

# **PBF as an instrument for fair funding?**

## Performance Based Funding in German University Medicine

Eu-SPRI Conference Karlsruhe, 12-13 June 2012

**Dr. René Krempkow / Uta Landrock**  
In cooperation with Jörg Neufeld and  
Patricia Schulz  
iFQ Institute for Research Information and  
Quality Assurance  
D-53175 Bonn  
[www.forschungsinfo.de](http://www.forschungsinfo.de)



# Overview

1. Questions to be Addressed
2. Methods and Data Bases
3. Results of Third-Party Funding Analyses
4. Selected Results of our Online surveys
5. Conclusion and Outlook

# 1. Questions to be Addressed

The Project “GOMED” (**G**overnance of Universty **M**edicine) analyses the **effects of science policy governance and control systems** by using the example of German University Medicine.

Focal point: **Performance-Based Funding (PBF)** and applied research indicators.

## Research Questions:

- Which *potentials* for *governance* and *misgovernance* are contained within the applied PBF systems and indicators?
- Which rolls do PBF systems play in the context of other factors that drive the governance structure of university medicine?

## 2. Methods and Data Bases

Various methods were used in order to fully grasp the arrangement of governance, means of incentives, and the effects of PBF systems.

- a) **Guided interviews** (n=24) with departmental management: deans, vice deans of research (*Forschungsdekane*), research coordinators (*Forschungsreferenten*) (*→ summary and full version of the report of this analysis are online at the iFQ-GOMED-website*)
- b) **Document analyses:** Compiling the procedures and criteria of PBF, along with the implementation processes of PBF systems and competitive governance mechanisms (*→ results will be published in the final report of the project until the end of 2012*)
- c) **Online survey** of scientific personnel of medical departments about the perception and impact of PBF (*→ summary and full version of the report are online*)
- d) **Bibliometric analyses** should determine the changes in quantity and resonance of publication output from departments and their facilities over time (*→ analyses just finished, results will be published in the final report of the project until the end of 2012*)

## Internal PBF in Medical Departments: Three Examples

	Freiburg Example	Münster Example	Göttingen Example
Used indicators (and weight)	<b>Research 3/5:</b> third-party funds and publications (50:50) <b>Teaching 2/5:</b> IMPP-Factor, teaching load, teaching evaluation	<b>Research 2/3:</b> third-party funds and publication (40:60) <b>Teaching 1/3:</b> IMPP-Factor, teaching load, student satisfaction	<b>Only Research:</b> third-party funding and publication (50:50) <b>Teaching:</b> in planning
Implementation period	1995-1999	2000-2004	2000-2004
Revisions in PBF	Yes	Yes	Yes
Funding allocation of depart. based on an evaluation procedure?	Yes, for research	Yes, for research <i>and teaching</i>	Yes, for research
Term period of deans (2005)	4 Years	6 Years	4 Years

Data: Landkarte Hochschulmedizin (2002, 2007), Brähler (2009) and self-made inquiries, Table: Krempkow/Schulz 2010

