

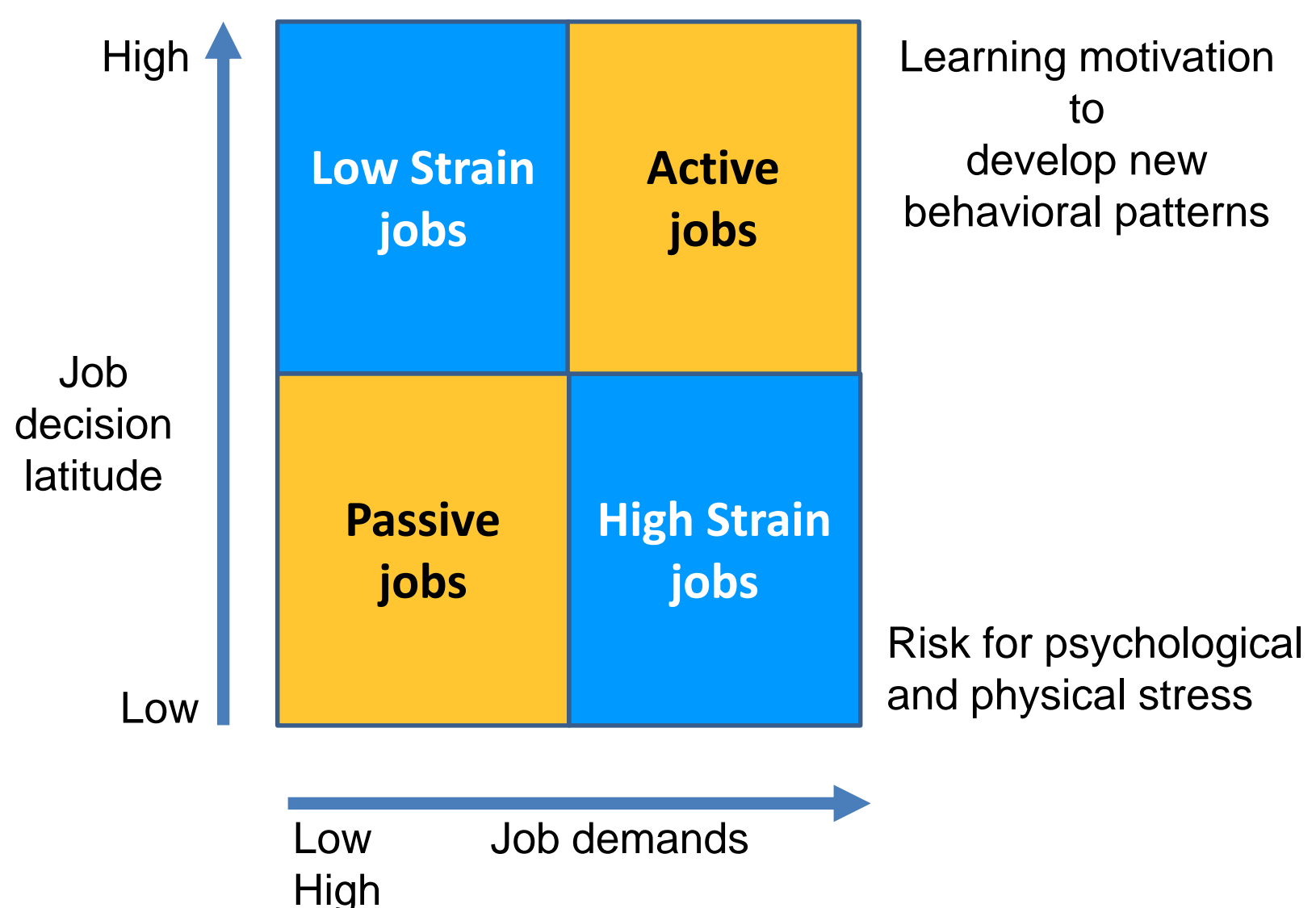
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## Aim

