<h1 style="text-align:center">Extended Abstract</h1>
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Paper/Poster Title	Dynamics of food consumption during political instability: evidence from Kyrgyzstan

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Abstract	200 words max

This paper evaluates households' food demand in Kyrgyzstan based on nationally representative household panel surveys before and after the two revolutions covering 17 years. A complete demand system is estimated, considering quality biases, spatial and temporal variations, and differences in household characteristics. In addition, we expand our econometric analysis of food demand to the behaviour of consumers with different consumption "intensities." Comparison of pre- and post-revolution coefficients allows to identify the impact of political instability on food consumption. Our results reveal that households are susceptible to income shocks for fruits & vegetables and meat & fish, accounting for more than 50% of household food expenditures. Urban and rural household reacted differently to political instability as demonstrated by the widening gap after the first revolution. The adaptive capacity of households, driven by improved income stability and diversification, increased during the second revolution, allowing rural households to improve their diets with diversified products. The stable period (2013-2019) shows an improvement in the country's food security; however, dietary habits have shifted towards highly processed and energy-intensive foods, posing a threat of overweight and related health problems.

Keywords	Food security, Revolution, Kyrgyzstan
JEL Code	D12, I12, O12 see: www.aeaweb.org/jel/guide/jel.php?class=Q)

Introduction	100 – 250 words

About 800 million people worldwide faced hunger and depended on food aid at any time of the year in 2020 (FAO, 2021). Food insecurity with severe and long-lasting consequences for human well-being is increasingly concentrated in conflict-affected regions (Martin-Shields & Stojetz, Bruck et al., 2018). According to Global Report on Food Crises 2018, political instability such as protests, riots, and social unrest exacerbated food insecurity in 18 countries, home to 74 million food-insecure people (FSIN, 2018).

Recognizing the causal effects of food insecurity, especially in countries affected by conflict, policy-makers seek to understand the link between food insecurity and political instability based on evidence for timely intervention. Nevertheless, the analysis is often limited to estimating food demand using a reduced-form single equation model, ignoring the critical role of the substitution effect of food prices on consumption patterns. In addition, estimation of demand systems has mainly focused

on average consumer behaviour, whereas political instability could affect consumers' behaviour differently depending on their habits and the intensity of food consumption.

This study addresses these research gaps by estimating, first, the demand system of major food commodities in Kyrgyzstan. We then assess the effect of income and other sociodemographic variables on food consumption before and after political turmoil (revolutions in 2005 and 2010) by dividing consumer behaviour into different consumption intensities. The analysis is based on a 17-year panel household survey. We estimate food consumption patterns of consumers before and after conflict and compare the results.

Methodology	*100 – 250 words*

Changes in consumption patterns require an econometric analysis of demand that focuses on consumer responses to price, willingness to pay, and changes in income. The multiple-stage approach provides an efficient method for determining the interdependencies and substitution effects between food items and price changes by estimating fully defined demand systems such as the quadratic almost ideal demand system (QUAIDS) (Banks et al., 1997) which we follow in our analysis.

