

Intellectual Property in Software Development: Trends, Strategies and Problems

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Introduction

Use of IPR in the Software Sector

Factors influencing the Use of Software Patents

Policy Challenges



Introduction: Background

since 1999 controversial debate on patentability of computer-implemented inventions (= software patents) in Europe

decision about a European Directives fails in 2005

status quo with high legal insecurity remains

since spring 2006 revival of the consultation about the Community patent in Europe

first approaches of self-regulation by industry in the United States in order to increase patent quality especially focusing on the software sector

further expansion of the use of Open Source software also in companies applying patent protection



Has the discussion on extending the patentability to computer-implemented inventions increased the use of patents as a protection instrument in the software sector?

Is there a change in the factors determining the use of patents as protection instrument in the software sector?

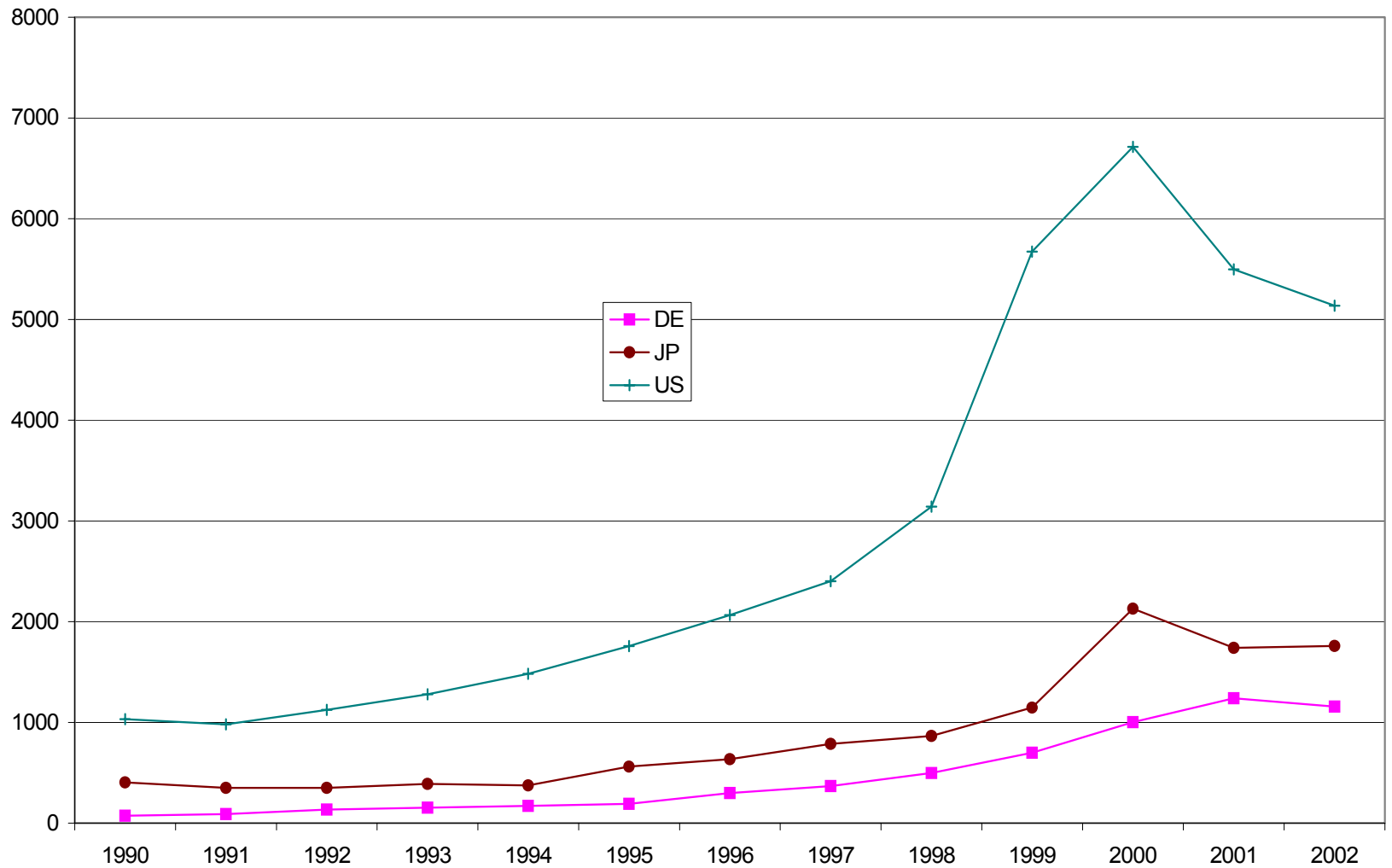
What are the challenges for policy caused by the results?

