# NATIONAL SCIENCE JOURNALS: JUMPSTARTERS OR DEAD-END STREET?

Ulf Sandström KTH STOCKHOLM

March 18, 2015

# Topic overview

- Journal Impact
- Perverse Incentives
- Alternatives
- Percentile Model
- Core and non-core journals
- LT profiles
- Conclusions: International Publication Market(s)

# Journal Impact Factor

- Incentives to Publish
- “High Impact Journals”
- Cash Bonus policy in China (2001)
- Cash Bonus in Korea (2006)
- Cash Bonus in Turkey (2008)

# Any effects?

- According to economist Paula Stephan and colleagues (Science 2011 and Science 2012)

- Strong increase in submissions (to Science)
- Acceptance rates negatively correlated to cash bonus
- Institutional incentives are not correlated to increase in publications

# Effects at the system level

- Overloading reviewers
- Taking them away from work
- Efficiency problems

- China, South Korea and Turkey has increased submissions with 46% (to Science)
- But no increase in publications

# High Impact Journals at a Swedish University (KTH)

- In almost half of the cases HI-articles have low field normalized scores (actual citations)
- About 10% receive no citations at all.
- 20 percent of the articles published in journals with low impact < 1,0, receive high citation scores (top10 or better)

# Dangeorus Policy

- Conservatism and “sure bets” instead of breakthrough research
- Same phenomena as in submitting to funding organizations
- Risk-averse strategies: these will not change for a country or a university

# Instead!

- Give rewards for field-changing research, i.e. highly cited articles
- [Pioneer Grants from the NIH]
- But, in order to use highly cited you have to have a method that makes it possible to compare medicine with mechanics or sociology…

# Field Normalization

- Relative citation indicators were a leap forward fifteen years ago,
- Now they have become an obstacle for analytical activities and policy advice.

WHY?

- Results depends on how many that are taken into account
- Does quality change when adding a new publication or a new member of the team

# What is needed?

- We should aim for indicators that highlights breakthrough publications, those that make a difference.
- And…
- Focus on individuals rather than articles, it is good researchers that makes a difference not specific articles.

# Scoring Methods Waring weights

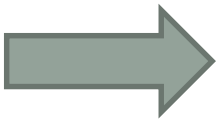
- Reference values based on Nordic researchers at universities and university hospitals
- Waring methodology with truncation of mean values for frequencies distributions
- Areas: Glänzel eight areas (come back to that later)
- Each area has an average number of publications per author
- From this you can calculate a weight per area so that humanities and social science can be compared with medicince and chemistry

# Bibliometric method

- Articles 2008-2011 with citations up until 2014
- Percentiles instead of parameter based indicators due to skewed citation distributions
- Percentiles with normalization to >250 subject categories
- No apple and pear problem

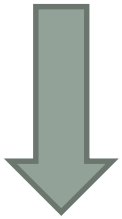
# Percentile Groups

- Top 1 %  100 points
- Top 5 %  20 points
- Top 10%  10 points
- Top 25 %  4 points
- Top 50%  2 points
- Top 100%  1 point

- Fractionalization 5 AU Top1%  20 points

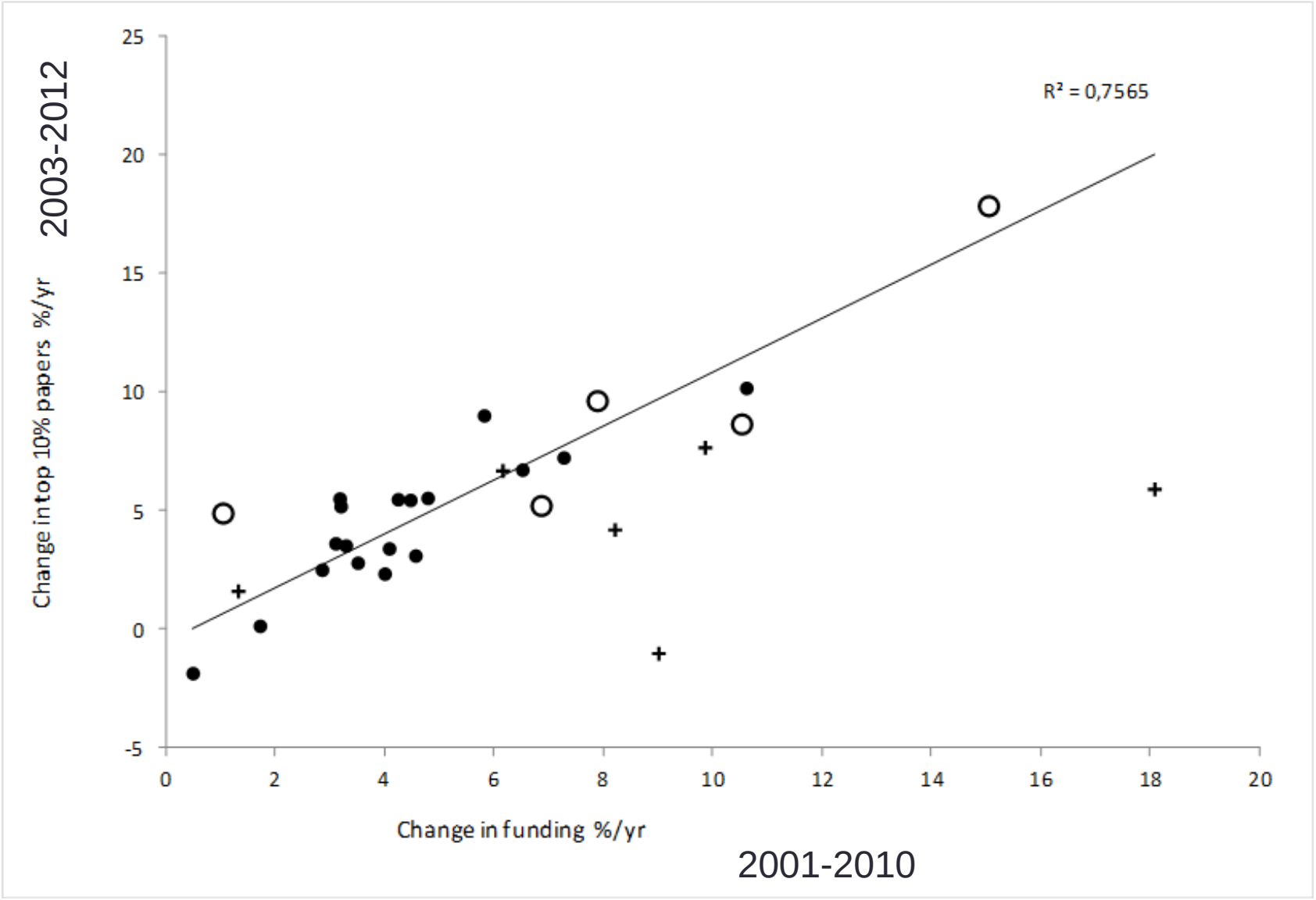
# Formula

- Fraction of the paper
- Expected production reference value (FAP)
- Percentile group

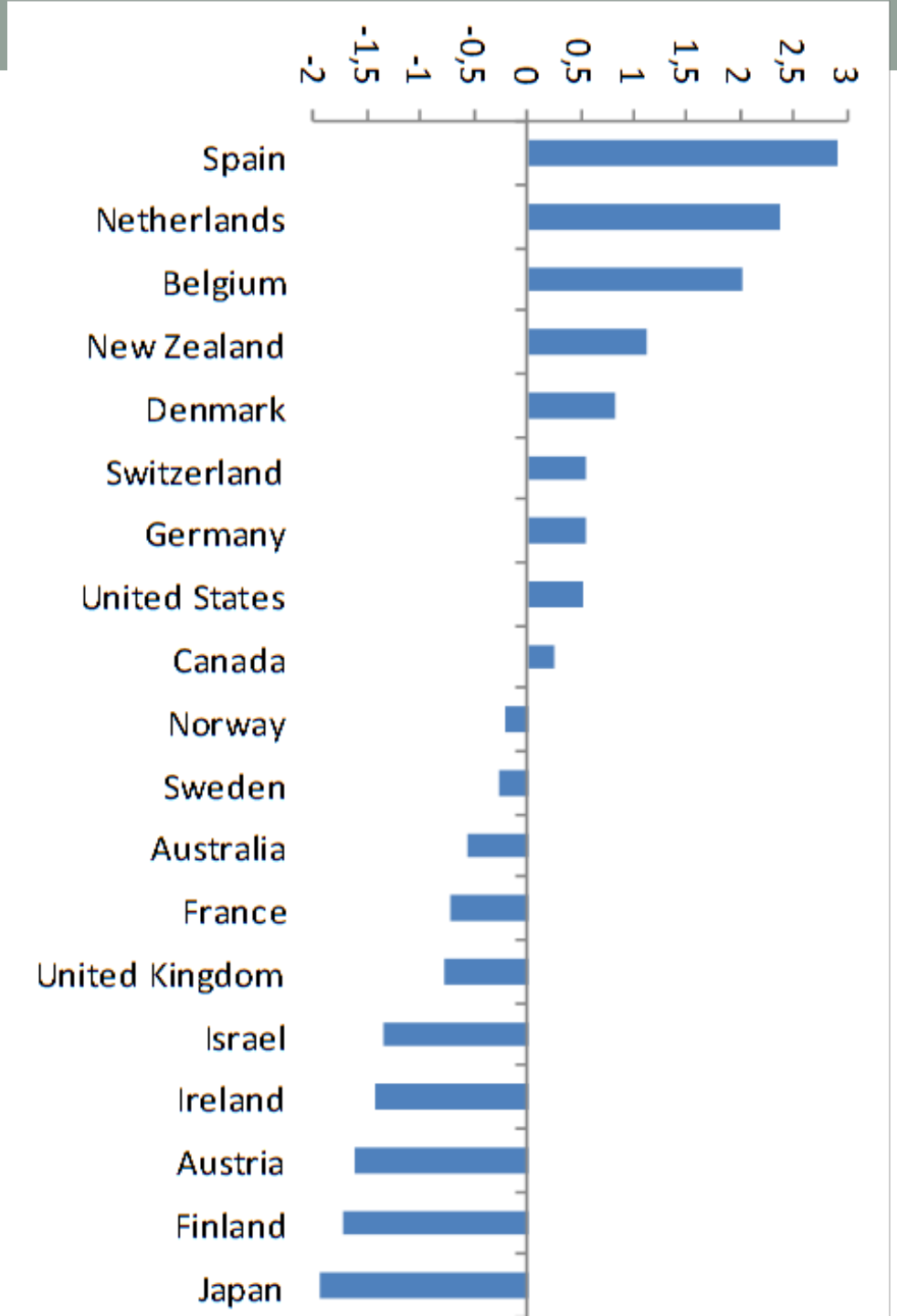


- Creates the points per publication
- Excel- or SQL-database  Points per person

# Strong correlation –HERD to TOP10



Residuals indicate that performance base research funding might have an effect
a)2001-2010
b)2003-2012



# Scoring Method

- Based on Citations at least 2yr after publication
- Papers 2008-2011 and Citations 2008-2014
- Fractional weights per author
- Maximum of 100 authors allowed, if more = 1/100
- Field Adjusted Production weights
- Etc.

