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# THE STRUCTURE OF KNOWLEDGE TRANSFER OFFICES IN EUROPE

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# This Study

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- Joint work with Frank Janssen (UCL) & Yannick de Harlez (UCL)
- Analysis of the structure of Knowledge Transfer Offices (KTOs) in Europe
  - Significant amount of early-stage research done in universities but developed by the industry
  - Returns from univ. research only in the very long term
- Research Questions:
  - How do European KTOs stand in terms of protecting and promoting the intellectual property rights (IPR) of their Clients (i.e., universities)?
  - How are European KTOs structured?
  - What is their performance (spin-offs, licenses, research contracts)?

# Different Models for KTOs

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- The Open Science Model
  - Universities as source of new discoveries
  - No need for KTOs that manage intellectual property rights, since PROs don't retain them
  - Innovation left to the private sector
- The Licensing Model
  - Universities are source of new inventions and are patented
  - KTOs have the function of managing licenses → royalty income
- The Innovation Model
  - More active policy
  - Collaborative research with industry and creation of spin-offs

# Data Source

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- Proton Europe:
  - a EU-supported pan-European Association of KTOs affiliated to Public Research Organizations (PROs).
  - ProTon Europe and its partner national associations cover more than 500 transfer offices in Europe.
- Picture of one year: 2005 activities
- Sample of 392 European KTOs
  - Includes the full sample of the Proton Europe data collected

# Benefits of the Dataset

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- Wide range of KTOs
  - from 17 European countries
  - Year of establishment from 1969 to 2005
- Extensive information on
  - Intellectual Property Rights (IPR) protection
  - staff profile
  - output
  - relation with PRO
  - ...

# Limitations of the Dataset

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- Only one year: causality?
  - E.g., how do # spin-offs relate to # staff?
- Not a well-balanced dataset: some countries are over-represented, while others under-represented
  - Depends on the structure of national associations, since they have been used for data collection
  - Lack of information about the full population makes it difficult to make corrections

