

# Chapter 12. Foreign Labor Statistics

## Background

From its inception, BLS has collected and published comparative statistical information on labor conditions and developments abroad. Foreign labor research and statistical analyses have been undertaken because (1) comparisons between U.S. and foreign labor conditions shed light on U.S. economic performance relative to other industrial nations; (2) comparisons provide information on the competitive position of the United States in foreign trade, which has an important influence on the U.S. economy and employment; (3) information on labor conditions published by a majority of foreign countries is not readily available to U.S. labor representatives, employers, Government officials, and others, and is often not available in English; and (4) often, only an expert can judge the quality and comparability of foreign statistical data.

## Description of Measures

The emphasis of the current program is on the development of international comparisons of the labor force, employment, and unemployment; productivity and unit labor costs; hourly compensation costs of manufacturing production workers; indicators related to the family; real gross domestic product per capita and per employed person; and consumer prices and other measures. The measures compiled relate primarily to the major industrial countries, but other countries or areas of importance to U.S. foreign trade are included in some of the measures. Most of the series are prepared on an annual average basis; comparative figures on unemployment and consumer prices are prepared monthly.

### Labor force, employment, and unemployment

Comparative measures of the labor force, employment, unemployment, and related indicators are prepared regularly for the United States, Canada, Australia, Japan, France, Germany, Italy, the Netherlands, Sweden, and the United Kingdom. For most of the countries, the series begin with 1959. Unemployment rates, approximating U.S. concepts, are prepared monthly for most of the countries; the other

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measures are calculated annually. Some measures are calculated by sex or by age. A series of comparative unemployment measures ranging from relatively narrow measures to measures encompassing employed persons working part time for economic reasons and discouraged workers was developed for the period 1983-93. This series, known as U-1 to U-7, ends with the 1993 data. A new U.S. framework, known as U-1 to U-6, was introduced in 1995. This array of measures is being assessed to see whether international comparisons will be feasible.

### **Output per hour and labor costs**

Comparative trends in manufacturing labor productivity (output per hour), hourly compensation, unit labor costs (labor compensation per unit of output), and related measures are compiled on an annual average basis for the United States, Canada, Japan, Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Sweden, and the United Kingdom. For the comparative measures of unit labor costs, Korea and Taiwan are also included. The comparisons are limited to trend measures only; comparisons of levels of manufacturing productivity and unit labor costs are not available.

BLS does not prepare comparisons of levels of manufacturing productivity and unit labor costs because of difficulties in comparing the levels of manufacturing output among countries. To compare manufacturing output across countries, a common unit of measure, such as the U.S. dollar, is needed. Market exchange rates are not suitable as a basis for comparing output levels. What are needed are purchasing power parities (PPP's), the number of foreign currency units required to buy goods and services equivalent to what can be bought with one unit of U.S. currency.

PPP's are available for total gross domestic product (GDP) for the United Nations' International Comparison Project (UNICP). However, these PPP's are derived for expenditures by consumers, business, and government for goods and services and not for value added by industry. Therefore, they do not provide PPP's by industry. The PPP's for total GDP are not suitable for each component industry, such as manufacturing.

The trend measures are expressed in index form and as percent changes at annual rates. For most countries, the series begin with 1950. Indexes of unit labor costs for foreign countries are calculated on a U.S. dollar basis as well as in national currency terms to take account of relative changes in currency exchange rates. In addition to the individual country measures, BLS constructs relative trade-weighted measures of productivity and unit labor costs, that is, the U.S. measure relative to a trade-weighted average of other economies.

### **Multifactor productivity**

BLS also produces comparative trend measures of manufacturing multifactor productivity (output per unit of combined labor and capital inputs) for the United States, France, and Germany. These series differ from the labor productivity measures because they explicitly include capital as a factor of production. The data are expressed as annual average indexes beginning in 1956. Current research is directed toward including additional countries in the set of comparative measures.

