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Where Entrepreneurs received their skills and meet new knowledge – The case of the German Biotechnology Industry

by Dirk Engel* and Oliver Heneric **

* Research Group “Entrepreneurship and Enterprise Performance”

Rhine-Westphalia Institute for Economic Research (RWI),

Hohenzollernstrasse. 1-3, 45128 Essen, Germany

Email: engel@rwi-essen.de, phone: ++49 201 8149-245 (corresponding author)

** Department Industrial Economics and International Management

Centre for European Economic Research (ZEW), L 7,1, 68161 Mannheim, Germany

Email: heneric@zew.de

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ABSTRACT

Radical innovations like in the modern biotechnology industry are characterised by natural excludability arising from the complexity or the important role of tacit knowledge to practice the innovation. Regions with such a knowledge seem to have best chances to attract potential entrepreneurs to establish a biotech-firm in these region. Theory and empirical evidence suggest that public research institutions universities play an important role to generate the crucial knowledge is crucial push the formation of high-tech firms in university-based regions (e.g. Bania et al. 1993, Harhoff 1997, Nerlinger 1998). We do not know, however, whether the high number of start-ups based only on the ability of local scientist to commercialise their academic discoveries in its home region or whether spillover matters. Justifiably, Audretsch and Stephan (1996) show that 40 per cent of university-based founders are involved as shareholder in biotech firms located outside the university’s location. Probably, the movement is the result of the knowledge-spillover in other regions and leads to a higher number of start-ups in spillover-regions. The uniqueness of our paper is answer this question. Second, we try to evaluate the impact of the BioRegio-Contest (BRC) in 1995 on the number of biotech-start-ups. The BRC promotes spatial clustering and interregional competition. Three regions were selected as winning regions and had got exclusive financial support by the Federal Ministry of Research and Education. Third, we first offer empirical evidence for the explanation of regional distribution of German biotech start-ups. We focus on German biotech start-ups founded between 1995 to 1998/99, the first hype of foundation activities in this sector.

We apply a similar approach of Zucker et al. (1998), but on the contrary to Zucker et al. (1998)‘s and many others we analyse explicitly the determinants of the number of

new biotech-firms founded by persons outside the public research institution in the region of firms' sitting. Knowledge-spillovers from science are measured with the number of scientists at the universities and other public research institutions. The analysis based on the BIOCOM-database and ZEW-Foundation Panel. Our multivariate analysis emphasize that knowledge-spillovers from non-university public research institutions matters and increase the number of start-ups significantly. University based research does not generate sufficient knowledge-spillovers to attract entrepreneurs outside this research institutions. Our estimates further suggest a significant higher number of new biotech firms in the participant regions of the BRC. This relationship is, however, limited to the non-winning regions. The results indicate that the BRC may be seen as instrument to award the successful regions on the one hand. The gratification to be a winning region and the exclusive financial support to winning regions does not lead to a higher number of biotech start-ups. Non-winning participants, however, realize a positive push from participating the BRC.

To sum up, two key messages are obvious: Spillover does not matter in general for start-up activities. Contests to cluster new industries can help to increase the communication within the region and signalize region's ability to cluster an new industry successfully.