The Polish Academic Profession: What We Know, What We Do Not Know, and What We Would Like to Know – from a European Comparative Perspective

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Introduction (1)

- **The academic profession** = the core of national HE systems. Not buildings or infrastructure – but highly motivated professionals; non-replacable; non-outsourcable abroad; with high social prestige.
- **However, things are changing, a young generation – is entering a new academic profession today**. Across Western academe, the academic workplace was decent and job prospects – were good. Possibly not any more! (a myth of the Golden Age).
- Research design: to confront Polish academics with the Golden Age **myth** and with **Western European** academics:
  - in a **large-scale context of empirical data**: over 17,000 returned surveys, over 500 semi-structured interviews, 11 European countries (Poland: 3,704 and 60, respectively. Interviews: Dr. Dominik Antonowicz, University of Torun). No other CE country (recently: Russia).

Introduction (2)

- **Academic attitudes (and beliefs) and academic behaviors:** how Polish academics work, what they think (about their work)?
- **Four major comparative themes:**

  - (1) **Internationalization in research and research productivity** (Polish "internationalists" vs. Polish "locals"),
  - (2) **University governance** (a powerful Ivory Tower university model prevailing in Poland; Polishe universiites as a professorially-coordinated "republic of scholars").
  - (3) The Polish **research elite** (highly productive academics: who they are, how they work?)
  - (4) **Intergenerational** patterns of academic work – Polish **academics under 40**.
- What we know, what we do not know, and what we would like to know – about each theme.
- Within each theme – the data are examined in the **context of 10 Western** European comparator countries: Austria, Finland, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Switzerland, and UK.

Introduction (3)

- International, comparative higher education research (a long tradition of academic profession studies).
- A clearly **comparative** approach: what is a **single-nation** meaning of e.g. - Polish academics publishing on average 1, 5 or 10 papers a year - without a context of other (European) systems?
- We cannot properly assess the Polish (or any other) academic profession **unless** we can study **the data** in an international comparative context.
- **Data**: 11 European countries involved in the CAP ("Changing Academic Profession") and EUROAC ("Academic Profession in Europe: Responses to Societal Challenges") research projects.
- The total number of returned surveys 17,211; from 1,000 to 1,700 surveys in all European countries studied except for Poland (3,704).
- Individual data files produced in all participating countries but all specifically national categories (faculty ranks, institutional type structures etc.) reduced to internationally comparable categories.
- Here: a subsample of 9,536 European academics who were employed full-time in universities (as defined by national research teams) only.

Introduction (4)

An overall micro-level (individual) approach: relies on primary academic attitudinal and behavioral data, voluntarily provided by academics in a consistent, internationally comparable format.

- The individual academic as the unit of analysis, rather than national higher education systems or individual HE institutions.
- A new "data-rich" research environment in the international comparative academic profession studies. Poland – and its comparative context.
- Similar studies never possible before!

Data

Table 1. Sample characteristics, by country.

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	N	Universities %	Other HEIs %	Full-time	Part-time
Austria	1,492	100.0	0.0	65.8	34.2
Finland	1,374	76.5	23.5	82.4	17.6
Germany	1,215	86.1	13.9	70.7	29.3
Ireland	1,126	73.3	26.7	91.2	8.8
Italy	1,711	100.0	0.0	96.9	3.1
Netherlands	1,209	34.4	65.6	56.0	44.0
Norway	986	93.3	6.7	89.7	10.3
Poland	3,704	48.3	51.7	98.0	2.0
Portugal	1,513	40.0	60.0	90.3	9.7
Switzerland	1,414	45.6	54.4	58.5	41.5
UK	1,467	40.8	59.2	86.5	13.5

I. Internationalization and research productivity in Poland (1)

- The role of international cooperation in reseach in Poland – fundamental for research productivity.
- A general assumption is that **collaborative activities in research increase research productivity** (Teodorescu 2000, Lee and Bozeman 2005, He et al. 2009, Shin and Cummings 2010, and Abramo et al. 2011).
- Sooho Lee and Barry Bozeman (2005: 673) ask a question:
  - "the benefits of collaboration are more often assumed than investigated. … Do those who collaborate more tend to have more publications?".
  - Very much so, in Poland and Europe.
- A specific aspect of internationalization in research studied here:
  - the correlation between international academic cooperation in research and academic productivity (defined as a "self-reported number of journal articles and chapters in academic books that the respondent had published in the three years prior to the survey").

