

Funding by evaluation and the effect on performance

Considerations on “the competitive regime”

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OUTLINE

- Some introductory remarks
- Macro: differences between national science systems and their efficiency
- Macro: differences between universities in one country -- Sweden
- [Micro: peer/panel review/selection/decisions – **everywhere in the system**
 - Problems and processes
 - Proximities: Nepotism, Sexism, Cognitive]
- Conclusions

1. Introduction

THE ISSUE

- **Funding and evaluation:**
 - Peer decision making
 - Aversion towards indicators
 - Role of researcher, for the community vs. for the university
- **Remember**
 - Human (peer, expert) decision making is very biased, subjective, often ill-informed
- **What are the effects on the science system?**
 - Functional
 - Social

TWO DIMENSIONS

- **Ex ante versus ex post evaluation**
 - Grants versus block funding (sometimes with NRES or PBRF)
 - Management versus academic freedom
 - Steering versus accountability
- **Competition on inputs or on outputs**
 - Competition for grants versus funding based on past performance
 - Competition on promise versus competition on results
 - Reputation versus performance
- **Impact on the performance of the system?**

2. Explaining performance differences between national science systems

(Sandström & Van den Besselaar, Jol 2018)

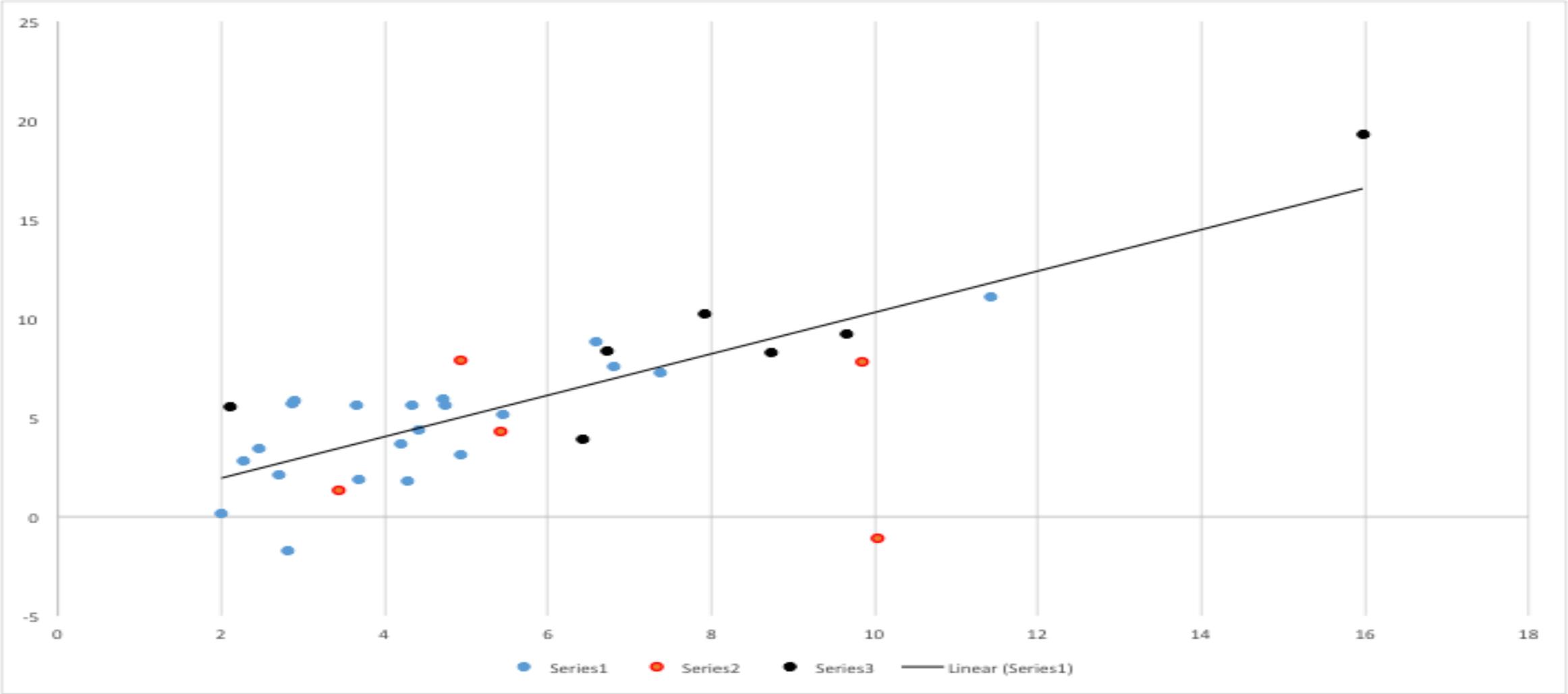
INPUT MEASUREMENT (COUNTRIES)

- OECD data and their problems (not comparable, despite Frascati & Oslo)
- Structural differences between countries
- Alternative approach: From levels to change
- And an example from Sweden comparing input and output for uni:s

