

Research Statement

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I am an applied macroeconomist with additional interest in applied econometrics, public finance, and international trade. In this research statement, I discuss my current research projects and future research agenda.

My job market paper, “**Does total factor productivity growth differ across sectors?**”, examines variations in sectoral Total Factor Productivity (TFP) growth rates within a multi-sector model of structural change. Economic transformation is characterized by declining agricultural employment shares, increasing service sector employment, and a hump-shaped trajectory for manufacturing employment. These trends illustrate the gradual labor reallocation as economies develop, initially moving from agriculture to manufacturing and later to services. Recent literature, including [Ngai & Pissarides \(2007\)](#) and [Acemoglu & Guerrieri \(2008\)](#), identifies differences in sector-level TFP growth rates as a key driver of this reallocation, showing that labor shifts away from high TFP growth sectors to those with lower growth. However, a major challenge in empirically validating these models is that sector-level TFP growth rates are often not directly observed in available datasets, complicating the confirmation of their underlying assumption of differential TFP growth rates.

We contribute to the literature by showing that the features of these structural change models make it possible to back out relative sector TFP growth rates. We develop a discrete version of the model by [Ngai & Pissarides \(2007\)](#) and show that the consumption-to-output ratio is the only item needed from the aggregate economy to track the sectoral dynamics of the model. We derive solutions for this ratio analytically where possible and numerically otherwise. Utilizing this ratio alongside readily available data on sectoral employment shares, we extract relative TFP growth rates across sectors. Our results confirm that TFP growth rates significantly vary across sectors and income levels. Our analysis of a large sample of countries reveals that, in low-income countries, agricultural TFP growth exceeds that of manufacturing, with the gap narrowing as income increases. A similar trend is observed in services compared to manufacturing. However, in some high-income countries, manufacturing shows higher TFP growth than services.

The second chapter of my dissertation explores productivity growth decompositions, another dimension of the structural change and productivity literature. The chapter is titled “**Government debt and productivity growth: Decomposing the effects.**” The rise in fiscal deficits and government debt across both developed and developing countries has sparked renewed interest in understanding how debt impacts economic

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growth and productivity. Recent developments in structural change literature have decomposed productivity growth into two main components: the component due to within-sector technological improvements and the component due to inter-sectoral labor reallocation (Timmer et al., 2015; McMillan et al., 2011). This decomposition reveals that productivity gains are driven not only by technological advancements within sectors but also by the reallocation of labor across sectors, encouraging further exploration into which of the components are most influenced by various drivers of productivity growth (see, for example, Konte et al., 2022; Rijesh, 2024).

This paper examines the impact of government debt on productivity growth, focusing on identifying the productivity components influenced by debt. Using sector-level data on value-added and employment from the Global Productivity database and government debt data from the IMF, the study analyzes a sample of 103 countries from 1950 to 2017. Productivity growth is decomposed into ‘within’ and “structural change” components following McMillan et al. (2011). Using econometric methods, such as fixed effects, random effects, system GMM, and dynamic panel threshold models, the findings indicate that high government debt is negatively associated with productivity growth, with the effect arising from the ‘within’ component. The study also highlights a debt threshold effect, showing that the negative impact on the ‘within’ component is significant when debt levels exceed 87%.

In the next chapter of my dissertation, we revisit the model presented in my job market paper in a stochastic environment, so that we can explore how the patterns of structural change respond to different shocks. My focus is mainly on exploring shocks to sector-level TFP growth rates and input shares. These extensions will broaden our understanding of the dynamics of structural change. We also look into the productivity growth decomposition equations presented by McMillan et al. (2011) and Timmer et al. (2015) that are common in the literature. These decompositions are mostly presented without any reference to their origins within the framework of a model. We address this issue by building a multi-sector model of productivity growth and show the conditions under which such decompositions can arise. This will be a significant contribution and will deepen our understanding of productivity growth and structural change.

I am also passionate about multi-disciplinary research and have collaborated with colleagues from other disciplines on various projects. My recent collaboration led to a publication titled “**International remittances and political participation in Ghana** (Anaman et al., 2023)”, which shows that receiving remittances boosts political participation through media contact. Additionally, I co-authored a paper titled “**Insecurity and tax compliance in Africa: Investigating the link between public safety perceptions and tax payment behavior**” which has been revised and resubmitted to the *African Security Journal*. These collaborations have enriched my research and broadened my perspective, and I am eager to pursue more interdisciplinary projects that offer meaningful insights.

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