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Time use surveys**Assessment of the non-market production activities of Spanish households in 2010, and comparison with 2003*****Note by National Statistical Institute (INE), Spain¹***Summary*

The purpose of this study is to assess the non-market production activities of Spanish households in 2010 using information obtained from the Time Use Survey 2009-2010, and to compare these to the information obtained for 2003.

This calculation can be made either by applying the wage earned by persons employed in domestic service to the hours spent on these activities, as obtained from information in the individual survey questionnaires, which would be comparable to the estimate for 2003, or by using the information from a new module, included in the household questionnaires in the 2010 survey, in which households with domestic workers declare what they pay to these individuals.

The usefulness of this module can be determined by comparing the results, taking into account that respondents tend to declare less than they actually receive.

KEYWORDS: time use survey, satellite account of household production.

* This document has been submitted late for technical reason.

¹ Prepared by Raquel Del Val and Carlos Angulo, INE Spain.

I. INTRODUCTION

1. This study is based on the results of the time use surveys conducted in Spain in 2002-2003 and in 2009-2010², which provide the basic information for assessing non-market household production.
2. The main reference was the manual proposed by Eurostat for the preparation of household production satellite accounts,³ which was taken as the framework for the development of the Spanish satellite account for 2003 formalised by Víctor Casero and Carlos Angulo.⁴
3. Other key works included the article by Maria Luisa Moltó and Ezequiel Uriel⁵, for its clear and concise account of the estimation of domestic production and the work carried out under the supervision of María-Ángeles Durán on the satellite account of unpaid work in the Community of Madrid.⁶
4. The time use survey was conducted by the National Statistical Institute. Fieldwork was carried out between October 2009 and September 2010, covering the 365 days of the year. This gave rise to the first problem encountered in the preparation of the household production satellite accounts, since the survey covers a twelve-month period that does not coincide with the calendar year, the time reference for the national accounts. For practical reasons, the results of the 2009-2010 survey are assumed to be valid for application throughout 2010, taking into account that the two reference periods match in three quarters.
5. The target population were individuals aged 10 or over residing in main family dwellings. The impact of not including children under the age of 10 years in the assessment of household production activity was considered to be of little significance because their young age prevents them from taking responsibility for the performance of the majority of these activities.
6. The survey essentially follows Eurostat recommendations on the subject, with the difference that a domestic service module was added to the household questionnaire, asking households that hired staff for these purposes about the number of people they employed, the working hours of the latter and the wages they paid to each member of staff. This allowed us to obtain an accurate estimate of the wages to apply to the non-market production activities of households.

² INE. Time Use Surveys 2002-2003 and 2009-2010.

(<http://www.ine.es/jaxi/menu.do?type=pcaxis&path=%2Ft25%2Fe447&file=inebase&L=0>)

³ EUROSTAT (2003). *Household Production and Consumption. Proposal for a Methodology of Household Satellite Accounts*. Working papers and studies. Theme 3: Population and social conditions. Luxembourg: Office for Official Publications of the European Communities.

(http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CC-03-003/EN/KS-CC-03-003-EN.PDF)

⁴ Casero, V. and Angulo, C. (2008). Una cuenta satélite de los hogares en España. 2003. Resultados derivados de la Encuesta de Empleo del Tiempo 2002-2003. Documento de trabajo 1/08. Instituto Nacional de Estadística (INE). (http://www.ine.es/docutrab/empleotiempo/cuen_tiempo03.pdf)

⁵ Moltó, M^a.L. and Uriel, E. (2004). *Ampliación de los límites de la producción en contabilidad nacional: la producción doméstica*. “Cuentas Ambientales y Actividad Económica” (Eds.: Campos, P. and Casado, J.M.), Madrid, Consejo General de Economistas de España, pp.267-293.

(<http://www.uv.es/uriel/publicaciones/Cueamdom.pdf>)

⁶ Dirección General de la Mujer de la Comunidad de Madrid (2006). *La cuenta satélite del trabajo no remunerado en la Comunidad de Madrid*. (ed. Durán M.A.).

7. This information was not available in the 2002-2003 survey, using instead the net monthly income indicated in the individual questionnaires of those who declared that they were employed in the service of other households. This information was also available in the 2010 survey.

8. However, respondents generally tend to report lower incomes than actually obtained, so it may be the case that the assessment of non-market household production in 2003 is less than what it ought to be. For the 2010 satellite account, which will be developed during 2012, we must decide which source to use (either the information from the domestic service module or the information from the individual questionnaire), so we expect this study to help us to make the right decision..

