
Discussant: Satish Ukkusuri, Purdue University, US
Overview

- Economic activity measured using night-time light data
- Four CAREC countries: Azerbaijan, Georgia, Kazakhstan and Mongolia
- Data: WB enterprise survey for 2019 (base case) and during COVID-19
- Used stringency index as a measure of lockdown style policies
- Model: Probit regression
- Results: NTL predicts firm sales performance; Larger firms fare better than smaller firms; Food sector is impacted lesser as compared to services and manufacturing; Firms with female ownership fare worse as compared to those with male led ownership
Comments

- Very interesting analysis
- Analysis at the country level is interesting but misses out heterogeneity of effects
- WB Firms surveys provide very useful analysis of firm performance
- Data questions:
  - Is the data representative at across different firm sizes, sectors, ownership levels?
  - Why is foreign ownership in Azerbaijan almost zero in wave 2? Any government policies driving away foreign ownership
  - It looks like there may be data imbalance issues - e.g. the firm size for micro firms is quite small as compared to other types
  - Any imbalance across sectors? Is one over-represented or underrepresented?
Comments

Model: Explain the rationale for choosing probit based regression?

Since the goal is to identify before and after effects why not look for causal models such as Difference in Difference models

- Results: The female led businesses seem to have had a significant decline in demand which is different from literature. Could this be because of hurdles of female business to transition to online sales? Can a cross variable of gender and online sales help to explain this better? Or it could also be increased burden placed on females due to cultural norms in these countries. Some explanation of the context would be useful.
- The impact of lockdowns and its almost negligible impact on sales is an interesting finding and should be highlighted in the paper. This is counterintuitive. Can the specific type of lockdowns and their duration be captured within this model
Extensions

- Limitations of the data and model should be explained clearly.
- Fine grained Temporal data at daily or weekly resolution on the NTL, firm performance, visits from mobile phone data, mobility index, stringency index, help us to explain the temporal causality much better. Currently, the nuance is missing in the analysis.
- Fine temporal data will allow us to use advanced models such as Bayesian Time Series models which can explain the causal effects better.
- Consider the interaction variables across gender and business type, online transition etc to improve the explainability of the model.