# Percentile Model

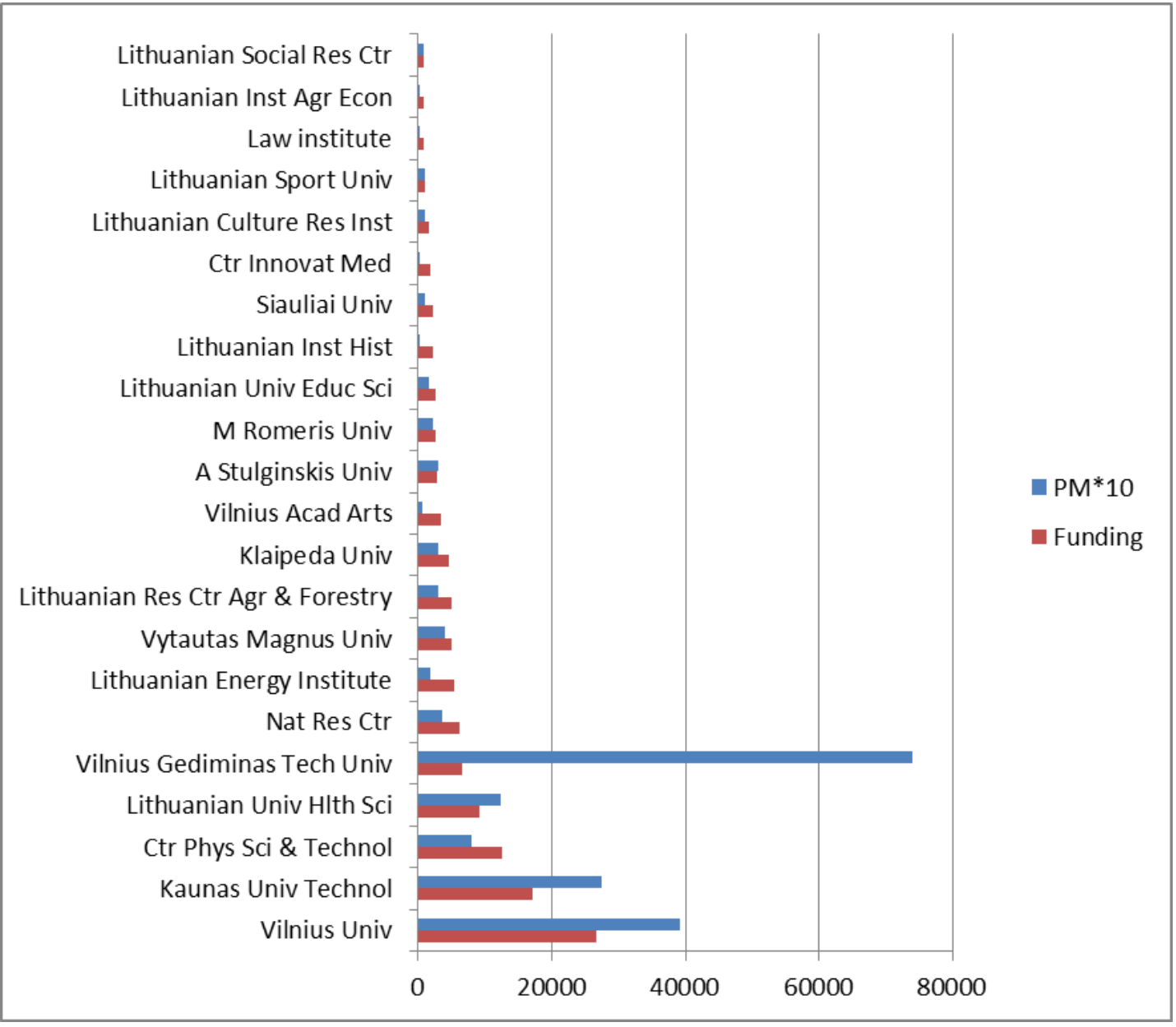
- We use this model to rank all national researchers (individuals with papers connected to Lithuanian addresses)
- Disambiguation of “all” Lithuanian researchers (those that publish)
- Disambiguation tools

# Core and non-core journals (Leiden)

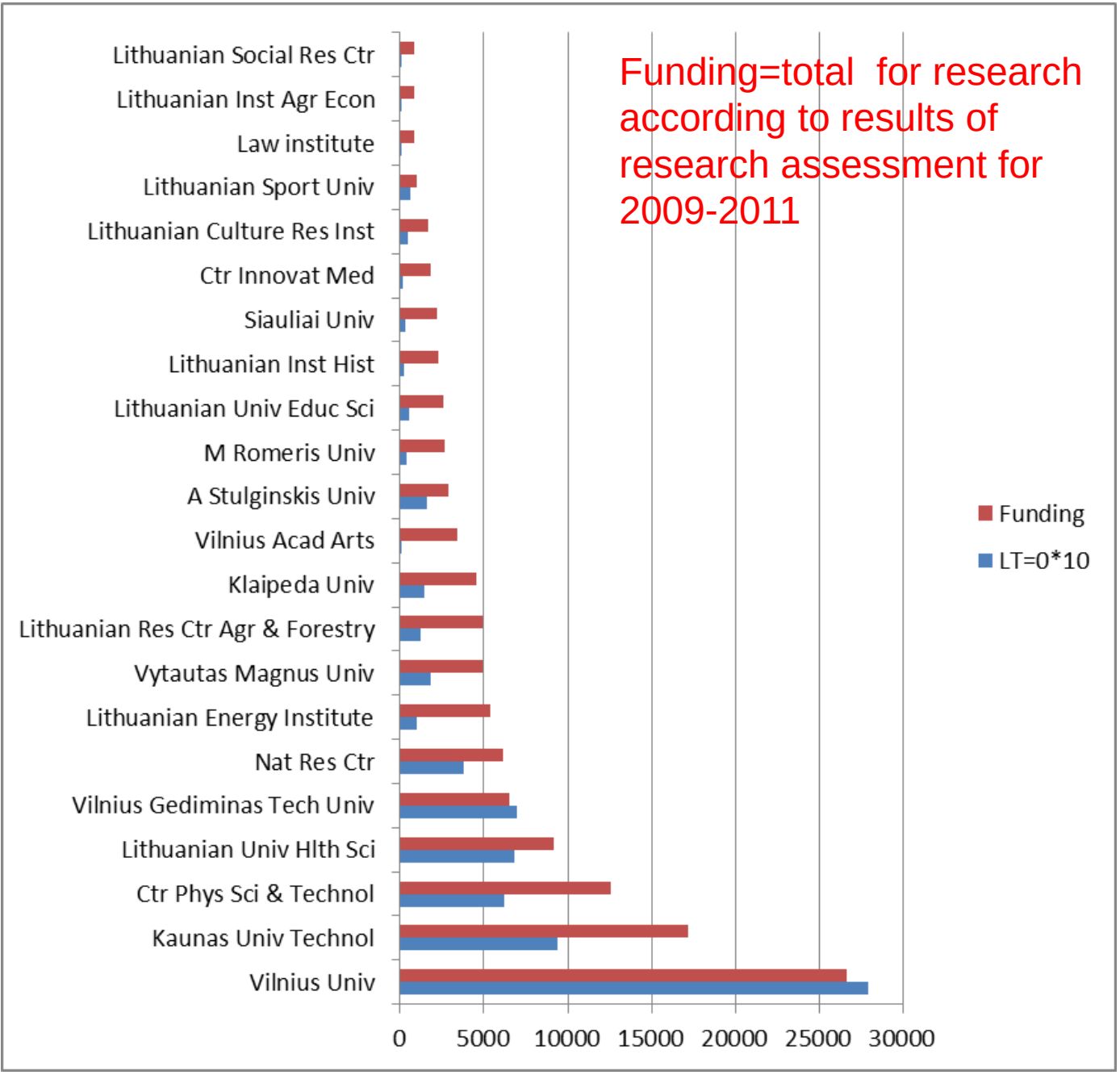
- Published in English and has an international scope, as reflected by an international authorship.
- Journals should have sufficiently large number of references to other core journals in the WoS.
- Citation traffic; the journal should be well-connected to other journals.
- LT journals do not meet these conditions
- But, a process is under way
- Formerly about 65% was national authorship
- Is now going down to less than 50%

# Differences

- With LT (non-core) journals: 6,801 publishing researchers
- Core journals only: 3,895 publishing researchers
- In other words: 43 % of researchers do not publish outside of the LT journals