I. Internationalization and research productivity in Poland (2)

- The analysis: two separate groups of Polish (and European academics):
  - "internationalists" (involved in international research collaboration), and
  - "locals" (not involved).
- The independent samples t-test was used: it is a parametric statistical test used for testing a null hypothesis of equality of the means in two independent subpopulations.
- Across all clusters of fields, **European** "internationalists" had published on average substantially more than their colleagues in the same academic field who were recently *not* collaborating internationally.
- "Internationalists" across all 5 major academic fields in Europe: on average about twice as many articles as "locals"; a large field differentiation.
  - From on average 140 percent (engineering) and about 120 percent (physical sciences, mathematics) more articles, to on average about 70 percent more articles (in humanities and social sciences, and professions)

I. Internationalization and research productivity in Poland (3)

Table 2. Articles published by **Polish** academics in an academic book or journal by international collaboration and academic fields**.**

Academic field	International collaboration	N	Mean no. of articles	SE	95% confidence interval for mean		t-test for Equality of Means	df	p-value
					LB	UB			
Life sciences and medical sciences	Yes	290	4.56	0.37	3.83	5.28	3.06	524.44	0.002
	No	239	3.07	0.32	2.45	3.69			
Physical sciences, mathematics	Yes	123	3.64	0.49	2.67	4.62	4.33	168.14	<0.001
	No	47	1.15	0.30	0.56	1.75			
Engineering	Yes	11	8.42	2.85	2.05	14.78	2.19	11.20	0.050
	No	30	1.95	0.76	0.41	3.5			
Humanities and social sciences	Yes	262	5.28	0.38	4.52	6.03	4.07	480.06	<0.001
	No	290	3.36	0.27	2.83	3.9			
Professions	Yes	57	5.70	0.94	3.82	7.59	1.13	93.37	0.262
	No	92	4.47	0.55	3.39	5.56			

I. Internationalization and research productivity in Poland (4)

Table 3. Share of articles published in **international co-authoprship** by **Polish** academics in an academic book or journal by international collaboration and academic fields**.**

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Academic field	International collaboration	N	Mean percentage of articles	SE	95% confidence interval for mean		t-test for Equality of Means	df	p-value
					LB	UB			
Life sciences and medical sciences	Yes	174	42.77	2.63	37.61	47.93	13.46	247.87	<0.001
	No	156	3.43	1.27	0.94	5.92			
Physical sciences. mathematics	Yes	72	44.42	4.48	35.64	53.20	4.54	65.54	<0.001
	No	30	11.38	5.74	0.14	22.62			
Engineering	Yes	7	66.07	16.92	32.91	99.23	3.62	6.51	0.010
	No	18	3.12	4.10	-4.91	11.15			
Humanities and social sciences	Yes	174	13.55	2.24	9.16	17.94	5.16	207.08	<0.001
	No	199	1.43	0.71	0.04	2.82			
Professions	Yes	39	21.58	5.30	11.18	31.98	3.23	50.91	0.002

I. Internationalization and research productivity in Poland (5)

- The Polish subsample (N = 1,441) shows an almost identical cross-disciplinary pattern of research productivity: being strongly correlated with international research collaboration.
- Polish academics are less internationalized in all academic fields.
- The two most internationalized clusters of fields are the same in Europe and in Poland: “physical sciences, mathematics” and “life sciences and medical sciences”.
- Polish „internationalists” on average publish more articles than „locals”, across all academic fields.
- The difference between average publication rates for “internationalists” and for “locals” is much higher in the case of Polish academics.
- Consequently: international collaboration has a more powerful impact on productivity in countries which are only entering European and global research communities.
- A powerful policy conclusion: more international cooperation as the best way to have more internationally visible national research output.
- And: “no international collaboration, no international co-authorship”.
- Polish academics involved in international collaboration differ much less from their European colleagues involved in international collaboration in terms of patterns of research productivity than commonly assumed.

II. The Polish Ivory Tower (1)

- The unfading power of the traditional Ivory Tower ideal in Poland.
- Four statements directly related to the Ivory Tower ideal (viewed here as the low connectedness of universities to the outside social and economic world
  - (percent "agreeing"; we refer to percentages of answers 1 and 2 combined, on a five-point Lickert scale: from 1= strongly agree to 5= strongly disagree and from 1= very much to 5 = not at all, depending on the question; full-time academics, universities only):
  - ● "Scholarship includes the application of academic knowledge in real-life settings" (B5/2): Poland, together with Austria, ranks the *lowest* (59 percent agreeing vs. the European average of 74 percent).
  - ● "Faculty in my discipline have a professional obligation to apply their knowledge to problems in society" (B5/8): Poland ranks the *lowest* (40 percent agreeing vs. the European average of 57.3 percent).
  - ● "Emphasis of your primary research: applied/practically oriented" (D2/2): Poland ranks the *lowest* (45.5 percent very much vs. the European average of 60.9 percent).
  - ● "Emphasis of your primary research: commercially oriented/ intended for technology transfer" (D2/3): Poland ranks the *lowest* (9.8 percent very much vs. the European average of 15.4 percent).

II. The Polish Ivory Tower (2)

- Conclusion: Polish universities differ substantially from universities in the ten comparator European countries: they seem much more isolated from the needs of society and economy.
- They are closer to the ideal of the Ivory Tower than universities in any other European system studied based on academics' beliefs (and based on national-level statistics, Poland was criticized in international reports on higher education published by the World Bank and OECD).
- This micro-level picture of the low connectedness with the outside world is complementary to the macro-level picture provided by institutional and national higher education and R&D statistics
  - through such parameters as: total income from the industry, the share of income from the industry in total income, either at the national scale or at the scale of operating budgets of particular institutions.

Our study shows an uncommonly low – compared with other European countries – level of readiness on the part of university academics to professionally connect with the outside world. It is demonstrated at the level of academic beliefs and attitudes.

