Production of Labour Input Indices and Labour Cost Indices

Labour Market Statistics: Harmonization and Analysis of Administrative Data Sources

22-24 October 2019
Putrajaya- Malaysia
Production of Labour Input and Labour Cost Indices

Labour Input Indices

- Aims to monitor the changes in labour input indicators,
- Monitor changes in the sectors in terms of periods and years,
- Provide national and international information requests

- Employment Index
  - employees (paid workers) are taken into account.
  - Apprentices/trainees and actual employed business owners, partners and unpaid family workers are not included in employment indices.

- Hours Worked Index

- Gross Wages Salaries Index
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Labour Cost Indices

- **Hourly Labour Cost Index**
  - the cost incurred by the employer in relation to employment as earnings and labour cost excluding earnings
  - Does not include vocational training cost or other expenditures such as recruitment cost, spending on working clothes etc.

- **Hourly Earnings Index**
  - Includes gross basic wage and salary payments, regular payments in the form of wage, overtime payments, irregular payments and payments in kind.

- **Hourly Labour Cost excluding Earnings Index**
  - Includes the employer’s part of statutory social security payments made to social security institutions, severance and termination payments.
Production of Labour Input and Labour Cost Indices

- Administrative records related to business statistics; employment, revenues and expenses of the firms.

- Administrative data recourses for LII in Turkey;

1. Social Security Institution (SSI)
2. Revenue Administration (RA)
3. Banking Regulation and Supervision Agency (BRSA)
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SSI personal data
- number of employees
- earnings

SSI aggregated data
- social security primes

RA aggregated data
- number of employees
- earnings
- severance and notice

SSI_RA aggregation
- Number of employees (Detailed, age, sex, etc.)
- Payments
- Primes
- Severance and notice payments
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Social Security Institution (SSI) administrative records

- Personal based SSI data integrated with business registers (BR) system.
  - SSI id number of the local unit is linked with RA tax id and BR enterprise id.
- Semi-summed SSI data at enterprise level produced
- This table is still not unique per employee
  - Contains different categorical variables so more than one raw for a unique employee.
- Summed SSI data produced
  - Unique for enterprise and gender (not for LII but for SES)
- Final SSI table
  - Unique for enterprise (tax id) having number of employees, earnings and social security primes
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Revenue Administration (RA) administrative records

- Enterprise (tax id) based RA data integrated with business registers (BR) system.
  - RA tax id linked with BR enterprise id.

- Summed RA data at enterprise level produced
- This table is final RA table, unique per tax id number
  - Unique for enterprise (tax id) having number of employees, earnings and severance and notice payments
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Banking Regulation and Supervising Agency (BRSA) administrative records

- Sector total data for
  - State owned banks
  - Private banks,
  - Investment banks,
  - Participation banks
  - Having number of employees, earnings and severance and notice payments
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Banking Regulation and Supervision Agency (BRSA) administrative records

- Detailed data for banking sector (Division 64 of NACE Rev.2)
- Include;
  - Total number of employees in the sector,
  - Wage payments
  - Severance and notice payments

- Banking sector used to have its own retirement schemes in TR which is now lose its size with new employees with SSI schemes.
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Labour Force Survey (LFS) data for hours worked

- Neither SSI nor RA data have hours worked data
- LFS hours worked data used for calculating hours worked index
  - Hours worked data of paid workers
  - In public and private sectors
- LFS collects data for the reference week
  - Weekly hours worked data converted to monthly data
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- SSI records
- RA withholding tax return records
- Banking Regulation and Supervising Agency (BRSA) administrative records
- RA withholding tax return, VAT, Income Tax and Corporate Tax Declarations
- SSI Records

SSI records
- Labor input indicators and LMI
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- Labor input indicators and LMI
- Structural Business Statistics
- Structural Business Statistics

Banking Regulation and Supervising Agency (BRSA) administrative records
- Labor input indicators and LMI

RA withholding tax return, VAT, Income Tax and Corporate Tax Declarations
- Labor input indicators and LMI
- Structural Business Statistics
## Production of Labour Input and Labour Cost Indices

- Single row for each individual from multiple rows in SSI data set
- Personal id numbers converted to unique statistical numbers (IST_NUM)
- Needed variables are calculated from admin data sources
- Aggregation for enterprises and linkage with RA data
- Linkage with Business Registers
- Selection for index calculation
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Covered NACE Rev.2 activities

B- Mining and quarrying
C- Manufacturing
D- Electricity, gas, steam and air-conditioning supply
E- Water supply, sewerage, waste management and remediation
F- Construction
G- Wholesale and retail trade, repair of motor vehicles and motorcycles
H- Transportaion and storage
I- Accomodation and food service activities
J- Information and communication
K- Financial and insurance
L- Real estate activities
M- Proffesional, scientific and tehcnical activities
N- Administrative and support service activities
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Periodicity

- Indices are published quarterly.

Reference Periods

- Quarter I (January, February, March)
- Quarter II (April, May, June)
- Quarter III (July, August, September)
- Quarter IV (October, November, December)
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Index type
- At each level, fixed base year simple index method is used which is calculated by multiplying the sum of the relevant levels by the base year average

Source of weights
- Weight is not used because of full enumeration

Imputation
- Incorrect or outlier data in administrative records are corrected by statistical methods
Seasonal Adjustment

- The seasonal adjustment of Labor Input Indices is carried out using TRAMO-SEATS methodology.
- The software that is used for the application is 2.2.0 version of JDemetra+.
- Seasonal and calendar adjustment process begins at the end of each year with the identification of the models of next year.
- Specified model structure is kept fixed throughout the year to adjust seasonally and/or calendar effects.
- At the end of the year, specification of econometric estimation models for the following year is done.
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Seasonal Adjustment

- Seasonally and calendar adjusted figures of Labor Input Indices are produced by indirect approach
- Firstly the three digit NACE Rev2 classification individual subseries are seasonally adjusted
- Then these series are used to derive seasonally and calendar adjusted two digit subseries, sections, MIGS and sector totals
- Seasonal adjustment procedure is subject to revisions over time because of the re-estimation of seasonal component as new observations are added
- These revisions are implemented on the data of the last three years excluding the current year
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Seasonal Adjustment

- “Calendar adjusted” data is derived from unadjusted data by removing calendar and holiday originated effects
- Should be used in comparisons regarding the same quarter of the previous year
- “Seasonally adjusted” data is derived from unadjusted data by removing effects originating from seasonal effects
- Should be used in comparisons regarding the previous quarter
- “Seasonally and calendar adjusted” data is derived by removing both effects mentioned above
- Should be used in comparisons regarding the previous quarter
Thank You