

There are several behavioral differences in the way women and men relate to the labor market, and they are not adequately studied. Such relationships maintain connections in social life, more specifically within the family, where the domestic production is an inevitable fact that takes a large share of people's available time.

This study aims at understanding the trade-off mechanism that occurs between men and women concerning labor and domestic markets.

In this article, the study context will be presented first, including the theoretical and empirical literature review on the trade-off between domestic and labor markets. Then, the methodology section will illustrate the National Transfer Accounts (NTA) and the National Transfer Time Accounts (NTTA) methods used in this work. The following part will include an analysis to understand the trade-off mechanism. The last section will be devoted to the discussion and conclusions.

## **2. Context of the study**

In western countries, women's employment conditions have been evolving for decades, resulting in profound social changes. The magnitude of this phenomenon has had only a limited impact on developing countries, whose labor market is characterized by several structural constraints. Indeed, the current global context that promotes gender equality is embedded in all social and economic policies around the world.

In 1979, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), which was the first international treaty of this kind, marked the beginning of mobilization for gender equality. It was followed by the Beijing platform and the establishment of numerous action plans aimed at achieving gender equality and women's empowerment on the basis of twelve priority areas<sup>1</sup>.

Marking an advancement in the promotion of women's employment opportunities, the European directives of the '80s and '90s were aimed at struggling all forms of gender discrimination, protecting part-time employment and ensuring a balanced relationship between motherhood and employment. In 1997, the approval of key guidelines for the development of women's work as an

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<sup>1</sup> Poverty, education, health, violence, armed conflict, economic disparity, power sharing, institutions, human rights, media, environment and girl child.

integral part of the European employment strategy marked a substantial progress in the policies of European countries. Today, the social and demographic situation in Europe is at the source of many questions concerning the increase in labor demand, the demographic decline and the role of parents in raising their children.

Since the Second World War, a transition of European policies towards more family-oriented objectives centered on women's empowerment and gender equality has been taking place for decades, focusing at the same time on employment policies, as well as on social and family policies. Faced with these changes, the economic analysis developed new approaches and concepts, which established links between economic and social life. The connection between social and economic difficulties affecting the family organization in western societies is evident. Family is a fundamental component of all societies; its activities and functioning may result in complex relationships with some economic sectors, in particular with the labor market. Sometimes family roles and responsibilities affect the labor market; on the other hand, the economic sector may entail a reorganization of the roles in families. The trade-off between domestic and market work is one aspect of the complex relationship between the family and the economic reality.

Indeed, the importance of domestic work has always been recognized, although not sufficiently studied in economic analysis. Today, in both developed and developing countries, domestic work plays a central role in family life and takes a large part of people's time, especially women's time. Thus, Goldschmidt, Clermont et al (1995) showed that most of the available time out of the labor market is spent for the production of domestic goods. Further researches in western countries show that "domestic production accounts for 60 to 80% of total working hours for women and only 30 to 40% for men". (Sofer 2005).

In Africa, particularly in Senegal, most of gender policies in last years were consistent with the framework of Objective 3 of the Millennium Development Goals (MDGs), seeking to ensure equality of access for men and women to education, non-agricultural employment and participation in decision making by 2015. However, such policies are still facing huge difficulties, due to women's specialization in unpaid domestic production and their under-representation on the paid labor market.

The assessment of the MDGs indicators compiled by the United Nations shows that the gender gap persists, despite some progress were achieved: "In 85% of the 92 countries providing data on unemployment by level of education for the years 2012-2013, women who received higher education show larger unemployment rates than men with the same level of education" (United Nations, Report 2015).

"Is it true that in Senegal men are more active than women on the labor market?"

“Is there a specialization by gender on the domestic and labor markets?” “Is domestic production an activity for women only or men have also their share of it, and in what form?” All of these questions are important to understand the trade-off between domestic and market work in Senegal.

### **3. Selected literature review**

This part consists of two sections. The first part contains a review of the theoretical literature, followed by a second section including an empirical review of the work and the main results already obtained.