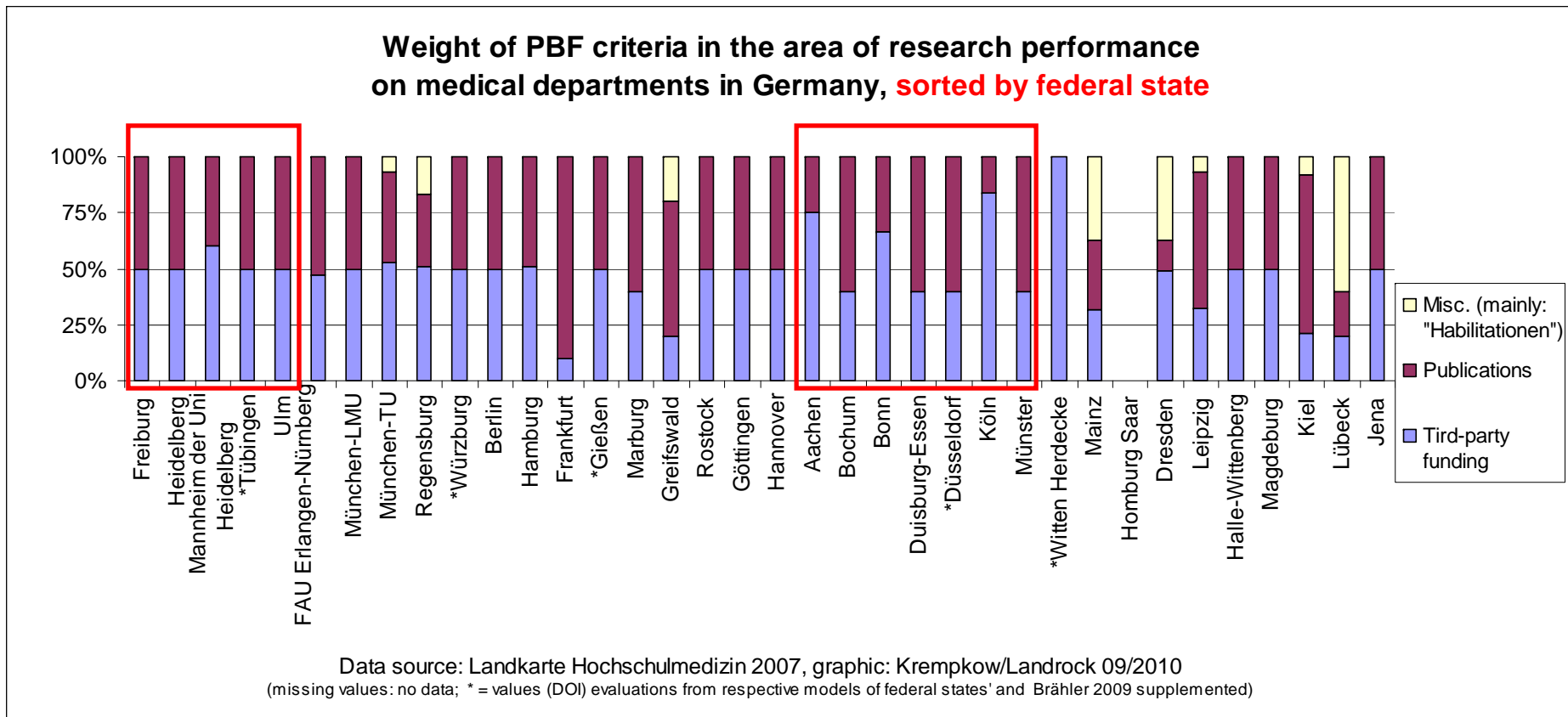
Further characteristics are being determined and evaluated (not depicted here).

