Labour market modelling

Agenda items
Econometric modelling of estimates (para. 214-218)
Nowcasting techniques and ILO Monitor in COVID-19 times (para. 219-221)
The ILO modelled estimates collection

Established program, active for more than two decades

Econometric models to produce global and regional estimates of key indicators, annually updated

Provide insights of labour market trends for the ILO

Widely used by other international organizations, researchers and other institutions

Interdepartmental collaboration: RESEARCH and other ILO departments for selected indicators
Key labour market indicators
(with age and gender breakdowns for selected indicators)

Labour Force
- Employment
  - By economic activity, occupation, status and poverty
  - Time-related underemployment
- Hours worked
- Labour income
- Informality
- Unemployment

Other collections
- Social Protection
  - Child Labour (10 models)
- COVID-19 nowcast
- Rural-Urban
- Participation by gender in households with small children

Potential labour force
- Willing non-jobseekers
- NEET youth

Legend
Pre-existing
Developed since 20th ICLS

In 2022 alone 30+ indicators were updated; roughly 5 million observations
Growth of the collection

Demand factors

• 19th ICLS: underutilization
• SDGs
• Integration of topical collections (child labour)

Supply factors

• ILO harmonized microdata collection
• Development cooperation project: BMGF
Leveraging microdata, examples

Case 1: Dynamic granularity
Rural urban breakdown for key indicators

Case 2: Ease of introduction «new» concepts
Youth not in employment education or training

Case 3: Beyond averages & totals
Using individual wage data for labour income estimations
Why are econometric models needed?

Approximately 40% of data missing in a typical year

Not missing at random: raw data is biased

Solution: impute missing values to compute global and regional aggregates

Advantages: mitigates bias

Disadvantages: high staff-time cost and uncertainty
Core elements of imputation methodology

- **Cross-validation**
  - Pseudo-out of sample error assessment to select best performing models.

- **Panel and time series models**
  - Class of models to which the search is restricted

- **Judgmental analysis**
  - Additional quality control
Key challenges

Methodological and definitional changes
- Time-series comparability

Lack of timely access to data/microdata
- Partial gaps or full «blackout»

Data revisions
- Communication challenges
Dissemination: ILOSTAT & SDG database

- 1.1.1 Proportion of population below the international poverty line, by sex, age, employment status
- 1.3.1 Proportion of population covered by social protection floors/systems
- 5.5.2 Proportion of women in managerial positions
- 8.2.1 Annual growth rate of real GDP per employed person
- 8.3.1 Proportion of informal employment in non-agricultural employment, by sex
- 8.5.2 Unemployment rate, by sex, age
- 8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training
- 8.7.1 Proportion and number of children aged 5-17 years engaged in child labour, by sex and age
- 9.2.2 - Manufacturing employment as a proportion of total employment
- 10.4.1 Labour share of GDP, comprising wages and social protection transfers

The leading source of labour statistics.
Results: widely used in ILO and UN publications

World Employment and Social Outlook
Trends 2023


The Sustainable Development Goals Report
2023

Special edition

PROGRESS ON THE SUSTAINABLE DEVELOPMENT GOALS
THE GENDER SNAPSHOT 2023
Results: examples

In 2022, more than one in five of young people aged 15 to 24 were NEET. This amounts to 289 million young people who were deprived of opportunity to obtain valuable skills through early work experience or some form of training or education (ILO 2022f). Young women are twice as likely as young men to be NEET, which means
Monitoring the labour market effects of the pandemic

The challenges

- Rapidly changing situation
- Scarce timely economic data at the global level
- Limitations in comparability across country and time

Our approach

- Nowcasting + quarterly frequency
- Direct + indirect nowcasting approach
- Target variable: hours worked
COVID-19 Nowcasting: the results

Monitoring labour market disruption

Backbone of the ‘ILO Monitor’ series

Key take-aways:

- Large losses of hours worked at an unprecedented speed
- Fast (in stark contrast to financial crisis) but uneven rebound

Timely and policy relevant analysis:

The Guardian: Effective test, track and tracing ‘can reduce lost working hours by 50%’

The New York Times: Unequal vaccine access is widening the global economic gap, a U.N. agency says.
Policy simulations: in-depth topical analysis

- New area of work
- Using causal inference tools
- “Pilot” test: old age pensions (R202)

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**11th ILO Monitor: basic pensions simulation**

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*Figure 6. Average effects of historical social pension expansions, available countries*

<table>
<thead>
<tr>
<th>Total fertility rate</th>
<th>Non-agricultural employment share</th>
<th>GDP per capita</th>
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Note: The figure shows the average effect of a pension coverage expansion. The red dotted line indicates the year before the expansion of pension coverage took place. For more details on the estimates, see technical annex 3.

Source: ILO estimates.
Future work

Policy simulation: new topics and methodological refinement

Machine Learning: automation of data processing and less labour-intensive quality control

Communication: reaching key stakeholders and policy makers

Assess possibilities in skills, productivity, job quality, forced labour and 19th ICLS employment