#### **i. Theoretical review**

Faced with the limitations of the classical labor supply model, that takes into account the dichotomy between work and leisure, in recent years economic analysis developed new theories that consider domestic work as an alternative to paid work. The most notable contributions in this respect include Becker's work on home economics, the theory of survival strategies that incorporates the dimension of poverty and, finally, the human capital theory.

##### *i.1 Household work allocation*

Becker developed the most complete model of the new framework for trade-off between domestic and market work. The most important aspect of this theory is a shift in the economic function of the household.

According to this approach, the household is no longer constituted by people acting separately and according to their own judgement, pursuing their maximum utility through the consumption of goods and leisure. For Becker, the household is a unit of production of domestic goods, and its organization is at the base of this theory.

Indeed, marriage provides an opportunity for spouses to pool their resources and interests to maximize the family well-being. Maximization of household collective utility requires that both spouses be able to cooperate to achieve this objective, while giving priority to collective interests over individual needs. Starting from this moment, the distribution of the gains can be optimized to keep such cooperation going. However, this hypothesis can be undermined by the

failure of partners' mutual engagement. Faced with this restriction, Becker suggests that the altruism of the householder be the key support for long-term cooperation between spouses. The householder is then considered as the person whose utility function is positively influenced by the consumption functions of all household members. So, his/her altruism is manifested by taking into account the interests of all other members of the household in his/her own program to maximize his/her individual utility, which is acted upon by making transfers.

Thus, although "economically selfish", each family member is interested in enjoying a minimum level of well-being in order to benefit from the householder's transfers. In fact, if a member of the household is at disadvantage in the distribution of goods, transfers from the householder will be only for him or her.

Based on this type of organization the household may become a unit of production of domestic goods from two separate inputs, i.e. time and market goods. The production process highlights the implicit prices of domestic goods that will eventually determine the time allocation. For the first time in economic analysis, the time allocated to paid work no longer depends on a trade-off between consumption and leisure, but rather be the result of a trade-off related to the choice of household goods production. Considering as well that the spouses cooperate in maximizing the welfare of the family by sharing their time and income, the result is more quickly reached if household members have specialized tasks. Task allocation plays a special role within the household from the point of view of comparative advantages. Thus, women will be inclined to allocate a larger part of their time to domestic work than their male counterpart.

### *i.2 Human capital*

According to this theory, those individuals who accumulate higher levels of human capital have access to the most remunerated jobs in the labor market. Labor is no longer considered homogeneous and its quality is related to the level of professional training.

In other words, if an individual has a low human capital accumulation, his or her participation in the labor market will also be at lower levels. This theory extends Becker's theory of the division of work by gender, showing that if the specialization of family members according to their comparative advantage increases their well-being, investment in human capital is not neutral. In fact, when family members accumulate human capital for each of their specializations, they increase at the same time their performance on both domestic and market work.

This is what Becker meant with the words "If all members of an efficient

household have different comparative advantages, no more than one member would allocate his time in both the market and domestic sectors. The household member with greater comparative advantage in the market and the one with greater comparative advantage in the domestic sector will be totally specialized in their respective areas "(Becker, 1981).

### *i.3 Survival strategy theory*

This theory is the one that seems to contradict the division of labor and human capital by gender. Although its analytical framework lies within the family, as for previous theories, the introduction of the notion of poverty is an innovative factor influencing individual behaviors. Indeed, in a situation of scarcity of goods a household mobilizes the core of its workforce for the paid market. The trade-off between the domestic and the paid market here is influenced by the degree of insecurity. Therefore, the difference with other theories on the division of labor and human capital is significant, since in this case people with a low education are employed more frequently in the paid market than in the domestic work and, despite their comparative advantage in the domestic sector, some women are also more active in the labor market. This theory by Duque and Pastrana is still valid in the context of developing countries, because it highlights the forms of organization applied by poor households as a strategy to survive.