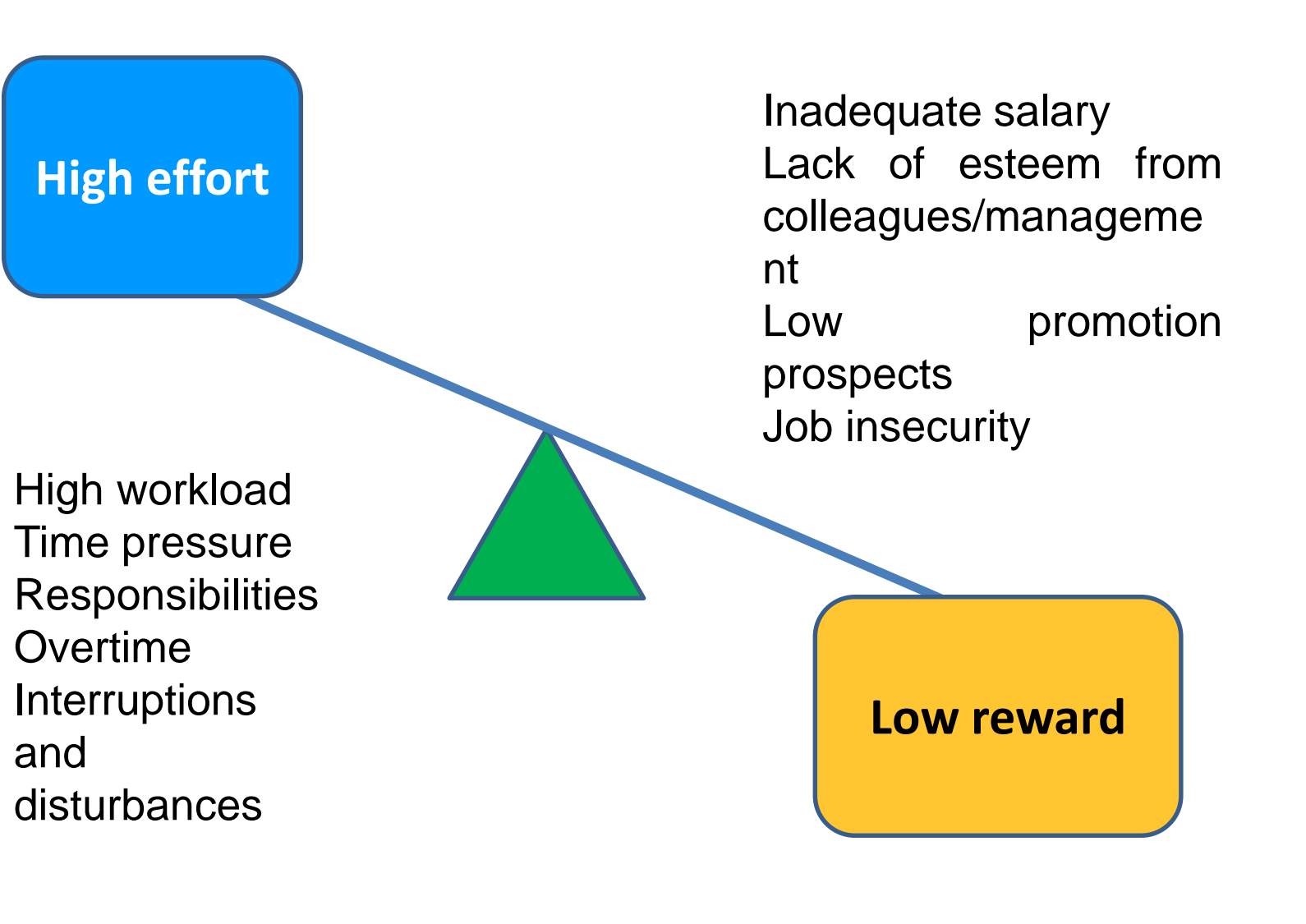
The economic crisis of the decade has put at risk the systems of the welfare state of some countries. One of the measures has been to extend the working life of employees, for this reason it is essential to ensure sustainable working conditions that do not harm health. This paper analyses **which labour conditions are most related to the perception of work stress**, and compare them over the decade 2005-2015.

