Transitions in Work and Labour Markets – Challenges for transnational cooperation
University of Tampere

Return to Job-related Training: the Russian Story

Pavel Travkin
Laboratory for Labor Market Studies
NRU HSE

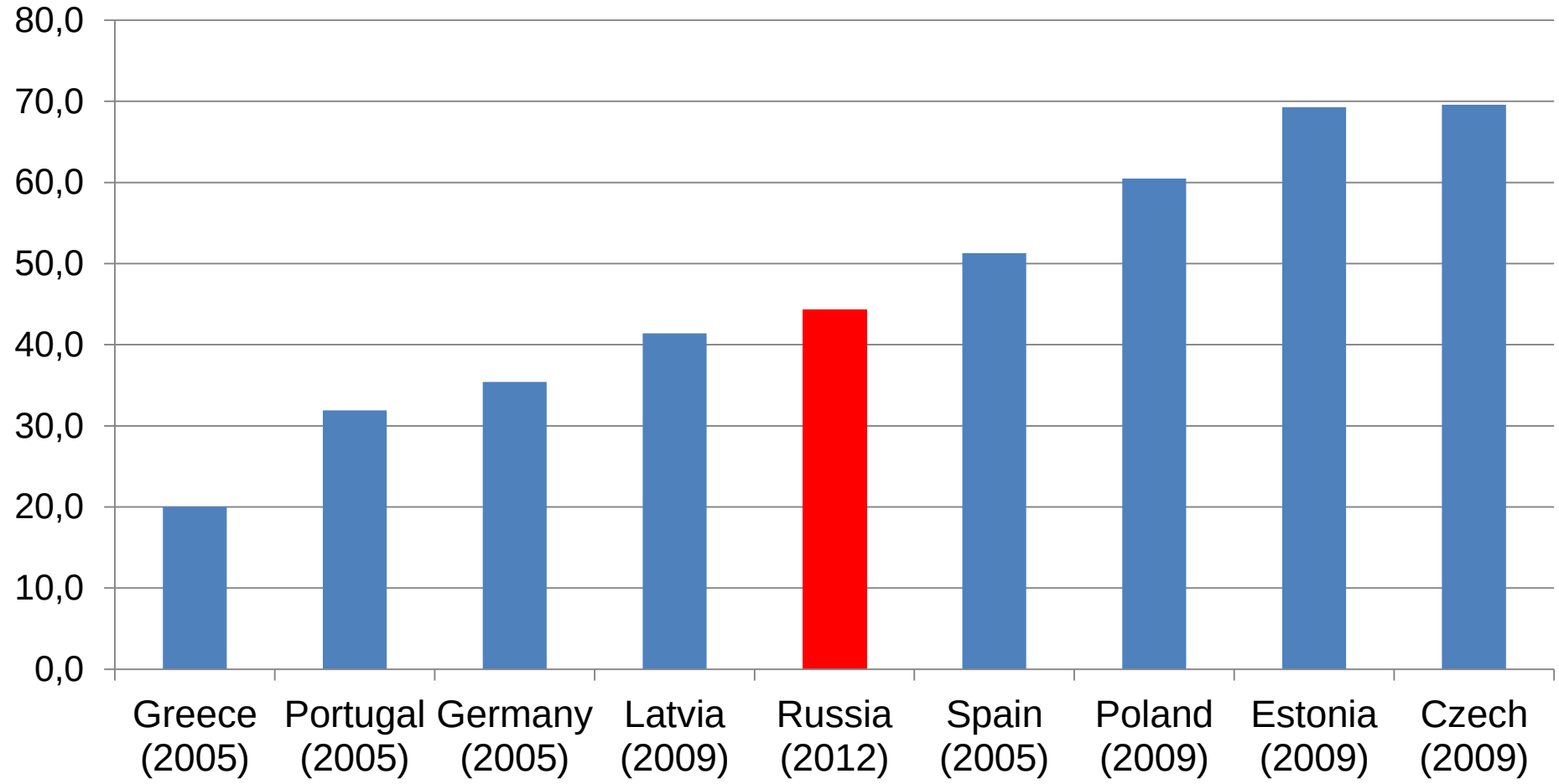
Why do we talk about training?