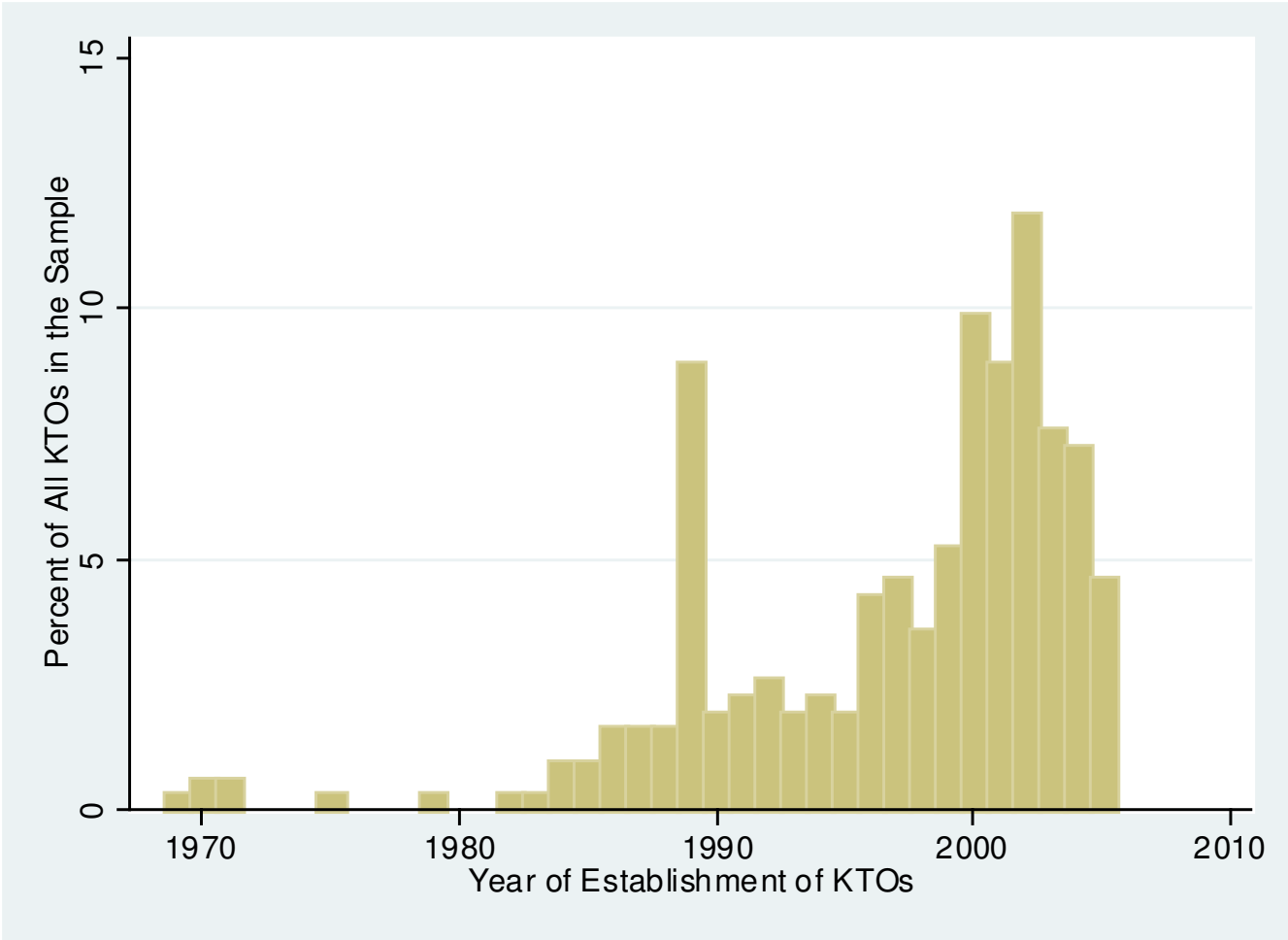
# The Structure of European KTOs

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- On average 7.5 FTE staff members, but large variation
- 9% serve more than one PRO on a permanent basis
  - especially in Italy and Germany
- 4% have their own capital seed fund
- 70% of their budget comes from PROs or other public resources (subsidies)
- on average 8 years old (end of 2005)

# KTOs by Year of Establishment

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# KTO: Relation with PRO

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- 76% of KTOs are unit/department of PROs
  - The rest mainly non-for-profit entities (mostly controlled by PROs)
- Number of PROs having written IPR policies on:
  - Ownership of inventions: 71%
  - Ownership of copyright: 20%
  - Involvement of students in contract research with companies: 25%
  - Collaboration with industry and contract research: 58%
  - Creation of spin-offs: 45%