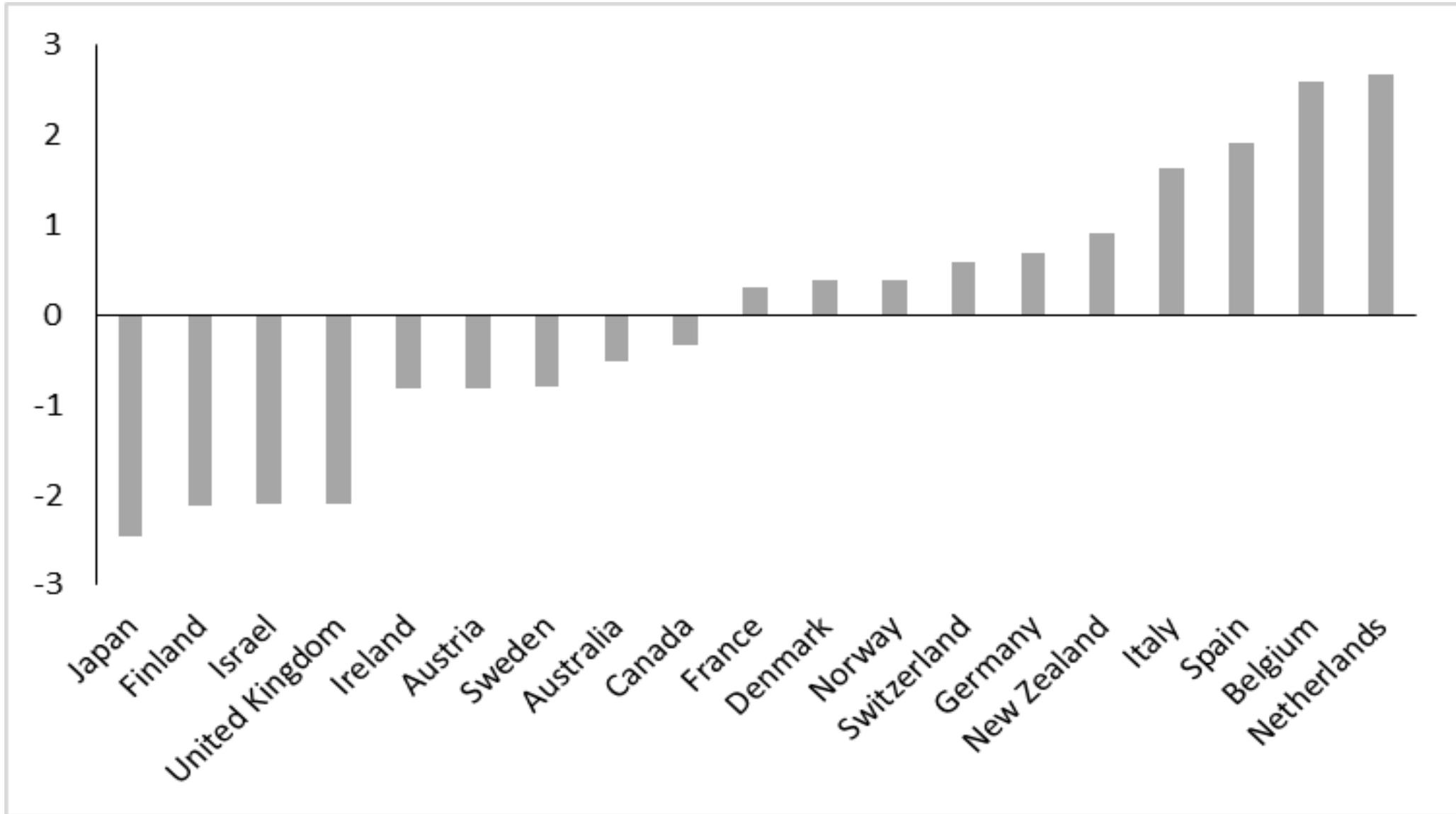
OUTPUT AND EFFICIENCY

- Top-cited papers: P10% (size-dependent indicator)
 - Other indicators might be relevant (e.g. societal impact)
- **Change** of output (2002-2011) by **change** of input (2000-2009).
We have used compound annual growth rate (CAGR)
- Regression
- Residual is measure
 - Output grows more than expected -> more efficient
 - Output grows less than expected -> less efficient

CHANGE IN FRAC PP10 BY CHANGE IN HERD



EFFICIENCY RESIDUALS



WHAT INFLUENCES PERFORMANCE: THE ACCEPTED VIEWS

- **Competition**
 - Project funding
 - Structural funding: PBRF or based on NRES
- **Autonomy (management vs state)**
 - Financial, organizational, academic, staffing
- **Stratified system**
 - Leads to talent concentration
 - And top universities
- **Academic freedom (scientific staff vs management)**
 - Avoids middle of the road research

