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1 Summary

My research focuses on the drivers of aggregate productivity from an endogenous growth perspective, especially firms' individual productivity and the allocation of resources to these firms. Among others, I have studied the productivity effects of globalization, strategic research competition between firms, the matching of inventors to firms and labor market power. I use microeconometric analysis to understand the drivers of firm productivity and general equilibrium models to determine the macroeconomic implications. Where beneficial, I develop new econometric estimators to reach my results.

My already published work focuses on the globalization aspect: In "Trade shocks, labour markets and migration in the First Globalisation" (EJ 2024) we study the structural change caused by import competition shocks in the Prussian economy 1895-1913. We find that this economy better absorbed globalization shocks by reallocating labor to booming regions and sectors. Our results suggest that the negative and persistent effects of trade shocks we see today depend on a lack of labor mobility. In "Import competition and firm productivity: Evidence from German manufacturing" (The World Economy 2023), we identify the adjustment reaction of German manufacturing firms to import competition. We find that firms increase their productivity in response to only some competition, namely that from other developed countries. This finding aligns with ladder models of the innovation decision, where firms innovate if competitors are close to them.

In my ongoing projects, I study firms' innovation strategy specifically. My job market paper "Searching Where Ideas are Harder to Find – The Productivity Slowdown as a Result of Firms Hindering Disruptive Innovation" proposes to explain the productivity growth slowdown with firms consciously preventing disruptive innovation. I build an endogenous growth model with incremental and disruptive inventions and an inventor labor

market where firms poach disruptive inventors to protect established technologies. I calibrate this model to the global patent landscape in 1990 and show that it predicts 52% of the decline of disruptive innovation until 2010. I confirm critical assumptions with an event study: Disruptions increase future research productivity, hurt incumbent inventors and raise the probability of future disruption. Without disruption, technology classes trend further towards incrementalism.

In addition to my job market paper, I want to highlight my work with Ufuk Akcigit, Andrei Markevich, Javier Miranda and Anna Zherdeva on the differences between planned and market economies, through which we study the growth contributions of business dynamism and responsiveness to productivity shocks. In other projects, I characterize the global matching behavior of inventors and firms and its changes during the productivity growth slowdown (1974-2012) and study the impact of labor market power on firms' innovation decisions and its impact on aggregate growth (together with Jonathan Deist and Matthias Mertens).

Two of my projects include a substantial contribution to econometrics: Together with Eric Bartelsman, I develop a method to estimate linear GMM in disjointed data sets or even when no micro level data exists anymore. In my paper on inventor-firm matching, I develop an alternative to the two way fixed effects estimator that takes into account that inventors work in teams.

2   Ongoing Work

Growth in Planned and Market Economies *(with Ufuk Akcigit, Andrei Markevich, Javier Miranda and Anna Zherdeva)*

Communist and market economies represent fundamentally different approaches to managing economic activities. This paper examines the differences in productivity shocks and the dynamics of factor reallocation between planned and market economies. We apply modern microeconometric methods to novel firm-level data of the Soviet Union and (communist) East Germany from 1975 to 1990 and compare the results with West Germany and the US. In planned economies, firms show little response to productivity changes and few firms enter or exit. During the transition to market economies, the rates of responsiveness, exit, and entry quickly converge to market economy levels. Through counterfactual simulations, we conclude that planned economies lost more than 1% of growth per year due to missing dynamism and reallocation, explaining a large part of the growth gap to market economies.

Matching on the Global Inventor Firm Labor Market

I analyze the matching of firms and inventors and the patent (citation) arrival rate of the resulting matches as a potential driver of slowing technology growth. I document a global trend towards increased assortative matching and declining inventor mobility to low productivity firms despite a largely constant patent invention function. To arrive at these results, I further develop empirical strategies used in the search and matching labor market literature to account for inventor teams and adapt these estimators to the pecularities of the PATSTAT patent data from 1974-2012, which I use as an employer-employee data set.

GMM over Split Data Sets *(with Eric Bartelsman)*

We present an algorithm for linear GMM estimation which works even if the researcher cannot combine the underlying data into one data set. We discuss three different applications: First, a regression where X- and Y- variables are in different data sets. Second, a regression where observations are in different data sets. Third, a regression where the complete data is so large as to be unwieldy. We demonstrate these use cases by studying the effects of German R&D subsidies patent and firm data, estimating a Europe-wide production function without merging the firm level data sets of different EU countries and by documenting the speed performance of our code in simulated data. The main requirement of this method is that instruments and exogenous regressors have to be present in all data sets.

Labor market power and innovation *(with Jonathan Deist and Matthias Mertens)*

This article studies the effect of labor market power (LMP) on firms' innovation decisions and aggregate growth. To examine the effect of LMP on innovation and productivity, we use rich firm-level data for the German manufacturing sector (1999-2016), which is characterized by strong regional East-West differences in productivity, innovation activity, and labor market power. Utilizing this data, we estimate the firm-level relationship between labor market power and innovation. A one standard deviation change in LMP explains a differential of 10% of firm-level R&D spending. We build an endogenous growth model with regions with different levels of labor market power. The simulated model explains the persistence of lower productivity and high average firm labor market power in structurally weak regions we document across Europe.