III. The Polish Research Elite (1)

- Top research performing academics in Poland: 10 percent of academics ranked highest, across 5 major clusters of academic fields.
- What makes some academics substantially more research productive than others in Poland (and across 10 national systems)?
- The unit of analysis: the individual faculty member.
- The proxy: the number of journal articles (and book chapters) published in a period of 3 years preceding the survey conducted in the 2007-2010 period.
- The distribution of faculty research productivity across the European academic labor force, and the correlates of research productivity of a distinctive subgroup of research top performers, have not been explored so far ("star scientists" in Giovanni Abramo et al. (2009), Italian academics).
- Academic profession studies have not researched top research performing academics across different systems so far.
- Highly productive scientists were mentioned in passing but never studied in more detail, either quantitatively or qualitatively, and either in single-nation studies or in (more recent) cross-national studies.

III. The Polish Research Elite (2)

The data:

- academic behaviors (working hours and their distribution),
- academic attitudes (teaching/research role orientation), and
- research productivity (papers and book chapters only).

A subpopulation of the most productive academics (the top 10 percent, or N=1,583 in Europe), contrasted with a subpopulation of 90 percent of the rest of academics.

European academics: two complementary subsamples:

- academics reporting *not* being involved in research.
- academics reporting research involvement, and

Then the first subsample divided into two subgroups:

- "research top performers" (identified as academics ranked among the top 10 percent of academics with the highest research performance), and
- „the rest" (the remaining 90 percent of academics reporting being involved in research).

General reservations: productivity vs. creativity; frontier/breakthrough research vs. publishing; quality vs. quantity; publishing rates vs. citation rates, etc.

III. The Polish Research Elite (3)

Table 4. The distribution of the sample population, by country.

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	All	Research-involved (N)	% Research-involved	Research top performers	% Research top performers
Austria	1,492	1,297	86.9	146	11.3
Finland	1,374	1,063	77.4	126	11.9
Germany	1,215	1,007	82.9	110	10.9
Ireland	1,126	865	76.8	101	11.7
Italy	1,711	1,674	97.8	191	11.4
Netherlands	1,209	536	44.3	61	11.4
Norway	986	876	88.8	106	12.1
Poland	3,704	3,659	98.8	411	11.2
Portugal	1,513	944	62.4	104	11.0
Switzerland	1,414	1,210	85.6	138	11.4
United Kingdom	1,467	777	53.0	89	11.5
Total	**17,211**	**13,908**	**80.8**	**1,583**	**11.4**

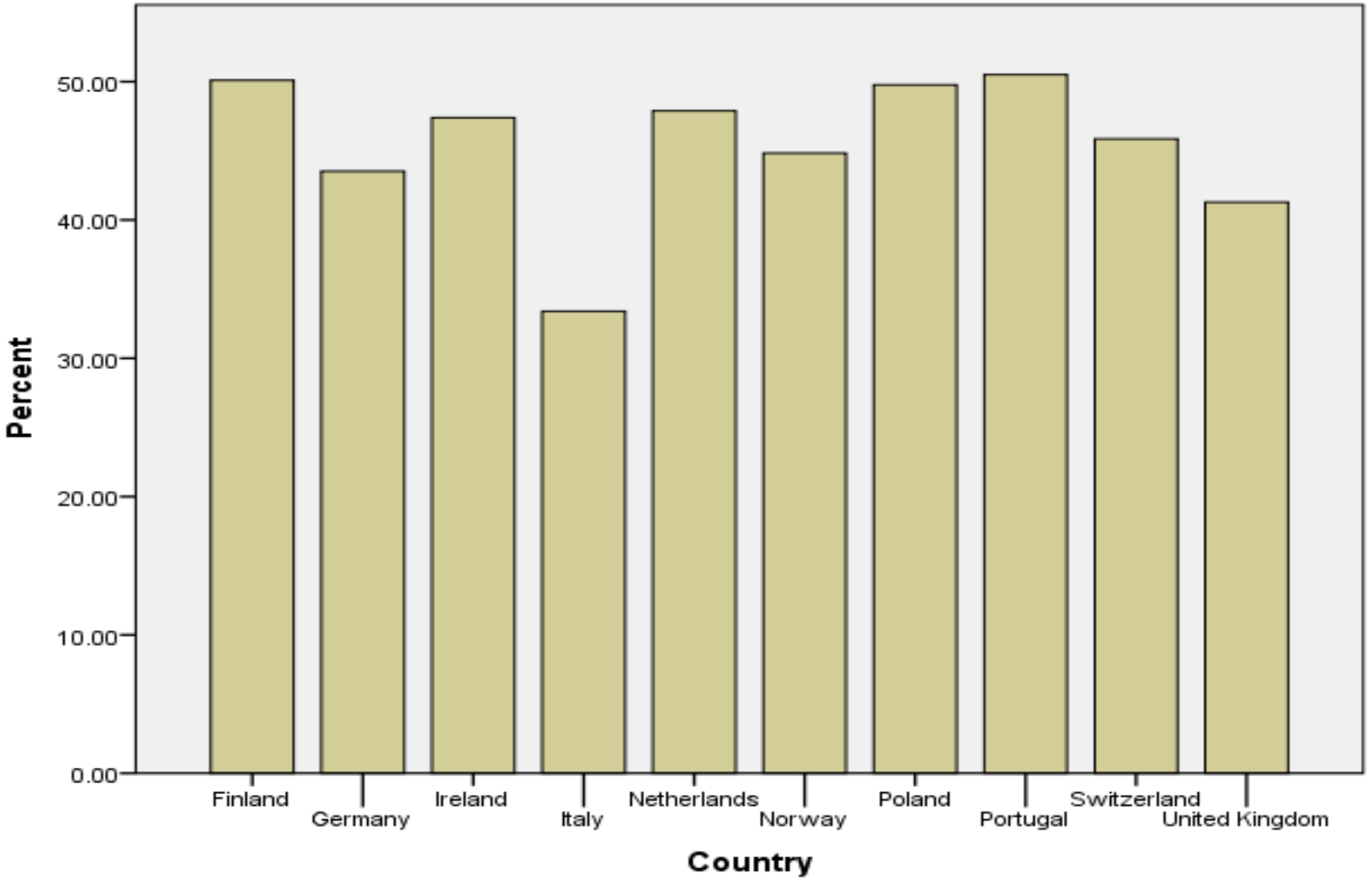
III. The Polish Research Elite (4)