# Internal PBF in Medical Departments: Example of PBF Criteria

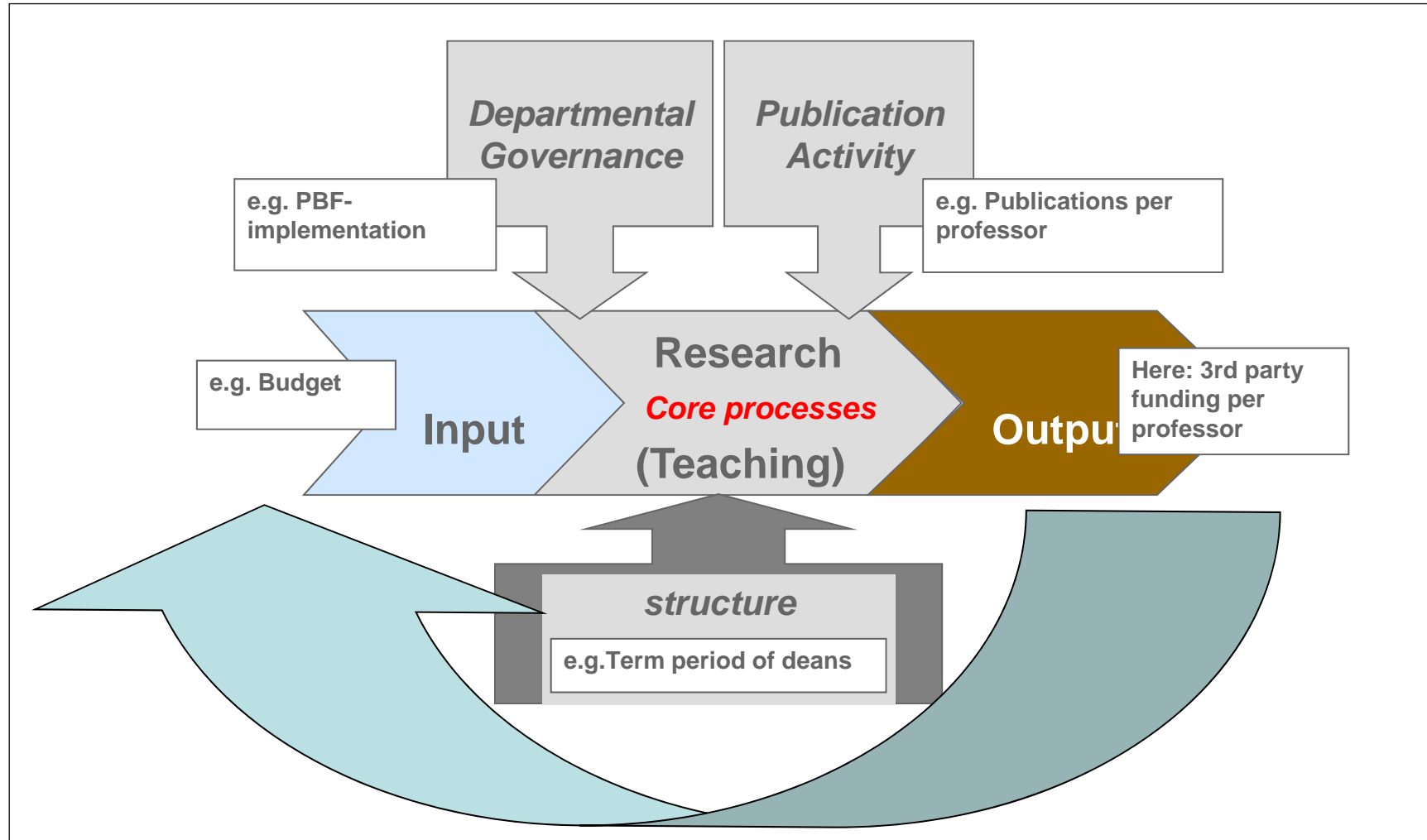
## Analysis from different, partially supplemented secondary data

### PBF features of the model:

Weighting of PBF criteria are in part relatively homogenous by federal state (B-W), in part very heterogeneous (e.g. NR-W). (missing data from 6 faculties were primarily completed through self-made inquiries)



# Analysis Model: Research Performance of Medical Departments in Germany



# 3. Analysis of Third-Party Funding

## Analysis of Third-Party Funding: Empirical Results

As of yet, not all expected effects of PBF are empirically verifiable (e.g. *no* correlation with the weight of third-party funding in PBF), but definitely governance effects (evaluation, term period of deans) alongside Matthew effects are seen “in moderation“ (Hornbostel/Heise 2006).

Standardised beta coefficients for dependent variable: spent third-party funding 2003-2005 per staffed professor (in thousands, €):

