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PII: S0304-3932(18)30170-3
DOI: 10.1016/j.jmoneco.2018.05.009
Reference: MONEC 3005

To appear in: *Journal of Monetary Economics*

Received date: 3 April 2018
Accepted date: 31 May 2018

Please cite this article as: Benjamin Pugsley, Comment on "Structural Transformation and the Rise of Information Technology" by Gallipoli and Makridis, *Journal of Monetary Economics* (2018), doi: 10.1016/j.jmoneco.2018.05.009

Comment on "Structural Transformation and the Rise of Information Technology" by Gallipoli and Makridis☆

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Keywords: structural transformation, information technology, skill-biased technical change, productivity
JEL: O40, E00, O33, E24

1. Introduction

The paper examines *within*-sector increases in IT-intensive occupations since the 1970s that coincide with ongoing *across*-sector employment reallocation from manufacturing to services. The across-sector reallocation, known as "structural transformation", should imply a slowdown in aggregate productivity growth from the reallocation of employment to services—Baumol's (1967) famous "cost disease"—given the service sector's historically slower productivity growth. Giovanni Gallipoli and Christos Makridis (2018) argue that the emergence since the 1970s of IT-intensive occupations, which are substitutable with non IT-intensive occupations, has staved off Baumol's cost disease by supporting continued rapid productivity growth within the service sector, primarily from the IT-intensive occupations.

To construct this argument, the authors establish a number of facts. First, using industry-level KLEMS data, they confirm that value added per hour in the *high-technology* service sector is higher and grows faster than in the manufacturing or the low-technology service sectors. Second, they show that a wage (and hours) premium to IT intensive relative to non IT intensive worker *occupations* exists and grows since the 1970s in both manufacturing and service sectors, but especially in the service sector.[1] To do this they construct a new occupation-level index of IT intensity that combines detailed occupation×task-level data from ONET, which they merge to worker-level Census data by detailed occupation code. This new occupation index correlates well with independent measures of IT intensity throughout the 1950-2010 period and is itself an important contribution for those studying worker-technology complementarity. Next, they show that counties with larger increases in the share of IT employment (across all sectors) have larger declines in the manufacturing employment share. Finally, imposing a CES production structure in both types of occupations, they estimate the within sector elasticity of substitution between high- and low-IT intensive job employment. They find it significantly above 1 in both the manufacturing and service sectors.

Collectively, these findings paint a picture of IT-intensive occupations playing a role in the faster productivity growth of the service sector, restraining a cost disease, and possibly even accelerating structural transformation, but the exact nature of this role is still speculative. The facts summarized above are carefully documented and supported by a number of robustness exercises in a companion appendix. They are consistent with IT-intensive biased technical change increasing within sector high-IT relative labor demand. However, because the authors do not specify the underlying determinants of the across sector structural transformation, unfortunately, the within sector results provide few conclusions on their implications for aggregate productivity.

Recognizing that faster productivity growth among some service sector industries limit the scope of the Baumol (1967) cost disease is an important insight and echoed in recent related work by Duernecker

☆I am very grateful to Giovanni Gallipoli and Christos Makridis for generously sharing their data and to Joe Kaboski and Narayana Kocherlakota as well as the participants of the Fall 2017 Carnegie-Rochester-NYU Conference on Public Policy for their very helpful suggestions.

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[1] Interestingly, the IT earnings premium is only imperfectly correlated with the cognitive non routine (C/NR) occupation earnings premium: although the C/NR premium overall has recently flattened, it continues to grow in C/NR IT-intensive occupations.