## Job stress models

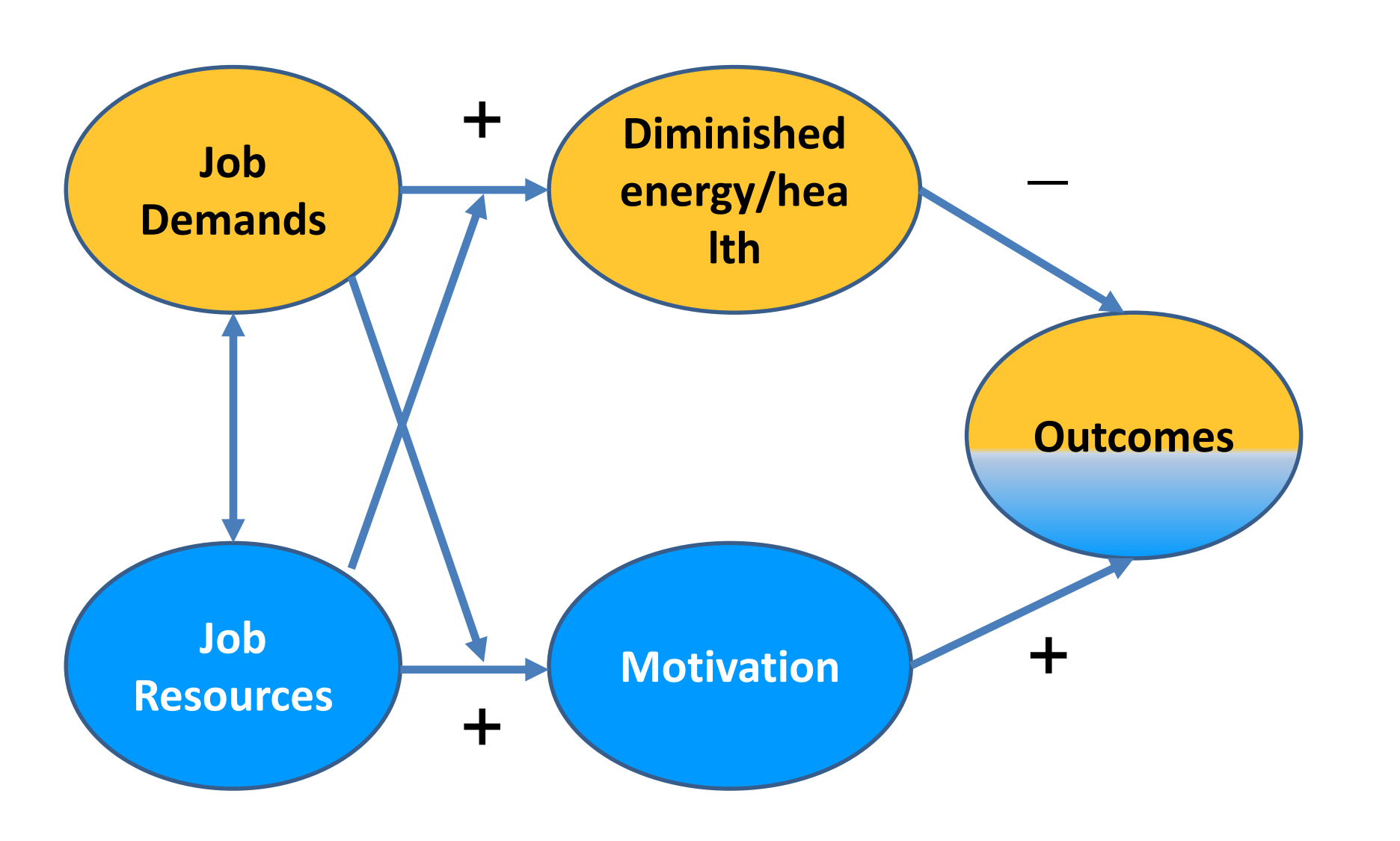
**Demand-Control-Support model (Karasek, 1979)**



