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What is unpaid female labour worth? Evidence from the Time Use Surveys of Iran in 2008 and 2009

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Abstract

We have used the urban Time Use Surveys of Iran (TUSI) of 2008 and 2009, several Iranian censuses and our own national survey of the wages of care workers and private tutors to provide the first national estimates of the monetary value of unpaid domestic work of married urban housewives.[1] TUSI covered only urban areas. Urban married housewives carried out most of the care work and home education of children. Adopting a market-based approach, we estimate this unpaid work to be worth US$26 billion in 2008 and US$29 billion in 2009 comprising 8.6% of non-oil GDP in both years. These figures are underestimates because rural women, non-housewife urban women and urban unmarried women are not included in our study. Such unrecorded contributions to national output have important social policy implications because various social policy measures and especially social insurance policies do not cover married housewives in their own right but as dependents of their husbands. Providing a monetary estimate of their unpaid work makes their contribution to the economy visible that should lead to the provision of social insurance against basic contingencies of life such as has health problems, poverty, disabilities and support in old age.

Keywords: Time-use; domestic unpaid work; care economy; feminist economics; Iran; Middle East and North Africa; social policy.

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1. Introduction

Unpaid domestic and care work is unrecognised in the market-based metrics of gross domestic product (GDP), which makes it institutionally biased against women who carry out most of this

[1] We use the term 'housewives' (despite its informality and perhaps pejorative connotations) as a translation of the Farsi word *'zanaan-e khaaneh-dar'* to maintain consistency with the terminology used in the TUSI, and ensure readers can relate our analysis to the original TUSI sources in Farsi.

unpaid work. This bias not only perpetuates the patriarchal culture of the male-breadwinner model, but also makes women, who do most of the unpaid domestic and care work at home, invisible to a range of state policies. For example, in non-citizen based social insurance and welfare programmes women's access to social welfare such as pension and health is usually through the market-based work entitlements of their husbands and/or fathers and children.

It is no exaggeration that the stronger the patriarchal culture, institutions and male-biased legal architecture the lower the 'value' attached to the unpaid work of women. This is further reinforced by the low labour force participation (LFP) of women, especially in countries like Iran and other Middle Eastern and North African countries that have some of the lowest LFP of women in the world. In 2019, the LFP rate of women in Iran was 17% compared with 71% for men. The corresponding figures for Arab states were 18% for women and 77% for men. This differs substantially with figures of 59% for women and 75% for men in East Asia, which are close to global figures of 47% for women and 74% for men (ILO, 2020).

It is important to make women's unpaid work economically visible by estimating its monetary value in order to provide economic and social reasons to support and justify entitlement and access of women, in their own right, to social welfare policies and programmes. For example, Dong and An (2015) use Chinese time use data to provide evidence on the important contribution of women's unpaid care work to the Chinese economy, in turn justifying 'policy initiatives such as increasing investment in time-saving infrastructure in rural areas and expanding early childhood education programs will help to mitigate the work–family conflicts facing Chinese women.' (Ibid: p. 558)

The availability of large-scale national time use surveys has increased the feasibility of valuing unpaid domestic and care work (e.g. childcare, child education, elderly care). These surveys provide detailed data on the different types of unpaid work carried out within households (see UN, 2012: 28, for a list of unpaid works under International Classification of Activities for Time-Use Surveys - ICATUS). Iran conducted two time use surveys in urban areas in 2008-09 and 2014-15 (hereafter referred to as TUSI 2008-09 and TUSI 2014-15) providing information on unpaid work of men and women based on ICATUS classifications. In order to impute the monetary value of this unpaid work we also need information on the market wages for comparable work. Therefore, to facilitate this, we conducted a national survey of market wages of these comparable works in 2011.[2]

The basis for the focus on married housewives is two-fold. First, according to TUSI 2008-09 and TUSI 2014-15 housewives carried out two thirds of the unpaid work within households (see Figure 1 below), which was not accounted for in the System of National Accounts (SNA). Second, housewives are not usually covered by any social policy and welfare support in their own right but covered by the social entitlements and welfare coverage of their husbands and other working family members. Finally, by focusing on housewives our results would be comparable with earlier small-scale time-use surveys (Jazani, 2004 [1383] and Bagheri, 2011[1390]) conducted in Iran that also focused on housewives. However, we will make a brief foray into the

[2] At the time of our 2011 survey, the results of the TUSI 2014/2015 were not available. We briefly refer to the results of TUSI 2014/2015 in this paper to show some minor changes in the unpaid work that had taken place over the 2008-2015 period.

unpaid household work of all women to obtain an estimate of the under-reporting of the market-based GDP figures thus making female labour more visible in the economic life of Iran.

The research is informed by economic and feminist theoretical and empirical literature on domestic work, the reproduction of labour and generational issues as well the role that the world of paid or unpaid work plays in re-producing social relations between men and women by reinforcing the gender bias in division of labour in society.

