

An International Comparison of Unpaid Overtime Work Among Industrialized Countries^{*}

by Takeshi Mizunoya^{**}

Introduction

It is well known that workers in Japan work very long hours compared with those in other industrialized countries.¹ *Karoshi*, death from overwork², is one of Japan's serious social problems related to the emphasis placed on work. Also, researchers have pointed out that the long working hours of the Japanese include a considerable amount of unpaid overtime work.³ In order to grasp the reality of total working hours, we must understand those workers putting in unpaid overtime.

Two primary official surveys on working hours in Japan are the 'Monthly Labour Survey' (MLS) conducted by the Ministry of Health, Labour and Welfare, and the 'Labour Force Survey' (LFS) by the Statistics Bureau. Since the early 1990s, researchers in Japan have claimed that working hours from MLS data are shorter than hours actually worked since the MLS is an establishment survey covering working hours paid by establishments. Some believe that the MLS does not capture unpaid overtime work hours. Even though workers as well as researchers have recognized the existence of substantial unpaid overtime work, there are no official surveys on this work. Thus, researchers discussed whether the LFS can grasp actual working hours including unpaid overtime, as the LFS is a household survey where respondents report their own hours actually worked regardless of paid or unpaid status. Studies on indirectly assessing unpaid overtime by taking the gap between the LFS and MLS have been completed. In addition to these studies, some private research institutes have conducted small surveys on unpaid overtime (see Table 1).

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[INSERT TABLE 1]

Despite studies accomplished on unpaid overtime work in Japan, they have been little recognized by international society. The International Labour Office's studies (ILO 1999 and 2002) showed that U.S. workers now work longer than the Japanese (the gap of annual hours was about 130 hours in 2000). This piece of information was picked up by various media.⁴ The ILO's comparison between the United States and Japan is misleading because the Japanese data source is the MLS – one that does not include unpaid overtime hours.⁵ It is crucial to identify actual hours, including unpaid overtime in Japan, when hours are compared internationally.

The issue of unpaid overtime work is not a problem specific to Japan. Recently, Bell and Hart (1999) examined unpaid overtime in the United Kingdom by using the U.K. Labour Force Survey whose questionnaires contained hours of both paid and unpaid overtime. Additionally, Bell et al. (2001) compared unpaid overtime in the United Kingdom and Germany.⁶ In Canada, questions on both paid and unpaid overtime have been included in the Labour Force Survey conducted by Statistics Canada; thus, some studies using these data were able to reveal the actual situation of unpaid overtime work (Duchesne 1997, Statistics Canada 1997, Galarneau 1997). We found that unpaid overtime work is a common social problem among even highly industrialized countries. In the United States, however, there are few surveys and studies on unpaid overtime work⁷ even though U.S. working hours during the 1990s have tended to increase to the level of the Japanese. Therefore, it is beneficial to quantify unpaid overtime in the United States with existing statistical data.

The purpose of this paper is, firstly, to estimate the length of unpaid overtime work in Japan and the United States where direct data on the subject are not available, secondly, to compare these findings with other industrialized countries, such as the United Kingdom, Germany, and Canada, where the data are available, and lastly, to show the implications of the international comparison.

1. A method of estimation for unpaid overtime work

Unpaid overtime hours are estimated in Japan and the United States by the following formula:

$$\text{Unpaid overtime hours} = [\text{hours from HS data}] - [\text{hours from ES data}]$$

, where HS: a household survey, ES: a establishment survey.

Some problems of this estimation should be noted. Firstly, taking the gap between two different survey data is only an approximate measure for unpaid overtime hours for the reason that each survey has a different purpose, coverage, and method of survey. Secondly, we must draw attention to the accuracy of hours data from household surveys used in this paper: the LFS in Japan and Current Population Survey (CPS) in the United States. Hours referenced in the LFS could be a little longer than average hours due to the reference week being ‘the last week of each month’. This week may be relatively busier than other weeks.⁸ Also, it has been argued that hours data from the CPS could be overestimated compared to other similar data sources.⁹ Thirdly, hours disaggregated by industry and occupation cannot be estimated with these data though figures for manufacturing workers are estimated in Japan, the United States, and Canada. We should note that workers in some industries or/and occupations may be more likely to work unpaid overtime than other workers. Fourthly, the LFS in Japan covers government employees whereas the MLS does not.