## **ii. Empirical review**

In an analytical framework combining models of optimal time allocation, some authors found interesting results about the behavior of the trade-off between domestic and commercial market in the household. According to studies conducted in France, the time allocation of domestic work between spouses depends on the duration of their working life and the presence of children. Indeed, when the woman is inactive on the paid labor market, the husband's volume of domestic work is reduced by 25 to 30 minutes; on the other hand, when the woman works full-time her domestic working time decreases by 30 to 45 minutes. The presence of children generates additional domestic work, especially for women. According to the studies by Fermanian and Lagarde (1999), the amount of women's domestic work increases by one hour per day in the presence of a child, while the time of paid work is reduced by more than one hour a week, i.e. more than four hours in the presence of four children. For man, however, the presence of children increases the time of paid work by 30 minutes per additional child. On the other hand, the variable amount of income has no

impact on the allocation of time between domestic work and paid work (Glaude, 1999).

Blossfeld et al. (2001) highlighted the social trajectory of the couple on the trade-off between domestic work and market work. He notices a rather interesting fact in the dynamic behavior of couples. In fact, when the husband reaches a high social level, the woman tends to withdraw from the paid labor market. Thus, the more the husband is professionally fulfilled, the more the woman seems to specialize in the domestic sector.

In an African context, the human capital theory and that on survival strategies are the most advanced to explain individual choices. In a study done in Mali, Gakou (2001) shows that when women reach the same education levels as men, they have the same opportunities as men in the paid labor market. However, in Mali as in most sub-Saharan countries, the labor market is in critical conditions, coupled with low agricultural yields. Consequently, the high level of insecurity forces women belonging to poor households to enter both the paid market and the domestic labor at the same time. "They are constrained: either to study and work at the same time, or to work and to fulfill their role as mothers" (Gakou 2001).

#### **4. Methodology and data**

In this study, a different approach has been applied as an alternative to the econometric approaches commonly found in some empirical studies. This is the National Transfer Accounts (NTA) and the National Accounts Time Transfers (NTTA) method. The first method (NTA) is based on an accounting approach that disaggregates the national accounts according to age and sex, while the NTTA approach provides a valuation of production and domestic consumption, which are not reflected in the national accounts.

##### **i. The National Transfers Account methodology: evaluation of labor market aggregates**

The purpose of the National Transfers Accounts methodology (NTA) is to show how the production and the distribution of economic goods is distributed over the ages. It is based on the lifecycle deficit equation below:

$$C(a) - Y(a) = T_+(a) - T_-(a) + Yc(a) - S(a) \dots\dots\dots (1)$$

Y(a) : labor income at age a

C(a) : consumption age a

T+(a) : public and private transfers received

T-(a) : public and private transfers paid

Yc(a) : capital income

S : savings

The first term of the equation is the lifecycle deficit, that may be positive or negative depending on the surplus or deficit position of a person at age “a” compared to the financing of his/her consumption, based on his/her job income. The second term shows how the lifecycle deficit is financed through transfers, capital income and savings. The first step of the NTA methodology is the determination of the age profiles of consumption and labor income.

### *i.1 Determination of individual and average age profiles of consumption and labor income*

The determination of the age profiles of consumption and labor income is based on the NTA method, which is applied to calculate economic aggregates according to sex and age. This step is probably the most complex, because it requires the use of both national accounts and household surveys. The calculation of average profiles involves different types of disaggregation, namely the linear regression and the distribution of aggregate components according to the ad hoc rule defined in the NTA methodology (for example, the equivalence scale for the distribution of the component “other consumption” within “private consumption”).

### *i.2 Consumption and labor income profile by age*

After obtaining the average profiles of consumption and labor income, the following steps are applied to calculate the age profiles of consumption and the aggregated income, which determine the lifecycle deficit.



*a. Smoothing of average profiles*

The average profiles generally show fluctuations due to the sample size at different ages. This is the case for the sample size at the high age levels, since the more the age increases the less are the observations. In the NTA method, Friedman's super smoother is used.

*b. Aggregation of average profiles*

Demographic data, namely the number of persons by age and sex, are used in order to aggregate the consumption and the labor income.