II. Economic assessment of non-market household production

9. The input method was used to assess the domestic work of households because of the availability of the results of the time use surveys, namely the time spent on non-market production activities by household members.

10. One possibility would be to consider both the main and secondary activities included in the time use surveys as production activities. For purely practical considerations, this study only considered the main activities. Thus, when calculating the distribution of activities in an average day (the indicator used to make this assessment), the time used coincides with the 24 hours of a single day.

11. The distribution of activities in an average day by sex is calculated as the sum of the daily hours (in minutes) spent on each activity by all persons (P) aged 10 or over of either sex, divided by the total time in minutes available for these individuals (24x60xP). Table 1 displays the results in hours and minutes, based on the list of activities proposed in the Eurostat guidelines to one digit.

Table 1
Distribution of activities on an average day by sex, 2009-2010
(Figures in hours and minutes)

<i>Main activities</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
Personal care	11:26	11:33	11:30
Gainful work	1:54	3:04	2:28
Study	0:39	0:39	0:39
Domestic work	4:07	1:54	3:02
Volunteer work and meetings	0:16	0:12	0:14
Socialising and entertainment	1:01	1:04	1:03
Sports and outdoor activities	0:37	0:52	0:44
Hobbies and games	0:24	0:44	0:34
Media	2:30	2:43	2:37
Travel and unspecified time use	1:06	1:14	1:10

12. From the distribution of activities in an average day, the non-market production activities undertaken by households were selected and certain functions added in order to analyse the information, taking into account that certain production activities serve several functions.

13. The functions considered are those recommended in the Eurostat manual for the development of satellite accounts of household production:

- (a) housing,
- (b) clothing
- (c) care
- (d) non-market production transport
- (e) volunteer work.

14. This produces the initial results, simply by applying the respective populations to the time spent on these functions in the distribution of activities in an average day. Specifically, Table 2 displays the hours spent by each sex on non-market production activities aggregated according to the above main functions.

Table 2

Hours spent on non-market production activities. 2010

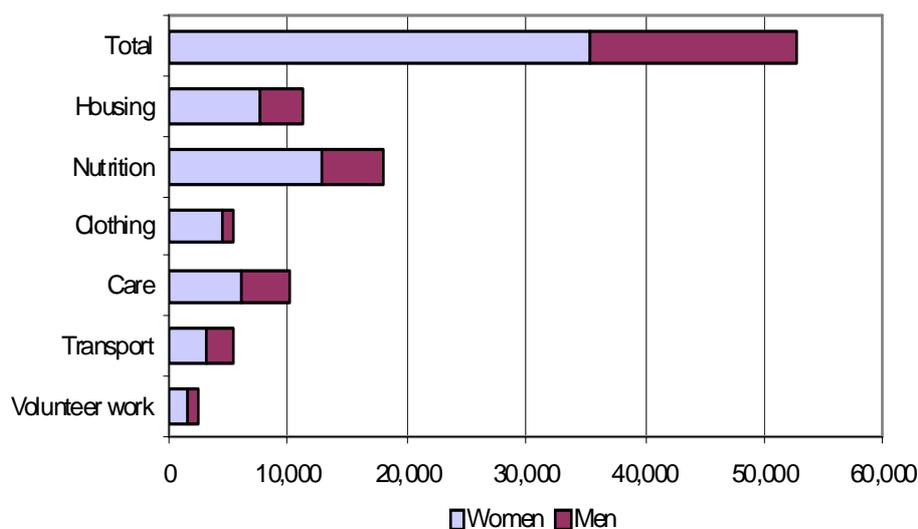
(Million hours/year)

<i>Main functions of non-market production activities</i>	<i>Women</i>	<i>Men</i>	<i>Total</i>
Housing	7 558	3 691	11 249
Nutrition	12 781	5 245	18 025
Clothing	4 461	973	5 434
Care	6 192	4 396	10 588
Non-market production transport	3 053	2 339	5 392
Volunteer work	1 461	1 053	2 515
Total	35 506	17 696	53 202

15. In 2010, Spanish households spent 53.202 billion hours on non-market production activities, of which 66.7 per cent were hours spent by women.