# With LT journals – funding in relation to performance

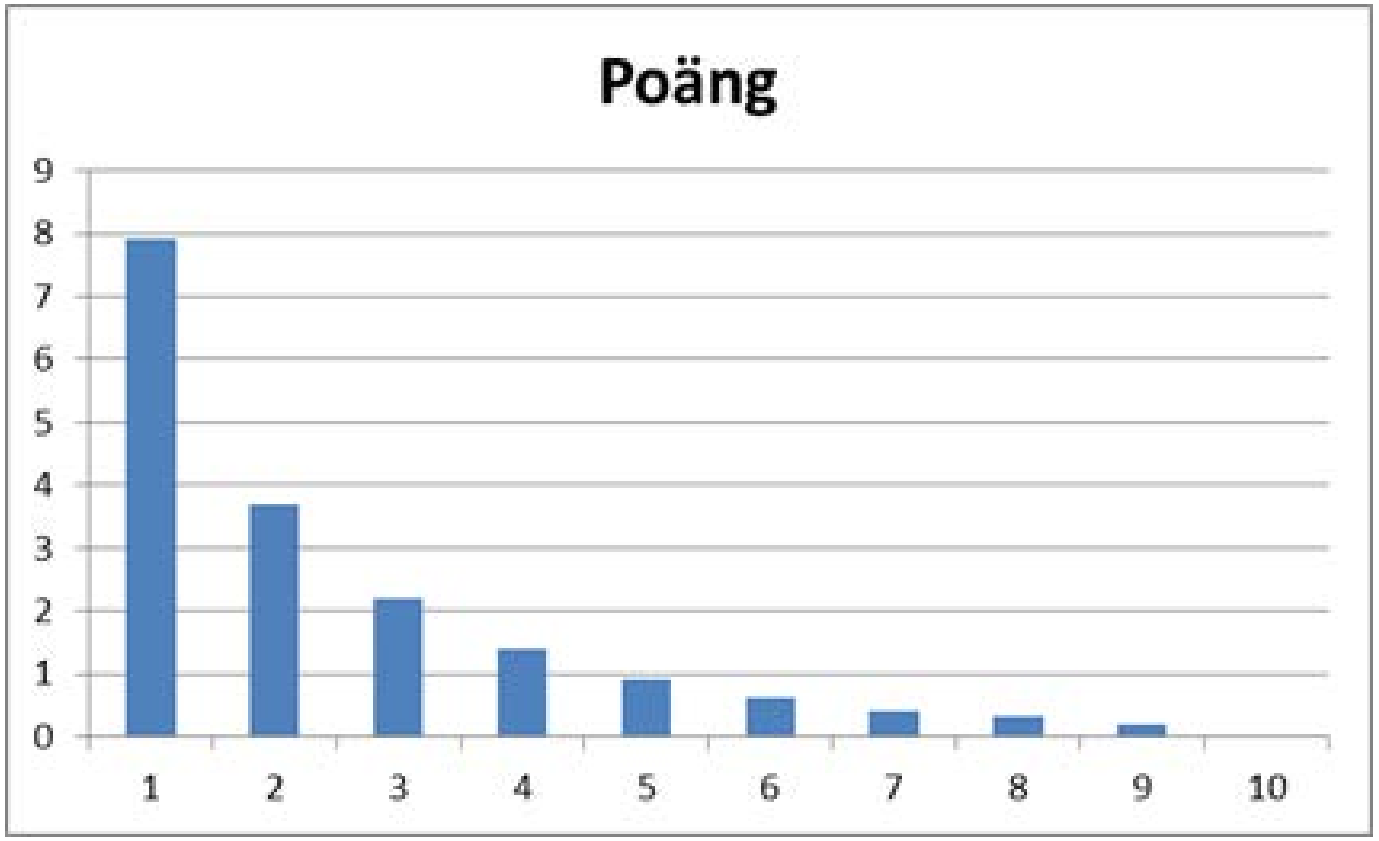



# Core journals (Leiden) Funding in relation to performance

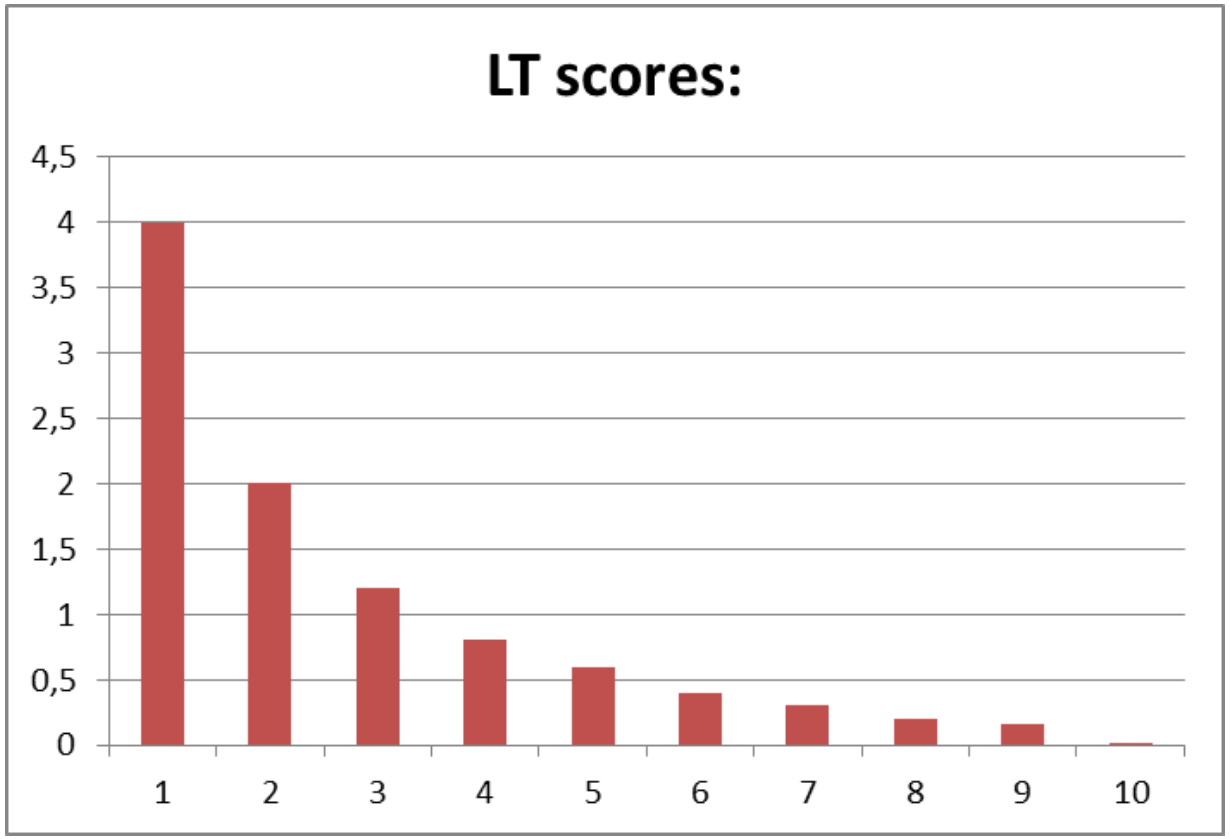
# Scores needed for SWEDISH decile levels

LT scores:

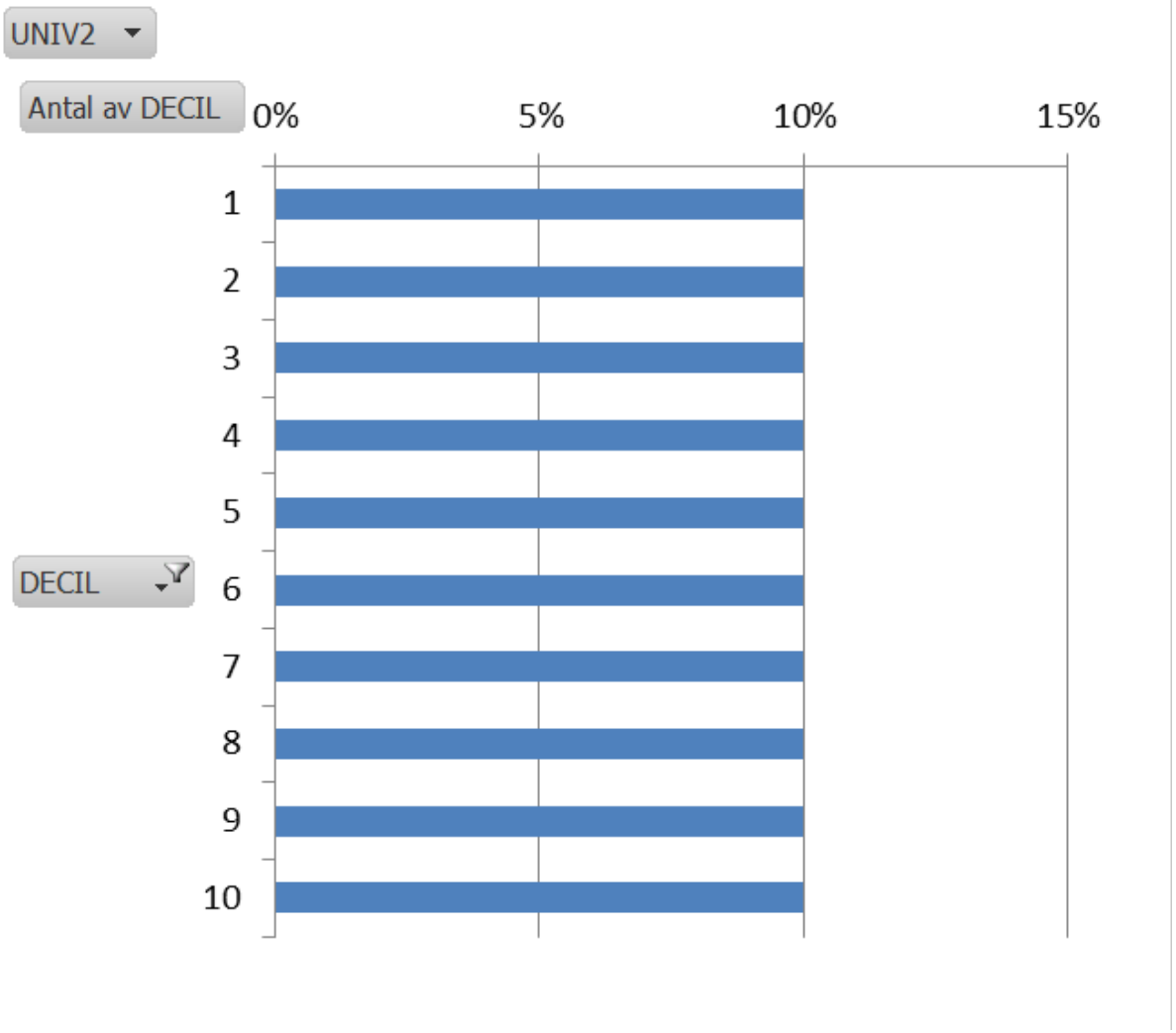
| | |
|---|---|
| 1 | 4 |
| 2 | 2 |
| 3 | 1,2 |
| 4 | 0,8 |
| 5 | 0,6 |
| 6 | 0,4 |
| 7 | 0,3 |
| 8 | 0,2 |
| 9 | 0,16 |
| 10 | 0,01 |



