Climate Uncertainty and Dynamic Adjustment in Agriculture: the case in Cameroon

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ABSTRACT

Climatic fluctuations, through their impact on agriculture, increase the vulnerability of economies in Central Africa economies in general and Cameroon in particular. This determined the link between climate and agriculture in Cameroon; and determined how farmer anticipations on climate change affect investment and production decisions and the process of adjusting factors of production. The estimation of the ricardian model by Ordinary Least Squares was used to determine the link between climate and Cameroonian agricultural systems . Meanwhile the dynamic demand system and the optimal supply model where obtained by applying the Hotelling lemma to the Hamilton-Jacob-Bellman equations.Results show that an increase by 1mm of rainfall leads to an increase for $3.96 of farm income per hectare. Meanwhile an increasing of 1°C of temperature leads to a decrease of $3.74 of farm income per hectare. Under uncertainty and market price change, cameroonian farmers take about two and a half years to fully adjust to the desired level of their crops, about 24 years for capital, one and half year for labor and about nine months for fertilizer to their optimal level. As farm incomes of households are very sensitive to climate changes, farmers must imperatively strengthen adaptation. The Cameroonian government should also strengthen measures to stabilize prices on the market. The Cameroonian authorities should increase the availability of training of agricultural labor and the transfer of technology to actually go to a second generation of agriculture that favors agro family farms and small and medium-sized farms. To reduce the uncertainty in the environment of agricultural production in Cameroon and enable farmers to make decisions knowingly, governments should implement mechanisms for the production and dissemination of information on change climate. The substantial increase in the use of selected plants would withstand drought and pests.

Keywords : Adjustment Costs , Agriculture , Climate change, uncertainty, Ricardian model.

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