Labour market analysis: Wages (structure, trends, thematic areas and relation to other major issues including decent work indicators)

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• Rationale and context
• Use of current and structural wages statistics
• Wage and related indicators in the Decent Work Indicator Framework
• Productivity and wages
• ILO Global Wage Report: Key Findings
Monitoring wage levels, trends and structure: rationale

- Monitoring of wages levels, trends, structure and related indicators necessary to assess wage policies:
  - Essential for evidence-based policy-making
  - Can ‘de-politicize’ minimum wage adjustments
  - Data can serve as reference point for social partners in collective bargaining
  - Impartial and reliable data help to remove conflict

- Wages: just one element in broader context of monitoring progress towards decent work
Uses of employment-related income and wages statistics

- Uses:
  - Measurement of level of living of workers
  - Wage fixing
  - Collective bargaining
  - Economic indicators
  - Income distribution studies
  - Empirical data and wage theories
  - Economic, social and manpower planning, research, analysis
  - Wage, income and price policies
Different income concepts relate to different functions

• As a price of labour
  – Concepts: Wage rates

• As the employment income (wellbeing) of workers
  – Concepts: Earnings, employment-related income related to paid employment and to self-employment

• As a cost to the employer (firm costs, revenues, profits)
  – Concepts: Labour cost, compensation of employees

No unique concept applicable to all circumstances
Concepts of employment-related income and cost of labour from worker and employer perspective

**Concepts related to income from employment (workers’ perspective)**

*Employees:*
- Wage rates
- Earnings
- Income related to paid employment

*Self-employed workers (includes some employers):*
- Income related to self-employment

**Concepts of cost to employing labour (employers’ perspective)**

*Employers:*
- Wage rates
- Compensation of employees
- Labour cost*

*Excludes employers’ imputed social contributions included in compensation of employees*
Analysis of wages statistics should be done jointly with other key LM variables! (1)

- In 2008-09, economies responded to the crisis mainly through declining employment (e.g. US and Russian Federation) and hours of work (e.g. Germany)

- To a lesser extent adjustment through declining wages (e.g. Russian Federation)

- Compensation rose (modestly) in the majority of G20 countries during the GDP peak-to-trough period, as layoffs initially occurred among temporary employees and young workers (low wage earners)
Analysis of wages statistics should be done jointly with other key LM variables! (2)

LATIN AMERICA (18 SELECTED COUNTRIES):
INFLATION AND THE REAL MINIMUM WAGE, 2008
(Accumulated change, December to December)

Source: ILO Labour Overview
Latin America and the Caribbean 2008
Integrated sources of information on wages statistics and income from employment
12\textsuperscript{th} ICLS (1973) and 16\textsuperscript{th} ICLS (1998)

**Current statistics**
(monthly or quarterly)

- Current establishment survey on:
  - earnings and hours worked (or hours paid for);
  - wage rates and normal hours of work

Current labour cost is estimated with administrative information

**Structural (non-current) Statistics**
(annually, or 3 to 5 years)

- Survey on the structure and distribution of earnings
- Survey on labour cost
- Agricultural surveys

**Establishment-based surveys**

**Household based Surveys**
(agricultural earnings, income from employment)

**Industrial censuses and surveys**

Administrative records

ILO Department of Statistics
Short-term objectives and indicators

- Objective: to analyze short-term levels and trends in wages indicators and their relationship with other key labour market variables

- Examples of variables:
  - Average hourly, weekly, or monthly earnings of employees (by industry)
    - Wage earners
    - Salaried workers
  - Average hourly wage rates
  - Manufacturing wage index
  - CPI changes
  - GDP growth
  - Employees on nonfarm payrolls (by industry)
  - Employees on nonfarm payrolls (by sex)
  - Average weekly hours paid of employees (by industry)
  - Average overtime hours of employees (by industry)
Data preparation for short-term analysis: seasonal adjustment

- Many infra-annual (e.g., monthly, quarterly) employment and unemployment statistics (in some cases also wages) are adjusted for seasonal adjustment (SA).

