Patterns and Shifts in the labor market equilibria of the secondary sector in the EU and the Balkans during 2008-2017
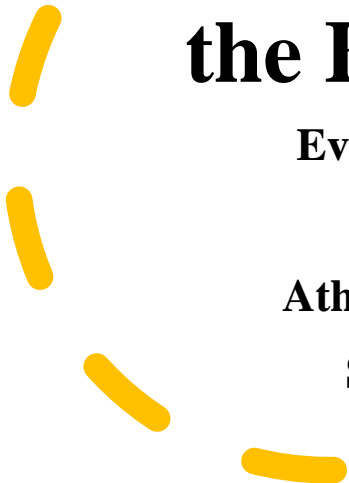
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Overview

- We look into the evolution of the labor market equilibria (price and quantity combinations) observed in each type of business in the secondary sector, across the 28 EU member states and Bosnia and Herzegovina from 2008 to 2017, on the basis of annual structural business statistics data supplied by Eurostat.

- The quantity measure consists of the total hours worked by employees and the price measure consists of the average hourly wage as proxied through the division of the wage and salary sum over the total hours worked by employees.

- We aim to provide interesting insights on how the different labor markets through shifts in their supply and demand schedules responded to the international financial crisis of 2008, and the subsequent national, international and sectoral developments. An example is provided on the following diagram.

Austria, small-to-medium sized enterprises (20-49 employees)
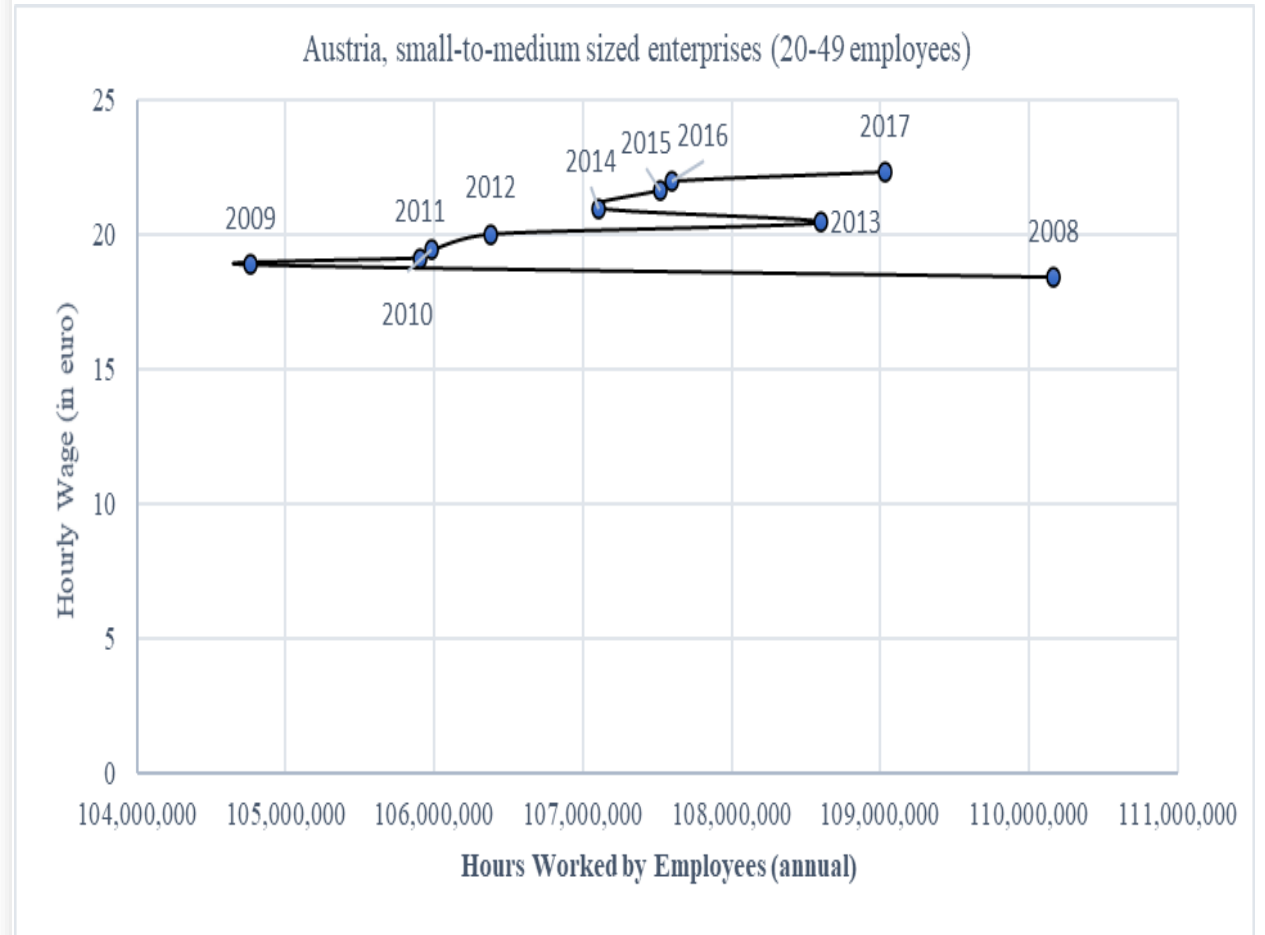
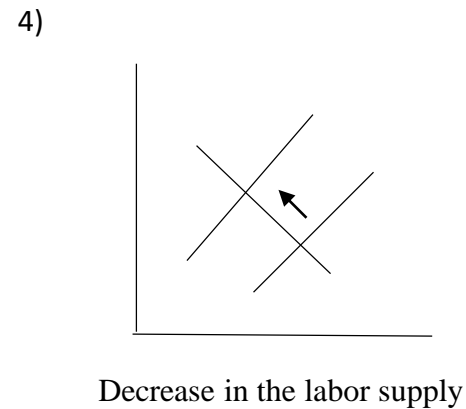Total manufacturing consists of the following types of businesses:

