

Calculating the Value of Unpaid Labour in South Africa

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ABSTRACT

This paper tests the feasibility of using various suggested approaches to valuation of unpaid labour using data from South Africa's first national time use study. Four different input-based approaches are compared. The paper also looks at the impact of using different data sources, and different methods of calculating time spent on unpaid labour.

RÉSUMÉ

Cet article teste la plausibilité de l'utilisation de différentes approches suggérées pour la valorisation du travail non rémunéré en se servant des données de la première étude en Afrique du Sud sur l'emploi du temps. Quatre approches basées sur l'information donnée sont comparées. Cet article se penche aussi sur différentes sources de données, sur différentes méthodes du calcul du temps dédié sur le travail non rémunéré.

INTRODUCTION

During 2000, Statistics South Africa (Stats SA) conducted the fieldwork for the first national time use study. The study was made possible by financial and technical assistance from the Norwegian Agency for Development Cooperation (Norad) and Stats Norway. The survey provided the data that allows the first estimations of the value of unpaid labour in South Africa. This paper tests the feasibility of various suggested approaches to valuation using the available South African data. As South Africa is one of the first countries in Africa or indeed in the developing world to produce national time use data, the paper provides an important indication of the extent to which valuation approaches used in the North can be used in the developing world.

The paper tests only input-based approaches, as we do not have the necessary data for an output-based approach in South Africa. The input-based approach used is itself an approximation as it focuses only on the labour input. To perform the full input-based calculations, we would need to decide which goods purchased by the household are used for final consumption, which for intermediate consumption and which are fixed assets. Unfortunately this is not possible in South Africa as the country has not developed the Classification of Individual Consumption by Purpose (COICOP) in sufficient detail. However, the exclusion of

non-labour inputs is less serious than it might seem if we remember that household production is more labour-intensive than production in most other economic sectors.

Four different approaches are tested and compared in the paper, namely:

- ▶ the mean (average) wage approach
- ▶ the opportunity cost approach
- ▶ the generalist approach
- ▶ the specialist approach.

The paper also looks at the impact of using different data sources, and different methods of calculating time spent on unpaid labour.

DESCRIPTION OF METHOD

Using the Time Use Survey

As noted above, South Africa's first national time use study provided the core data for the valuation. The fieldwork for the study was conducted in 3 rounds: February, June, and October, 2000. This was done so as to capture possible seasonal variations in time use. The sample covered all 9 provinces and, within each province, 4 different settlement types: formal urban, informal urban, commercial farms, and other rural settlements. The latter consist largely of the areas that comprised the "homelands" during the apartheid era.

Within each household, 2 people aged 10

years or above were selected systematically and asked what activities they had performed on the previous day. A total of 14,306 individuals, from over 8,500 households, were successfully interviewed about their activities on the previous day. The study used a 24 hour diary, divided into half-hour slots, as the core instrument to record activities. In each slot, a maximum of 3 activities could be recorded. The diary was administered face-to-face with the respondent by means of an interview.

For coding the activities recorded in the half-hour slots, the survey used a trial classification developed by the United Nations Statistics Division (UNSD). The UN classification is organised according to ten broad categories, namely:

1. Work in establishments, for example working for government, in a factory or mine;
2. Primary production, for example growing maize or other vegetables on a household plot or collecting fuel and water;
3. Work in non-establishments, for example selling fruit and vegetables at the side of a road, or doing hairdressing at home;
4. Household maintenance, for example cooking and cleaning the dwelling;
5. Care of persons, for example looking after children, the sick or elderly people in the household;
6. Community service, for example attending a political meeting or helping other households;
7. Learning, for example attending school or doing homework;
8. Social and cultural, for example socialising with family or friends;
9. Mass media use, for example watching television or listening to the radio; and
10. Personal care, for example sleeping, eating and drinking, dressing and washing.

An important aspect of the UN classification system is the fact that these 10 categories can be grouped according to how they are treated in the System of National Accounts (SNA), and thus in the calculation of Gross Domestic Product (GDP).

