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MEASUREMENT OF LABOUR COST

Note prepared by the Organisation for Economic Co-operation and Development (OECD)

I. INTRODUCTION

A. Background and content

1. The previous 'Report on Labour Statistics' was prepared by the ILO in 2005. While that note did not refer to 'Labour Cost' specifically, it did make a number of interesting points and recommended some actions. Since then, some of the following events/actions have been taken:

(a) *Unemployment*: The improvement in unemployment estimates from Eurostat though the ongoing introduction of continuous labour force surveys in member states;

(b) *Hours worked*: A report was published on 'Employment in Hours Worked in National Accounts: A producer's view on methods and a user's view on applicability', Working paper no. 10, Gerard Ypma and Bart van Ark; August 2006;

(c) *Job vacancies*: A Eurostat workshop on job vacancy statistics will be held on 11 and 12 December 2008 in Nürnberg, Institut of Arbeitsmarkt- und Berufsforschung;

(d) *Classifications*: ISIC Rev.4 was officially released on 11 August 2008. ISCO-88 has been updated with ISCO-08 approved by the ILO Governing Body in March 2008 and presented to the UN Statistical Commission in February 2008. The update does not affect the basic principles and structure of ISCO-88 but takes the form of new occupational groups in some areas and improved descriptions in others;

(e) *Working time*: At the end of November 2007 the OECD Paris Group on Labour and Compensation Statistics had more or less reached the final stages of involvement with respect to the provision of input to the ILO for the revision of the 1962 Resolution on Working Time Measurement. This will be voted on at the upcoming International Conference of Labour Statisticians, Geneva, 24 November - 05 December 2008.

2. In regards to 'Labour Cost' this report only focuses on related issues at the international level and therefore national practices have not been discussed. So while for example it is recognised that the Labour Cost Index currently compiled in European Countries was patterned after the *U.S. Bureau of Labour Statistics'* Employment Cost Index and Costs for Employee Compensation this will not be discussed in this paper. It is also understood that the *Bureau of*

Labour Statistics compiles a number 'Labour Cost' datasets that aim to provide harmonised country data.

3. Although the term 'Labour Cost' is broad and covers a range of different concepts, meanings and uses, two main initiatives that have helped bring a sense of international comparability to this field of statistics will be described:

(a) The establishment and dissemination for all EU member states of a Labour Cost Index (LCI) by Eurostat; and

(b) The creation of the OECD System of Unit Labour Cost and Related Indicators database by the OECD that covers all OECD member countries and EU member states.

B. Key concepts

4. Statistics of labour costs are based on the concept of labour as a cost to an employer rather than from the perspective of earnings to an employee. The labour cost concept is broader than compensation of employees as it includes expenditure on welfare services, recruitment and training, and other miscellaneous costs including work clothes and taxes on employment. Labour cost is the cost incurred by the employer in the employment of labour. Refer to table 1 (at the end of this report) for a detailed description of what is included in each measure of wage related labour statistics.

5. The needs of government and financial institutions such as central banks call for reliable statistics on wage rates, earnings, labour costs and unit labour costs. These statistics are used to compare the evolution of labour prices both within an individual country and between countries over time. The frequency at which the statistics are compiled is a function of the needs of users, balanced against available resources in the compiling agency and the desire to minimise the reporting burden of respondents.

II. LABOUR COSTS AND THE LABOUR COST INDEX (LCI) DEVELOPED BY EUROSTAT

A. Overview

6. Labour cost statistics collected and published by Eurostat constitute a hierarchical system of multi-annual, yearly and quarterly statistics, designed to provide a comprehensive and detailed picture of the level, structure and short-term development of labour costs in the different sectors of the European Union and certain other countries. All statistics are based on harmonised definitions of labour costs which are specified in Regulations (CE) 530/1999, 1737/2005 and 450/2005.