Data bases:

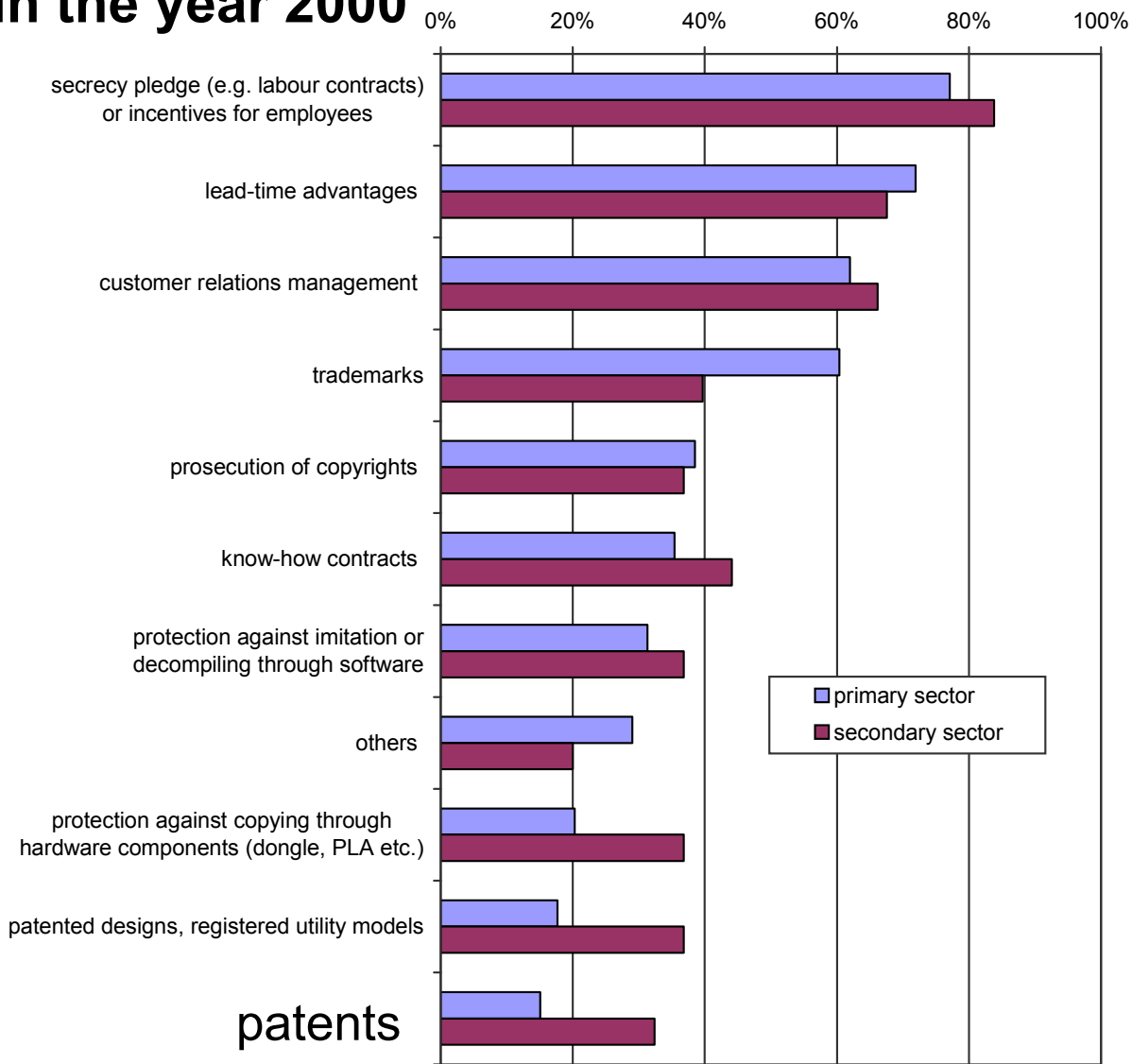
- o survey among German companies producing software conducted in the year 2001 divided in traditional software companies (= primary sector) and companies in the manufacturing sector producing software (= secondary sector) (Blind et al. 2005) (n = 282)
- o subsample of software companies within the fourth Community Innovation Survey conducted in 2005 (n = 142)



