Disruptive Innovation and Inter-regional Inequality

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1 Abstract

Around 1980, in a wide range of high-income countries, interregional gaps in economic well-being began to grow. Researchers, policymakers, and journalists are increasingly focused on this growing 'great divergence' between superstar cities and left-behind places (i.e. Moretti, 2012; Enflo and Rosés, 2015; Economist, 2016; Ganong and Shoag, 2017; Diamond, 2016; Austin et al., 2018). Attention to this topic is in part due to our sense of its profound economic, social and political implications (Storper, 2018). In an age of declining internal migration, divergence signals a lack of equality in life chances, both within an individual's career (De La Roca and Puga, 2017), as well as across generations (Chetty and Hendren, 2018). New research is also identifying links between populist political upheaval and places that are left behind (Rodríguez-Pose, 2018; Lee et al., 2018).

A growing body of research argues that a primary cause of this inequality is recent technological change (Berger and Frey, 2016; Diamond, 2016; Giannone, 2017; **?**). However, this literature remains inconclusive about fundamental aspects of this process. Is all technological change disruptive enough to increase wage inequalities? If this is the case, how can we accommodate the fact that since the 1940s and until the 1980s the inter-regional inequality has been decreasing steadily in the US, while innovative activities have been increasing? If not, what type of technological change drives these disparities? Can we identify the features that make these technologies disruptive so as to drive inequalities? What are the mechanisms taking place in this process?

In this paper we develop and test an alternative explanation to understand how technological change can put in place certain mechanisms that drive inequalities among places. We argue that understanding this phenomenon requires, as a necessary condition, identifying the aspects of technological change (or technologies) that put these mechanisms in action. On the one hand, these technologies should enable a process of creative destruction (Schumpeter, 1943; Diamond Jr, 2004), with the capacity to raise output and productivity, to pay higher wages, and to leave behind and challenge existing techniques while enabling new and complementary innovations and accelerate technological change. On the other hand, we also argue that these technologies should have a high degree of tacitness (Polanyi, 1966), such that the ability to acquire and transform knowledge in these technological areas can become a source (perhaps transitory) of competitive advantage and exceptional rewards.

We find evidence of the former argument after creating novel measures of disruptiveness and tacitness of technologies. Divergence in terms of wages across regions in the US since the 1940s is partially explained by the production of tacit and disruptive technologies.

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