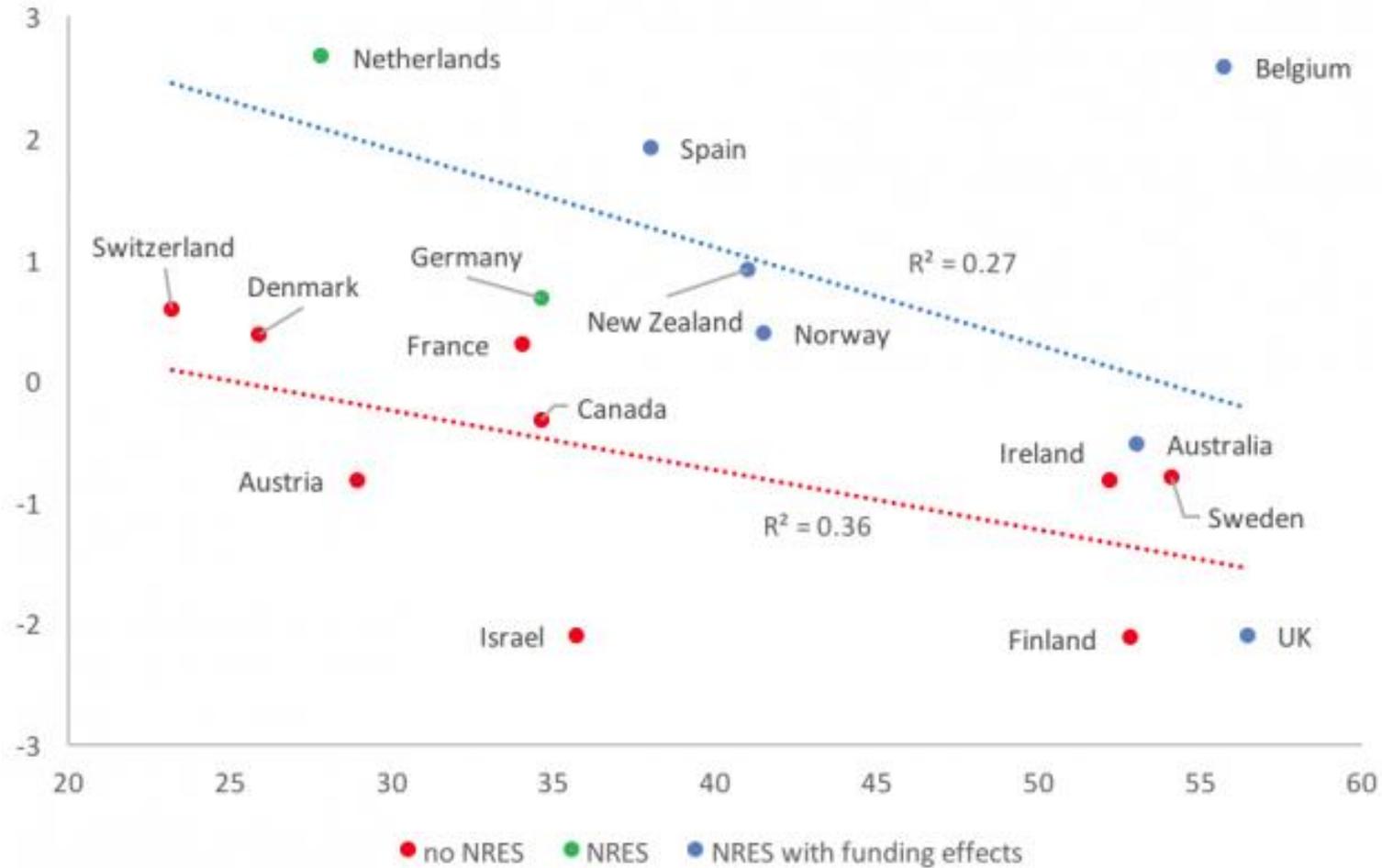
... ARE PROBABLY WRONG

- Why?
- The data show something different
- Or data is lacking (academic freedom)