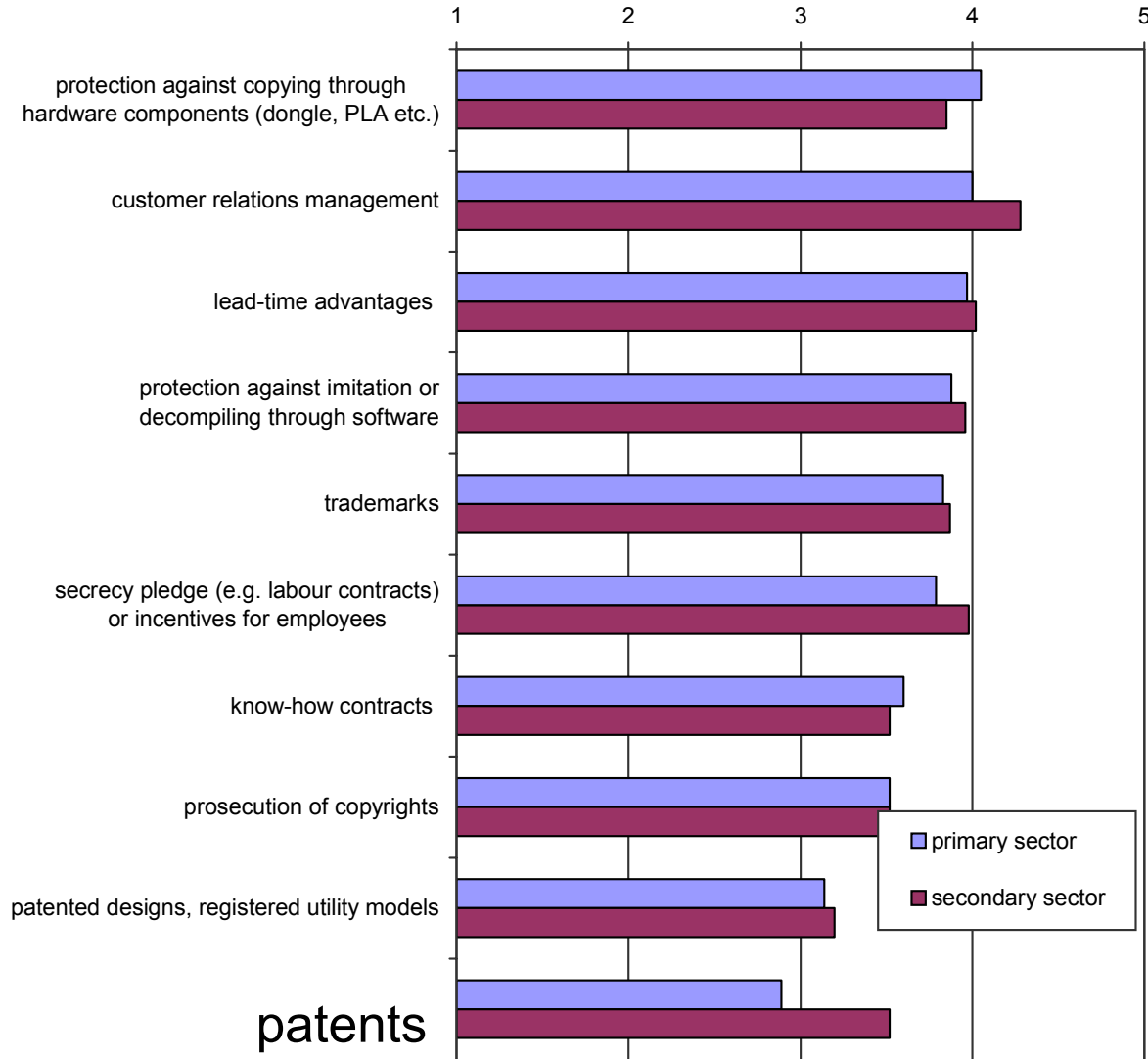
Applications of Software Patents at EPO and WIPO