### **Hourly compensation costs**

International comparisons of total compensation costs per hour worked are computed for production workers in all

manufacturing and in 39 component manufacturing industry groups in over 30 countries or areas. The measures are computed in national currency and converted into U.S. dollars at prevailing commercial market currency exchange rates. For all manufacturing, trade-weighted average measures of hourly compensation in U.S. dollars are computed for all foreign economies and for selected regional or economic groups. The series are annual and begin with 1975 (1960 for total manufacturing in 10 industrial countries).

Hourly compensation costs converted into U.S. dollars at commercial market exchange rates are an appropriate measure for comparing levels of employer labor costs. They do not indicate relative living standards of workers or the purchasing power of their income. Prices of goods and services vary greatly among countries, and commercial market exchange rates are not reliable indicators of relative differences in prices. Purchasing power parities must be used for meaningful international comparisons of the relative purchasing power of worker incomes.

For all manufacturing, comparative levels of hourly direct pay and pay for time worked are also computed, as well as statistics of the structure of compensation (pay for time worked, other direct pay, and social insurance expenditures and other labor taxes) to provide a comparable basis for analyzing the main components of total compensation.

### **The family**

Indicators relating to the family are compiled for 10 countries. These indicators include marriage and divorce rates, births to unmarried women, the distribution of households by type, and the number of single-parent households. The series generally begin with 1960.

### **Real Gross Domestic Product per capita and per employed person**

Comparative levels and trends in real gross domestic product, GDP per capita, and GDP per employed person are calculated on an annual average basis for the United States, Canada, Japan, Korea, and 10 European countries, generally beginning with 1960. The GDP level comparisons are based on PPP's, the number of foreign currency units required to buy goods and services equivalent to what can be bought with one unit of U.S. currency. Although such comparisons are sometimes based on market currency exchange rates, market exchange rates seldom reflect the relative purchasing powers of different currencies.

### **Consumer prices and other measures.**

Indexes of consumer prices are compiled regularly for the United States and 15 foreign countries on a common base year. Annual indexes (since 1950) and monthly or quarterly indexes (since 1970) are available for most of the countries.

Other comparative measures, generally available on an annual basis, include the number of union members and union density ratios as measured by union membership as a percent of civilian wage and salary workers for 12 countries.

### **Germany**

As of this writing, most data series labeled “Germany” refer to the Federal Republic of Germany prior to unification. Exceptions are the years 1992 onward in the alternative unemployment indicators (U-1 to U-7) and in the family series. The expansion of other comparative series to cover unified Germany is being explored.

## **Data Sources**

Research on comparative labor statistics is based upon statistical data and other source materials from (a) statistical agencies of foreign countries; (b) international and supranational bodies such as the United Nations, International Labour Office (ILO), Organisation for Economic Cooperation and Development (OECD), and the Statistical Office of the European Union (EUROSTAT); and (c) private agencies such as banks, industry associations, and research institutions. All foreign country data are drawn from secondary sources; BLS does not initiate surveys or data collection programs abroad.

## **Estimating Procedures**

Because statistical concepts and methods vary from country to country, international comparisons of statistical data can be misleading. BLS attempts to derive meaningful comparisons by selecting a conceptual framework for comparative purposes; analyzing foreign statistical series and selecting those which most nearly match the desired concepts; and adjusting statistical series, where necessary and feasible, for greater intercountry comparability.

### **Labor force, employment, and unemployment**

For these comparisons, BLS adjusts each country’s published data, if necessary, to provide measures approximately consistent with U.S. definitions and standards. Although precise comparability may not be achieved, these adjusted data provide a better basis for international comparisons than the data regularly published by each country.

The foreign country data are adjusted as closely as possible to U.S. concepts, with the exception of age limits and the treatment of layoffs. In addition, for some countries, no adjustment is made for deviations from U.S. concepts in the treatment of unpaid family workers, persons waiting to start

a new job in 30 days, and passive job seekers. However, these differences are believed to have a negligible effect on the comparisons.