- Main objective: to filter out usual seasonal fluctuations and typical calendar effects within the movements of the time series under review.

- SA also includes the elimination of calendar fluctuations related to factors involving differences in the number of working or trading days or the dates of particular events which can be statistically proven and quantified (e.g., school and public holidays).

- Therefore, the seasonally adjusted data do not show “normal” and repeated events.

- They help to reveal the underlying trends contained in a time series, which is the ultimate goal of SA.
Example of metadata recommended for seasonal adjustment

<table>
<thead>
<tr>
<th>Type of field</th>
<th>Field</th>
<th>EXAMPLE OF VALUES</th>
<th>OTHER POSSIBLE VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INFORMATION</td>
<td>KIND of adjustment</td>
<td>SA</td>
<td>NSA, Trend-Cycle</td>
</tr>
<tr>
<td></td>
<td>Note of the non-availability of SA series</td>
<td></td>
<td>Series too short, Series break, No identifiable seasonal pattern</td>
</tr>
<tr>
<td></td>
<td>SAMPLE of raw data</td>
<td>Q1.2004 - Q4.2008</td>
<td>(20)</td>
</tr>
<tr>
<td></td>
<td>SOURCE of seasonal adjustment</td>
<td>ILO</td>
<td>EUROSTAT, OECD, National source</td>
</tr>
<tr>
<td></td>
<td>LINK to source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALENDAR ADJUSTMENT and other PRE-ADJUSTMENTS</td>
<td>Trading day effect</td>
<td>--</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Moving holidays</td>
<td>--</td>
<td>Easter (Catholic, Orthodox), Ramadan</td>
</tr>
<tr>
<td></td>
<td>Correction for Outliers:</td>
<td>--</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Additive Outliers (AO)</td>
<td></td>
<td>AO (M9/2001)</td>
</tr>
<tr>
<td></td>
<td>Transient Changes (TC)</td>
<td>--</td>
<td>AO (M11/2007)</td>
</tr>
<tr>
<td></td>
<td>Level Shifts (LS)</td>
<td>--</td>
<td>LS (M1/2008)</td>
</tr>
<tr>
<td></td>
<td>Missing observations</td>
<td>--</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Other regression effects</td>
<td>--</td>
<td>Yes (break in seasonality)</td>
</tr>
<tr>
<td>AGGREGATION</td>
<td>Direct or indirect SA</td>
<td>Indirect</td>
<td>Direct</td>
</tr>
<tr>
<td></td>
<td>If Direct SA: Consistency between aggregate and components</td>
<td>--</td>
<td>Yes, No</td>
</tr>
<tr>
<td>SEASONAL ADJUSTMENT</td>
<td>METHOD USED</td>
<td>X-12</td>
<td>TRAMO</td>
</tr>
<tr>
<td></td>
<td>SOFTWARE used</td>
<td>DEMETRA 2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seasonal ARIMA model</td>
<td>(0 1 1)(0 1 1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality indicators used:</td>
<td>5.9</td>
<td>Values of M tests, residual autocorrelations, spectral analysis</td>
</tr>
<tr>
<td></td>
<td>SA quality index [0, 10]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of decomposition</td>
<td>LOG-Additive</td>
<td>Multiplicative, Additive</td>
</tr>
</tbody>
</table>
Seasonally adjusting short-term wage data reveals underlying trends.

Average nominal hourly earnings of all employees on private non-farm payrolls
Seasonally adjusted and not seasonally adjusted series, January-December 2010
(in US dollars)

Source: U.S. Bureau of Labor Statistics
Data preparation for short-term analysis: real wages

- **Real wages**: the goods and services which can be purchased with wages or are provided as wages (Resolution concerning the international comparison of real wages adopted by the Eighth ICLS (1954))

- Comparisons of the movement of real wages over time in a country indicate a measure of the material progress of wage and salary earners

- Workers seek to protect the purchasing power of wages, especially at times of high inflation

- Money wages are linked to CPI and by compensating for differences in living costs over time & between places

- Real wage index numbers are valuable in establishing relationships between wages and other economic variables, e.g. employment, GDP, income, & consumption.
Calculating real wages or earnings

- To transform a nominal wage rate or earnings series into real terms, two things are needed:
  - the nominal wage rate estimate (or earnings estimate) and
  - an appropriate price index (usually the Consumer Price Index (CPI)).