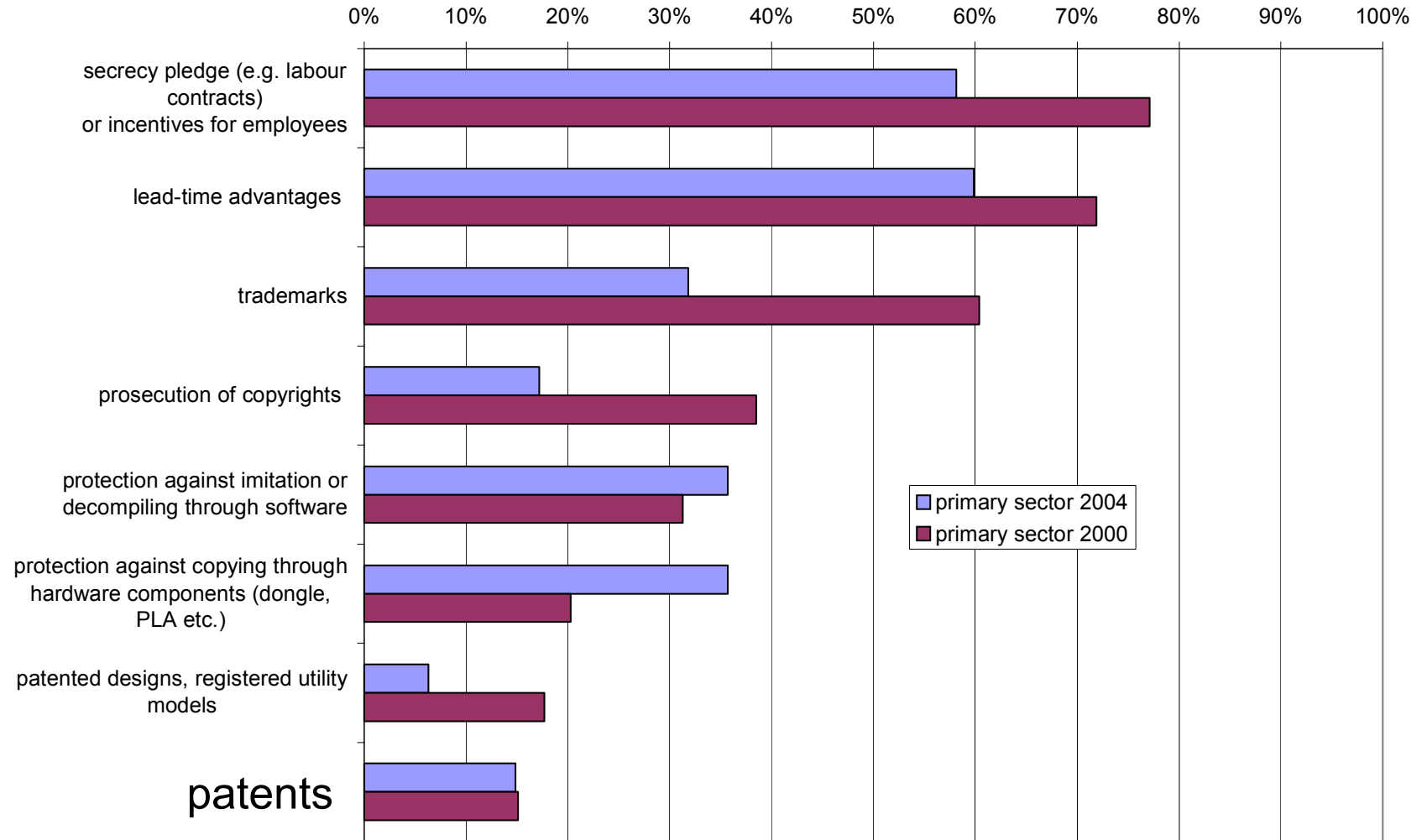
Developments in the year 2000



ed developments in the year 2000 (1 = very low, 5 = very high)