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and over. Therefore, the adjusted statistics relate to the population age 16 and over in France, Sweden, and from 1973 onward, the United Kingdom; 15 and over in Canada, Australia, Japan, Germany, and from 1993, Italy, and from 1975, the Netherlands, and prior to 1973, the United Kingdom; and 14 and over in Italy prior to 1993, and in 1973-74 in the Netherlands.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their job are classified as unemployed. Layoff practices in some countries are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. (For further discussion of these differences, see *Monthly Labor Review*, December 1981, pp. 8-11.)

Under the U.S. definition, unpaid family workers who worked fewer than 15 hours a week are excluded from the labor force. This practice conformed to definitions recommended by the International Labour Office until 1982, when the ILO changed its recommendation to include all unpaid family workers regardless of the number of hours worked. Adjustments have been made to the U.S. definition on this point for Italy, Japan, Germany, and the Netherlands, but not for the other countries which follow the current ILO recommendation—Canada, Australia, France, Sweden (1987 onward), and the United Kingdom. The available information for these countries indicates that an adjustment for family workers would be very small.

As of January 1994, the U.S. Current Population Survey was redesigned. Persons waiting to start a new job within 30 days are now required to have actively sought work in the past month to be classified as unemployed. This departs from the ILO definitions which do not require active search by such persons. Most other countries follow the ILO definition on this point; no adjustment is made for this difference, but the effect is believed to be small.

In the United States, active job search consists of contacting a public or private employment office to find work; applying to employers directly; asking friends, relatives, or trade unions about employment opportunities; placing or answering advertisements; seeking licenses, permits, work space or financial resources needed to start a business. Reading advertisements is a passive step and does not qualify as an active job search method in the United States. However, in Canada and the European Union countries, reading ads is considered as an active means of job search. In the European Union countries, the number of persons who just read newspaper advertisements accounts for about 5 percent of

the unemployed. In Canada, the proportion of such persons has risen from about 2-3 percent of the unemployed in the late 1970's to 7 percent in 1993. No adjustment is made for this difference.

According to the 1992 revision of the EUROSTAT definition of unemployment, being registered at an employment exchange and waiting for the results of a public examination no longer qualify as active job search. In prior years, such persons were counted as unemployed without any active form of job search. However, this group was significant only in Italy, and an adjustment was made to exclude such persons from the unemployed in that country for comparability with U.S. concepts. In 1992, the Italian survey was revised so that the unemployed include only those who actively looked for work in the past 30 days. Therefore, an adjustment is no longer necessary.

The statistics for 6 of the 10 countries regularly studied—the United States, Canada, Australia, Japan, Italy, and Sweden—are obtained from monthly or quarterly household surveys. No adjustments are made to the published data for Canada and Australia because their concepts and methods are virtually identical to those of the United States. Slight adjustments are made to the data for Japan and, since 1992, Italy. Prior to Italy's 1992 revision, larger adjustments were made for Italy. Beginning with 1987, BLS has adjusted the Swedish data to include students who also sought work as being unemployed.

Current unemployment measures for three of the other four countries studied—France, Germany, and the United Kingdom—are derived from monthly administrative data on the number of registrants at public employment offices. These countries also conduct periodic household surveys of the labor force which contain benchmark data that are used to adjust the levels of the labor force, employment, and unemployment for greater comparability with U.S. concepts.

Measures of current labor force, employment, and unemployment are obtained by applying adjustment factors from the most recent year's labor force surveys to published data. The United Kingdom conducts a monthly survey; however, because of the small sample size, data are only published on a quarterly basis. France and Germany conduct annual surveys. There has been a change in the benchmark surveys used for both France and Germany. In 1983, BLS replaced the German labor force survey results tabulated by the national statistical office with those tabulated by EUROSTAT. A similar change was made in the benchmark survey for France beginning with 1992.

BLS makes only annual estimates of unemployment rates for the Netherlands. No monthly or quarterly estimates are currently made because of the lack of reliable quarterly employment data. Prior to 1983, annual adjustments are based on the results of the Dutch biennial labor force survey, with

adjustment factors interpolated between surveys. From 1983 onward, the adjustments are made on the basis of EUROSTAT tabulations of the Dutch labor force survey.