Activity categories 1-3 fall in the SNA production boundary. They would thus be included

in national accounts and the GDP calculation. Stats SA reports on time use refer to activities in these categories as "SNA production."

Activity categories 4-6 fall outside the SNA production boundary. They may, however, be recognised as "productive" activities and largely correspond to unpaid work. For time use analysis, Stats SA refers to activities in these categories as "non-SNA production."

The remaining four activity categories are not covered at all by the SNA. They fail what is referred to as the "third person test" in that these activities cannot be performed for a person by someone else; people cannot hire someone else to sleep, learn, or eat for them. Thus they cannot become part of the market economy. In its time use analysis, Stats SA refers to activities in these categories as "non-productive activities."

ASSUMPTIONS FOR VALUATION

In our calculations of the value of unpaid labour, we assumed that most production resulting from categories 1, 2 and 3 of the coding scheme would be included in the GDP calculations. The exceptions are collecting of fuel and water. Although the 1993 System of National Accounts (SNA93) specifies that this activity should be included in the GDP computations, this has not been attempted to date by Stats SA nor indeed by many other statistical agencies in developing countries.

Our calculations in respect of productive activities not currently included in GDP calculations thus focused on categories 4 (household maintenance), 5 (care for household members) and 6 (community work), plus collecting fuel and water. Schafer and Schwarz (n.d.) describe all three of our chosen categories as "household production."

Ironmonger (personal communication) and others (Acharya 1995) argue that education should be seen as a type of production in that it produces improved human capacity. However, the standard approach is to regard learning activities as non-productive as they do not pass the third-person test, i.e. one cannot pay someone else to learn for you. We follow this standard approach.

There is also some debate as to how travel should be treated. Chadeau (1992, 89) argues that the third party criterion dictates that "transporting oneself should be considered as a productive activity

provided it is not performed as a non-productive leisure activity." In the activity classification system used by Stats SA all travel associated with a particular category of work is included in that category. In order to be consistent with calculations of GDP, in which travel in relation to paid work would usually be excluded, we have excluded all travel related to non-SNA production from our calculations of the value of this production.

CALCULATING THE HOURS

The Stats SA time use survey allowed for up to 3 activities to be reported for each half-hour timeslot. The respondent was asked to state for each activity whether it was performed simultaneously with other activities or alone. The Stats SA survey did not distinguish between primary, secondary and tertiary activities. All activities in a given period were given equal weight.

In order to obtain a fuller understanding of simultaneous activities, Stats SA used 2 different methods of assigning minutes to activities. When there was only one activity in a half hour, it was obvious that 30 minutes should be assigned to that activity. When there were 2 or 3 activities in a half hour which were performed sequentially, one after the other, it was also simple to assign 10 or 15 minutes to each activity. However, when 2 or more activities were performed simultaneously, it was more complicated. If, for example, 2 activities were performed simultaneously in a particular half hour, should one assign 30 minutes or 15 minutes each?

The advantage of assigning 15 minutes is that the total minutes per person per day then add up to 24 hours. This method makes our results more easily comparable with those of other countries. One disadvantage of this method is that it can give the impression of less time being spent on an activity than is the reality. For example, if a person spends 8 hours at work, during which the person also listens to the radio, the approach will record only 4 hours of work and 4 hours of listening to the radio. This is not how most people would intuitively understand the situation.

The advantage of assigning 30 minutes to each of the 2 activities is that it shows the truer duration of a particular activity and the full time it spanned.

In this report we mainly use the "24-hour"

method. We do, however, provide some comparisons with what would have resulted from using the "full minutes" method.

CALCULATING THE WAGE

Mean hourly wages were calculated from data from the Labour Force Survey (LFS) conducted in September 2000. The LFS is a six-monthly rotating panel household survey specifically designed to measure labour market dynamics in the country. Each round of the survey collects information from approximately 70,000 adults aged 15-65 years living in 30,000 households spread across the country.