The paper is divided into 6 sections. Section 2 is devoted to the theoretical and policy imperatives for valuing unpaid household work. It notes the importance of household work for production and re-production of labour at macro level and goes on to argue that there has been a deep gender bias in ignoring household work that has affected welfare of women as well as men. On the path to reduce, and hopefully eliminate, such gender biases one needs, *inter alia*, to provide as detailed an account of unpaid household work as possible and estimate its monetary value. We follow Reid (1934) and others (DeRock, 2019 and references therein) and use the 'third party criterion' or its equivalent, the market criterion, to define household production as those unpaid activities that could either be bought in and delegated to a paid worker or replaced by market goods. This section also provides an overview of the pioneering early studies estimating the value of unpaid domestic work in Iran. These studies were mainly based on small-scale time use surveys in the capital city of Tehran. These authors have motivated us to further their work and provide a comprehensive and nationwide study of the time use, and the value of unpaid work of women and their implications for social policies in Iran.

Sections 3 through 5 deal with the TUSI and valuation of the unpaid domestic work of married housewives in Iran. In section 3 we provide a brief account of TUSI, examine the types of unpaid work carried out at home and differences between men and women in terms of their paid and unpaid work. Section 4 begins with a discussion of different methods of valuing unpaid work, followed by a detailed account of the methodology of using market wages (an input-based approach) and the results of our own survey of market wage of domestic workers and private tutors in Iran. Section 5 deals with the procedure to estimate the monetary value of unpaid work and reports on our estimates of the value of unpaid work of married housewives in urban areas of different provinces in Iran and their contribution to the non-oil GDP. In section 6, we provide conclusion and discussion of the paper focusing on the social policy implications of our analysis and suggestions for further research.

2. Why it matters to value unpaid work: Some theoretical and policy issues

The valuation of unpaid household work of women has an important objective of not only making unpaid work more visible in a market and money-based economy but, more importantly, drawing attention to the fundamental linkages between paid and unpaid work. It is this linkage that provides the theoretical foundation of the importance of the estimating the value of unpaid work.

Since the 1970s, the contribution of unpaid female labour to the economy has come under close scrutiny from different theoretical perspectives. The 'new household economics' and its variants (Becker, 1976, 1993) put the division of labour between men and women at the heart of the home-based, often non-monetised and unpaid, work of women and market based and

monetised work of men. A division of labour that in Becker's view is based on biological as well as education/skill differences that would also explain differences in career path and pay.

Others view the unpaid work of women as an important producer of use value in an economy. Unpaid labour contributes to the generation of surplus value by indirectly reducing the reproduction cost of labour through food preparation and care activities (see, e.g., Elson, 1994, 1996 and Mínguez, 2012). Such activities go unaccounted for in the national accounts around the world as well as in other economic data because they take place outside the monetised market sphere. Labour statistics also ignore the unpaid household labour of women who are counted as inactive in terms of their labour market participation.

It is however important to note that the internationally accepted System of National Accounts which is the foundation of calculating gross domestic product (GDP) distinguishes between activities on the basis of whether their outputs are exchanged in the market for money, and therefore fall within the SNA Production Boundary. The SNA Production Boundary includes all goods and services traded in the market, or goods and services produced by government and offered free to the public (UN, 2009, p. 6, also see UNECE, 2017, Figure 2.1, p. 15). It also covers some output of household production (e.g. agricultural goods for own final consumption, housing construction) whose value is imputed at market rate and included in the GDP.

SNA production boundary does not cover activities linked to the 'production of services for own final consumption within household (UN, 2009, P. 6).' They are, however, considered economically productive, and are thus included in the SNA's General Production Boundary (UNECE, 2017, Figure 2.1, p. 15). The exclusion of most household production from the SNA Production Boundary (and thus from measures of GDP) should not disguise the fact that unpaid work and care activities within the household make an important contribution to society. They contribute to the production of labour through, for example, child bearing and childcare, to the reproduction of labour through food production at home, care of the sick, and to social reproduction through transfer of social norms, cultures and mores of society (Cole and Durham, 2007). As Elson (1994: 40) observed, "[t]he ability of money to mobilise labour power for 'productive work' [exchanged for pay in the market] depends on the operation of some non-monetary set of social relations to mobilise labour power for reproductive work." Women's unpaid work at home then becomes the backdrop to the paid work in the market that acknowledges unpaid female labour albeit indirectly through the notion of a 'family wage.'

By estimating the monetary value of unpaid work, some important policy areas may be opened up for improving welfare of women and men.[3] For example, it would provide the empirical foundation for gender-sensitive policies in support of housework, childcare, health and social

[3] Venezuela perhaps is the only country that has constitutionally recognised the unpaid domestic work of women. Article 88 of the Venezuelan Constitution, amended during the presidency of Hugo Chavez, states that 'The State guarantees the equality and equitable treatment of men and women in the exercise of the right to work. The state recognizes work at home as an economic activity that creates added value and produces social welfare and wealth. Housewives are entitled to Social Security in accordance with law.' (Constituteproject.org, 2020). UK has also had a similar system since 1978 under Home Responsibility Protection. Any woman caring for a child or disabled person would have built certain qualifying year for national insurance contribution (subject to their employment history and earnings) and therefore would be entitled to state pension. These rights were further strengthened in 2010 (Bozio, et al, 2010, pp. 18-19).

welfare (including pensions). Besides welfare-related issues, it would also provide empirical and theoretical justifications for gender-sensitive employment policies in order to raise female labour force participation.