7. European Union Regulation 450/2003 concerning the quarterly labour cost index established the base for EU member states to provide LCI data. The EU definition is summarised as follows:

(a) Labour cost indices show the short-term development of the total cost for employers of employing the labour force on an hourly basis. Total labour costs include employees' gross earnings and indirect costs. Gross earnings include direct remuneration and bonuses as well as the value of any social contributions, income taxes, etc. payable by the employee, even if actually withheld by the employer and paid directly to social insurance

schemes, tax authorities, etc. on behalf of the employee. Indirect costs include the social contributions incurred by employers in order to secure for their employees the entitlement to social benefits. Indirect costs also include taxes connected to employment minus received subsidies intended to refund part or all of the cost of direct remuneration. Indices are based on the national currencies, and are not influenced by exchange rates;

(b) The labour cost index is defined as the Laspeyres index of labour costs per hour worked, chain linked annually and based upon a fixed structure of economic activity at the NACE section level.

8. The labour costs are the total quarterly costs incurred by the employer in the employment of labour. In opposition to the Labour Cost Surveys (LCS) collection, the LCI comprises only LCS-items D.1 Compensation of Employees, D.4 Taxes and D.5 Subsidies received by the employer, but excludes LCS-items D.2 Vocational training costs and D.3 e.g. recruitment costs and working clothes provided by the employer.

9. The quarterly LCI measures the cost pressure arising from the production factor “labour”. The data covered in the LCI collection relate to total average hourly labour costs, which in turn are broken down into the two labour cost categories “wages and salaries” and “employers’ social security contributions plus taxes paid minus subsidies received by the employer”. Data are also broken down by economic activity (NACE), are available for the EU aggregates and EU Member States in nominal terms, and seasonally adjusted.

10. In regards to Eurostat country coverage and dissemination: full quarterly LCI data, in most cases starting in 1996Q1, is available for all EU member states. Iceland and Norway currently provide single NACE sections only.

11. In the framework of Labour market statistics, Eurostat collects structural information on labour costs through four-yearly Labour Cost Surveys (LCS) carried out by the EU Member States. The survey covers detailed structural labour costs data, hours worked and hours paid at statistical units occupying 10 or more employees:

D1 Compensation of employees
D11 Wages and salaries (total)
D111 Wages and salaries (excluding apprentices)
D1111 Direct remuneration, bonuses and allowances (excluding apprentices)
D1112 Payments to employees' savings schemes
D1113 Payments for days not worked (excluding apprentices)
D1114 Wages and salaries in kind (excluding apprentices)
D112 Wages and salaries of apprentices
D12 Employers' social contributions (total)
D121 Employers' actual social contributions (excluding apprentices)
D122 Employers' imputed social contributions (excluding apprentices)
D123 Employers' social contributions for apprentices
D2 Vocational training costs
D3 Other expenditure
D4 Taxes
D5 Subsidies

12. Available information is broken down by size category, economic activity (General Industrial Classification of Economic Activities - NACE), and region for larger countries (Nomenclature of Territorial Units for Statistics - NUTS). The data are collected by the National Statistical Institutes, in most cases, on the basis of stratified random samples.

13. Eurostat's annual labour cost data collection covers the core labour cost variables “average monthly labour costs” and “average hourly labour costs” as well as the breakdown of labour costs by principal categories (wages and salaries; direct remuneration and bonuses; employers’ social security contributions; other labour costs). Data - also broken down by economic activity - are available for the EU aggregates and EU Member States.

14. The data are either collected by the National Statistical Institutes or, more frequently, estimated by them on the basis of their four-yearly surveys and additional up-to-date - though sometimes partial - information. Coverage of statistical units, thresholds and the like is identical to that of the four-yearly surveys.

B. Current Eurostat LCI Work

15. European Commission Regulation No 224/2007 (1 March 2007, as regards the economic activities covered by the labour cost index) is the latest amendment. This regulation updates 450/2003 and concerns the extension of the LCI to cover (parts of) the public sector.

16. Since a number of EU member states have derogations which will expire next year, the first publication of EU and EA aggregates including the public sector is planned for June 2009, covering the data for the first quarter of 2009. At the same time, the LCI will change its nomenclature from NACE Rev 1.1 to NACE Rev 2.