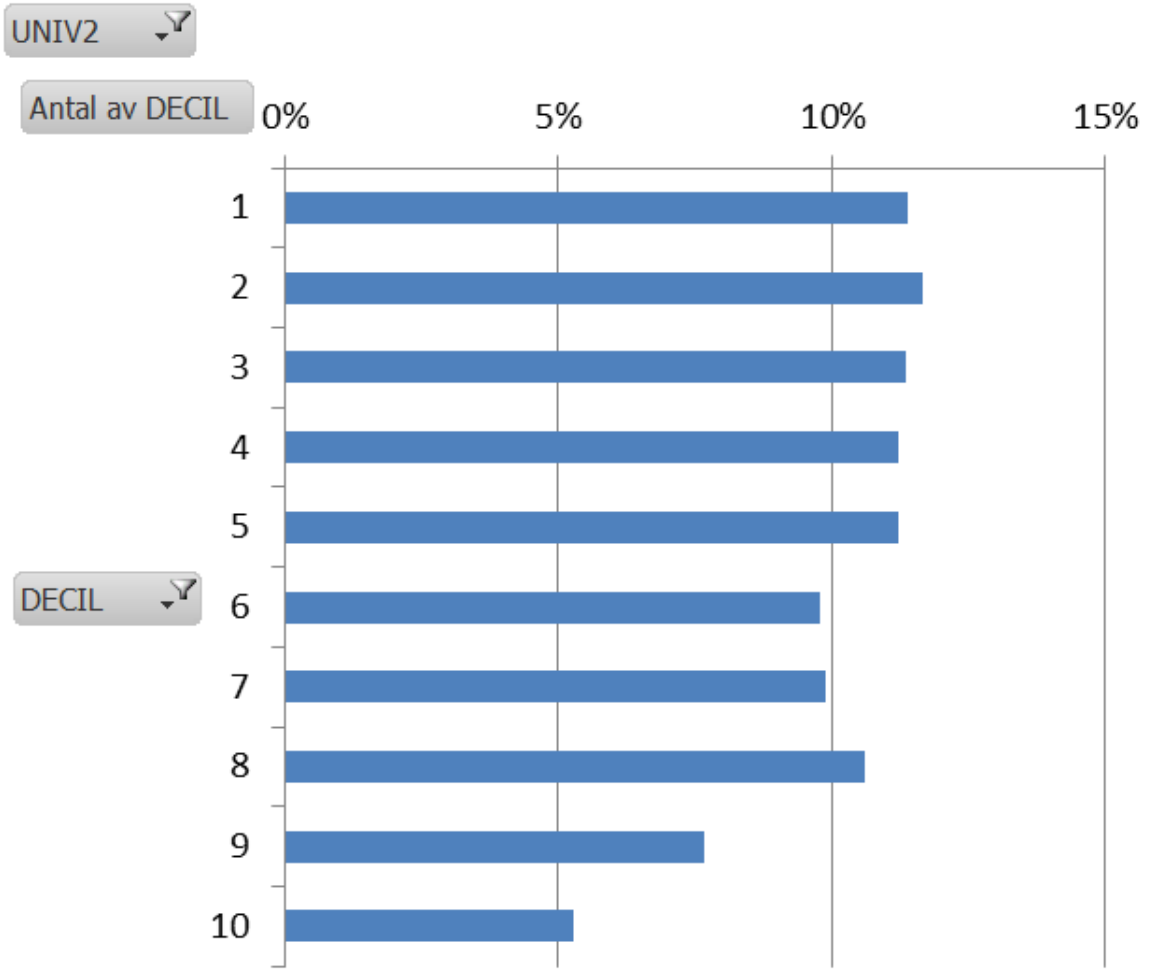
# LT scores per decile



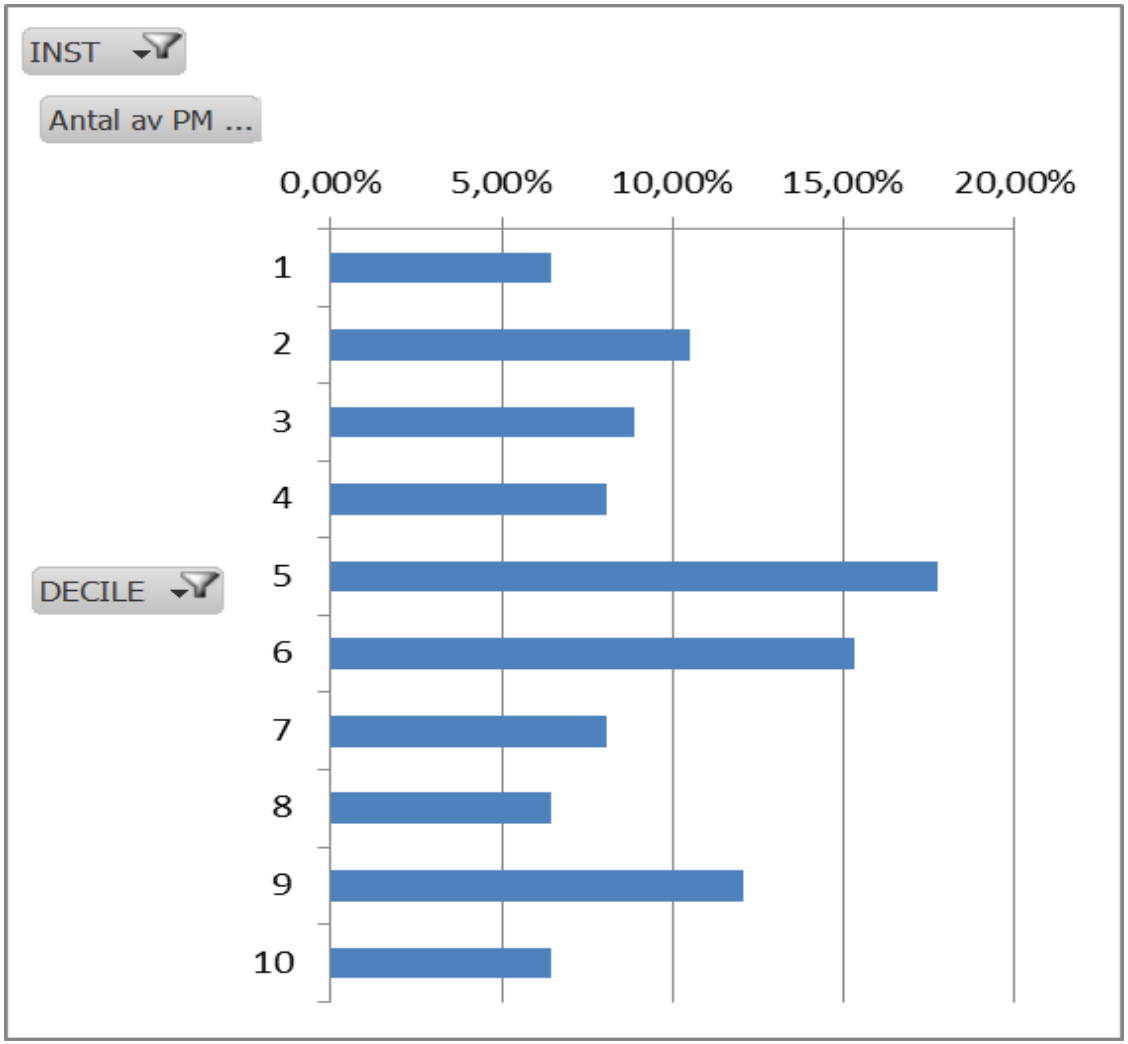
# Deciles of performance



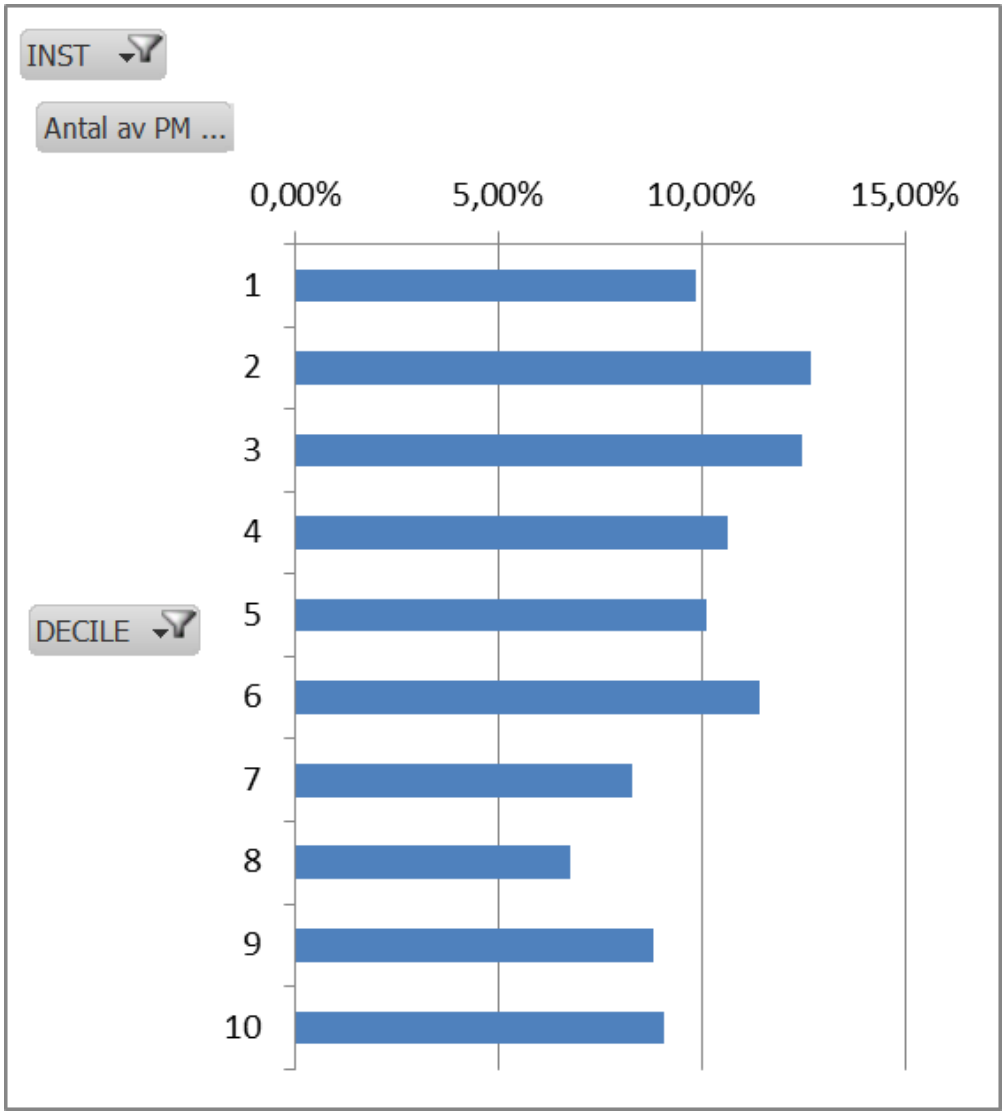
# Profile of Swedish applied