- Accumulation of human capital does not end with general schooling
- Job-related training is important part of lifelong learning
  - develops employees` skills and knowledge;
  - increases competitiveness of workers and firms;
  - is crucial for adopting new technologies, etc
- Job-related training is an alternative to hiring from outside
- Generates positive externalities for other firms and for the whole economy

Motivation

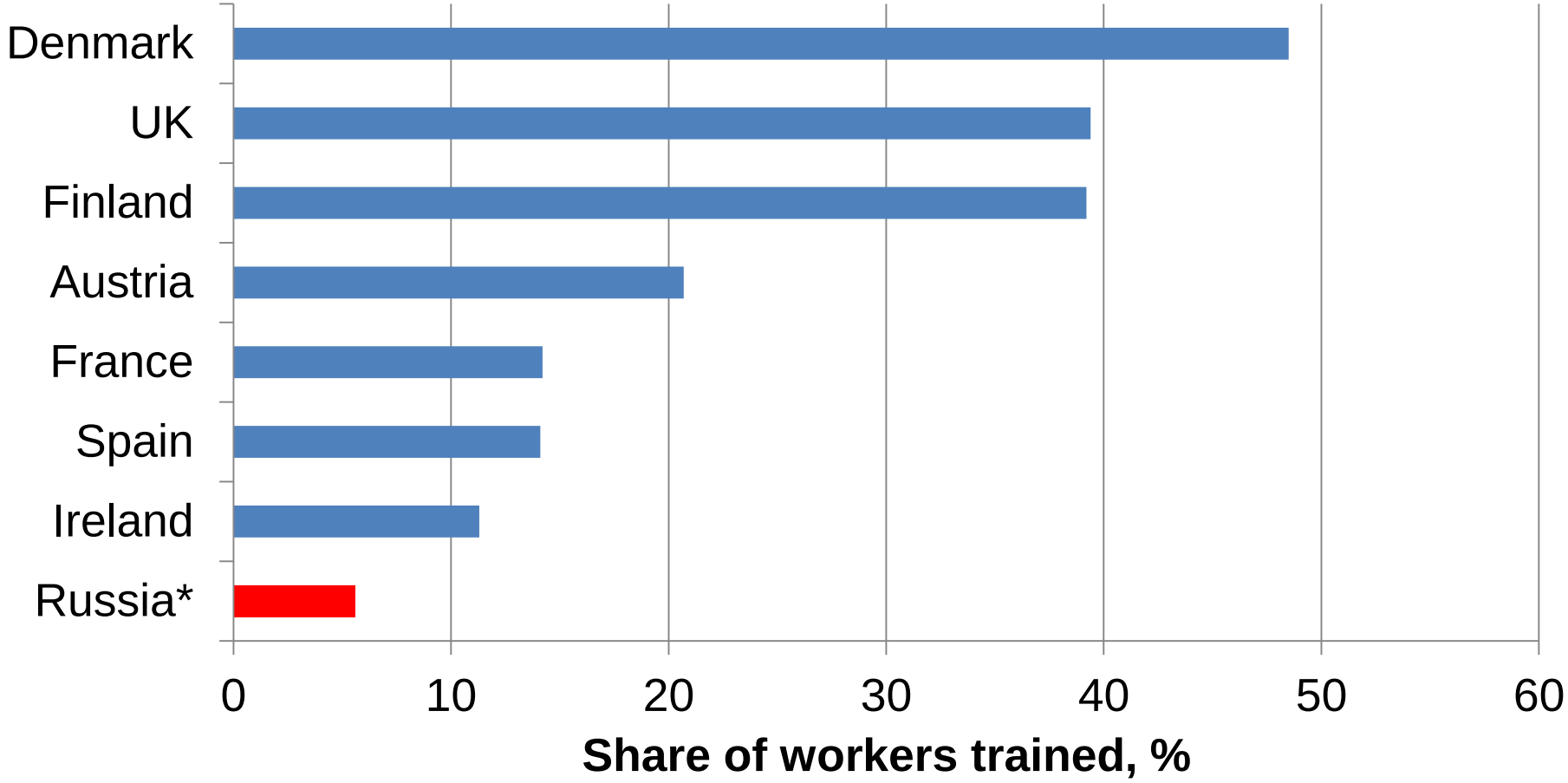
- There is the general consensus in the literature that job-related training raises productivity and improves competitiveness. It brings benefits to both firms and workers. Therefore, we can expect mass investments in this type of training.
- *Does it happen? Not everywhere!* In some countries much more than in others.
- *How does Russia look like compared to others? Very strangely!* As we can see, the training coverage is remarkably low.