- The CPI measures the value of a basket of consumer goods over a certain time period, relative to the value of the same basket in a base period.
- The CPI is set equal to 100 in a given base year for convenience and reference.
- To use the CPI to deflate a nominal wage or earnings series, the index must be divided by 100 (decimal form).
- The formula for obtaining a real series is given by dividing nominal values by the price index (decimal form) for that same time period:

\[
\frac{\text{Nominal Value}}{\text{Price Index (decimal form)}} = \text{Real Value}
\]
An example: Deflating wage rates

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Period</th>
<th>CPI</th>
<th>Nominal value (wage rate per week)</th>
<th>Deflating nominal to real wage rates</th>
<th>Real value (wage rate per week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CPI and nominal wage rate both rise 50%</td>
<td>1980</td>
<td>100</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>150</td>
<td>600</td>
<td>600/(150/100) =</td>
<td>400</td>
</tr>
<tr>
<td>2. CPI doubles, and wage rate rises 50%</td>
<td>1980</td>
<td>100</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>200</td>
<td>600</td>
<td>600/(200/100) =</td>
<td>300</td>
</tr>
</tbody>
</table>

- **Scenario 1:** Wages rates have **maintained their purchasing power** over time (real wage rate remains constant)

- **Scenario 2:** Wage rates in nominal terms have increased 50%, but **real wages have fallen 25%**

- But if **real earnings** are compared, we may find a different situation (different wage statistics components and different worker coverage between wage rates and earnings).

- **Living costs** should be taken into account as well to fully understand worker & family well-being.
**Wage Indices (1)**

- **Index numbers** of wages are the devices by which the short-term trends or changes in the level of wages are measured, and they are useful for the study of:
  - seasonal variations,
  - business cycles,
  - wage drifts, etc.

- **Different methods of calculation** (depends on scope, objective)
  - For separate wage series (e.g. A particular industry, occupation):
    simplest method
  - Wages in general: more complex
For individual wage series:

- One value taken as the base (=100) and other values of the same series are expressed as percentages of this base value.

Following the concepts of wages as price of labour, as income to workers, and as cost to the employer, different indices of wages should be compiled.

Index numbers of wage rates: traditionally considered an economic index measuring changes in the price of labour paid by employers.

- More relevant index: compensation of employees or labour cost (however: problem of survey frequency)

Historically, the most important methods used for constructing wage indices are:

- Laspeyres’s formula
- Paasche’s formula
• **Issues:**

  – Clear statement of the purpose for which the index is designed
  – Definition of the scope of the index
  – Choice of data and selection of sources of data
  – System of weighting and method of combining data (choice of formula)
  – Choice of the base period
The Laspeyres index is an index formula used in wages statistics (also used in price statistics) for measuring the wage development of wages of a specified set of workers in the base period. It is known as a fixed-weighted index and as a “base-weighted index”.

Example: Occupational wage index
- Uses a fixed set of selected occupations and their respective weights from the base period
- The question it answers is: how much would a given set of workers in selected occupations in the base period be paid in wages in a later or current period?

\[ \text{Laspeyres index} = \left( \frac{\sum W_t \cdot L_o}{\sum W_o \cdot L_o} \right) \]

Where:
- \( W_t \) = Wage in later (or current) period(s)
- \( W_o \) = Wage in base period
- \( L_o \) = Quantity of labour input in base period
Paasche’s index

- The **Paasche index** is an index formula used in wages statistics (also used in price statistics) for measuring the wage development of a specified set of workers in the *current period*. It is also known as a fixed-weight index but in this case is a current-weighted index.