2.1. Pioneering studies to estimate the value of unpaid domestic work in Iran

Studies of time use in Iran date back prior to the 1979 revolution. Earlier studies were concerned mainly with leisure activities and were not carried out according to established international standards. They were also concerned with specific interests of government offices and ministries, such as the Ministry of Education in relation to summer and vacation leisure time of teenagers and youth (SCI, 2004). The Statistical Centre of Iran also included a study of leisure time in its 'Pilot Survey of Socio-economic Characteristics of Households' (*'Tarh-e Amaar-giri Khosoosiat Ejtemaai-Eghtesaadi Khaanevaar'*) in which questions were included on the leisure time of household members above the 10 years of age.

These surveys were of limited use for researchers interested in the monetary value of unpaid work of women, leading some social scientists to conduct their own time use surveys. Jazani (2004) carried out one of the first studies valuing unpaid work of women in Iran based on a small-scale time use survey of housewives in the city of Tehran. This study asked questions about the frequency of home-making activities during a typical week without specifying the amount of time spent on each activity. She assigned a certain number of hours to such activities, which were then valued at hourly market rates for different activities. Using regression analysis, she estimated the monetary value of the unpaid work of women at home at just over 100,000 Iranian tomans per month (US$100 at 2004 exchange rate). This was estimated to be around 12% of GDP of the city of Tehran (Jazani, 2004: 218-222). Bagheri (2011) conducted a similar survey in Tehran, but with a more detailed questionnaire. The value of the unpaid activities was reported to be 640,000 tomans (US$600 at 2011 exchange rate). In real terms, these two independent estimates are remarkably close[4] (Bagheri, 2011).

Useful as these pioneering studies are, they are limited to one city and cannot be generalised to a country of the size and diversity of Iran. The gap in information on the unpaid activities of women could only be filled by a national survey conducted according to international standards.

3. Time use surveys in Iran

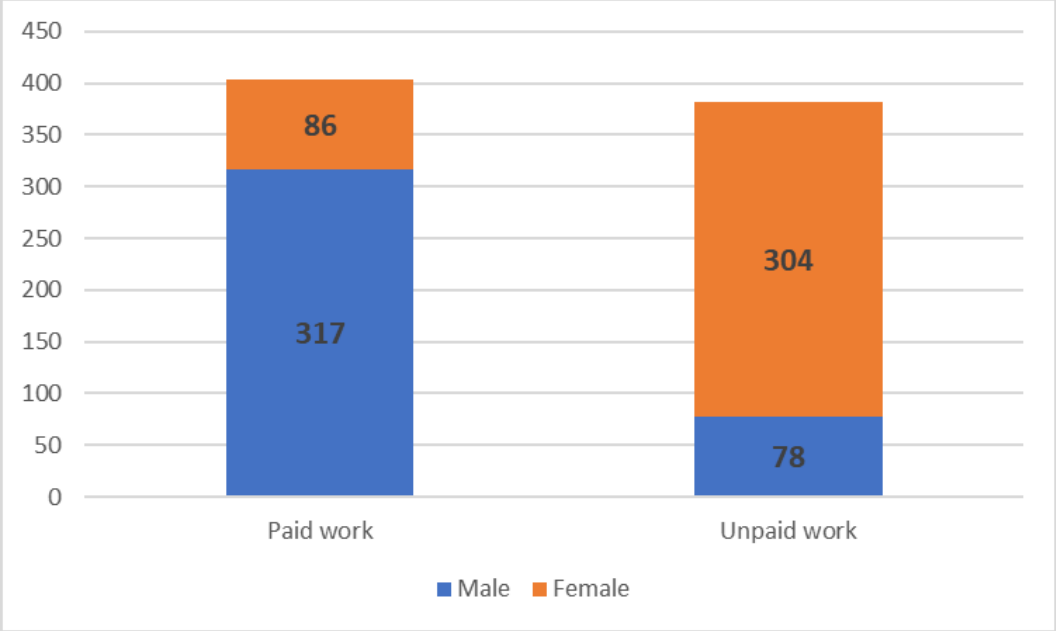
The first national Time Use Survey of Iran (TUSI), using questionnaire methodology, was conducted in urban areas over four seasons – the autumn and winter of 2008; and the spring and summer of 2009. In each season, it surveyed independent samples of between 8,390 and 8,498 people above the age of 15 in 12,000 households. In total 33,737 people were surveyed. In our study, we are only concerned with 9,328 identified as married housewives who lived with their husbands (84 per cent of married women in the survey). For these 9,328 women, information on the broad categories of household activities – housekeeping, care for children, care for older

[4] We re-valued Jazani's 2004 estimated figure of 100,000 tomans at 2011 prices allowing for 16.5 per cent annual inflation rate, based on a geometric average of annual official Iranian inflation rate over the 2004-11 period. Jazani's re-valued estimate is 512,690 tomans for 2011, compared with Bagheri's estimate of 640,000 tomans for 2011.

members (older than the surveyed individuals), education of children (help with homework, etc.) – were extracted from the results of the TUSI. The choice of these categories was due to the fact that they comprised the main activities of housewives and that they could be valued at market prices.

