

CHAPTER EIGHT

Women's Employment, Unpaid Work,
and Economic Inequality

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How does the level of women's employment affect economic well-being? Most explorations of this question focus on the distribution of market earnings, especially on the consequences of women's increasing engagement in market work, ignoring the possible impact of changes in the value of women's non-market work. Yet, recent calculations of the market value of unpaid work based on data collected from time-use surveys reveal its significant magnitude: between about 20 and 50 percent of conventionally measured gross domestic product (GDP) (Landefeld and McCulla 2000; Giannelli, Mangiavacchi, and Piccoli 2010). Given that household sector income constitutes roughly 70 percent of GDP, clearly, accounting for unpaid work would increase the magnitude of household income even more. Further, many studies show that increases in the time women devote to paid work are associated with declines in overall household time devoted to unpaid work. A full assessment of the impact of women's rising employment on inequality (see Chapter 7) requires attention to the possible countervailing effects of declines in the value of home-produced goods and services.

In this chapter, we move toward such an assessment in eight European countries and the United States. Focusing on heterosexual married/cohabiting couples, we compare estimates of the level and inequality of household market earnings with estimates of "extended earnings"—that is, market earnings plus estimates of the value of non-market work.¹ We estimate the value of non-market work by applying estimates of average time devoted to household work and child care based on data from the Harmonized European Time Use Survey (HETUS) and the American Time Use Survey (ATUS) to married couples whose microdata are included in

the *Luxembourg Income Study (LIS) Database*. We provide lower-bound replacement-cost estimates of the market value of this work and examine implications for several different measures of inequality.

Hours of non-market work are more evenly distributed across households than are hours of market work, vary relatively little in terms of market value, and are negatively correlated with hours of market work. Therefore, higher levels of non-market work in a country have an equalizing effect, with important implications for inter-country rankings of equality that vary according to methods of valuation. Our estimates illustrate a range of possible magnitudes of this equalizing effect. They suggest that failure to take the value of unpaid work into account confounds conventional market income-based estimates of the effect of changes in women's employment on economic inequality.

We begin with a discussion of economic well-being that clarifies our definition of extended earnings and our choice of replacement-cost estimates for the value of non-market work. We then review the two different lines of empirical research alluded to above: studies of the impact of increases in women's employment on the level and inequality of household earnings, and studies of the impact of non-market work on a household's extended earnings. In the following section, we consider some important methodological issues, such as the measurement and valuation of non-market work and the possible implications of differing economies of scale for consumption based on market income versus household production. We next discuss our empirical results. In the conclusion, we explain why our estimates are relevant to broader discussions of the impact of changes in women's roles on inequality in economic well-being.

DEFINITION AND MEASUREMENT OF DIFFERENCES
IN ECONOMIC WELL-BEING*Defining Extended Earnings*

Economic well-being can be defined and measured in many different ways. Economists have traditionally relied on measures of market income (money that comes into a household) or consumption expenditure (money that goes out of a household), but a growing body of research emphasizes what happens within the household itself (Folbre 2009). The value of household production can be seen as a form of implicit income or as a contribution

to household consumption. "Work" can be defined as an activity that, in principle, someone else could be paid to perform. By this definition, the overall amount of time devoted to household work in many rich countries approximates the overall amount of time devoted to market work (Burda, Hamermesh, and Weil 2007, Tables 1 and 2). Further, investments in household capital (housing and consumer durables) are substantial. In principle, most economists agree that household production makes significant contributions to household consumption of goods and services and therefore enhances living standards.

Economists disagree, however, on both theoretical and methodological issues concerning the measurement and valuation of household production. Neoclassical models of household production based on Becker (1965) typically begin with the assumption of household utility maximization and apply that logic to valuation. This approach has two important implications for measurement. First, because time devoted to leisure yields direct utility to households, many neoclassical models assign a value to leisure as well as to household production, providing an estimate of what is often termed "full income." Second, because households presumably compare the utility they gain from both leisure and household production to the utility they would gain from their next best alternative, both leisure and household production are often valued according to the opportunity cost of the individuals engaging in them—typically, the estimated wage in market employment. This approach emphasizes the subjective value that households place on their own activities, yielding a measure of utility that is interesting to compare with direct reports of happiness or satisfaction yielded by new survey methodologies (Kahneman et al. 2004).

This subjective emphasis on utility or psychological well-being can be contrasted with the emphasis on material living standards characteristic of classical political economy, rooted in consideration of physiological and social needs (for more discussion, see Folbre 2008). National income accounts—and related measures such as market income and consumption expenditures—are purely descriptive categories that are not based on any assumptions regarding utility maximization. The same is true of survey measures of household earnings or consumption. These measures are based mostly on market prices, and they do not include any consideration of individual utility in the form of consumer surplus. For this reason, an important study published by the National Academy of Sciences (Abraham

and Mackie 2004) recommends that valuation of non-market activities for national income accounting purposes should not include the valuation of leisure time and should be based on the logic of replacement cost rather than opportunity cost. That is, if the household did produce its own goods and services, what would it cost to replace these with purchases of comparable goods and services?

As we shall see, a precise answer to this question is difficult to come by, especially because the value of household production is affected not only by inputs of unpaid work but also by household technology and productivity. Furthermore, the challenge of accurately measuring income available for the consumption of goods and services is not limited to the valuation of household production alone. In principle, a measure of extended income should be based on the sum of after-tax earnings, other after-tax income (including government transfers), and the value of in-kind services provided by the government, including health care, child care, and elder care, as well as the value of home production. Indeed, omission of the value of government-provided services directly parallels omission of the value of unpaid work—most obviously in the case of child care and elder care (Esping-Andersen 2009). Any empirical venture into the measurement of extended earnings requires considerable methodological humility. On the other hand, conventional estimates of well-being based on market earnings alone can be seriously misleading.

The Impact of Women's Employment on Household Earnings

Focus on market earnings is a prominent feature of most research on the impact of women's employment on the level and distribution of economic well-being. Measurement of increases in family earnings is straightforward for married/cohabiting couples because it simply involves the addition of married women's earnings to those of their husbands (the implications are less straightforward for families or couples who are less likely to pool their income). In most high-income countries, increases in both women's employment and their earnings have contributed to substantial increases in family earnings since the 1960s, although assessment of this trend is complicated by countervailing trends in household structure, such as increases in the percentage of families maintained by mothers alone.