- **Very small enterprises** : employing 0-9 people
- **Small enterprises** : employing 10-19 people
- **Small to medium enterprises** : employing 20-49 people
- **Medium sized enterprises** : employing 50-249 people
- **Large enterprises** : employing more than 250 people

We constructed a series of diagrams including every country in the 28 EU member states plus Bosnia and Herzegovina performing in each type of business (approximately 150 diagrams constructed)

Determination of labor market equilibrium

- Labor market equilibrium is determined by the demand and supply of labor. Changes in the equilibrium wage rate in a particularly labor market are caused by changes in the demand curve or in the supply curve or by simultaneous (or subsequent) movements in both curves.

1)

Rise in the labor demand

2)

Rise in the labor supply

3)

Decrease in the labor demand

4)

Decrease in the labor supply
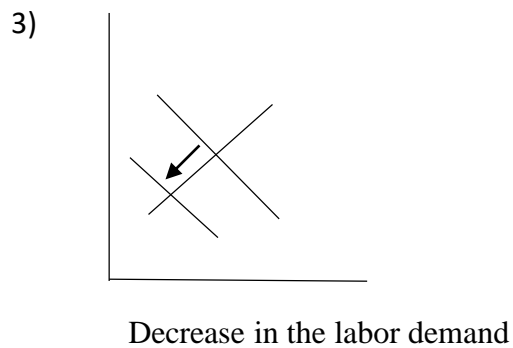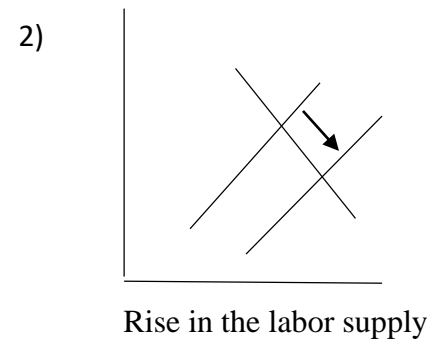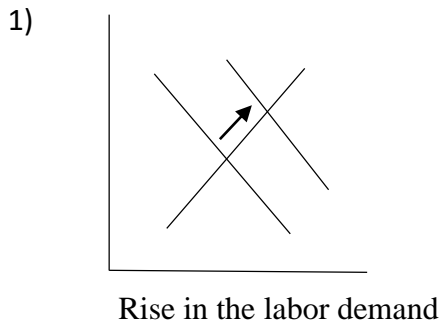
Example: Austria, small-to-medium enterprises