<i>Variables:</i>	<i>Model 1 (corr. R<sup>2</sup> =.57***)</i>	<i>Model 2 (corr. R<sup>2</sup> =.59***)</i>	<i>Model 3 (corr. R<sup>2</sup> =.61***)</i>	<i>Model 4 (corr. R<sup>2</sup> =.61***)</i>
Weight of 3 <sup>rd</sup> party funds in PBF research (%)	-.10	-.09	-	-
Implementation period (before 2000=1, from=0)	.12	.13	.13	-
Revisions in PBF from 2004 (yes=1, no=0)	.05	-	-	-
Funding allocation of department based on an evaluation procedure? (1=rsrch, 0=rsrch+teac.)*	<b>-.50***</b>	<b>-.52***</b>	<b>-.50***</b>	<b>-.48***</b>
Term period of deans (in years)	<b>.29</b>	<b>.30**</b>	<b>.26**</b>	<b>.28**</b>
Total budget, '03-05, central bank + invest (in €)	<b>.41**</b>	<b>.44**</b>	<b>.41***</b>	<b>.38***</b>
Publications per scientific staff 2005 (num.)	<b>.43**</b>	<b>.52***</b>	<b>.44***</b>	<b>.43***</b>

Data: Landkarte Hochschulmedizin 2007, Brähler 2009 and self-made enquires; depiction: Krempkow 2011

\* All departments indicated that their funding allocations are based on evaluation procedures.



# 4. Selected Results of Our Online Survey

Content of our survey of professors of all medical departments in Germany:(n=644, response rate 25%)

a) Structure / demographics: age, subject, function, etc.

b) PBF: Availability of information, perception and evaluation of effectiveness

c) Professional situation (job satisfaction, relevance and motives [e.g. reputation])

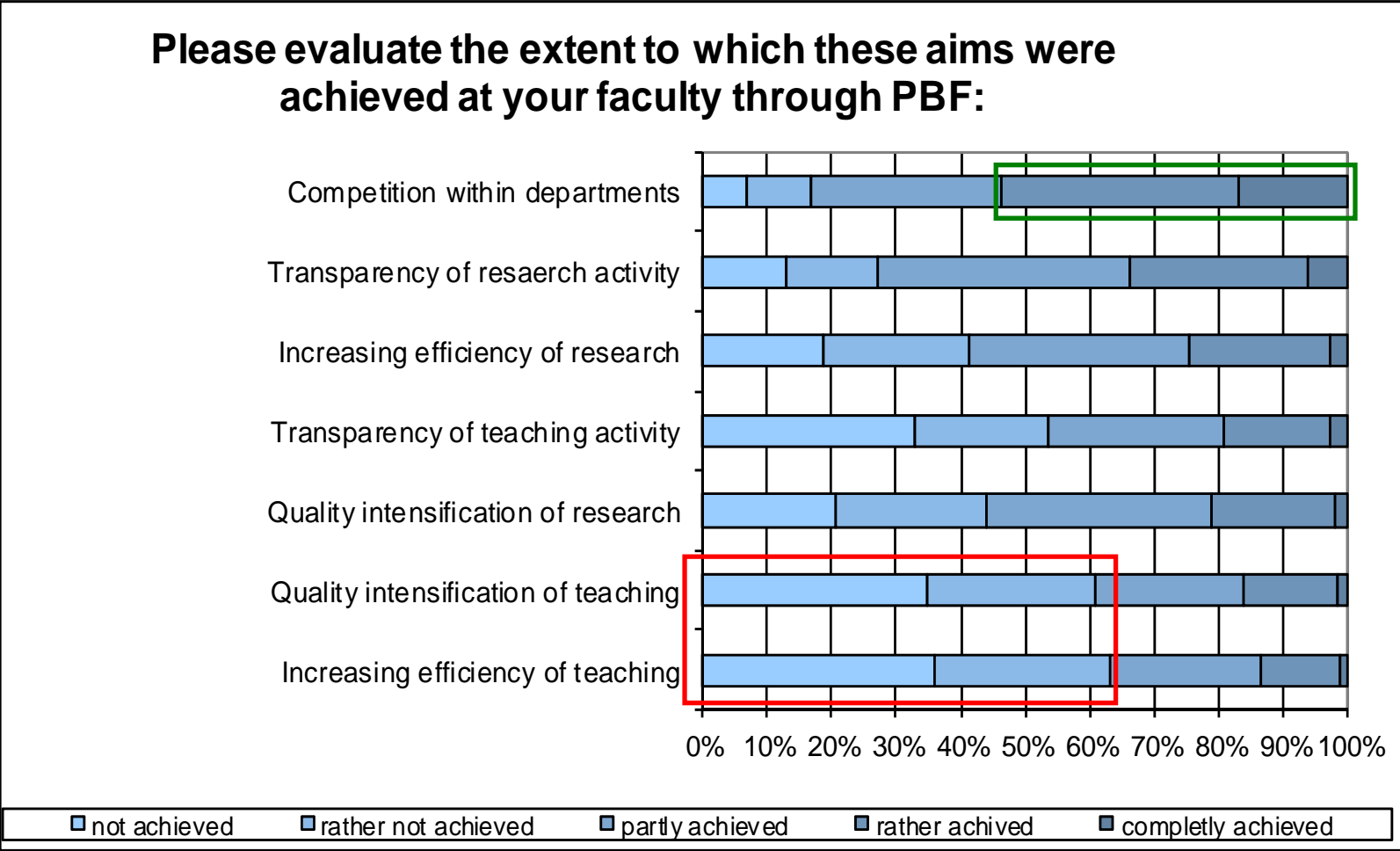
d) Third-party funding: relevance and effects