Table 2 shows a summary of surveys used in this study. Detailed estimation procedures and data sources in each country are shown below.

[INSERT TABLE 2]

1.1 Japan

Unpaid overtime is estimated by LFS minus MLS. Steps for the estimation of weekly unpaid overtime hours are as follows (parentheses show figures for males as an example).

Step 1. Use “average monthly working hours in non-agricultural industries, all employees, all firms that have five or more employees,” from the MLS 1993 average. The year 1993 has been chosen because only 1993 data

on unpaid overtime in the United Kingdom and Germany are accessed.
(169.9 hours)

Step 2. Multiply the result of Step 1 by 12 to get annual hours. (2040 hours = 169.9*12)

Step 3. Estimate annual actual hours using “average weekly working hours in non-agricultural industries, all employees, all firms” from the LFS in 1993.¹⁰ (2310 hours)

Step 4. Subtract the result of Step 2 from the result of Step 3 to get annual unpaid overtime hours. (270 hours = 2310 - 2040)

Step 5. Divide the result of Step 4 by the number of annual actual workweeks (estimate: 48.4 weeks¹¹) to get weekly unpaid overtime hours. (5.6 hours = 270/48.4)

Let us compare estimated figures with other sources of unpaid overtime. In Japan, several small surveys on unpaid overtime have been conducted by research institutes. Table 1 shows a summary of these surveys. According to these survey results, the length of overtime work including paid and unpaid is around 30 hours a month. If monthly paid overtime hours are approximately 10 hours (based on MLS data in 1993), then monthly unpaid overtime would be 20 hours, and weekly unpaid overtime around 5 hours. Thus, it seems reasonable to suppose that the author’s estimate is close to the actual situation.

1.2 United States

Unpaid overtime is estimated by the Current Population Survey (household survey) minus Current Employment Statistics (CES, an establishment survey). Steps of estimation for weekly unpaid overtime hours are as follows (parentheses show figures for males as an example).

Step 1. Use “average hours of production or nonsupervisory workers on private nonfarm payrolls, total private, all employees, not seasonally adjusted” from the CES results of March¹² 1993 (34.0 hours)

Step 2. [Adjustment for actual hours worked] CES data include hours not worked such as paid hours of sick leave or paid holidays. The Bureau

of Labor Statistics (BLS) compiles “the ratios of hours at work to hours paid”. According to the survey, the ratio in 1993 is 0.933.¹³ Therefore, multiply CES figure by this ratio to get actual hours at work. (34.0*0.933=31.7 hours)

Step 3. Use “average actual hours” from March 1993 CPS microdata.¹⁴ They are adjusted to a definition of workers used in the CES data category.¹⁵ (36.3 hours)

Step 4. [Adjustment for multiple-jobholders] CPS counts hours for each worker (i.e. including hours in secondary job(s)), whereas CES counts hours in each job regardless of whether it is a primary or secondary job for an employee. According to the May 1991 CPS and CPS 1996 annual average, the rate of multiple jobholders in both sexes is 6.2%.¹⁶ The result of Step 3 is adjusted by this rate.¹⁷ (34.1 hours)

Step 5. Subtract the result of Step 2 from the result of Step 4 to get unpaid overtime hours. (2.4 hours)

1.3 United Kingdom, Germany¹⁸, and Canada¹⁹

Data for the United Kingdom are obtained from the Labour Force Survey conducted by the Office for National Statistics. Data for Germany are from the German Socio-Economic Panel by the German Institute of Economic Research (DIW Berlin). Data for Canada are from Labour Force Survey by Statistics Canada.