Austria, small-to-medium sized enterprises (20-49 employees)
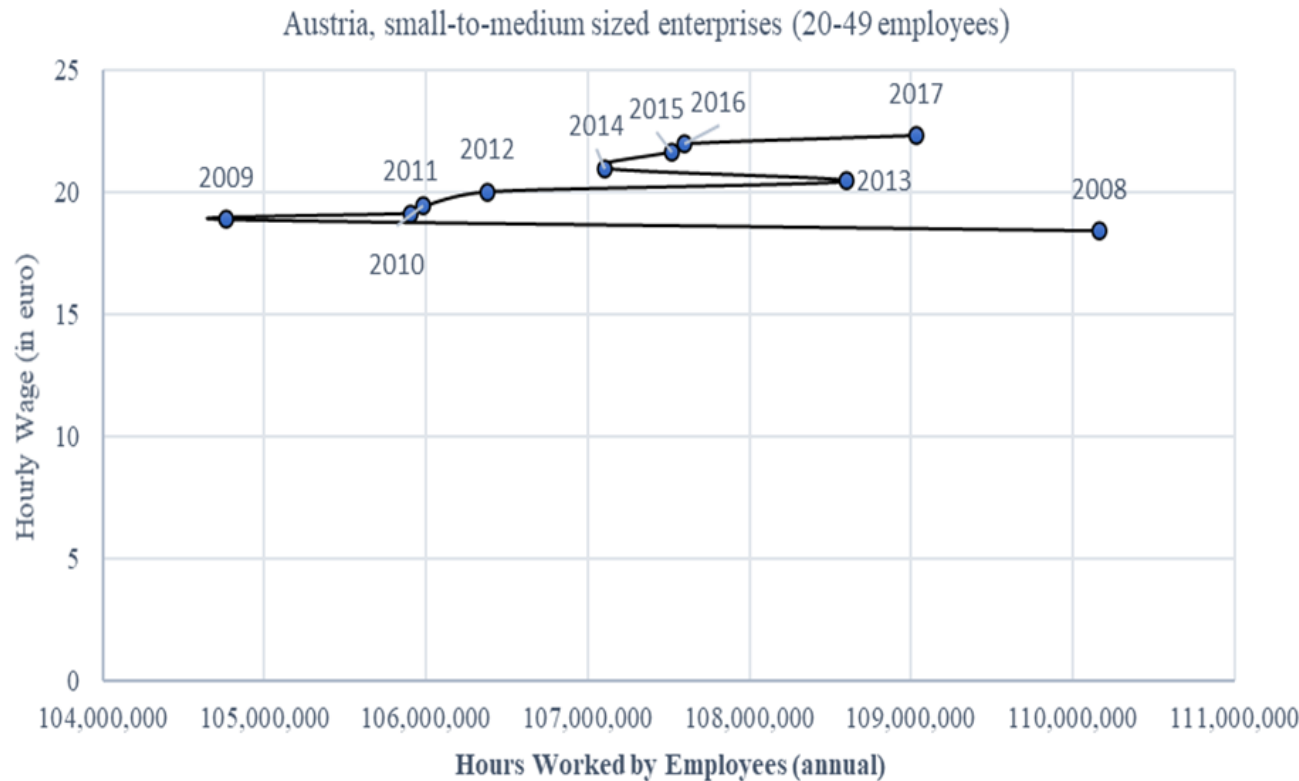
- **2008-2009**: Decrease in labor supply (the equilibrium moves up, to the left)
- **2009-2013**: Increase in labor demand (the equilibria move up, to the right)
- **2013-2014**: Decrease in labor supply (the equilibrium moves up, to the left)
- **2014-2017**: Increase in labor demand (the equilibria move up, to the right)

