DESIGNING LABOR POLICY: A SIMULATION APPROACH

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Outline

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Motivation

- Evaluation of Labor Policies concerns all of us
- These policies have important impacts on Labor Markets and fiscal accounts
- Ex-post evaluations are costly and difficult
- Advances enable (Ex-Ante) Labor Policy Simulations
- Evaluations through Simulations facilitate
  - Communication and Discussion of Policy Features, Expected Effects, and Assumptions
  - Transparency and Comparison of Policies
  - Sharing and Learning from Best Policy Practices
- Simulating is NOT forecasting
Ex-Post Evaluation (Experiments, Quasi-Experiments)

**Advantages:**
- statistically valid and robust results of impact against a counterfactual

**Disadvantages:**
- costly and time-consuming to implement
- high level of statistical complexity to account for selection bias and the effects of unobservable characteristics (quasi-experimental)
Ex-Ante Evaluation ((Micro-)simulation)

Advantages:
- projects potential impacts prior to implementation
- can determine the sensitivity of outcomes or the efficiency and effectiveness of many alternative program designs

Disadvantages:
- rely on structural models of economic behavior – (strong) underlying assumptions that may be controversial
- building upon existing data that can drive results

Given numerous labor policy design alternatives, ex-ante approaches can support policy making
Examples of Microsimulation Approaches

- **EU: EUROMOD**
  - analysis of taxes and benefits on household incomes and work incentives

- **Statistics Canada: Lifepaths (among others)**
  - simulates impacts of government programs over time on the individual/household level

- **and many others:**
  - Sweden: SVERIGE3; Australia: APPSIM; Italy: LABORsim; UK: PenSim2; …
Our Approach: simPLE

simPLE – simulations for Policies in Labor Economics
Types of LM Policies for simPLE to address

Benefits
- Unemployment Benefits (traditional UI, individual accounts, solidarity funds, severance pay, etc.)

Costs (of Labor)
- Wage Subsidies
- Minimum Wage
- Firing Costs
- Severance Pay

Financing
- Social Security Contributions (Tax Wedge)
simPLE – Simulation Tool to ...

Determine LM policy outcomes:

- cost/fiscal impacts
- employment and unemployment
- distribution of in-/formal wage & self employment
- wages, income distribution and equity

Compare and contrast different LM policy designs

Test the sensitivity of policy design parameters
How the model works

- Time
  - Job search
  - Job interviews

becomes unemployed  decisions on both sides

worker

employer

unemployment
formal wage employment
informal wage employment
self-employment
Structural Parameters for simPLE

- Probability of getting job interviews (formal informal) that depend on the ratio of unemployed to vacancies
- Relative productivity of labor in the formal and informal sector
- Productivity of labor in self-employment
- Bargaining power of workers relative to employers
- Probability of losing a job (formal wage, informal wage, self-employment)
- Interest rates
- Growth rates of vacancies
LM indicators used to estimate structural parameters

- Unemployment rate
- Share of self employment
- Share of informal wage employment
- Share of formal wage employment
- Average wage self-employed
- Average wage formal workers
- Average wage informal workers
Potential Sources of Data

**Labor force surveys**
- Employment and its components: (in-)formal wage and self-employment
- Unemployment
- Wages
- Distribution of relevant LM characteristics such as education level

**Administrative data**
- Number of recipients of benefits and subsidies
- Actual levels and durations of benefits and subsidies
- Actual contributions and taxes paid

**Labor Code and Social Insurance Law**
- Contribution rates to Labor Market and Social Insurance Programs
- Payroll and other income related taxes
- Minimum Wage regulations
- Wage Subsidies
- Severance Pay
- Unemployment Insurance and Unemployment Assistance
Labor Force
Data Inputs
(incl. Grouping)

LM Indicators

DESIGN
SCENARIOS

Outputs
for each
Scenario
(Total and by Group)