As with most other household surveys, the LFS probably provides an underestimate of actual earnings as respondents tend to under-report income of all kinds. It is, however, the best source available in terms of coverage of both formal and informal sectors. In the LFS, some potential further sources of under-estimation are:

- ▶ That the responses exclude in-kind payments;
- ▶ That the responses exclude additional payments by the employer, for examples to the Unemployment Insurance Fund; and
- ▶ That the responses probably exclude payment such as a thirteenth cheque in a twelve month period.

The first source could be significant for groups such as domestic workers, and could thus affect the generalist wage method. The second source of under-estimation is less significant as this type of payment is much less common and also lower in South Africa than in more developed countries.

Of the 21,875 total employee respondents in the LFS, we obtained valid responses for 21,067 records.

Time use surveys produce information in terms of hours and minutes. We therefore needed to obtain an hourly rather than a weekly wage. The LFS asks how many hours per week, including overtime, the respondent usually works in his or her main job or activity. We used the weekly wage and the number of hours worked in combination to obtain an hourly wage. In those cases where there

was no valid response on hours, we used 45 hours as a default, as this is the maximum number of ordinary hours specified in the Basic Conditions of Employment Act. The default was necessary for 5% of all employees.

SELECTING OBSERVATIONS FOR DIFFERENT METHODS

Despite our reservations about the opportunity cost method, we nevertheless attempted to apply it to the available data. Applying the method in South Africa is not as simple as in some other countries where unemployment is not as high, and fewer people have never been employed. Here, instead of basing the opportunity cost on the occupation of the individual, we based it on the mean wages of people of similar sex and educational levels. In terms of educational level, we distinguished between those with no formal education, those who had not completed grade 7 (incomplete primary), those who had not completed grade 12 (incomplete secondary), and those with grade 12 or higher.

Table 1 (see Appendix) shows the occupations selected for the generalist calculations involving work similar to housework and care of persons. The codes in the first column of the table are the occupational codes used by Stats SA for all relevant surveys and censuses. Close on two-thirds (64%) of respondents selected from the LFS are in the category of domestic helpers and cleaners. This is the occupation people most readily associate with unpaid labour. Unlike some studies in other countries, we did not include nursing-type occupations. Care work certainly does involve some nursing-type activities. We omitted the category because the number of observations is relatively large and would have thus had a disproportionate impact on the mean. The omission results in a lower mean, as nurses and especially, professional nurses, generally earn more than those in the selected occupations. Thus inclusion of the 284 nursing associate professionals (code 3231), would have resulted in a mean hourly wage of R6.23 (South African Rand) rather than the R5.08 obtained without them.

In addition to the occupation codes, Table 1 shows the number of male and female respondents for each in the LFS. Because there were relatively

few observations overall, and because male respondents accounted for only 11% of the total, the wage computations were not sex-disaggregated for this calculation.

For the *specialist* approach, we considered each of the different activities included in non-SNA production, and decided on the paid occupation/s that most resembled them. The assignment of activity codes (from the time use survey) was as follows:

- ▶ Activity codes 410 (cooking-related) and 620 (community organised work) were equated with the work of cooks and waitrons;
- ▶ Activity codes 420 (cleaning-related), 440 (shopping), 450 (household management), 490 (miscellaneous housework), 615 (cleaning of classrooms), 250 (collecting water) and 236 (collecting fuel) were equated with the work of paid domestic workers, housekeepers and cleaners in establishments;
- ▶ Activity code 430 (care of textiles, etc.) was equated with the work of hand launderers;
- ▶ Activity code 460 (do-it-yourself home improvements) was equated with the work of craftspersons;
- ▶ Activity codes 470 (pet care), 511/2 (physical care of household children), 531/2 (accompanying household children), 550 (accompanying household adults), 561/2 (supervising household children), 590 (miscellaneous care of household persons) and 671/2/3/4 (care of non-household persons) were equated with the work of child carers, institution- and home-based personal carers, and general personal care workers;
- ▶ Activity code 540 (physical care of household sick, aged and elderly) was equated with the work of nursing associate professionals;
- ▶ Activity code 521/2 (teaching household children) was equated with the work of primary and secondary teachers;
- ▶ Activity code 610 (community organised construction) was equated with the work of construction labourers; and

- ▶ Activity codes 630 (volunteering for an organisation), 650 (participation in meetings), 660 (involvement in civic responsibilities) and 690 (miscellaneous community services) were equated with the work of unskilled (elementary) workers.