A focus on the market earnings of married couples clarifies the issue at hand: as married women have entered paid employment, they have

reduced the amount of time they devote to non-market work. The historical record is particularly clear for the United States (Bianchi, Robinson, and Milkie 2006). Thus, it seems likely that declines in the value of unpaid work have partially countervailed increases in market earnings—requiring married-couple families to spend more money on substitutes for previously home-produced services, such as convenience foods, restaurant meals, and child care services. Likewise, differences in the value of unpaid work could confound comparisons of earnings between dual-earner married couples and those including a full-time homemaker who devotes more time than her employed counterpart to services such as meal preparation and child care.

In principle, the methodology applied to analyses of the impact of married women's employment on family market earnings can be extended to analyses of its impact on household extended earnings. As a result, a review of this literature yields important insights, particularly for analyses of effects on inequality. First (and most intuitively), this literature sometimes deploys counterfactuals: what would the distribution of family earnings among married couple households look like if (a) women had no earnings or (b) women's earnings were higher (all else equal). Second, this literature often compares the variance of overall earnings with the variance of men's earnings or decomposes a measure of inequality, such as the squared coefficient of variation, into its component parts, making it possible to compare the impact of changes in the level of inequality among women and men, the inequality between women and men, and the correlation between spouses' earnings.

For instance, in their analysis of changes in family income inequality among married couples in the United States, Cancian, Danziger, and Gottschalk (1993) found that increases in women's employment and earnings lowered market earnings inequality overall, with considerable variation among racial/ethnic groups. Their decomposition of the squared coefficient of variation of earnings showed that greater female employment reduced the overall inequality in women's earnings (because fewer women had zero earnings), an effect that outweighed the effect of increased correlation between the earnings of wives and husbands (a result of assortative mating, especially more highly educated women married to more highly educated men).

Similarly, Cancian and Schoeni (1992), examining differences in married-couple incomes across 11 countries (including changes over time in 4 countries) based on LIS data, found that wives' earnings reduced overall income inequality, though to varying degrees. They conclude that the

correlation between the earnings of married husbands and wives would need to be considerably higher (at least double) to counter the equalizing effect of wives' earnings.

In a more recent LIS study, Harkness (see Chapter 7) investigated the relationship between female earnings and household income inequality using microdata for 17 rich countries. Using both of the counterfactuals described above, as well as a decomposition of the squared coefficient of variation, she found that, in all countries, female earnings exert an equalizing force—although of quite different magnitudes across countries.

However, Harkness also acknowledges important variation across studies, based on variation in measures used. Esping-Andersen (2008), for example, compares the variance of total earnings with that of husbands' earnings across several countries, in 1993 and 2001, and concludes that wives' earnings increased inequality among couples in France, Germany, Italy, Spain, and the United Kingdom, but decreased inequality in the United States, Sweden, and, in 2001 only, Denmark. Both the cross-country variation and the sensitivity to different measures of inequality suggest that the effects of increased female employment on extended earnings could be quite different from the effects on market earnings.

The Impact of Valuation of Unpaid Work on Earnings and Earnings Inequality

Estimates of the value of unpaid work show that it increases family earnings fairly uniformly, but more so in countries with lower levels of female employment. Freeman and Schettkat (2002), for example, found that the value of extended earnings relative to market earnings was significantly greater in Germany than in the United States. On the other hand, time devoted to non-market work did not decline proportionately with time devoted to market employment, and it remained relatively high even in high-income economies (Folbre and Yoon 2008).

Efforts to value unpaid work generally find that imputations of its market value have an equalizing effect on the distribution of family "extended earnings," defined as the sum of market earnings and the imputed value of unpaid work (Aslaksen and Koren 1996; Gottschalk and Mayer 2002; Frazis and Stewart 2006; Frick, Grabka, and Groh-Samberg 2009). Somewhat surprisingly, however, low-income households in the United States do not seem to devote significantly more time to household production

(including child care) than do high-income households, and unemployed men do not perform significantly more housework than those who are employed (Frazis and Stewart 2006). The equalizing effect of valuing unpaid work results primarily from the addition of a large relatively constant value to most household incomes.

The size of this equalizing effect, however, varies considerably. Some evidence suggests that the distribution of unpaid work across U.S. households has become slightly more unequal over time (Zick, Bryant, and Srisukhumbowornchai 2008). Furthermore, the size of the equalizing effect depends heavily on assumptions used in valuing non-market work time, ranging from valuation methods to considerations of joint production and possibly diminishing productivity (Frick, Grabka, and Groh-Samberg 2009).

Changes in the size of married-couple households may also have implications for economies of scale in household production. While economists know little about the extent of economies of scale in household production, assumptions regarding their impact are built into standard equivalence scales, which assume that many can live more cheaply than one. There are almost certainly greater economies of scale in household production than in market purchases: the marginal cost of adding another person to the home dinner table is much smaller than that of adding him or her to a restaurant tab. In meal preparation, economies of scale in time far exceed economies of scale from consumption alone (Vernon 2005).

Likewise, in countries where child care imposes costs on parents, the marginal cash expenditure cost of putting a young child into paid child care is often greater than the time cost of adding another child to the household. Hence, a shift away from household production toward market production almost certainly reduces overall household economies of scale in consumption. As a result, large families—such as those with more than two children—that rely more heavily on market earnings may actually be worse off in terms of extended earnings than large families with higher levels of household-produced services.

CONSTRUCTING MEASURES OF EXTENDED EARNINGS

In order to focus on unpaid work, which varies most among working-age women in couple-headed households, we focus on married/cohabiting couples, aged 25 to 59 and living in households with no other adults. We

generate estimates of the amount of unpaid work per adult, based on data from the HETUS and the ATUS, and we link these to estimates of the earnings of married/cohabiting couples in the *LIS Database*. (A similar methodology is applied in Giannelli et al. 2010, linking the HETUS with the EU household survey, EU-SILC.)² We chose the following countries based largely on the temporal proximity of the HETUS/ATUS and *LIS* datasets (typically no more than one year apart): Finland, France, Germany, Italy, Poland, Spain, Sweden, the United Kingdom, and the United States. These nine countries vary considerably in their levels of female employment and non-market work.