Figure 1 shows the average time spent by men and women on unpaid domestic work and paid market work in Iran. There is a strong gender difference in the time devoted to paid and unpaid work by men and women: women do more unpaid work than men do, whilst men do more paid work. This pattern is in line with findings of time use studies in other countries. A pattern which is as strong in high income as it is in middle-income countries such as Mexico, South Korea, Turkey and South Africa, that are good comparators for Iran (OECD, 2011: 13, Figure 1.2, see also Gershuny, 2000).

Figure 1: Average daily minutes paid and unpaid work by men and women living in urban areas in Iran 2008-2009



Source: Authors' calculations using TUSI 2008-2009.

In explaining these gender differences in paid and unpaid work, besides the cultural differences in gender roles, the most important factors are gender differences in labour force participation rate, employment status and shorter working time of women. However, it should be noted that women's time on paid work does not necessarily lead to less time spent in unpaid work if women do not have support from other household members at home or have the means to pay for domestic help. In short, time spent on paid work may well increase the overall workload of women (OECD, 2011, Figures 5-7, pp. 15-16, see also Craig and Mullan, 2011, Folbre, 2006).

It may well be of interest to provide a more detailed account of the unpaid activities which are based on ICATUS classifications. Unpaid activities were divided into (a) unpaid domestic services and (b) unpaid caregiving services for household and family members. Unpaid domestic

services include services for final use such as food and meals management and preparation, cleaning and maintaining of dwelling and surroundings, do-it-yourself decoration, maintenance and repair, care and maintenance of textiles and footwear, paying household bills, pet care and shopping, travelling and transporting or accompanying goods or persons related to unpaid domestic services for household and family members.

Unpaid caregiving services for household and family members include: caregiving services such as childcare (e.g. feeding, cleaning, physical care, medical care) and instruction (e.g. teaching, training, helping children with homework); care for dependent adults (e.g., assisting dependent adults with tasks of daily living, medical care, affective/emotional care); help to non-dependent adult household and family members (e.g., Feeding, cleaning, physical care); travelling and accompanying goods or persons related to unpaid caregiving services (e.g. accompanying own children, dependent and non-dependent adults).

The second time use survey of Iran was conducted in 2014 and 2015 following the same methodology as the first. The results of the two surveys regarding the women's total time spent on unpaid work are very similar, indicating that there have not been any major changes in the pattern of paid and unpaid work of women from 2008 to 2015. Table 1 presents a breakdown of the average daily time spent on the main unpaid household activities of married urban housewives according to the TUSI of 2008-09 and 2014-15. The total time spent on unpaid household activities has increased by 15 minutes mainly due to increased childcare (9 minutes) and increased domestic activities (6 minutes).

Table 1: Average daily time (hours: minutes) allocated to main unpaid household activities by married housewives in urban areas in Iran: 2008-2009, 2014-2015

Activity	**Average time: 2008-2009** (hours: minutes)	**Average time: 2014-2015** (hours: minutes)
Domestic activities	5:50	5:56
Childcare	0:36	0:45
Children's education	0:06	0:06
Adult care	0:04	0:01
Total unpaid work	6:36	6:51

Source: Authors' calculations based on TUSI 2008-09, TUSI 2014-15.

4. The methodology of valuing unpaid care work in Iran

There are two main approaches to valuing unpaid work within the household. The first is the 'output approach', which values the outputs of unpaid work. The second is the 'input approach', which values the inputs (mainly time) needed to carry out the work in order to produce goods and services for household members.

With the output approach, which is used in the UN SNA, all unpaid activities (such as food preparation, washing, cleaning, etc.) are classified and broken down into different units of consumption, e.g., number of meals produced, hours of childcare each child receives. To value these activities, the output approach uses the price of the units of consumption at their market rate. Despite its advantages, most studies valuing the unpaid work of women do not adopt the output

approach because it requires detailed information about the products and services produced as units of consumption within the household linked to identifiable market substitutes.

The input approach uses the time spent on unpaid activities as the starting point for assigning a monetary value to unpaid work. In comparison with the output approach, it is relatively feasible because it requires data about time use (readily available from reliable national time use surveys) combined with data on wages paid in the market for work in comparable activities. The input-based method is further divided into the opportunity cost approach and market rate/wage approach (Goldschmidt-Clermont, 1993; Goldschmidt-Clermont and Pagnossin-Aligisakis, 2005).