- Evidence found for a thesis that in Poland:
  - "only a small proportion of scientists produce the bulk of science which emerges from the scientific community" (Cole and Cole 1973: 59).
- Consistently with previous research, academic knowledge production in Poland is highly stratified:
  - "no matter how it is measured, there is enormous inequality in scientists' research productivity" (Allison 1980: 163, see Stephan and Levin 1991) because

  We provide large-scale empirical support from Poland (and Europe) to conclusions from previous, usually single-nation and smaller-scale, research studies.
  - Our evidence is cross-national and European.
- Consistent findings:
  - in Poland an exact half (50 percent) of all academic research production comes from about 10 percent of the most highly productive academics ("research elite").
- The European mean: 46 percent. The Polish system is surprisingly simialar in its productivity distribution patterns! See below.

III. The Polish Research Elite (5)

Fig. 1. Research output (=total number of journal articles) of research top performers as a share of total research output from all academics involved in research, all countries (in percent).



III. The Polish Research Elite (6)

Table 5. Research output (=total number of journal articles) of research top performers as a share of total research output from all academics involved in research, all countries (in percent).

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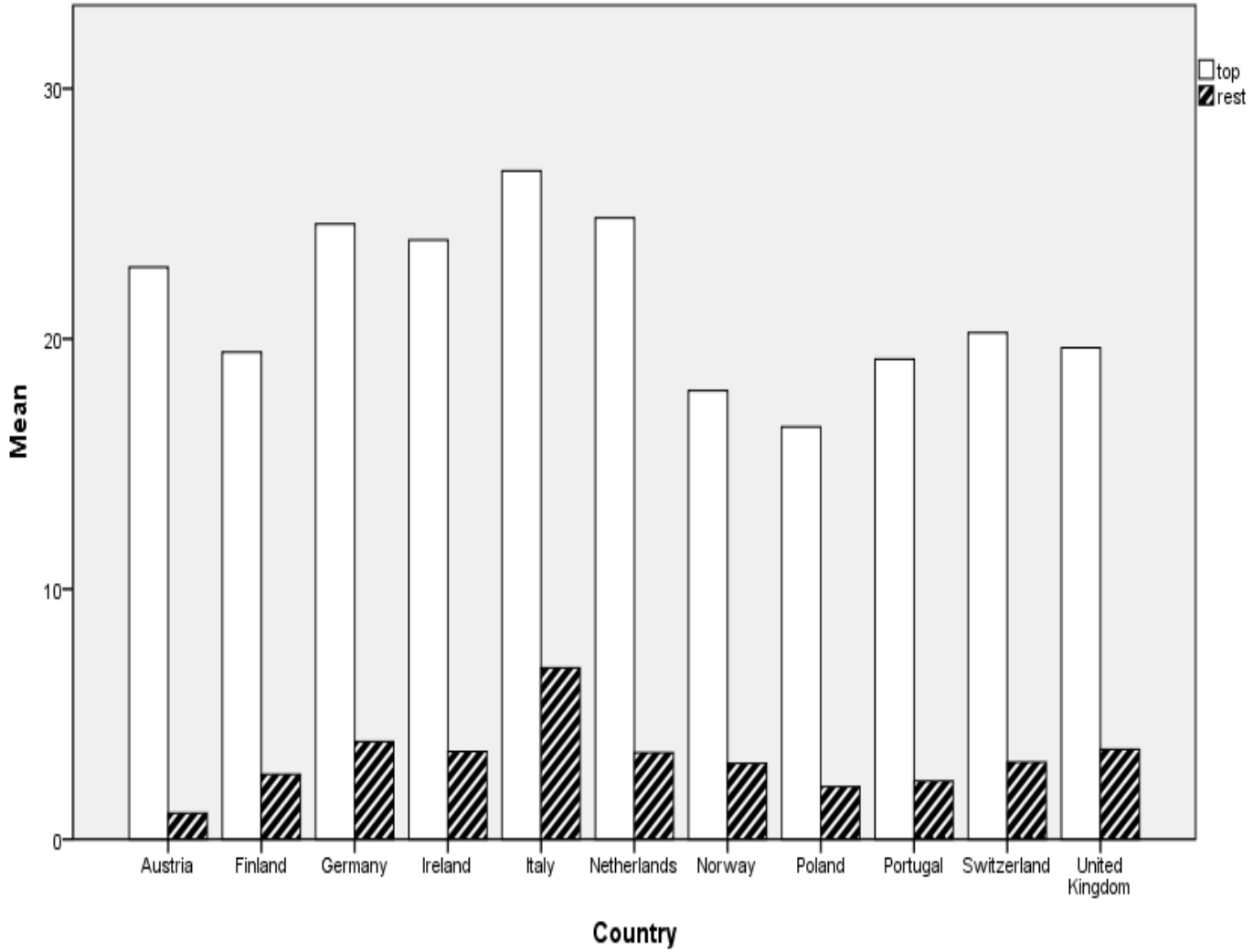
	Papers by top performers	Papers by the rest	Total	% papers by top performers
Finland	2,445	2,435	4,880	50.1
Germany	2,702	3,506	6,208	43.5
Ireland	2,419	2,684	5,103	47.4
Italy	5,096	10,162	15,259	33.4
Netherlands	1,513	1,647	3,160	47.9
Norway	1,902	2,340	4,243	44.8
Poland	6,767	6,831	13,599	49.8
Portugal	1,992	1,952	3,945	50.5
Switzerland	2,798	3,304	6,102	45.9
United Kingdom	1,740	2,475	4,215	41.3
Total	32,706	38,543	71,248	45.9

