Synchronized Wage Determination

and Macroeconomic Performance in Japan

by

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Wages appear to be considerably more responsive to labor demand and labor supply conditions in Japan than in the United States or than in European countries. This high responsiveness along with a stable monetary policy that reacts promptly to changes in inflation is one of the explanations for the more stable macroeconomic performance in Japan since the early 1970s compared with the United States or Europe. (See Suzuki (1988).)

An important empirical question for both macroeconomics and labor economics is whether this relatively high wage responsiveness is due to the Japanese Shunto system, in which many workers' wages are adjusted in synchronization in the spring or early summer of each year, or to the bonus system, in which a large component (as much as 20 or 30 percent) of earnings takes the form of a special bonus payment over and above the contracted money wage rate. In theory, either of these factors could make money wages relatively more responsive to demand conditions in Japan than in other countries.

Synchronization of wage determination through the Shunto tends to eliminate the overlapping or staggering of wage contracts which can lead to relatively slow adjustment of the average money wage in a decentralized economy. Overlapping wage contracting is an especially important feature of United States labor markets, but is also prevalent in France, Germany, Italy, and the United Kingdom. Hence, synchronized wage setting is a logical candidate for explaining relatively high wage responsiveness in Japan.

Bonus payments, if they are keyed to profits or sales, permit actual wage payments to adjust quickly to changes in the state of the economy. If profits drop off in a cyclical contraction, then money wages will automatically fall or at least not increase as quickly as stated in the wage contracts. Bonus payments are not as large a share of earnings on average in the United States or Europe as in Japan. Hence, the bonus system is another candidate for explaining the relatively high wage responsiveness in Japan.

While in theory, either synchronized wage setting or the bonus system can explain the relatively high responsiveness of wages in Japan, the empirical significance of each has only recently begun to be studied. In one recent study (Taylor (1988)), I examined the empirical significance of the bonus system and concluded that the empirical role of the bonus payments in increasing nominal wage flexibility for the Japanese economy as a whole is quite small. In practice, the bonus payments do not vary much as a fraction of total earnings in the Japanese economy, and the variation that does occur is only weakly related to the state of aggregate demand. More specifically, using simple regression techniques and aggregate wage data with and without the bonus and/or overtime payments, I concluded that the bonus system increases the degree of aggregate nominal wage flexibility in Japan only about 20 percent: from about 5 times that of the United States to about 6 times that of the United States. In other words, even without the bonus system, nominal wages would be much more flexible in Japan than in the United States.

The purpose of this paper is to examine the empirical significance of synchronized wage determination as a source of wage flexibility in Japan. I estimate empirical wage equations for Japan, the United States, Canada, France, Germany, Italy, and the U.K. A novelty of these equations is that the degree of synchronization in Japan is taken into account according to a particular algebraic specification. The equations are fit to quarterly data for the period from 1972 through 1986. By comparing the equations in the different countries, I endeavor to determine the empirical importance of synchronized wage determination for wage flexibility in Japan. The results indicate that synchronization does significantly affect the behavior of aggregate wages in Japan compared with the other counties. Somewhat surprisingly, however, there are significant differences between wage responsiveness in Japan and the other countries that the synchronization per se, at least as modeled here, does not explain.

Most of the paper is devoted to explaining the model and the estimation results. In the next section I introduce the wage determination equations and explain how the degree of synchronization and its importance for aggregate nominal wage change can be estimated. I then report the estimates and discuss their implications.

1. Wage Determination Models in the Synchronized and Non-synchronized Cases.

The starting point for wage determination in this paper is the staggered wage-setting model used in Taylor (1980). In the standard, non-synchronized version of this 1980 model, only a small fraction of workers have their contract wage rate changed in a given time period. The contract wage is assumed to be set to equal the expected average wage in the economy during the upcoming four quarters, plus an amount that depends on expected excess demand in the economy as measured by the deviations of actual GNP from trend GNP during the next four quarters. The crucial parameter to estimate in the model is the sensitivity of the wages to this future excess demand term.

In my 1980 paper, I made the simple theoretical assumption that 25 percent of workers change wages each quarter with the wage being set for one year. This assumption seemed to work well as approximation in that certain general features of the dynamic behavior of wages in the U.S. could be explained by the model. However, for detailed empirical work, whether or not wage setting is synchronized, one needs to go beyond this simple approximation.