e) Publications: evaluation, count and relevance of PBF

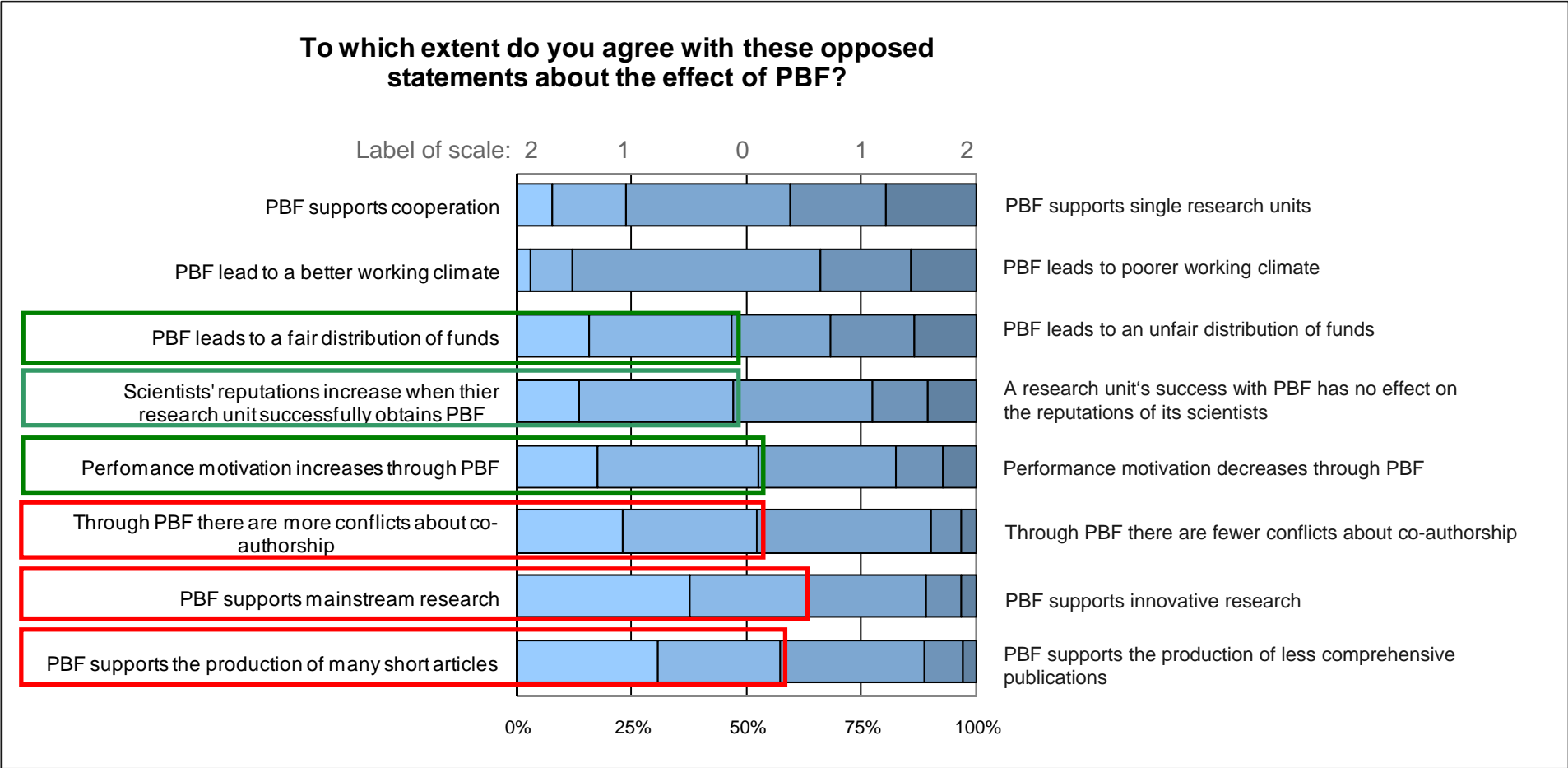
⇒ **Furthermore (in preparation):**

Results of a separate survey of scientific assistants / scientific