17. Eurostat's work on the labour cost index will continue to focus on quality issues. Currently Eurostat is looking into the reasons for the volatility of the LCI index, focusing on the component "hours worked". In the future, they are also reconsidering the extension of the LCI to include a data series which excludes irregular bonuses.

III. OECD SYSTEM OF UNIT LABOUR COST AND RELATED INDICATORS

A. Overview

18. Unit labour costs measure the average cost of labour per unit of output. They are calculated as the ratio of total labour costs to real output, or equivalently, as the ratio of mean labour costs per hour to labour productivity (output per hour). As such, a unit labour cost represents a link between productivity and the cost of labour in producing output. Unit labour costs show the combined effect of changes in productivity and wages on the cost of production. The ability to compile unit labour costs across countries using robust labour cost statistics is primary. This section of the note focuses on the OECD’s recent implementation of unit labour cost and related indicators for all OECD and EU member countries/states, and in doing so its cooperation with other organisations. The issues raised relate mostly to the labour statistics side of the equation.

19. The meaning of the unit labour costs shows that an economy can improve its competitiveness either by decreasing its labour cost per person employed or raising the productivity performance. This implies that an economy can apply different strategies to

improve its competitiveness, for example, by moderating wage growth in order to cut on cost, raise productivity to create more output, or find an appropriate mix of both strategies.

20. On an international comparison basis, unit labour costs are certainly not identical between countries, as there are important deviations due to short term movements in relative prices (related to fluctuation in the nominal exchange rate) and differences in industrial structure. Whereas some of the differences cancel out at the aggregate level, differences in industry and product composition are quite important at a more detailed level.

21. The *OECD System of Unit Labour Cost and Related Indicators* was developed in response to concerns from the international community of economic analysts on the limited availability of internationally comparable data concerning labour costs, particularly in activities outside of Manufacturing and on a sub-annual basis. The release of this new product, in mid-2007, represents the outcome of four years of development work by the OECD which has benefited from contributions by academia and national consultants, and involved extensive consultation with national statistics offices, national central banks, international organisations and the OECD Economics Department.

22. Feedback on initially proposed methodology and data sources was also received through the discussion of papers presented at the 2005 (and 2006) meetings of the OECD Short Term Economic Statistics Working Party (STESWP) and the OECD Statistical Working Party (SWIC).

B. Methodology and coverage

23. The *OECD System of Unit Labour Cost and Related Indicators* consists of the following set of quarterly and annual indicators updated at quarterly frequency according to a specific methodology to ensure data are comparable across countries.

24. Quarterly indicators:

(a) Unit labour cost index and growth series: *raw, seasonally adjusted and trend-cycle*;

(b) Total labour costs: *raw temporally disaggregated national currency series*;

(c) Real output: *raw temporally disaggregate national currency series*.

25. Annual indicators:

(a) Unit labour cost: *Index, level and growth*;

(b) Total labour costs: *Level in national currency*;

(c) Real output: *Level in national currency*;

(d) Nominal output: *Level in national currency (volume)*;

(e) Total employment to employees: *Ratio*;

(f) Exchange rate adjusted unit labour cost: *Index and level (USD)*;

(g) Labour income share ratio: *Index and level*;

(h) Labour productivity per unit labour input: *Index and growth*;

(i) Labour productivity per employed person: *Index, growth, and level*;

(j) Labour productivity per hour worked: *Index, growth, and level*;

(k) Labour compensation per unit labour input: *Index and growth*;

(l) Labour compensation per employee: *Index, growth, and level*;

(m) Labour compensation per employee hour worked: *Index, growth, and level*;

(n) Labour compensation per unit labour input indices ($US PPP adjusted): *Index, and growth*;

(o) Labour compensation per employee ($US PPP adjusted): *Index, growth, and level*;

(p) Labour compensation per hour ($US PPP adjusted): *Index, growth, and level.*

26. The indicators are available for 38 countries (OECD combined with EU), and the Euro area, together with zone aggregate totals (OECD total, major seven economies for the following economic activities; based on ISIC rev. 3:

(a) Total Economy;

(b) Manufacturing (ISIC D);

(c) Industry (ISIC C_E);

(d) Construction (ISIC F);

(e) Trade, Transport and Communication (ISIC G_I);

(f) Financial and Business Services (ISIC J_K);

(g) Market services (ISIC activity based proxy G_K);

(h) Business Sector excluding Agriculture (ISIC activity based proxy C_K).