Non-synchronized wage setting with different contract lengths

In the more general, but still non-synchronized version of the model, not all workers are working under contracts that last the same number of quarters. The "contract" wage is determined according to the following equations:

$$(1) \qquad x_{it} = \pi_{i0}Ew_{it} + \pi_{i1}Ew_{it+1} + \pi_{i2}Ew_{it+2} + \pi_{i3}Ew_{it+3} + \alpha_i(\pi_{i0}Ey_{it} + \pi_{i1}Ey_{it+1} + \pi_{i2}Ey_{it+2} + \pi_{i3}Ey_{it+3}) + v_{it}.$$

where x_i is the log of the contract wage in country i, w_i is the log of the average wage in country i, y_i is the output gap in country i, and v_i is a serially uncorrelated disturbance. The symbol E refers to the conditional expectation operator based on information through time t. All countries except Japan are assumed to have non-synchronized wage setting so the subscript represents either the United States, Canada, France, Germany, Italy or the United Kingdom. (The synchronized case is considered below.) The aggregate wage is given by the equation:

$$(2) \qquad w_{it} = \pi_{i0}x_{it} + \pi_{i1}x_{it-1} + \pi_{i2}x_{it-2} + \pi_{i3}x_{it-3}$$

In previous empirical work (Taylor (1979)), I estimated equations (1) and (2) using full information maximum likelihood as part of a small but complete linear closed economy model of the US. A simpler approach is taken here.[1] An alternative scaled-down full information method is used in which a simple autoregressive model describes the relationship between wages and demand--the "aggregate demand" equation--as implied by the rest of the model. In other words, rather than estimate an entire aggregate demand model, a reduced form relation between wages and output is estimated. In this reduced form, real GNP as a deviation from trend is assumed to depend on its own two lags and on the deviation of the average wage from a linear trend during the sample period 1973.1-1986.4. (A break in the trend is also permitted as described below.) Several variations on this same autoregressive equation were tried. The final "aggregate demand" equation was

$$(3) \qquad y_{it} = \beta_1 y_{it-1} + \beta_2 y_{it-2} + \beta_3 w_{it-1} + u_{it}.$$

where u is a serially uncorrelated disturbance. The parameters of this equation were estimated jointly with equation (1) and (2) using maximum likelihood and observations on the average wage w in each country and the

[1] An even simpler approach--the instrumental variable approach, whereby the 4 future expected wages and 4 future expected output terms are replaced by their actual values and two stage least squares or Hansen's GMM estimator is applied--turned out to give values for the sensitivity parameter which were the wrong sign. In other words, high expected future output would lead to higher wages, a property that neither makes economic sense or is compatible with the model being stable. Timing of expectations in the staggered wage setting model is important for the implied behavior of wages. Effectively average wages today depend on expected past, current and future wages, with a whole term structure of view point dates. Replacing the expected values with their actuals--as in the Hansen method--ignores these different viewpoint dates, and it is likely that this is the source of the problem with these limited information methods as applied to this model.

level of the output gap y in each country.[2] Because the initial values of the contract wages are unobservable and figure into the calculation of the likelihood function, these values were estimated along with the other coefficients.

Interpreting the Estimated π Coefficients

As described above, in the simple staggered contract model of Taylor (1980), the π parameters were set to equal .25 with the interpretation that 25 percent of all workers sign contracts each quarter and that each contract last 4 quarters. We now must consider the interpretation of these parameters in the more general case. We seek an interpretation in terms of the distribution of workers by different length of contracts. This interpretation is also used when we consider synchronized contracting. Let

x_{jt} = average contract wage set in quarter t in contracts which are j quarters in length (j=1,...,J)

n_{jt} = number of workers affected by contract wage changes in quarter t in contracts which are j quarters in length (j=1,...,J)

f_{jt} = fraction of workers in quarter t affected by contract wage changes in quarter t in contracts which are j quarters in length (j=1,...,J)

a_{jt} = fraction of workers in the labor force who have contracts of length j (j=1,...,J)

w_t = average wage in the economy in quarter t

[2] Evaluation of the likelihood function is straightforward once the model is solved. For the estimates reported in this paper the model was solved by the extended path method of Fair and Taylor (1983).

