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M’hand Fares, Fateh Mamine

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FROM INFORMAL TO FORMAL CONTRACTS: PUBLIC INCENTIVE MECHANISMS AND FOOD SECURITY IN ALGERIA DAIRY FARMING

M’hand FARES 1 & Fateh MAMINE

1 Corresponding author: M’hand Fares, INRA-SAD, UMR 0868 SELMET, 2 place Pierre Viala. 34000 Montpellier. E-mail: mhand.fares@supagro.inra.fr

Background

As in many developing countries, Algeria tries to increase the local dairy production as an alternative to powder milk imports to ensure both food security and food sovereignty. In 1995, a specific and still ongoing milk incentive program called Local Dairy Production Rehabilitation Program (LDPRH) has been implemented. Its main objective was the fostering of the local milk production, joint with an increase of the smallholders welfare and consumer surplus through higher food safety standards. Indeed, in 1995 80% of the local milk production is still marketed through informal contracts with no minimal food safety standard. Thus, the main objective of the public program is to promote formal contracting and thus public safety standards. That is why in the main leading dairy regions, farmers may have access to a package of incentives and subsidies to increase milk production and milk safety quality, e.g. through subsidies for quantity produced, purchase of higher genetic potential of cows, transport equipment, …), provided that they adopt the public safety standard by signing formal (written) contract.

Main Objective of the paper

Our paper aims at assessing the impact of the public incentive program on: (i) the probability of the farmer to adopt a formal (written) contract and thus a public safety standard; (ii) the performance of the contract, mainly in terms of food security.

Theory and empirical predictions

To analyze the contract relationship and the impact of the public policy on the optimal contract form, we have recourse to the New Institutional Economics Approach. We derive testable propositions on the impact of different variables such as: (i) the access to public subsidies of the program; (ii) the specific assets developed by farmers (dedicated assets, temporal specificity and geographical specificity of the assets); and (iii) the uncertainty of the demand, on the probability of choosing a formal contract and thus a public safety standard. Following recent developments of the NIE, we show that public policy may not only have a direct effect on contract form and its performance, but also an indirect effect by changing the asset specificity and thus the contract choice.

Empirical models and data

To verify/refute our testable propositions, we use different empirical models. First, we estimate a reduced-form of the contract choice with probit and ordered-probit models, with or without selection bias correction. Second, we estimate a structural form with simultaneous equations models where contract choice and asset specificity are dependent variables. This allow us to test for possible indirect impact of public policy on contract choice, through asset specificity.
change. Finally, we estimate the contract performance on three dimensions of food security (milk production level, farmer revenue and milk safety level). To do so, we use a 90 farming contract database in the three zones of the Souk Ahras region, one of the leading region where farmers may have access to the incentive program.

**Main results**

We find that access to public subsidies, dedicated assets (number of cows) as well as geographical specificity (suburban location) and trust among contracting parties, increase the probability of adopting a more formal contract and thus a public safety standard. In contrast, uncertainty of the demand reduces the probability of contract adoption. The simultaneous equation regression results, where we scrutinize the impact of public policy on the contract form as well as the specific assets, show a confirmation of the indirect (positive) impact on one particular form of specificity, the dedicated assets (number of cows).

The results on performance show that having recourse to formal contract improves food security. Indeed, we find that the more formal the contract, the higher the milk production, the farmer revenue and the safety level of the milk processed.