The HETUS asked a representative sample of respondents to describe their activities on a randomly chosen day, which could fall during the week or on the weekend. The HETUS database offers consistent harmonized measures of time use; although its interface does not allow direct analysis of the microdata, users are able to construct tables. We use the ATUS microdata to provide comparable estimates of time use for the United States. It is important to note that time designated as “child care” is limited to activities such as feeding, cleaning, bathing, talking to, or transporting a child. Supervisory or “on-call” responsibilities are not included. Also, housework conducted on behalf of a child—such as meal preparation, laundry, or picking up toys, is coded as housework, not as child care.

We estimated mean time devoted to unpaid work activities for individuals based on their employment characteristics, the presence of children, and the age of the youngest, distinguishing between two types of unpaid work: housework and child care. The sum of average unpaid work hours by husbands and wives, with given employment and family size characteristics, provides an estimate of the household's total unpaid work hours. Because we cannot clearly identify other adults living with married/cohabiting couples in the HETUS data, to measure their distinctive pattern of unpaid work, we excluded all couple-headed households in which another adult was a resident. This exclusion leads to an underestimate of the total quantity of unpaid work in countries where extended families are common, such as Poland (where more than 45 percent of men and women living in a household with a child live in a household with more than two adults).

We matched estimates of married/cohabiting individuals' time use from the HETUS/ATUS to married/cohabiting individuals included the *LIS* datasets, based on their individual employment and child-related

characteristics. The time-use and income surveys were typically conducted no more than one year apart. It is important to note that estimates of hours devoted to unpaid work are based on averages for different categories of individuals, which substantially reduces overall variation in both hours and imputed earnings. At the same time, most estimates of hours devoted to paid work are also based on self-reported averages or responses to questions regarding "usual" hours of work. We multiplied the number of unpaid work hours per household by the national minimum wage in each country, aiming for a lower-bound estimate of the value of that unpaid work. In several cases, we converted a monthly minimum wage to an hourly wage based on assumptions regarding hours of work. This replacement cost estimate yields imputed values well below the actual cost of hiring a replacement worker because they ignore the value of employer contributions other than wages. We add the estimated value of unpaid work to net earnings (earnings less taxes and social contributions) to estimate extended earnings per household. Finally, we compare measures of the level and distribution of extended earnings for partnered couples, with measures based only on market earnings.

RESULTS

In this results section, we first provide an overview of our estimates of time use based on the HETUS and the ATUS. Second, we provide estimates of the value of unpaid and extended earnings across countries. Third, we examine variation in the distribution of market earnings and extended earnings across countries, demonstrating the equalizing effect of unpaid work.

Time Use

The basic distribution of average work time across the nine countries reveals a familiar pattern (Table 8.1). Men devote more time, on average, to paid work, and women to unpaid work. However, in every country, men devote an average of at least 2 hours a day, or 14 hours per week, to unpaid work. In every country (results not shown in table), the likelihood of performing some unpaid work on the time diary day was far higher than the likelihood of carrying out paid work. In these demographic categories (which exclude single-parent households), men work slightly more total hours per day than

TABLE 8.1
Paid work hours, unpaid work hours, and total work hours, 1999–2004 (married/cohabiting adults, aged 25–59, no other adults in household)

	PAID WORK HOURS		UNPAID WORK HOURS		TOTAL WORK HOURS		UNPAID AS PERCENTAGE OF TOTAL	
	Women	Men	Women	Men	Women	Men	Women	Men
Finland 1999–2000	3.4	5.6	4.7	3.0	8.1	8.5	58.5	34.7
France 1998–1999	3.0	5.6	5.1	2.5	8.1	8.1	62.8	30.4
Germany 2001–2002	2.1	5.0	5.6	3.0	7.7	8.0	72.2	37.2
Italy 2002–2003	2.4	6.3	6.8	2.1	9.2	8.4	73.7	24.9
Poland 2003–2004	2.8	5.7	5.8	3.2	8.6	8.8	67.9	36.1
Spain 2002–2003	2.4	6.0	6.2	2.3	8.7	8.3	71.7	28.0
Sweden 2000–2001	3.3	5.3	4.7	3.2	8.0	8.5	58.4	37.7
United Kingdom 2000–2001	3.0	5.7	5.2	2.9	8.2	8.6	63.3	34.2
United States 2003	3.4	5.8	5.0	2.9	8.4	8.7	59.1	33.5

SOURCE: Authors' calculations using HETUS and ATUS.

do women in every country except France (where there is no difference), Italy, and Spain.

The last column in Table 8.1 presents estimates of unpaid work hours as a percentage of total work hours, by gender. This provides the best summary comparison of variation across countries: Finland, Sweden, and the United States represent the most “marketized” countries for women, with women devoting less than 60 percent of their total work time to unpaid work. At the other end of the spectrum lie Germany, Italy, and Spain, where women devote more than 70 percent of their work time to unpaid work. Variation among men is more limited and follows a less distinct pattern. Men’s time devoted to unpaid work is smallest in percentage terms (below 30 percent) in Italy and Spain (perhaps because women do so much more in those countries), but it is over 35 percent in Poland, Germany, and Sweden. Interestingly, in the two Nordic countries, a low percentage (of unpaid to total hours) for women is counterbalanced by a high percentage for men, but in Poland and Germany, both men’s and women’s participation in unpaid work is relatively high.

In all of these countries, time devoted to housework and child care varies inversely with time devoted to paid work, and it increases with the presence of young children (see the online appendix, Table 8.A1); in addition, the hours of the self-employed more closely resemble those of full-time rather than part-time employees. Another way of describing the trade-off between hours of paid and unpaid work central to our concern in this chapter lies in the correlation, within countries, between paid and unpaid work hours across the employment/family structure categories. While we do not report results for all countries here, our calculations indicate that this correlation is negative and greater than -0.70 for women and men in every country except Sweden (where it is only -0.36 for women). In countries where the level of unpaid work is high in absolute and relative terms, such as Italy, Germany, and Spain, the negative correlation for women exceeds -0.80 . In other words, the higher the level of unpaid work, the more it is reduced when paid work increases. In Sweden, women who engage in an additional hour of paid work reduce their unpaid work by only about half an hour—perhaps because they are not doing much to begin with. In Italy, Germany, and Spain, an hour of paid work seems to have a stronger negative effect on unpaid work. This relationship deserves further scrutiny using micro-level data.

