EMPIRICAL ANALYSIS OF EMPLOYMENT IN CHINA DURING COVID-19

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The COVID-19 is still spreading globally since the beginning of 2020 and many countries or regions around the world have imposed strict «quarantine» measures in order to control the COVID–19, which has greatly affected many industries. During COVID–19, China's unemployment rate remains high and this paper uses an empirical model to investigate the current situation of China's unemployment rate in the face of COVID-19.

Key words: Unemployment rate; COVID-19; Empirical model of unemployment.

Review of literature

In the context of the global spread of the COVID-19, the literature has explored the impact of the COVID-19 on China's economy mainly from the perspectives of macroeconomic shocks, meso-industrial shocks, business shocks and labour market shocks. First, the impact of the COVID-19 on China's economy under macroeconomic shocks is examined. Chudik [1] quantified the macroeconomic effects of Covid-19 and found that it would lead to a significant decline in world output, and while the impact on China and other emerging Asian economies would be small, the US, UK and other developed economies would be severely and persistently affected. [2] find that China's macroeconomy is severely hit by COVID-19, with growth rising to 1.7 % in 2020 in the event of a recovery in export demand. Second, examining the impact of COVID-19 on China's industries under a meso-industrial shock, assess the impact of the new crown pneumonia on various industries in China based on big data portrait analysis. [3] Services such as aviation and tourism were significantly adversely affected, while new infrastructure, Chinese patent medicine and internet industries made significant developments. Lin and Zhang [4] assessed the impact of COVID-19 on China's agricultural exports and found that while the average exports of agricultural enterprises declined, some agricultural exports, particularly grain and oil, remained strong. Exports of herbs also increased significantly while exports of products such as edible mushrooms and horticultural products declined sharply. Third, examining the impact of the new crown epidemic on China's job market under the labor market, [6] based on data from the Online Job Posting Platform, find that the spread of the epidemic abroad through global supply chains reduced new jobs in China by 11.7 %. At the same time, Chinese firms most affected by international trade outperformed other firms in the early stages of the new pneu-

monia crown, but performed poorly during the economic recovery. Che. L. [5] found that over 90% of migrant workers with rural Hukou could not find work by the end of February 2020, compared to 42% of migrant workers with urban Hukou. Those with low levels of education and skills also had higher unemployment rates. According to Mo Rong [7], the impact of the new crown epidemic on the economy and society is huge, extensive and deep, and the total pressure on employment in China has intensified and structural conflicts are prominent. Shen Guobing [8] proposed a path to alleviate employment pressure from five aspects: market mechanism, demand management, supply services, income policy and talent guarantee, in response to the unemployment crisis brought about by the impact of COVID-19.

