Module on labour statistics

UNECE-Medstat Workshop on Gender Statistics
Geneva, March 2012

Aims of the workshop

A. Introduction: what are gender statistics
B. Three aspects to consider
C. Four domains of gender inequality
   – Most common indicators
   – Best source of data collection
   – Issues to take into consideration
D. The Gender Pay Gap
A. What are gender statistics?

- All statistics that describe
  - the situation of women in relation to the situation of men, and
  - the factors that affect their situation
- In labour statistics, they relate to statistics that show
  - the way women participate and behave in the labour market and the factors that influence their situation,
  - and the way men participate and behave and the influencing factors for them


B. Three important aspects in gender statistics

1. The topics for which statistics are produced
2. The definitions and measurement methodologies – should guarantee ...
   - Full coverage of workers and work activities
   - Sufficient detail
   - Relevant disaggregations
3. The presentation of statistics

- International guidelines on gender mainstreaming, adopted by the 17th International Conference of Labour Statisticians, 2003

Political will is an essential condition – at all levels and in all phases of data production
1. The importance of choosing the right topics

- Topics should respond to policy concerns
- Topics will affect the action that the government will take
- Topics will affect public opinion
- Topics need to go beyond standard topics
  - Employment
  - Unemployment
  - Wages
  - Hours of work

How to choose the right topics

- Starting questions should be:
  - What are the gender issues I want to focus on?
  - What is the problem, the underlying causes?
  - What is the policy response?
  - What is the key message I want to convey?
- Based on the gender issue identified, determine:
  - What statistics do I need to prove my point?
  - Do the statistics exist? If no,
    - Create pressure to produce them!
    - Find out what statistics exist, and how close are these figures from the ones that are needed
Sooooo ....

• Findings are organised around relevant issues
  – NOT around available statistics or common indicators
• Gaps in information are clearly identified
  – Providing a sound basis for user producer dialogue
• Duplication of information is avoided
  – Indicators that reflect the same issue are presented together or omitted
    • Employment rate and labour force participation rate
    • Unemployment rate and underemployment rate
    • Informal sector and informal employment

2. The importance of definitions and methodologies

• A good statistical definition for gender concerns ...
  – Targets all workers and work situations
  – Is based on definition criteria that reflect women’s and men’s characteristics (and behaviours) equally
• A good measurement methodology for gender ...
  – Covers all the targeted workers and work situations
  – Uses a questionnaire that takes into account the way women behave in the labour market
  – Has good coding practices
  – Obtains information about family context, social context, and personal and job characteristics, to further disaggregate the statistics
  – Is able to produce statistics with sufficient detail in order to show gender distinctions
Three broad types of methodologies

- **Persons or Households**
  - Largest coverage of topics, workers and events
  - But time coverage is reduced
  - Suffers from response errors
  - If based on a sample, detail is limited

- **Enterprises**
  - Provide the best data on wages
  - But cover only the (regular) paid employed in the formal sector
  - Range of topics is reduced: generally no information about family or social context, sometimes workers’ characteristics
  - Definition of topics depends on administrative system
  - If based on a sample, detail is limited

- **Administrative registers**
  - Greatest detail possible
  - Greatest time coverage
  - But range of topics is reduced
  - And worker coverage as well
  - Issues with quality of information

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Good questionnaire design and coding practices

- **A good questionnaire should take into account men and women’s behaviours**
  - Wording – avoid the word « work »
  - Additional questions --- to capture all work activities, and to understand their social constraints
  - Additional categories within existing questions – to incorporate women’s situations

- **Good coding practices**
  - Should take into account that women tend to downplay their work, men will do the opposite
  - Should not assume that women are men’s assistants – women are not necessarily unpaid family workers, and farmer’s assistants!!
Example: Additional questions for gender concerns for unemployment

• What was the main reason you did not seek/was not available for work ...
  – Do not want to work/need to work
  – *Is not allowed to work*
  – Believe no suitable work is available
  – Has not found work in the past
  – Is waiting to start a job in the future
  – *Is looking after children*
  – *Has an elderly or sick person in the house*
  – In school
  – Illness, etc.