Russia vs Europe - 1
Percent of firms offering training, %



Source: BEEPS (http://www.enterprisesurveys.org)

Russia vs Europe - 2



Source: Bassanini, Booth, Brunello, de Paulo, Leuven (2005)
* RLMS HSE (2005)

The previous slide shows the gap in training coverage

- *Why?*
- Probably, training does not affect productivity and brings little return to firms and workers?
- *But firms do benefit!*
- What about workers? We know almost nothing and this motivates my research
- My research addresses the question what workers get from firm-related training

Returns to training in Russia: very few previous studies

Study	Period	Training definition	Method	Result
Berger, Earle, Sabirianova (2001)	1994-1998	Retraining	OLS	0,30
Lazareva (2006)	2001-2003	On-the-job training (*private sector*)	OLS	0,11
		On-the-job training (*public sector*)	OLS	0,04
Tan, Savchenko, Gimpelson, Kapelyushnikov, Lukyanova (2007)	2005	Any formal training	OLS	0,16

- Large variation in estimates
- Selection effect is not accounted for
- Selective and not representative years

What Does Economic Theory Say?

- Returns to training for company – when after training worker`s wage is less then his/her productivity

- Human capital theory (Becker, 1964):

  Perfect competition on labour market: firms can't get benefits after general training, because trained worker may easily change workplace.

- Imperfect market: firms can get rents even after general training (Acemoglu, Pischke,1999).
  - Cause of imperfection:
    - information asymmetry;
    - cost of changing workplace;
    - wage compression.

What do I understand as job-related training?

It improves professional knowledge and skills of employees.

Types of job-related training:

- *formal* (on-the-job / off-the job training programs, training in specialized institutions);
- or *informal* (learning-by-doing, learning-by-watching co-workers, on the job tutorship).

We will analyze various forms of short-term formal (institutionalized) training funded by current employers

Literature

- Huge number of empirical studies for various countries (except Russia – see above slides)
- Many studies document significant returns to firm-related training
- One of the main problems is selection effect. Employers can choose the best candidates for training. Then the return to training can be due to unobserved abilities

  Goux, Maurin, 2000; Abadie et al., 2002; Bassanini et al., 2005 and so on.

  Returns to training or to selection?

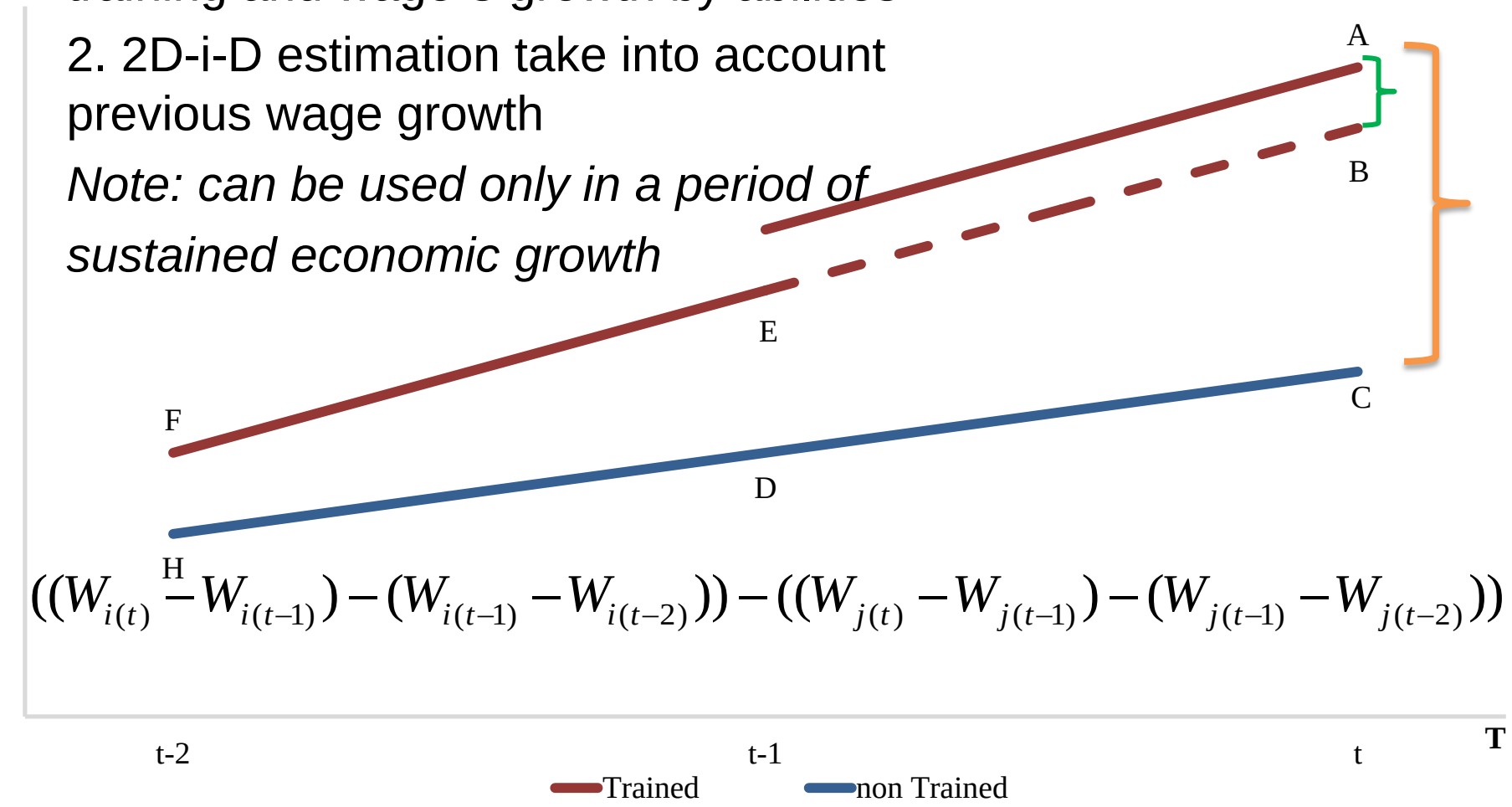
What is the selection criteria?