### **Output per hour and labor costs**

Indexes of manufacturing labor productivity (output per hour), hourly compensation, and unit labor costs are constructed from three basic aggregate measures: Output, total labor hours, and total compensation. The hours and compensation measures relate to all employees (wage and salary workers) in Belgium, Denmark, Italy, the Netherlands, and the United Kingdom and to all employed persons (employees plus the self-employed and unpaid family workers) in the United States, Canada, Japan, France, Germany, Norway, and Sweden. Hours refer to hours worked in all countries.

The measures generally relate to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (for all years) and for Italy (beginning 1970) refer to mining and manufacturing less energy-related products; the measures for Denmark include mining and exclude manufacturing handicrafts prior to 1966; and the measures for the Netherlands exclude petroleum refining and include coal mining from 1969 to 1977.

In general, the output measures for most of the economies are value-added in manufacturing in constant prices from the national accounts of each country. However, output for Japan prior to 1970 and the Netherlands prior to 1960 and from 1969 to 1977 are indexes of industrial production. The national accounts measures for the United Kingdom are essentially identical to their indexes of industrial production.

The U.S. manufacturing value-added series used for the comparative measures is based on a fixed-price-weight scheme in which the price weights have not changed over the entire period covered. The Japanese value-added series is based upon one set of fixed price weights for the years from 1970 forward. Output series for the other foreign economies also employ fixed price weights, but the weights are updated periodically (for example, every 5 or 10 years). The only exception is the output series for Norway for the years 1987 forward, in which a given year's output is weighted with the preceding year's prices.

While methods of deriving national accounts measures of manufacturing output differ from country to country, BLS has reviewed these methods and determined that the series are sufficiently comparable for measuring trends in productivity and unit labor costs.

The U.S. manufacturing output series used for the comparative measures differs in two key ways from the U.S. manufacturing output series BLS publishes with its quarterly measures of productivity and costs for the business sec-



tor and major subsectors of the U.S. economy (see Chapter 10). First, the quarterly U.S. manufacturing output series is on a “sectoral” output basis rather than a value-added basis. Sectoral output is gross output less intra-sector transactions. Second, the series published with the quarterly U.S. data is based on changing price weights rather than fixed weights.

To preserve the comparability of the U.S. measures with those for other economies, BLS uses the value-added concept in manufacturing for the United States in this comparative data set. A review of the preferred output concept for international comparative measures, as well as of the availability of data for producing alternative output series, is underway.

The total hours measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series from national statistical agencies, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected with the Ministry of Labor for use with the national accounts employment data. For the other countries, BLS constructs its own estimates of average hours.

For the Republic of Korea and Taiwan, BLS currently publishes only measures of unit labor costs and its components—output and total compensation. Total hours, and consequently productivity, are not computed for Korea and Taiwan because BLS has not yet developed adequate employment series for these economies.

The compensation (labor cost) measures are from the national accounts, except those for Belgium, which are developed by BLS using statistics on employment, average hours, and hourly compensation. Compensation includes all payments in cash or kind made directly to employees, plus employer expenditures for legally required insurance programs and contractual and private benefit plans. In addition, for France and Sweden, compensation is increased to account for other significant taxes on payrolls or employment, even if they are not for the direct benefit of workers, because such taxes are regarded as labor costs. Similarly, for the United Kingdom, compensation is reduced from 1967 to 1991 to reflect employment-related subsidies. Compensation does not include all items of labor cost, however. The costs of recruitment, employee training, and plant facilities and services—such as cafeterias and medical clinics—are not covered because data are not available for most countries. Compensation for self-employed workers is calculated by assuming that their hourly compensation is equal to the average for wage and salary employees.

For all countries, the measures for recent years may be based on current indicators of manufacturing output, employment, average hours, and hourly compensation, until national accounts and other statistics used for the long-term measures become available.