uni:s (kth. slu. cth. oru. lnu. mah. kau.)



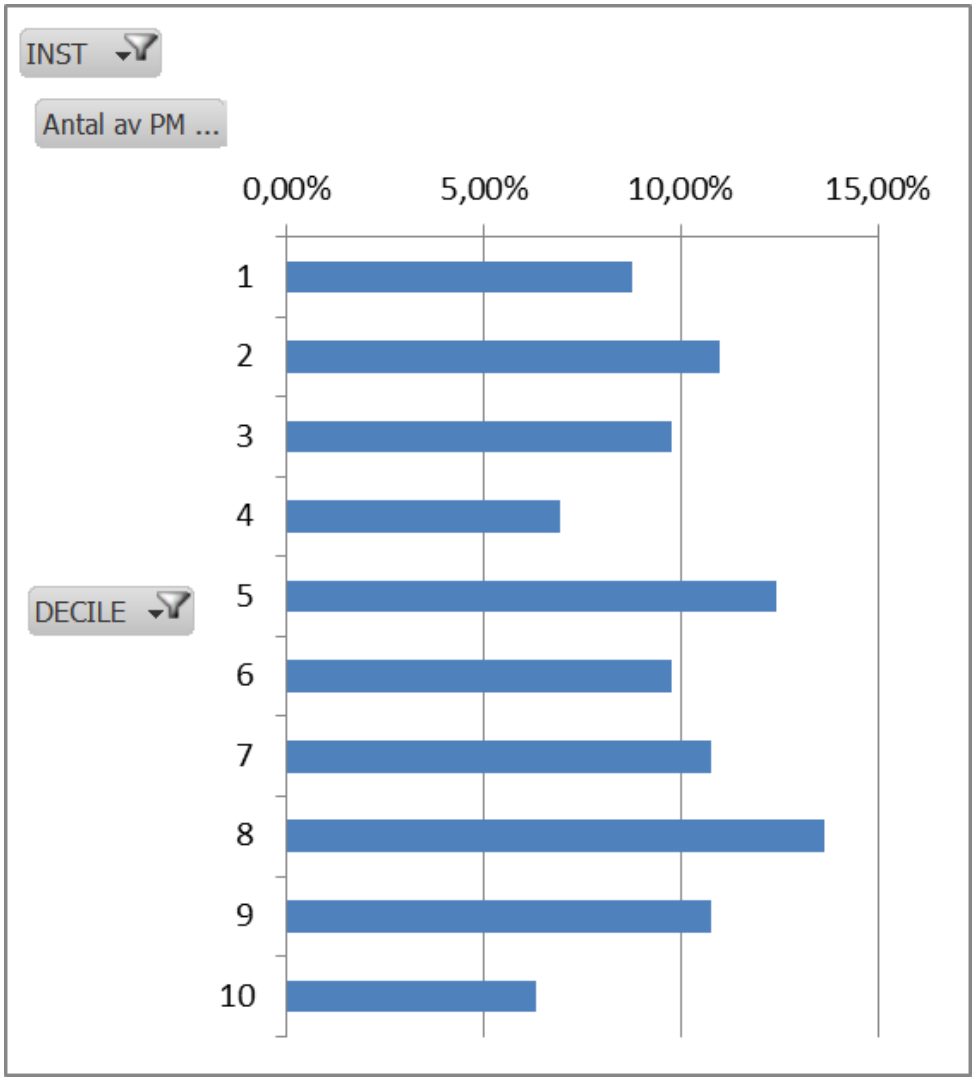
# Profile: A Stulginskis Univ (core)



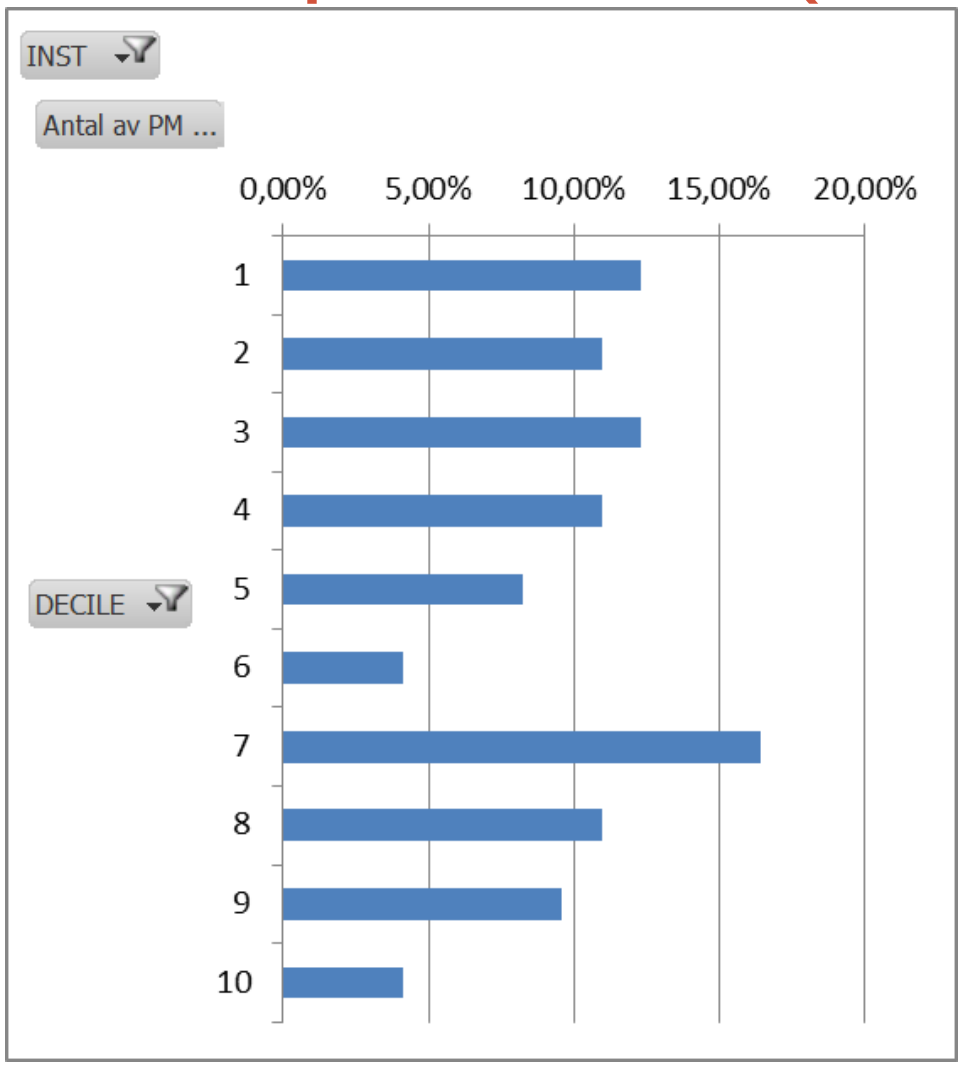
# Profile: Ctr Phys Sci & Technol (core)