- Measurable characteristics
  - gender, education, tenure, …
- Unobserved abilities
  - motivation, communication, leadership, and other cognitive and non-cognitive skills
- Why are abilities so important?
  - They affect on:
    - Returns to training;
    - Wage rate;
    - Probability of selection for training programs.

My methodology: OLS and Double Dif-in-Dif

1. OLS estimations catches the return to training and wage`s growth by abilities
2. 2D-i-D estimation take into account previous wage growth

Note: can be used only in a period of sustained economic growth



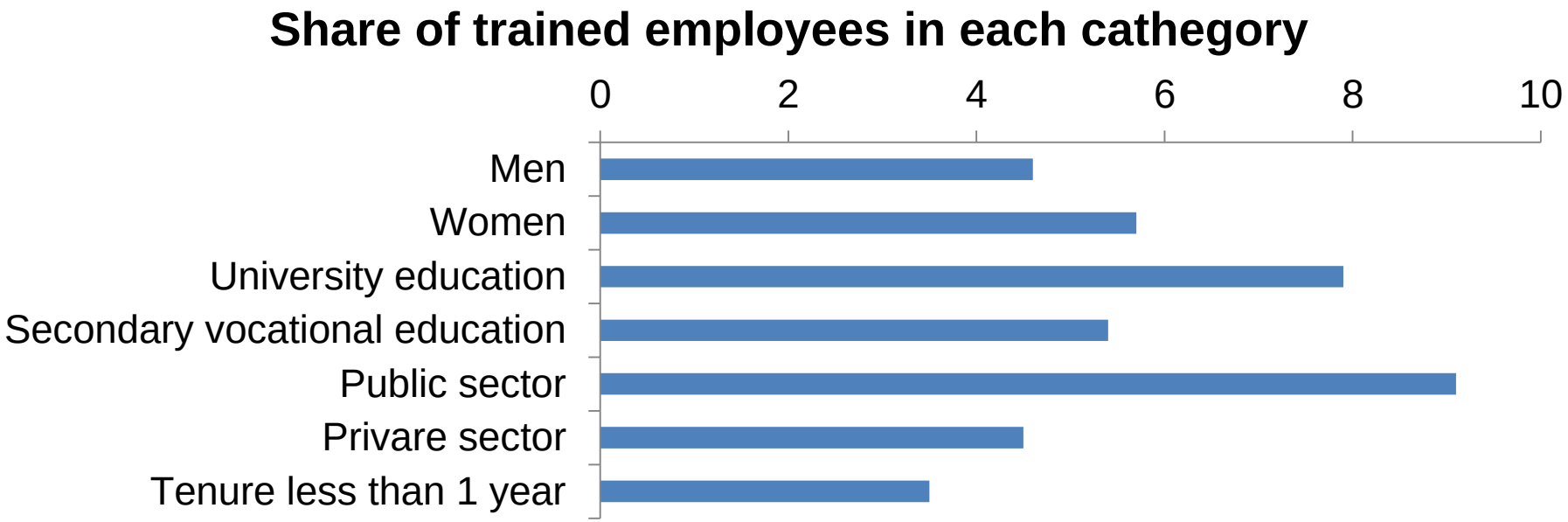
$$((W_{i(t)} - W_{i(t-1)}) - (W_{i(t-1)} - W_{i(t-2)})) - ((W_{j(t)} - W_{j(t-1)}) - (W_{j(t-1)} - W_{j(t-2)}))$$

Data

- Data is the Russia Longitudinal Monitoring Survey – Higher School of Economics (RLMS HSE)
- RLMS HSE - panel household data
- Years: 2004 – 2011
- About 45 000 observations
  - The main question:
    - "During the last 12 months, have you studied or studying in professional courses, training courses or any other courses, including language courses, and so on?“
    - We take only job-related training

