The effect of marketing farm products on household income

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Introduction

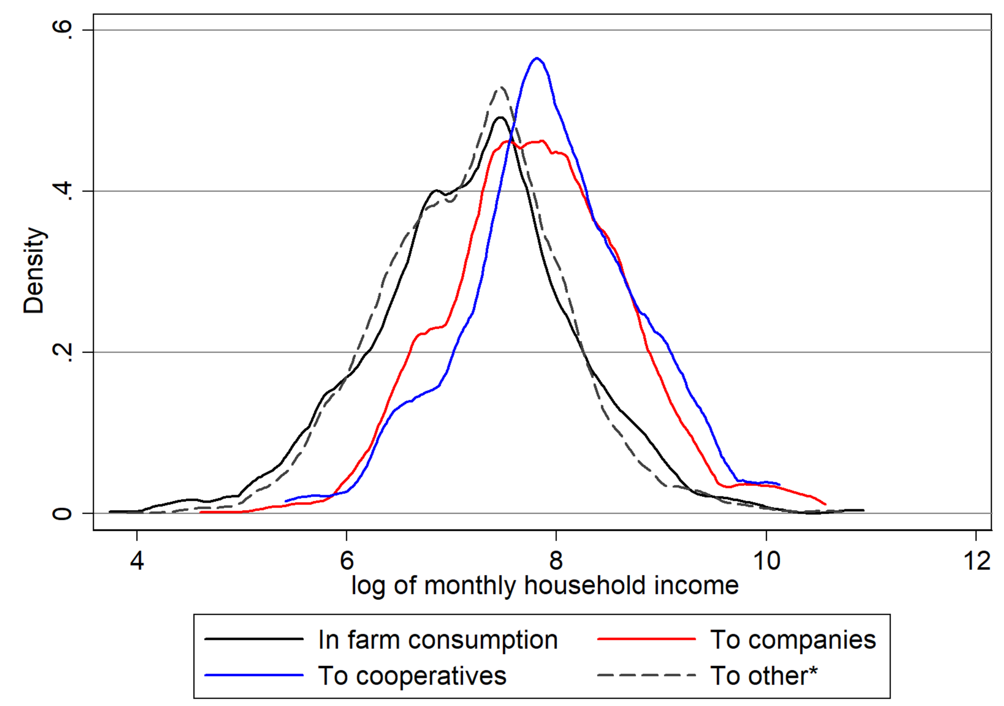
▪Brazilian agriculture relies heavily on public policies in **rural extension** and **access to credit** to promote productivity and efficiency improvements.

i. **Rural extension** provides both knowledge on production techniques and managerial skills, which is important on guiding farmers to commercialize their products (Christoplos, 2010).

ii. **Access to rural credit** allows farmers to invest on new technologies, increase production and better commercialize their product (Luan and Bauer, 2016).

▪In 2014, around **75% of the farmers have marketed their products** while 25% kept them in-farm in Brazil (IBGE, 2017). These products are mainly sold to:

i. Final customers (35.7%)
ii. Middleman (31.5%)
iii. Companies (22.8%)
iv. Cooperatives (7.6%)



Distribution of the household income per destination of the production.

▪We estimate **the effect of marketing farm products on household income** in addition to identify **whether access to rural extension and rural credit affect the decision on where to sell the product.**

Methods I

Estimation of the returns to output marketing

▪We used an instrumental variable approach in which the first stage consists on the estimation of whether the product stays in-farm or is sold ($x_{1,i}$) using a *Probit* approach. Several variables are included as independent variables such as access to rural extension ($z_{1,i}$) and rural credit ($z_{2,i}$). In the second stage, we estimate the following equation

$$\log y_i = \beta_0 + \beta_1 x_{1,i} + \sum_{k=1}^{2} \gamma_k z_{k,i} + \sum_{j=1}^{J} \alpha_j v_{j,i} + \varepsilon_i \qquad (1)$$

where y_i is monthly household income and $v_{j,i}$ with j = 1, …, J are control variables such as gender, race, farm size.

Methods II

Determinants of the output destination

▪We estimate a *Logit Multinomial*, where the dependent variable is the marketing destination of the output ($x_{2,i}$): in-farm consumption; sold to companies; sold to cooperatives; sold to middleman; sold to final customer; and sold to others. Among the independent variables we included access to rural extension, rural credit and monthly household income.

▪In both approaches we use information on 13,126 rural households in Brazil, available at the Brazilian Institute of Geography and Statistics (IBGE).

Results

▪Both access to **extension** (27%) and to **credit** (23%) increase the monthly household **income**.

▪Marketing farm outcome can increase, on average, household income in 23% (kp. other factors constant).

▪Household income increases by R$ 1,700 or 140% in a scenario in which the farmer has access to rural extension and credit in addition to marketing the farm product.

Variables	$\log y_i$ (Marg. Eff.)
Extension	0.27*** (0.023)
Credit	0.227*** (0.024)

	Marginal Effect	
Variables	**Companies**	**Cooperatives**
Extension	0.0711*** (0.007)	0.016*** (0.004)
Credit	0.062*** (0.008)	0.038*** (0.005)

▪Access to **extension** (**credit**) increases the average probability of marketing the product to companies by 0.07 (0.06) and to cooperatives by 0.02 (0.04).

Conclusions

▪Our results suggest **that marketing the farm product** increases income, on average, **23%**.

▪We have found that access to **rural extension** and **credit increases** the household **income** and the average **probability** of **marketing the output**.