Then, by definition of f_{jt}, a_{jt}, and w_t, we have

$$(4) \quad f_{jt} = \frac{n_{jt}}{\sum_{j=1}^{J} n_{jt}}$$

$$(5) \quad a_{jt} = \frac{\sum_{s=0}^{j-1} n_{jt-s}}{\sum_{j=1}^{J} \sum_{s=0}^{j-1} n_{jt-s}}$$

$$(6) \quad w_t = \frac{\sum_{j=1}^{J} \sum_{s=0}^{j-1} n_{jt-s} x_{jt-s}}{\sum_{j=1}^{J} \sum_{s=0}^{j-1} n_{jt-s}}$$

If the distribution of workers by contract length is homogenous over time ($n_{jt} = n_j$), and if the variation of average contract wages over contracts of different length is negligible ($x_{jt} = x_t$), then (6) reduces to

$$(7) \quad w_t = \frac{\sum_{j=1}^{J} \sum_{s=0}^{j-1} n_j x_{t-s}}{\sum_{j=1}^{J} \sum_{s=0}^{j-1} n_j}$$

$$= \frac{\sum_{s=0}^{J-1} \sum_{j=s+1}^{J} n_j x_{t-s}}{\sum_{j=1}^{J} j n_j}$$

$$= \sum_{s=0}^{J-1} \pi_s x_{t-s}$$

where the π_s are defined as

$$(8) \qquad \pi_s = \left(\sum_{j=s}^{J-1} n_{j+1} \right) \left(\sum_{j=1}^{J} j n_j \right)^{-1}$$

Note that the π-weights sum to 1 and are time invariant. Hence the aggregate wage w_t is a fixed coefficient moving average of the "index" of contract wages x_t set in the recent past. The π-weights can also be written in terms of the $a_{jt} = a_j$. For example, when J=4,

(9) $\pi_0 = a_1 + a_2/2 + a_3/3 + a_4/4$

(10) $\pi_1 = a_2/2 + a_3/3 + a_4/4$

(11) $\pi_2 = a_3/3 + a_4/4$

(12) $\pi_3 = a_4/4$

Some examples are useful for illustrating how the π weights depend on the distribution of workers across contracts of different lengths. If all contracts are the same length, say 4 quarters, then $n_1 = n_2 = n_3 = 0$, and $\pi_0 = \pi_1 = \pi_2 = \pi_3 = .25$. This is the type of contract distribution used in the theoretical examination of staggered contracts presented in Taylor (1980). If the distribution of workers across contracts of different lengths in a given quarter is uniform up to 4 quarter contracts, then $n_1 = n_2 = n_3 = n_4$ and the π weights decline linearly: $\pi_0 = .4$, $\pi_1 = .3$, $\pi_2 = .2$, and $\pi_3 = .1$. Note that the distribution of workers across contracts can be recovered from the π weights through the identities.

(13) $(\pi_{i-1}-\pi_i)\pi_0^{-1} = f_i \quad i = 1,2,\ldots,J, \qquad (\pi_J = 0),$

(14) $(\pi_{i-1}-\pi_i)i = a_i \quad i = 1,2,\ldots,J \qquad (\pi_J = 0).$

The π-weights and hence this distribution of workers is part of the economic structure to be estimated. In the estimation we can use assumptions about the a_i to impose constraints on the π_i. For example, we must have that $a_i > 0$ and that a_i sum to 1. In addition, we impose $a_3 = 0$, which implies that $\pi_2 = \pi_3$. In other words, we assume that there are no three-quarter contracts.

Equation (7) describes how the aggregate wage w_t evolves from the index of contract wages x_t. Since the contracts which constitute this index will prevail for several quarters, workers and firms negotiating a contract wage will be concerned with the labor market conditions expected to prevail during the upcoming contract period. For example, those setting 2 quarter contracts will be concerned with the going wage and the availability of workers during the next 2 quarters, while those setting 4 quarter contracts must forecast these variables 4 quarters ahead. Moreover, in the process of forecasting future wages, these firms and workers will take account of contracts negotiated in the recent past since these will be part of the relative wage structure during part of the contract period. Equation (1) is thus a behavioral equation for the determination of the contract wage index which takes account of these factors.[3]

[3] An alternative wage contracting equation can be derived in which the weights on the future wages and output levels are not the same as the π weights.