personnel of 4 selected departments (report will be published in the next few months)

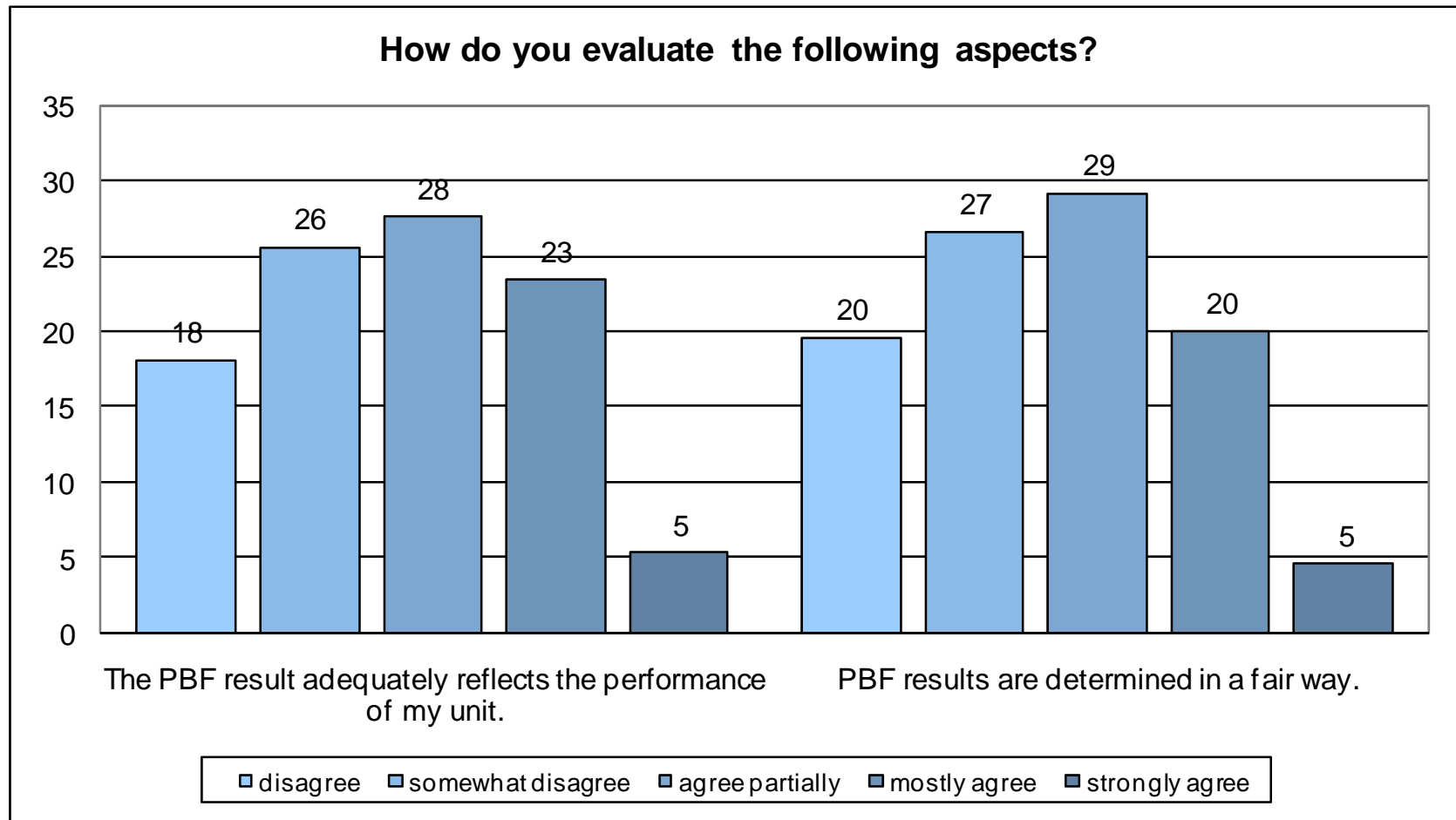
# Selected Results of the Professor Survey (1): Target Achievements of PBF