*c. Profile adjustment*

Once aggregate profiles of labor consumption and income are obtained, these profiles will have to be adjusted by using macroeconomic aggregates from national accounts. The adjustment ensures consistency between the data on national transfers and the national accounts.

**ii. The National Time Transfer Account (NTTA) methodology: evaluation of the size of the domestic market**

The NTTA methodology is used to calculate consumption and income profiles not taken into consideration at national accounts level; this is the case for domestic consumption and production. Therefore, the NTTA method uses data from previous surveys on the time spent on household tasks.

Domestic production is calculated by valuing the number of hours spent on domestic work. In the NTTA method, two time-valuation approaches are normally used: (i) the replacement cost approach and (ii) the opportunity cost approach. In this study, the latter approach is applied. Consequently, each hour spent on domestic work is valued at the purchasing price applicable to the same goods on the paid market. For example, the valuation of the laundry provided by a household member is valued on the basis of the hourly wage paid for the same service on the labor market.

**iii. Presentation of the study data**

The data source for the study is the ESPS II, conducted in Senegal in 2011. ESPS II is a national survey that collects data on education, health, employment, wealth and households comfort, access to community services and basic household spending, the views of the people on their living conditions and their expectations from the State, religious practice, shocks and climate change. Initially, the sampling plan provided for 20,250 households; data were actually collected from 17,891 households, representing a coverage rate of 88%. The calculation of consumption profiles is based on data shown in the household expenditure section of ESPS II. This section provides the key variables used for the study: the expenditure on food and non-food items, health, education, housing and exceptional expenditures for other goods and household services, remaining at their expenses.

The database also includes variables on the time spent for domestic work in households. Domestic activities are taken in a broad sense and are categorized in two sub-groups: (i) domestic work and (ii) care services for children and the elderly. Domestic tasks include laundry, cooking, cleaning, shopping, water and wood collection, maintenance and repairs; other tasks are grouped under the other label.

**5. Analysis of the trade-off between domestic and labor markets**

In order to understand the mechanism of the trade-off between domestic and labor markets, it is necessary to understand how each market works in isolation. This section will be divided into three parts. In the first part, the application of the NTA methodology makes a major contribution in understanding the behavior of the labor market. Then, the same approach is applied to the domestic market, this time using the NTTA methodology to understand its functioning. Finally, in the third phase, the two analyses are reconciled.

**i. Labor market: gender inequalities**

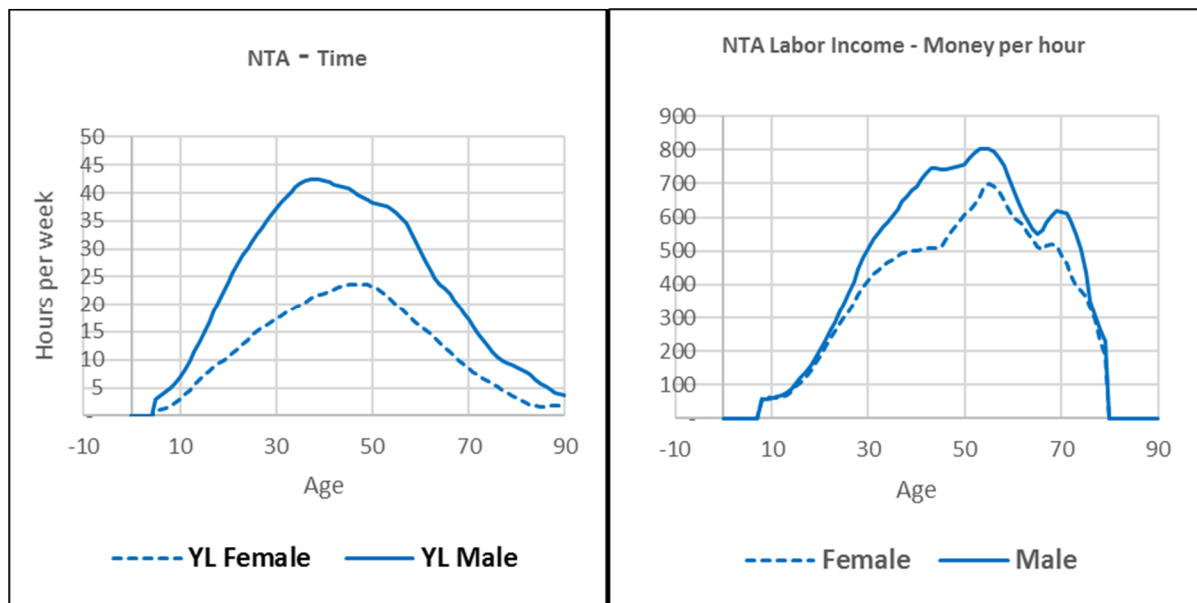
Figure 1 shows men and women's working time and hourly income on the labor market.

