Households' food insecurity in the era of COVID-19 Application on MENA countries

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Motivation and Outline

Countries in the MENA region are net food importers, facing several challenges regarding food security as water and land scarcity, poverty, and population growth. The increase in global food prices during the food crises of 2007-2008 and 2010-2012 had many implications for household food insecurity in the region (Headey 2013; Verpooten et al. 2013).

All the existing challenges had been exacerbated by the outbreak of COVID-19. The pandemic resulted in a demand driven food crisis, on the opposite of the previous food crises, that were driven by supply shortages. Lockdown and precaution measures applied to contain the spread of the novel virus, yield to a decrease in income and an increase in food prices, limiting the households' purchasing power. The particularity of this price shock is that it was combined with health policies that may have amplified the disruption of access to food.

This study offers to analyze the consequences of the COVID-19 pandemic on MENA households food security, controlling for individuals' socio demographic characteristics and the strictness of the government response policies to the COVID 19 pandemic. This article, by assessing the magnitude of the effect on household food insecurity, contributes to the literature on the impacts of COVID-19 on the MENA population.

Methodology and Analysis

The proposed paper uses the "COVID-19 MENA Monitor Household Surveys" led by the Economic Research Forum, covering the period from November 2020 to August 2021[1]. The household survey is nationally representative[2] for the five countries investigated, namely Egypt, Jordan, Morocco, Sudan, and Tunisia. In addition to questions related to the food situation, the surveys cover topics such as household characteristics, income, employment, and social distancing.

This study proposes to rely on the panel and temporal dimension of the survey and to perform analysis through a fixed-effect Poisson model. Woolridge (1999) showed that the Poisson estimator is the most appropriate when the dependent variable is greater than or equal to 0 and non-binary. This is the case of the variable of interest of the present paper.

[1] Combined COVID-19 MENA Monitor Household Survey, CCMMHH- Nov-2020, Feb- 2021, Apr-2021, Jun-2021, Aug 2021OAMDI, 2021. COVID-19 MENA Monitor Household Survey (CCMMHH), http://www.erfdataportal.com/index.php/catalog. Version 5.0 of the licensed data files; CCMMHH_Nov-2020-Aug-2021. Egypt: Economic Research Forum (ERF).

[2] The surveyed individuals come from a national random sample of mobile phone users aged 18-64.

The estimated equation is the following:

$$Foodinsecurity_{ijt} = \alpha + \beta Stringency_{jt-2} + \mu_i + \tau_t + \varepsilon_{ijt}$$

$Foodinsecurity_{ijt}$ is the dependent variable and corresponds to a score calculated based on five variables[3] linked to food access difficulties. Each variable could also be estimated alone through a logit model. $Stringency_{jt-2}$ is a lagged measure of the strictness of the government response policies to the COVID 19 pandemic. μ_i, and τ_t, are individual, and time-fixed effects. The equation does not include individual or country characteristics variables as control. Indeed, due to the high survey frequency, those characteristics do not vary across time, and so the individual fixed effect controls for them.

As there is a possible endogeneity issue, this study proposes a new instrument to overcome it, the Google Trends index for the search term "Covid". The Google Trends index gives the interest evolution of a topic in a country or region. The research term "Covid" is strongly correlated with the "Stringency index". People are looking on Google the information on the pandemic while government applies a response to it. To be sure to respect the "exclusion restriction", the Google Trends index of the term "Covid" is the average of every MENA country except for the ones included in this study.

Policy Implications

The COVID-19 pandemic has strongly disrupted access to food and therefore aggravated the risk of food insecurity. This study, by analyzing consequences on households, allows to better understand the magnitude of the impact and who were the most at-risk profiles. In light of the current global food situation, partly brought by the Russo-Ukrainian War, the study of the effects of the surge in food price and food supply disruption on households seems necessary to provide adequate policy instruments. The results of the paper would identify the vulnerable groups to food insecurity in the different countries The idea is to analyze what potential policies that could be done on the country level and what potential regional policies may be implemented to protect the food insecure in the region.

Keywords: COVID-19; food security; economic access; MENA region; poisson model; logit model.

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[3] 1) Difficulties food market because govt, 2) Unable to buy usual amount because of shortages, 3) Unable to buy usual amount because of price increases, 4) Unable to buy usual amount b of decreased income, 5) Reduced meals/portions.