Virtually every study reviewed for this chapter shows that non-market work has an equalizing effect on women’s total hours of work, as women with no paid work hours work almost as long, overall, as those who combine paid and unpaid work. Furthermore, those who are employed part-time typically put in more hours of unpaid work than those who work for pay full-time, and they log as many or more total work hours as those who are not employed. This pattern helps explain the potentially significant equalizing effect of any positive valuation of women’s unpaid work on the level of extended earnings.

Levels of Extended Earnings

Next, we impute our findings on unpaid work hours into the *LIS* micro-data. To do that, we created “synthetic” couples, characterized by their individual paid work hours and the presence and age of their children, and we assigned estimates of unpaid work hours (from the HETUS and the ATUS) to the individuals in the *LIS* datasets.³ Cross-national variation in couples’ average total work hours is not very different from variation in paid work hours, but, by virtually any replacement cost valuation, there is much less inequality in the value of unpaid than paid work hours because virtually everyone engages in at least some unpaid work. As a result, we expect considerable equalization both within and across countries when we shift from market earnings to extended earnings.

Given estimates of unpaid work hours, the next step in constructing an estimate of extended earnings is choosing a set of replacement cost wages for the unpaid work. In an ideal world, we would utilize quality-adjusted measures of wages for both housework and child care. In this world, we make the best of what is available, choosing a lower-bound estimate based on national minimum wages converted to purchasing power parity (PPP)-adjusted 2005 U.S. dollars.⁴

The hourly minimum wage ranges from USD2.43 in Poland and USD4.19 in Spain, on the low end, to USD8.82 in Germany and USD9.07 in France, on the high end. The United States ranks seventh at USD5.98 (Table 8.2). The simple cross-country average is USD6.64.⁵ In a previous version of this chapter, we explored the effect of using gender-specific median wages rather than national minimum wages, and we found results comparable to those we report below in terms of overall patterns. However, the cross-country variation here is somewhat different, because the value

TABLE 8.2
Earnings from paid work, estimated earnings from unpaid work, and extended earnings, 1999–2004 (married/cohabiting adults, aged 25–59, no other adults in household; earnings expressed in PPP-adjusted 2005 U.S. dollars)

	Paid work		Unpaid work	Extended earnings		Ratio of extended earnings to earnings from paid work
	National minimum wage	Average annual earnings (net of taxes and social contributions), zeros included	Average replacement cost value of unpaid work (valued at minimum wage)	Sum of earnings from paid and unpaid work (prior two columns)		
WOMEN						
Finland 2000	\$6.93	\$12,229	\$ 8,701	\$20,930		1.71
France 2000	\$9.07	\$15,160	\$13,001	\$28,161		1.86
Germany 2000	\$8.82	\$ 9,678	\$14,046	\$23,724		2.45
Italy 2004	\$6.39	\$ 8,946	\$11,543	\$20,488		2.29
Poland 2004	\$2.43	\$ 3,656	\$ 3,985	\$ 7,641		2.09
Spain 2004	\$4.19	\$ 9,995	\$ 6,565	\$16,560		1.66
Sweden 2000	\$7.73	\$12,215	\$ 9,844	\$22,058		1.81
United Kingdom 1999	\$8.20	\$12,241	\$11,922	\$24,166		1.97
United States 2004	\$5.98	\$19,510	\$ 7,435	\$26,945		1.38
Average	\$6.64	\$11,514	\$ 9,671	\$21,186		1.91
MEN						
Finland 2000	\$6.93	\$18,012	\$ 4,992	\$23,003		1.28
France 2000	\$9.07	\$23,891	\$ 6,223	\$30,114		1.26
Germany 2000	\$8.82	\$27,548	\$ 8,715	\$36,263		1.32
Italy 2004	\$6.39	\$21,101	\$ 3,472	\$24,574		1.16
Poland 2004	\$2.43	\$ 6,219	\$ 2,064	\$ 8,284		1.33
Spain 2004	\$4.19	\$20,436	\$ 2,698	\$23,134		1.13
Sweden 2000	\$7.73	\$20,117	\$ 7,011	\$27,128		1.35
United Kingdom 1999	\$8.20	\$27,880	\$ 6,924	\$34,808		1.25
United States 2004	\$5.98	\$44,835	\$ 4,667	\$49,502		1.10
Average	\$6.64	\$23,338	\$ 5,196	\$28,534		1.24

SOURCE: National minimum wage from ILO Minimum Wage Data Base (<http://www.ilo.org/travail/database/servlet/minimumwages>). Other columns based on authors' calculations from HETUS, ATUS, and the LIS Database.

NOTE: In Finland, Germany, and Italy, minimum wages are based on collective agreements of unskilled labor in the metal-working sector. Annual earnings are defined as the sum of total annual net income from dependent employment (wages and other payments from employer after deduction of income taxes and social contributions) and annual income from self-employment, converted into 2005 local currency using national CPI indices and into 2005 PPP U.S. dollars using the OECD/EUROSTAT purchasing power parities for final expenditure on GDP conversion rates. Note that wage income was collected net of taxes and contributions only in Italy; in other countries, gross wage income was netted down using taxes and contribution amounts in the same proportion as wage income in taxable income.

of the minimum wage, relative to the median wage, varies across countries. The minimum wage may be more appropriate for some countries than for others, but the same is true of any single wage rate. Use of a minimum wage sets a very low value on women's unpaid work and thus represents a lower-bound estimate of the effect we seek to measure.

We define an individual's extended earnings as the sum of his or her after-tax (net) annual earnings from paid work and the replacement cost estimate of his or her unpaid work (see Table 8.2). Women's mean annual earnings from paid work (including zero values) range from USD3,656 in Poland to USD19,510 in the United States; the unweighted cross-country average is USD11,514. Men's mean annual earnings (including zero values) are substantially higher: the cross-country average is USD23,338. However, the average value of women's unpaid work is considerably higher than men's. On an annual basis, it ranges from a low of USD3,985 in Poland to a high of USD14,046 in Germany.