Men's working time exceeds women's working time on the paid market. Indeed,

the number of working hours per week is much higher for men than for women, regardless of age. The difference is quite limited at early ages (under 10 years), then it starts to boost from the age of 10 through adolescence into adulthood. The biggest difference in the time spent in the labor market is observed between the age of 20 and 50, when the working time of men almost doubles that of women. Indeed, at the age of 20 a woman works on average 12 hours a week, against 24 hours for a man of the same age. At the age of 30, a woman works on average 17 hours a week, against 37 hours for a man. At the age of 40 years, women work on average 22 hours a week, while men reach 42 hours. The ratio between the working time of men and that of women remains unchanged until about the age of 50 (47 and 48 years, more specifically). Thus, after the age of 50, men's working time no longer doubles that of women, but it is still much higher. The decline in the quantity of men's work is certainly due to the gradual retirement of most of them from working life from that age.

Regarding the wages on the labor market, men earn more than women at any age beyond 15 years. The wider difference between the hourly wage of a man and that of a woman is observed between the age of 30 and 55 and between the age of 67 and 77.

Fig. 1: Working time and labor income, by gender



Source: Author's calculations, CREFAT 2016

**ii. Domestic work market: the dominance of women's specialization**

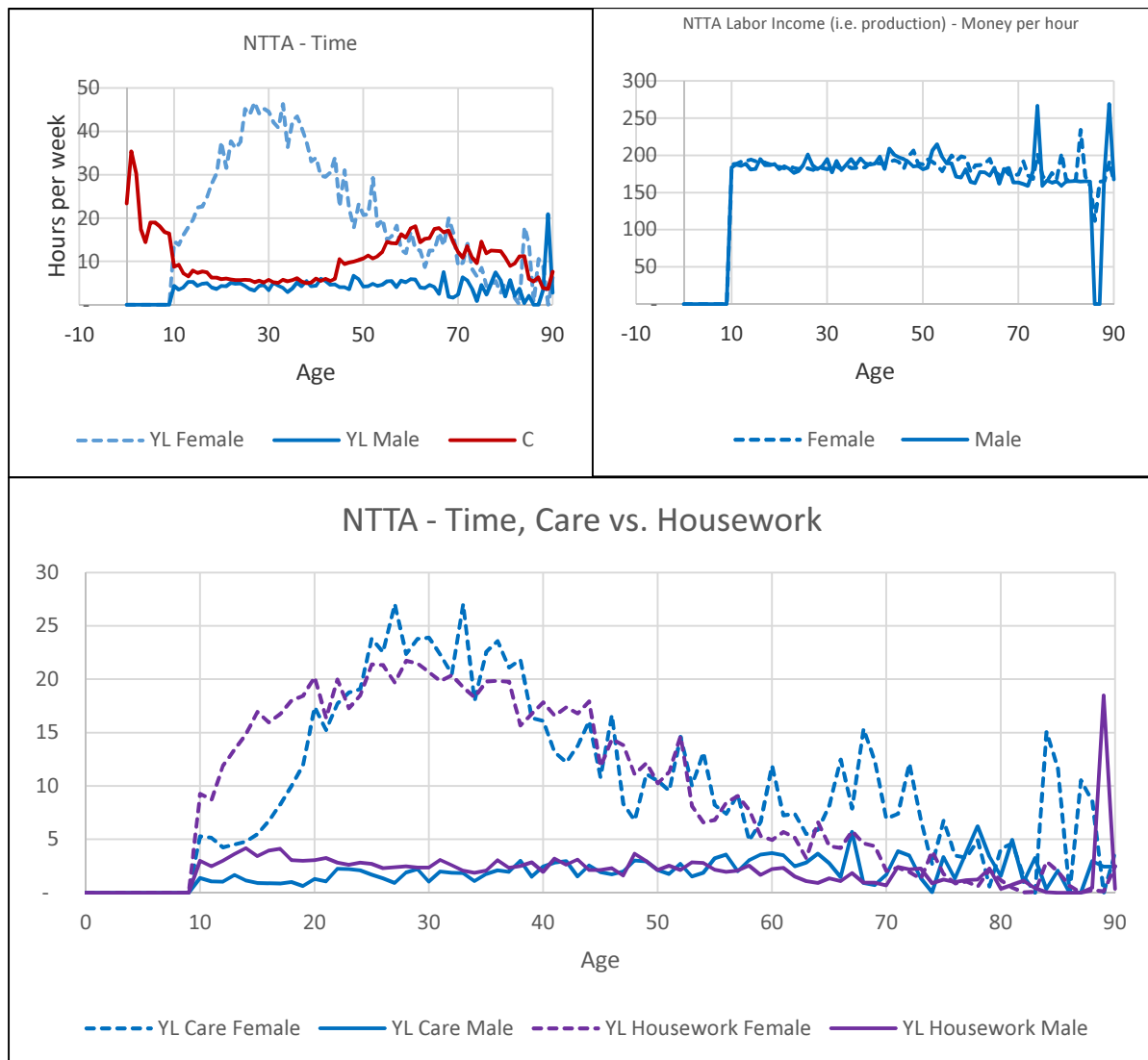
The graphs below (Figure 2) illustrate the situation of the domestic labor market, more specifically in relation to the domestic working time and its valuation at hourly cost.