To account for the differences in the relative importance of each of the foreign economies to U.S. trade in manufactured products, BLS constructs relative trade-weighted measures of productivity and unit labor costs. The trade weights for Canada, Japan, and the European countries are obtained by rescaling a series of weights developed by the International Monetary Fund (IMF) based on average trade flows over the 1989-91 period. The IMF weights are based on aggregate trade data for total manufacturing and take account of both bilateral trade and the relative importance of “third country” markets. The IMF weights for 1989-91 do not include Korea and Taiwan. Weights for Korea and Taiwan are developed by BLS using data from an earlier IMF study and other sources. Two summary measures are constructed: “Competitors” indexes, which are the trade-weighted geometric averages of the indexes for the foreign economies, and relative indexes, which are the ratios of the U.S. indexes to the “competitors” indexes.

### **Multifactor productivity**

Comparative indexes of manufacturing multifactor productivity (output per unit of combined labor and capital inputs) for the United States, France, and Germany are prepared using the basic concepts and methods that are used by BLS to develop multifactor productivity measures for the business sector and major subsectors of the U.S. economy, including manufacturing, and for selected U.S. industries. The major exception is that the comparative series measure output according to a value-added approach for manufacturing rather than the sectoral output approach used for the indexes of U.S. manufacturing multifactor productivity that BLS publishes as part of its productivity measures for the business sector and major subsectors (see Chapter 10). Sectoral output is gross output less intra-sector transactions.

Real value added in manufacturing is the output concept for each of the three countries. However, the base years for prices used to measure real output and the frequency and methods of changing price weights are different among the three countries.

Labor input is defined as total hours worked by all persons active in the manufacturing sector. This includes the self-employed and unpaid family workers as well as employees (wage and salary workers). Labor input is not distinguished by categories such as experience, age, or gender, and no quality differentiation is assumed. The labor input data are the same as those used in the international comparisons of output per hour computed by BLS.

Labor compensation is used to calculate labor's share in total value added. This includes direct payments (wages and salaries, paid vacations, bonuses, payments in kind) and indirect payments (employer contributions to social insurance, health, and pension benefits). The data on employee compensation are from national accounts sources. The compensation of self-employed persons is estimated by assuming that the hourly compensation costs of the self-employed are the same as for employees. Capital's share in total value added is the residual between nominal value added and labor's share.

Capital inputs to the production process are defined as the value of services per year from stocks of productive capital assets. Capital services are assumed to be proportional to the capital stock. The capital stock levels of depreciable fixed assets are estimated by applying the perpetual inventory method, which consists of cumulating past investments in each type of asset, while making due allowances for the decline in efficiency that accompanied the aging of assets, which ultimately are scrapped.

For the United States, investment data are available for 25 types of capital assets for each of 20 manufacturing industries. Investment data by asset type and by industry are obtained from the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. The capital input series for U.S. manufacturing is a summation of the real aggregate capital input values across all manufacturing industries.

For Germany and France, capital estimates are available for only four asset categories: equipment, structures, inventories, and land. Investment series for equipment and structures in German manufacturing, and for inventory levels, are provided by national accounts statistics. For France, the published national accounts provide only total fixed investments in manufacturing. The breakdown into equipment and structures was provided by the French statistical institute, INSEE. French manufacturing inventories are estimated from annual changes in inventories. None of the three countries being compared publishes data for land used in manufacturing. In all three cases, the value of land is estimated by applying a land/structures ratio to the estimated stock of structures.

### Hourly compensation costs

Measures of hourly compensation costs are prepared by BLS in order to provide a better basis for assessing international differences in employer labor costs. Comparisons based on the more readily available average earnings statistics published by many countries can be very misleading. National definitions of average earnings differ considerably, average earnings do not include all items of labor compensation, and the omitted items of compensation frequently represent a large proportion of total compensation.

Hourly compensation is defined as (1) all payments made directly to the worker—pay for time worked (basic time and piece rates plus overtime premiums, shift differentials, other premiums and bonuses paid regularly each pay period, and cost-of-living adjustments), pay for time not worked (vacations, holidays, and other leave, except sick leave), seasonal or irregular bonuses and other special payments, selected social allowances, and the cost of payments in kind—before payroll deductions of any kind, and (2) employer expenditures for legally required insurance programs and contractual and private benefit plans (retirement and disability pensions, health insurance, income guarantee insurance and sick leave, life and accident insurance, occupational injury and illness compensation, unemployment insurance, and family allowances). In addition, for some countries, compensation is adjusted for other taxes on payrolls or employment (or reduced to reflect subsidies), even if they do not finance programs that directly benefit workers, because such taxes are regarded as labor costs. For consistency, compensation is measured on an hours-worked basis for every country.