The best indicator of the relative contribution of market and extended earnings of individuals is the ratio between the two. Across the countries in this study, adding the value of women's unpaid work to their earnings has the effect, on average, of almost doubling the estimate of their contributions, with a ratio of extended earnings to market earnings of 1.91 (see Table 8.2). While the effect on men's contribution is smaller, it remains substantial. Across all countries, the average value of men's extended earnings is between 10 percent and 35 percent higher than the value of their market earnings, with a ratio of extended earnings to market earnings of 1.24.

We next shift to analyses at the household level (Table 8.3).⁶ Consideration of unpaid work substantially modifies estimates of women's contribution to household economic well-being, based on market earnings, and the relative ranking of countries with respect to the share of resources contributed by women. As reported in Table 8.3, women generally contribute less than 40 percent of market earnings—on the high side in Finland, France, Sweden, and Poland (37 to 40 percent) and on the low side in Germany, Spain, and Italy (25 to 28 percent), with the United States and the United Kingdom in between (31 percent). Women's contribution to extended earnings, using our minimum wage valuation, is highest in France (55 percent), followed by Italy, Finland, and Poland (47–49 percent), and lowest in the United States (38 percent).

TABLE 8.3
 Women's contributions to couples' market earnings and extended earnings,
 1999–2004 (married/cohabiting adults, aged 25–59, no other adults
 in household; includes observations with zero earnings)

	Women's contribution to couples' market earnings (%)	Women's contribution to couples' extended earnings (%)
FINLAND 2000		
Neither employed	38	56
Man employed, woman not employed	6	40
Man employed, woman employed PT	37	48
Man employed, woman employed FT	45	49
Man not employed, woman employed PT	85	62
Man not employed, woman employed FT	90	63
All couples	40	48
FRANCE 2000		
Neither employed	43	45
Man employed, woman not employed	9	46
Man employed, woman employed PT	32	49
Man employed, woman employed FT	44	64
Man not employed, woman employed PT	92	56
Man not employed, woman employed FT	74	48
All couples	38	55
GERMANY 2000		
Neither employed	0	53
Man employed, woman not employed	0	33
Man employed, woman employed PT	22	36
Man employed, woman employed FT	43	46
Man not employed, woman employed PT	100	55
Man not employed, woman employed FT	100	62
All couples	28	41
ITALY 2004		
Neither employed	0	63
Man employed, woman not employed	0	43
Man employed, woman employed PT	32	46
Man employed, woman employed FT	44	49
Man not employed, woman employed PT	97	69
Man not employed, woman employed FT	93	60
All couples	25	47
POLAND 2004		
Neither employed	19	57
Man employed, woman not employed	1	42
Man employed, woman employed PT	39	45
Man employed, woman employed FT	47	50
Man not employed, woman employed PT	91	57
Man not employed, woman employed FT	98	65
All couples	37	49

(continued)

TABLE 8.3 (Continued)

	Women's contribution to couples' market earnings (%)	Women's contribution to couples' extended earnings (%)
SPAIN 2004		
Neither employed	23	52
Man employed, woman not employed	7	34
Man employed, woman employed PT	29	38
Man employed, woman employed FT	45	48
Man not employed, woman employed PT	63	55
Man not employed, woman employed FT	70	58
All couples	29	42
SWEDEN 2000		
Neither employed	29	53
Man employed, woman not employed	5	35
Man employed, woman employed PT	33	43
Man employed, woman employed FT	42	46
Man not employed, woman employed PT	89	60
Man not employed, woman employed FT	93	66
All couples	38	45
UNITED KINGDOM 1999		
Neither employed	0	55
Man employed, woman not employed	0	32
Man employed, woman employed PT	27	40
Man employed, woman employed FT	43	46
Man not employed, woman employed PT	100	61
Man not employed, woman employed FT	99	68
All couples	31	43
UNITED STATES 2004		
Neither employed	25	48
Man employed, woman not employed	5	22
Man employed, woman employed PT	24	31
Man employed, woman employed FT	42	44
Man not employed, woman employed PT	65	54
Man not employed, woman employed FT	77	65
All couples	31	38

SOURCE: Authors' calculations from HETUS, ATUS, and the LIS Database.

NOTE: PT = part-time employed women, defined as women working fewer than 30 hours in paid employment. FT = full-time employed women, defined as women working at least 30 hours in paid employment, or any number of hours in self-employment.

The use of extended earnings brings women's relative economic contribution to couples close to 50 percent in most countries, consistent with the idea of "partnership." Note that, among households in which men are not employed, women's relative contribution to extended earnings is greater than 50 percent, nearly everywhere, even if they are not themselves

employed.⁷ Unpaid work may play an important role in buffering the impact of unemployment or loss of market earnings, although it obviously does not represent a perfect substitute, as it relies heavily on inputs purchased with market earnings—for example, you cannot prepare a meal if you cannot buy food (Folbre 2009).

The Distribution of Extended Earnings

Our results on the inequality of market versus extended earnings are presented in Table 8.4, and three core findings are evident. First, the distribution of extended earnings is far more equal than the distribution of market earnings alone in all of the countries that we examine, across five different measures of inequality: the Gini coefficient, one-half the squared coefficient of variation ($CV^2/2$), and the logarithm of the ratio of average earnings of the 90th percentile relative to the 10th percentile, the 90th percentile relative to the 50th percentile, and the 50th percentile relative to the 10th percentile. The consistent results across these measures suggest that this result is quite robust.

Second, the effect of shifting to our broader earnings indicator varies across countries. The magnitude of the difference between the two indicators can be most easily interpreted using the Gini coefficient. One property of the Gini is that its value, doubled, indicates the average expected income difference between two randomly drawn households, expressed as a percent of average income. That means that, in the United States, shifting from market to extended earnings reduces that average expected difference by about 12.6 percentage points (6.28×2). At the other extreme, in Poland, shifting from market to extended earnings reduces the average expected difference in income by about 38.4 percentage points (19.19×2).