On the domestic labor market, women's dominance is significant. In fact, data on the domestic working time (first graph on the right in Figure 2) show that at the age of 10 the quantity of time worked by women is three times higher than that of men. This gap widens beyond the age of 10 to adulthood. Thus, between the age of 10 and 20, girls spend 15 to 37 hours a week on domestic work, while men of the same age spend on it less than 5 hours. Between the age of 20 and 40, the quantity of domestic work for women increases further, reaching a level of 35 to 47 hours a week.

Nonetheless, men still contribute less than 5 hours a week. The steady increase in women's domestic work time from the age of 10 is largely explained by the supply of domestic work between the age of 10 and 20, and then by the supply of care services between the age of 20 and 40 (third graph of Figure 3). Thus, girls between the age of 10 and 20 are largely specialized in household tasks (cleaning, cooking, laundry, water supply, etc.), while women from the age of 20 to 40 are mostly dedicated to the care of other family members (children and elderly). Beyond the age of 40, the number of hours of worked by women gradually declines, always remaining well above that of men.

Trade-off between domestic and labor markets in Senegal

Fig. 1: Domestic work time and hourly rates



Source: Author's calculations, CREFAT 2016

iii. **Synthesis of the current situation for labor and domestic markets**

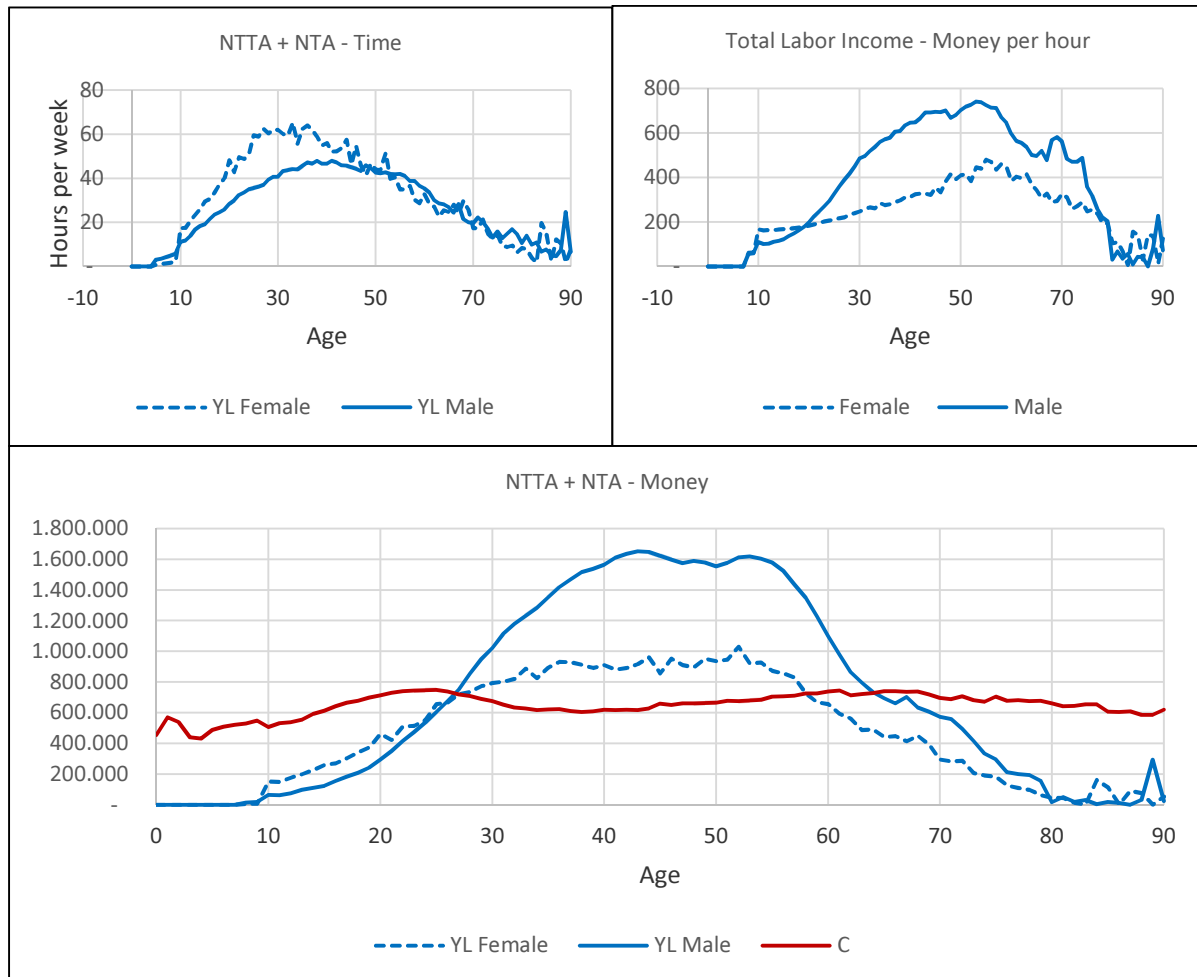
Figure 3 shows the overall working time (chart 1), the total hourly wage (chart 2) and the valuation of the total output (chart 3).

In the case of Senegal, when labor and domestic markets are considered separately, it is found that the trade-off between the two is characterized by women's specialization in the domestic market and men's specialization in the

labor market, as previously concluded on the basis of Becker's theory of family economy.

However, chart 1 in Figure 3 shows that, considering the domestic and paid markets together, women work more than men between the age of 10 and 50. Despite this findings, over a life span of more than 40 years women earn less than their male counterparts, when the total hourly income in both markets is taken into consideration (chart 2). The inequality in the hourly income is mainly explained by the fact that women are disadvantaged as compared to men on the labor market. Indeed, labor market's remuneration is far more interesting than that of the domestic market. On average, considering all the housework, the maximum hourly wage does not exceed CFA 200 per hour, while the hourly wage in the paid labor market is four times higher, or CFA 800 per hour. Indeed, even if women were paid for the time spent on domestic tasks, they would still earn less than men on both markets. They would only reach an average income of CFA 475 per hour, as compared to CFA 750 for men, i.e. an average difference of CFA 300 per hour. This explains why the total income calculated for men is consistently higher than that of women from the age of 25 onwards (chart 3).