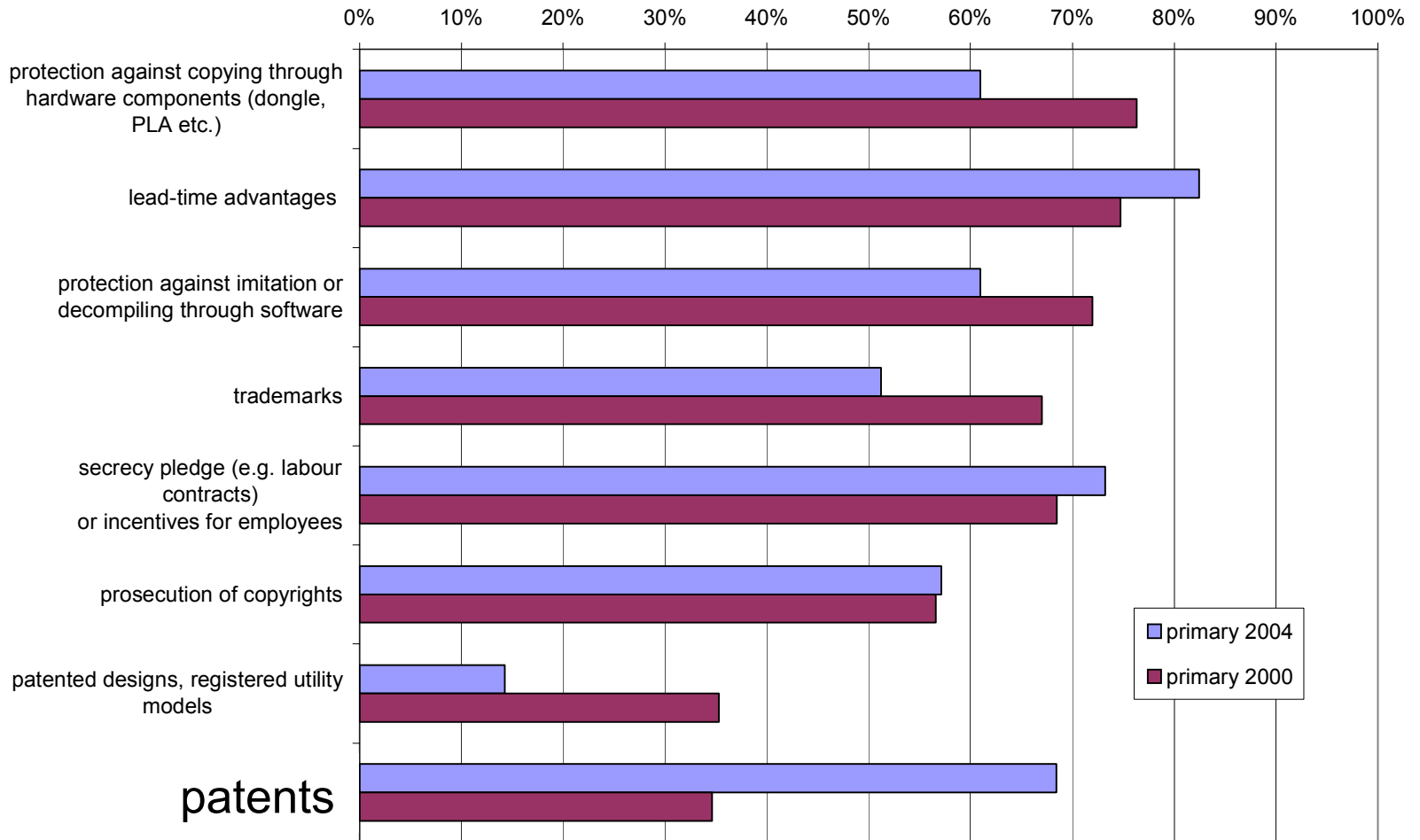
Components in the year 2000 and 2004



Source:
et al.
and
ZEV
Mar
Inno
Par



Share of respondents assessing high or very high relevance)



Source:
 et al.
 and
 ZEV
 Mar
 Inno
 Par



or

share of companies using patents in the software sector remains constant

slightly reduced use of other protection instruments

sharp increase in the assessment of the relevance of patents among the active users

similar relevance of the other instruments among the active users



Impacts on the Demand for Software Patents and its Consequences

Discussion on software patents increased the fixed cost of using this protection instrument, which is especially negative for SMEs, i.e. the size bias of patent use becomes stronger (H1)

The option to use patents as additional instrument to appropriate the returns of investments in R&D is especially attractive for R&D intensive companies (H2)

The attempt to achieve a harmonised patentability of computer-implemented inventions in Europe increase the pressure of exporting companies to use patents (H3)

Patents become more important the higher the competition intensity companies face (H4)

Software companies active in collaboration with customers (mainly from the manufacturing sector) adopt their protection strategies, i.e. they are more likely to use patents (H5)

Software companies closely involved in collaborations with companies supplying inputs into the own software product or even with competitors are likely to follow open source models, which become more attractive, but are in contradiction with the use of software patents (H6)

$$\ln(\text{Use}_j) = D(\text{FC}_j) \quad (1a)$$

$$\ln(\text{Pr}(\text{Imp}_j)) = D(\text{FC}_j) \quad (1b)$$

FC_j as vector of firm characteristics

Regression Results

	Use Primary 2000	Importance Primary 2000	Use Primary 2004	Importance Primary 2004
Size	0.30***	0.30***	0.51***	0.46***
R&D intensity	1.13**	1.26**	2.06**	1.90**
Export share	0.23	0.14	2.59***	2.74***