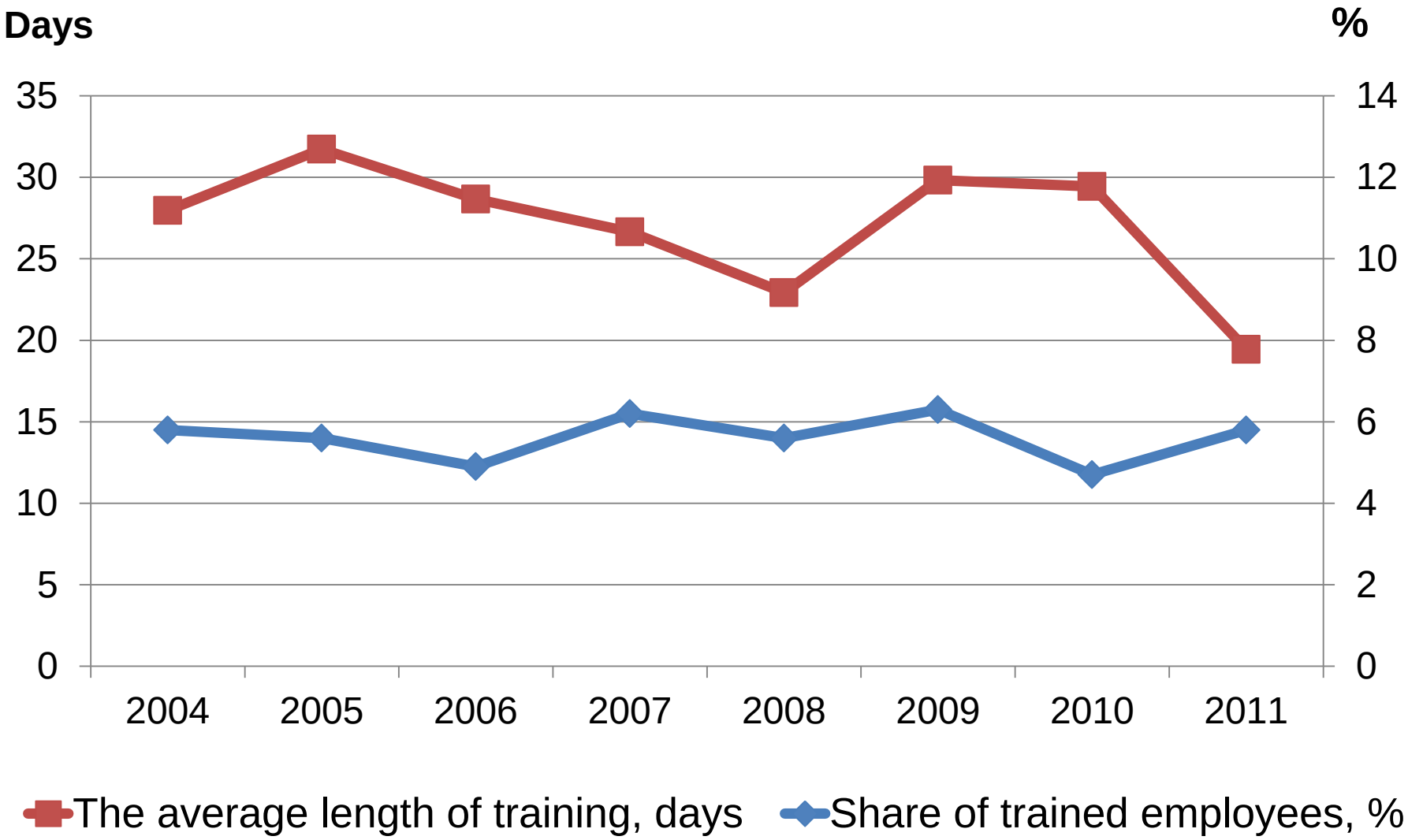
- Control variables
  - Socio-demographic characteristics of workers (age, sex, marital status, level of education, tenure, professional status, firm size, the duration of the working week), and regional characteristics

Descriptive analysis, 2004-2011



	Trained	Non trained
Average monthly wages in 2011 prices, rubles	17994,8	14276,2
Average age, years	40,23	39,6
Average tenure, years	10,07	7,6

Descriptive analysis - 2



Comparing OLS and 2Dif-in-Dif

$$Ln(Wage_i) = \sum_j \beta_j x_{ji} + \gamma D_i + \varepsilon_i$$ OLS

$$\left(Ln\left(Wage_{i,t}\right) - Ln\left(Wage_{i,t-1}\right)\right) - \left(Ln\left(Wage_{i,t-1}\right) - Ln\left(Wage_{i,t-2}\right)\right) =$$