• What kind of work are you available for?
  – Work at home only
  – Work close to home only
  – *Part-time work only*

Family context variables

• Presence of small children in the household
• Presence of other persons requiring care (whether in household or not)
• Marital status
• Child care facilities – existence, types, costs
• Child care arrangements
  – Who looks after children when woman works
Social context variables

- Reasons why men or women
  - Do not work
  - Work few hours
  - Are absent from work
  - Do not seek work

- Types of work which are acceptable to men and women:
  - Work inside/outside the home, outside the city or country
  - Work in somebody else’s home, in the street
  - Full time/part time work
  - Work in the government/private sector/informal sector/other

- Do men/women require “permission” from other family members to work

3. The importance of clear presentation of statistics

- Reach a wide audience
- Highlight key gender issues
- Facilitate comparisons between women and men
- Encourage further analysis
- Stimulate demand for more information
Requirements for good presentation

• Based on **relevant indicators**
  – That combine men and women
  – Based on raw data that are disaggregated by sex
    AND by other variables
• Uses attention grabbing **presentation formats**
  (tables, graphs, charts)
  – Organised around key messages
• Each table, graph or chart should convey **one key finding** or concept

Requirements of base statistics

• Gender statistics are always disaggregated by sex **AND** by other relevant distinctions
  – Family context
  – Social context
  – Personal characteristics – age, education, civil status
  – Job characteristics – occupations, industries, status in employment, seniority
• Gender statistics are always disaggregated into **detailed groups** to show important distinctions
More women than men workers are victims of assaults and violent acts
Injuries resulting in days away from work, women to men ratio, USA 1995

More women than men workers are victims of repetitive motion injuries, assaults and violent acts and transportation incidents in aircrafts
Choosing an appropriate indicator

- What does the indicator mean?
  - It should provide evidence that a certain condition exists or that certain results have been achieved (or not)
- There should be a clear interpretation of increases or decreases
  - What other factors can affect the indicator?
    - Laws and regulations, social constructs
    - Definitions and measurement methodologies
    - Mathematical properties
  - What other indicators are needed to supplement it?

Types of indicators

- Measures of relationship (categorical variables)
  - Ratios: relation between two quantities \( a/b \)
  - Proportions, percentages: quotient between one part and the total \( a/(a+b) \)
  - Index numbers
- Measures of central tendency (metric variables)
  - Mean, median, mode
- Measures of variability
  - Frequency distribution, range, standard deviation

Most indicators are percentages
Some well known indicators

- **Activity rate**
  - Gross: Labour force/total population * 100
  - Net: Labour force/working age population * 100
- **Employment rate**
  - Employed persons/working age population * 100
- **Unemployment rate**
  - Unemployed persons/Labour force * 100
- **Dissimilarity index**: ID = \( \frac{1}{2} \sum |\frac{M_i}{M} - \frac{F_i}{F}| \)
- **Gender wage gap**: \( \frac{(W_m - W_f)}{W_m} * 100 \)
- **Share of women** in employment (or in any group)
  - Employed women/all persons employed * 100
- **Percentage women** who work part-time
  - Women part time workers / all women employed * 100

C. Four domains of gender inequality

Most (all?) of policy concerns can be organized around four broad domains of inequality:
1. Balancing work and family life
2. Unacknowledged forms of work
3. Labour market segregation
4. Income differentials

- External factors that exacerbate inequality also need to be identified, e.g.,
  - Armed conflict
  - Religion/traditions
  - Lack of infrastructure
1. Balancing life and work

- Women and men have different roles in society
  - As breadwinners and caregivers
- These roles determine their constraints
  - Women cannot dedicate as much time and energy as men to paid work activities, therefore:
  - Women tend to stay at home, if they can afford it
  - Otherwise, they will work less hours, in less demanding jobs, closer to home, on less permanent jobs

The presence of children and other members of household requiring care makes men work more and women less.

Topics linked to balancing work and life

- Employment, underemployment
- Working time
- Distance from home to work / place of work
- Occupations
- Status in employment
- Casual/permanent job
- Domestic work
- Not in the labour force population by reasons

Disaggregated by...
- Sex
- Family context, incl. daycare facilities
- Social context
Sources and issues linked to balancing work and life

• Best source:
  – Labour force surveys
  – Time use surveys (to measure working time)
• Measurement issues:
  – Coverage of workers should be complete, including those who work for a few hours
  – Family and social context variables are essential to understand the factors affecting men and women
  – Consider that a person may have more than one paid job

2. Unacknowledged forms of work

• Women work for a few hours, at home, for the benefit of a family business or farm to a larger extent than men
• Women perform most of the unpaid household services and volunteer work, which are often not recognised as work and are not included in employment statistics

When hours of work of all work activities are considered, women work more than men in practically all countries in the world
Topics linked unacknowledged work

- Employment in the informal sector
- Informal employment
- Illegal activities, incl. prostitution
- Migrant work
- Unpaid household services, volunteer work
- Working time (or time spent in these activities)

Disaggregated by ...
- Sex
- Place of work
- Family and context variables

Sources and issues linked to unacknowledged work

- Best source:
  - Labour force surveys
  - Time use surveys (to measure unpaid work)

- Measurement issues:
  - Coverage of workers should be complete, including those who work for a few hours and in all forms of work, even those not included in employment
  - Family and social context variables are essential to understand the factors affecting men and women
  - Consider that the same person may engage in paid and unpaid work
3. Labour market segregation

Women and men behave differently in the labour market, they do different activities in different conditions
- Differences in the entry to/exit from the labour market
- Differences in the types of work or work events
- Differences in their labour inputs

The more detail in statistics, the more segregated the labour market will appear.