Competition intensity	-0.44*	-0.45*	0.09	0.09
Collaboration Customers	-0.06	-0.02	0.41	0.49*
Collaboration Suppliers	-0.07	-0.02	-0.47*	-0.45*
Collaboration Competitors	0.14	0.02	-1.07	-1.03**



Discussion of Regression Results

influence of company size on the likelihood and the importance of patents increases (= H1 is confirmed)

with increasing R&D intensity companies make a more intensive use of patents (H2 is confirmed)

export activities influence meanwhile positively the use and the assessment of patents (= H3 is confirmed)

number of competitors loses influence on the decision to use patents and the assessment (= H4 is rejected)

collaboration with customers influences meanwhile positively the use and assessment of patents (= H5 is confirmed)

intensive collaboration with suppliers and competitors, i.e. following an open source model of software production, reduces meanwhile the likelihood to use patents and the assessment of their importance (= H6 is confirmed)



Key Challenges

lengthy discussion about the extension of patentability to computer-implemented inventions did not increase the share of companies making use of this instrument. However, patents became more important for the active users.

Size bias in the use of patents increased

- distortions between patenting and non-patenting and between large and small software firms increased

➤ **IPR policy has to strengthen its efforts to support SMEs and outsiders in the patent system to deal with IPR issues in the software sector**

Co-existence between following the open source model and applying for patents cannot be observed – at least not for the majority of software companies

- increased separation and no convergence in the IPR strategies of software companies, i.e. open source models and patenting become substitutes and complements

➤ **IPR policy has to provide framework conditions which do not create distortions, but facilitate the collaboration between software companies applying different IPR strategies**