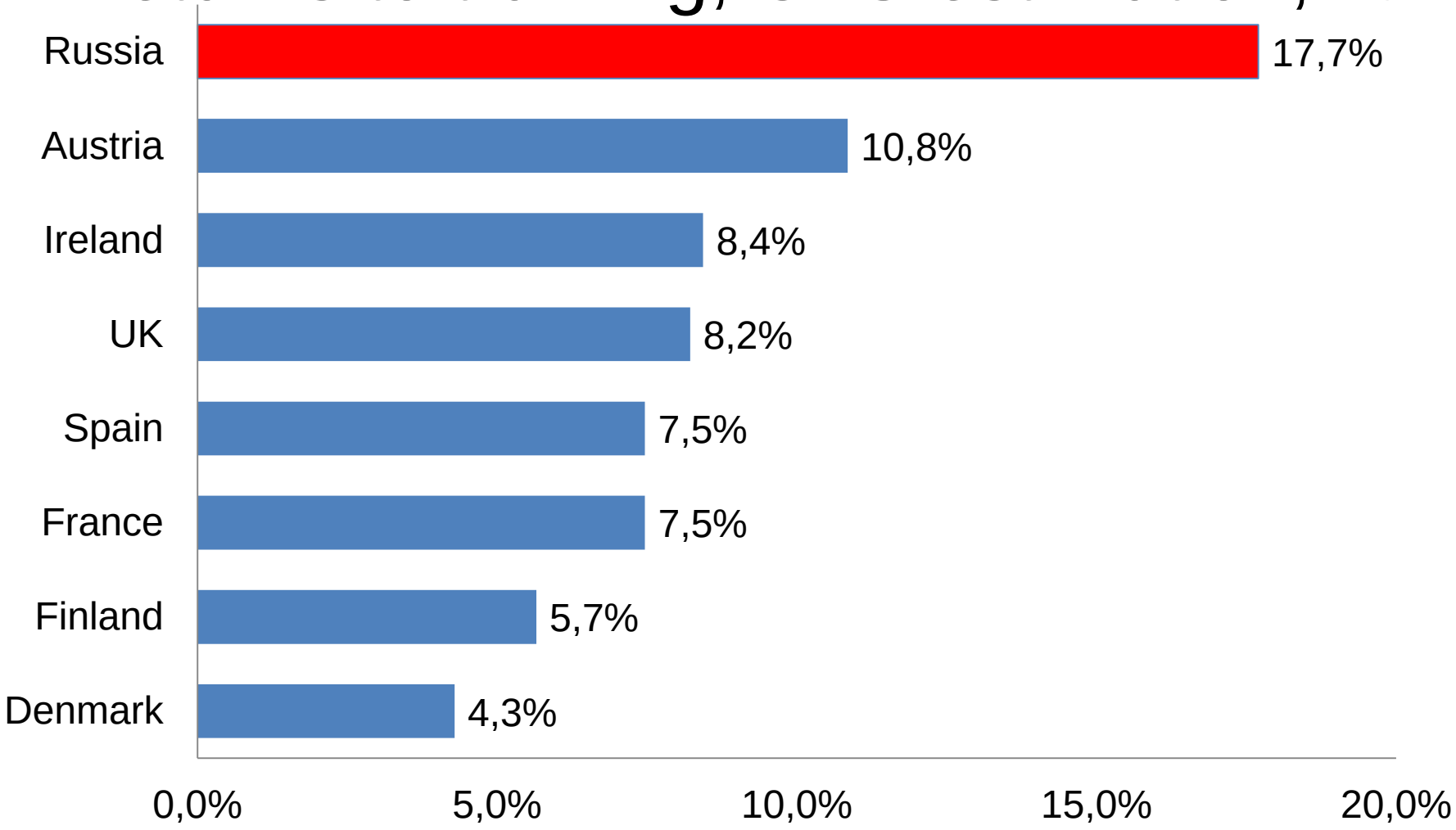
$$= \sum_j \beta_j \left(\left(x_{ji,t} - x_{ji,t-1}\right) - \left(x_{ji,t-1} - x_{ji,t-2}\right)\right) + \gamma\left((D_{i,t} - D_{i,t-1}) - (D_{i,t-1} - D_{i,t-2})\right) +$$

$$+ \left(\left(\varepsilon_{i,t} - \varepsilon_{i,t-1}\right) - \left(\varepsilon_{i,t-1} - \varepsilon_{i,t-2}\right)\right)$$ 2DiD