Topics linked to labour market segregation

- Employment, unemployment, underemployment, life cycle patterns
- Occupations, industries, status in employment, place of work, size of establishment, institutional sector
- Union density, injuries and diseases, social security coverage, access to resources, allocation of benefits, cooperative membership, violence at work
- Hours worked, overtime, part time work, inconvenient hours, absence from work, flexibility
- Income from employment by components
Sources and issues linked to labour market segregation

- **Best source:**
  - Labour force surveys
  - Establishment surveys
  - Administrative registers

- **Measurement issues:**
  - Detailed statistics are essential
  - Worker coverage needs to be specified

4. Income differentials

- Women earn less than men in all countries of the world
- This is due in part to differences in
  - Their occupation
  - Their hours of work
  - Their level of education and skills
  - Their seniority or work history

Even after correcting for these factors, however, women earn less than men. The difference that cannot be explained is used as an indicator of « discrimination ».
Topics linked to income differentials

- Gap between the income of men and women – Gender Pay Gap, GPG
- Disaggregated by ...
  - Occupations
  - Seniority
  - Industries
  - Level of education
  - Working time

Sources and issues linked to income differentials

- Sources:
  - Establishment survey is the preferred source, especially those where the worker is the unit of observation
  - Labour force surveys suffer from response errors but can obtain data for the self employed

- Measurement issues:
  - There are different concepts of income related to employment: the broader the concept the larger the differential
  - Only when the worker is the observation unit can the GPG be disaggregated by job and personal characteristics
  - The income differentials will also vary depending on: worker coverage, time unit, and on whether medians or averages are used.
D. The Gender Pay Gap

\[
\frac{(Wm-Wf)}{Wm}
\]

Where: \(Wm\): wages of men  
\(Wf\): wage of women

A value of 0 means **no wage gap** – men and women earn the same  
A value of 1 means **total wage gap** – women earn nothing  
A values close to 0 means less wage gap than a value close to 1  
A negative value means women earn more than men – very rare

The policy objective

is to

**CLOSE**

the Gender Pay Gap

- Time series are essential (i.e., to calculate the GPG for more than one year)  
- The GPG should converge towards 0
Example 1: India

Average wage (in Rs) received per day by regular wage/salaried employees of age 15-59 years by industry, sex, urban/rural areas in India

<table>
<thead>
<tr>
<th>Industry</th>
<th>Rural area</th>
<th>Urban area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Agriculture</td>
<td>71.16</td>
<td>54.51</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>246.93</td>
<td>82.75</td>
</tr>
<tr>
<td>Manufacturing (15-22)</td>
<td>90.60</td>
<td>38.24</td>
</tr>
<tr>
<td>Manufacturing (23-37)</td>
<td>146.72</td>
<td>57.95</td>
</tr>
<tr>
<td>Electricity, gas and water</td>
<td>246.32</td>
<td>253.95</td>
</tr>
<tr>
<td>Construction</td>
<td>106.79</td>
<td>90.80</td>
</tr>
<tr>
<td>Trade</td>
<td>75.34</td>
<td>51.15</td>
</tr>
<tr>
<td>Transport and storage etc</td>
<td>126.96</td>
<td>135.75</td>
</tr>
<tr>
<td>Services (65-74)</td>
<td>200.71</td>
<td>143.72</td>
</tr>
<tr>
<td>Services (75-93)</td>
<td>203.66</td>
<td>113.66</td>
</tr>
<tr>
<td>Private households with employed persons</td>
<td>67.80</td>
<td>31.27</td>
</tr>
<tr>
<td>Others</td>
<td>250.00</td>
<td>n.a.</td>
</tr>
<tr>
<td>All</td>
<td>144.93</td>
<td>85.53</td>
</tr>
</tbody>
</table>

ILO Department of Statistics

Gender pay gap in India by urban rural areas (employees 15-59)

ILO Department of Statistics
Gender pay gap in India and the USA

The GPG for the US is slightly higher than the GPG for Indian urban areas.

Can we compare the GPG for India and the US?

NOT REALLY ...