2. International comparison

2.1 Unpaid overtime in a week

Table 3 shows results of estimation of unpaid overtime hours. In 1993, unpaid overtime work hours of both genders were the longest in Japan, whereas they were the shortest in Germany. Male workers tended to work longer unpaid overtime than female workers. In addition, workers in manufacturing might tend to work shorter unpaid overtime than those in other industries.

[INSERT TABLE 3]

2.2 The component of annual working hours

It is important to observe working hours including unpaid overtime not only in a weekly context but also in an annual context. Annual working hours reflect the events within a year such as the number of paid leave days, holidays, and sick leave days while hours in a week do not. Table 4 shows annual working hours and their key components that the author estimated.²⁰

[INSERT TABLE 4]

Regarding unpaid overtime, gaps between Japan and other countries widened compared with Table 3 because the number of workweeks in a year was larger and the number of leave days was smaller in Japan. A little more than one tenth of the annual working hours of males was comprised of unpaid overtime in Japan.

2.3 Comparison between annual working hours estimated by ILO and annual hours based on LFS data

As mentioned in the Introduction, according to ILO studies, U.S. workers now put in the longest annual working hours among industrialized countries. However, this is not true because Japanese data in the studies are based on an establishment survey (MLS, specifically) that does not include unpaid overtime work while data in other industrialized countries are mainly based on household surveys that do include unpaid overtime work. Therefore, American annual working hours are longer than Japanese hours in the ILO studies.

As Table 5 shows, based on estimated data from the LFS, Japanese workers still worked longer hours than American workers in the 1990s whereas results are reversed according to ILO estimates. It should be noted, however, that the gap of hours between Japan and the U.S. has narrowed during the 1990s. Another drawback in the ILO estimates is that data are averaged for both genders. Averaged hours of both genders veil the gap in working hours between females and males. This is the case in countries such as Japan and the United States where the gender gap is relatively large, as Table

4 shows.

[INSERT TABLE 5]

3. Concluding remarks on the results of comparison

3.1 Different regulations related to overtime work among countries

The length of unpaid overtime is most likely to be affected by the regulation of labour conditions related to working hours. Table 6 shows regulations in each country.

[INSERT TABLE 6]

Longer unpaid overtime can be explained by weaker regulations on paid overtime. For example, Japan has weak regulations on overtime work and low premium rates, whereas Germany has strict regulations on the maximum length of hours in a day.

We should note, however, the implications of regulations on overtime hours.²¹ Some employees may be exempt from overtime regulations as the table shows. If an employee is exempt from the regulations, there will be no overtime (paid or unpaid) for him/her regardless of how long he/she works. It is not necessarily obvious that employees understand the regulations accurately or that employers comply with them. One possibility is that employees who are supposed to be exempt from overtime regulations mistakenly identify themselves as non-exempt workers so that they report untrue unpaid overtime hours, implying overestimated unpaid overtime hours. Another possibility is that there may be several cases where non-exempt employees think of themselves as exempt workers so that they report zero overtime hours, implying underestimated overtime hours, or where employers intentionally lead some grey area non-exempt employees to be exempt to cut back labour costs.

3.2 Implication to conventional data on hourly wages and labour productivity

Hourly wage and hour-based labour productivity indicators in Japan have often been computed using MLS data that do not include unpaid overtime hours. Especially where Japanese workers tend to work long unpaid overtime, conventional indicators on hourly wages and hour-based labour productivity should certainly be reduced if they are to be

recalculated with actual hours worked.²² For Japanese workers, reduced hourly wages could mean deterioration of labour conditions, while for Japanese companies, labour cost savings.

3.3 Further research needed: different labour market system among countries

Why do workers work without pay and why does length of unpaid overtime hours differ among countries? This paper attempted to examine the quantity of unpaid overtime work among workers in industrialized countries. Further investigation on causes of unpaid overtime work is obviously needed.²³ In order to understand the causes better, it would be beneficial to compare differences in labour market systems among countries, such as employment systems, job security, wage systems, labour relations, and labour regulations.