OLS (all period)	OLS (2004-2008)	2DiD (2004-2008)
17,7%	**17,8%**	**8,3%**
(0,015)	*(0,020)*	*(0.030)*

Russia vs Europe - 3

Returns to training, OLS estimation, %



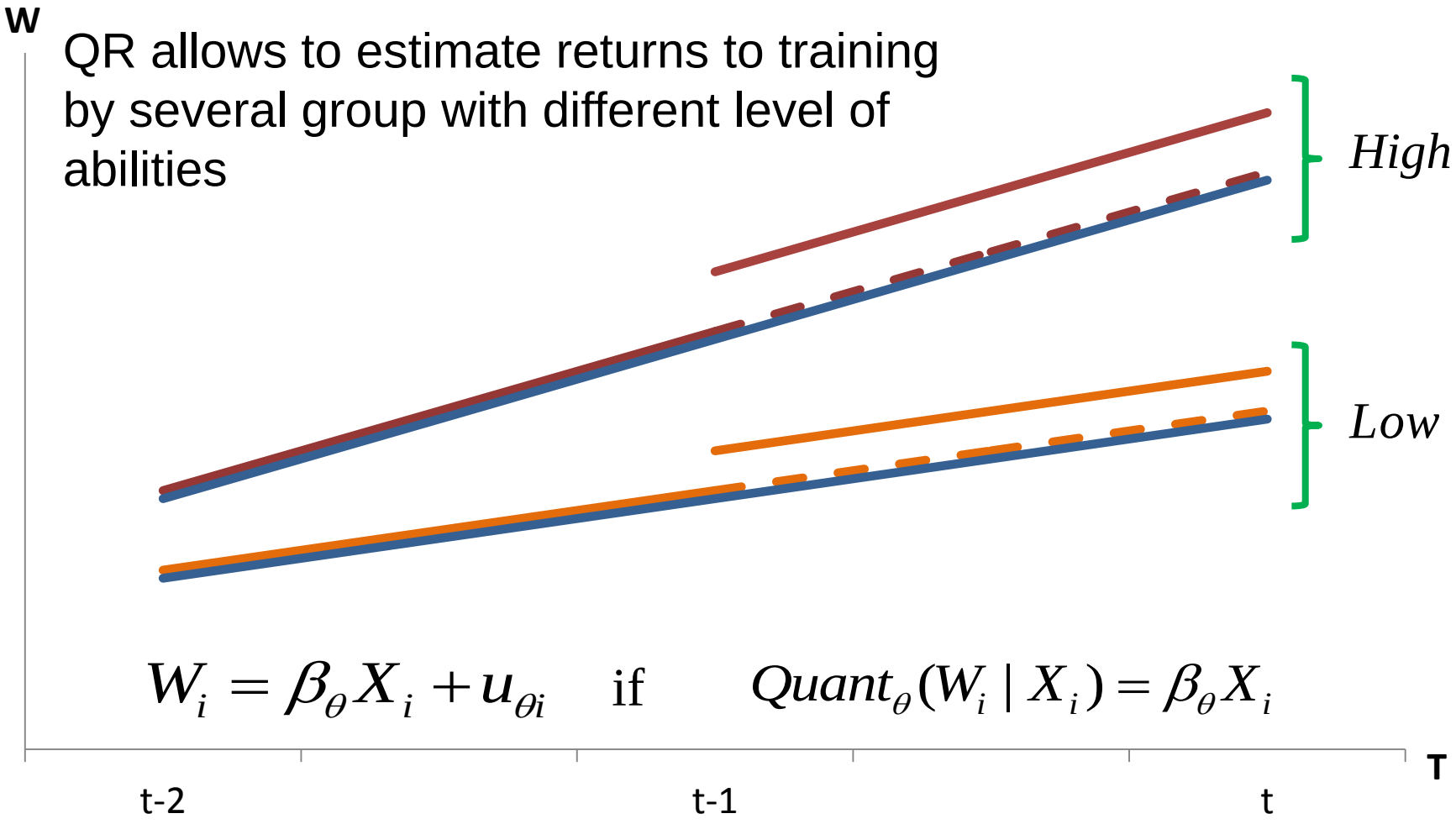
Source: Bassanini, Booth, Brunello, de Paulo, Leuven (2005)