Fig. 2: Overall working time, total hourly wage and valuation of the total output



Source: Author's calculations, CREFAT 2016

## 6. Discussion

The inequality between working time and income on the labor market is an obstacle to gender parity in Senegal. The limited offer of paid labour places women in a better position for housework and care services. Similarly, the average hourly income of a woman on the labor market, which is much lower than that of men, does not facilitate the already disadvantaged condition of women in this market. It would be interesting to ponder on the underpinning factors of such a situation.

Do women specialize in domestic production due to a free choice, as affirmed in the theory of the division of labor within the household? It is obvious that a free choice is not the only hypothesis that can explain this specialization of women. Indeed, in Senegal, despite the advances made in girls' education, maintaining them after schooling has begun is often another underestimated problem. Therefore, the completion rate for women's higher education can be much lower than that of men, making them the best candidates for the highest paid jobs. In this case, two mechanisms intervene in shaping the market. Men are the most recruited in highest-paid positions thanks to their higher human capital; in comparison, women will be mostly employed in the trade sector that does not require lengthy studies and significant investments in human capital. Therefore, such occupations are less profitable, which explains the inequality in the average hourly income highlighted in the above-mentioned analysis.

Moreover, regardless of the complexity of the root causes of this situation, the fact remains that this imbalance between the labor and the domestic market is consistently to the detriment of women.

The report on the assessment of the MDGs published in 2015 by the United Nations showed that, despite some progress achieved, gender inequality still exists. It is therefore urgent to consider adequate solutions for everyone's well-being.

It is true that European policies have had a different course, other than the post-World War II one that advocated gender equality only through policies targeting the labor market. Reducing gender inequality often comes down to recognizing the specificities of societies in their relationship with the family. The time came for developed countries to make a transition to an economic policy that could integrate family concerns. In fact, this new situation is characterized by a more structured framework for women who work and have young children. European authorities made significant investments in the care of young children through the creation of childcare facilities, such as pre-primary education centers (for children from three years of age), or collective childcare centers. In addition, there are policies to protect women's part-time employment from discrimination.

In Africa, women have always been perceived as the heart of the home and their primary role has been to take care of their children. However, for decades many of them have become autonomous in both the paid labor and the domestic markets. Therefore, it seems that there is no solution for the improvement of women's economic status, unless economic policies that take into account their family responsibilities are implemented. Not only it is necessary to invest in girls' education, their retention in school and access to higher education, but also ensure a supportive environment for the prosperity of the family, through protective measures and social coaching for women actively employed on the labor market. In fact, when adequate social and economic policies integrate



family concerns, girls become less constrained by housework and can increase their chances to accumulate a more valuable human capital. For adult women, policies must preferably focus on the supervision of young children and caring for elderly people. Thus, the aim will be to reduce the considerable amount of time spent by women on care services and enabling them to transfer most of that time into the labor market. The solution of incentive policies adapted to the Senegalese context will guarantee the economic and social development of everyone.

### **7. Conclusions**

The differences in men and women's behaviour on the labor and the domestic markets are related to gender specialization in these two markets. Men are more present than women on the labor market and spend on it more time between the age of 30 and 45, working up to an average of 42 hours a week. Similarly, their hourly wage is higher than that of women.

Women spend most of their time on domestic work between the age of 10 and 20, then on care services between the age of 20 and 40. When both the domestic and the labor markets are analyzed simultaneously, it is noteworthy the fact that women work more than men, if the total time devoted to domestic and commercial activities is taken into consideration. Yet, they earn less than men for almost their entire life, between the age of 25 and 80.

Income inequality is evident and represents a tangible imbalance in the labor market.

It is clear that there is still work to do until income equality in the labor market becomes a reality. Economic policies must effectively integrate family concerns in order to reduce the time spent in domestic work and transfer it to the paid labor market.

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