# Selected Results of the Professor Survey (2): Effects of PBF



## Selected Results of the Professor Survey (3): Perceived Justness of PBF



# Two-Level Model (for an Outlook of Multi-Level Analyses)

## INSTITUTION (meso level 2)

- Weight of third-party funds in PBF research
- PBF implementation period before 2000
- Revisions in PBF
- PBF based on evaluation procedure
- Term period of deans
- Publications per scientific assistant
- Third-party funding per professor
- Total budget of the faculty

## INDIVIDUALS (micro level 1)

- Level of information
- Discussion of PBF results
- Participation by PBF development
  - (- PBF is an adequate mirror of performance)
  - (- Justness of PBF distribution)
  - (- Justness of PBF procedure)
- **Index of the three performance fairness items**
- Working motivation through PBF
- Relevance PBF-success for reputation
- PBF supports mainstream research
- What do colleagues think about PBF
- Chief physician position
- Line function
- Age groups

### Target achievement in research:

- Transparency
- Efficiency
- Quality
- **Index of the three single items**

### Target achievement in general:

- Competition
- (Publications:**
- Sum of article publications
- Sum of book chapter publications
- Sum of publications)

## 5. Conclusion and Outlook

### *PBF from the perspective of the **scientific system**:*

- The difference in obtaining third-party funding / publication activity for departments can be explained through: (1) characteristics of the PBF model, (2) structural characteristics, (3) results in other dimensions of performance and (4) initial conditions

### *PBF from the perspective of **professors/ scientific personnel**:*

- Online survey: complimentary perspectives on departmental performance, among other factors regarding the acceptance of PBF
- Major results: PBF supports competition, but not the quality of research. It supports performance motivation and leads to a fair distribution of funds (most professors agree with this).
- The perception of justness is the most influential factor for target achievement in research (for details see Krempkow/Schulz 2012).
- For this reason, indicator adjustment, thus the “added value approach” has the potential to increase target achievement of PBF (see Krempkow/Kamm 2012)

# Thank you for your attention!

[landrock@forschungsinfo.de](mailto:landrock@forschungsinfo.de)

[krempkow@forschungsinfo.de](mailto:krempkow@forschungsinfo.de)

Recent publications (for now, only available in German):

Krempkow, René/Schulz, Patricia, 2012: Welche Effekte hat die leistungsorientierte Mittelvergabe? Das Beispiel der medizinischen Fakultäten Deutschlands. die hochschule 2/2012, 121-141.

Krempkow, René / Kamm, Ruth, 2011: Leistungsklassen oder „Added Value“? Zwei Ansätze zur Berücksichtigung unterschiedlicher Startbedingungen im Wettbewerb von Hochschulen. Qualität in der Wissenschaft (QiW) 4/2011, 115-120.

