

Extended Abstract

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Paper/Poster Title	Competing effects of international migration on agricultural commercialization: Evidence from Kyrgyzstan
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Abstract prepared for presentation at the 97th Annual Conference of the Agricultural Economics Society, The University of Warwick, United Kingdom

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Abstract	200 words max
Agricultural commercialization - a shift from subsistence to more market-oriented farming - can play a central role in improving smallholder farmers, particularly in formerly centrally-planned economies such as Kyrgyzstan. This paper evaluates international migration's direct (labour loss) and indirect (remittances) impact on agricultural commercialization in Kyrgyzstan based on nationally representative household panel surveys covering eight years from 2013 to 2020. We use the Method of Moments-Quantile regression and a three-stage least squares method to overcome potential endogeneity concerns of migration, labour, and remittances. The results show that migration decreases the commercialization of agricultural products, especially crops which is labour intensive. On the other hand, recipient households increase the commercialization of livestock products and animals but decrease the production of crops, although they replace family labour with agricultural technologies. Additionally, the results may vary according to the degree of commercialization, where semi-subsistent farmers mostly prefer to leave the agricultural sector.	
Keywords	Migration, remittances, agricultural commercialization
JEL Code	F22, F24, Q15 see: www.aeaweb.org/jel/guide/jel.php?class=Q)
Introduction	100 – 250 words
International migration has become an alternative source of livelihood for smallholder farmers of formerly centrally-planned economies, as evidenced by large remittance inflows (Piras et al., 2017). Kyrgyzstan is no exception, with remittances from international migration accounting for 32.5% of the country's GDP, ranking third in the world after Haiti and Tonga (Bank, 2019b). Agriculture's share in GDP fell from 46.3% in 1996 to 12.1% in 2019 and the share of agriculture in total employment decreased from 53.1% in 2000 to 21.2% in 2019. Some scholars attributed this trend to labour migration to service and abroad (Mogilevsky et al., 2017). However, the net effect of migration with lifting budget constraints and sharpening time constraints has yet to be evident.	
Economic theory predicts that the decision to migrate along with remittances can increase the amount of output supply depending on the consumption of self-produced and luxury food. On the other hand, migrant labour can create labour shortages, leading to decreased productivity, commercialization, and withdrawal from the agricultural market. The empirical evidence from a range of developing countries and	

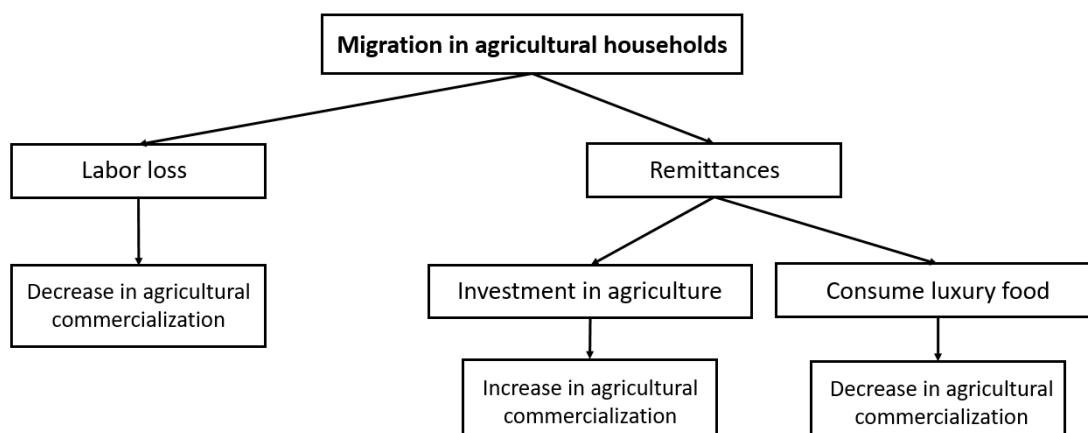


transition economies is focused on the impact of migration and remittances on household farm income, agricultural productivity, and poverty. The current study contributes to the existing literature by assessing the impact of labour migration and remittances on agricultural commercialization. In particular, it analyses whether households receiving remittances offset the effect of labour loss by integrating them into commercial value chains, which may have implications for the long-term productivity development of the agricultural sector.

Methodology

100 – 250 words

Our framework for analysing the competing effects of the direct and indirect impacts of international migration on the commercialization of agriculture visually looks like the following chart, based on a static model of a non-separable agricultural household that maximizes utility over the consumption of goods and leisure time.



Source: Authors' figure

We compute the level of commercialization as the share of total farm output sold during the 12 months covered by the survey (Carletto et al., 2017; Ogutu et al., 2017; von Braun & Kennedy, 1994). Our agricultural products are assembled from three groups: crops, livestock products, and live animals. The commercialization index is continuous and ranges between zero and one.

To test our hypotheses, we apply the Negative binomial, Tobit, and the Method of Moments-Quantile regression by Machado & Silva (2019). Since the migration, labour, and received remittances are potentially endogenous variables, we must address related econometric issues. Following J. Taylor et al. (2003), we first estimate migration, labour, and remittance equations, then use the predicted numbers of endogenous variables with their residuals in the main equation. To address possible endogeneity of the number of migrants, working hours, and received remittances in the main equation, we include instrumental variables. Also, we provide an iterative 3-SLS approach with exogenous control variables for the robustness of our analyses.

For these analyses, we use nationally representative panel data from the Kyrgyz Integrated Household Survey (KIHS) conducted by the National Statistical Committee of the Kyrgyz Republic from 2013 to 2020.

Results

100 – 250 words

The estimated results of the first stage of the migration equation show that the instrumental variable (migration network) and other control variables are statistically highly significant and consistent with the theory. In the second stage, the number of migrants is negatively related to domestic labour as expected, and the instrumental variable (dependency ratio) with other control variables shows high statistical significance. Remittances are also positively related to the number of migrants in the third equation. As stated earlier, labor, remittances, investment in agricultural technologies, the share of male household heads, and the land capital increase while the number of migrants, income from social transfers, income from other employment, and share of educated household heads reduce agricultural commercialization in the estimation of conditional means. Results of the 3-SLS model show the same results except for the income employment. According to the current model, income from employment decreases agricultural commercialization.

Discussion and Conclusion	100 – 250 words
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International migration and remittances in Kyrgyzstan play a vital role in the livelihoods of households sending their members as migrants, mainly to Russia, Kazakhstan, and other countries. For years, remittances have accounted for one-third of GDP. Several studies have examined the possible links between international migration and agricultural development. However, few studies focused on the impact of international migration on rural communities in the case of Central Asia (Atamanov & Van den Berg, 2012; Zhunussova & Herrmann, 2018). This study sheds light on the effects of international migration measured as the number of migrants, loss of domestic jobs, and received remittances on agricultural commercialization using the rich dataset from KIHS.

The results show that the number of migrants had a negative impact on the commercialization of crops due to the labour input—lost-labour effect. At the same time, lost-labour effects are also strong with unconditional market participation for these commodities. In addition, we find a positive relationship between remittances and the likelihood of selling animals and animal products such as milk and meat. Households invest their remittances in animal husbandry because traditionally, Kyrgyz households use livestock as an asset. Moreover, the maintenance of livestock is not as labour-intensive as crop production due to the country's geographical features.

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