THE POPULATION CENSUS AS AN ALTERNATIVE DATA SOURCE

The population census provides an alternative source of income data. The strength of the Census is its greater coverage than the LFS. Weaknesses include (a) less specific questions about employee incomes; (b) the fact that the Census was conducted in 1996 whereas the time use data is from 2000; and (c) apparent under-estimation of income when compared with other sources (Alderman et al. 2000,10-1).

In terms of the first weakness, there are several aspects:

- ▶ Census '96 enquired about every individual's personal income, whether that person was employed or not. The responses could, therefore, include non-earned property income. To approximate earned income, we restricted the calculations to people who were classified as employed. This category would include self-employed and employers as well as employees, but the latter predominate.
- ▶ Census '96 asked for income information only in terms of income brackets. This is less accurate than the exact figures obtained in respect of most employees in the LFS. To overcome this weakness, we adopted the same logarithmic mean approach as we adopted for where only income bracket data were available in the LFS.
- ▶ Census '96 data does not include a question as to how many hours the person worked. To overcome this obstacle we assumed a working week of 46 hours. This was the maximum ordinary hours specified in the Basic Conditions of Employment Act in 1996. (A later amendment reduced the maximum to 45 hours.)

- ▶ Census '96 only recorded employment status for people aged 15 years and above whereas the time use information is available for people aged 10 years and above.

In terms of the second weakness, we have adjusted the 1996 figures by the consumer price index, in the absence of a more reliable basis of adjustment. In terms of the third weakness, we made no adjustments. We can thus expect the Census-based calculations to yield lower estimates of value added in household production.

For the generalist calculation based on the Census, we took two categories - domestic and related helpers, and personal care workers. There were 1.3 million of the former and 17,875 of the latter.

RESULTS

Table 2 (see Appendix) provides the basic statistics relating to how male and female South Africans spend a 24 hour day. The values are calculated as a weighted average of the time spent by all respondents to the survey. The table distinguishes between activities included in GDP calculations as specified by SNA93, production activities that are not included, and non-productive activities. In arriving at these figures, a number of adjustments were made to the division suggested by the activity classification. In particular, all travel activities and looking for work were reclassified as non-productive, and water and fuel collection were reclassified from SNA production to non-SNA production. Ironmonger (1993, 9) estimates that in 1987, Australian market industries used 252 million hours while "household industries" used 282 million hours. Unpaid work thus was 12% greater than paid work in terms of time. Table 2 suggests that in South Africa unpaid work is 33% greater than paid work in terms of time.

Table 2 reveals that South African men spend an average of 80 minutes per day and women an average of 220 minutes per day on productive activities that are not included in GDP calculations. If we use the "full minutes" method for calculating time spent on simultaneous activities rather than the "24-hour" method, the average minutes per day increase to 87 for men, 247 for women and 172 for both combined. In this paper we attempt to assign

monetary value to these activities using each of the different methods.

We take the following steps to arrive at the value of unpaid labour:

- ▶ We calculate the number of hours spent by individuals in a year, by multiplying the daily number of minutes by 365 days and dividing by 60 to convert to hours.
- ▶ We multiply the amounts for individuals by the total relevant population. Because the time use survey targeted people aged 10 years and older, we restrict our calculations to this group. We note, however, that this results in an underestimation of the extent that children under ten years engage in unpaid production.
- ▶ We calculate the appropriate wage for particular groups and particular non-SNA productive activities. As noted in the previous section, different methods can be applied for this step. In presenting the results below, we explain how the appropriate wage was arrived at in each case.
- ▶ We multiply the number of hours by the appropriate mean wage.
- ▶ We calculate the value of unpaid labour as a percentage of South Africa's GDP for the year 2000 of R887,797 million.