Empirical Model

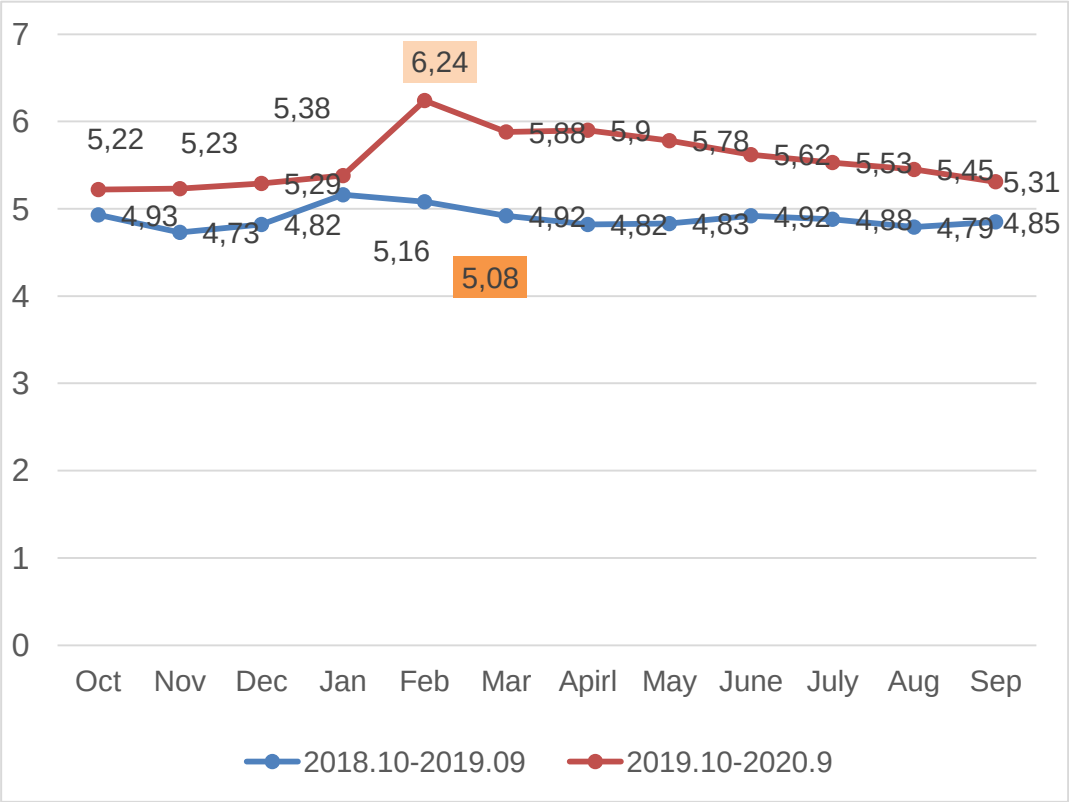
We further assess the impact of the global spread of the COVID-19 outbreak on employment in China using the DID model approach, the most commonly used non-experimental method for policy evaluation, which can largely overcome the endogeneity problem and thus estimate policy effects more accurately. The new crown outbreak can be considered as a completely exogenous randomised experiment, which matches the conditions for the application of the DID approach. Specifically, we set the econometric model as:

$$UR_t = \alpha_0 + \alpha_1 D_t \times Post_t + \alpha_2 D_t + \alpha_3 Post_t + X_t\beta + \lambda_t + \in \text{ t}$$

where t denotes month; UR denotes surveyed unemployment rate; D denotes treatment group dummy variable, with D = 1 for treatment group; Post denotes new crown epidemic shock time dummy variable, with Post = 1 for post epidemic shock period and 0 otherwise. x is the set of control variables, including foreign direct investment (FDI) and total exports and imports (TRA). λt is the quarterly fixed effect and ∈ t is the random α0 is the constant term, α1, α2 and α3 are the variable coefficients, and β is the vector of variable coefficients. If α1 is statistically significant, then there is a significant impact of the new crown epidemic on employment in the country.

The dependent variable is the survey unemployment rate UR, with data from the National Bureau of Statistics. The NBS has been releasing the urban survey unemployment rate as well as the urban survey unemployment rate of 31 major cities to the public since 2018. The core explanatory variable is the COVID-19 shock D×Post, where the biggest difficulty lies in the selection of the control group sample. As the New Crown epidemic has caused a large impact on economic production activities in China and countries around the world, it is difficult to find employment data that are not affected by the epidemic after the outbreak. For this reason, we use data from the post-COVID-19 outbreak period as the treatment group and data from the same period in the previous year as the control group, taking into account existing research. Specifically, we use employment data from October 2019 to September 2020

as the treatment group and employment data from October 2018 to September 2019 as the control group. February 2020 is taken as the point in time when the new crown epidemic hits, i.e. the sample starts in February Post takes a value of 1, otherwise it is 0.



China urban unemployment rate before and after COVID-19
Sources: China Bureau of Statistics

As can be seen from the figure 1, the trends in the survey unemployment rates for the treatment and control groups are similar until February; whereas in February 2020, the trends in the survey unemployment rates for the treatment and control groups change significantly. This suggests that our subgroup setting satisfies the parallel trend assumption of the DID method and that COVID-19 may have a significant impact on the urban unemployment rate in China.

Conclusion

Based on the above empirical model to assess the impact of the COVID–19 on employment in China we learn that the impact of the COVID-19 outbreak to has a significant impact on the urban unemployment rate in China. According to the Ministry of Education, it is likely that the employment pressure on university students will also increase further in 2022, and the uncertainty facing China's economic growth will rise, with significant employment pressure persisting.

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