TERM 3 2022, COURSEWORK EXAMINATION

ECON0105: DEVELOPMENT ECONOMICS

All work must be submitted anonymously. Please ensure that you add your candidate number and the module code to the template answer sheet provided. Note that the candidate number is a combination of four letters plus a number, e.g. ABCD9. You can find your candidate number in your PORTICO account, under "My Studies" then the "Examinations" container. Please, note that the candidate number is NOT the same as your student number (8 digits), which is printed on your UCL ID card. Submitting with your student number will delay marking and when your results might be available.

Word count: 200 words for parts (a) and (b), 250 words for parts (c) and (d) of EACH question (900 words maximum per question)

You will not be penalized for exceeding the word limit. However, words that exceed the limit will NOT be read and therefore considered for marking.

Answer ALL questions in the exam.

Each question carries 20 per cent of the total mark (and each sub-question carries 5 per cent).

Just like an exam, ths is an open book assessment. The use of any of the module material, or material from any other published source, is allowed. However, collaborating or communicating with other students or any third party regarding this assessment is not allowed.

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1.Health

This question is based on Miller and Urdinola [2010] "Cyclicality, Mortality and the Value of Time: The Case of Coffee Price Fluctuations and Child Survival in Colombia", *Journal of Political Economy*. The relevant tables and figures from the manuscript are attached.

a. Describe the two mechanisms via which a negative economic shock could lead to (i) higher child mortality, (ii) lower child mortality

b. What does the descriptive evidence in Figure 3A suggest about the relative importance of the two mechanisms? Does it rule out one of the two mechanisms?

c. Describe in detail the identification strategy used in the paper. Why is the analysis based on a child's county of birth? Why is it restricted to individuals who were already conceived at the time of the price shock?

d. Interpret the results in Panel A of Table 2, clearly explaining the difference between the three columns and the reason why the authors run each of the three specifications. Should we expect a smaller coefficient in Column 2 with respect to Column 1? Why?

2.Education

This question is based on Muralidharan and Sundarararam [2007] “Teacher Incentives in Developing Countries: Experimental Evidence from India,”. The relevant tables and figures from the manuscript are attached.

a. Describe the experimental design, clearly stating what assumption each of the treatment arms is testing

b. Interpret the results in Table 6. Why do the authors look separately at the impact of the incentives on mechanical and conceptual skills?

c. The authors estimate that the incentive and inputs programs would add learning equivalent to one year under the *status quo* respectively at 12% and 20% of the *status quo* cost. Describe how these costs are estimated.

d. If you were a policy maker in India and had a limited budget to invest in the education system, how would you suggest scaling up this program? Carefully justify your answer.

3.Gender

This question is based on Jayachandran, Seema, and Kuziemko [2011] "Why Do Mothers Breastfeed Girls Less than Boys? Evidence and Implications for Child Health in India", *Quarterly Journal of Economics*. The relevant tables and figures from the manuscript are attached.

a. “Missing women” is the name given to excess female death and female babies missing at birth. What are the possible drivers of this phenomenon?

b. One of the assumptions of the model described in the paper is that utility is increasing in quantity of children up to target number, and then decreasing. What would this assumption predict in terms of the relationship between breastfeeding and birth order? Why?

c. Carefully describe Figure 4. What do the plotted coefficients reveal about household’s fertility preferences?

d. What do you think would be the effect of expanding the availability of birth control on breastfeeding? Justify your answer.

4.Networks and Markets

This question is based on Bandiera and Rasul [2006] "Social Networks and Technology Adoption in Northern Mozambique", *Economic Journal*. The relevant tables and figures from the manuscript are attached.

a. What are the information externality effect and the strategic delay effect and how do they affect technology adoption?

b. Carefully describe the authors identification strategy. Why is it important that networks are measured before the adoption decision is taken?

c. Interpret the results in Table 6. Are they in line with the predictions from the model of social learning? Use the equation below to justify your answer:

$$\frac{\partial E_0 q_0(0, n(i)_0)}{\partial n(i)_0} + \delta \frac{\partial [V_1(1, n(i)_0) - V_1(0, n(i)_0)]}{\partial n(i)_0}$$

$$= \frac{\rho_0}{(\rho_{i0} + n(i)_{t-1}\rho_0)^2} + \delta \sum_{s=1}^{T} \delta^s \left(\frac{\rho_0}{(\rho_{i0} + s\rho_0 + n(i)_0\rho_0)^2} - \frac{\rho_0}{(\rho_{i0} + (s-1)\rho_0 + n(i)_0\rho_0)^2} \right)$$

d. Movimondo, the NGO that implemented this program, appointed contact farmers within each village to distribute free seeds. How do you think the identity of the contact farmer affected the distribution of free seeds?