Explaining the changes in labor supply and demand in Austria (small-to-medium enterprises)

Decrease in labor supply

- The prices of the goods produced go down
- The minimum wage or worker benefits in the industry have just gone up
- Lower demand for domestically produced goods
- Changes in the production process (less labor is needed)
- …

Increase in labor demand

- Lower wages in other sectors
- Barriers to entry in other sectors or difficulties in finding jobs or higher requirements (e.g. more prior training or experience required) in other sectors
- Laxed immigration policies
- Wave of a population boom
- Change in work/leisure preferences
- …

Patterns observed: The "Ideal"

- Moving to higher wages and less hours of work

- These conditions seem to be ideal to the employees

Italy (total manufacturing)

Hourly wages (in euros) vs Hours worked by employees (annual), with data points from 2008 to 2017.

Similar pattern: Belgium, Finland, Spain, Sweden, Luxembourg

Patterns observed: The "German"

- Mostly appearing in Germany
- Moving to higher wages and more hours of work

Germany (total manufacturing)

Similar pattern: Bosnia & Herzegovina

Patterns observed: The "Ideal" turning "German"

- It starts moving towards higher wages and less hours of work but at some point it starts moving towards higher wages and more hours of work

Austria (total manufacturing)
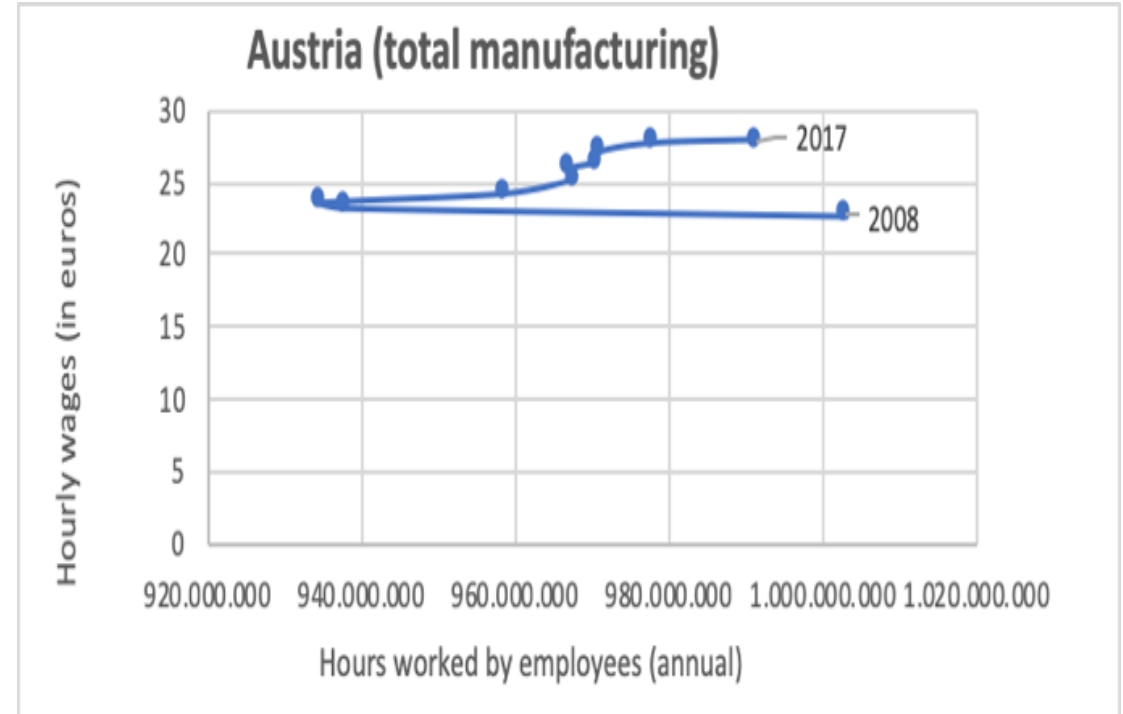
Similar pattern: Bulgaria, Estonia, Poland, Portugal, Romania, Czechia, Slovakia, Rep. of Ireland
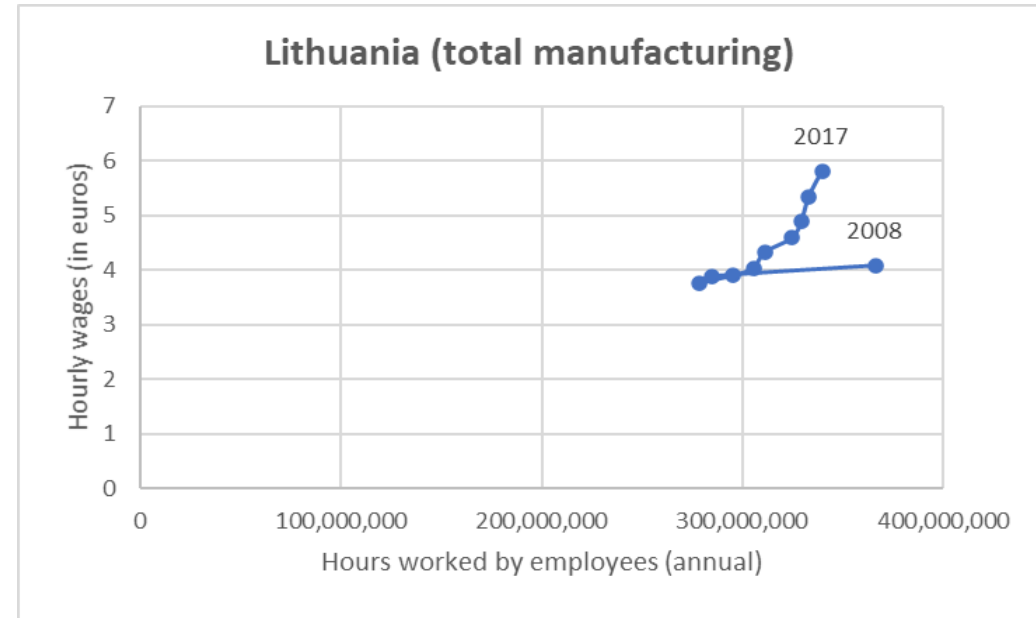
Patterns observed: The "Recessionary"