TESTS

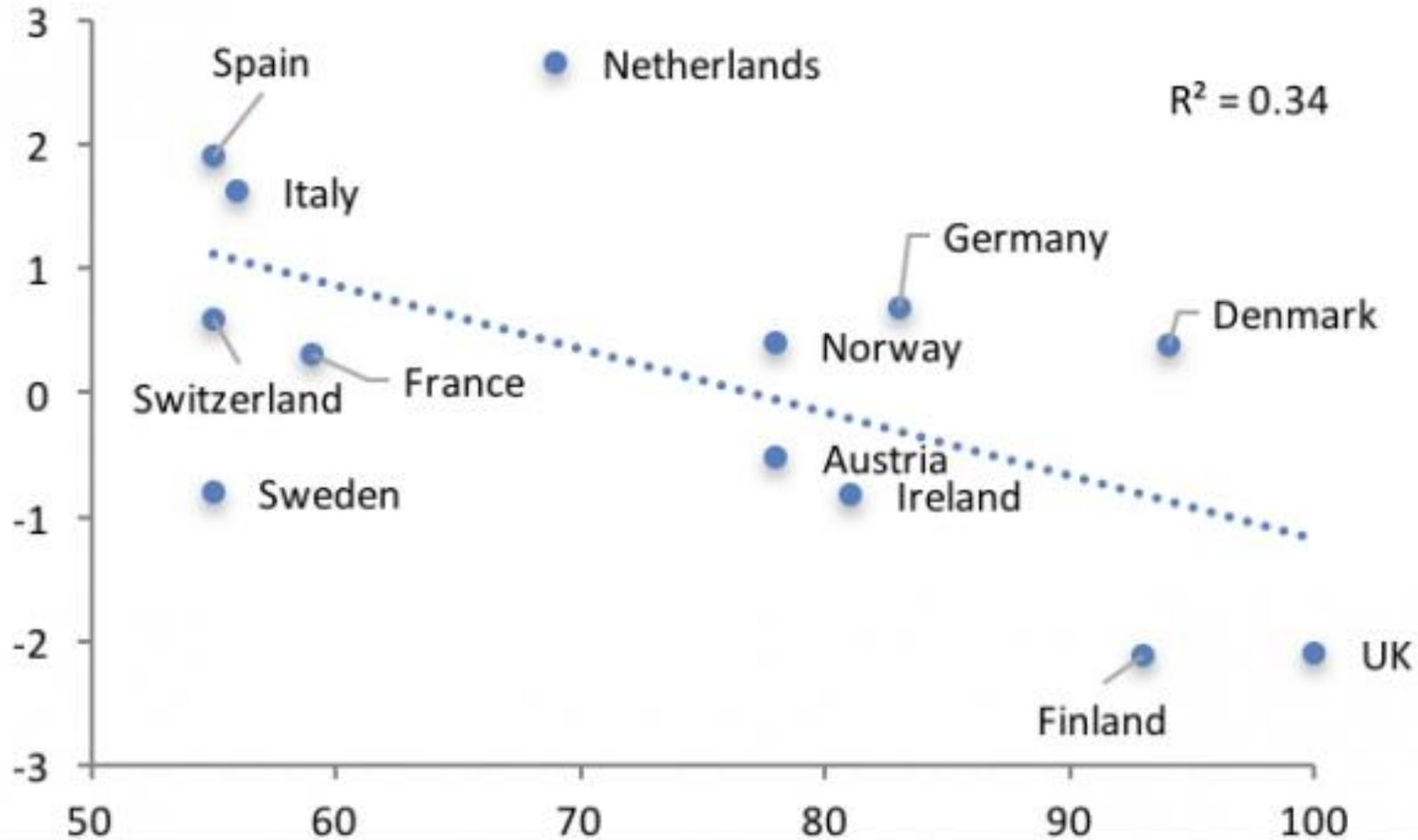
- Efficiency by
 - Share competitive funding
 - NRES/PBRF presence
 - Autonomy
 - Stratified system
- Stratification by share competitive funding and autonomy
- Academic freedom by share competitive funding and autonomy

SOME COUNTER-EVIDENCE (1): COMPETITION?



Efficiency (vertical axis) by share of project funding (horizontal axis). Data is plotted according to whether there is a National Research Evaluation System (NRES). Countries plotted in red have no NRES; blue countries have an NRES, and green have an NRES but it is not linked to funding. (Graph: Author Provided)