# KTO: Services provided to PRO

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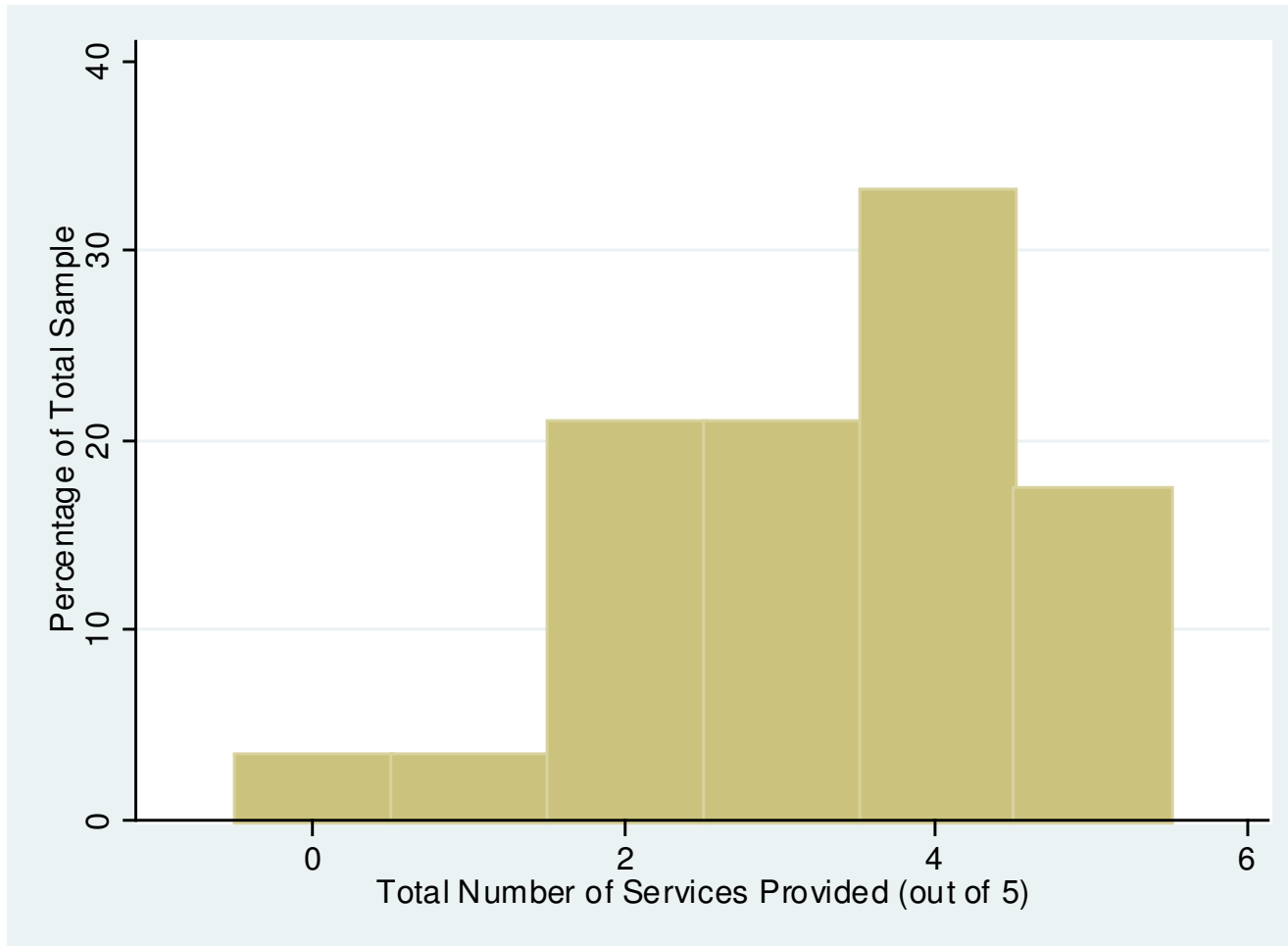
- management of public research: 37%
- collaborative R&D public programmes with industry: 69%
- licensing: 59%
- research and consultancy contracts: 57%
- support of spin-off creation: 70%
- management of science park: 8%
- management of seed capital: 6%
- ...

→ On average, a KTO offers 5 of these services.

→ Most KTOs follow the Innovation Model.

# Histogram of Number of Services Provided

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# KTO: Staff Profile

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- 81% of KTOs have no professional staff with any kind of sector orientation in high-tech (e.g., ICT, biotech, etc.).
- 73% have no professional staff with at least 5 years of prior industry experience.
- 51% of KTOs provide financial incentives to their staff for performance.
- Remarks:
  - Lack of experienced staff?
  - No significant difference between KTOs established before and after 2000 (even for threshold at 1995).