**Example: Occupational wage index**
- Uses a fixed set of selected occupations and their respective weights from the current period
- The question it answers is how much would a set of occupations remunerated in the current period have been paid in the base period?

\[
\frac{\sum_{t=1}^{n} W_t L_t}{\sum_{t=1}^{n} W_o L_t} = \frac{\sum_{t=1}^{n} W_t L_t}{\sum_{t=1}^{n} W_o L_t}
\]

Where:  
- \( W_t \) = Wage in current period(s)  
- \( W_o \) = Wage in base period  
- \( L_t \) = Quantity of labour input in current period(s)
Examples using consumer prices

In this example:

Laspeyres price index = \( \frac{202}{154} \times 100 = 131 \)

Paasche price index = \( \frac{186}{144} \times 100 = 129 \)
Structural analysis: wage structure, wage differentials, etc.

- Wage structure and distribution surveys provide detailed information on level, differentials, distribution and trends of wages.
- Studies of trends in wage distribution typically decompose changes in inequality into changes in earnings differences between certain skill groups (e.g. levels of education) and changes in the dispersion within these groups.
- Wage structure analysis will focus on differences in wage rates, not only in the wages for different categories (e.g. occupations) but also in the wages for the same category (e.g. occupation).
- Wage differentials can be grouped to facilitate analysis, for example:
  - By occupational/educational (skill) level
  - By industry
  - By occupation and industry
  - By geographical area (e.g. rural, urban)
  - By sex and age (jointly or separately)
  - By race/ethnic group and age (jointly or separately)
  - By union/non-union wage differentials
Examples of use of wage structure and distribution statistics (1)

Proportion of Jobs Paying Less than £3.50 (22 and over), £2.90 (18—21) by Gender and Hours Worked, 1998

Source: LPC calculations based on grossed NES and LFS data

Hourly Earnings Distribution for Those Aged 18—21, April 1998—April 2000

Source: Low Pay Commission, UK
Examples of use of wage structure and distribution statistics

Percentage of Jobs Paying Less than £3.50 (22 and over), £2.90 (18—21) by Region, 1998

Source: LPC calculations based on grossed NES and LFS data
Note: Government Office Regions shown for England.

Proportion of Employees in the Lowest Decile of Earnings in Receipt of Additions to Basic Pay in Low-paying Sectors, 1998—2000

Source: Grossed NES data, April 1998, 1999, 2000
Wage and Related Indicators in the Decent Work Indicator Framework
Decent Work Indicators that are relevant for effective wage policies

• Wages fall under element of:
  – ‘Adequate earnings and productive work’.

• Important links to:
  – Employment opportunities.
  – Equal opportunity and treatment in employment.
  – Social dialogue, workers’ and employers’ representation.
  – Economic and social context for decent work.
Adequate earnings and productive work

• Two main indicators:
  – M – Working poor (S)
  – M – Low pay rate (below 2/3 of median hourly earnings) (S)

• Five additional indicators:
  – A – Average hourly earnings in selected occupations (S)
  – A – Average real wages (S)
  – A – Minimum wage as % of median wage
  – A – Manufacturing wage index
  – A – Employees with recent job training (S)

• One legal framework indicator:
  – L – Statutory minimum wage

(S) = to be disaggregated by sex.
Definition of Working poverty rate (WPR) (2 indicators):
Persons in the economically active population (or employed) who live in households with incomes below the nationally defined poverty line as a percent of total persons in the EAP (or employed)

Calculations:
1. \( \frac{\text{Number of persons in the EAP living in households with incomes below the nationally defined poverty line}}{\text{Total number of persons in the labour force}} \times 100 \)
2. \( \frac{\text{Number of employed persons living in households with incomes below the nationally defined poverty line}}{\text{Total number of employed persons}} \times 100 \)

Objective/Interpretation highlights:
The indicators measure the extent to which poverty characterizes the EAP (indicator 1) or employed population (indicator 2).

