

Final Examination

(1 hour 20mn, 20% of final grade, 30 points)

Respond concisely in words and equations to 3 of the following 4 questions (10 points each)

1. Non-separable household model

In the context of Northern Burkina-Faso, where agricultural activities consist in food crop and livestock production, Dutilly et al. (*Journal of African Economies*, 2003) observe that food is exclusively produced for home consumption: there are no net sellers of food, 15% of the farmers are self-sufficient in food while the remaining 85% are net buyers of food.

a. What do you expect a low cost technological change (water harvesting technique in that case) that improves the yield in food production would imply for land allocated to food crops for the two types of farmers? Briefly justify your answer.

b. How do Dutilly et al. set up their empirical strategy to test this hypothesis?

2. Household response to shock

It has often been said that households protect their consumption by using the labor market in response to idiosyncratic shocks to crop income. Explain the empirical strategy used by Kochar (*Review of Economics and Statistics*, 1999) to test this hypothesis.

3. Household production decision under price risk

In their paper "Marketed Surplus Under Risk: Do Peasants Agree with Sandmo?" (*American J. of Agricultural Economics*, 1991), Finkelshtain and Chalfant consider a simple static behavioral model of households producing a food crop. All households are either net buyers or net sellers, and the food crop price is risky. The model is specified as follows:

$$\max_q EV(y, p)$$

where $y = pq - c(q) + T$.

y is income, p the risky price of the crop, q the non-stochastic production level, $c(q)$ the cost function, T exogenous transfer to the household, and EV is expected utility, function of income and the food price.

The paper establishes that, at the optimal household decision:

$$EV_y(c'(q) - \bar{p}) \text{ is of the same sign as } \frac{dV_y}{dp}$$

$$\text{and } \frac{dV_y}{dp} = -\frac{1}{p} V_y(Rs_q - s_c(R - \eta)) = -\frac{1}{p} V_y(R(s_q - s_c) + s_c\eta)$$

where \bar{p} is mean price, $s_c = \frac{pc}{y}$ is share of food in consumption, $s_q = \frac{pq}{y}$ is share of the food crop in

production, $\eta = \frac{\partial \ln c}{\partial \ln y}$ is the food income elasticity, and $R = -y \frac{V_{yy}}{V_y}$ is relative risk aversion.

What conclusions can you derive regarding the level of production of these households, in comparison with that of risk neutral profit-maximizer farmers and of risk averse commercial farmers that would not consume their production. Give an intuitive interpretation for your results.

4. History of thought in development economics

There have been several major reversals in development thinking about the roles attributed to the market and to the state in promoting development. Trace out five of these reversals across schools of thought and explain briefly what was in each case the reason that made the reversal occur.

Answer-key

1. (a) Increasing yield in food crops will induce self-sufficient farmers to reduce their land allocated to food (this is because the shadow price of food decreases), while net buyers of food will increase their land allocated to food (unless they become self-sufficient). This is because the two production activities are competing for household resources and, now, food crop is more productive.

(b) Switching regression model:

- First estimate the probability of being self-sufficient or buyers, and then estimation of land allocation.

In the self-sufficient equation for land allocation: test that household characteristics are significant, yield (should be instrumented) is negative, and price is not significant

In the buyers equation, test that household characteristics are not significant, yield (should be instrumented) is positive, and price is positive.

Price was replaced by distance to market, and yield was instrumented by soil quality, rainfall variables, and the presence of the project in the village.

Need an exclusion restriction in the first stage.

2. The basic idea of the paper is that when regressing profit on input decisions, the residual represents the unanticipated shocks that affected production and the omitted variables. This residual is then instrumented on variables that are related to climatic shocks and their potential impact (area in specific crop, rainfall, and interaction between the two) in order to eliminate the omitted variable effect.

The third step consist in regressing off-farm labor L on this (instrumented) residual R , households characteristics that change over time (notably demographics and also beginning of period production characteristics) Z , a household fixed effect η , and village variable V that may affect labor markets and wages:

$$L_{ijt} = \beta_0 + \beta_1 R_{ijt}^+ + \beta_2 R_{ijt}^- + Z_{ijt} \beta + V_{jt} \gamma + \eta_{ij} + \varepsilon_{ijt} \quad \text{for household } ij \text{ from village } j \text{ at period } t.$$

Separating the shocks in positive and negative.

Estimated with panel data on 381 households over 10 years from the ICRISAT data.

Expected to see positive effect of negative shocks and either negative or no effect of positive shocks.

3. Conclusions: s_c , s_q , and R are critical in determining the level of production.

Reminder: Neutral profit maximizer's decision will be: $c'(q) - \bar{p} = 0$

Risk averse commercial farmers would simply have $s_c = 0$.

a) if $R = 0$, $\frac{dV_y}{dp} < 0 \Rightarrow$ "Risk-neutral" farmers produce less than profit maximizers.

Note: "Risk-neutral" is $V_{yy} = 0$, but $V_{yp} < 0$.

b) Net sellers ($s_q < s_c$) produce less than profit maximizers.

c) Net buyers produce less than profit maximizers if R is not too large.

If R is large, then produce more than a profit maximizer.

d) Compared to a pure producer ($s_c = 0$), households produce more.

Consumption reduces $\left| \frac{dV_y}{dp} \right|$ which reduces the magnitude of the movement in V_y which reduces the impact of risk.

e) A broader conclusion is that risk implies non-separability because it causes production to depend on consumption. Here the missing market is the availability of insurance to smooth consumption.

4. Reversals of thought between roles of the market and the state

1. From classical political economy (market) to relative economic backwardness (REB) and catching up (state).

Reversal caused by the desire of other countries (from France to Japan) to catch up with England for which they needed protection and state intervention to mobilize savings.

2. From REB (state) to neo-classical economics and modernization theory (market).

Use of the Western experience (England, stages of growth) as a model for economic development.

3. From modernization theory (market) to development economics and growth-with-equity (state).

Use of the state for import substitution industrialization and for greater impact on poverty reduction relative to trickle down effects.

4. From development economics (state) to neo-liberal response and Washington consensus (market).

Exhaustion of ISI and debt crisis leading to advocacy of liberalization, privatization, deregulation, etc., i.e. the Washington Consensus.

5. From neo-liberal response (market) to endogenous growth and the new political economy (state).

Endogenous growth theory based on positive spillovers where returns from investment cannot be fully captured privately, requiring state subsidies and public goods. Political economy with role of good governance to channel subsidies.