ECONOMY-WIDE MEAN WAGE APPROACH

In the simplest case, we calculate the mean wage for all employees across all occupations and assign this mean to unpaid hours. One sophistication is that we calculate the mean wage separately for women and men. To clarify the method, we will go through the steps one at a time for this method and then summarise the results in a table.

In step (a), using the time use data, we arrive at an average of 487 hours per year for men, 1,338 hours for women, and 937 hours for women and men combined if we use the 24 hour method. For step (b), the weighted LFS records 15,885,322 men and 17,672,377 women aged 10 years and above, giving a total of 33.6 million people.

For step (c), when we include all

employees with valid wage data in the LFS, the mean hourly wage for men is R16.64 and that for women R13.17.

Combining the different sets of data, we tabulate the results in Table 3 (see Appendix). The table shows that the economy-wide sex-disaggregated mean wage calculation gives a value equal to 50% of GDP.

The above calculations are based on the 24-hour measure for simultaneous activities. Table 4 (see Appendix) reflects similar calculations, but this time based on the "full minutes" method, which allocates the full time value to simultaneous activities. The table shows a value equal to 55% in GDP with this measure.

The above calculations are based on LFS data. The same approach, but using Census data, is reflected in Table 5 (see Appendix). The population census may provide underestimates of income when compared with other sources. We obtain a mean male hourly wage of R12.17 and a female mean of R8.10. As expected, this gives a value equal to a smaller percentage of GDP, namely 32%, than that shown in the last line of Tables 3 or 4.

OPPORTUNITY COST APPROACH

Table 6 (see Appendix) shows the mean wage for each of the chosen educational levels (see above), as well as the percentage of the male and female population aged 10 years and above estimated to be at each level. The final row of the table shows the resultant average male wage to be R13.65 per hour and the female wage to be R9.74 per hour.

Table 7 (see Appendix) is the usual one depicting the value of non-SNA production. The total wages per year reflect the result of calculations based on figures to greater accuracy than those shown in higher rows of the table, which are rounded off. Multiplying the total hours shown in the table by the hourly wage will thus give slightly different results. The total wages shown in the table are, however, the more accurate figures. The final row shows that this basis of valuation results in a value equal to 38% of GDP.

GENERALIST APPROACH

In the generalist approach we take the

mean wage earned by paid workers doing work similar to domestic and care work. We do the calculations first based on LFS data, and then on Census data. The occupations selected for this exercise are discussed above. We do not disaggregate by sex, because relatively small numbers of men do these occupations on a paid basis. In the LFS, the mean hourly wage for the selected occupations is R5.08. The valuation calculation gives a value equal to 18% of GDP (see Table 8, Appendix).

Table 9 (see Appendix) shows that, with the full minutes measure, the value increases slightly, to 20% of GDP.

The Census produces a mean generalist hourly wage of R3.02. Table 10 (see Appendix) shows that this produces an amount equal to a low 11% of GDP.

SPECIALIST APPROACH

The specialist approach disaggregates in terms of activities rather than the person performing them. Above we describe the way in which the different activity codes which are part of non-SNA production are equated with different occupations. Table 11 (see Appendix) shows the average minutes per day spent on each of the categories, as well as the average wage assigned to these minutes.

Table 12 (see Appendix) shows the value calculations in the usual format. This time, the value is equal to 24% of GDP.

Table 13 (see Appendix) summarises the results of all the calculations.