C. Annual total labour costs

27. The target variable for annual total labour costs is compensation of employees compiled according to the System of National Accounts 1993, adjusted for the self employed by multiplying compensation of employees by the ratio of total hours worked by all persons in employment to total hours worked by all employees of businesses (persons are used where hours data is not available). This target variable covers a significant part of total labour costs such as wages and salaries; bonuses; payments in kind related to labour services (e.g. food, fuel, and housing); severance and termination pay and employers' contributions to pension schemes, casualty and life insurance and workers compensation. However, compensation of

employees excludes some relevant items of total labour cost such as the cost of employee training, welfare amenities and recruitment; taxes on employment (e.g. payroll tax) and fringe benefits tax. Furthermore, the adjustment for the self employed assumes that labour compensation per hour or per person is equivalent for the self employed and employees of businesses. This assumption may be more or less valid across different countries and economic activities.

D. Quarterly total labour costs

28. The target variable for the quarterly indicator of total labour costs is compensation of employees compiled according to the SNA 93. Where this variable is not available a suitable proxy is sought, with the following general order of preference: gross wages and salaries; labour cost index multiplied by an appropriate total labour input measure (i.e. total hours worked or total employment / employees); average hourly / weekly / monthly earnings multiplied by an appropriate total labour input measure.

29. The quarterly indicator of total labour costs for each economic activity is then benchmarked to the annual total labour costs time series to compile a temporally disaggregated quarterly time series of total labour costs in national currency.

E. International cooperation opportunities and issues

30. In 2007 a comparison project was undertaken, with close cooperation from the *Bureau of Labour Statistics* (BLS), to compare the OECD's ULC series (in the activity Manufacturing only) with those from the BLS. Overall, the comparison projected showed strong correlation (in growth rates) between the two separately produced ULC series for most of the fifteen countries published by both the BLS and OECD. Where differences in a countries' time series between the two sources exists, three main causes were identified: Adjustments to the total labour costs component; Data vintage; and, Data sources.

31. The *European Central Bank* (ECB) publishes a quarterly ULC index for the Euro area for six economic activities based on the NACE industrial classification. The methodology used is:

Numerator = compensation adj. for fx effects / number of employees (domestic);

Denominator = GDP in constant prices adj. for fx effects / total employment (domestic)

32. The OECD is currently in discussion with the ECB (Statistics Division) in several different contexts regarding the OECD System of Unit Labour Cost and Related Indicators: some form of cross country/methodology/compilation/dissemination assessment; an international competitiveness assessment; and, a general review of how these two organisations can work closer in the production of unit labour costs.

33. A further issue that the ECB highlighted in discussions to date is that at present there is no international standard on how to calculate a unit labour cost in practice (this is also highlighted in table 1.). The Bureau may wish to flag this issue to the Commission for possible action.

IV. POSSIBLE FUTURE ACTIONS

34. The Key Indicators of the Labour Market (KILM) database of the International Labour Organisation (Van Ark & Monnikhof, 2000) includes annual time data series for both labour productivity and unit labour costs for 31 countries at the Total Economy level and 23 countries for Manufacturing. The measures mostly cover the period from 1980 although there is a time lag for updating of time series relative to other sources. There is the possibility of carrying out a comparison feasibility study looking at the overlapping countries in the databases built by the ILO and OECD that could be used to assure the quality and robustness of each organisations methodology.

35. A possible area of future cooperation is the harmonisation of LCI's across UNECE countries using the Eurostat situation as a guideline. It is assumed that this will be partially covered in the annual CIS-STAT preparation of a review (this report is only available in Russian, however a summary version has been made available) on the following theme: "Labour costs, Nominal and Real Wages and Salaries in the Commonwealth Countries". There is also the upcoming Eurostat Workshop on the Labour cost index, Luxembourg, 11 - 12 November 2008, where some ideas could be developed.

