

Wechselwirkungen zwischen Innovations- und Wachstumsprozessen in Deutschland 1951–1999 im Vergleich zu 1850–1913

Dynamic Relationships Between Innovation Activities and Per Capita Income in Germany 1951–1999 in Comparison to 1850–1913

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Summary

Starting from today's definition of innovation indicators, this paper analyses the dynamic relationships between innovation activities (approximated by two innovation input indicators and one innovation output indicator) and per capita income in Germany for the two periods from 1850 until 1913 and 1951 until 1999. Already the first step of the analysis which is based on unit root tests allowing for structural breaks shows that the German innovation system was rather stable in both periods: In the first period the unit root hypothesis has to be rejected for all four variables, in the second period at least for the two innovation input indicators. Thus, only a few major historical events responsible for the structural breaks have persistent effects while most shocks are transitory. The further analysis of unrestricted as well as restricted VAR models gives evidence that the innovation activities in both periods are strongly demand driven, but that there seem to be two different logics in the innovation process. In the first period, the overall empirical results indicates a linear innovation relation between students numbers as well as public science expenditures, the number of patents granted, and economic demand. In the second period, demand drives total R&D expenditures while patent output does not follow demand. The real domestic product seems not to depend strongly on innovation activities.