Source: Cross-tabulation of poverty status and labour force status from household surveys
M – Working poor (S) (examples)

- National poverty line for Tanzania:

<table>
<thead>
<tr>
<th>Decent Work Indicator</th>
<th>Basic Needs Poverty Line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1991/92</td>
</tr>
<tr>
<td>Working poverty rate, in %¹</td>
<td>..</td>
</tr>
<tr>
<td>Dar es Salaam</td>
<td>..</td>
</tr>
<tr>
<td>Other urban areas</td>
<td>..</td>
</tr>
<tr>
<td>Rural areas</td>
<td>..</td>
</tr>
</tbody>
</table>

Note: Poverty line is below 60% of median.
• **Definition:** Percentage of all employed persons (employees) with hourly earnings less than 2/3 of median hourly earnings of all workers (employees).
  
  – Indicator refers to earnings of individual workers and uses a relative threshold (rather than an absolute threshold).

• **Source:** LFS and other household surveys with wage / earnings module.
### Working poor and low pay rate in Austria

<table>
<thead>
<tr>
<th>Decent Work Indicator</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working poor, in % of the total employed population</td>
<td>7.6*</td>
<td>7.3</td>
<td>6.8</td>
<td>6.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Men</td>
<td>8.2*</td>
<td>7.5</td>
<td>7.3</td>
<td>6.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Women</td>
<td>6.8*</td>
<td>7.0</td>
<td>6.1</td>
<td>6.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Low pay rate, in % of all employees</td>
<td>7.5*</td>
<td>9.9</td>
<td>12.4</td>
<td>11.7</td>
<td>12.7</td>
</tr>
<tr>
<td>Men</td>
<td>4.1*</td>
<td>5.1</td>
<td>6.4</td>
<td>5.7</td>
<td>7.2</td>
</tr>
<tr>
<td>Women</td>
<td>12.1*</td>
<td>16.4</td>
<td>20.6</td>
<td>19.6</td>
<td>20.3</td>
</tr>
</tbody>
</table>

Note: Poverty line is 60% of median. Source: Decent Work Country Profile for Austria

- Low pay increases the risk of working poverty, but Austria has apparently contradictory trend:
  - Low pay rate rises, but working poverty falls!
Low pay rate in Indonesia, in % of wage employees (1997-08)

Source: Damayanti (forthcoming), based on SAKERNAS.

- Relatively flat trend over time (but rise in 2007/08).
- Large differences between sectors.
A - Average real wages (definition)

- **Definition:** Average [mean] gross nominal wages of employees, deflated by CPI.
  - Differences in time units: hourly wages; monthly wages; monthly for full-time workers
  - Differences in exclusion or inclusion of bonuses and in-kind benefits.
  - Differences in coverage, e.g. only manufacturing.

- **Source:** Establishment survey (best); or LFS or other household surveys with wage / earnings module.
Supplemented with data on income from self-employment in Tanzania:

<table>
<thead>
<tr>
<th>Decent Work Indicator</th>
<th>Income from paid employment</th>
<th>Income from self-employment (excl. agriculture)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average monthly income, in current Tanzanian shillings(^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4,950</td>
<td>51,372</td>
</tr>
<tr>
<td>Female</td>
<td>5,150</td>
<td>55,685</td>
</tr>
<tr>
<td>Urban areas</td>
<td>4,300</td>
<td>40,486</td>
</tr>
<tr>
<td>Rural areas</td>
<td>5,460</td>
<td>69,418</td>
</tr>
<tr>
<td>Average monthly income, in constant 2000 Tanzanian shillings(^2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24,752</td>
<td>50,508</td>
</tr>
<tr>
<td>Female</td>
<td>25,753</td>
<td>54,748</td>
</tr>
<tr>
<td>Male/Female ratio</td>
<td>1.20</td>
<td>1.38</td>
</tr>
<tr>
<td>Urban areas</td>
<td>21,502</td>
<td>39,805</td>
</tr>
<tr>
<td>Rural areas</td>
<td>22,502</td>
<td>31,666</td>
</tr>
<tr>
<td>Urban/Rural ratio</td>
<td>1.32</td>
<td>2.16</td>
</tr>
</tbody>
</table>
• **Definition:** Difference between women’s and men’s [mean] gross nominal wages, expressed in % of men’s wages.
  