Estimation of demand systems has concentrated on the expected value of the conditional distribution, that is, the "average" behaviour of the consumer. However, Manning et al. (1995) pointed out that consumers of a particular good facing the same income and prices can behave differently depending on consumption intensity. To explain the different patterns of demand for "average" and "extreme" consumers before and after political conflicts, we use the Quantile Regression (QR) method. Thus, our analysis of estimating patterns of food demand requires several estimations with multi-stage procedures, as shown in Figure below.
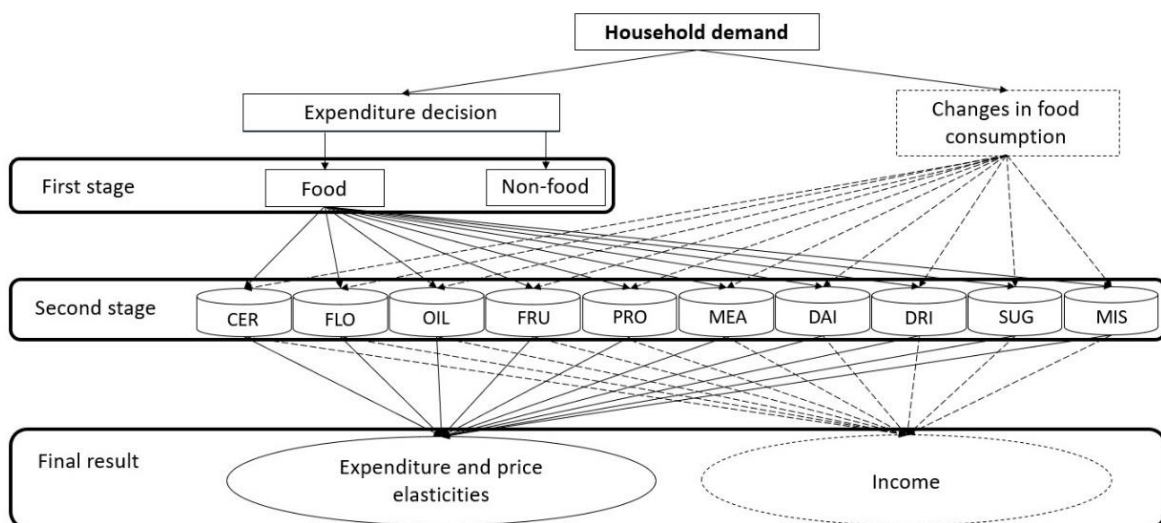
Note: We denote the food groups as <u>CER</u>=cereals, <u>FLO</u>=flour products, <u>OIL</u>=Edible oils, <u>FRU</u>=Fruits & vegetables, <u>PRO</u>=Processed food, <u>MEA</u>=Eggs & meat & fish, <u>DAI</u>=Dairy products, <u>DRI</u>=Drinks, <u>SUG</u>=Sugar, <u>MIS</u>=Miscellaneous.

Source: Authors' figure.

For this analysis, we use panel data from the Kyrgyz Integrated Household Survey conducted by the National Statistical Committee of the Kyrgyz Republic quarterly from 2003 to 2019. Dividing our data by five before and after the revolutionary periods, we revealed the importance of political stability for the country's food demand.

Results	*100 – 250 words*

Demand elasticity estimates show that all expenditure elasticities are positive and own-price elasticities are negative for the whole sample as well as for regional and temporal subsamples. All foods appear to be normal goods, while cereals, fruits & vegetables, drinks, and miscellaneous are luxuries, suggesting that the latter are more responsive to income shocks. Our expenditure and own-price elasticities reveal that households are less income and more price responsive in different regions over the years. Arguably, a sharp decline in the amount of domestic food supply due to the reduced agricultural sector and dependence on imported goods can be a major reason for the highest response in prices among food groups.

Our analysis of the impact assessment of the revolutions shows that household food demand has deteriorated after the first revolution due to increased prices and the gap between urban and rural households has widened. Arguably, income did not increase equally with price rise affecting households' food demand in rural areas. After the second revolution, households were more likely to adapt to political shocks and food security improved relative to the first post-revolutionary results. In addition, households have changed their dietary habits towards expensive products such as confectionery, convenience foods, and meat & fish. From the period of stability (2013-2019), we can conclude that inter-quantiles differences have decreased, and the intensity of household food consumption has balanced across the quantiles as well as between urban and rural areas.

Discussion and Conclusion	*100 – 250 words*

This paper presents the elasticity of food demand at the household level and shows how political shocks affect the food security of Kyrgyz households. The study first presents a set of demand parameter estimates for ten major food groups, considering quality biases, spatial and temporal variations, and differences in household characteristics. Then, by comparing food consumption shares before and after revolutions, we can identify the causal effects on key outcomes of interest. Food expenditure shares show that the diet has shifted from staple food such as flour products to more protein-rich food such as meat & fish and fruits & vegetables. Declining production and rising demand for high-value goods create greater reliance on imported goods while exacerbating price spikes, posing a threat to adequate food

consumption and a greater risk of malnutrition for low-income households. Consequently, food security policy needs to focus on increasing agricultural productivity, investments in food marketing and distribution systems, and appropriate trade policy to minimize exposure to fluctuations in world commodity prices. Given the importance of livestock and fruits & vegetables in the diets of Kyrgyz households, more research is needed on environmental governance to protect degraded pastures, improve veterinary services, and greenhouse technologies for fruit & vegetable production.

Moreover, we have seen a dietary shift towards readily available, ultra-processed food, especially among northerners. This shift may be the reason for the higher incidence of non-communicable diseases among northerners than the southerners. Thus, awareness of this shift is relevant for the government's nutritional programs aimed at striving overweight and increasing the life expectancy of Kyrgyz people.

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