STATE UNIVERSITY – HIGHER SCHOOL OF ECONOMICS
Institute for Statistical Studies and Economics of Knowledge

HRST Development Strategies of Research Units in Russia

Results of a Sociological Study

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Background

- Domination of STS paradigm
  - object under observation: laboratory
  - focus on: practice of knowledge production
  - ethnographic character of empirical studies
  - “weak” explanatory tools
- Human resources as an indicator of scientific potential of research groups
  - special skilled labour force
  - educational level and professional qualification as key characteristics of human capital
  - research potential vs. efficiency
- Importance of collective action in science
  - history of ideas as confrontation of intellectual groups
  - Intellectual\scientific movement as collective agent

Key Questions

- **Main question:**
  - Whether a theoretical model of scientific group can be developed?

- **Local question:**
  - Which factors determine R&D performance of a research group?

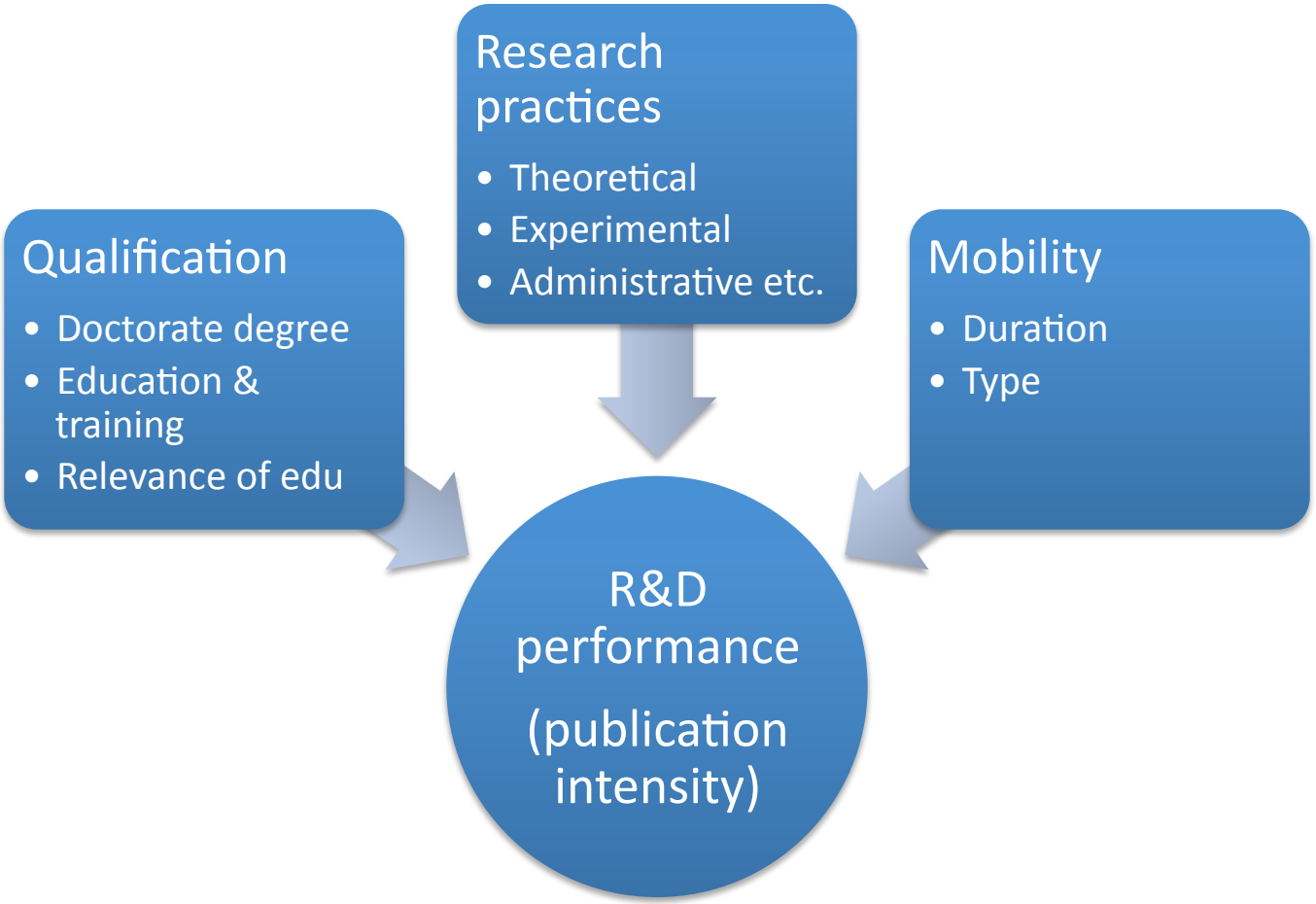
Study on Research Group Performance

- **Reference year:** 2009
- **Goals:**
  - Analysis of factors that influence R&D performance of research units
  - Identification of key resources & practices, that determine knowledge production
- **Focus on:**
  - Social structure of research groups
  - “Active properties” of scientists
  - Management