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NOTES

- ¹ The author has published papers on an international comparison on working hours and time use. See Mizunoya (2000).
- ² Hiroshi Kawahito is a distinguished researcher and lawyer on this issue in Japan. See Kawahito (1992), (1998). See also the web site of the National Defence Counsel for Victims of *Karoshi* at <http://www.bekkoame.ne.jp/i/karoshi/english/e-index.htm>.
- ³ See Honda and Morioka (1993), and Mizunoya (2001), p.164, note 12.
- ⁴ In the U.S., *Wall Street Journal*, Sep.7, 1999, p.A4; *The New York Times*, Sep.7, 1999, p.C9 and Sep.1, 2001, p.A8. In Japan, *Asahi Shimbun*, Sep.7, 1999, p.3 (in Japanese); *Nihon Keizai Shimbun*, Sep.6, 1999, p.9 and Sep.7, 2001, p.42 (in Japanese).
- ⁵ ILO data are based on estimations originally done by the OECD journal, *Employment Outlook*, June, 1998.
- ⁶ Hübler (2000) examines effects of computer use on overtime work both paid and unpaid in Germany.
- ⁷ Mizunoya (2001) examined trends in U.S. working hours since 1970s using various microdata. Endo (1993, 1995) attempted to estimate the number of

college-graduated white-collar employees non-exempt from the Fair Labor Standard Act. For fragmentary sources on unpaid overtime in the U.S., see BLS (1998), and Colin (2001).

8 Detailed notes on using LFS data are discussed in Mizunoya (1999), p.48.

9 The author reviewed main articles on this subject. See Mizunoya (2001), pp.13-18.

10 It is computed by 'the number of weekly actual working hours' times 'the number of annual actual workweeks'. For detailed estimation procedure, see Mizunoya (1999), p.48.

11 The number of annual actual workweeks is calculated by subtracting the number of holidays etc. (19.8 days) from the number of annual weeks (52.1 weeks = 365/7). When the number of holidays etc. is converted to week basis, it is divided by the number of weekly actual workdays. However, the 5-day workweek is not completely prevalent yet in Japan; accordingly, the number of weekly actual workdays is a little more than 5. The number of weekly actual workdays is estimated from *General Survey on Wages and Working Hours System* conducted by the Ministry of Health, Labour, and Welfare.

12 The month of March was chosen because only March data are obtained.

13 The data are obtained from BLS, Office of Productivity and Technology (1996).

14 This microdata set enables the author to regroup CPS data to the definition of workers in CES data. CPS data are obtained from U.S. Dept. of Commerce, Bureau of the Census, CURRENT POPULATION SURVEY: ANNUAL DEMOGRAPHIC FILE, 1993 [computer file], 2nd release; Washington, DC: U.S. Dept of Commerce, Bureau of the Census [producer], 1993; Ann Arbor, MI: ICPSR [distributor], 1993.

15 The coverage of workers in the CES is production or non-supervisory workers in total private firms. The author adjusted CPS data to match with CES as closely as possible. The adjustment of CPS data is in a way to select 1) private wage and salary workers, and 2) operators, fabricators and labourers in manufacturing, mining and construction industry, or 3) occupational groups except managerial and professional occupations in transportation, communication, and other public utility, wholesale and retail trade, and service industry. In set expression, $(1 \cap 2) \cup (1 \cap 3)$.

16 For further details of multiple jobholders, see Stinson (1997).

17 The number of samples used in CPS data is 13,152; thus, the number of samples that are multiple jobholders is assumed to be 815 ($13,152 \times 0.062$). Also, aggregated hours of 13,152 samples are 476,760 hours ($=13,152 \times 36.25$). Therefore, average hours *per job* would be calculated in such a way: $476,760 \text{ hours} / (13,152 + 815) = 34.1 \text{ hours}$

18 The data of the U.K. and Germany are obtained from Bell et al. (2001), pp.13-4, Table 1 and 2.

19 The data are based on Statistics Canada Household Survey Division (1997), p.26 Table 6 and p.30 Table 8.

20 For detailed method, see Mizunoya (1999).

21 Data in unpaid overtime work in the U.K., Canada and Germany are obtained from household surveys. It means that respondents judge themselves whether or not they worked unpaid overtime hours. Therefore, there may be possibilities for them to under/overreport unpaid overtime hours.