Although the effect of shifting from market to extended earnings varies substantially across these countries, the cross-national rankings with respect to levels of inequality are, in fact, fairly similar regardless of which income measure is used. The United States is the most notable exception. Consider the Gini coefficients vis-à-vis market earnings: the most unequal countries are Poland (ranked 1st), the United Kingdom (2nd), and the United States (3rd), and the most equal are France (7th), Sweden (8th), and Finland (9th). When we shift to extended earnings, the United States becomes the most unequal, still followed by Poland and the United Kingdom, and the most equal three countries remain the same (although France and Sweden

TABLE 8.4
Inequality of market earnings compared to inequality of extended earnings, 1999–2004
(households with married/cohabiting adults, aged 25–59, no other adults in household)

	GINI COEFFICIENT			CV ² /2			LN(P90/P10)			LN(P90/P50)			LN(P50/P10)		
	ME	EE	ME - EE	ME	EE	ME - EE	ME	EE	ME - EE	ME	EE	ME - EE	ME	EE	ME - EE
Finland 2000	28.62	19.64	8.98	0.17	0.08	0.09	1.30	0.89	0.41	0.49	0.40	0.10	0.81	0.49	0.32
France 2000	30.14	19.90	10.24	0.17	0.07	0.10	1.40	0.89	0.51	0.65	0.48	0.18	0.75	0.42	0.33
Germany 2000	35.63	21.22	14.41	0.28	0.10	0.18	1.51	0.92	0.59	0.72	0.48	0.24	0.79	0.45	0.34
Italy 2004	37.06	23.32	13.74	0.56	0.23	0.33	1.52	0.90	0.62	0.69	0.46	0.23	0.83	0.44	0.39
Poland 2004	46.41	27.22	19.19	0.49	0.17	0.32	1.71	1.22	0.49	0.85	0.59	0.25	0.86	0.63	0.23
Spain 2004	34.01	25.06	8.94	0.21	0.11	0.09	1.53	1.13	0.40	0.70	0.55	0.15	0.83	0.58	0.25
Sweden 2000	29.08	20.07	9.00	0.18	0.08	0.10	1.27	0.90	0.38	0.54	0.43	0.11	0.73	0.47	0.26
United Kingdom 1999	38.26	25.64	12.62	0.49	0.22	0.27	1.52	1.05	0.46	0.68	0.51	0.17	0.84	0.54	0.29
United States 2004	37.29	31.01	6.28	0.37	0.26	0.11	1.64	1.34	0.30	0.69	0.60	0.09	0.95	0.74	0.21

SOURCE: Authors' calculations from HETUS, ATUS, and the LIS Database.

NOTE: ME = market earnings; EE = extended earnings; ME - EE = difference between market earnings and extended earnings.

switch places). The sizable shift in the U.S. position is due at least in part to the low minimum wage in the United States, which reduces the imputed value of the unpaid work that is carried out in American homes—and, in turn, reduces the equalizing effect of shifting from market to extended earnings. The relatively low share of unpaid work in total work time, in the United States, further reduces (relative to other countries) the effect on the well-being distribution that results from shifting to the more comprehensive earnings measure.

The $CV^2/2$ results are similar. For most countries, the cross-national ranking is largely the same (i.e., within one rank position), regardless of which income indicator is used (market versus extended). Again, the United States is a noted exception: it shifts from the fourth most unequal country (with respect to market earnings) to the most unequal (vis-à-vis extended earnings).

Third, the effect of shifting to extended earnings is different in different parts of the income distribution. The most striking finding is that, in all countries except Poland, the effect of incorporating the value of unpaid work is greater in the bottom half of the income distribution; that is, the difference between inequality of market versus extended earnings is greater for $\ln(P50/P10)$ (the ratio of the middle to the near-bottom) than for $\ln(P90/P50)$ (the ratio of the near-top to the middle). The impact is greater in the lower half of the distribution, largely because the value of unpaid work varies less than the value of market earnings—that is, it is more constant—so adding it to market earnings disproportionately affects lower-income households. The value of unpaid work varies less, partly because (as noted above) we imputed group averages and partly because there is a minimum amount of domestic work that, essentially, must be done in all households.

Considering the difference in country rankings is again illuminating. Among lower-income households (see the P50/P10 column), market earnings are most unequal in the United States and most equal in Sweden. When we shift to extended earnings, the United States is still the most unequal among these countries, but now three countries have more equal distributions than does Sweden: France, Germany, and Italy. This re-ranking is driven by the fact that in these three continental European countries, unpaid work constitutes a larger share of total work time than it does in Sweden (see Table 8.1), so accounting for unpaid work has a stronger equalizing effect (than it does in Sweden).

The results in the upper-half of the distribution are different. Considering market earnings, the United States is tied (with Italy) for the fourth most unequal, lagging Germany, Poland, and Spain. When we shift to extended earnings, the United States again becomes the most unequal. Again, that could be attributed to two factors: the low minimum wage in the United States reduces the equalizing impact of the shift to extended earnings, and the relatively low share of total work in the United States that is unpaid (especially among women) also reduces the equalizing impact of moving to an extended earnings definition.

One way to unravel the complex effects of changes in women's increased participation in paid work on earnings inequality among couple-headed households is to use an inequality measure that can easily be decomposed into components, such as the level of women's earnings, the relative share of women's earnings, and the correlation between men's and women's earnings (Cancian et al. 1993; see Chapter 7). Expanding this decomposition to simultaneously consider the effects of differences in market earnings and extended earnings for both men and women is beyond the scope of our analysis here, but we provide three separate decompositions of one-half the squared coefficient of variation ($CV^2/2$), examining market earnings decomposed by gender (see Table 8.5, panel A), extended earnings decomposed by gender (panel B), and extended earnings (women and men together) decomposed by market versus non-market work (panel C).

We follow the same method as Harkness in Chapter 7 and present results for four countries—France, Italy, Spain, and the United States—that are based on the same LIS datasets. However, our analysis focuses on a different universe of households: our age range is different from hers (households with couples where at least one is between 25 and 59 rather than both between ages 18 and 59). We excluded households with any adults outside of the primary couple, while she excluded those in which a member of the couple was engaged full-time in education. Both studies estimate net wages from gross earnings based on earnings shares, but our definition of net earnings includes self-employment income. As a result of these differences, our estimates for these four countries differ from hers (compare her Table 7.4 with our Table 8.5, panel A).