  – Time units: hourly wages; monthly wages; monthly for full-time equivalents.
  
  – Raw wage gap, i.e. not adjusted for differences in occupation or education.

• **Source:** LFS and other household surveys with wage / earnings module.
A – Gender wage gap (examples)

- Gender wage gap in Austria high by EU standards

<table>
<thead>
<tr>
<th>Decent Work Indicator</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender pay gap, in %²</td>
<td>16.3*</td>
<td>17.8</td>
<td>17.9</td>
<td>19.8</td>
<td>19.0</td>
</tr>
</tbody>
</table>

- In Brazil, differences by race are bigger than those by gender:

<table>
<thead>
<tr>
<th>Decent Work Indicator</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap of average monthly earnings in principal job received by women in relation to men and by blacks in relation to whites³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women/Men</td>
<td>30.9</td>
<td>30.1</td>
<td>31.2</td>
<td>30.8</td>
<td>29.5</td>
<td>29.3</td>
<td>29.7</td>
</tr>
<tr>
<td>Blacks/Whites</td>
<td>50.2</td>
<td>49.1</td>
<td>50.0</td>
<td>46.8</td>
<td>46.8</td>
<td>46.9</td>
<td>44.9</td>
</tr>
</tbody>
</table>
Productivity and Wages
Why worry about labour productivity?

- Link between wages and labour productivity has important implications for social and economic outcomes

- Common reference point for minimum wage setting

- Accepted by both Workers and Employers as a reference point in collective bargaining
All productivity measures set output in relation to input. A basic typology:

Table 1. Overview of main productivity measures

<table>
<thead>
<tr>
<th>Type of output measure</th>
<th>Type of input measure</th>
<th>Type of input measure</th>
<th>Type of input measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Labour</td>
<td>Capital</td>
<td>Capital and labour</td>
</tr>
<tr>
<td><strong>Gross output</strong></td>
<td>Labour productivity (based on gross output)</td>
<td>Capital productivity (based on gross output)</td>
<td>Capital-labour MFP (based on gross output)</td>
</tr>
<tr>
<td></td>
<td><strong>Value added</strong></td>
<td>Capital productivity (based on value added)</td>
<td>Capital-labour MFP (based on value added)</td>
</tr>
<tr>
<td>Value added</td>
<td>Labour productivity (based on value added)</td>
<td>Capital productivity (based on value added)</td>
<td>Capital-labour MFP (based on value added)</td>
</tr>
<tr>
<td><strong>Single factor productivity measures</strong></td>
<td><strong>Multifactor productivity (MFP) measures</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Definition of labour productivity

- Defined as value added over employment:
  \[ LP = \frac{\text{value added}}{\text{employment}} \]

- Labour productivity can be computed for a country, a sector or a single enterprise.

- We need to have source data for:
  - Employment, either ‘Persons employed’ or ‘Hours worked’.
  - Gross value added (GVA)
How is value added distributed?

- Some basic accounting under ‘Primary distribution of income account’ SNA 1993 (Ch. VII):

  + Compensation of employees (D.1) =
    + Wages and salaries (D.11)
    + Employers’ social contributions (D.12)
  + Net taxes and subsidies on products (D.2 – D.3)
  + Operating surplus, gross (B.2g)
  + Mixed income, gross (B.3g)

  = Value added, gross (B.1g)

- If compensation exceeds VA, employers make losses and have no incentive to invest.
- If compensation falls too far behind, workers do not participate in growth and aggregate demand suffers.
A strong correlation …

**Labour productivity and average wages, in 2005 PPP$ (2009 or latest available year)**

![Graph showing the relationship between labour productivity and average wages, with a linear regression line and data points.]

wage = 0.4415 x labour productivity

$R^2 = 0.6517$, $n = 108$

*Source: ILO Global Wage Database.*
... but is there an automatic link?