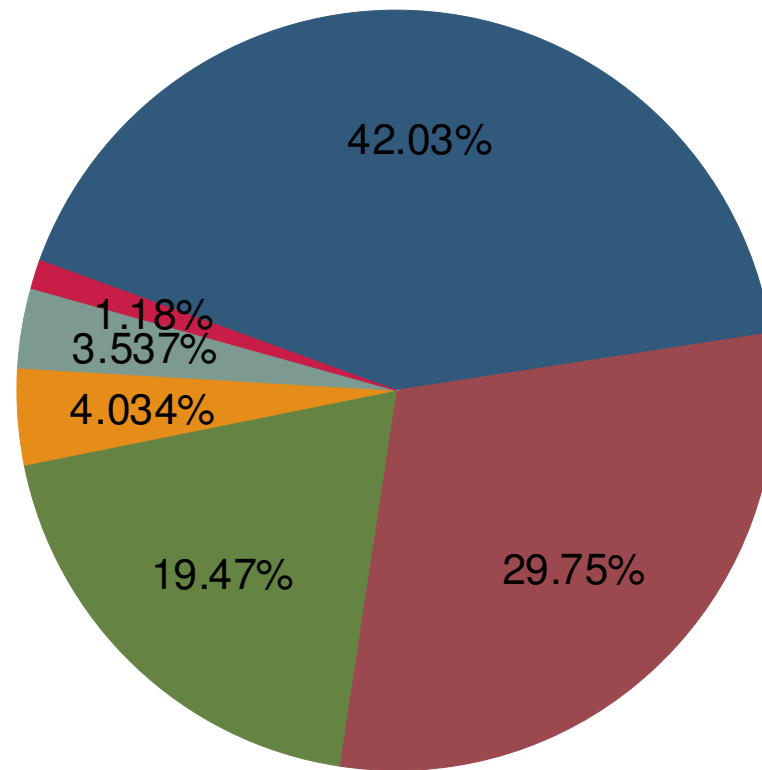
# Relation between Structure and Staff Profile

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- Relation between staff profile and structure (i.e., whether KTO is a unit/department of PRO or not)