SOME COUNTER-EVIDENCE (2): AUTONOMY

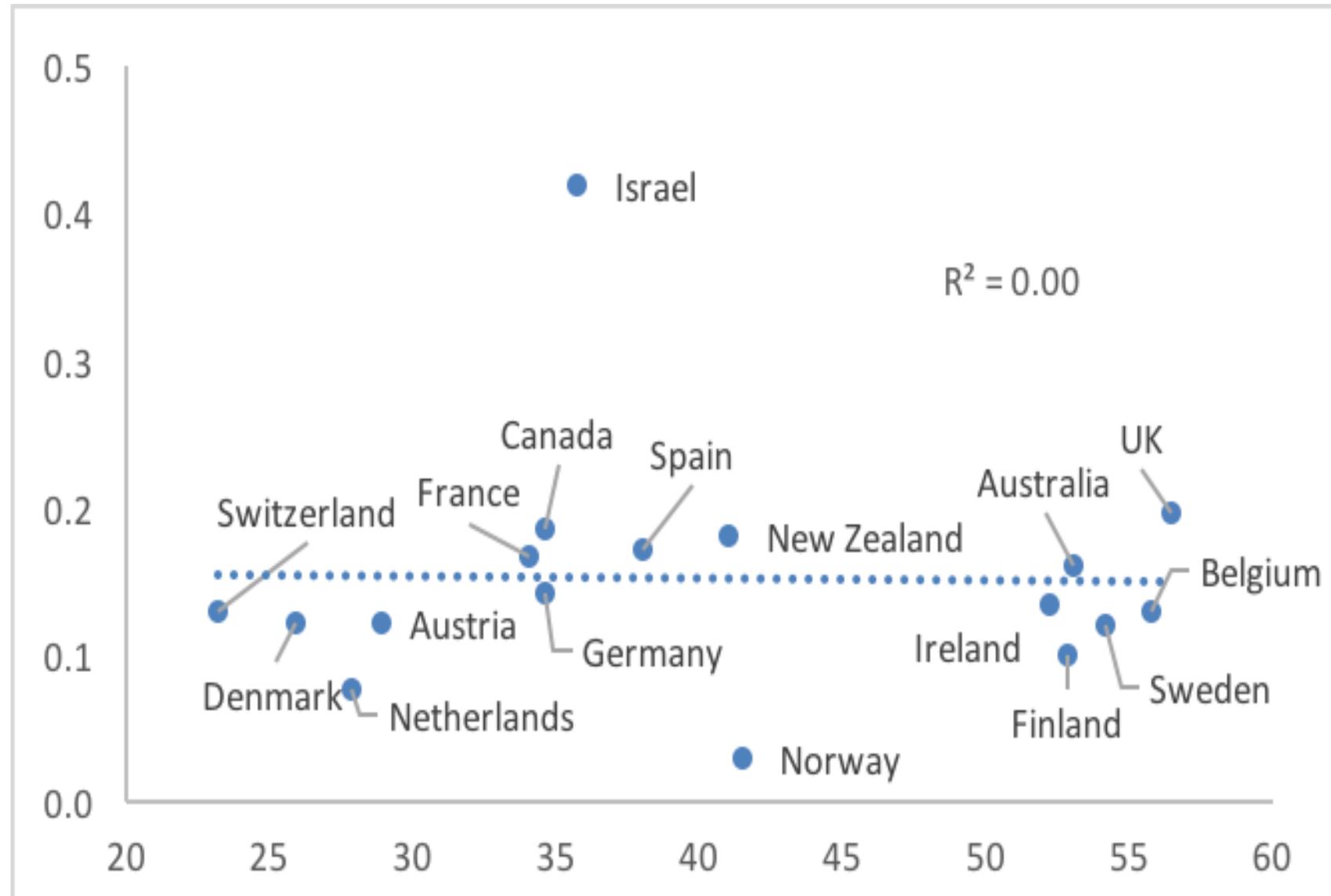


Research efficiency (vertical axis) plotted against organisational autonomy (horizontal axis). More autonomy is correlated with a reduction in research efficiency. (Graph: Author Provided)

SOME COUNTER-EVIDENCE (3): STRATIFICATION

- The 'Abramo hypotheses':
- More competition would lead to higher stratification
 - More differences between universities' ranking
 - Less variation within universities (field ranking)
 - Higher ranking of the top institutions
- More stratification would lead to higher performance

PERFORMANCE DIFFERENCES BETWEEN UNIVERSITIES BY COMPETITIVE FUNDING



STRATIFICATION SYSTEM: OPPOSITE FROM HYPOTHESES

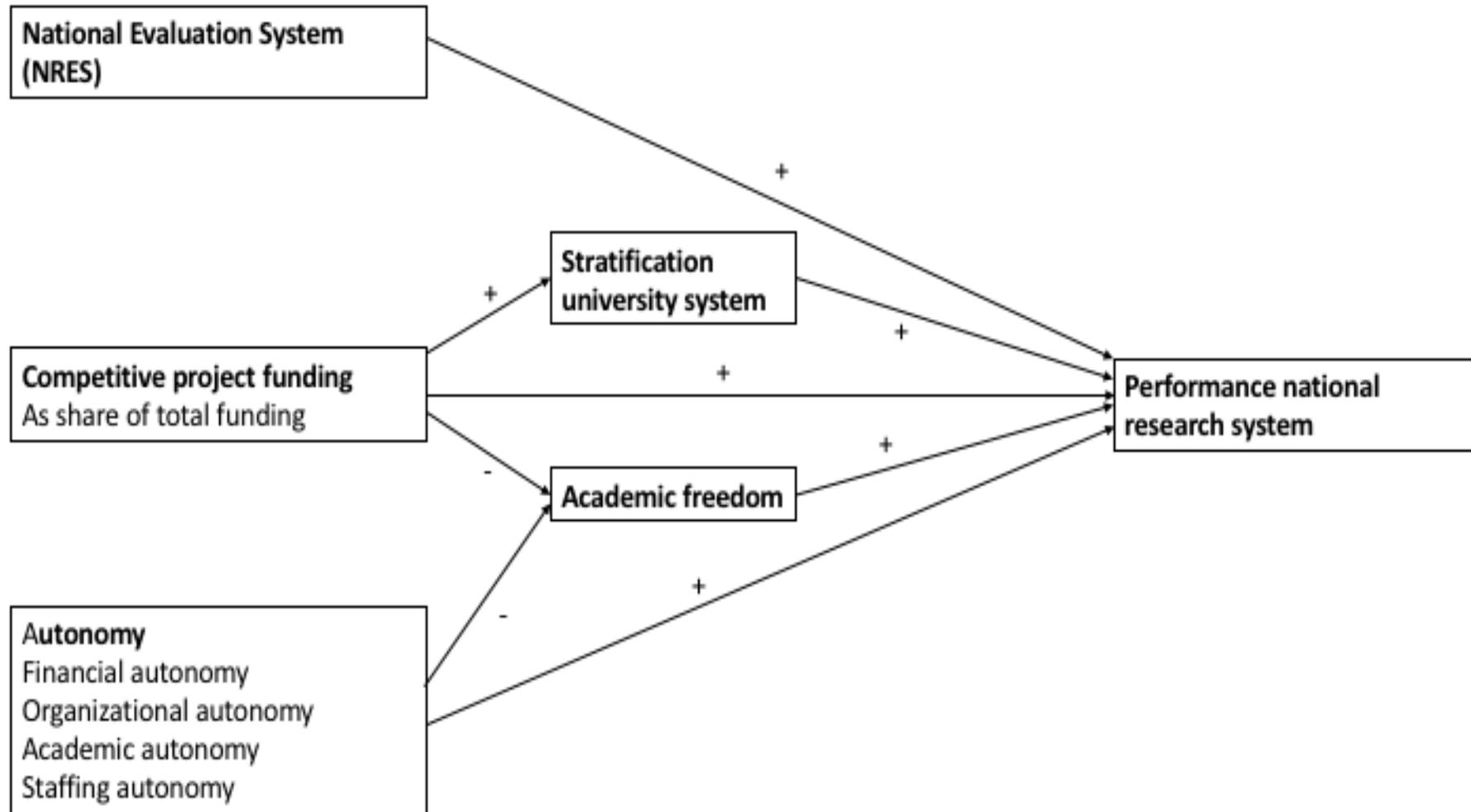
	Competitive funding	
	Abramo	Data
Ranking top university	+	U-curve
Between differences	+	0
Within differences	-	Inverted U-curve