The BLS definition of hourly compensation costs is not the same as the International Labour Office definition of total labor costs. Hourly compensation costs do not include all items of labor costs. The costs of recruitment, employee training, and plant facilities and services—such as cafeterias and medical clinics—are not included because data are not available for most countries. The labor costs not included account for no more than 4 percent of total labor costs in any country for which the data are available.

The total compensation measures are computed by adjusting each country's average earnings series for items of direct pay not included in earnings and for employer expenditures for legally required insurance, contractual and private benefit plans, and other labor taxes or subsidies. For the United States and other countries that measure earnings on an hours-paid basis, the figures are also adjusted in order to approximate compensation or pay per hour worked.

Earnings statistics are obtained from establishment surveys of employment, hours, and earnings for most countries. They are obtained from surveys or censuses of manufactures for seven countries—Mexico, India, Israel, Pakistan, Austria, Denmark, and Portugal. The surveys of employment, hours, and earnings are stratified sample surveys for most countries (except they are full surveys of establishments covered for Finland, Luxembourg, and Norway and a judgment sample for Switzerland). The surveys of manufactures are establishment stratified sample surveys of industrial production and other industrial statistics, including labor input and labor cost. Censuses are complete enumerations of establishments.

Adjustment factors are obtained from periodic labor cost surveys and interpolated or projected to nonsurvey years on

the basis of other available information for most countries. The labor cost surveys are establishment stratified sample surveys (full surveys for Ireland, Italy, and Luxembourg). The information used to interpolate or project the adjustment factors to non-labor-cost-survey years includes annual tabulations on employer social security contribution rates provided by the International Studies Staff of the U.S. Social Security Administration, information on contractual and legislated fringe benefit changes from ILO and national labor bulletins, and statistical series on indirect labor costs. The adjustment factors are obtained from the surveys of manufactures for Mexico and Portugal, and from reports on fringe benefit systems and social security for Hong Kong, Israel, New Zealand, Pakistan, Singapore, and Sri Lanka. For the United States, the adjustment factors are special calculations for international comparisons based on data from several surveys.

The statistics are also adjusted, where necessary, to account for major differences in worker coverage; differences in industrial classification systems; and changes over time in survey coverage, sample benchmarks, or frequency of surveys. Nevertheless, some differences in industrial coverage remain and, with the exception of the United States, Canada, and several other countries, the data exclude very small establishments (fewer than 5 employees in Japan and fewer than 10 employees in most European and some other countries).

Special estimation procedures have been used for some countries because of incomplete data. Hourly earnings are computed from daily or monthly earnings using estimates of standard hours worked for India, Israel, and Pakistan. Earnings for production workers are estimated from all-employee earnings for Japan (1990 to present), Korea (1975-84), New Zealand (all years), and Israel (1978 to present). For Singapore, hourly compensation costs are estimated for the years since 1985 using the trend in average weekly earnings and benefit costs of production workers or average compensation per employee from the national accounts. For Italy, both hourly earnings and additional compensation adjustment factors are obtained from periodic labor cost surveys and interpolated or projected to nonsurvey years using the trend in contractual wage rates and in benefit entitlements and costs. The adjustment factors for additional compensation relate to all employees for Mexico, Japan, Korea, Taiwan, France, Ireland, the Netherlands, Portugal, Spain, and the United Kingdom; they are constants or the midpoints of constant ranges for Hong Kong, India, Israel, New Zealand, and Pakistan.

Hourly compensation costs are converted to U.S. dollars using the average daily exchange rate for the reference period. Changes in hourly compensation in U.S. dollars from one period to another are therefore affected by changes in

currency exchange rates as well as by changes in compensation. The exchange rates used are prevailing commercial market exchange rates as published by either the U.S. Federal Reserve Board or the International Monetary Fund.

