

Dissertation review

Title: Knowledge Spillover Effects and Methods of Their Measurement

Author: Raymond Kwame Adane Darfo-Oduro

Supervisor: Prof. Ing. Jan Stejskal, Ph.D.

Focus and positive aspects of the work

The dissertation focuses on the issue of international knowledge spillovers and methods for quantifying them. The topic is relevant both from the perspective of theoretical development in the field of economics and regional studies, as well as from the perspective of practical implications, particularly in the area of public policy and regional development support strategies.

The thesis is extensive, systematically structured, and clearly defined in terms of its subject matter. The literature review (Chapter 1) is thorough and covers a wide range of theoretical approaches. The chapter is several dozen pages long, and I appreciate that it presents some very old (in the sense of long-standing) approaches as well as some very contemporary ones. As a geographer, I appreciate the relatively detailed treatment of the chapter on geographical proximity, although some classic works focusing on the role of geographical space in the spread of innovation could also have been used here (e.g., Hägerstrand, 1970, Pred, 1977). The author correctly takes into account that spillovers are not a homogeneous phenomenon and that their influence depends on a number of contextual factors – in particular, technological, geographical, and cognitive proximity.

Another significant contribution is the author's effort to critically evaluate and empirically verify various methods of measuring spillovers (Chapters 3 and 4, pp. 103–132). The author demonstrates a good knowledge of data approaches and applies advanced statistical methods, including group equality tests, intraclass correlation analyses, and fixed-effects models. Within the framework of the work, the author systematically analyzes geographically close European countries and their mutual influence on the innovation performance of their neighbors.

Selected comments on the conclusions of the dissertation

The author correctly points out that different measurement methods (e.g., based on geographical or technological proximity) lead to different results and exhibit different degrees of validity and reliability. The conclusion that no single method is universally "best," but rather depends on the purpose of the research, is logical (pp. 148–149). The problem, however, is that the author does not formulate specific recommendations as to which method is preferable in which situations. This leaves a gap in methodological guidance for future researchers and policymakers. In the analysis of individual countries, it is not entirely clear to me why, for example, Slovakia or Poland function better as "target countries" than the Czech Republic. The results are interesting, but the conclusion remains descriptive and does not sufficiently reflect broader institutional or structural factors. The conclusion that spillovers alone do not

have a clearly positive effect without appropriate domestic infrastructure (R&D + absorption capacity) is very important and well documented (pp. 151–152). The author thus confirms the current discussion in the literature on the importance of "absorptive capacity as a filter." However, this conclusion could be emphasized even more in the recommendations for practice—e.g., toward the R&D policy of CEE countries. The part of the work describing the practical implications of the topic certainly deserves more attention; it seems somewhat vague to me, and the recommendations are predictable.

This leads me to the question: What recommendations would you make to the Czech government to strengthen the spillover effects from existing FDI located in the country? Let's say beyond the expected recommendations, such as investing in R&D. Is the institutional environment in the Czech Republic specific in any way that would require some specification of the instruments formulated? What specific tools/recommendations can support the absorption capacity of the territory?

The language and style of the work could be more precise. In particular, the chapter describing the formulated hypotheses and subsequently the methodological chapter suffer from complex syntax and terminological ambiguities, which makes the analysis difficult to read and understand. It is not entirely easy to follow the flow and distinguish between the individual results. The formulation of the hypotheses themselves is somewhat awkward; perhaps they could be combined into a smaller number (I understand the logic of separating validity and reliability, but the pairs in the first part differ by only one word, which could be solved more elegantly). A minor detail, I think the idiom used should be spelled "a sine qua non."

Conclusion

The dissertation demonstrates the author's ability to conduct independent scientific work, including the analysis of complex economic phenomena, critical thinking, and advanced empirical data processing. Despite some weaknesses in the formulation of hypotheses and interpretation of results, the work is of a high professional standard and brings new insights to the field of economics and regional studies. I recommend the thesis for defense and propose that the author be awarded the title of Ph.D.

In Ustí nad Labem,

Jaroslav Koutský