III. The Polish Research Elite (7)

- Our findings surprisingly consistent with the productivity patterns by Derek Price in the 1960s (in *Little Science, Big Science*, 1963), who referred directly to Alfred Lotka' s paper on "The Frequency Distribution of Scientific Productivity" (1926).
- We expected it – but there was no large-scale, cross-national evidence so far.
- Poland: thus a typical knowledge production system, with typical top performers.
- Polish TPs are not different! The major difference: the rest (90% academics) are less productive, and – a huge share of non-publishers (43 %).
- The productivity distribution pattern consistent across all clusters of academic fields (40% - 60 %).
- The mean rate of productivity of TPs across all systems: 7 times higher (i.e. they produce on average seven times more articles), as shown below in Fig. 4.

III. The Polish Research Elite (8)

Fig. 3. Research productivity (= mean number of journal articles): research top performers vs. the remaining 90% of academics involved in research, all countries.



III. The Polish Research Elite (9)

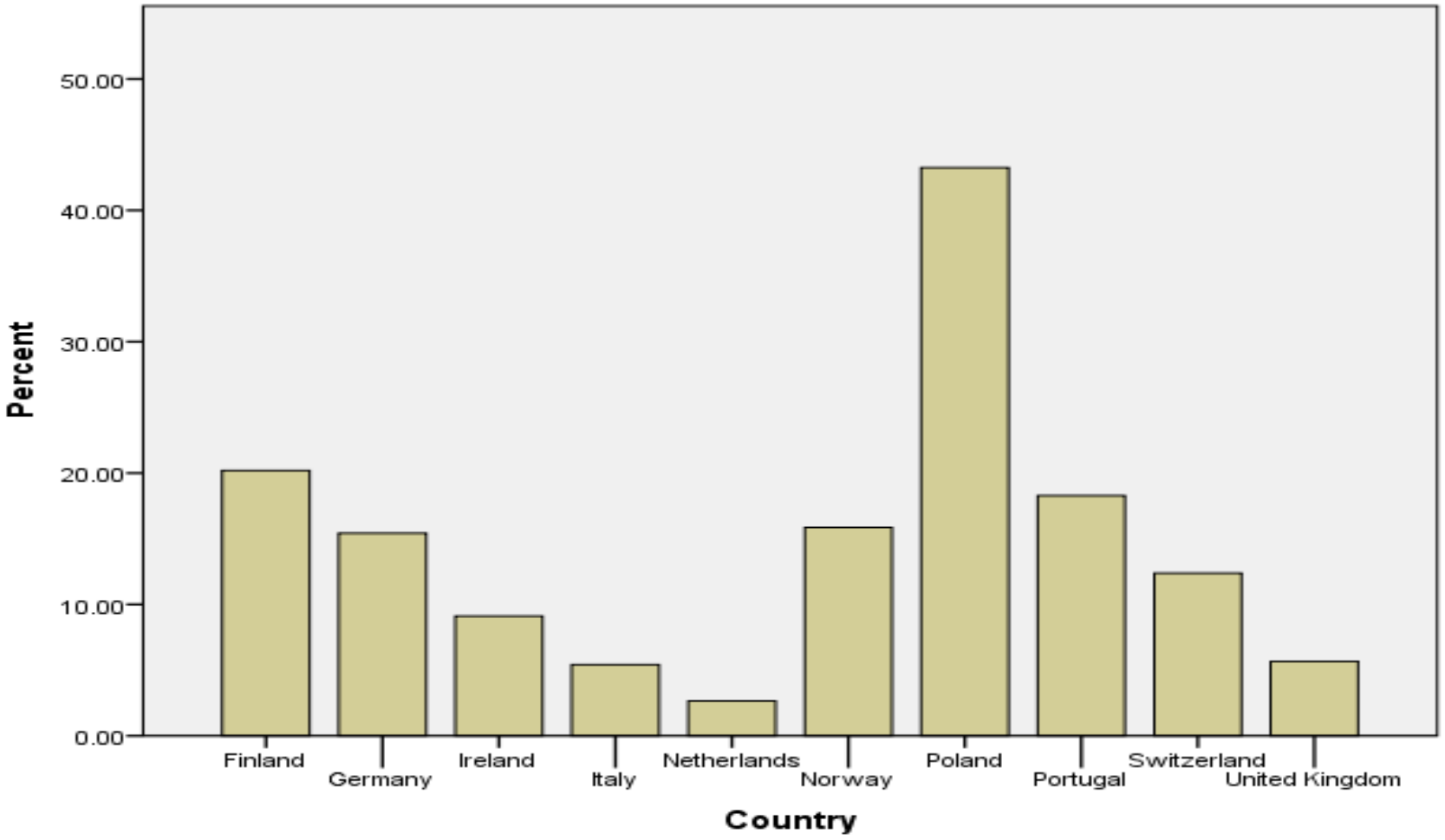
- Working patterns (academic behaviors) of Polish top performers similar (comparator 10 systems). Also research orientation similar.
- The mean of the (annualized) total working time differential between top performers and the rest of academics is about 6 hours, ranging from 2 hours in Italy to 10 hours in Norway.
- Top performers in almost all countries also work consistently longer research hours, from 2 more hours in Italy and Norway, to as many more as about 5 hours in Germany, Poland and Portugal, 6 hours in Ireland, and 8 hours in the UK.
- In other words:
  - Polish TPs (vs. the rest of Polish academics), spend yearly in academia on average additional 33 full working days (5 hours times 52 weeks divided by 8 hours per day) on research, and
  - British TPs yearly on average additional 52 full work. days on research.
  - TPs spend more time on all activities, across most systems and across most clusters of academic fields studied.
  - Considering all academic activities, they just work on average (much) longer hours: week by week, month by month, and year by year.

III. The Polish Research Elite (10)

- Two ends of research productivity rates:
  - research top performers
  - research non-performers (non-publishers; Cole and Cole's "silent" scientists).
- Consistent non-publishers (among research-involved faculty) employed full-time in the university sectors across Europe). Their contribution to measurable national research output is zero.