  - Specialized staff less likely when KTO is a department of PRO
- Age of KTO does not seem to matter
  - for structure
  - nor for staff profile

# KTO: Sources of Funding

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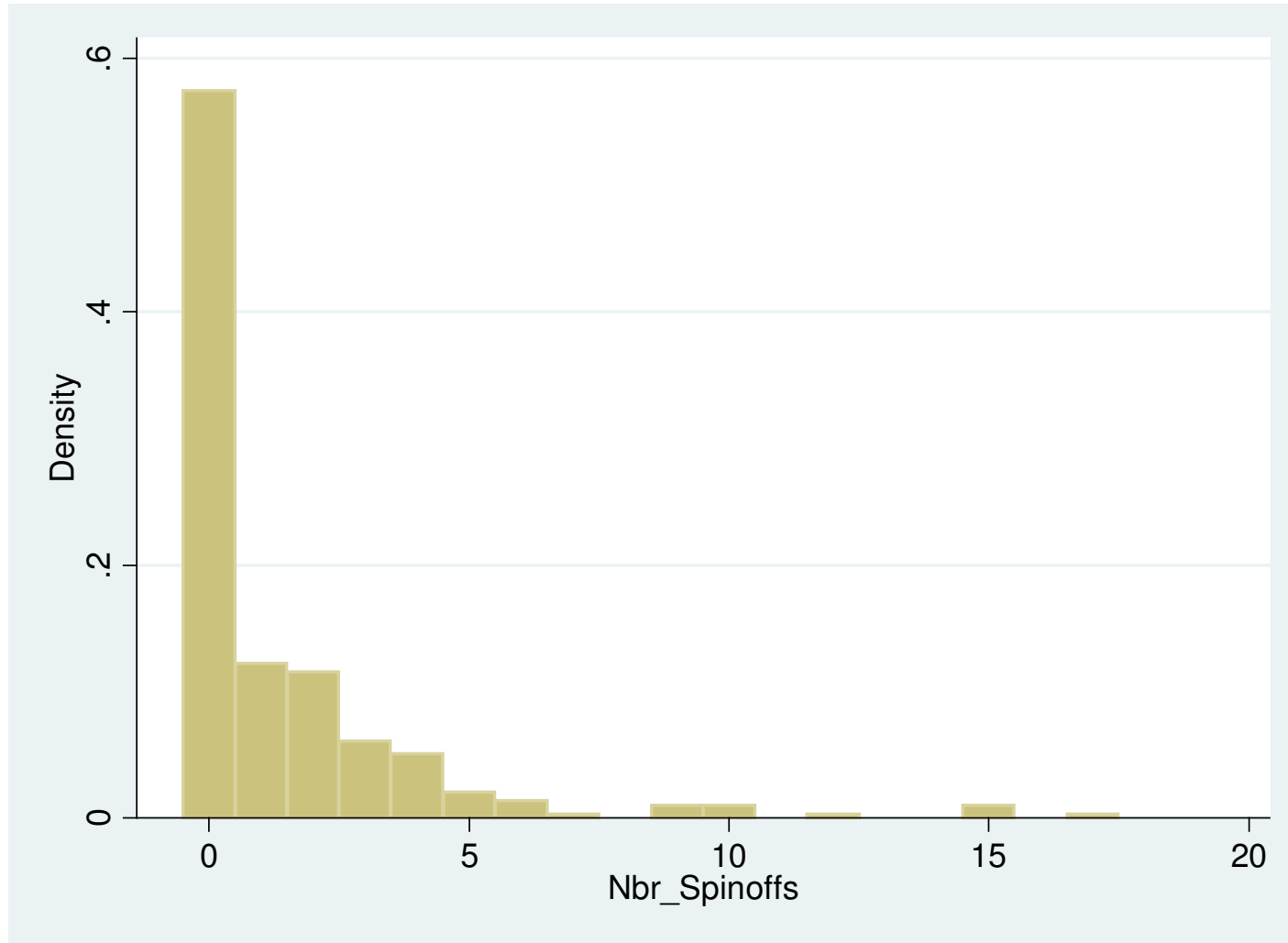
# KTO: Output Measures