5.Agriculture

This question is based on Banerjee, Gertler and Ghatak [2002] "Empowerment and Efficiency: Tenancy Reform in West Bengal", *Journal of Political Economy*. The relevant tables and figures from the manuscript are attached.

a. Discuss the empirical challenges typically involved in studies that aim to identify the causal effect of contractual structure on productivity.

b. How do Banerjee et al (2002) address these empirical challenges? Can you think of any econometric concern that may question the validity of their results?

c. Table 2 summarizes the impacts of Operation Barga on agricultural productivity. Interpret the results in each column, paying attention to what they imply for the effect of increasing tenure security on output.

d. In your view, how did Operation Barga affect tenants' welfare relative to a policy leading to a full transfer of landownership? Carefully justify your answer.

END OF EXAM PAPER

Figure 1: **Question 1 - Figure 3A**

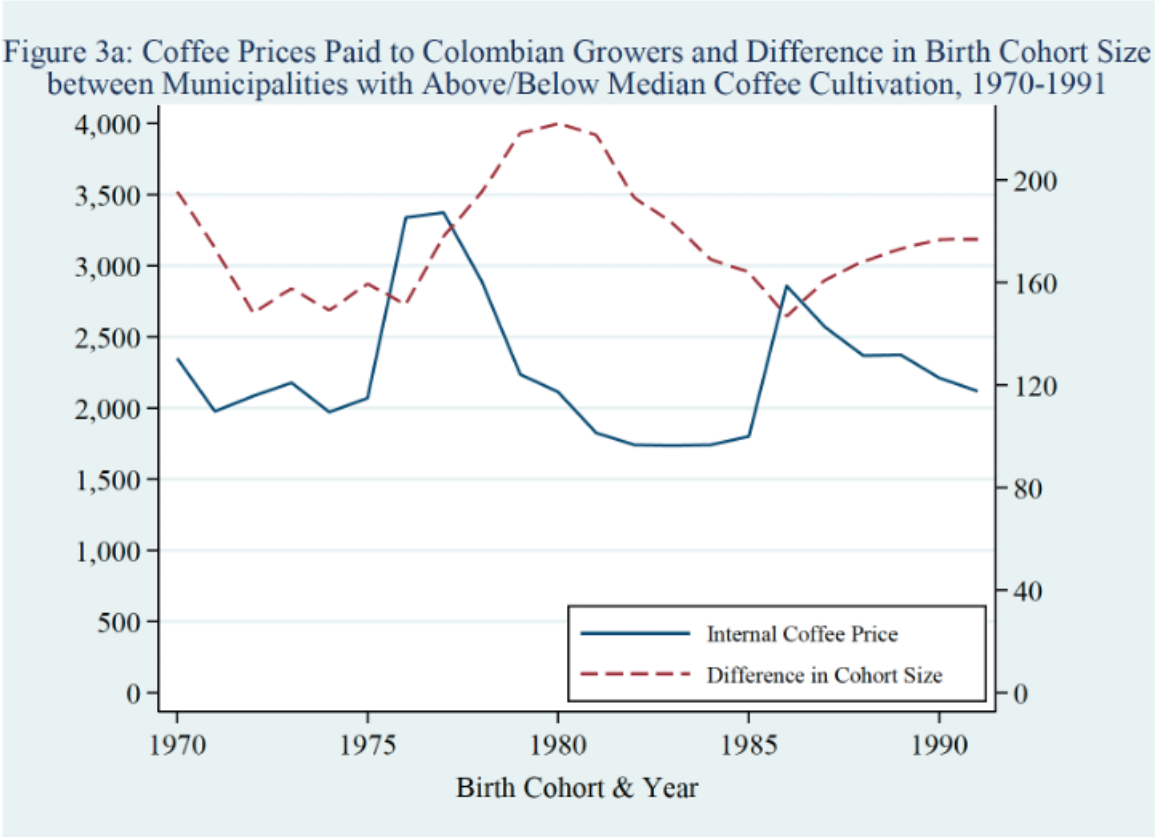

Figure 2: **Question 1 - Table 2**

TABLE 2:
Coffee Price Shocks and ln(Cohort Size)