- Their massive institutional existence: surprising from a traditional perspective prevalent prior to the emergence of the massified university.
- In Polish universities, their share is unprecedented: 43% (UK: 5.7%).
- Huge policy implications for Polish reforms: the burden of unproductive faculty members is too heavy, and policy measures (now being taken!) need to be harsh... (?)
- Competitive systems vs. non-competitive systems (universities, faculties, research groups, academics...): a lot can be done about „silent" scientists.

III. The Polish Research Elite (11)

Fig. 4. **Non-performers (=non-publishers), full-time academics, universities only, by country** (in percent).



III. The Polish Research Elite (12)

- The distribution of academic knowledge production in Poland (and in Europe) not only skewed towards some institutional types (e.g. national flagship universities); it is skewed most towards individual high performing academics, wherever they are institutionally located.
- Different institutional cultures lead to different research productivity. Institutions of low academic standing may belittle the significance of academic research while institutions of high academic standing may exert normative pressures on academics to get involved in research (Blau 1994: 24).
- In Poland, TPs are scattered across the country – but **concentrated** in 5 cities: Warsaw, Cracow, Poznan, Wroclaw and Lodz (NCN data).

III. The Polish Research Elite (13)

- In Poland, a new funding regime (individual-based grants) heavily supports top performers wherever located.
- Dilemma: supporting high-performing individuals – or supporting highly-ranked institutions (towards concentration of talents in several institutions only, with forced mobility)?
- Danger: TPs in isolated islands; in unfavorable institutional cultures – how to do research in the „minor league" universities; mobility and inbreeding (Crane 1965)?
- Countries with high public investments in academic research (most of 10) vs. low public investment countries (PL). Competitive (most of 10) vs. non-competitive systems (PL, IT). „Once in – forever in" vs. „up or out".
- Poland: moving towards a highly competitive, individuals-based system, with low public investments in research?
- Growing research productivity inequalities, increasing academic stratification, „haves" and „have-nots". No more evenly spread funding – declining institutional and faculty-level subsidies for research. Huge competition for scarce resources.