**Effort-Reward Imbalance Model (Siegrist, 1996)**



**Jobs Demand-Resources Model (Demerouti et al., 2000)**

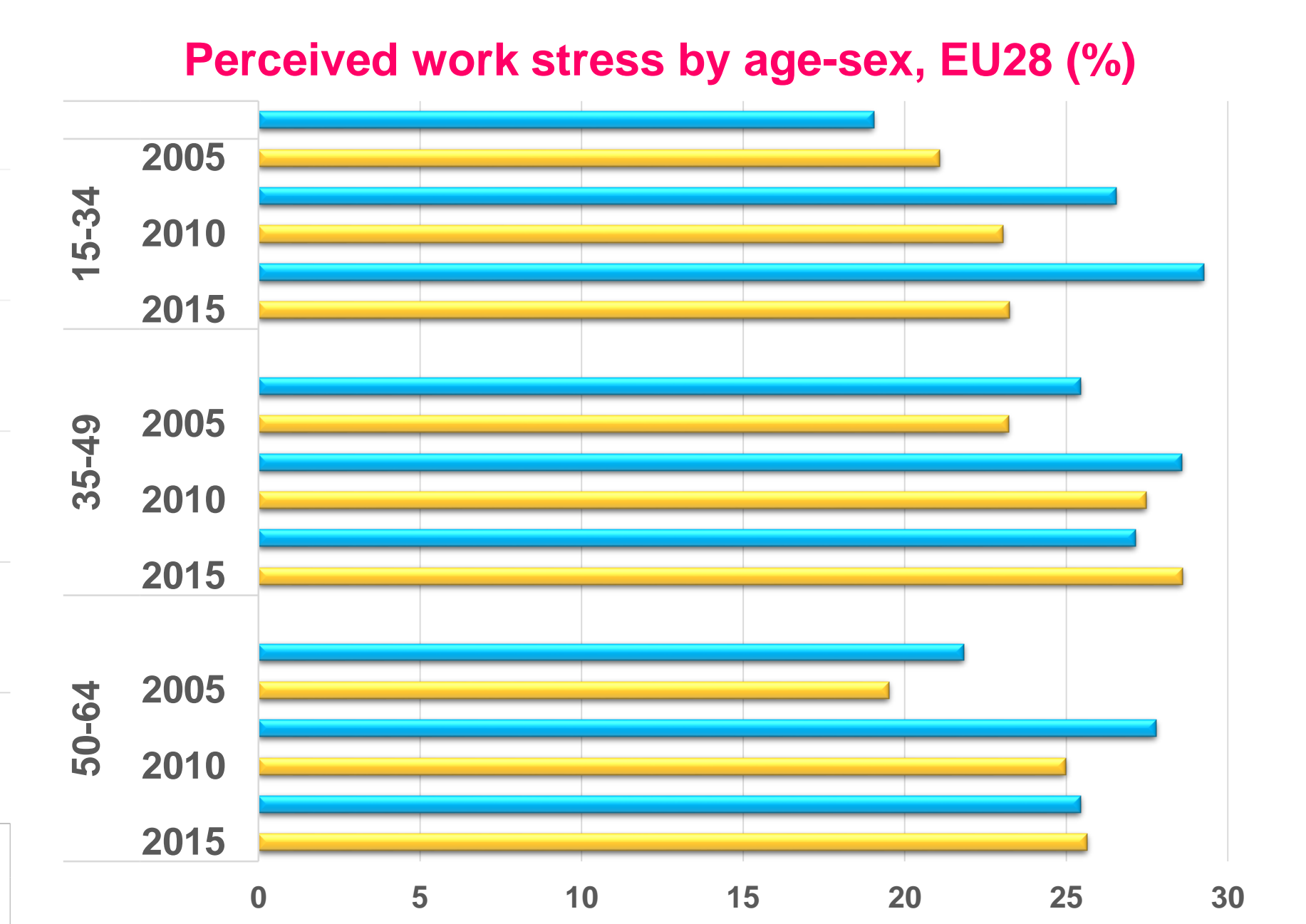
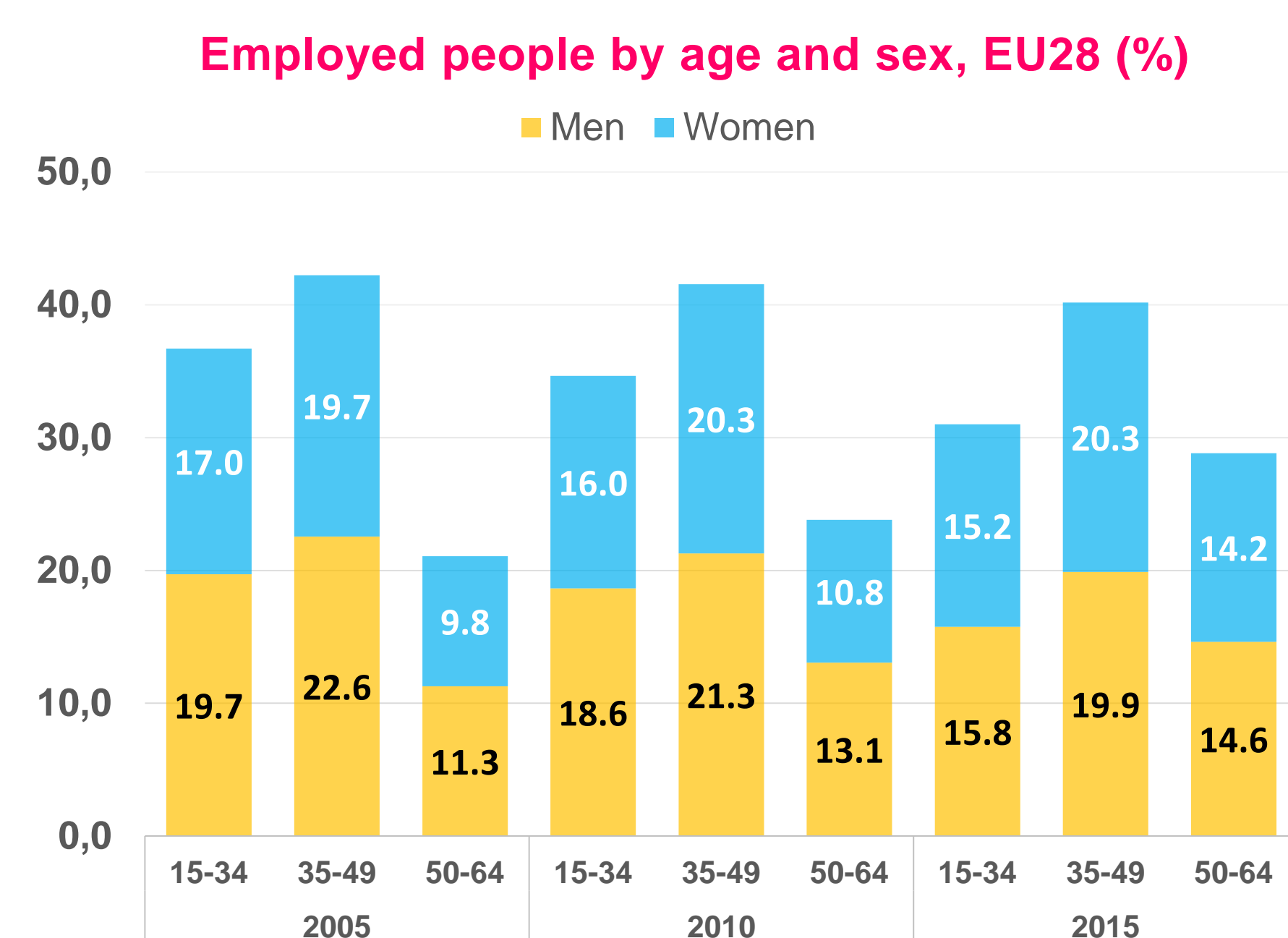


## Material and Methods

**1) Data:** European Working Conditions Surveys (ECWS) 2005, 2010 and 2015. These collect information on individual characteristics of workers, the workplace, psychosocial factors and working hours. Sample: Non self-employed of 15-64 years old in EU28.