16. The activity on which the most time is spent is nutrition, accounting for 33.9 per cent of the total hours. This is followed, by order of the number of hours spent, by the functions of housing (21.1 per cent), care (19.9 per cent), clothing (10.2 per cent), non-market production transport (10.1 per cent) and, lastly, volunteer work (4.7 per cent).

Figure 1

Hours spent on non-market production activities by function and sex. 2010

17. Women generally spend more hours on non-market activities than men. This difference is particularly noticeable in clothing, where 82.1 per cent of the total hours are spent by women. Other activities where the gap is particularly significant are nutrition (70.9 per cent of the total time is spent by women) and housing (67.2 per cent). The activities where there is less divergence in the time spent are non-market production transport, where men spend 2.339 billion hours compared to 3.053 billion for women (i.e. men account for 43.4 per cent of the total time spent travelling), in volunteer work (41.9 per cent of the time is spent by men) and care (41.5 per cent).

18. The order of commitment is not the same for men and women. Both spend more time on nutrition, but differences can be observed between the sexes in other activities. Women spend most of their time on nutrition (36.0 per cent), followed by housing (21.3 per cent), care (17.4 per cent), clothing (12.6 per cent), transport (8.6 per cent) and, lastly, volunteer work (4.1 per cent). For men, the order is: nutrition (29.6 per cent), care (24.8 per cent), housing (20.9 per cent), transport (13.2 per cent), volunteer work (6.0 per cent) and clothing (5.5 per cent).

19. Once we have obtained the number of hours spent on production activities, the next step is to decide on an appropriate wage in order to assess them. There are two options for this: opportunity cost or replacement cost.

20. The problem with using opportunity cost, i.e. how much the individual fails to earn by stopping work to do domestic activities, is that by using this assumption, the imputed wage will depend on the wage that the person would receive for his/her market activity. In fact, however, the number of hours' paid work is usually stipulated in the worker's contract and these working hours cannot be reduced in order to spend them on household chores. Hence, this method of assessment does not seem appropriate.

21. The other method, cost replacement, is based on the savings made by households by doing chores themselves instead of hiring somebody else to do them. This was the method selected to assess the wages. This option is subdivided into two other options: select as the wage either that of specialists of the sector (restaurant chefs, gardeners...) or that of individuals employed specifically as domestic staff.

22. If we select the average wage of skilled workers, the wage earned would be inappropriate because the activities of these specialists are not comparable to those performed by domestic staff; similarly, the ways of working and capital invested are also different. Therefore, the wages of people employed as domestic staff have been used.

23. To perform this task, as mentioned above, the Time Use Survey 2009-2010 included a module on domestic staff in which households that hired this type of staff were asked about the hours of work and wages they paid to each of their employees. Families had the option of indicating the monthly or hourly wage. It stands to reason that a family that hires domestic staff full-time (over 30 hours), pays a monthly sum, while if a person is hired for two hours a week, for example, he/she will usually be paid an hourly wage. Hence, the first step was to convert the monthly wages into hourly ones. To account for the month of paid holiday leave, in the calculation we used the hypothesis that every month of the year has 4 weeks. This produced an average net wage of €8.22, including extra pay and allowance for travel costs.

24. This gives us the two data items needed to conduct an assessment of domestic service, the hours spent on it and the hourly wage to be applied. To obtain the value of non-market production activities, it is necessary to multiply the number of hours spent by the average hourly wage calculated.

Table 3
Value of non-market and unpaid production activities by sex
 (€ million)

<i>Main functions of non-market production activities</i>	<i>Women</i>		<i>Men</i>		<i>Total</i>	
Housing	62 123		30 340		92 463	
Nutrition	105 056		43 112		148 168	
Clothing	36 672		7 996		44 668	
Care	50 900		36 133		87 033	
Non-market production transport	25 098		19 223		44 320	
Volunteer work	12 013		8 657		20 670	
Total	291 863		145 460		437 323	

25. The total value of these non-market activities amounts to €437.323 billion. The same average wage was used for both men and women, so all of the comments in Table 2 are valid for this table.

III. Comparison of the value of non-market production activities in 2010 with that of 2003

26. The previous satellite account of Spanish households dates from 2003. Table 4 offers a comparison of the data obtained in this wave with those of 2003.

27. The total number of hours spent working on non-market activities has increased from 46.375 billion to 53.202 billion, which represents an increase of 14.7 per cent. This is partly due to the population growth in this time period. In 2003, the total Spanish population aged 10 or over was 38,847,339 inhabitants, while by 2010 it had increased to 42,243,031, i.e. the population of Spain has increased by 8.7 per cent over the past 7 years. Therefore, while we can attribute 8.7 per cent of the increase in hours between 2003 and 2010 to population growth, there remains an increase of 5.5 per cent, which is due to the increased non-market production in each household.