IV. Intergenerational Patterns: Academics under 40 (1)

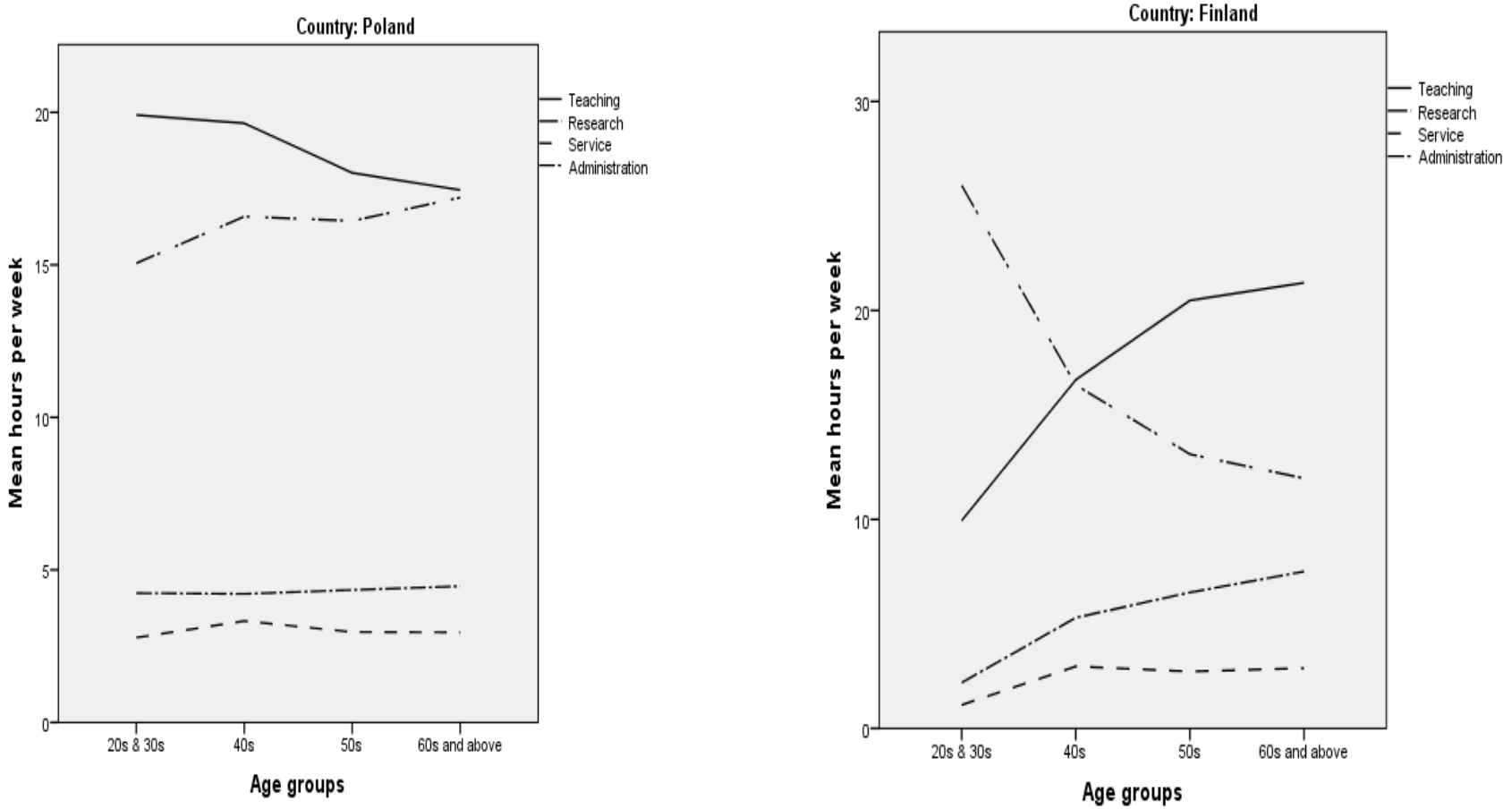
- Finally, European academic cohorts: young academics in their „formative years" (mostly < 10 years with a PhD.,Teichler 2008) and older academic cohorts.
- Three dimensions studied:
  - Weekly research time allocation,
  - Research/teaching role orientation (preference),
  - Research productivity.

  Are new academic cohorts in Poland (post-1989) different from older generations? And how they fare compared with their Western European colleagues? How competitive they are? What inhibits their productivity?

  Data: only full-time academics, employed in universities (not: other HEIs), involved in research.

IV. Intergenerational Patterns: Academics under 40 (2)

Fig. 5: How long do faculty spend on various academic activities (when classes are in session) by **age group** (hours per week): **Poland** (left) vs. Finland (right). Full-time academics, universities, research .



IV. Intergenerational Patterns: Academics under 40 (3)

- **Table 6**: **Research-oriented faculty**, by age group (Question: “Regarding your own preferences, do your interests lie primarily in teaching or in research?”, answer 4 only; “**Primarily in research**”) [percent]. Full-time academics, universities only, those involved in research only.