Methodology & Data Collected

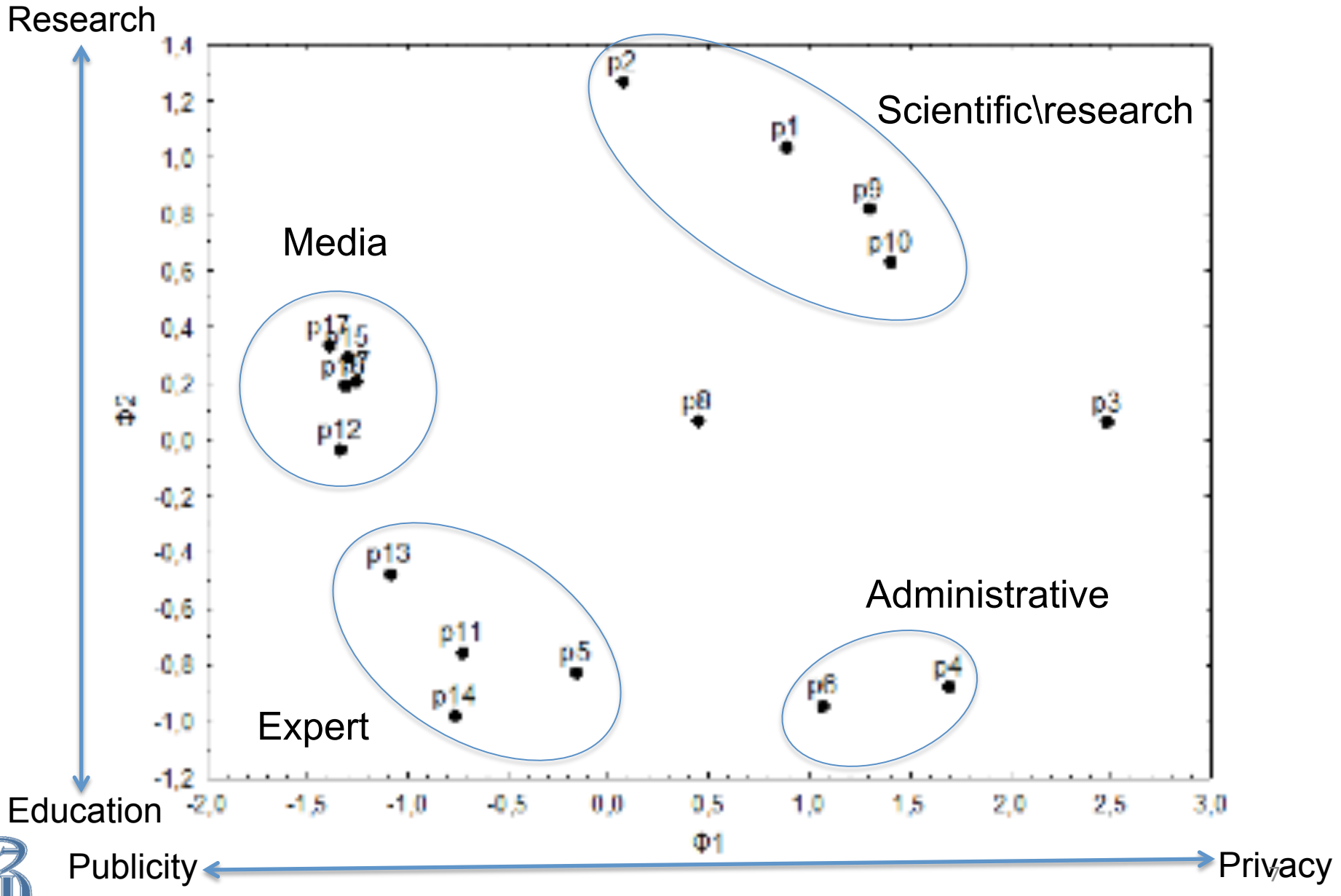
- **Data collection tools:**
  - Questionnaires:
    - Group leaders
    - Researchers
    - Research infrastructure
  - Key characteristics
    - Educational
    - Scientific
    - Administrative
    - Media
  - In-depth interviews
- **Sample:**
  - 13 research laboratories (R&D institutions & HEIs)
  - 233 answers
  - Criteria:
    - Experimental character of research activities
    - Fields of science (chemistry, biochemistry, biology, and related areas)
    - Group size (11 to 25) + 1 informal group (experimental)

Model for Analysis



Total number of tested factors: 26
Criteria: interview with lab-leaders
Valid observations: 117
Methods used: multi-dimensional scaling, variance analysis, linear regression
Exclusions: lab-leaders, PhD students, one language speaking