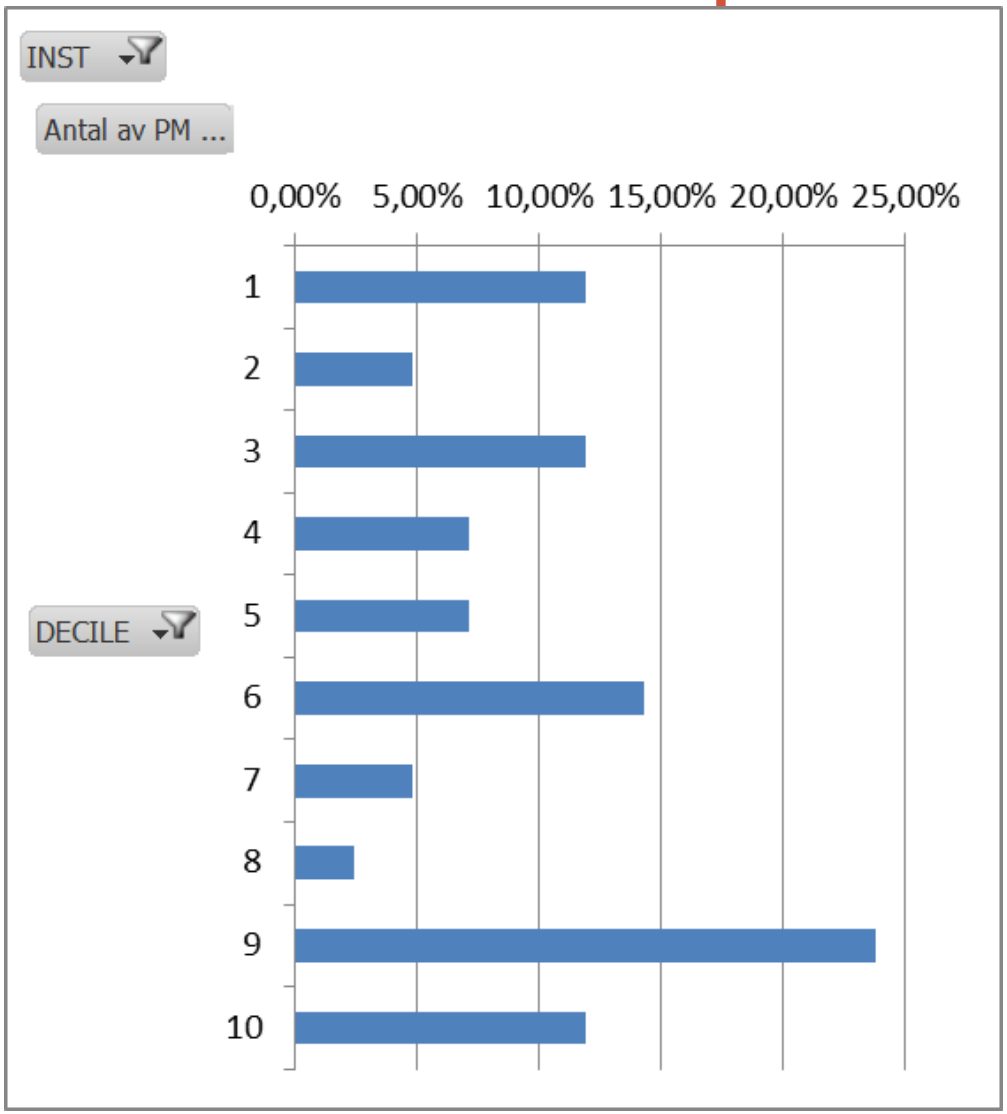
# Profile: Kaunas Univ Technol (core)



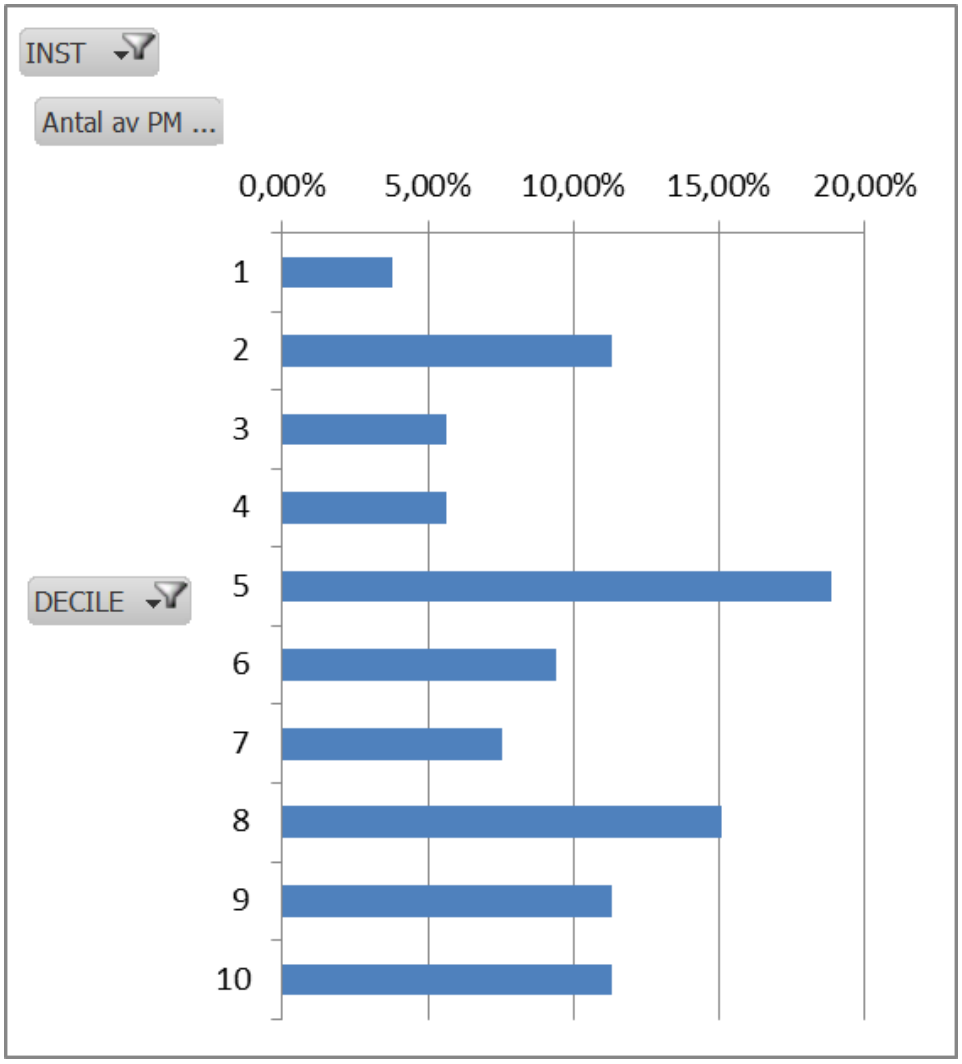
# Profile: Klaipeda Univ (core)



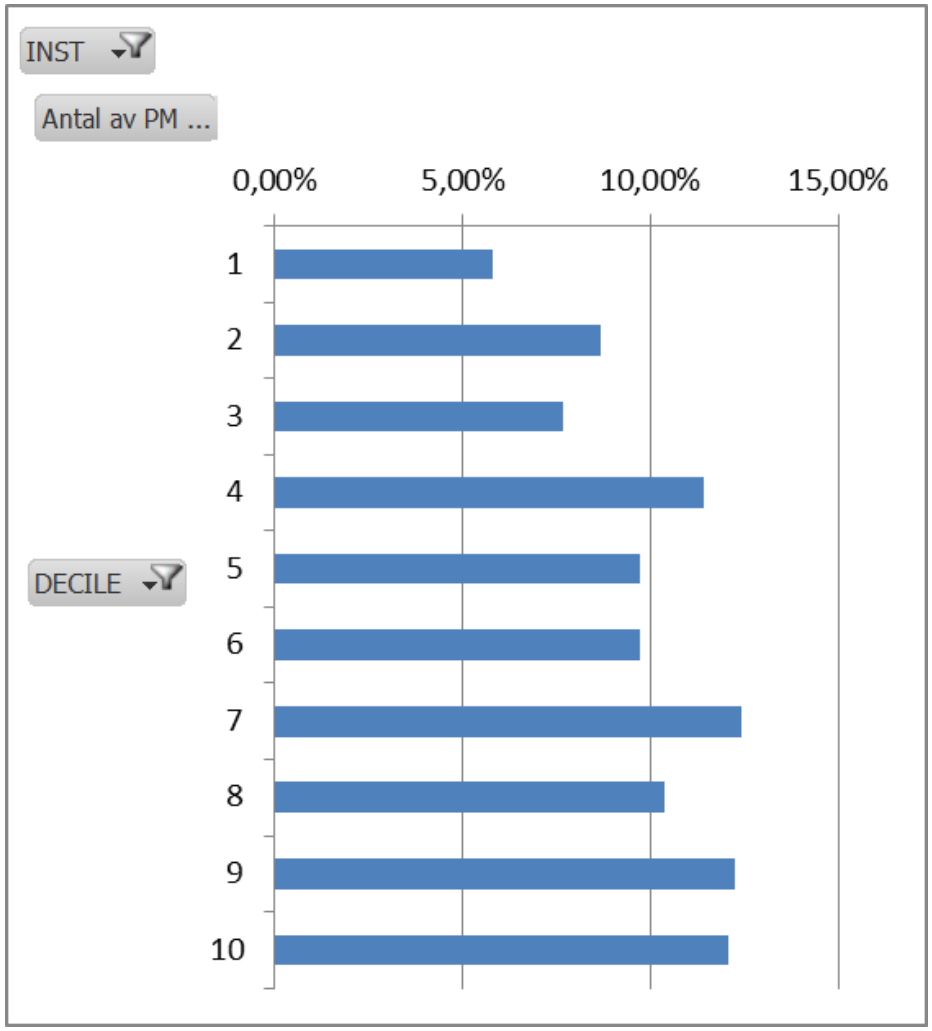
# Profile: Lithuanian Sport Univ (core)