- Mostly appearing in Greece and Cyprus

- Over time it generally moves to lower wages and less hours of work

- Observed in countries that underwent recessions

Greece (total manufacturing)

Hourly waes (in euros) vs. Hours worked by employees (annual). Points labeled 2008 and 2017.

Patterns observed: "Recessionary" → "German"

- It starts moving towards lower wages and less hours of work but after at some point it starts moving to higher wages and more hours of work

Lithuania (total manufacturing)

Similar pattern: UK

"Odd"

- It generally moves to more hours of work and lower wages

UK, large enterprises (enterprises employing over 250 people)

Y-axis: Hourly Wage (in Euro), from 0 to 40

X-axis: Hours Worked by Employees (annual), from 0 to 2,500,000,000

Data points labeled: 2008, 2014, 2015, 2017
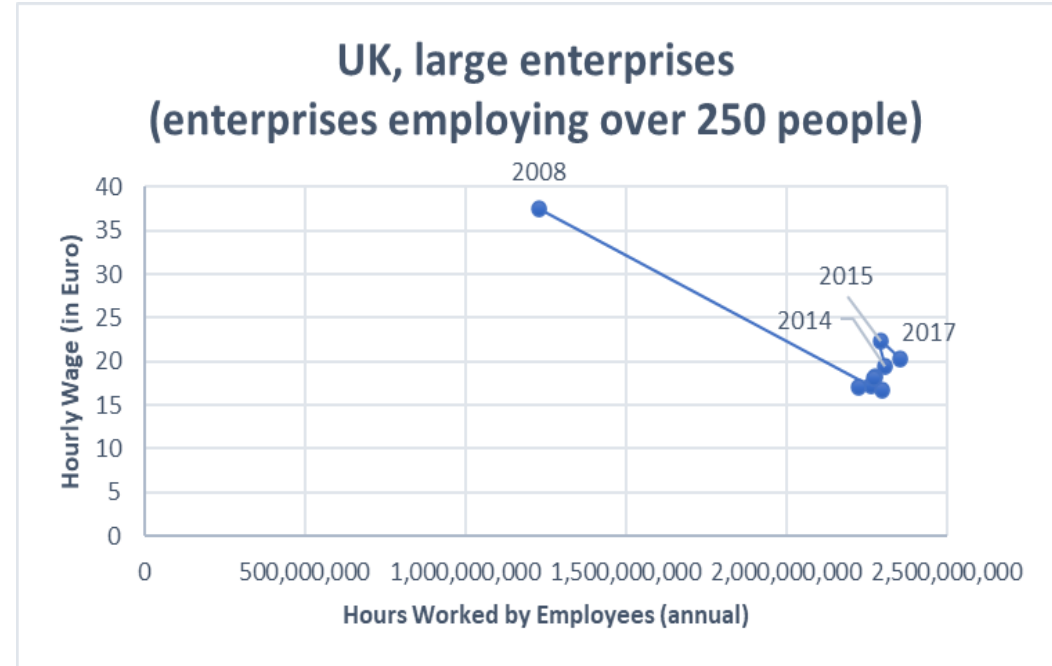
Patterns observed: "Recessionary" → "Odd"

- After moving to lower wages and less hours of work it moves in combinations of more work with conceivably lower or similar wages

Croatia (total manufacturing)
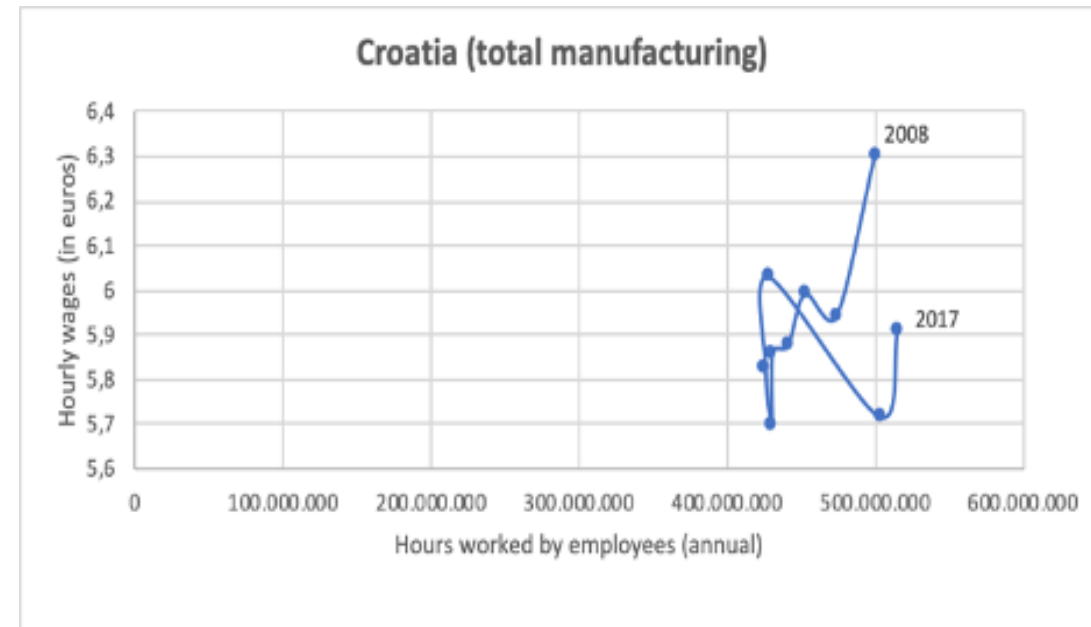
Patterns observed: "Mixed" or "unclear"

- It's all over the place

Netherlands (total manufacturing)

Hourly wages (in euros) vs. Hours worked by employees (annual). Data points from 2008 to 2017.