The opportunity cost approach begins with the assumption that the person doing the work at home would have a foregone income in the labour market (Riewpaiboon et al. 2009). The market rate/wage approach assumes that the unpaid domestic and care work undertaken could be sought via a market provider and therefore could be valued at that market rate. The market rate/wage approach can further be broken down into valuing unpaid labour at the wage rate of a 'generalist' worker who would do everything from cleaning and cooking to helping children with their homework, and nursing the sick and the elderly, which essentially shadows the work that housewives do at home. A more refined approach treats different activities (e.g. cooking and childcare) as specialist and distinctly different jobs each having their own wage.

All of the above approaches have their methodological and empirical limitations that would affect the estimation of the monetary value of unpaid work. For example, in the case of a female medical doctor the opportunity cost of her unpaid domestic work would be grossly overvalued given the market value of her skills. It may also be undervalued in the case of unskilled housewives. The market value of their unpaid domestic work could be based on wage of unskilled female cleaning workers who in general, and in most countries, are paid less than their male counterparts. We also need to deal with the methodological problem of using the current market wage for women if we assume that all housewives have joined the labour market which in turn would put a downward pressure on female wage. In other words and in general, market wage could change in response to female labour force participation.

Notwithstanding these issues, we have opted for the market wage approach in this paper because this approach is feasible given the available data and provides reliable and transparent estimates. We have distinguished between general housework and home education support provided by married housewives. This is in part due to the nature of the labour market in private domestic work and private education tutoring in Iran. Our approach combines the 'generalist' and 'specialist' approaches that have commonly been used in other studies valuing domestic unpaid work (e.g. Budlender, 2008; Esquivel, 2008; Francavilla, et al., 2011; Suh and Folbre, 2016).

In order to estimate the total value of unpaid work of married housewives in Iran in 2008/2009 we need data on the time spent on unpaid work, the size of the target population, and the wages for domestic workers and private tutors. Data on each of these components, respectively, are available from TUSI 2008-09[5], population censuses of Iran, and our own 2011 survey of the

[5] Ideally we would have liked to provide an estimate of the value of the unpaid domestic work of housewives for 2014 and 2015 using TUSI 2014-15, if we had data on wages for the these years. But due to lack of research funding we could not repeat our 2011 survey in 2014 and 2015.

wages of domestic workers and private tutors[6]. In the following subsections, we describe the data we collected to estimate market wages for domestic works and private tutor in Iran.

4.1 Market wage of unpaid domestic workers in Iran

Depending on the types of unpaid work that women undertake at home it would be possible to search for market wages for them. The 'domestic' work, which is the main activity of housewives, is comparable to work done by domestic workers who can be hired through private employment agencies present in most provinces in Iran. There are no nationally set wages for domestic workers in Iran. The market or agreed wage between employers and employees varies across provinces depending on the standard of living and economic conditions in those provinces. We compared data on the wages of domestic workers that we collected from our survey of employment agencies in Iran with data on provincial poverty line based on other studies and found a direct relationship between the poverty line and level of economic development, on the one hand, and wage rates within provinces on the other - the lower the poverty line and level of economic development of a province the lower its wage rates.

It should also be noted that daily wage rates vary according to the length of the contract – the shorter the contract the higher the wage rate. For example in the city of Tehran, the daily wage rate of a female domestic helper on annual contract was half as much as a six monthly contract for the same role. This may well be explained by the security of employment and possible 'perks' of regular work such as eating with the family and payment of travel expenses and social insurance. It is safe to assume that most contracts would be short term partly because the flexibility of changing the domestic worker if employers are not satisfied with the work and the freedom that it offers the employer to bypass the labour laws that are more enforceable in long-term contracts. The advantage of a short-term contract for employees, despite the lack of security, would be higher wages if they can negotiate this.

It was also found that in general the wage rate for taking care of an elderly person was very similar to that for children. Where specialist nursing care was required, such as taking care of a seriously ill person, rates were substantially higher. But in this study only the general care services were considered as these were the regular and common activities of married housewives who in general would not have specialist training.

In the absence of a nationally set wage rate for domestic workers, we decided to conduct a small survey of employment agencies in the capital cities of several provinces to obtain a representative wage rate for domestic workers in those provinces. We contacted two employment agencies in each city to obtain the wage rate of a domestic worker for a typical contract that was usually set for six months. In case of two different rates for the same province, we averaged the rates. We recorded data on wage rates in 14 of the 30 provinces of Iran. In the poorest provinces

[6] Domestic workers in Iran generally carry out domestic work that come under different occupations such as cleaners, cooks, child carers/minders, adult carers. Private tutors are usually professional teachers. In some instances, high school or university graduates who are deemed sufficiently proficient in specific subjects also provide private tuition to children and young adults. In our survey, we collected data on representative wage rates of domestic workers and private tutors.

(e.g. Sistan-Baluchestan; Ilam; Lorestan), we did not find any such employment agencies. We assumed that domestic work in these provinces were generally organised through personal and family contacts.