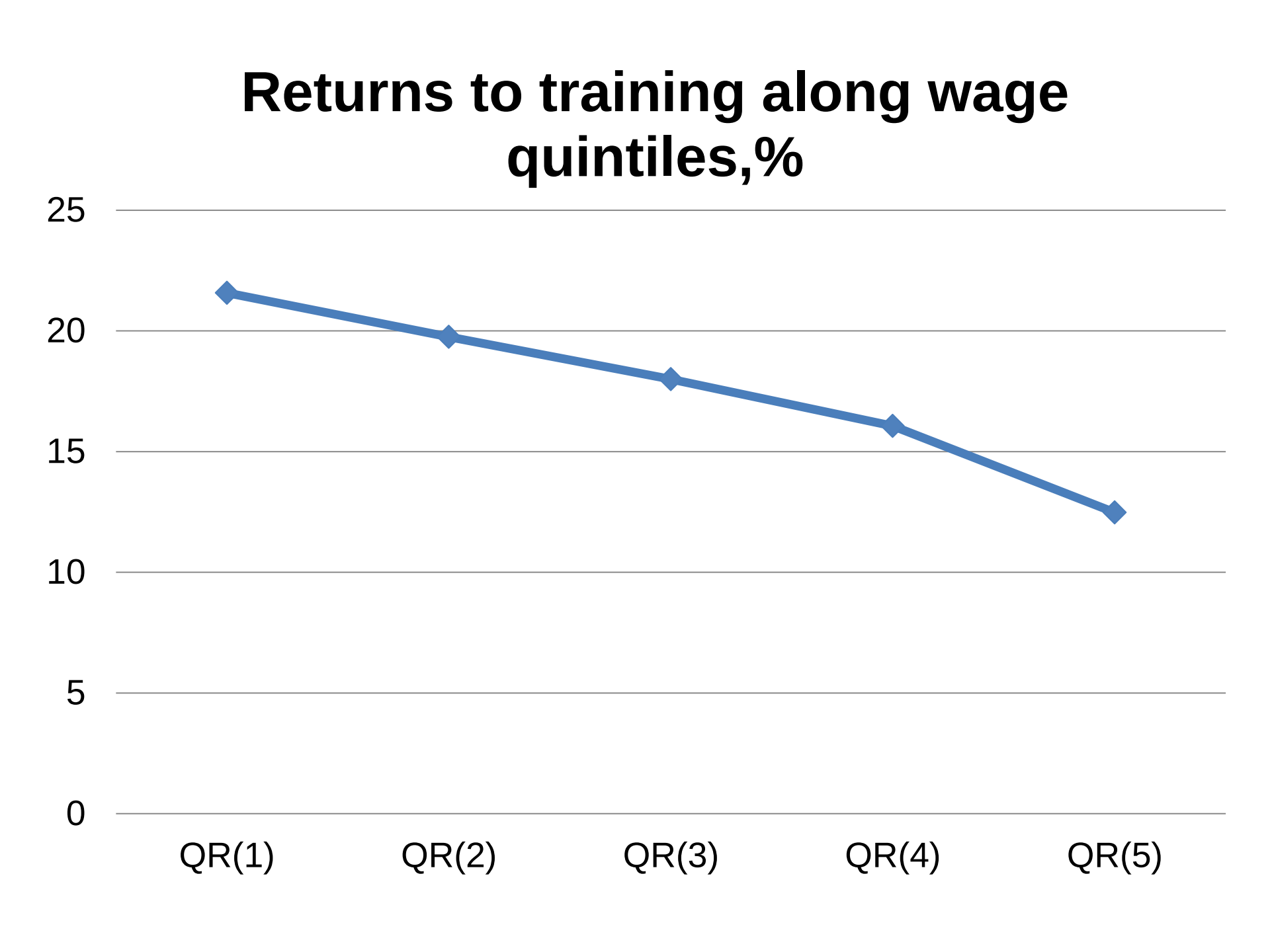
First evidence

- Cross-country comparison of returns is incorrect:
  - Different share of trained workers;
  - Different institutional mechanisms.
- The Russian case (In-country comparison):
  - After training wage growth is comparable to the effect of one extra year of general education (around 7-8% per year).

- Difference between estimations results - Firms select «best» candidates (with high abilities level) for training.
  - What results will be for workers with low abilities level?

My methodology: Quantile Regression




Returns to training along wage quintiles,%
25
20
15
10
5
0
QR(1)
QR(2)
QR(3)
QR(4)
QR(5)

Next evidence

- Returns to training in different quantiles is overestimated.
- But quantile estimation help us to compare returns in quantiles with each other:
  - Relative vs absolute returns.

If return to training is so high, why firms don`t train everyone?

Reasons against training

- High risks for firms:
  - High level of workers` mobility;
- Training is not needed:
  - High share of workers with tertiary education (education and training are substitutes);
  - Low technological level of production
  - Informal training not measured by standard questions.

Prospects

What should we do next?

- Search for proper instrument.
- Analyse different type of training programs.
- «Cost-benefit» analysis.

Thank you for your attention!