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Trends of Crop Productivity, Income Growth and Mobility in Kenya

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Abstract

In this study we use a unique, nationally representative panel household survey data collected in four rounds (2000, 2004, 2007 and 2010) from 22 districts across rural Kenya to analyse livelihoods patterns and crop productivity for selected crops among the sampled households. This panel data tracks changes in agricultural productivity, income growth and is comprehensive to conduct rigorous income mobility analysis. We use a fixed-effect panel regression analysis to identify the major factors influencing yields of major food and cash crops (maize, beans, tea and coffee) and drivers of farm and off-farm incomes. We also analyse the income mobility of households and the determinants of upward mobility.

Results indicate that maize and beans yields have stagnated while coffee yields have been decreasing during 2000-2010 period. A rather fascinating finding is that farmers with smaller land sizes registered higher maize and beans yields compared to farmers with larger land quartiles. Households that used modern input such as fertilizers and improved maize seeds increased yields by average 20-26 percent. There is notable heterogeneity in returns from fertilizer and improved seeds by plot size: households in the lowest and highest land quartile earned more productivity gains from these inputs.

Overall, the real per capita incomes declined during the period mainly due to decreasing crop income which was the main source of income coupled with marginal increase in livestock and off-farm incomes. Factors that had significant effect on yields such as fertilizer, improved seeds, plot size, extension services and cooperative membership also had strong association with income growth. Income mobility was evident with 6 percent of households moving from lowest to highest income quartile while 11 percent moved from highest to lowest income quartile between 2000 and 2010. Only 30 percent of households in the second and third quartile remained in their respective quartile

while 70 percent moved upwards or downwards. Bundling of improved seeds and fertilizer lead to higher yields. Measures to strengthen input system (seeds, fertilizers) to become more affordable and accessible will spur increased yields while supporting non-farm livelihoods are crucial for income growth among rural households.

Conclusions

In this study we use rural household data collected between 2000 and 2010 to analyse crop productivity for some selected food and cash crops, identify incomes sources and livelihood patterns and determine the factors that influence both agricultural and non-agricultural incomes. Results indicate that maize and beans yields stagnated while coffee yields declined during the period. There was an inverse relationship between plot size and productivity; smaller plot recorded higher productivity in maize and beans. This has also been observed in similar studies that with smaller plots there is intense use of fertilizers and improved seeds compared to larger plots. Use of improved seeds and fertilizer as well as group membership increased crop yields.

From the income analysis, crop income accounted for the largest income share though declining especially in the high potential areas. The incomes from business enterprises and salaries increased though marginally across the regions. This indicates some level of livelihood diversification to cope with declining incomes from crops. Real incomes declined during the period while income growth analysis indicates that income poor households recorded positive income growth between 2004-2007. This could be attributed to good weather and some pro-poor policies such as fertilizer and seed subsidy program implemented by the government. However for the same income group, the income growth dipped between 2007-2010. This could be due to post-election violence experienced in the country in 2007 that led to displacement of rural families and loss of property. From the analysis, income mobility upwards and downwards was evident. About 6 percent of households moved from the lowest to highest income quartile between 2000 and 2010 while 11 percent moved from highest to lowest income quartile in the same period.

This study shows that strengthening the inputs system (seeds and fertilizers) to make them accessible and affordable coupled with sustainable agricultural practices such as irrigation can lead to increased agricultural productivity.

Implementation of land reform to provide rural households with ownership of productive assets coupled with access to credit is important in reducing inequalities. There is need to promote integrated rural development; increasing agricultural productivity and supporting the development of non-farm activities in the rural areas.

For further assistance, more information or if you would like to conduct interviews with the Lead Principal Investigator, you can do so through: Judy Kimani, 0720 96 33 48, (jkimani@tegemeo.org).