In 16 provinces where no information on wage rates were readily available poverty lines based on the work of Kiani et al. (2010) were estimated and used as proxies for the wage rates. To do this we assumed that wage rates would be in direct proportion to poverty lines across different provinces in Iran. Domestic service workers are in general among the lowest paid workers in Iran and it is not unreasonable to compare their wages with the poverty line, or consider them as part of the working poor. Kiani et al. (2010) estimated absolute poverty line in Iran using data on household income and expenditure of 2009. They estimated two poverty lines using two different scenarios for each province. We used the average of these two figures to calculate the wage rate to poverty line ratio (in provinces where we had access to employment agencies). We obtained wage to poverty line ratios ranging from 30% for Ghom province to 44% for Tehran province (see Table 2). We took the average of these ratios for the 14 provinces with wage data and applied this average to the 16 provinces without wage data in order to estimate their wage rates.

In order to make the wage rate figures of 2011 compatible with the TUSI 2008-09 we used the urban inflation rates over 2009-2011 to adjust downward the 2011 wage rate figures.[7] Given that there is little difference in the wage rate for general housework, and child and adult care, we used our estimated hourly wage rate to calculate the value of 'Domestic', 'Child Care' and 'Adult Care'.

4.2 Market wage of private tutors

In 2011, we carried out a telephone survey of two private educational institutions in the capital cities of each province in Iran. The objective was to establish a baseline for private tuition fees in different provinces, and to examine whether these fees differed across provinces. We contacted a sample of private educational institutions in different provinces asking for the hourly rate of female teachers for a 6- or 12-month private tuition contract, which is a typical contract that families enter in order to provide tuition for their children. Our small survey revealed that: a) there exists a difference in fees between teachers with teacher training certificate and those without; and, more importantly, b) that there is very little difference in fees across provinces. The latter can be explained by the national pay structure of the teaching profession in Iran that sets the baseline for private tuition rates, as well as directives by Ministry of Education on hourly rates regarding private tuition in the city of Tehran (Bagheri, 2011).

Following the same procedure of adjusting wage rate of domestic service workers, we used the 2008-2011 inflation rate to adjust the 2011 wage rate of privately hired teachers to derive a 2008/2009 wage rate for these teachers.

It is important to put our data on wages of private tutors in the context of TUSI's definition of 'Education of Children' at home. The TUSI does not specify the precise nature of education at home, in particular with regard to the age of children and different levels of education. We used certain proxies such as the key words of the TUSI questionnaire (e.g. on the type of educational activity at home: 'dictation'; 'correcting homework'; 'attending to homework') and educational

[7] See Ghazi et al. (2013: Appendix Table II).

level of housewives to establish the general type of educational support that could be matched by private tuition.

Table 2: Monthly poverty line and wage rates for domestic services by province: 2009 (Tomans, US$1=1000 Tomans)

Province	Poverty Line 1	Poverty Line 2	Average Poverty Line	Monthly Wage Rate	Wage Rate to Poverty Line Ratio
Markazi	632,336	525,903	579,119	NA	NA
Guilan	586,041	485,291	535,666	212,572	40
Mazandaran	619,122	519,683	569,403	190,473	33
Azarbayejan (East)	622,735	547,457	585,096	194,354	33
Azarbayejan (West)	627,967	527,053	577,510	NA	NA
Kermanshah	607,669	459,911	533,790	NA	NA
Khuzestan	648,480	549,019	598,749	NA	NA
Fars	640,636	526,716	583,676	213,776	37
Kerman	583,011	486,465	534,738	NA	NA
Khurasan (Razavi)	580,092	472,007	526,050	NA	NA
Esfahan	617,467	502,206	559,836	235,395	42
Sistan-Baluchestan	585,770	511,572	548,671	NA	NA
Kurdestan	623,224	529,743	576,483	180,073	31
Hamedan	559,973	465,735	512,854	NA	NA
Charmahal-Bakhtiari	623,158	511,702	567,430	181,402	32
Lorestan	643,731	532,660	588,196	NA	NA
Ilam	665,526	555,932	610,729	NA	NA
Kuhguiluyeh	645,878	537,307	591,593	178,344	30
Bushehr	660,382	561,853	611,118	NA	NA
Zanjan	613,421	510,540	561,981	NA	NA
Semnan	605,402	501,786	553,594	235,887	43
Yazd	535,281	428,171	481,726	195,808	41
Hormozgan	636,112	520,984	578,548	NA	NA
Tehran	813,054	662,029	737,541	322,979	44
Ardebil	631,126	535,683	583,405	185,279	32
Ghom	523,340	459,089	491,214	189,200	39
Ghazvin	650,840	529,280	590,060	205,152	35
Golestan	569,804	475,460	522,632	NA	NA
Khurasan (North)	613,978	503,457	558,718	NA	NA
Khurasan (South)	599,250	505,465	552,358	NA	NA

Note: NA = Data not available
Source: Data on poverty from Kiani et al. (2009); Wage rate data is from Authors' 2011 survey.