Finally, we present Norwegian results for similar calculations as a point of comparison. Table 14 (see Appendix) shows much less variation in the Norwegian results for different approaches than in South Africa. The only exception is the relatively high value for the specialist method for 1972. The smaller variation can, at least to some extent, be explained by smaller differences in pay between different occupations in Norway than in South Africa. The South African value for the opportunity cost approach is very similar to the Norwegian values. The South African value for the generalist and specialist approaches is significantly lower than the Norwegian values. Again, this can be largely explained by greater variations in wages within South Africa, with relatively low wages for

domestic work and for other female-dominated and care-related occupations. Further, the value for the generalist approach in Norway was based on wages for a municipally employed housewife substitute, an occupation that does not exist in South Africa.

THE WAY FORWARD

The calculations above provide a wide variety of estimates of value added in household production. At the most conservative, using Census data, the domestic and care wage and the 24-hour measure, household production would be equal in value to 11% of GDP. The paper points to a range of reasons why this calculation is an underestimate of true value added. At the other end of the scale, using LFS data, economy-wide mean wages and the full minutes measure, household production would be equal to 55% of GDP. All of these methods exclude the value of non-labour inputs.

The paper illustrates the effects of using different methods, as well as the implications of using different data sources and different ways of calculating minutes. Which measure is best is a matter of judgement, and the choice of approach might differ for different purposes.

As important as the value of unpaid labour in comparison to that of GDP are changes over time in the relative values. This paper presents estimates of the value of unpaid labour in South Africa for 2000. At this stage, we do not have the data on which to base estimates for any other date. Over time, however, Stats SA hopes to produce the data that will make analysis of changes over time possible.

GDP estimates are produced on a quarterly basis. Time use estimates do not need to be produced as frequently as time use patterns are unlikely to change rapidly. Stats SA has plans to include a time use module in the LFS on a five-yearly basis. This will, in future, allow for comparison over time of the relative contributions of paid and unpaid labour. Chadeau (1992) notes that the inclusion of housework usually lowers the (extended) growth rate of GDP and unpaid labour combined. This happens, in particular, if activities performed unpaid are progressively transferred onto the market. Time will tell whether this pattern holds in South Africa.

APPENDIX**Table 1: Respondents selected for calculation of housework and care wage**

Code	Occupation	Male	Female	Total
5121	Housekeeper & related	1	14	15
5122	Cooks	76	164	240
5123	Waitrons	38	88	126
5131	Personal care of children & babies	6	106	112
5132	Institution-based personal care workers	13	45	58
5133	Home-based personal care workers	0	8	8
5139	Personal care workers (not elsewhere classified)	2	1	3
9131	Domestic helpers & cleaners	90	2485	2575
9132	Helpers & cleaners in establishments	213	634	847
9133	Hand-laundrerers & pressers	5	39	44
Total		444	3584	4028

Table 2: Mean minutes per day spent on different activities by sex in the time use survey

Activity type	Male	Female	Combined
Production included in GDP calculations	148	85	115
Production excluded from GDP calculations	80	220	154
Non-productive activities	1,211	1,134	1,170
All activities	1,439	1,439	1,439

Table 3: Valuation using economy-wide sex-disaggregated mean wage from LFS, and 24-hour measure for simultaneous activities

	Male	Female	Combined
Minutes per day	80	220	154
Hours per year	487	1,338	937
Population 10 years plus	15,885,322	17,672,377	33,557,699
Total hours per year	7,736,151,814	23,645,640,426	31,443,563,963
'Wage' per hour	R16.64	R13.17	-
Total wages per year (Rm)	128,641	311,491	440,132
% of GDP	14%	35%	50%

Table 4: Valuation using economy-wide sex-disaggregated mean wage from LFS, and full minutes measure for simultaneous activities

	Male	Female	Combined
Minutes per day	87	247	172
Hours per year	529	1,503	1,046
Population 10 years plus	15,885,322	17,672,377	33,557,699
Total hours per year	8,407,306,669	26,554,219,141	35,112,539,054
'Wage' per hour	R16.64	R13.17	-
Total wages per year (Rm)	139,898	349,719	489,617
% of GDP	16%	39%	55%

Table 5: Valuations using economy-wide sex-disaggregated mean wage from Census, and 24-hour measure for simultaneous activities