- We need first to understand the characteristics of the data used to calculate the GPG
- There are many factors that affect the value of GPG, including:
  - The concept of wages – earnings, wage rates, income from employment
  - Net or gross wages
  - The measure of central tendency – averages or medians
  - The observation period – a year, a month
  - The time unit – hourly, weekly, monthly, yearly income
  - The worker coverage – paid employees, regular employees, self-employed
  - The source of data – establishment surveys or household surveys
The concept of wages

- Wage rates
  - Most basic concept
  - Covers paid employees
  - Excludes overtime payments and bonuses
  - Includes payments in kind

- Earnings
  - Will include overtime payments and regular bonuses
  - Family allowances
  - Only paid employees

- Income related to employment
  - Will include all social security benefits
  - Will include all bonuses, including irregular bonuses
  - Will cover all workers

It can be expected that the broader the concept, the higher the GPG

Net versus gross wages

- Gross wages - Includes components of wages that are never received by the worker:
  - Contributions of workers to social security and pension schemes
  - Deductions for income taxes
  - Other obligations (including life insurance premiums and union dues)

- Net wages – excludes them
  - Equal to take home wage, disposable income

These components depend on workers’ marital status and family composition and not on the work they do.
The measure of central tendency

- The median
  - Will be less influenced by extreme values
  - Will show a lower wage gap
  - Requires data for individual workers
- The arithmetic mean
  - Requires aggregate data and thus is easier to calculate

It can be expected that the arithmetic mean will produce a higher GPG

The reference period

- Long reference period (e.g., of a year)
  - Median or average of wages calculated on the basis of a continuous survey or monthly/quarterly surveys covering the year
  - Will reflect seasonal effects on wages
  - Will in principle include irregular bonuses
- Short reference period (e.g., of a month)
  - Median or average of wages based on one monthly or quarterly survey
  - Will reflect wages during that period

It can be expected that the longer the reference period, the higher the GPG
The time unit

- Annual wages
  - Will include the effects of part-year, part-time employment
- Monthly wages
  - Will include the effects of part-time employment
  - However, workers working part-year may receive lower monthly wages than those working full-year
- Hourly wages
  - Will correct for the effects of part-time employment
  - However, workers working part-time may receive lower hourly wages than those working full-time

It can be expected that the larger the time unit, the higher the GPG

The worker coverage

- All persons employed, including the self employed
- All employees
- A subset of employees
  - Full time employees
  - Employees in large establishments
  - Employees in the private sector
  - Production workers

It can be expected that wages in the more regulated sectors will produce lower GPG:
- Public sector
- Full time workers
- In large establishments
The source of data

- Three types:
  - Person or household based
  - Establishment based – preferred source
  - Administrative records

- Will determine ...
  - Worker coverage
  - Concept – earnings, wage rates or income from employment
  - Central tendency measure – medians or averages
  - Net or gross concepts
  - Time unit

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Sources:

Issues for calculating the GPG

<table>
<thead>
<tr>
<th>Worker coverage</th>
<th>Concept</th>
<th>Central tendency</th>
<th>Net or gross</th>
<th>Time unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household or person</td>
<td>All workers, with some exceptions</td>
<td>Wage rates, earnings, income from employment</td>
<td>Median, average</td>
<td>Net</td>
</tr>
<tr>
<td>based</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establishment based</td>
<td>Regular paid employees, industry and establishment size varies</td>
<td>Wage rates, earnings</td>
<td>Median if data for individual workers is requested; otherwise, average</td>
<td>Net or gross</td>
</tr>
<tr>
<td>Administrative record</td>
<td>Workers covered by register</td>
<td>Wage rates</td>
<td>Median and average</td>
<td>Gross</td>
</tr>
</tbody>
</table>
If the same source and methodology is used …

- Can we compare the data from two or more countries?
- For example, countries of the European Union calculate the GPG using the same source with equal coverage of workers, definition of wages, reference periods, time units ...

Source: Eurostat (tjem040):
EE, IE, NL and CH: 2007; ES, FR, CY, NO, EU-27 and EA-16: provisional; SES scope for all countries.
The answer is still NOT REALLY!!

- Because the level of GPG will depend on the general level of wages
  - The lower the general level of wages -> the lower the GPG (mathematical attribute)
- Because the level of GPG will depend on the characteristics of the employed population:
  - In countries where fewer women work, those that work are more skilled and have higher wages, than in countries where many women work -> lower GPG
  - The higher the education level of workers, the higher their wages -> higher GPG
  - The older the workers, the higher the difference in job tenure, given women’s breaks in careers, and the higher the income -> higher GPG

What can we compare?

- We can compare the GPG for the same country for different points in time
  - If the methodology to produce the data does not change
Minimum disaggregations

- Paid and self employment
- Part-time/full time schedules
- Age groups
- Education levels
- Industry
- Public/private sectors
- Occupation
- Size of establishment
- Length of service
- Family composition

Labour force surveys allow all these disaggregations

Establishment surveys allow these disaggregations if the observation unit is the worker

If the observation unit is the establishment then it can only disaggregate by industry, size of establishment

An example: USA
disaggregation by occupation

Wage gap by occupational groups, USA, 2000
The wage gap is higher in female-dominated occupations.

Wage gap and % women by occupational groups, USA, 2000.