	Sample/Specification		
	Ages 0-2	Ages 0-3	Ages 0-3 with Trends
Panel A: 1975 Brazilian Frost	-1.73E-07***	-3.16E-08***	-7.94E-08***
	(2.61E-08)	(1.21E-08)	(1.50E-08)
Municipal Fixed Effects	Yes	Yes	Yes
Municipal-Specific Linear Trends	No	No	Yes
Implied Change	**-2.16%**	**-0.40%**	**-0.99%**
N	2215	3319	3319
R^2	0.99	0.99	0.99
Panel B: 1985 Brazilian Drought	-1.63E-07***	-1.35E-07***	-2.31E-07***
	(4.44E-08)	(3.59E-08)	(8.73E-08)
Municipal Fixed Effects	Yes	Yes	Yes
Municipal-Specific Linear Trends	No	No	Yes
Implied Change	**-2.04%**	**-1.69%**	**-2.89%**
N	2208	3310	3310
R^2	0.99	0.99	0.99
Panel C: 1990 ICA Collapse	-9.73E-08***	-4.66E-08***	7.55E-08
	(2.60E-08)	(9.23E-09)	(5.56E-08)
Municipal Fixed Effects	Yes	Yes	Yes
Municipal-Specific Linear Trends	No	No	Yes
Implied Change	**-1.22%**	**-0.58%**	---
N	2203	3305	3305
R^2	0.99	0.99	0.99

Notes: Estimates shown for the interaction between coffee growing intensity and coffee price in the first year of life in equation 1; standard errors clustered at the county level shown in parentheses. Implied changes are calculated for 250 hectares of coffee and a 500 peso price change. *p<0.1, **p<0.05, ***p<0.01.

Figure 3: **Question 2 - Table 6**

Table 6: Impact of Incentives on Mechanical Versus Conceptual Learning

	Dependent Variable = Endline Test Score by Mechanical/Conceptual (Normalized by Mechanical/Conceptual Distribution in Control Schools)					
	Combined		**Math**		**Telugu (Language)**	
	Mechanical [1]	Conceptual [2]	Mechanical [3]	Conceptual [4]	Mechanical [5]	Conceptual [6]
Normalized Baseline Score	0.482 (0.012)***	0.338 (0.011)***	0.492 (0.015)***	0.265 (0.015)***	0.48 (0.013)***	0.411 (0.013)***
Incentive School	0.134 (0.038)***	0.135 (0.042)***	0.168 (0.045)***	0.165 (0.049)***	0.101 (0.036)***	0.106 (0.040)***
Observations	69310	69310	34428	34428	34882	34882
R-squared	0.28	0.17	0.28	0.14	0.29	0.23

Notes:
All regressions include mandal (sub-district) fixed effects and standard errors clustered at the school level.
* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 4: **Question 3 - Figure 4**