Cost/Fiscal Impacts
Un-/employment
In-/formal wage & self-employment
Wages, Income Distribution, and Equity

Structural Parameters
Example: Colombia

How to reform the unemployment benefit (UB) system?
Colombia – UB Reform Proposal I

Model based on individual accounts (UISA)
• incentive-compatible: reduces moral hazard
• easier and less costly administration
• positive balance will be transferred to the pensions account upon retirement

Covering all formal sector employees
• later extendable to self-employed workers

Complemented by a solidarity fund
• to supplement the low savings of some workers
• additional obligations if accessing SF
Colombia – UB Reform Proposal II

- **Employee**
  - 4% from Employee

- **Employer**
  - 1% or 1.5% from Employer

- **State**
  - ? from State

- **UISA with SF**
  - Individual Account
    - After first month if eligible

- **Solidarity Fund**
  - Any Reason for Separation
  - Eligibility Conditions
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Colombia – Outputs Summary

- **Fiscal impact**
  - Sustainable system (base scenario without major shocks)
  - Driven by administrative costs

- **Coverage**
  - Still low in relation to total unemployment spells (including informal)
  - However increased support for the (formal) unemployed over their unemployment spell

- **Consumption**
  - Consumption smoothing effect confirmed
Colombia Output – Revenues Solidarity Fund (SF)

Balance on UI/SF Fund (positive integers indicate a surplus) $6,521,419
Balance on Individual Savings Accounts $28,889,416
Duration of Unemployment with UB coverage (censored tabulation)
Total of all Unemployment Spells

- Unemployment Spells without Coverage
- Unemployment Spells with UISA coverage only
- Unemployment Spells with UISA+SF coverage
Example: Malaysia

Shall the country adopt unemployment insurance?
The situation in Malaysia 1
The situation in Malaysia

- **Formal**: Reality (0.45) vs. Model (0.45)
- **Informal**: Reality (0.3) vs. Model (0.3)
- **Self**: Reality (0.2) vs. Model (0.2)
- **Unemployment**: Reality (0.0) vs. Model (0.0)
The situation in Malaysia II
The situation in Malaysia II

![Bar chart showing mean log wages for formal, informal, and self-employment. The chart compares reality and model predictions.](chart.png)
Employment effects depend on policy choices

![Graph showing the relationship between replacement rate (benefit/wage) and unemployment vs. formal employment.](image-url)
Employment effects depend on policy choices

- Unemployment
- Formal employment
- Self-employment

Replacement rate (benefit / wage)
Example: Tunisia

How to use wage policies to employ youth?
Human resources are underutilized

Distribution of the Working Age Population

- Inactif 49%
- Formal 16%
- Informal 28%
- Unemployed 7%
The unemployed are concentrated in certain groups.
Long term unemployment is pervasive
Inefficient Labor Market Transitions

School to work transitions are difficult

6 YEARS

% Working  % Unemployed  % in school

Age
There seems to be a surplus of professionals...

... and a deficit of semi-skilled workers
The minimum wage today seems moderate relative to other countries...
... but it could be binding in the private sector

Wage Distribution 2011

Private sector

Source: LFS 2011, INS
Model suggests the MG is reducing employment for youth
At the aggregate level the impact of wage subsidies has been modest...
Targeting wage subsidies -- 50% -- to low skilled workers can have a more sizable effect ...
Conclusion

Why?
• Policymakers need information on LM and fiscal impacts of alternative regulations and income protection programs

Labor Market Interventions
• can be successful but poorly designed policies can create incentive, efficiency, and equity problems

Policy Evaluation
• ex-post evaluations are costly and difficult
• ex-ante evaluations help gauge various alternative policy designs

simPLE
• simulations can support policy makers to quickly and efficiently implement ex-ante evaluations

Mind:
• simulating is not forecasting; ex-ante simulations can complement ex-post evaluations
THANK YOU FOR YOUR ATTENTION!