Informal employment and SBR coverage by comparing LFS with SBR

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Introduction

• **SBR is statistical database** (firms, employment, job creation, ...), **sampling frame** (small enterprises surveys, trade survey, wage and employment survey, ...)

• **Since the SBR is based on administrative sources**
  – Coverage: legal units (registered or not in social security fund), wage-employees (registered)

• **Analyse the coverage of SBR (units, employees) = the statistical representativeness** (employment, production, value added, ...)
  – Informal sector: under coverage of production
  – **Informal employment**: under coverage of employees
Definition and method

• An employee in the private sector is considered “informal” if he has no social security registration in the Tunisian National Social Security Fund.

• Residual balance techniques: Compare labour force statistics produced through an exhaustive source with statistics providing on ‘registered’ or ‘formal’ employment source.
Tunisian Business Register

- **Statistical Business Registers 1996-2014 (SBR)**: Panel of all registered private firms in Tunisia
  - including those without salaried employees, i.e. the self-employed
  - Covers all sectors – except agriculture

- **Sources of update**: Fiscal direction, social security fund, customers, industrial promotion agency and economic surveys.

- **Statistical methodology to improve quality**: activity status, address, size and economic activity

- **Content**
  - Firms: Identification, activity, nationality, regime, dates, ..., turnover, profits, exports, imports, ...
  - Natural person: gender, age, income, ...
  - registered wage-employee: identification, gender, age, quarterly wage, ...
Labour Force Survey

• Quarterly, covers 130 thousands households (second quarter),

• Demographic and economic population characteristics employment, unemployment rate, job creation, ...

• Individual anonymous data: 2008-2012: all employees < status, Age, Gender, activity, place of activity, governarate)
Data integration

The two sources use different concepts and classifications (coverage, units, variables)

- Integration of **sector**:
  → Correspondence table (CT) : place of activity (LFS) with entreprise status (SBR)

- Integration of **units**
  → CT : LFS concepts with SBR concepts

- Integration of **variables**
  → CT : activity classification (LFS) with NAT2009 (naceRev2)
Final data

• **Coverage**: private sector excluding agriculture (47167 records)

• **Content**:  
  - 4 dimensions: employment status, year, gender, age group, activity code and governorate

  - 6 variables: total wage employees (LFS), formal wage employees (SBR), total self employees (LFS), formal self employees (SBR), median wage and median income (SBR).
Descriptive results

• Informal employment accounts 30% of all non-agricultural private sector and 11% of private sector excluding construction.
• The overall informal employment rate declined slightly in the last years.
• The rate of self-employment has decreased from 20% in 2008 to 13% in 2012.
• The rate varied considerably by age, gender and region: 50% of young employees are unregistered and in general the all women are registered.
• The link between informal and income is significant: the employees having low income are more likely to be informal.
Econometric results

\[ \ln \text{Informal} = \beta_R \ln \text{Revenu} + \beta_A A + \beta_G G + \beta_I I + \beta_L L + \beta_\tau \tau + e_{it} \]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>wage-employment</th>
<th>self-employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>4706</td>
<td>1249</td>
</tr>
<tr>
<td>R2</td>
<td>0.529147</td>
<td>0.538651</td>
</tr>
<tr>
<td>Intercept</td>
<td>4.4&lt;.0001</td>
<td>2.3&lt;.0001</td>
</tr>
<tr>
<td>LnIncome</td>
<td>-0.24&lt;.0001</td>
<td>-0.060.0372</td>
</tr>
<tr>
<td>Man</td>
<td>1.11&lt;.0001</td>
<td>0.67&lt;.0001</td>
</tr>
<tr>
<td>Woman</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>&lt; 30 years</td>
<td>2.51&lt;.0001</td>
<td>1.64&lt;.0001</td>
</tr>
<tr>
<td>B:31-40</td>
<td>1.79&lt;.0001</td>
<td>1.57&lt;.0001</td>
</tr>
<tr>
<td>C:41-50</td>
<td>1.6&lt;.0001</td>
<td>1.6&lt;.0001</td>
</tr>
<tr>
<td>D:51-60</td>
<td>0.96&lt;.0001</td>
<td>0.88&lt;.0001</td>
</tr>
<tr>
<td>&gt;= 61 years</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>

OLS regression estimates by employment status
Econometric results

informal employment by activity

In informal employment by gouvernorat

Coefficients

-4
-3
-2
-1
0
1
2
3
4

agro-industries
machanical and electrical
Chimical
manufacturing-other
Construction
trade
Hotels and restaurants
Education and health
cultural and social services
transport
Finance
business services

Coefficients

-1,5
-1
-0,5
0
0,5
1
1,5
2
2,5
3

Tataouine
Kebili
Tozeur
Siliana
Sidi Bouzid
Le Kef
Beja
Kasserine
Zaghouan
Jendouba
Gabes
Gafsa
Mahdia
Kairouan
Medenine
Birte
Monastir
Mannouba
Ben Arous
Sousse
Ariana
Nabeul
Tunis
Silax
## Informality and SBR quality

Informal: difference between LFS and SBR (LFS-SBR)

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Sign of the difference</th>
<th>SBR quality indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self employment</td>
<td>+</td>
<td>• Undercoverage of enterprises</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>• False active control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Activity codification control</td>
</tr>
<tr>
<td>Wage employment</td>
<td>+</td>
<td>• Undercoverage of wage employees</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>• Activity codification control</td>
</tr>
</tbody>
</table>
Conclusions

• Coverage SBR <enterprises> = 87%
  – MicroEnterprises survey: add a specific modul for the unregistered small enterprises (quota method)

• Coverage SBR <wage-employees> = 88% private sector excluding construction

• Control false active probability and activity codification for informal negative strata
Thank you

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