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- Creation of spin-offs:
  - # spin-offs / academic staff
- Number of licenses granted
  - # licenses / academic staff
  - Revenues from licenses / academic staff
- Number of external research contracts (not reported!)
- These measures do not allow to assess performance directly, but are valid output measures.
  - E.g., we do not know the real quality of each spin-off nor the total revenues over several years.

# Histogram of the Number of Spin-offs (Subset of KTOs offering Support to PRO)

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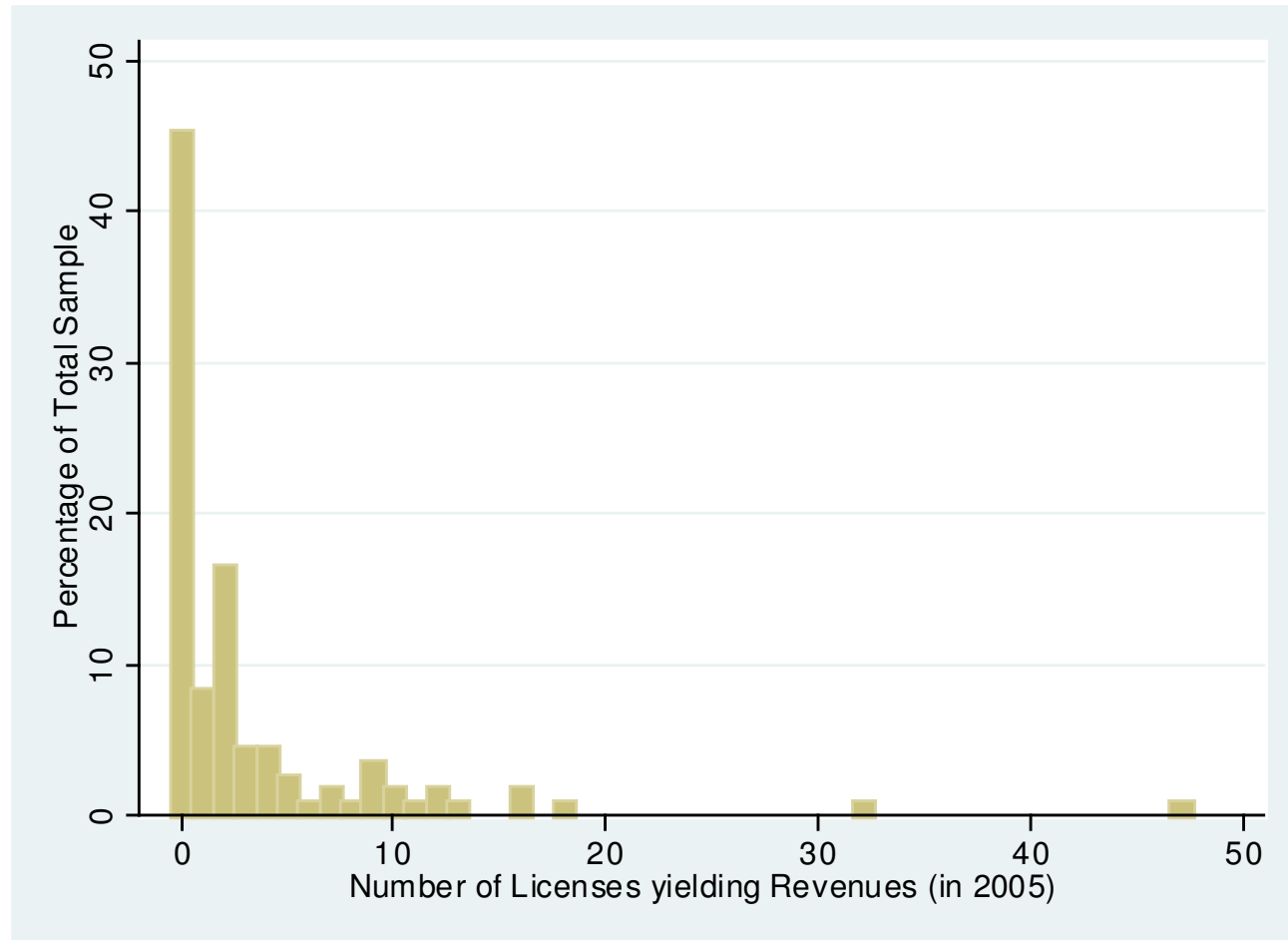
# Drivers of Output: Univ. Spin-offs / Academic

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- (Results based on multivariate analysis)
- age of KTO: positive
- financial incentives of staff: positive
- size of university (proxied by # students): negative
- not significant:
  - if KTO has own capital fund
  - if KTO serves multiple PROs