Nonetheless, our results for the decomposition of market earnings are basically consistent with hers, showing wide variation across countries in the relative equality of men's and women's market earnings, the female

TABLE 8.5
 Decomposition of household inequality, measured by CV²/2, 2000–2004
 (households with married/cohabiting adults, aged 25–59, no other adults in household)

A: MARKET EARNINGS DECOMPOSED BY GENDER								
	Total market earnings	Rank	Men's market earnings	Rank	Women's market earnings	Rank	Women's share of market earnings (%)	Correlations between men's and women's market earnings
France 2000	0.17	1	0.23	3	0.30	2	39	0.30
Finland 2000	0.17	2	0.22	1	0.30	3	41	0.35
Sweden 2000	0.18	3	0.27	4	0.27	1	38	0.28
Spain 2004	0.21	4	0.23	2	0.59	4	34	0.26
Germany 2000	0.28	5	0.37	5	0.88	7	28	0.07
United States 2004	0.37	6	0.56	6	0.98	9	31	0.05
Poland 2004	0.49	7	0.71	7	0.91	8	38	0.21
United Kingdom 1999	0.49	8	0.77	8	0.71	5	32	0.17
Italy 2004	0.56	9	0.86	9	0.74	6	30	0.23

B: EXTENDED EARNINGS DECOMPOSED BY GENDER								
	Total extended earnings	Rank	Men's extended earnings	Rank	Women's extended earnings	Rank	Women's share of extended earnings (%)	Correlations between men's and women's extended earnings
France 2000	0.07	1	0.14	2	0.08	1	48	0.35
Finland 2000	0.08	2	0.13	1	0.10	3	48	0.40
Sweden 2000	0.08	3	0.15	3	0.09	2	45	0.32
Spain 2004	0.11	5	0.18	4	0.19	8	42	0.29
Germany 2000	0.10	4	0.19	5	0.14	5	40	0.13
United States 2004	0.26	9	0.46	7	0.51	9	36	0.06
Poland 2004	0.17	6	0.39	6	0.18	7	48	0.25
United Kingdom 1999	0.22	7	0.49	8	0.18	6	41	0.19
Italy 2004	0.23	8	0.63	9	0.11	4	46	0.25

share of couples' market earnings, and the correlation between male and female market earnings. Female market earnings are more unequally distributed than those of men in most countries, primarily because they are more likely to take a zero or low value as a result of non-participation or low participation in market work. The United Kingdom and Italy are exceptions here, with lower inequality among female market earnings than male market earnings, as is Sweden, where there is no difference.

TABLE 8.5 (Continued)

C: EXTENDED EARNINGS DECOMPOSED BY TYPE OF EARNINGS (MARKET VERSUS UNPAID)								
	Total extended earnings	Rank	Market earnings	Rank	Value of unpaid work	Rank	Value of unpaid work as share of total earnings (%)	Correlation between market earnings and value of unpaid work
France 2000	0.07	1	0.29	2	0.11	7	33	-0.36
Finland 2000	0.08	2	0.27	1	0.08	5	31	-0.33
Sweden 2000	0.08	3	0.31	3	0.03	1	34	-0.20
Spain 2004	0.11	5	0.39	4	0.15	8	23	-0.48
Germany 2000	0.10	4	0.62	5	0.07	4	38	-0.53
United States 2004	0.26	9	0.79	6	0.06	2	16	-0.29
Poland 2004	0.17	6	0.84	7	0.11	6	38	-0.35
United Kingdom 1999	0.22	7	0.93	8	0.06	2	31	-0.32
Italy 2004	0.23	8	1.05	9	0.21	9	33	-0.36

SOURCE: Authors' calculations from HETUS, ATUS, and the LIS Database.

Consistent with findings reported earlier, the inequality of extended earnings is much lower overall (see Table 8.5, panel B). Not surprisingly, the differences are much greater for women than for men in couples because virtually all women perform a substantial amount of unpaid work. We can infer that much of the equalizing effect of unpaid work derives from these differences because the correlations between male and female extended earnings are slightly higher than for market earnings for all countries. That is, highly productive women (defined in terms of extended, rather than market, earnings) are slightly more likely to be coupled with highly productive men than high-market-earning women with high-market-earning men.

Also consistent with earlier findings, the distribution of the sum of partners' extended earnings is far more equal than with respect to market earnings, and the correlations between market and non-market earnings are negative in every instance (see Table 8.5, panel C). That is, on the household level, higher market earnings are associated with lower non-market earnings. The size of these correlations varies substantially across countries. They are highest in Germany (-0.53) and Spain (-0.48), both countries in which women contribute a relatively low share of market earnings (see Table 8.5, panel A) and where women's market earnings are relatively unequal.

CONCLUSION

Our analysis clearly demonstrates the substantial equalizing effect of unpaid work on economic well-being, within nine high-income countries. It also demonstrates the limitations of any analysis of the impact of women's employment and/or earnings on inter-household inequality of economic well-being that fails to take into account unpaid work. Obviously, much depends on the method of valuation used, and our estimates are based on a simple replacement cost analysis using national minimum wages. The shape of inequality in market earnings exerts a strong influence both directly, because market earnings dominate extended earnings, and indirectly, through its impact on the national minimum wage (which, in turn, affects our valuation of unpaid work). Yet, our primary conclusion is supported by a simple analysis of the distribution of total work hours across couples, which vary considerably less than do paid work hours.

These cross-sectional findings have important implications for analyses of the impact of changes in women's participation in paid employment and in their earnings over time. As women reallocate their time from unpaid to paid work, household inequality is likely to increase, both because the hours of paid work are distributed more unequally than hours of unpaid work and because the imputed hourly value of unpaid work (valued at the national minimum wage) varies less than market wages. Our decomposition of the half squared coefficient of variation shows that the extended earnings of men and women are correlated more strongly than are market earnings. However, this effect is not strong enough to countervail the greater inequality associated with the greater relative importance of market earnings.

The impact of declining levels of unpaid work over time on all aspects of household living standards deserves more careful consideration. There is something fundamentally misleading about measuring gains to family earnings provided by increases in women's employment that do not account for the reduction in living standards resulting from declines in time devoted to unpaid work. As our use of "synthetic" households demonstrates, the availability of new time-use data makes it easier to impute the contribution of unpaid work even where such data are not directly linked to household or individual market earnings.