Patterns observed: "Unclear" → "Ideal"

- After several changes in direction it moves to combinations of higher wages and less hours of work

Finland (enterprises employing 0-9 employees)
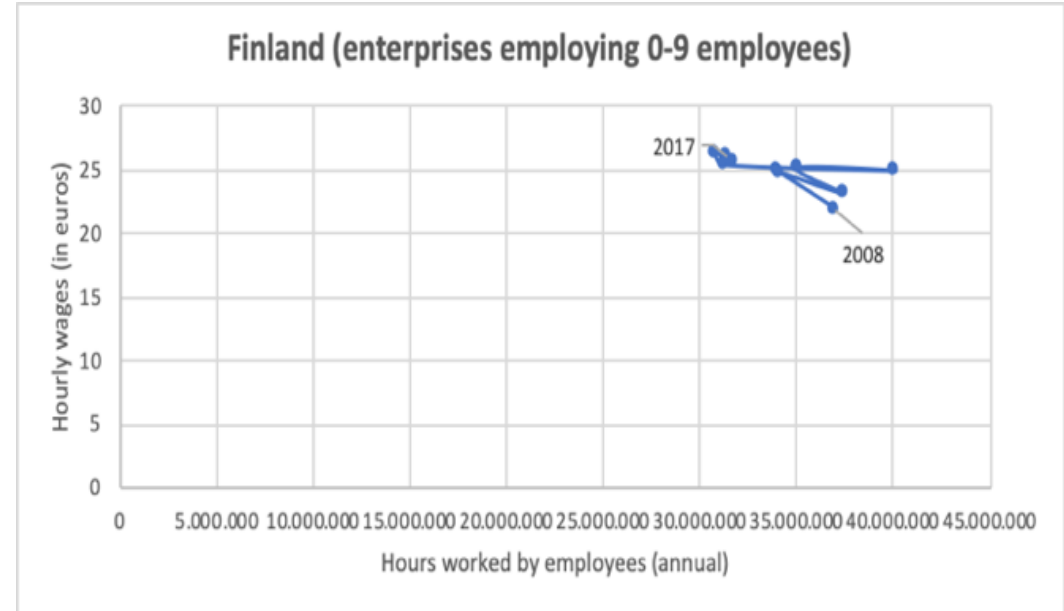
Similar pattern: Estonia, Latvia

Frequency of Patterns in each subsector

	TOTAL	0-9	10-19	20-49	50-249	250+
GENERALLY IDEAL	-	-	-	1	-	-
GERMAN	-	1	-	-	1	1
GERMAN WITH IDEAL SPELL	-	-	-	1	-	-
IDEAL	5	11	11	11	11	5
IDEAL TURNING GERMAN	10	3	3	4	7	10
IDEAL TURNING ODD	-	-	5	1	-	1
IDEAL TURNING RECESSIONARY	-	-	-	-	-	1
IDEAL WITH REGRESSIONS	-	-	1	-	-	1
MIXED	2	1	1	-	1	1
ODD	-	-	-	-	-	1
ODD TURNING GERMAN	-	-	-	1	-	-
PARTIAL WITH ODD ELEMENTS	-	1	2	1	-	-
RECESSIONARY	1	1	1	1	-	1
RECESSIONARY TURNING GERMAN	1	-	-	1	2	-
RECESSIONARY TURNING ODD	1	-	-	1	-	-
UNCLEAR TURNING GERMAN	-	2	-	1	2	-
UNCLEAR TURNING IDEAL	1	3	-	-	1	1
UNCLEAR TURNING ODD	-	-	-	1	1	1
UNCLEAR TURNING RECESSIONARY	-	1	-	-	-	-

Observations

- In the overall sector and the subsector of large enterprises we observe a pattern recalling the "Ideal"-to-"German" one.

- In the other subsectors (very small, small, SMEs and medium-sized enterprises) the "Ideal" patterns is the dominant one.

- At the subsectoral level we observe more pattern similarities in

  Italy and Spain,

  Sweden and Finland,

  Czechia, Austria, Hungary, Romania and Bulgaria