The use of registry data in Estonian average wages and salaries statistics

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STATISTICS ESTONIA

Agenda

1. Situation Before the Methodology Change
2. Situation After the Methodology Change
3. Use of Registers
4. Definitions
5. Database and Earnings Application
6. Benefits and Challenges
7. Conclusions

Before the methodology change

Questionnaire „Wages and salaries and labour force“

- The survey was conducted until the 4th quarter of 2022
- It was used for average wages and salaries, job vacancies, and the labor cost index
- In 2022, approximately 6,000 enterprises were surveyed; 4,000 were sampled and 2,000 were mandatory
- There was a huge response burden

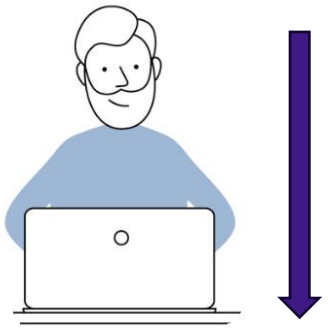
Questionnaire „Wages and salaries and labour force“ after the methodology change

The questionnaire is still conducted to collect information on:

- job vacancies
- hourly wages
- labour cost index

Sampled population: 4,000 enterprises → 2,000 enterprises
Mandatory population: 2,000 enterprises

TOTAL: 4,000 enterprises



8303 hours

Response burden

27 993 hours → 19 690 hours

The use of registries: methodology

Previously the methodology was enterprise-based; now it is employee-based

Transition from accural-based wages and salaries to payment-based wages and salaries

accural-based: the wages and salaries earned in April go to the calcuation of April

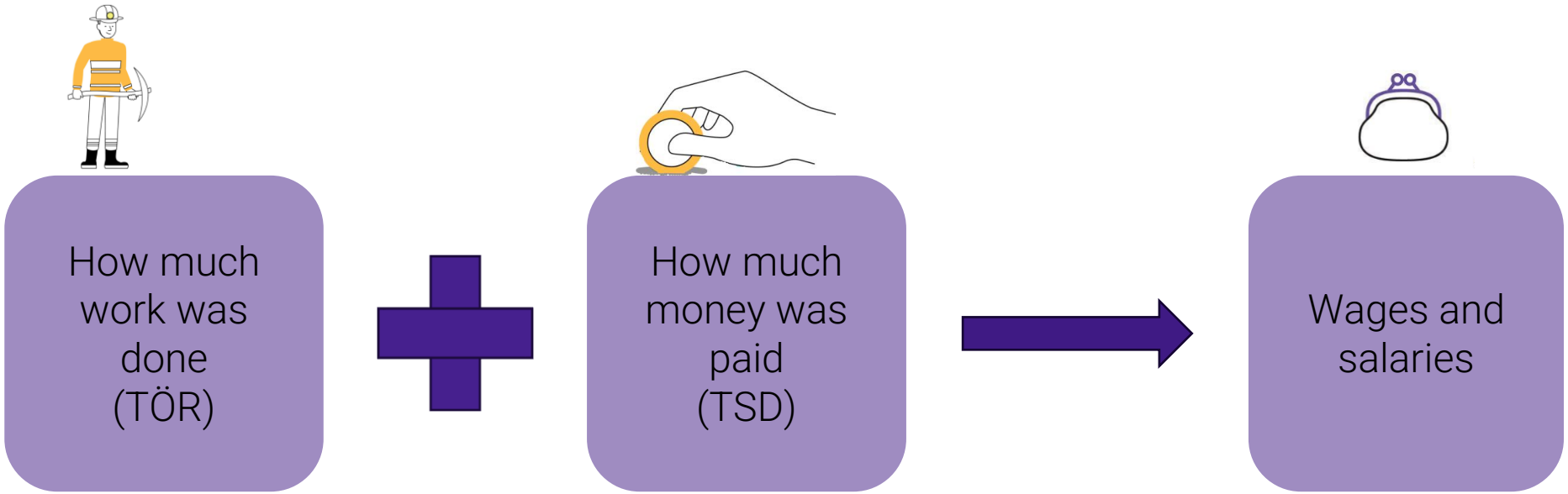
payment-based: the wages and salaries earned in April go to the calculation in the month in which it was paid out (mostly the next month)

Definitions

- Payment
- Labour contribution
- Working time rate

The use of registries: registries used

- Employment Register (TÖR)
- Income and Social tax returns (TSD)
- Business Register
- Statistical Register of Businesses
- Address data system



Linking data from the registries

3-step linking process

1. the employers unique code is the same in both registries: we can perform direct linking from TÖR* and TSD*
2. the payment variable is filled in TÖR: we can link TSD and TÖR with using the payment variable
3. in business register the higher institution is filled: we can link the employer from TSD and employer code from TÖR to higher institution