In closing, we reiterate the many limitations of our analysis for an analysis of living standards. Our measures of time devoted to unpaid work

per household, calculations of household market earnings, and imputations of the value of unpaid work are all approximate. We set aside issues of equivalence scales, despite our intuition that such scales probably differ for consumption based on income from market earnings compared to unpaid work. We do not consider differences in household capital or technology, which affect the productivity of unpaid work in the home. We do not include any measure of the receipt of government services, such as child care, that provide valuable substitutes for unpaid work and profoundly affect household living standards. Nonetheless, we hope that our results will motivate researchers to develop stronger methods for measuring and valuing unpaid work and will encourage scholars to include unpaid work in their assessments of the distribution of well-being across households.

NOTES

1. Throughout this chapter, we use the terms *market work* and *paid work* interchangeably. Likewise, we use the terms *non-market work* and *unpaid work* interchangeably.
2. For a basic description of the Harmonized European Time Use Survey (HETUS), see <https://www.h2.scb.se/tus/tus/doc/Metadata.pdf>. For a basic description of the American Time Use Survey (ATUS), see <http://www.bls.gov/tus/>. For an overview of the *LIS Database*, see <https://www.lisdatacenter.org>. To carry out the analyses in this paper, we used the HETUS online table maker; the microdata are not distributed. To conduct analyses based on the ATUS and the *LIS* data, we worked directly in the microdata.
3. All of our estimates of time use are based on the HETUS or the ATUS. As noted in the text, to construct estimates of extended earnings, we link estimates of average time devoted to housework and child care for married/cohabiting couples with no other adult present to households, in the *LIS Database*, with similar employment and family structure characteristics. Average weekly paid work hours are included in the *LIS* datasets for all but three of the countries in our study. Among these, estimates of paid work hours differ between the two data sources by less than 10 percent for men and women in most countries, with the salient exception of Germany, where the HETUS results record paid work hours about 20 percent lower than the *LIS* survey for both men and women. Because an underestimate of paid work hours is likely to be associated with an overestimate of unpaid work hours, the value of extended earnings may be biased upward for Germany.
4. We are aware, of course, that cross-national variations in regulations, policies, and labor market structures mean that "in the real world," child care workers' earnings, relative to their country's minimum wage, vary substantially across countries. Our estimations do not take these national features into account.

5. The minimum wage data came from the ILO Minimum Wage Data Base (<http://www.ilo.org/travail/database/servlet/minimumwages>). These national-level indicators were originally expressed in national currency units for 2004 (Italy and Sweden), 2005 (Finland, Germany, and Poland), 2006 (the United Kingdom), and 2007 (France and the United States); we deflated them to 2005 prices (using IMF CPI indices) and then converted them into PPP-adjusted U.S. dollars, using 2005 consumption PPPs from the World Penn Tables. These minimum wages were originally expressed on an hourly basis in all countries except Germany, Italy, Poland, and Spain; in these four cases, we converted monthly figures into an hourly standard by assuming a 40-hour workweek, except in France, where we assumed a 35-hour workweek.

In the countries where there is no national minimum wage fixed by an authority (i.e., Finland, Germany, and Italy), we chose one of the sectoral collective agreements given by the ILO, specifically the one referring to the most unskilled workers in the metalworking industry.

6. None of the estimates of market or extended earnings discussed in this paper have been adjusted for household size, despite considerable variation across partnered households in number of children. A standard equivalence adjustment, often used in the analysis of LIS data, divides household income by the square root of the number of household members. This adjustment implies considerable economies of scale in household consumption. For instance, it assumes that the earnings of a household with four people should be divided by 2 (the square root of 4). In other words, this household is assumed to require only twice as much money to live as well as a one-person household. Such assumptions are difficult to test empirically, in part because money and time are substitutes.

Indeed, the relatively generous economies of scale assumed by this standard equivalence scale, which has been widely applied for more than 40 years, may reflect a world in which most married women stayed home and specialized in household production. In general, meal preparation, shopping, and child care enjoy significant economies of scale; the marginal cost of adding another household member is typically far lower than the average cost. As women have entered paid employment, however, households have become more likely to purchase meals away from home and to purchase substitutes for family care. Market purchases of meals and other services do not typically afford a "discount" for larger households and may therefore reduce household economies of scale—a trend consistent with the decrease in household size that typically accompanies economic development and increases in women's employment. We hope to explore this issue in future research.

7. Note that in some countries (i.e., Finland, France, Poland, Spain, Sweden, and the United States), couples coded as "neither employed" can still have market earnings, and thus it is meaningful to calculate women's contributions to those market earnings (as we do in Table 8.3). The reason for this is that in these datasets, the employment status reference period (e.g., "at present") falls outside

the earnings reference period (e.g., "last year"). Thus, among these couples, even though neither is employed during the employment reference period, many had market earnings during the (usually earlier) earnings reference period.

For additional results, please see the online appendices by following the link in the listing for Income Inequality on the Stanford University Press website: <http://www.sup.org>.

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CHAPTER NINE

Women's Work, Family Earnings,
and Public Policy

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WOMEN'S ECONOMIC POSITION WITHIN THE FAMILY

Male breadwinner households are more prevalent in some countries than in others. Even when both spouses—or partners—work, the degree to which women contribute to the family income varies from country to country. This chapter poses two questions: How does a woman's economic status in a married or cohabiting couple vary from country to country? What labor market institutions and social policies affect women's economic status in the family? The analysis is conducted for 16 OECD countries using data from the *Luxembourg Income Study (LIS) Database*, around 2004.

Scholars have noted the role of the welfare state in reducing women's economic dependency on their husbands (Sorensen and McLanahan 1987; Hobson 1990; Bianchi, Casper, and Peltola 1996, 1999; Stier and Mandel 2003). Typically, they conceptualize the wife's dependency in terms of the gap between the husband's and wife's earnings, as a percentage of family earnings. When the gap is small, women are independent; when the gap is large, women are dependent. Bianchi and colleagues (1996, 1999) applied Gøsta Esping-Andersen's three welfare state regimes—social democratic, liberal, and conservative—to explain the mean economic dependency levels of wives in different high-income countries (see Esping-Andersen 1990). In applying Esping-Andersen's taxonomy to explain wives' dependency on their husbands, Bianchi and colleagues expected wives in social democratic welfare states to be the most independent. Publicly provided child care and generous paid maternity and parental leaves actively enhance mothers' labor market attachment and thus women's relative economic position in