Synchronized Wage Setting

The parameter a_{4t} measures the fraction of workers who sign contracts 4 quarters in length (annual contracts). If all contracts are annual and if there is complete synchronization of annual wage contracts with all wage changes occurring in the second quarter, then $a_{1t} = a_{2t} = a_{3t} = 0$ and a_{4t} would equal 1 in the second quarter of each year and 0 in the other three quarters. According to equations (9) through (12), this would imply that the π-weights would have a seasonal pattern: in the second quarter of each year π_0 would equal 1 and $\pi_1 = \pi_2 = \pi_3 = 0$ implying that $w_t = x_t$ in the second quarter when the wage is changed. In the third quarter then $w_t = x_{t-1}$ so that $\pi_1 = 1$ with the other π-weights equal to zero. In the fourth quarter, $w_t = x_{t-2}$ so that $\pi_2 = 1$ with the π-weights equal to zero and in the first quarter $w_t = x_{t-3}$ so that $\pi_3 = 1$.

The contract wages determination equations would have a similar seasonal pattern. In the second quarter, the contract wage $x_t = Ew_t + \alpha Ey_t$ which implies that $Ey_t = 0$. Wages would adjust in the second quarter so that excess demand, as measured by the output gap y_t, would be expected to be zero. In this sense, full synchronization would reduce the business cycle persistence of output fluctuations: in the second quarter of each year, real output would bounce back to the full employment level.

Of course, even in the Japanese economy, not all workers have wage adjustments in the second quarter. Some of the annual wage changes in the Shunto occur in the summer quarter and not all annual wage contracts are adjusted as part of the Shunto. Moreover, wages for some workers would change more frequently than once per year. Since the main purpose of this paper is to estimate the importance of the actual Shunto, a more general specification is required.

To allow for these possibilities I estimate a seasonal pattern for the a_{4t} in Japan. Moreover, I do not impose the assumption that $a_1 = a_2 = 0$ although these fractions are assumed to be fixed constants in each quarter. As with the non-synchronized wage equations in the other countries, I assume that there are no 3 quarter contracts ($a_3 = 0$). The π-weights are then given by

$$\pi_{0i} = a_1 + a_2/2 + a_{4i-3}$$

$$\pi_{1i} = a_2/2 + a_{4i}$$

$$\pi_{2i} = a_{4i-1}$$

$$\pi_{3i} = a_{4i-2}$$

where the index i runs from the first quarter to the fourth quarter and a_{4i} has a seasonal pattern.

The π-weights are estimated with data on average contracted wages in Japan excluding the bonus payments (overtime is included in the wage measure but this is a fairly small percentage on average). If the Shunto is an important element in the overall Japanese economy, then we would expect to estimate a value for a_{42} that is high (though not as high as 1) and a relatively low value for the other a's.

2. The Estimation Results.

The estimation results for the synchronized case for Japan and the non-synchronized case for the other countries (United States, Canada, France, Germany, Italy, and the United Kingdom) are tabulated in a compact form in Tables 1, 2 and 3. Table 1 reports the estimates of equations (1) and (2) along with the distribution of workers by contract length. Table 2 reports the results for the synchronized estimates in Japan. Table 3 reports the results for the aggregate demand equation (3).

The maximum likelihood approach gives generally sensible results for wage distributions in all the countries. The equations fit the data well with relatively small standard errors and little serial correlation of the disturbances. However, for France, Italy, and the United Kingdom, the fully unconstrained maximum likelihood estimates resulted in weights on the contract wages which declined very rapidly. For these three countries I chose a contract wage distribution close to that of the other European country (Germany) which is not statistically different from the maximum likelihood estimate. This distribution entails 40 percent annual contracts in France, Italy and the United Kingdom. With this exception, all the other estimates in Tables 1, 2 and 3 are the maximum likelihood estimates.

Note that for all the countries the aggregate demand equations have a negative coefficient on the average wage. The coefficient is relatively large in the U.S., Canada and Germany and relatively small in France, Italy, Japan and the U.K. This negative coefficient is important for it insures that the model is stable. It corresponds to the aggregate demand curve (with the nominal wage rather than the price on the vertical axis) being downward sloping: when the nominal wage rises, real output falls. This negative effect is influenced by monetary policy and reflects how accommodative the central bank is to inflation. High absolute values of this coefficient represent less accommodative policies.

In interpreting these aggregate demand equations, it is important to note that the implicit target rate of wage inflation is assumed to have shifted down in the late 1970s or early 1980s. The exact year is shown in

Table 1. In other words, after the shift in the target rate of wage inflation, the central banks are assumed to have been willing to tolerate less average inflation. According to the estimates in Table 1, Japan was the first of the seven countries to shift down its inflation target.