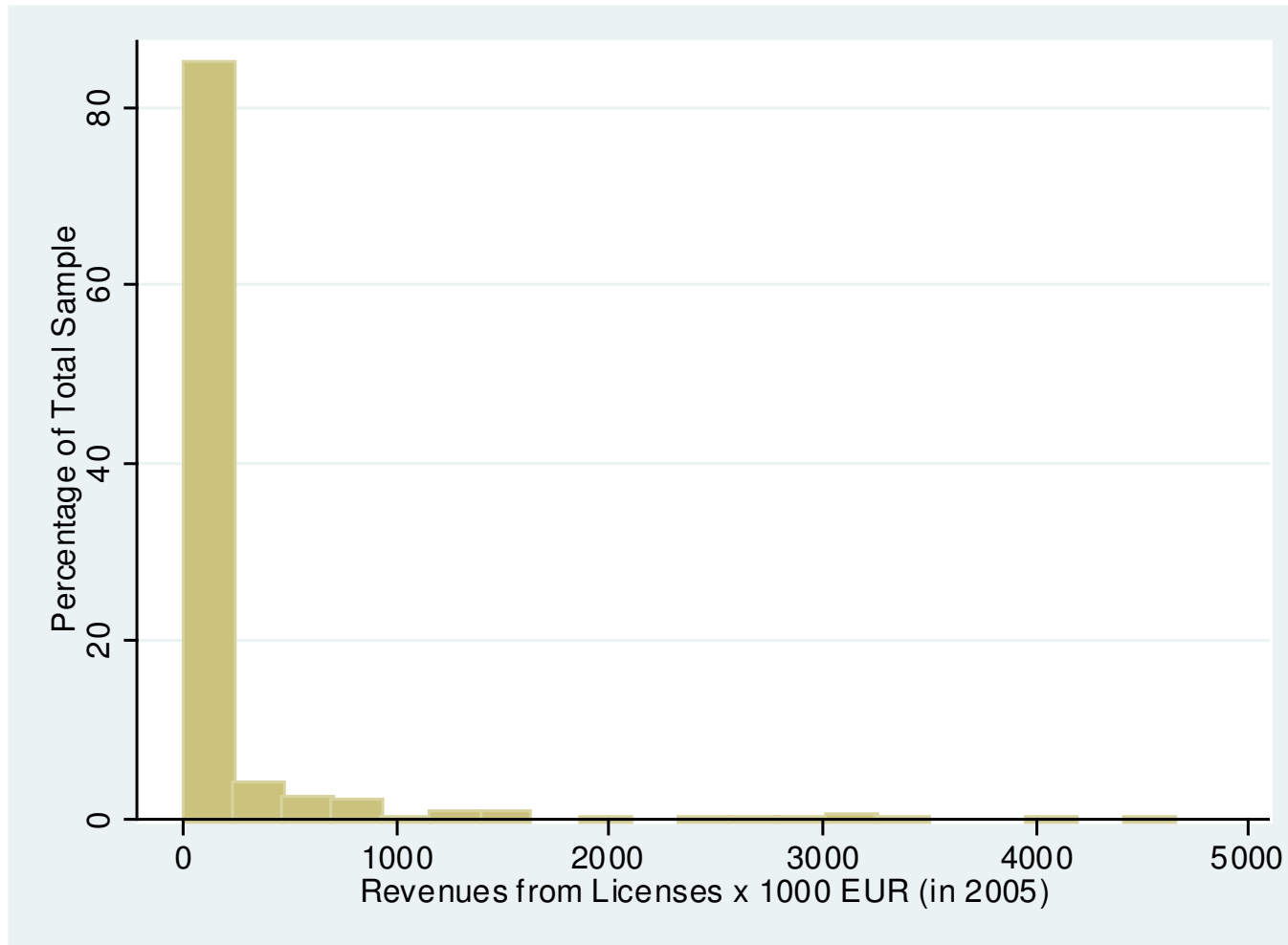
# Histogram of the Number of Licenses (Subset of KTOs offering Support to PRO)

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# Histogram of the Revenues from Licenses (Subset of KTOs offering Support to PRO)

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# Drivers of Output: Licenses

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- (Results based on multivariate analysis)
- Number of Licenses / Academic:
  - age of KTO: positive
  - financial incentives of staff: positive
  - size of university (proxied by # students): negative
  - KTO serves multiple PROs: positive
- For Revenues / Academic:
  - age of KTO: positive
  - size of university (proxied by # students): negative

# Conclusions

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- This study: overview of the structure of European KTOs
  - Large set of services provided by KTOs to PROs → Innovation Model
  - Overall, more established KTOs are not very different from newcomers, except for output
  - Lack of industry/sector experience of professional staff
  - Financial incentives of KTO staff important for output
  - Financial revenues from KTO activities (licenses, equity, O/H, ...) small
- Output is increasing over time:
  - have enough technology “in the pipeline” to offer licenses and support spin-off initiatives
- KTOs are typically units/departments of the PRO

# Some Follow-up Questions

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- How to motivate researchers to patent discoveries and/or create spin-offs?
- When is it the right time to set up a spin-off?
  - To get the market to judge the viability
  - Many spin-offs are set up at a time far too early for private investors (time-to-exit over 10 years); in this case, how to finance them?
- How to deal with the professionalization of spin-offs?
  - Researchers often lack the knowledge to run a company.