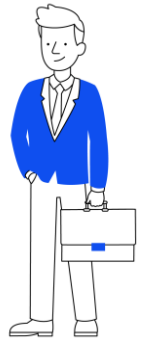
*TÖR – Employment Register
*TSD - Income and Social tax returns

Payment, working time rate and employees

Payment is any monetary consideration paid to an employee or official, including remuneration, wages, bonuses, holiday pay, compensation or interest on arrears awarded by a court or labour dispute committee

Working time rate is the contractual rate of working time of an employee or official. This does not depend on the hours actually worked. The working time rate is marked according to the workload agreed in the employment contract: full-time (1.0) or part-time (e.g. 0.25, 0.5, 0.75)

Employees are people who are working under employment contracts, the Civil Service Act*, and service contracts are included



** Excluding employees in the areas of governance of the Ministry of Defence and the Ministry of the Interior.*

Labour contribution

…is the percentage of days worked in a period (month/quarter) adjusted by the average working time rate. The contribution is adjusted for the shift in payments for the month in which employment ends

- number of days worked (duration of the contract)
- the number of days when the employment contract was suspended has been subtracted
- workload (rate of working time) by days
- versioned data (i.e. latest version does not show status retrospectively)

Problems to solve: more than one contract at the same employer

- different work durations are added up, and only one employee-employer data set is left

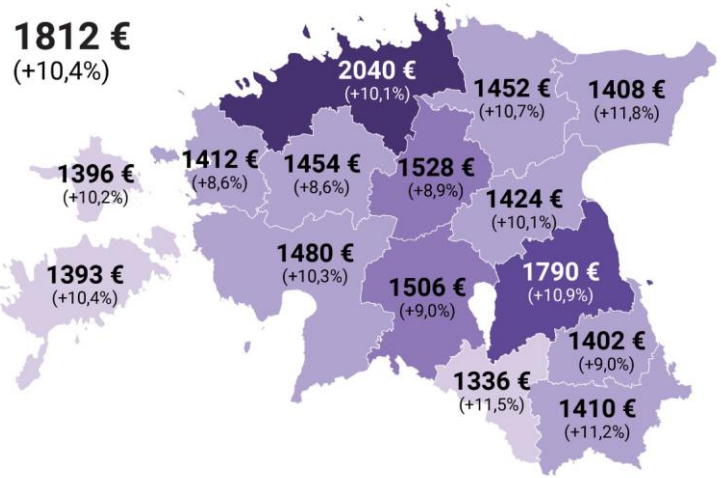
Average and median gross monthly wages and salaries

Average gross monthly wages and salaries

is the ratio between payment and labour contribution

Median gross monthly wages and salaries

is the middle-ranking value of an ordered list of monthly gross wages and salaries with an equal number of values on either side



2023 3rd quarter compared to 2022 3rd quarter

Comparing the two methodologies, 2022

	new	old	
	2022	2022	difference (€)
Total - all activities	1645	1685	-40
Agriculture, forestry and fishing	1400	1392	8
Mining and quarrying	1925	2005	-80
Manufacturing	1553	1631	-78
Electricity, gas, steam and air conditioning supply	2294	2392	-98
Water supply; sewerage, waste management and remediation activities	1567	1659	-92
Construction	1454	1547	-93
Wholesale and retail trade; repair of motor vehicles and motorcycles	1487	1422	65
Transportation and storage	1503	1634	-131
Accommodation and food service activities	1050	1058	-8
Information and communication	2962	3035	-73
Financial and insurance activities	2651	2708	-57
Real estate activities	1118	1214	-96
Professional, scientific and technical activities	1979	1970	9
Administrative and support service activities	1423	1389	34
Public administration and defence; compulsory social security	2109	2127	-18
Education	1507	1552	-45
Human health and social work activities	1884	1808	76
Arts, entertainment and recreation	1287	1307	-20
Other service activities	1082	1260	-178

- Wages and salaries decrease in the areas where there are many short-term contracts
- Wages and salaries increase in relation to over-time
- Fluctation larger due to other payments, such as bonuses
- SME-s are now fully involved in the data

Database starting from 2023

- The data is back-cast starting from 2021
- We publish the data quarterly and annually
- We compose a press release