36. A last area of future cooperation involves unit labour costs (and competitiveness indicators in general) and in particular the need for a harmonised measure of hours across all countries. In this regard the OECD has two projects underway:

Employment and Hours worked in National Accounts: A paper is being prepared that provides a detailed assessment of the methods and procedures used for integration of labour input measures in the national accounts of OECD member countries, accession countries and a selection of non-OECD EU countries. The paper will provide a detailed bridge table being based on the outcomes of an OECD/Eurostat questionnaire. Hence the quantitative impact on the numbers of persons employed and hours worked will be indicated. The paper also groups countries depending on the basic primary sources (labour force survey, business statistics and administrative sources) that are used. The integration of labour accounts into national accounts has turned out to be a cumbersome process, as the primary sources for labour input turn out to be different from the statistical requirements within the national accounts system. Before using national accounts-based labour input estimates for economic analysis, one therefore needs to look more closely into the quality of these estimates, and in particular into the quality of the adjustments made to the original primary data on employment. The same holds for annual hours worked data, which has been incorporated in the national accounts for many countries only recently. This process is highly desirable from the perspective of various applications of national accounts for economic research, especially for studies that make use of integrated parts of the national accounts system. Productivity analysis is one of the most obvious applications that can benefit as it is bound to lead to an improved consistency between the numerator (value added) and the denominator (labour input).
Standardisation of Average Annual Hours Worked: The aim of this long-term project is to implement a database which will include standardised average annual hours worked time series for the 30 OECD member countries as well as the five accession countries and the five enhanced engaged countries (BIICS). Average annual hours worked refers to the regular number of hours worked per week plus all regulations affecting the length of the

work week (overtime and incentives for working part-time), the regulations affecting the allocation of work over time (maximum to normal daily hours and maximum to weekly hours) and regulations affecting the number of weeks of absence during the year (paid leave and public holidays, maternity leave, sickness leave).

The unit of this indicator can be interpreted as the maximum statutory number of hours worked annually per employed individual adjusted for leave entitlements. It mixes statutory limits expressed in hours, days or weeks (such as the length of the normal work week or the number of public holidays and minimum statutory paid leave days per year) and other indicators summarising the generosity of maternity leave and sickness schemes and the incentives or disincentives to work part-time.

A standardised average annual hours worked indicator will provide a better tool of comparability between countries for important economic indicators such as unit labour costs and labour productivity. For example, so far, the denominator of labour productivity can be hours worked, employment or number of jobs depending on countries calculations. An internationally harmonised database of hours worked would go a long way in harmonising international competitiveness measures.

37. Of course, the OECD is available to cooperate with other interested organizations in these areas.

Table 1. Wage related statistics – Relationship between concepts from the perspective of component elements

Relation -ship	**Concepts and components**	**Comments and sources**
	1. Wage rates (in International Conference of Labour Statisticians (ICLS) terminology) (basic wages, cost-of-living allowances, and other guaranteed and regularly paid allowances) i) overtime payments ii) bonuses and gratuities regularly paid	BLS terms this as “basic time and piece rates”. ICLS resolution concerning an integrated system of wage statistics, 1973
2 = 1 + i) + ii)	**2. Direct wages and salaries** (in ICLS terminology) iii) remuneration for time not worked iv) bonuses and gratuities irregularly paid v) payments in kind	In the EU Eurostat's concept "wages and salaries", a further category vi) payments to employees' savings schemes is to be included here (in general for EU's concepts in the following). BLS as “pay for time worked” [a]
3 = 2 + iii) + iv) + v)	**3. Earnings** (in ICLS terminology) vi) employer contribution to statutory social security schemes or to private funded social insurance schemes vii) unfunded employee social benefits paid by employers in the form of: (a) children’s, spouse’s, family, education or other allowances in respect of dependants; (b) payments made to workers absent from work because of illness, accidental injury,	Eurostat terms earnings as “gross wages and salaries”, BLS as “direct pay”, and SNA as “total wages and salaries”. Paras. 7.31 (b) and 7.35 of 1993 SNA