22 Onodera (2000) computed hourly wage rate in Japan using the LFS and compared it with other industrialized countries. Japan Productivity Center for Socio-economic Development has published a research book called *An International Comparison of Labor Productivity* every year and the book provides data on hour-based labour productivity indicators in manufacturing among Japan, Germany, and the U.S. However, the indicator in Japan is calculated by using MLS. Yoshinaga (1993) estimated hour-based labour productivity with LFS data and compared them between Japan and Germany.

- ²³ Bell et al. (2001) raised seven hypotheses: 1) unpaid overtime is associated with uncertainty over job task completion times, 2) unpaid overtime is negatively associated with worker productivity, 3) workers with leadership roles work more unpaid overtime, 4) unpaid work represents a form of gift exchange, 5) unpaid overtime is associated with mandatory rules pertaining to paid overtime, 6) unpaid overtime is negatively associated with unionized workforces, and 7) unpaid overtime and incentive pay.

SOURCES AND METHOD OF ESTIMATION FOR TABLE 4

Japan: (1) = (5)*(6). Rounded to the 1st digit; (2) = (1)-(3)-(4); (3) = (7)*(5); (4) = [Actual hours obtained from LFS] - [paid hours obtained from MLS]; (5) = [number of annual weeks] minus (10). Number of annual weeks is 52.1 (=365/7); (6) = Average weekly hours actually worked in all employees obtained from LFS, adjusted to full-time workers; (7) = Paid overtime work hours obtained from MLS; (8) = (4)/(5); (9) = calculated from General Survey on Wages and Working Hours System (GSWW) by Ministry of Labour; (10) = number of public holidays and other holidays obtained from GSWW; (11) = number of annual leave days actually used obtain from GSWW. Note that in general Japanese workers do not avail themselves of their annual leave days, creating a big gap between "provided leaves" and "actual leave taken".

United States: (1) = (5)*(6). Rounded to the 1st digit; (2) = (1)-(3)-(4); (3) = (7)*(5); (4) = (8)*(5); (5) = [number of annual weeks] - (10). Number of annual weeks is 52.1 (=365/7); (6) = Average weekly hours actually worked in wage and salary workers usually worked full-time schedule, obtained from CPS; (7) = Average overtime hours of production or non-supervisory workers in manufacturing only, obtained from CES; (8) = Actual hours obtained from CPS minus paid hours obtained from CES. Adjustments of CES to actual hours worked and of multiple jobholders in CPS are made; (9) = calculated from CPS May supplement; (10) = number of national public holidays; (11) = number of paid sick leave days obtained from Employee Benefits Survey.

United Kingdom: (1) = (5)*(6). Rounded to the 1st digit; (2) = (1)-(3)-(4); (3) = (7)*(5); (4) = (8)*(5); (5) = [number of annual weeks] - [(10) and (11)]. Number of annual weeks is 52.1 (=365/7); (6) = Average weekly hours usually worked in all full-time employees, obtained from Labour Force Survey by Eurostat; (7) and (8) = data obtained from Labour Force Survey by the Office of National Statistics; (9) = the 5-day workweek is assumed; (10) = number of national public holidays; (11) = Average number of days leave according to collective agreements.

Germany: same as the United Kingdom except (7) and (8): data obtained from German Socio-Economic Panel by DIW Berlin.

Canada: (1) = (5)*(6). Rounded to the 1st digit; (2) = (1)-(3)-(4); (3) = (7)*(5); (4) = (8)*(5); (5) = [number of annual weeks] - (10). Number of annual weeks is 52.1 (=365/7); (6) = Average weekly hours actually worked in all employees, obtained from Canadian Labour Force Survey by the Statistics Canada; (7) and (8) = data in all employees obtained from Canadian LFS; (9) = the 5-day workweek is assumed; (10) = number of national public holidays; (11) = number of annual vacation days with pay according to the Canada Labour Code, Part III, Division III.

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