- Wages and salaries
  - Short term statistics
    - PA111: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN, DECILES AND NUMBER OF EMPLOYEES BY ECONOMIC ACTIVITY SECTION (QUARTERLY) [6. March 2024]
    - PA112: AVERAGE HOURLY GROSS WAGES (SALARIES) BY ECONOMIC ACTIVITY (QUARTERLY) [6. March 2024]
    - PA113: AVERAGE MONTHLY GROSS WAGES (SALARIES) AND MEDIAN BY ECONOMIC ACTIVITY (QUARTERLY) [6. March 2024]
    - PA115: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN AND NUMBER OF EMPLOYEES BY TYPE OF OWNER OF ECONOMIC UNIT (QUARTERLY) [6. March 2024]
    - PA117: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN AND NUMBER OF EMPLOYEES BY COUNTY (QUARTERLY) [6. March 2024]
    - PA118: AVERAGE HOURLY GROSS WAGES (SALARIES) BY COUNTY (QUARTERLY) [6. March 2024]
    - PA119: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN AND NUMBER OF EMPLOYEES BY COUNTY (MONTHLY) [6. March 2024]
    - PA121: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN AND NUMBER OF EMPLOYEES BY ECONOMIC ACTIVITY SECTION (MONTHLY) [6. March 2024]
  - Annual statistics
    - PA101: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN, DECILES AND NUMBER OF EMPLOYEES BY ECONOMIC ACTIVITY SECTION [6. March 2024]
    - PA103: AVERAGE MONTHLY GROSS WAGES (SALARIES) AND MEDIAN BY ECONOMIC ACTIVITY [6. March 2024]
    - PA105: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN AND NUMBER OF EMPLOYEES BY TYPE OF OWNER OF ECONOMIC UNIT [6. March 2024]
    - PA107: AVERAGE MONTHLY GROSS WAGES (SALARIES), MEDIAN AND NUMBER OF EMPLOYEES BY COUNTY [6. March 2024]

Earnings application (https://palgad.stat.ee/en)

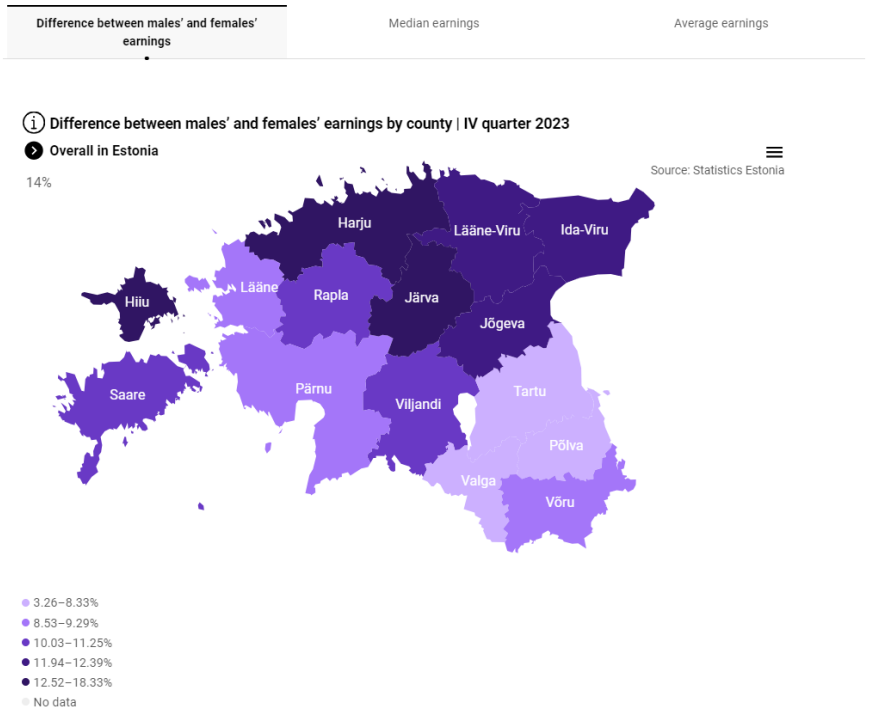
Shows average and median earnings

Shows differences between the monthly gross earnings of employees by:

- Sex
- County
- Occupation

Also includes: earnings projection and pension projection

New version is launched in 2024



Primary School Teachers

Difference between males' and females' earnings | Median earnings | Average earnings