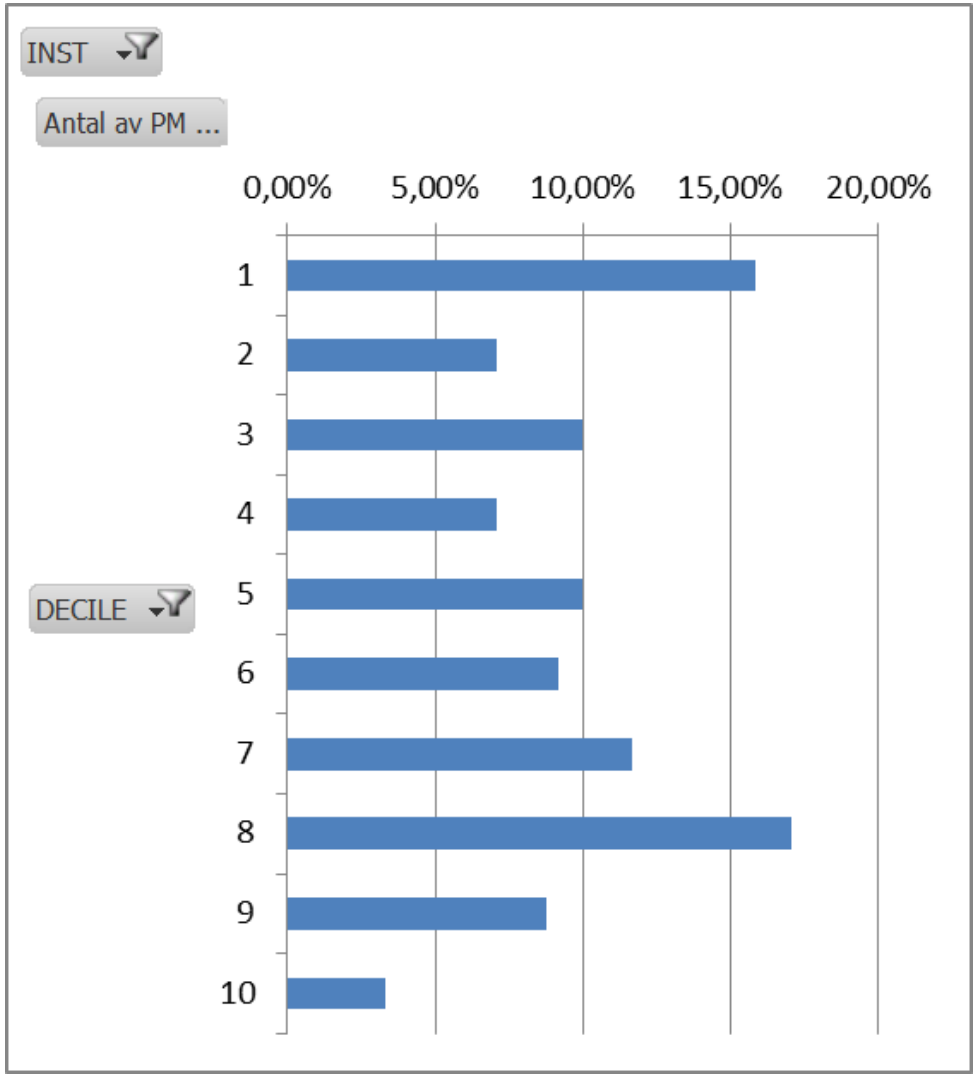
# Profile: Lithuanian Univ Educ Sci (core)



# Profile: Lithuanian Univ Hlth Sci (core)

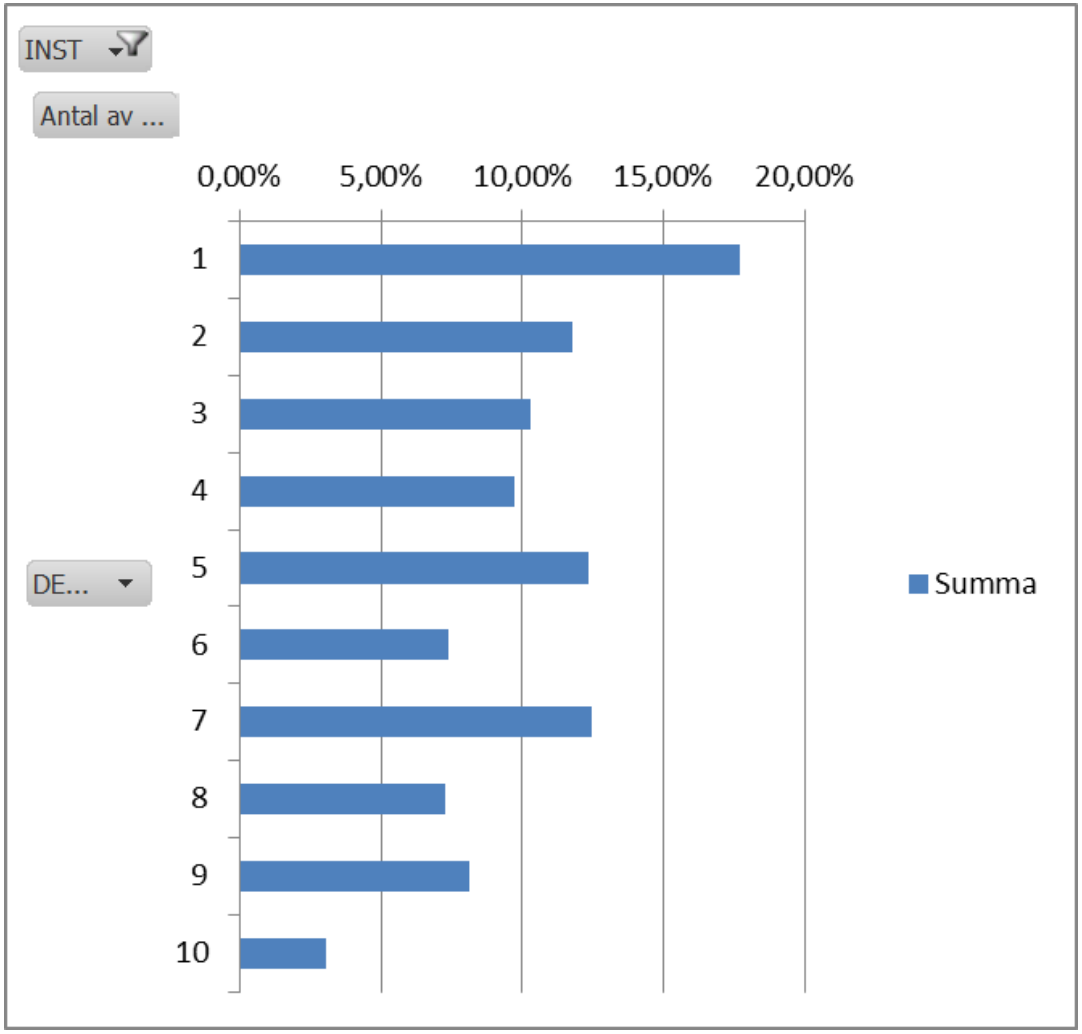


# Profile: Vilnius Gediminas Tech Univ

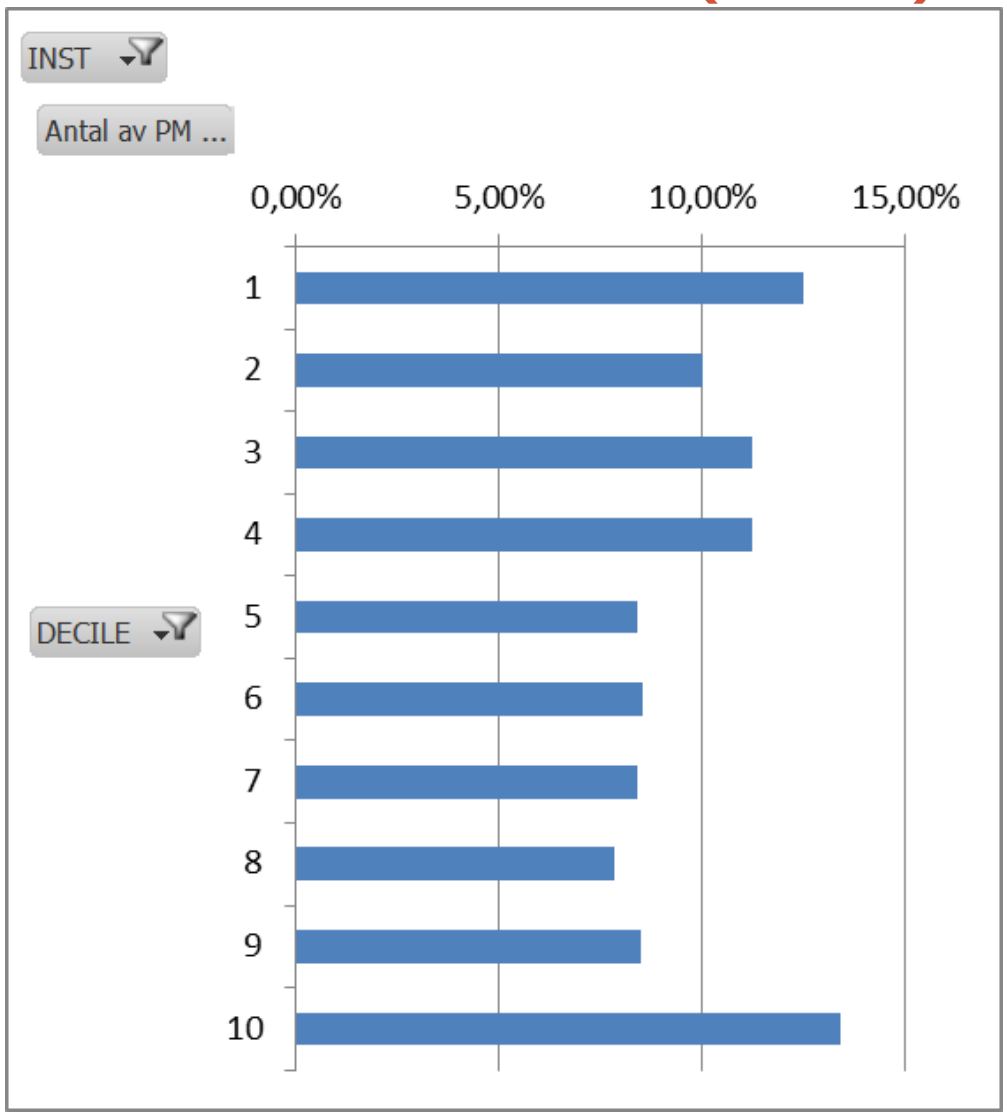



(CORE JOURNALS)

