Summary of Week 4 Reading Responses

April 20, 2022

High level summary of comments:

- Most were skeptical of the IV assumptions required despite the evidence the authors show to justify them. Not many are satisfied that CZs with more exposure to robots had the same labor market trends as other CZs.

- Questions on who was affected and the distributional consequences. Which demographic groups were most impacted?

- Students were interested in what happens to workers after task displacement. Why do people not reenter the workforce? Why do they not train themselves in different tasks? Why choose to accept low-wage low-skill jobs rather than investing in additional human capital?

- Related to the point above, what government transfers or retraining programs might they have benefitted from? Would transfers help smooth out the gains and losses? How can we insure against task displacement?

- A few students mentioned migration dynamics/geography of the labor force as something that might be important.

1 Selected Student Questions / Discussion

- **Raman Chhina**

  – Concerned that Acemoglu and Restrepo (2020) don't consider the distributional effects of automation: who gains and loses? "Assuming, that not all the productivity benefits are passed on to final consumers as lower

prices, the rich business owners stand to gain more whereas the poorest workers — to the first approximation — are the ones who stand to lose."

- What happens to migration dynamics? "This would be important to understand the effects of localised automated industries vs the more cognitively involved hubs of economic activity."

- **Victor Gamarra**

  - Worried about potential factors that might confound the authors' empirical analysis in the long-differences model.

  - There may be intrinsic differences between CZs that did/didn't adopt robots

  - What is the role of transfers? Did those who lost employment get compensated through government programs?

- **Clara Kyung**

  - Not convinced that variation in exposure to robots across CZs is exogenous. Doesn't buy the authors' justification about exposure to robots from 1993 to 2007 being uncorrelated with past labor market trends from 1970 to 1990

  - Are robots homogeneous? Are there different types that displace different workers? Wouldn't ideal data get at robot stock counts?

  - Interested in the demographic/geographical breakdown of gains/losses from automation.

  - What do the displaced workers do after becoming unemployed? Do they leave the labor force? Do they participate in training programs?

  - "Would it be correct to say that task displacement model explains the nature of the technical change in the SBTC framework?"

- **Hugo Lopez**

  - Skeptical of the exogeneity assumption for the Bartik instruments. "Their identification strategy relies on Bartik instruments where they have to assume that the share of robots at the beginning of the 1990s was set exogenously and that any development in the share of robots in the production function is due to technological improvements that caused firms to shift toward this production strategy. Of course there is no reason to believe

that this would be the case given that, as it is reported in the paper, the advent of robots in production really began in the 1970s."

- **Philip Monagan**

  - Concerned about the Bartik identification: "one of the reasons cited by the authors for the adoption of robotics technology in Europe was demographic trends; if demographic trends were affecting labor supply in United States industries and it was changes in labor supply that precipitated the adoption of robotics technology, we have a classic case of reverse causality. Little to no discussion of this channel is presented."

  - Notes the general equilibrium results rely on theoretical structure and imposed parameter values. Specifically, compositional effects are assumed to zero but in reality might dominate the effect of automation on the labor market. "the authors provide little discussion regarding the possibilities for long-term equilibrium effects to manifest themselves slowly and through channels not explored by model restrictions."

  - Wonders why task replacement doesn't result in the creation of new tasks: "why do replaced workers not re-enter the workforce and pursue different tasks not subject to replacement."

  - Worried about measures of task displacement. For example, "It is unclear that exposure to a "routine-task" job in an industry that is experiencing a relative decrease in labor share is truly capturing a displacement of tasks,"

  - Would be interesting to analyze the labor supply decisions in a human-capital framework. Are individuals bad at anticipating which tasks will be displaced? Are certain skills mapping to non-displaced tasks unobtainable for certain individuals?

  - Is there a way to insure against task displacement?

- **Xiaoyun Tang**

  - How does automation explain polarization? Why do low-skill work opportunities increase if automation can replace those tasks?

  - Why do people do low skill jobs rather than investing in their education and seeking better-paying high skill jobs?

- **Miguel Valenzuela**

– NA - received an extension on this report

- **Ruoxuan (Rebecca) Wu**

  – Can we extend the model to include high-skilled workers as a production input and assume positive complementarity between high-skilled workers and robots/manual workers?

  – Skeptical that the IV satisfies the random assignment requirement

  – In the Acemoglu and Restrepo (2021) paper, again skeptical of the IV strategy: "If there exist labor demand shocks that affect both firms' decisions to automation and relative wages, then the instrument will not be valid."

  – Concerned about the static nature of the model - can't get at changes in investment and education decisions in response to rising automation.

- **Xiaoqi Zhou**

  – Skeptical of IV assumptions. Considers the path that CZs with a forseen labor force shortage might have experienced an increase in robot adoption and thus we see a decrease in employment in those sectors.

  – Do other emerging sectors absorb the work force from the traditional sectors?

  – Is the evolution of technology in the US the same as the evolution path of technology in other countries? "The technology landscape currently in the US can be quite different than those previously in Europe, and is it also a possible factor that affects the adoption rate of industrial robots happening in the US? If so, what will be a good way to proxy robot adoption in the US or how to adjust the current method?"