Focussing first on Japan the estimates indicate that aggregate wages behave as if roughly 88 percent of wage contracts in Japan are annual, 12 percent are adjusted every quarter, and a negligible amount are adjusted every two quarters. The effect of the Shunto shows up clearly in the seasonal π coefficients which have the same general form as in the extreme case where all contracts are adjusted in the spring quarter. However, because some workers have more frequent wage adjustment, and because not all annual wage adjustments occur in the spring quarter, the coefficients do not have the exact 0 - 1 pattern. According to these estimates aggregate wages in Japan adjust as if 42 percent of workers have their wages changed in the spring quarter, 26 percent in the summer quarter, 16 percent in the fall quarter and 3 percent in the winter quarter. This general pattern is what one would expect from the Shunto system.

Now compare these estimates with those in the other countries. For the other countries it is assumed that wage setting is non-synchronized so that the coefficients do not have a seasonal pattern. The coefficients for the other countries indicate that annual contracts are the most common length of contract. Wages in the United States behave as if about 80 percent of workers have annual contracts. The fraction is smaller in Canada and Germany. Although some wage contracts, especially in the United States, Canada, and Italy, extend for more than one year, indexing in these longer contracts usually calls for adjustment in the second and third year.

3. The Importance of Synchronization for Wage Responsiveness in Japan.

Overall the results support the view that the Shunto in an important part of aggregate wage behavior in Japan. The significant seasonal pattern in the estimated parameters have plausible interpretations in terms of the Shunto: most (88 percent) workers have annual wage adjustments and about half of these (or 42 percent of all workers) have their wage adjustments in the second quarter during the spring offensive. About 77 percent of workers who have their wages adjusted annually receive the adjustments in the spring or summer quarters.

The analysis in section 2 above showed that such synchronization would make aggregate wages appear more flexible in the sense that the aggregate wage would quickly adjust to eliminate excess demand or supply and that cyclical fluctuations would be short-lived. This greater aggregate wage flexibility with synchronization compared with non-synchronization would occur even if the adjustment parameter α were the same.

However, it is important to note that the adjustment parameter is not the same in the different countries. In particular, the adjustment coefficient in Japan is much greater than in the other countries. As shown in the first row of Table 1 the Japanese coefficient is about 6 times greater than the average adjustment coefficient in the other countries. In other words even if the estimated equations showed no synchronization effects in Japan the individual contract wages would adjust more quickly than in other countries. It appears, therefore, that a significant part of the high aggregate wage responsiveness in Japan is not due to synchronization *per se* as described in section 1 of this paper. Some other factor must be at work. As mentioned previously the bonus payments do not appear to be responsive enough to make the difference.

Perhaps the most likely possibility is that the Shunto bargaining process itself makes the individual contract wage adjustments more responsive to demand and supply conditions. As part of the annual discussions between unions, firms and the government the rational for wage changes given alternative forecasts for the aggregate economy could lead to a more flexible wage adjustment process.

4. Concluding Remarks.

The purpose of this paper is to assess the role of synchronized wage setting in achieving wage flexibility in Japan. Using a new technique for estimating the effects of such synchronization with aggregate nominal wage data, the importance of synchronization in Japan compared with other large industrialized economies clearly emerges. This synchronization would tend to make aggregate wages more flexible by eliminating much of the slow adjustment of average money wages due to overlapping contracts.

However, the synchronization effects leave much of the difference between aggregate nominal wage flexibility in Japan and other countries unexplained. Although the empirical results reported here are not decisive on other possible explanations, one hypothesis is that the annual discussions surrounding the Shunto process itself lead to the greater wage flexibility in Japan. Testing the validity of this hypothesis is an important task for future research.

TABLE 1. ESTIMATED COEFFICIENTS OF WAGE EQUATIONS (1) and (2).