In response to the TUSI's question on 'what educational support housewives provided at home', about 35% of responses were concerned with simple 'dictation' and 'attending to homework'. Besides, 70% of housewives in the TUSI did not have any education beyond the early

years of high school while another 20% were illiterate. The combination of type of home educational support and the educational attainment of housewives led us to believe that educational support of housewives at home did not go beyond the primary and probably early years of secondary school. This matched well with our survey on the general tutorship that private sector provided.

5. Estimating the value of unpaid work of married housewives in urban areas of Iran

To summarise the previous section, we first extracted data from TUSI 2008-09 on time spent in main unpaid activities (i.e. domestic work, child and adult care, and children education) by married housewives. Then, in order to implement the input-based approach for estimating the monetary value of unpaid work, we collected data on market wages of domestic workers and home tuition rates. By combining time use survey of urban married housewives and input-based data on wage rates we can now turn to the monetary estimation of unpaid work of all urban married housewives in Iran.

In order to estimate the value of the unpaid work we follow the UN (2003, p. 86) practice of using the following formula:

$$V = \sum_{i}^{n} T_i * W_i * P_i$$

Where V is value of unpaid work in Iran, T is the time spent on an activity, W is the wage rate for that activity and P is the target population of women (population of housewives in urban areas), i is subscript for a geographic unit (province), n is the number of geographic units (equal to 30 provinces in Iran). The previous sections provide us with data on T and W. Using the above formula we estimate the monetary value of unpaid work of women for each province (i) by multiplying time spent (T) on an activity by wage rate (W) for that activity and number of housewives (P). We then add all provincial estimates of the value of unpaid work to arrive at the national estimate.

The target population (P) is estimated by combining the urban female population figures for 2008 and 2009 (estimated by the Statistical Centre of Iran, SCI, 2020) and the percentage of housewives in urban female population. The latter figure is obtained from the 2006 population and housing census of Iran (SCI, 2006). According to the 2006 census of Iran married housewives comprised 20% of urban population. The provincial figures were close to the national average and ranges from 16% to 21% (SCI, 2006). Applying these percentages to the urban female populations in 2008 and 2009 gave us the appropriate figures for P.[8]

With this final step in place, we can now combine all the relevant data on T, W and P in order to obtain V - the estimate of the monetary value of the unpaid household work of urban married Iranian housewives in Iran in 2008 and 2009. The results are presented in Table 3. It should be noted that these figures are an underestimate of the total value of unpaid household work in Iran. First, they do not take account of the unpaid household work of women in rural areas who

[8] For further details see Ghazi et al. (2013: Table 5).

were not part of TUSI 2008-09. Second, they do not take account of a third of the unpaid household work in urban and rural areas carried out by household members other than married housewives.[9]

Table 3: The estimated monetary value of unpaid domestic work and care of married housewives in Iran, by province, 2008 and 2009 (Million US$)

	2008		2009	
	Value (million US$)	% of non-oil GDP	Value (million US$)	% of non-oil GDP
Iran	22,150	8.6	29,029	8.7
Province				
Markazi	365	7.0	532	7.3
Guilan	540	8.4	810	8.9
Mazandaran	676	6.1	918	6.5
Azarbayejan(East)	966	8.7	1,220	9.0
Azarbayejan(West)	722	12.4	992	11.7
Kermanshah	479	10.4	624	9.8
Khuzestan	1,153	7.4	1,404	7.9
Fars	1,051	8.8	1,361	8.6
Kerman	538	7.2	723	7.1
Khurasan (Razavi)	1,320	8.7	1,789	8.7
Esfahan	1,804	9.7	2,421	10.6
Sistan-Baluchestan	384	12.0	487	12.0
Kurdestan	326	10.7	408	10.2
Hamedan	387	8.9	488	8.4
Charmahal-Bakhtiari	138	6.9	185	6.8
Lorestan	382	11.5	510	11.2
Ilam	135	10.6	171	10.1
Kuhguiluyeh	86	6.5	110	6.3
Bushehr	208	4.1	261	3.6
Zanjan	225	8.4	287	8.1
Semnan	200	9.0	303	9.0
Yazd	216	5.3	297	5.4
Hormozgan	230	4.5	313	5.2
Tehran	8,085	9.2	10,378	9.1
Ardebil	280	9.2	373	9.3
Ghom	344	11.7	462	12.3
Ghazvin	373	8.1	481	8.1
Golestan	279	7.3	385	7.4
Khurasan (North)	139	6.9	176	6.6
Khurasan (South)	119	7.2	157	5.9

Source: Authors' estimates using the 2008 and 2009 exchange rates of 966 and 1000 tomans, respectively, per US$.

Another important point to consider is that the oil sector is a dominant proportion of the GDP of Iran, and which, because of its capital-intensive nature and reliance on imported technology, has weaker links to the domestic economy. Unpaid household work on the other hand has much stronger links with domestic economy and it is therefore preferable to express the value

[9] We plan to include these groups in our future work on the subject.

of unpaid work as a ratio of non-oil GDP. The ratios of the value of unpaid household work of urban housewives to provincial non-oil GDPs are also presented in Table 3.