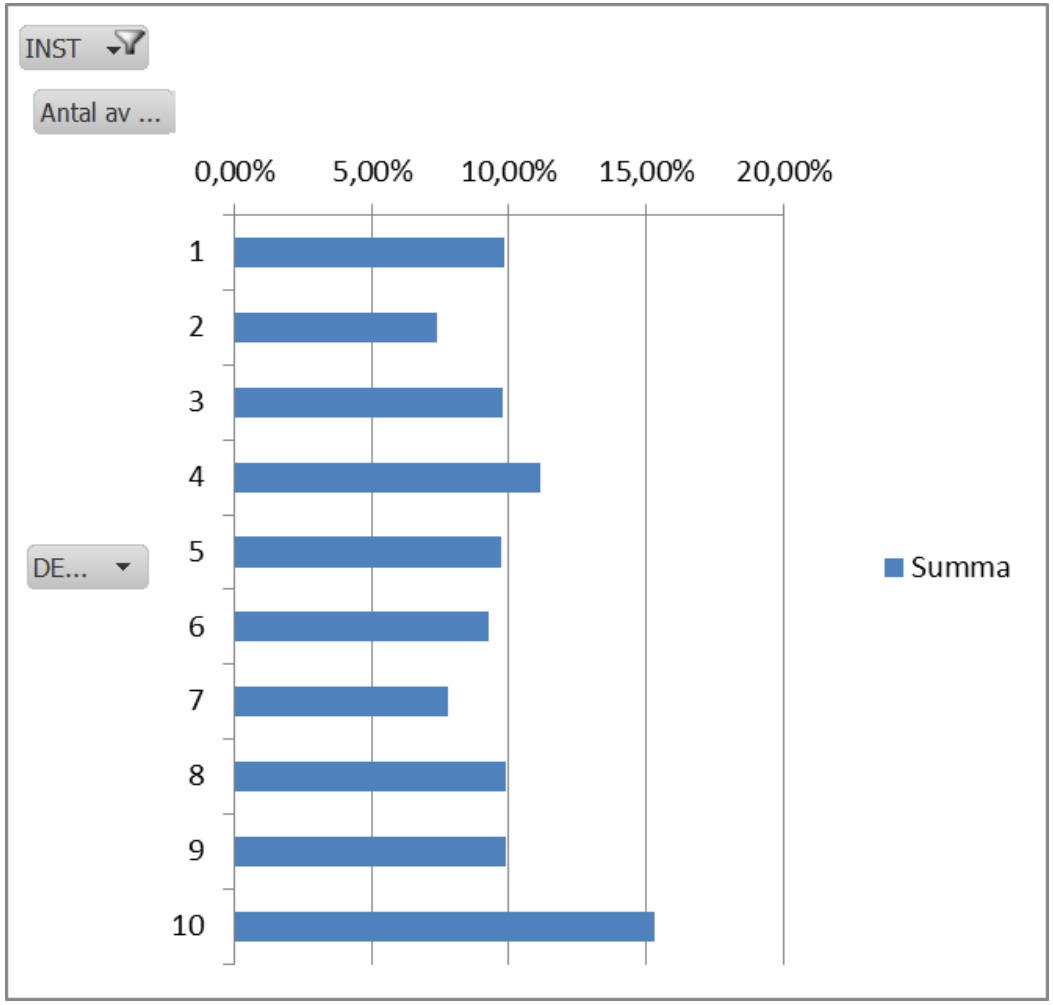
# Profile: VGTU with LT journals



# Profile: Vilnius Univ (core)



# Profile: Vilnius Univ with LT journals



# Per G(länzel)-areas (all LT research)

| DECILE | AGR | BEG | COM | CPE | HUM | LIFE | PSY | SOC | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| **1** | 43 | 25 | 61 | 146 | 13 | 75 | 4 | 30 | 397 |
| **2** | 45 | 31 | 31 | 171 | 19 | 79 | 2 | 20 | 398 |
| **3** | 56 | 33 | 34 | 169 | 6 | 77 | 8 | 15 | 398 |
| **4** | 45 | 54 | 9 | 132 | | 114 | 10 | 34 | 398 |
| **5** | 78 | 40 | 20 | 148 | | 92 | 4 | 16 | 398 |
| **6** | 65 | 46 | 15 | 142 | | 87 | 17 | 26 | 398 |
| **7** | 46 | 52 | 6 | 148 | | 112 | 12 | 22 | 398 |
| **8** | 33 | 43 | 4 | 157 | 1 | 104 | 13 | 43 | 398 |
| **9** | 31 | 14 | 1 | 197 | | 143 | | 12 | 398 |
| **10** | 16 | 31 | 5 | 145 | | 187 | 10 | 4 | 398 |
| **TOTAL** | **458** | **369** | **186** | **1555** | **39** | **1070** | **80** | **222** | **3979** |

Only non-LT journals = core journals

# LT: Areas and relative figures (core)

| DECILE | AGR | BEG | COM | CPE | HUM | LIFE | PSY | SOC | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 9,4% | 6,8% | 32,8% | 9,4% | 33,3% | 7,0% | 5,0% | 13,5% | 10% |
| 2 | 9,8% | 8,4% | 16,7% | 11,0% | 48,7% | 7,4% | 2,5% | 9,0% | 10% |
| 3 | 12,2% | 8,9% | 18,3% | 10,9% | 15,4% | 7,2% | 10,0% | 6,8% | 10% |
| 4 | 9,8% | 14,6% | 4,8% | 8,5% | 0,0% | 10,7% | 12,5% | 15,3% | 10% |
| 5 | 17,0% | 10,8% | 10,8% | 9,5% | 0,0% | 8,6% | 5,0% | 7,2% | 10% |
| 6 | 14,2% | 12,5% | 8,1% | 9,1% | 0,0% | 8,1% | 21,3% | 11,7% | 10% |
| 7 | 10,0% | 14,1% | 3,2% | 9,5% | 0,0% | 10,5% | 15,0% | 9,9% | 10% |
| 8 | 7,2% | 11,7% | 2,2% | 10,1% | 2,6% | 9,7% | 16,3% | 19,4% | 10% |
| 9 | 6,8% | 3,8% | 0,5% | 12,7% | 0,0% | 13,4% | 0,0% | 5,4% | 10% |
| 10 | 3,5% | 8,4% | 2,7% | 9,3% | 0,0% | 17,5% | 12,5% | 1,8% | 10% |
| **TOTAL** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

# Profile of VGTU (core)

| DECILE | BEG | COM | CPE | LIFE | SOC | TOTAL |
|---|---|---|---|---|---|---|
| 1 | 18,0% | 37,8% | 5,2% | 14,3% | 66,7% | 16% |
| 2 | 8,2% | 8,1% | 6,1% | 4,8% | 16,7% | 7% |
| 3 | 14,8% | 10,8% | 8,7% | 4,8% | 0,0% | 10% |
| 4 | 13,1% | 2,7% | 6,1% | 0,0% | 16,7% | 7% |
| 5 | 11,5% | 13,5% | 7,8% | 14,3% | 0,0% | 10% |
| 6 | 13,1% | 8,1% | 7,8% | 9,5% | 0,0% | 9% |
| 7 | 11,5% | 5,4% | 14,8% | 9,5% | 0,0% | 12% |
| 8 | 6,6% | 5,4% | 27,0% | 19,0% | 0,0% | 17% |
| 9 | 1,6% | 2,7% | 13,9% | 14,3% | 0,0% | 9% |
| 10 | 1,6% | 5,4% | 2,6% | 9,5% | 0,0% | 3% |
| **TOTAL** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

# Profile Vilnius Univ (core)

| DECILE | AGR | BEG | COM | CPE | HUM | LIFE | PSY | SOC | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5,0% | 2,2% | 35,8% | 14,3% | 0,0% | 8,5% | 3,3% | 15,2% | 12% |
| 2 | 11,3% | 2,2% | 20,0% | 12,3% | 42,9% | 6,5% | 6,7% | 6,1% | 10% |
| 3 | 11,3% | 4,3% | 21,1% | 13,2% | 42,9% | 7,8% | 6,7% | 10,6% | 11% |
| 4 | 18,8% | 17,4% | 3,2% | 10,3% | 0,0% | 10,5% | 16,7% | 19,7% | 11% |
| 5 | 20,0% | 21,7% | 11,6% | 6,4% | 0,0% | 7,4% | 3,3% | 4,5% | 8% |
| 6 | 11,3% | 13,0% | 7,4% | 7,7% | 0,0% | 7,6% | 10,0% | 16,7% | 9% |
| 7 | 11,3% | 17,4% | 0,0% | 6,8% | 0,0% | 9,6% | 10,0% | 13,6% | 8% |
| 8 | 3,8% | 8,7% | 0,0% | 6,2% | 14,3% | 9,6% | 26,7% | 13,6% | 8% |
| 9 | 3,8% | 2,2% | 0,0% | 9,5% | 0,0% | 12,6% | 0,0% | 0,0% | 8% |
| 10 | 3,8% | 10,9% | 1,1% | 13,4% | 0,0% | 19,8% | 16,7% | 0,0% | 13% |
| **TOTAL** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

# Dynamics of LT journals