The trade weights used to compute the average compensation cost measures for all foreign economies and selected regional or economic groups are the sum of U.S. imports of manufactured products for consumption (customs value) and U.S. exports of domestic manufactured products (free along side (f.a.s.) value) in 1992 for each country or area and each country group. The trade data used to compute the weights are U.S. Bureau of Census statistics of U.S. imports and exports converted to an industrial classification basis from data initially collected under the *Harmonized Tariff Schedule* commodity classification system. Descriptions of the trade weights and trade weighted measures were published in *International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing, 1975-87*, BLS Report 754 (August 1988) and in *International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing, 1993*, BLS Report 873 (June 1994).

### The family

The regularly published statistics on marriage and divorce rates for each country have been adjusted to a common denominator. Thus, marriage rates are expressed as marriages per 1,000 population ages 15 to 64; divorce rates are expressed as divorces per 1,000 married women. Births to unmarried women are shown as a percent of all live births.

Concepts and definitions relating to household composition differ among countries, and adjustments have been made, where possible, for conformity with U.S. standards. In some instances, foreign statistical offices have retabulated their data on U.S. definitions. National definitions of households with children vary considerably because of differences in the age limits defining a child. In the United States, children are defined as all those under the age of 18; in the other countries, age limits for children vary from all those 16 and under to no upper age limit at all. Adjustment of the foreign country data to the U.S. age limit has been possible in most cases for selected years.

### Real gross domestic product per capita and per employed person

BLS measures of comparative levels and trends of real gross domestic product (GDP) per capita and per employed person are based on benchmark levels of GDP extrapolated to other years on the basis of relative changes in real GDP as measured by each country, and on annual population and employment estimates.

The GDP level comparisons for all countries except Korea are based on benchmark purchasing power parities pro-

duced jointly by the OECD and EUROSTAT as part of the United Nations International Comparison Project (UNICP). The GDP level comparison for Korea is based also on a set of PPP's from the UNICP benchmark PPP's. The PPP's in this set cover many more countries than do the OECD and EUROSTAT, but generally are not available for the latest OECD/EUROSTAT benchmark year. Therefore, the earlier benchmark PPP for Korea is extrapolated forward to the benchmark year used by the OECD/EUROSTAT countries using the trend in the Korean implicit price deflator for GDP relative to the corresponding U.S. GDP deflator.

The benchmark figures are derived by comparing relative prices at detailed levels of expenditure (PPP's by item of expenditure) and aggregating these price relatives to derive overall PPP exchange rates for total GDP. Volume measures of GDP are calculated using the PPP's and then modified by BLS, where applicable, to account for subsequent revisions by countries to their national accounts. BLS also constructs PPP's for GDP for all nonbenchmark years by applying trends relative to the United States in implicit price deflators for GDP, as measured by each country, to the benchmark PPP's.

The benchmark PPP's for GDP are affected by the aggregation method used to weight and sum the commodity-group parities to arrive at PPP's for each category of expenditure up to the level of GDP. The benchmark results for 1985 and earlier years were aggregated using the Geary-Khamis (GK) method. Beginning with the 1990 benchmark, the OECD and EUROSTAT have initially released results based on the Elteto-Köves-Szulc (EKS) aggregation method. Results aggregated using the GK method for the same benchmark year are then published at a later time. BLS prepares comparisons of real GDP per capita and per employed person using PPP's based on these alternative aggregation methods.

The benchmark studies have produced PPP's which diverge from the PPP's based on earlier benchmark years extrapolated forward to the new benchmark year using relative trends in each country's implicit price deflator. Therefore, BLS prepares alternative comparisons of real GDP per capita and per employed person based on PPP's for several different benchmark years.

### Consumer prices and other measures

No adjustments are made to the overall consumer price indexes as published by each country except to convert them to a uniform base year.