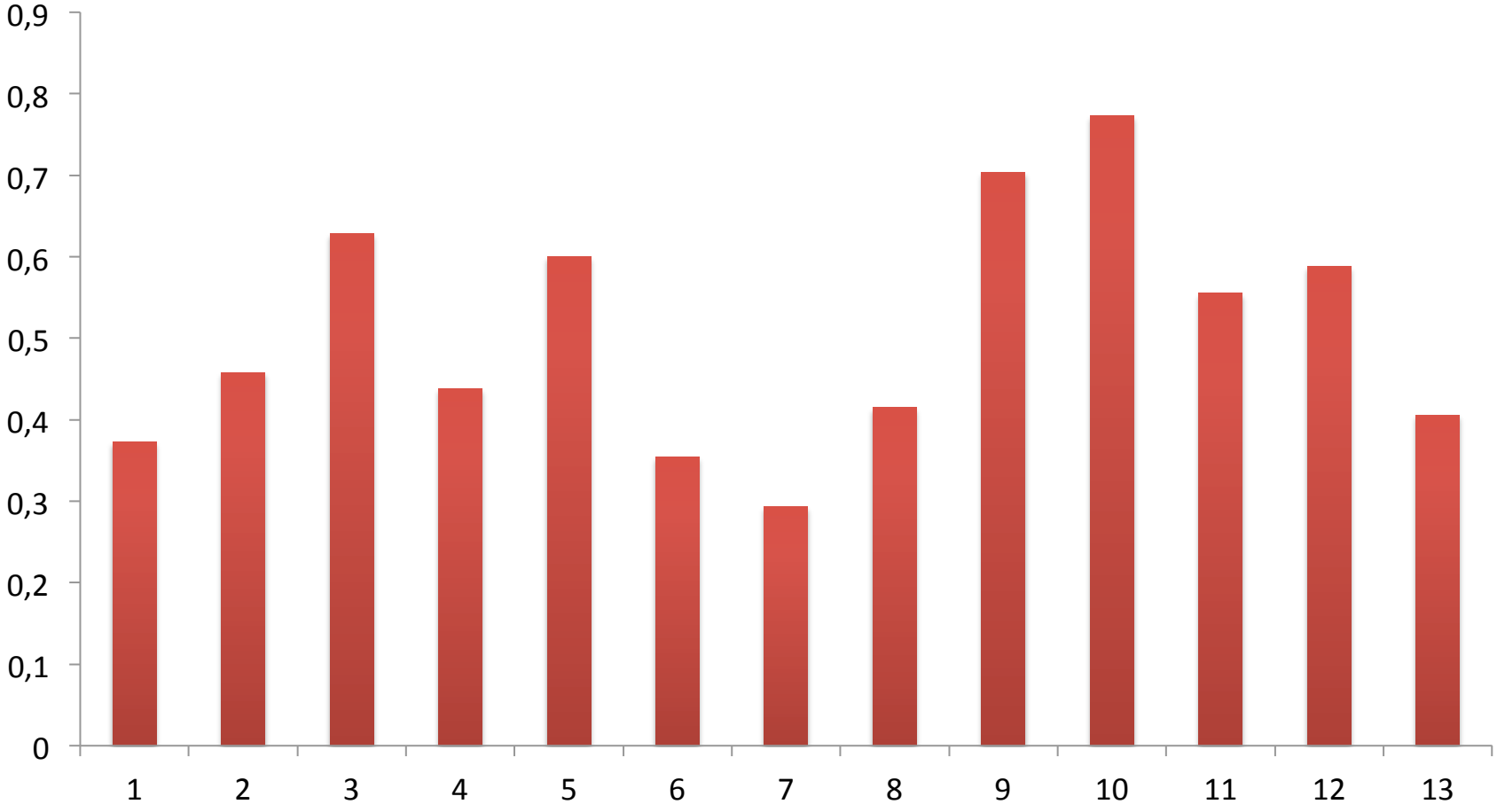
Practices


Research
Education
Publicity
Privacy
Scientific\research
Media
Expert
Administrative
p1
p2
p3
p4
p5
p6
p8
p9
p10
p11
p12
p13
p14
p15
p17
Φ1
Φ2

Qualification Level

Number of doctorate thesis defended (2006-2009)

Publication Activity



PA = Publications for the period 2006-2009 / Total number of publications by 2009

Factors Assessment

- **Doctorate degree**
  (Doctor vs. Candidate/PhD: - 24%)
- **Training courses**
  (Foreign languages vs. specialized disciplinary courses courses: + 16%)
- **Scientific practices**
  (Theoretical & experimental work vs. administrative & consulting : + 36%)
- **Short term mobility**
  (International conferences & training courses vs. lecturing & national conferences: + 18%)
- **Reading news of science** (general positive effect)

(Significance level: 99.9%)

Discussion

- ✧ Social structure of a scientific/research group is a resultant of interaction dynamics of individuals
- ✧ A set of aggregated social characteristics of individual agents determine group R&D performance
- ✧ Ability of groups for spontaneous social organization in relation to management styles, translated by the leader
- ✧ Key directions for developing active properties:
  - qualification level & language skills
  - theoretical & experimental work
  - information flows (science news)
  - short term mobility options

Thank you!

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