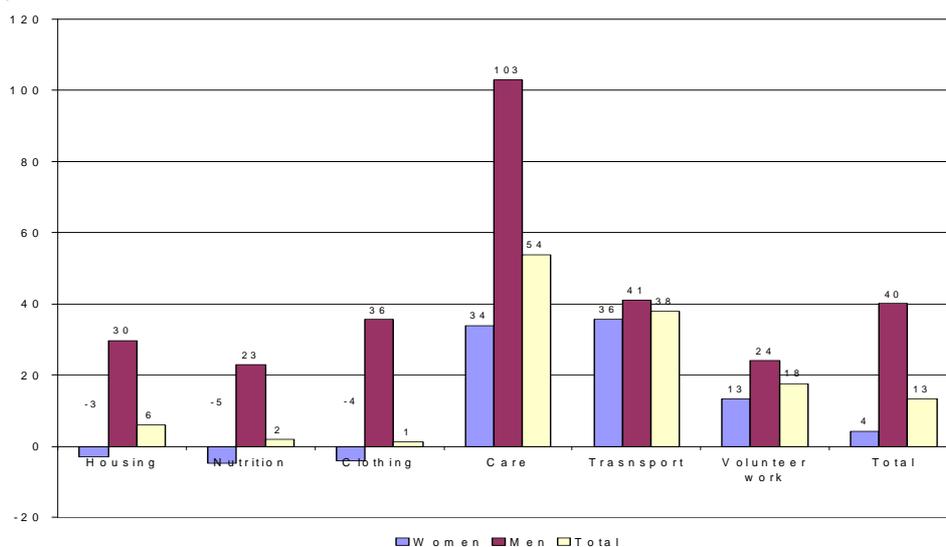
28. An increase can be observed in the hours spent on all activities. The largest increases are in care (59.7 per cent), transport (38.0 per cent) and volunteer work (17.6 per cent), while the others have increased at a rate of between 1 per cent and 6 per cent.

Table 4
Hours spent on non-market production activities
 (Million hours/year)

<i>Main functions of non-market production activities</i>	<i>Women</i>		<i>Men</i>		<i>Total</i>	
	<i>2003</i>	<i>2010</i>	<i>2003</i>	<i>2010</i>	<i>2003</i>	<i>2010</i>
Housing	7 784	7 558	2 846	3 691	10 630	11 249
Nutrition	13 431	12 781	4 269	5 245	17 701	18 025
Clothing	4 654	4 461	717	973	5 371	5 434
Care	4 465	6 192	2 163	4 396	6 628	10 588
Non-market production transport	2 249	3 053	1 659	2 339	3 907	5 392
Volunteer work	1 289	1 461	849	1 053	2 138	2 515
Total	33 872	35 506	12 503	17 696	46 375	53 202

29. This increase in the number of hours occurs in both men and women but is more pronounced in men, for whom it has increased by 41.5% compared to 4.8% in women. While men have increased the time they spend on all of the above non-market activities, women have reduced the number of hours they spend on housing (2.9 per cent less), nutrition (4.8% less) and clothing (4.1% less). In men, there has been a notable increase in the hours they spend on care, which has increased from 2.163 to 4.396 billion, more than double.

Figure 2
Increase in hours spent on non-market production activities in 2010 compared to 2003 by sex



30. Note that men spent far less time on these non-market activities than women in 2003. An increase of one hour in men does not have the same effect on the percentages as a one-hour increase in women. Men spent just over 5 billion hours more than in 2003, while women have increased their hours by less than half (1.634 billion hours to be precise), yet the difference between the time dedicated by men and women is still far from equal.

31. To compare the assessment of 2010 with that of 2003, we applied the wage calculated using the 2003 methodology to our hours, i.e. we used the wage indicated by domestic workers in the individual questionnaire. With this methodology, we obtain an average hourly wage of €6.02 (in 2003, this figure was €4.33), so the assessments are those shown in Table 5.

32. To compare the results from two different years without having to deflate them, we calculated the percentage of the assessment obtained taking into account the GDP of each year.