Union membership statistics published by each country differ in sources, reporting techniques, definitions, and coverage. U.S. data are derived from the Current Population Survey (CPS) from 1983 onward, with some CPS data also available for 1 month in a few earlier years. For 1980 and earlier, U.S. data were derived directly from labor unions,

via a biennial questionnaire. Other countries generally derive their union membership time series data from union reports rather than household surveys.

To enhance international comparisons, the reported union membership data for the European countries are adjusted to the CPS concept of coverage for selected years. This concept covers union members who are employed wage and salary workers. Thus, members who are retired, unemployed, or self-employed are excluded. For Australia and Canada, union membership data for selected recent years are taken directly from household surveys. No adjustments are made to the reported union membership data for Japan because they include very few nonwage and salary workers.

## Analysis and Presentation

Analyses of international labor statistics focus upon comparisons with U.S. data. Wherever possible, the foreign data are adjusted to U.S. definitions and concepts to facilitate comparisons; for example, the adjustment of foreign unemployment rates to approximate U.S. concepts and the adjustment of production worker earnings to total hourly compensation.

Labor force, employment, and unemployment data are analyzed to determine the sources or components of differences and changes in labor force measures. Shifts in labor force composition are analyzed by age, sex, and industrial sector. Productivity and unit labor cost data are analyzed to explain the relative contributions of changes in output, employment, average hours, compensation, and exchange rates to changes in the measures. Changes in production worker compensation costs, measured in U.S. dollars, are analyzed to determine the relative contributions of changes in pay for time worked and the other elements of compensation and changes in exchange rates.

The presentation of foreign labor statistics varies with the degree of analysis and major use of the data. Comprehensive bulletins have been published, covering manufacturing productivity and labor cost trends, steel productivity and costs, unemployment and labor force comparisons, and youth unemployment comparisons. For more current developments, articles are published periodically in the *Monthly Labor Review*. Some series are published regularly in the statistical section of the *Monthly Labor Review*; an annual news release is issued on comparative trends in manufacturing productivity and labor costs; and the hourly compensation cost measures for total manufacturing are issued in BLS reports. In 1995, *International Labor Comparisons for the G-7 Countries: A Chartbook* was published. The *BLS Handbook of Labor Statistics* (up to 1987) and the Bureau of the Census *Statistical Abstract of the United States* contain many



of the principal foreign data series, and some series are published in the annual *Economic Report of the President* and in the Bureau's biennial *Report on the American Workforce*. Updates to the series of data on the family are published each year only in the *Statistical Abstract of the United States*. Many unpublished tabulations of current comparative data, such as real gross domestic product per capita and per employed person and comparative labor force statistics in 10 countries are available on request. Many data series are also available on the World Wide Web and diskette.

## Uses and Limitations

The principal uses of information on foreign labor statistics are to:

- Assess U.S. economic performance relative to other industrial countries;
- Inform Government and private officials of foreign economic developments that may affect U.S. international economic policy;
- Evaluate the competitive position of the United States in international trade;
- Review foreign experience for possible application domestically; and

- Provide labor statistics and related information to individuals, corporations, labor unions, and others concerned with foreign investment and development.

Although considerable progress has been made in making international economic statistics more uniform among countries, e.g., through the work of international agencies such as the United Nations, the International Labour Office, the Organisation for Economic Cooperation and Development, and the Statistical Office of the European Union, international statistical comparisons should be used cautiously. Nevertheless, through careful analysis of each country's data, valid statistical comparisons can be made.

Whenever possible, BLS adjusts foreign data, if necessary, for greater consistency with U.S. measures; in some cases, data are sufficiently similar in definition and concept for valid comparisons without adjustment. Moreover, when conceptual differences are substantial, the Bureau attempts to describe the differences in sufficient detail, in publications and in notes to statistical tabulations, to provide guidance in the interpretation of the data.

The limitations of the data are less serious for the Bureau's published measures than for the unpublished tabulations, where either no adjustments are made to the foreign data or where the adjustments made do not deal with some fundamental deficiencies. Despite their limitations, however, the unpublished tabulations are considered useful for analysis.

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