	Male	Female	Combined
Minutes per day	80	220	154
Hours per year	487	1,338	937
Population 10 years plus	15,885,322	17,672,377	33,557,699
Total hours per year	7,736,151,814	23,645,640,426	31,443,563,963
'Wage' per hour	R12.17	R8.10	-
Total wages per year (Rm)	94,149	191,530	285,679
% of GDP	11%	22%	32%

Table 6: Mean wage and average minutes spent on unpaid labour by education

	Male			Female		
	%	Wage	Minutes	%	Wage	Minutes
No schooling	8	5.51	88	10	2.1	242
Incomplete primary	40	6.61	75	34	4.56	187
Incomplete secondary	29	11.34	83	35	8.9	238
Matric plus	24	30.9	80	21	22.94	216
Average		13.65	80		9.74	216

Table 7: Valuation using opportunity cost sex-disaggregated wage from LFS, and 24-hour measure for simultaneous activities

	Male	Female	Combined
(Weighted) minutes per day	80	216	n/a
Hours per year	487	1,314	n/a
Population 10 years plus	15,885,322	17,672,377	33,557,699
Total hours per year	7,730,856,707	23,221,503,378	30,952,360,085
'Wage' per hour	R13.5	R9.74	-
Total wages per year (Rm)	105,498	229,281	334,779
% of GDP	12%	26%	38%

Table 8: Valuation using generalist wage from LFS, and 24-hour measure for simultaneous activities

	Population
Minutes per day	154
Hours per year	937
Population 10 years plus	33,557,699
Total hours per year	31,437,971,013
'Wage' per hour	R5.08
Total wages per year (Rm)	159,705
% of GDP	18%

Table 9: Valuation using generalist wage from LFS, and full minutes measure for simultaneous activities

	Population
Minutes per day	172
Hours per year	1,046
Population 10 years plus	33,557,699
Total hours per year	35,112,539,054
'Wage' per hour	R5.08
Total wages per year (Rm)	178,372
% of GDP	20%

Table 10: Valuation using generalist wage from Census, and 24-hour measure for simultaneous activities

	Population
Minutes per day	154
Hours per year	937
Population 10 years plus	33,557,699
Total hours per year	31,437,971,013
'Wage' per hour	R3.02
Total wages per year (Rm)	94,943
% of GDP	11%

Table 11: Average minutes spent per day on activities and mean relevant specialist wages

Activity	Daily minutes	Average wage R/hr
General domestic	60.5	4.58
Cooking	53.7	7.37
Laundry	16.8	7.9
Do-it-yourself	2.5	12.2
Care of sick, aged	0.4	20.29
Care of other people	17.9	9.65
Teaching	1.1	39.34
Construction	0.1	7.65
General unskilled	1.9	5.17
Total	154	

Table 12: Valuation using specialist wage from LFS, and 24-hour measure for simultaneous activities

	Population
Minutes per day	154
Hours per year	937
Population 10 years plus	33,557,699
Total hours per year	31,437,971,013
'Wage' per hour	Differentiated
Total wages per year (Rm)	217,327
% of GDP	24%

Table 13: Comparison of results of different valuation approaches

Data	Approach	Time measure	Value (Rm)	% of GDP
LFS	Economy-wide mean wage	24-hour	440,132	50
LFS	Economy-wide mean wage	Full minutes	489,617	55
Census	Economy-wide mean wage	24-hour	285,679	32
LFS	Opportunity cost	24-hour	334,779	38
LFS	Generalist	24-hour	159,705	18
LFS	Generalist	Full minutes	178,372	20
Census	Generalist	24-hour	94,943	11
LFS	Specialist	24-hour	216,467	24

Table 14: Norwegian results for different approaches and years

Approach	Year	% of GDP
Generalist (housekeeper)	1990	37
Specialist	1990	38
Opportunity cost	1981	40
Specialist	1981	39
Specialist	1972	50

Source: Brathaug (1990), Dahle and Kitterød (1992)

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