33. In 2003, Spain's GDP, based on 2008, was €783.082 billion, which rose to €1,051.342 billion in 2010. In 2003, therefore, domestic work represented 25.6 per cent of GDP and, in 2010, 30.5 per cent; in other words, over seven years, the non-market production activities of households has increased by almost 5 percentage points with respect to GDP. The real wage rise would be 3.5 per cent.

Table 5
Value of unpaid non-market production activities of households in 2003 and 2010
(with wages declared by domestic staff)
(€ million)

<i>Main functions of non-market production activities</i>	<i>Women</i>		<i>Men</i>		<i>Total</i>	
	<i>2010</i>	<i>2003</i>	<i>2010</i>	<i>2003</i>	<i>2010</i>	<i>2003</i>
Housing	45 497	33 679	22 220	12 315	67 716	45 994
Nutrition	76 939	58 112	31 573	18 469	108 512	76 581
Clothing	26 857	20 133	5 856	3 100	32 713	23 233
Care	37 277	19 321	26 462	9 357	63 740	28 678
Non-market production transport	18 381	9 727	14 078	7 179	32 458	16 906
Volunteer work	8 798	5 578	6 340	3 676	15 138	9 254
Total	213 749	146 550	106 529	54 096	320 278	200 646

34. The problem with using the wages disclosed by staff is that they tend to report lower wages than they actually earn, so the assessment of non-market production activities would be underestimated, as explained above.

35. In an attempt to solve this problem, the new domestic service module was included in the Time Use Survey for 2010.

36. Based on the data provided by this module, in which the hourly wage obtained was €8.22, the economic assessment would be as shown in Table 6. The value of non-market production activities in 2010 is now 41.6 per cent of GDP, 11 percentage points higher than that calculated with the previous methodology. In this case, the real rise in the wages of domestic staff would be 41.4 per cent, which is an extremely disproportionate figure because the wages for 2003 were underestimated.

Table 6
Value of unpaid non-market production activities of households in 2003 and 2010
(with wages declared by domestic staff in 2003 and those paid by households in 2010)
(€ million)

<i>Main functions of non-market production activities</i>	<i>Women</i>		<i>Men</i>		<i>Total</i>	
	<i>2010</i>	<i>2003</i>	<i>2010</i>	<i>2003</i>	<i>2010</i>	<i>2003</i>
Housing	62 123	33 679	30 340	12 315	92 463	45 994
Nutrition	105 056	58 112	43 112	18 469	148 168	76 581
Clothing	36 672	20 133	7 996	3 100	44 668	23 233
Care	50 900	19 321	36 133	9 357	87 033	28 678
Non-market production transport	25 098	9 727	19 223	7 179	44 320	16 906
Volunteer work	12 013	5 578	8 657	3 676	20 670	9 254
Total	291 863	146 550	145 460	54 096	437 323	200 646

IV. Concluding remarks

37. If we study in detail the results obtained, we find that the value of the non-market production of women has increased less over the past seven years than that of men. This is

because the female employment rate rose 8.5 percentage points between 2003 and 2010, from 43.8 per cent to 52.3 per cent, while the male employment rate in this period stabilised at around 68%. In addition, the male unemployment rate has increased far more than the female rate over these seven years (11.3 points compared to 4.5), so unemployed men have become more involved in household chores.

38. As women began to obtain paid work, the household chores they performed between 2003 and 2008 were done by domestic workers, most of foreign nationality and often in Spain illegally. Following the economic crisis and the rise in unemployment, particularly among men, there has been a change in the outsourcing of household chores, which are again being performed by the members of the household, with men in particular holding a greater weight.

39. As a result, the wages of domestic workers have only risen in real terms – considering the statement made by the workers themselves – by 3.5 per cent, no doubt due to a surplus of immigrant workers both before and after the economic crisis.

40. Nonetheless, non-market production activities have a very high value in relation to GDP, so we need to be able to assess them properly. The results vary considerably according to the wage selected.

41. From our point of view, of the various possibilities entertained, the optimum way to perform this assessment is to use a net wage calculated from the wages reported by the employers, because if we use the net wage declared by the recipients (who tend to declare a lower wage), we obtain an underestimated value of non-market production, as occurred in 2003.

42. Therefore, we recommend including a special module in time use surveys that addresses households with domestic staff in order to obtain the necessary data to estimate household production satellite accounts: wage paid, extra pay, working hours, etc. This would convert time use surveys into a multi-purpose tool for estimating these accounts, because they not only provide us with the hours spent on these activities but also the wages that could be applied to them.