	Ranking top university		Between differences		Within differences	
	Abramo	Data	Abramo	Data	Abramo	Data
Performance	+	-.26	+	-0.40	-	-.13 (very small)

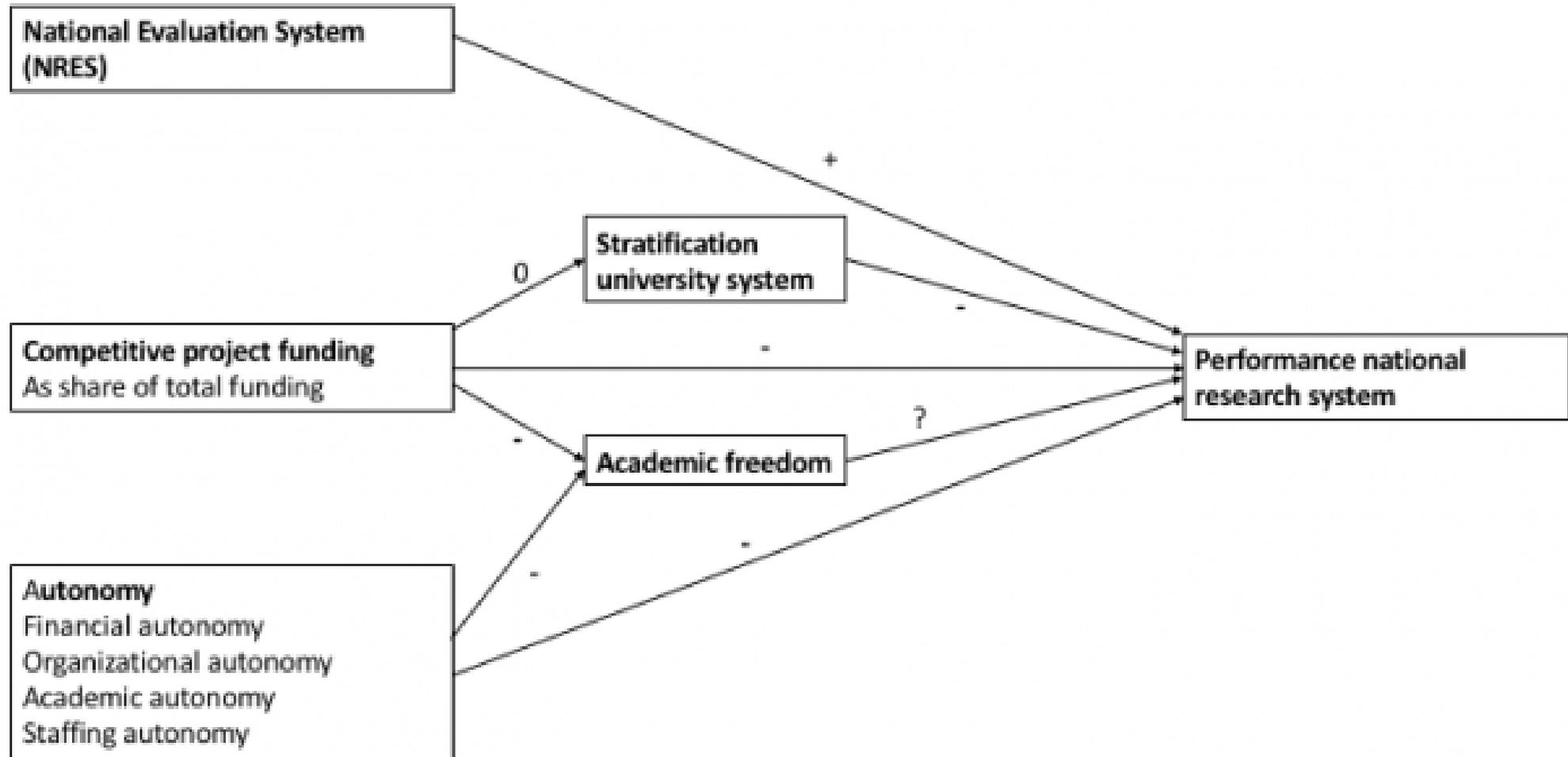
ACADEMIC FREEDOM

- Hardly good / reliable data
- What is available suggests that AF is good for performance
- And that AF is negatively influenced by autonomy (managers) and competitive funding