- Many country-level studies find notable elasticity, but often not one-to-one:
  - Kenya 1950s/1960s: growth of wages about 3/4 as fast as growth of LP (Harris & Todaro, 1969)
  - South Africa 1990s: elasticity of 0.38 in manufacturing sector (Wakeford, 2004).
  - Global Wage Report 2008/09: elasticity of 0.756 between growth of GDP per capita and wage growth.

- Arthur Lewis (1954): In conditions of surplus labour, employers don’t have to pass on productivity gains.
  - Wage policies and labour market institutions matter!
Why might employers want to ‘share’ productivity growth through higher wages?

- ‘Employer takes all gains’-model seems tempting for them in the short term, but
  - … if productivity gains translate only into higher profits (and redundancies), this gives workers incentives to ‘sabotage’ innovation.
  - … if productivity gains benefit workers though higher wages, they have a stake in raising productivity.

- Prospect for ‘win-win’ collective bargaining!
What drives labour productivity growth?

- **Traditional focus of the economic literature:**
  - Amount of complementary factors of production (machinery, land, etc.).
  - Pace of technological innovation.
  - Workers’ skills and efforts.

- **Industrial relations literature highlights:**
  - It matters how factors of production interact and the production process is organized.
  - Labour-management cooperation can help to increase efficiency and to adopt new technology.
Related measure: Unit labour cost

- Unit labour cost (ULC) is defined as:
  \[
  \text{ULC} = \frac{\text{labour cost}}{\text{GDP}}
  \]

- Equation can be transformed into:
  \[
  ULC = \frac{\text{labour cost / worker}}{\text{Labour productivity}}
  \]

- Enterprise perspective: If labour cost grows faster than labour productivity, ULC increases.
  - Has negative implications for competitiveness, but ULC is not the only determinant of competitiveness.

- If labour productivity rises, labour cost per worker can increase by the same proportion without affecting competitiveness.
ILO Global Wage Report:
Key Findings

Report prepared by: Conditions of Work and Employment (TRAVAIL)
Social Protection Sector
International Labour Office
travail@ilo.org
Global wage growth trends

- Wage growth has declined considerably during the crisis.

- The aggregate data probably over-estimates wage growth during the crisis, because of “composition effects” whereby low-paid workers drop out of the labour market first during recessions.

- The whole “real economy” has suffered: profits have declined more than wage bills, as seen in the short-term increase in the “wage share” in most countries.

Weighted average based on data on average wages collected from 115 countries and territories covering approximately 94% of the world’s wage earners.

ILO Department of Statistics
## Percentage change in Real Average Wages in a Selection of G20 Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>5.0%</td>
<td>-0.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Brazil</td>
<td>3.2%</td>
<td>3.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Canada</td>
<td>2.1%</td>
<td>0.5%</td>
<td>1.3%</td>
</tr>
<tr>
<td>China</td>
<td>13.1%</td>
<td>11.7%</td>
<td>12.8%</td>
</tr>
<tr>
<td>France</td>
<td>1.5%</td>
<td>2.7%</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Germany</td>
<td>-0.6%</td>
<td>-0.4%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>Italy</td>
<td>0.1%</td>
<td>-0.7%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.1%</td>
<td>-1.9%</td>
<td>-1.9%</td>
</tr>
<tr>
<td>Korea (Rep.)</td>
<td>-1.8%</td>
<td>-1.5%</td>
<td>-3.3%</td>
</tr>
<tr>
<td>Mexico</td>
<td>1.3%</td>
<td>-2.6%</td>
<td>-5.0%</td>
</tr>
<tr>
<td>Russia</td>
<td>17.3%</td>
<td>11.5%</td>
<td>-3.5%</td>
</tr>
<tr>
<td>South Africa</td>
<td>1.0%</td>
<td>0.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>UK</td>
<td>0.6%</td>
<td>0.8%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>US</td>
<td>1.0%</td>
<td>-1.0%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

*ILO, Global Wage Database*
### Table 1  Cumulative wage growth, by region since 1999 (1999 = 100)