Age bracket/ Country	AT	FI	DE	IE	IT	NL	NO	PL	PT	CH	UK
Under 40	36.7	46.2	41.7	11.6	19.7	36.2	45.1	18.1	7.3	33.8	52.7
40s	20.4	31.5	22.7	10.4	14.4	27.9	36.8	12.9	5.6	25.9	40.5
50s	26.2	16.8	17.9	7.1	10.4	19.1	19.3	6.3	11.3	16.8	23.5
60s & more	15.6	14.4	6.5	8.1	6.2	13.9	16.7	6.5	1.4	-	3.3
Country average	29.5	33.2	29.1	10.2	11.5	28.1	32.0	12.2	7.1	27.7	40.5

Table 7: Average academic productivity, all items, all European countries (Q D4: "How many of the following scholarly contributions have you completed in the past **three** years?"). Academics **under 40 only**, involved in research, employed full-time in the university sector.

Countries/Items	Scholarly books you authored or co-authored	Scholarly books you edited or co-edited	Articles published in an academic book or journal	Research report monograph written for a funded project	Paper presented at a scholarly conference	A composite country index of research productivity
Austria	0.5	0.4	2.5	1.9	7.8	18.8
Finland	0.3	0.2	3.2	1.1	4.0	12.6
Germany	0.2	0.1	4.0	1.3	4.7	12.7
Ireland	0.3	0.2	5.9	1.6	8.1	18.6
Italy	0.7	0.3	8.2	1.3	8.3	25.2
Netherlands	0.4	0.2	7.6	1.7	5.9	20.1
Norway	0.2	0.1	3.1	0.4	3.3	8.3
Poland	0.1	0.1	3.7	0.2	3.2	7.6
Portugal	0.4	0.3	4.4	1.2	8.3	17.7
Switzerland	0.3	0.2	4.3	1.0	4.4	13.9
United Kingdom	0.1	0.1	4.7	1.1	5.4	12.1
Item mean	0.3	0.2	4.2	1.1	5.4	

Table 8: **The index of average research productivity**, by age group: academics under 40, in their 40s, 50s, and 60s. Academics involved in research only, employed full-time in the university sector.

	Academics under 40	Academics in their 40s	Academics in their 50s	Academics in their 60s and older
Austria	18.8	34.1	29.3	31.3
Finland	12.6	19.7	21.7	26.8
Germany	12.7	28.2	31.0	38.3
Ireland	18.6	22.7	24.3	24.2
Italy	25.2	29.4	33.4	30.0
Netherlands	20.1	32.3	32.5	32.6
Norway	8.3	12.1	19.8	25.5
Poland	7.6	9.1	10.1	9.4
Portugal	17.7	23.5	39.0	34.7
Switzerland	13.9	36.0	42.1	37.6
United Kingdom	12.1	18.0	20.1	21.4

IV. Intergenerational Patterns: Academics under 40 (4)

- Conclusions: h**igh teaching hours for young academics** in Poland may effectively **cut them off** from research achievements comparable to those of young academics in major Western European systems. Their high teaching involvement effectively reduces the number of hours left for research.
- **Current reforms** present a **clear preferred image** for the new generation of academics sought by policymakers:
  - highly research- motivated scholars,
  - embedded in international research networks,
  - publishing mostly internationally and
  - heavily involved in the national and international competition for both academic recognition and research funding.

  In the long run, without such a **radical approach**, any international research competition by young Polish academics seems inconceivable. Consequently, the **knowledge production gap** between Western European systems and Poland may grow even larger.

V. Concl. & policy implications (1)

- **Conclusions: (1) the Polish academic profession**:
  - Top performers (TPs) are similar in academic behaviors (working habits), acdemic attitudes (research orientation), and academic productivity
  - The remaining 90%: working (much) longer teaching hours, much less research-oriented, and with much lower research productivity
  - Unique in Europe: 43% of non-producers.
  - Otherwise similar patterns of productivity distribution: 50% of national output – by TPs. Consistently similar patterns across Europe, PL included.
  - Lower levels of internationalization in research in Poland – but similar cross-disciplinary patterns.
  - Much bigger impact of international research collaboration on publishing productivity (and international co-authorship) levels: more collaboration needed!
  - The lowest readiness to connect to the outside social and economic world (the ivory tower university model strong; power of academic bodies)
  - Policy challenge: non-performers and low performers. What to do?
  - Young Polish academics (under 40) are spending **far too much time on teaching** – and **much less time on research**. Week by week, month by month, year by year!
  - The research productivity in Poland is **not increasing by age cohorts**: the pattern is unique, so that older academics are as little productive as young academics.

V. Concl. & policy implications (2)

- **Conclusions: (2) the Polish system:**
  - Powerful governmental tools used in reforms: new, individual-based research funding (previously: institution-based) to increase national research output. The NCN/ERC idea.
  - A transition from an underfunded non-competitive system to an underfunded highly competitive system is threatening.
  - Low-cost (or budget) univerisities – like low cost (budget) airlines – will not work!
  - A decade of system contraction will be combined with accelerated changes after two decades of changes.
  – HE research shows that reforming universities does not lead to reformed universities.... Reforming universities is thus leading to further waves of university reforms (Maassen and Olsen 2007; Clancy and Dill 2009)...

We know something; we want to know more... (ongoing detailed qualitative studies)...

Thank you very much!

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