THE RECEIVED MODEL



SUMMARY - MODEL



The result of the analysis. (Illustration: Author Provided)

CONCLUSIONS

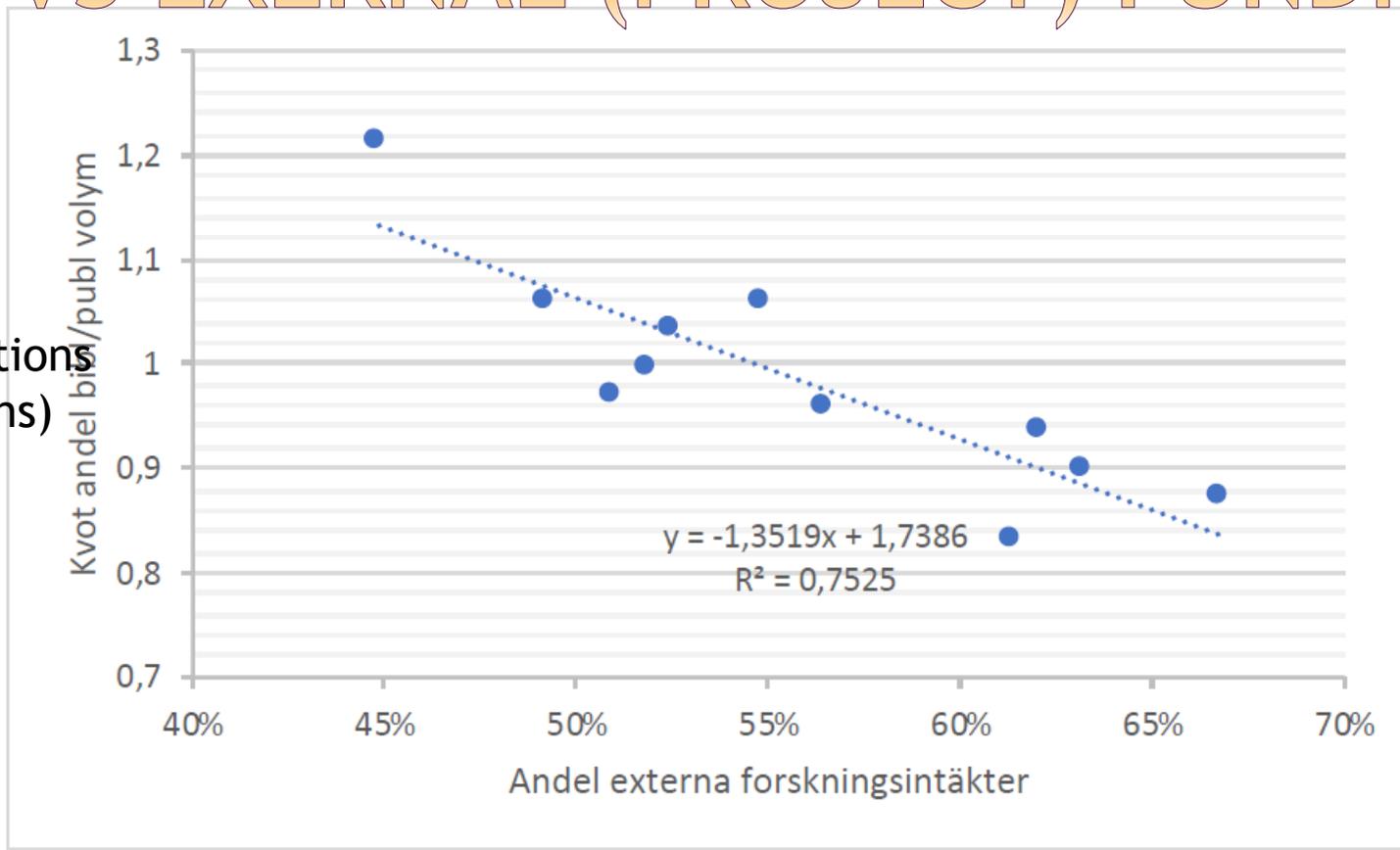
- More competitive funding does not work positively
 - Ex ante peer assessments seem not beneficial
 - Or do we generally misunderstand the concept of competition?
 - Is to often reputation confused with competition: the UK case
 - And a competitive culture (about outputs) is different from a direct competition (on inputs)
- Nor does ex ante managerial steering (but academic freedom might...)
- Ex post evaluation does work well (even if / when not related to funding)

SAME EFFECT AT SWEDISH UNIVERSITIES!