## 2) Descriptive analysis:

- Age - sex groups.
- Work stress = 1 if the worker declares that he/she experiences stress in his/her job always or most of the time.
- Five job quality indices synthesize information of sixty-five questions:
  - Work intensity (0 +, 100 -);
  - Physical environment (0 -, 100 +);
  - Working time quality (0 -, 100 +);
  - Skills and discretion (0 -, 100 +);
  - Prospects (0 -, 100 +).



**Mean (standard deviation) of indices by wave**

	2005	2010	2015
Work intensity (9 questions)	44.0 (25.5)	42.9 (25.0)	43.4 (25.1)
Physical Environmental (13 questions)	82.2 (15.6)	83.2 (14.8)	83.5 (14.6)
Working time quality (19 questions)	85.9 (21.1)	87.0 (20.0)	86.3 (20.0)
Skills and discretion (11 questions)	60.7 (28.0)	61.9 (28.4)	65.2 (27.6)
Prospects (3 questions)	67.4 (19.9)	67.4 (19.5)	70.3 (20.5)

**Estimation of multilevel logit random intercept model of job stress**

	ODDS RATIO	2005	2010	2015
Age/Sex	35-49 years old	1.382 ***	1.159 ***	1.123 ***
	50-64 years old	1.267 ***	1.226 ***	1.164 ***
	Male	0.735 ***	0.685 ***	0.707 ***
NACE	Industry	1.080	1.001	1.175
	Services	1.451 ***	1.547 ***	1.774 ***
	Public Administration	1.948 ***	1.694 ***	1.865 ***
Education (ISCED)	Secondary non-compulsory	1.194 ***	1.119 **	1.083
	Tertiary	1.732 ***	1.502 ***	1.417 ***
Income	2th Quartile	1.089	1.182 ***	1.141 **
	3th Quartile	1.318 ***	1.381 ***	1.236 ***
	4th Quartile	1.442 ***	1.608 ***	1.497 ***
Hours/week	< 30 hours/week	0.928	0.998	0.874 ***
Job Quality Standardised *10	Environmental	0.950 ***	0.979 ***	0.978 ***
	Intensity	1.038 ***	1.068 ***	1.073 ***
	Working time	0.981 ***	0.982 ***	0.980 ***
	Prospects	0.984 ***	0.987 ***	0.985 ***
	Skills	1.021 ***	1.012 ***	1.012 ***
Country	Unemployment rate	1.041	0.984	1.000
	Wage gross / hour	1.014	0.987	0.992
	Agriculture employed rate	1.039	0.977	0.953
	Health public expenditure / GNP	0.908	0.965	1.030
Variance (_cons)		0.1478 ***	0.2138 ***	0.1783 ***
Intra class correlation		0.0430 ***	0.0610 ***	0.0514 ***
N		18,713	23,354	24,505

\*\*\* Significant 1%, \*\* Significant 5%, \* Significant 10%

**3) Micro econometric models:** In order to capture the within-country variance and between-country variance, we have estimated a multilevel logit random intercept model.

$$Prob(Stress_{ij} | X_{ij}, Z_j) = \beta_{0j} + \beta_1 \cdot X_{ij} + \beta_2 \cdot Z_j + e_{ij}$$

*i* - Level 1 – Employees.

*j* - Level 2 – Countries EU28.

*X<sub>ij</sub>* - Explanatory variables at the employee level.

*Z<sub>j</sub>* - Explanatory variables at the country level.

## Conclusions

- Women are more likely to suffer stress. The probability has increased in the service sector from 2005 to 2010. High educational level and income correlate with a higher probability of stress.
- In 2005, the job quality index with the greatest influence on stress was the physical environment. Since 2010, the most relevant index is the intensity at work.
- Work stress increases and is negative for workers' welfare because it affects health; it is costly for companies to decrease productivity and increase absenteeism; and for society it means an increase in healthcare costs and social benefits.