At a national level, household work of urban housewives was about 8.6% of non-oil GDP with 2/3 of provinces recording ratios within 2 percentage points of national average, indicating sizable contribution of the unpaid work to local economy. If we were to include in our valuation the unpaid work of housewives in rural areas, as well as unpaid work of 'other' female household members (unmarried, widowed, divorced and 'undeclared' status) in rural and urban areas, the value of unpaid work as a percentage of non-oil GDP would increase by 5-6 percentage points. The increase is based on the number of married rural housewives (about 4 million) in 2008 and 2009 and total number of 'other' women in rural and urban areas (about 2.8 million).[10] In total, our estimate of the ratio of the value of unpaid work of all women to non-oil GDP is about 13.6-14.6%.

As they stand, our estimates of the value of unpaid work as a percentage of non-oil GDP are broadly in line with estimates from other middle-income countries. The OECD reported that combined unpaid work of men and women evaluated at replacement cost (using average hourly wage cost for unregistered informal activities) was 20% of GDP in S. Korea and 23% of GDP in Mexico (OECD, 2011, figure 1.13, p. 25). Caution should be exercised, however, when comparing such ratios across different countries because of international variation in taxes and subsidies that would be reflected in GDP figures.

6. Conclusion and discussion

The fact that the contribution of unpaid work to the national output is not monetised should not undermine its true value to the economy and society at large. There is an urgent need to make unpaid work more visible than it currently is especially in societies like Iran where Islamic ideology has deepened the institutionalisation of gender discrimination.

Our results based on Iranian national time use data from urban areas, census of population and housing, and our survey of wages advertised by home help and home education agencies have demonstrated the scale and value of unpaid work carried out by urban married housewives comprising 8.6% of non-oil GDP. This has the potential to rise to 14.6% if we were to include rural married women and other groups of urban and rural women recorded as 'inactive' by the census.

The economic and social policy implications of monetary valuation of unpaid work are far reaching. The institutional gender discrimination of the market-based approach of the UN SNA has to be extended to incorporate unpaid domestic work and care, the vast majority of which is carried out by women. This makes the work and economic contribution of women more visible, providing support for gender-sensitive policies. Considering that the male-breadwinner model has been the basis of social insurance in Iran, and many other countries, it is not surprising to find that at the turn of the 21th Century 92% of those covered by the Social Insurance Organisation of Iran were men and only 8% were women (SCI, 1380[2001]: 479). This is obviously a reflection of

[10] These figures are based on our interpolation of 2006 and 2016 censuses of Iran (SCI, 2020).

women's low employment and labour market participation, which reveals women's lack of independent rights to social insurance despite their unpaid and thus unrecognised contribution to the economy.

Monetising unpaid work could have perverse consequences by lending support to the established Islamic gender discrimination against women – strict gendered roles of women in law and in practice in an Islamic society would now have a monetary value and therefore could be compensated. There already is a precedent in *sharia* (Islamic jurisprudence) in which husbands are required to pay for domestic duties of their wives based on the concept of 'wage for similar activities' ('*OJRAT-OL MESL*' in Arabic). Our valuation goes well beyond this, because it provides justification for the *right* of women to share the income and wealth of the family, and not to be treated as second or third class citizens when it comes to, for example, inheritance laws that in Islam are highly discriminatory against women.

Acknowledging the economic contribution of women would also justify and legitimise state financed and supported social policies in the area of childcare and pre-school education, which might well increase the labour force participation of women leading to their increased socio-economic status and visibility. However, the labour force participation of women does not necessarily lead to a decrease in their unpaid work at home, as studies of unpaid work and time use surveys have revealed (OECD, 2011, Figures 5-7, pp. 15-16; see also Craig and Mullan, 2011; Folbre, 2006). To change the gendered roles in domestic work activities such as childcare, cooking and cleaning requires a cultural shift in the attitudes and behaviour of men.

In order to base the above social policies on solid economic and financial grounds we need to combine the findings of this study with economic and social data on state finances, especially in relation to government expenditure on social affairs including education and health. This would require further research in this area by tapping into the wealth of information provided by the TUSI. The valuation of the unpaid work of women other than housewives would complete the economic contribution of unpaid work of women, that should be complemented by valuing the unpaid work of men. Further research could look into the impact on the type and amount of unpaid work of different characteristics such as age and education, and examine how this would change in the future. Moreover, given the rapidly ageing population of Iran (Messkoub and Mehri, 2019; Mehri et al. 2020) adult care is going to be more dominant in the domestic care; requiring a deeper understanding of gendered nature of adult care in order to design social policies to manage an ageing population.

This paper provides a strong case for the importance and value of the unpaid domestic work of Iranian women. It is hoped that such studies would provide the analytical and empirical evidence to advocate support for women in their own rights in areas of health, social security, pension, and other areas of social policy.

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