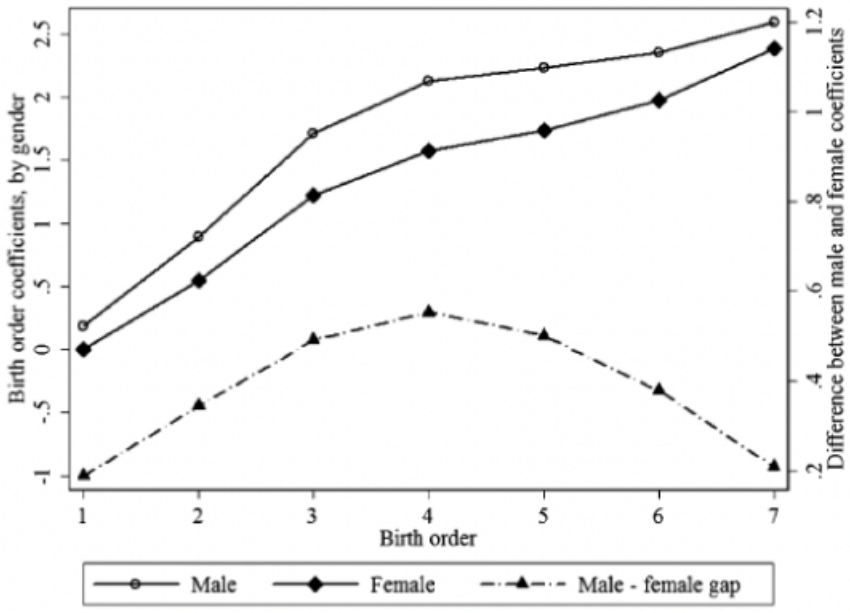

FIGURE IV
Gender Differences in Breastfeeding Duration, by Birth Order

Figure 5: **Question 4 - Table 6**

Table 6: Heterogeneity

Dependent Variable = 1 if household head adopts sunflower, 0 otherwise
Linear regression estimates
Robust standard errors reported in parentheses

	(1) Cashew Cultivation	(2) Past Participation in NGO Projects	(3) Migration Status	(4) Poverty
UNINFORMED x Number of Adopters Among Family and Friends	.114***	.099***	.218***	.114***
	(.028)	(.020)	(.047)	(.021)
UNINFORMED x Number of Adopters Among Family and Friends, Squared	-.005**	-.004***	-.015***	-.005***
	(.002)	(.001)	(.003)	(.001)
INFORMED x Number of Adopters among Family and Friends	.088***	.120***	.099***	.092***
	(.025)	(.041)	(.018)	(.032)
INFORMED x Number of Adopters Among Family and Friends, Squared	-.004***	-.007***	-.004***	-.006***
	(.001)	(.002)	(.001)	(.002)
Marginal Effect for UNINFORMED, evaluated at the mean	.076***	.057***	.091***	.072***
	(.016)	(.010)	(.022)	(.013)
Marginal Effect for INFORMED, evaluated at the mean	.039***	.052**	.053***	.025**
	(.011)	(.024)	(.009)	(.014)
Implied Maximum for UNINFORMED	11.21	11.67	7.14	12.4
Implied Maximum for INFORMED	10.36	8.23	11.01	7.98
Individual Controls	Yes	Yes	Yes	Yes
Village Fixed Effects	Yes	Yes	Yes	Yes
Observations	198	198	198	198
R-squared	.35	.36	.37	.38

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Village elders and contact farmers are not included in the sample. Individual controls are literacy, the number of adults in the household, months of food security, relative asset poverty, whether cashew is cultivated, whether past NGO projects have been participated in, gender, age, age squared, migrant status and religion. The omitted categories are Catholic and not poor. Along the first three dimensions, informed households cultivate cashew, have participated in NGO projects in the past, or are permanent residents of the village. In terms of poverty status, informed farmers are defined to be those that are not poor, uninformed farmers are either poor or very poor.

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Figure 6: **Question 5 - Table 2**

TABLE 2
DIFFERENCE-IN-DIFFERENCE MODELS OF LOG OF RICE YIELD PER HECTARE (1969–93)

	DIFFERENCE	LEVEL	
	(1969–78)	1969–93	Excluding 1981–82
	(1)	(2)	(3)
West Bengal	.004	…	…
(=1)	(.17)		
West Bengal ×	…	- .09***	−.01
(1979–83)[a]		(3.75)	(.38)
West Bengal ×	…	.05**	.05**
(1984–88)		(1.99)	(2.00)
West Bengal ×	…	.05*	.05*
(1988–93)		(1.77)	(1.78)
District fixed effects F-statistic	…	44.55	42.61
Year fixed effects F-statistic	4.26***	29.75***	31.81***
R^2	.12	.80	.81
Sample size	256	717	659

NOTE.—t-statistics are in parentheses.

[a] These variables are obtained by interacting a dummy variable that takes the value one if a district is in West Bengal and zero if it is in Bangladesh with another dummy variable that takes the value one if the observation is in the indicated time period (1979–83 in this case) and zero otherwise.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.