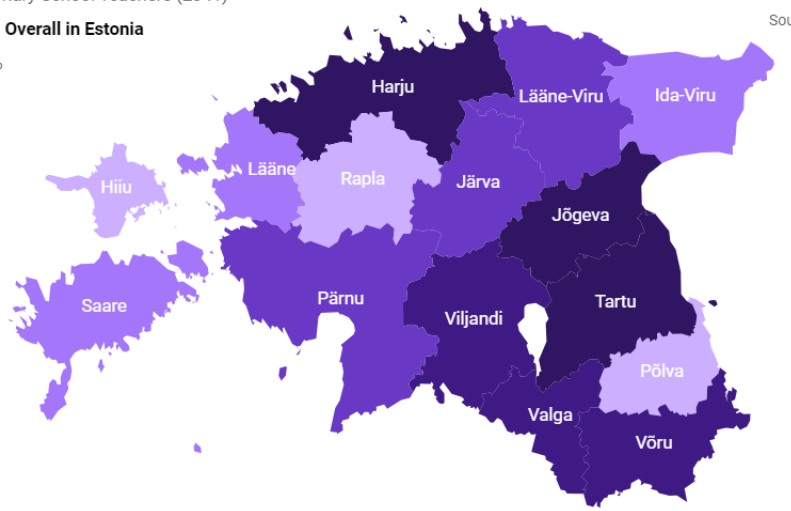
Difference between males' and females' earnings by county | IV quarter 2023

Primary School Teachers (2341)

Source: Statistics Estonia

Overall in Estonia

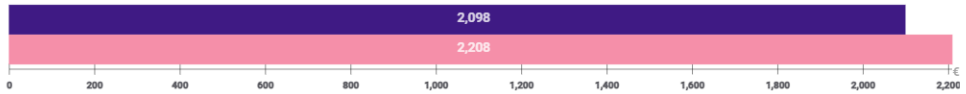
-5%



-22.62–-16.00%
-12.89–-8.15%
-6.89–-6.10%
-5.99–-3.70%
-2.64–6.32%
No data

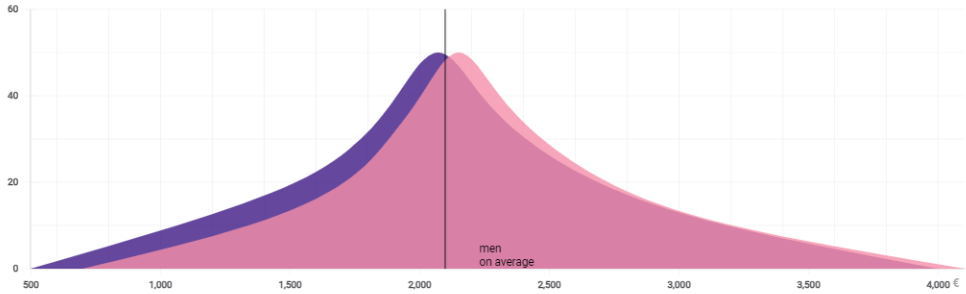
Average earnings of males and females | IV quarter 2023

Primary School Teachers (2341), overall in Estonia



Men earn €110 less than women on average.

Decile-based estimation of frequency (%)



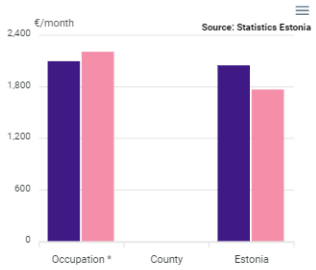
Total number of employees

Primary School Teachers (2341), overall in Estonia

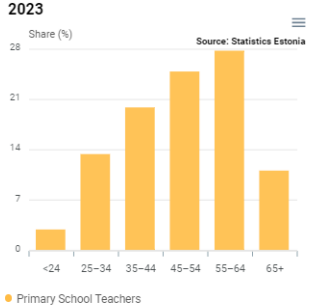
Male employees 1564

Female employees 9289

Average gross earnings | IV quarter 2023



Age distribution in occupation | IV quarter 2023



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Benefits of the new methodology

- More thorough database
- Ability to calculate wages at the local government level
- Ability to calculate median wages and deciles
- Ability to use other registries, such as education
- Use of already collected data
- Possible to use this methodology in other surveys, etc

Challenges of the new methodology

- The Ministry of Defence and the Ministry of the Interior are not included
- Only employees with an Estonian personal identification code are included
- Registries must be kept up to date
- There is no information on hours worked
- We are unable to compile data on all employees in Estonia
- We cannot distinguish the types of payments

Conclusions from the project

Data source:

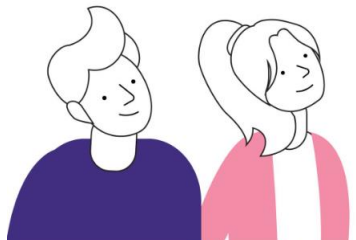
- Preliminary analysis must be conducted
- Metadata needs to be in order
- Registries must be kept up to date and corrected

Communication:

- Communication planning is the key
- Conduct status meetings
- Clear responsibilities
- Include people inside and outside the organization
- Project leader shouldn't have other responsibilities in the project

Importance:

- Why are we doing this?
- Who will benefit?
- Can we reuse this?
- What will change?



Thank you!

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