	U.S.	CANADA	FRANCE	GERMANY	ITALY	JAPAN	U.K.
α	0.0298	0.0541	0.0368	0.0393	0.1084	0.2965	0.0528
	(.011)	(.043)	(.012)	(.025)	(.091)	(.111)	(.031)
$\pi(0)$	0.3270	0.4499	0.5117	0.5024	0.4991	*	0.5272
$\pi(1)$	0.2744	0.3173	0.2883	0.2892	0.3009	*	0.2728
	(.015)	(.033)	(.024)	(.029)	(.028)		(.029)
$\pi(2)$	0.1993	0.1164	0.1000	0.1042	0.1000	*	0.1000
	(.013)	(.045)		(.045)			
$\pi(3)$	0.1993	0.1164	0.1000	0.1042	0.1000	*	0.1000
% annual	79.7	46.6	40.0	41.7	40.0	87.5	40.0
% semi-ann	15.0	40.2	37.7	37.0	40.2	0.7	34.6
% qtr.	5.3	13.3	22.4	21.3	19.8	11.8	25.4
SE	.0027	.0091	.0083	.0061	.0167	.0157	.0159
D-W	1.3	1.9	1.7	2.1	1.9	1.9	1.9
Sample	71.4	76.4	71.4	71.4	71.4	71.4	71.4
	86.4	86.4	86.2	86.3	86.3	86.3	86.3
Target Shift	83.1	82.4	81.3	77.3	82.3	76.3	81.2
Initial Conditions:							
x(-1)	-0.4541	-0.4684	-1.2406	-0.7687	-1.3675	-0.8793	-1.3188
x(-2)	-0.4031	-0.3628	-1.2491	-0.5475	-1.6123	-1.1033	-1.3935
x(-3)	-0.3821	-0.2811	-1.1870	-0.6528	-1.7719	-1.0157	-1.3128

*Japanese estimates of π's by quarter allowing for synchronization are shown in Table 2.

TABLE 2. ESTIMATED COEFFICIENTS FOR JAPAN

Quarter:	I	II	III	IV
$\pi(0)$	0.1533	0.5414	0.3857	0.2815
$\pi(1)$	0.1633	0.0351	0.4232	0.2675
$\pi(2)$	0.2638	0.1597	0.0314	0.4196
$\pi(3)$	0.4196	0.2638	0.1597	0.0314
% of workers in quarter (a_{4i})	3	42	26	16

Notes to Tables 1 and 2: All equations were estimated with maximum likelihood. In France, Italy, and the U.K. the number of annual contracts was constrained to equal 40 percent, which is not significantly different from the unconstrained likelihood for these countries. The target shift is the quarter in which it is assumed that the central banks reduce their "target" for wage inflation. Standard errors of the estimated coefficients are shown in parentheses. Using the formula for that relates the percentage of contracts to the weights, the standard error of the estimated percent annual contracts can be calculated. These standard errors of the percent annual contracts are 5.2 percentage points for the U.S., 18.2 percentage points for Canada, and 16.6 percentage points for Germany.

TABLE 3. ESTIMATED COEFFICIENTS OF THE AGGREGATE DEMAND EQUATION (3)

	U.S.	CANADA	FRANCE	GERMANY	ITALY	JAPAN	U.K.
y(-1)	1.24	1.14	1.26	0.64	0.96	1.05	0.80
y(-2)	-0.40	-0.33	-0.33	0.13	-0.14	-0.25	-0.02
w(-1)	-0.20	-0.17	-0.03	-0.30	-0.05	-0.06	-0.05

Note: These coefficients were estimated simultaneously with the coefficients of equations (2) and (3) using a maximum likelihood technique described in the text.

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APPENDIX: DATA SOURCES FOR AGGREGATE WAGE DATA

United States: Hourly earning index, adjusted for overtime and inter-industry shifts
CITIBASE, SA, base year = 1980.

Canada: Hourly earnings in manufacturing
OECD MEI, SA, baseyear = 1980

France: Hourly wage rates in manufacturing
OECD MEI, baseyear = 1980

Germany: Hourly earnings index, all industries
IMF IFS; NSA, baseyear = 1980, Seasonally adjusted using TSP

Italy: Hourly wage rates, all industries
OECD MEI; baseyear = 1980; pre-1983 data adjusted from manufacturing

Japan: Monthly contractual cash earnings, all industries
IMF IFS; NSA, baseyear = 1980

United Kingdom: Avg. monthly earnings, all industries
IMF IFS, SA, baseyear = 1980

Abbreviatons:
CITIBASE, Citibase Data Tape
OECD MEI = Organization for Economic Cooperation and Development, Main Economic Indicators
IMF IFS = International Monetary Fund, International Financial Statistics.