- Even without a negative correlation, the absence of a positive correlation between quality and external funding is something that may surprise. A main argument for external funding is that competition for funds favors the quality.
- The relationship at the national (Swedish) level is even stronger, the linear correlation between funding of a university and the quality of publications in the form of citations are more than 98%! The higher education institutions that are included are universities as well as most of them universities.
- In summary, the analysis indicates that there is a lot that points towards a negative linear correlation between how well a university is performing in research and the proportion of external resources at the university.

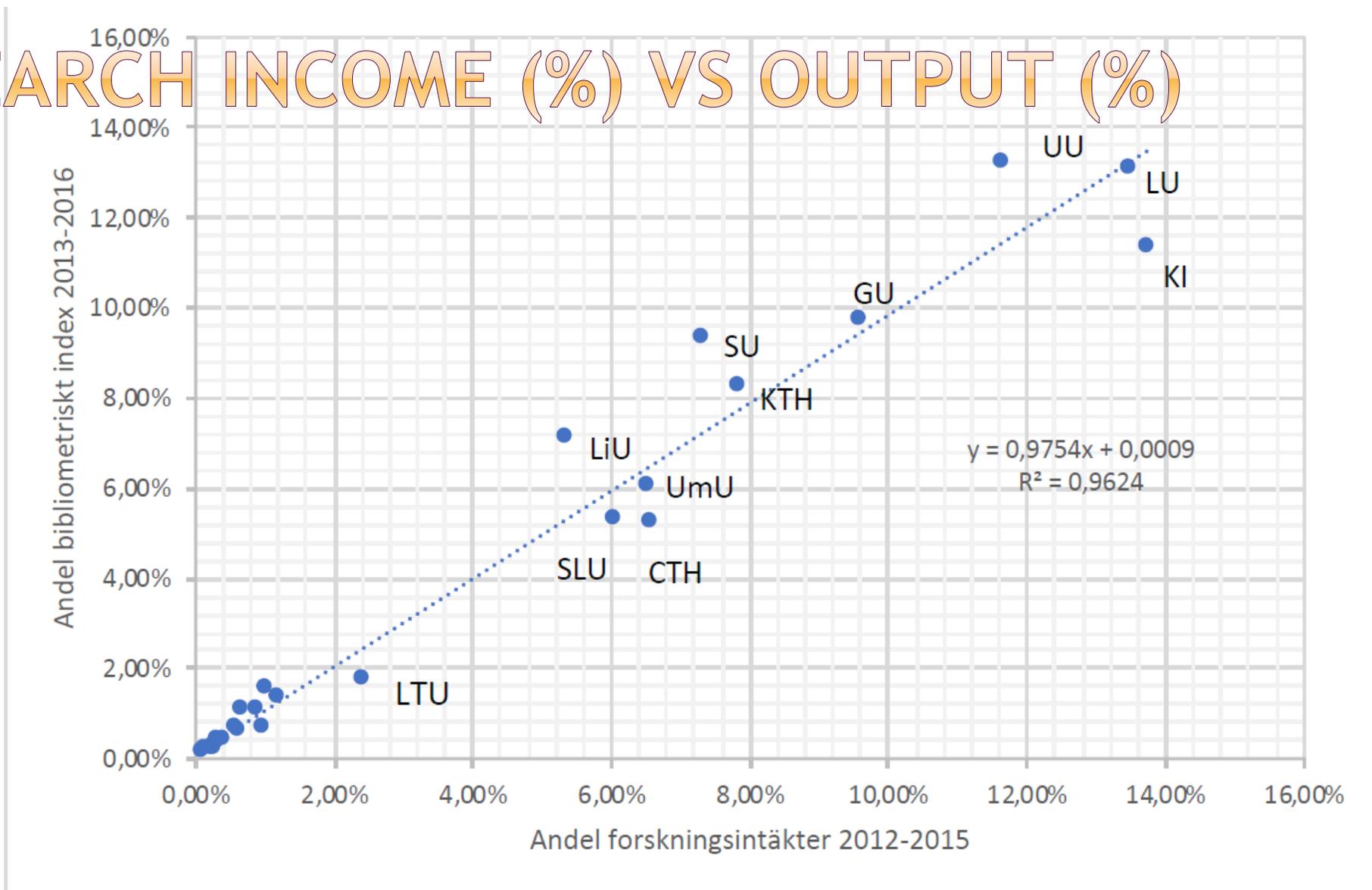
OUTPUT VS EXERNAL (PROJECT) FUNDING

Quality
Of
Publications
(citations)



Project funding

RESEARCH INCOME (%) VS OUTPUT (%)



EFFICIENT VERSUS NON-EFFICIENT COUNTRIES

Efficient (NL):

- Relatively low share of project funding (*ex ante* peer evaluation)
- *Ex post* - peer and indicator based NRES - not funding related
- Equal HE system
- Moderate level of managerial autonomy -> higher academic freedom

Inefficient (UK):

- Very high share of project funding (*ex ante* peer evaluation)
- *Ex post* - peer based - national research evaluation system: funding related
- Strongly stratified HE system
- High level of managerial autonomy -> lower academic freedom

THANKS FOR YOUR ATTENTION