	maternity leave, etc.; (c) severance payments [b] viii) personal income taxes ix) social security contributions payable by employees x) family allowances in respect of dependent children	
4 = 3 – viii) – ix) + x)	**4. Net earnings** (in Eurostat terminology)	Eurostat, Net earnings in the EU – 1998, Statistics in focus, Theme 3 – 7/2000. OECD terms net earnings as "net take-home pay of the employee" (OECD, Taxing Wages 2001, p. 11).
5 = 3 + vi + vii)	**5. Compensation of employees** xi) entrepreneurial income (income from self-employment) xii) property income (interest, dividends, etc.) xiii) current transfers received (social security benefits, etc.)	Compensation of employees, together with the data on labour input (hours of work) is the basis for the calculation of unit labour cost.
6 = 5 + xi) + xii) + xiii)	**6. Household total income** (in SNA terminology) xiv) current transfers paid (taxes on income, etc.)	Chapters 7 and 8 of 1993 SNA
7 = 6 – xiv)	**7. Household disposable income** (in SNA terminology) xv) the value of imputed rent of owner-occupiers xvi) the value of home produced and consumed within the same household [c]	ICLS resolution concerning household income and expenditure surveys (1973), and Chapter VIII of 1993 SNA.
8 = 7 + xv) + xvi)	**8. Household total income** (in household budget survey terminology) xvii) income related to self-employment xviii) current transfers received as a result of the current or former involvement in paid or self-employment, xix) employers' contribution to social security (deferred benefits)[d] xx) taxes and obligatory social security contributions xxi) the claims or reimbursement received by households xxii) transfers to non-profit institutions serving households (NPISHs) such as donations, fines and penalties payable by households	ICLS resolution concerning the measurement of employment related income (1998), and para. 41 of Report of ILO Working Group Meeting of Experts (2001). Eurostat, Household Budget Surveys in the EU, 1997, para. 6.2
9 = 8 – xx) + xxi) – xxii)	**9. Household net income** (in household budget survey terminology)	Household net income is intended for measuring the resources which are available for households to consume and save.

10 = 5 + xvii) + xviii) – xix)	**10. Employment-related income** xxiii) cost of vocational training xxiv) cost of welfare services (i.e. cost of canteens) xxv) labour cost not elsewhere classified (i.e. costs of transport of workers, cost of work clothes, cost of recruitment) xxvi) taxes regarded as labour costs (i.e. taxes on employment or payrolls)	Employment-related income excludes income from other sources such as property, social assistance, transfers, etc., not related to employment. ICLS resolution concerning statistics of labour cost, 1966
11 = 5 + xxiii) + xxiv) + xxv) + xxvi)	**11. Labour costs**	European Union Regulation 450/2003
	12. Labour prices	There are no international recommendations specifying the components to be included in the labour price (index). However, the components can be identical to those used in the compilation of labour cost indices.

a) Pay for time worked includes only basic time and piece rates plus overtime premiums, shift differentials, other premiums and bonuses paid regularly each pay period, and cost-of-living adjustments. Direct pay includes: (1) pay for time worked; and (2) other direct pay (pay for time not worked (vacations, holidays, other leave except sick leave), seasonal or irregular bonuses and other special payments, selected social allowances, and other the cost of payments in kind).
b) Severance pay is excluded from earnings as this is paid selectively to individual employees when certain events occur. In other words, it has the characteristics of irregularity and non-recurrence.
c) In national accounts, they (i.e. xv, xvi) are not included directly in disposable income since they appear under resources in the production account (and thus influence the level of value-added and indirectly, income) and under final consumption in the use of income account.
d) This element (xix, employers' contribution to social security) is excluded from employment-related income, as this does not meet the requirement that income receipts should potentially be available for consumption within the reference period. This is also extensible to the case of stock options which are exercised at some future date outside the reference period. Eurostat also takes the view that compensation of employees arising from stock options should not be recorded until the vesting date, when the employee has met all of the conditions for taking complete ownership of the stock options, or at the date when the options become tradable. (Verrinder 2001).

Original Source - Main Economic Indicators: Comparative Methodological Analysis: Wage Related Statistics Volume 2002 Supplement 3

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