<table>
<thead>
<tr>
<th>Region</th>
<th>1999</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced countries</td>
<td>100</td>
<td>104.2</td>
<td>105.0</td>
<td>104.5</td>
<td>105.2</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>100</td>
<td>144.8</td>
<td>154.4</td>
<td>161.4</td>
<td>161.3</td>
</tr>
<tr>
<td>Eastern Europe and Central Asia</td>
<td>100</td>
<td>264.1</td>
<td>308.9</td>
<td>341.6</td>
<td>334.1</td>
</tr>
<tr>
<td>Asia</td>
<td>100</td>
<td>168.8</td>
<td>180.9</td>
<td>193.8</td>
<td>209.3*</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>100</td>
<td>106.7</td>
<td>110.3</td>
<td>112.4</td>
<td>114.8</td>
</tr>
<tr>
<td>Africa</td>
<td>100</td>
<td>111.2*</td>
<td>112.8*</td>
<td>113.4**</td>
<td>116.1**</td>
</tr>
<tr>
<td>Middle East</td>
<td>100</td>
<td>101.9*</td>
<td>102.4*</td>
<td>…</td>
<td>…</td>
</tr>
<tr>
<td>Global</td>
<td>100</td>
<td>115.6</td>
<td>118.9</td>
<td>120.7</td>
<td>122.6</td>
</tr>
</tbody>
</table>

* Provisional estimate.  
** Tentative estimate.  
… No estimate available.  
Note: For coverage and methodology, see Technical appendix 1.  
Source: ILO Global Wage Database.
Disconnection between wages and productivity in some large countries

Wage and productivity growth in selected G20 countries (2000-2009)

- Germany: Wage growth -4.5%, Labour productivity growth 2.2%
- Japan: Wage growth -1.8%, Labour productivity growth 8.1%
- United States: Wage growth 2.2%, Labour productivity growth 13.0%
- Korea (Republic of): Wage growth 27.4%, Labour productivity growth 18.3%

ILO, Global Wage Database
“Collapsing bottom”: the increase in the number of low-paid workers

The share of low-pay in selected G20 countries

ILO, Global Wage Database
Some remarks

• Many low paid workers live in poverty: 17.5 million people suffer from “in-work” poverty in the EU-27, and 7.5 million are “working poor” in the U.S. In China, 45% of low paid migrant workers are poor.

• Increasing inequality and wage moderation in the past decade had a negative impact on household consumption and aggregate demand, compensated in some countries by low interest rates, excessive credit, or by reliance on export surplus.
Minimum wages can play a complementary role

- About half of the countries increased minimum wages in 2009, to implement medium-term objectives or to prevent deterioration in the purchasing power of the lowest paid workers during the crisis.

Table 5 Minimum wages during the crisis

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of countries with unchanged minimum wages in 2009</th>
<th>Total number of countries in the sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced countries</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Eastern Europe and Central Asia</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Asia</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Africa</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>Middle East</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
<td><strong>108</strong></td>
</tr>
</tbody>
</table>

Source: ILO Global Wage Database.
Conclusions

• Monitoring of wages levels, trends, structure and related indicators are necessary to formulate and assess wage policies.

• Wages: just one element in broader context of monitoring progress towards decent work.

• Wage indicators should be analyzed jointly with other key economic indicators (e.g. CPI, productivity, hours, employment, etc).

• Both current and structural wages statistics should be analyzed.

• Wage growth has declined considerably during the crisis, resulting in declining profits and wage bills.
Key References


Questions

• How closely do wage analysts at the Ministry of Labour of Trinidad and Tobago and other analysts work with the National Statistics Office in Trinidad and Tobago for developing wages statistics information and defining indicators?

• How are wages research and analysis topics defined in Trinidad and Tobago?

• Does the public sector work closely with the academic research community?

• What are the key wage analysis issues?
  – Current wages statistics
  – Structural wages statistics

• Is wage analysis readily incorporated into policy discussions?

• Are policymakers informed of the types of wages statistics and interpretation of wage analysis results?

• How can coordination mechanisms between data producers and data users of wages statistics be improved?