**2176 Development Economics**
**1st Semester 2023-2024**
**Nova School of Business and Economics - Universidade Nova de Lisboa**
**Instructor: Pedro C. Vicente**
**Final Exam (1h30m)**

**Please answer 3 out of the following 5 questions (all questions are equally weighted). Each answer should not exceed roughly one page.**

**Question 1**
Community campaigning seems to work to prevent violence in African countries. We have seen two examples in the lectures, one relating to the political resource curse and the other relating to misbehavior in elections.
    (i)      Describe the two studies while discussing potential common mechanisms.
    (ii)    Relate to the idea behind Community-driven Reconstruction.

**Question 2**
A paper on misbehavior by diplomats in New York shows that corrupt behavior can be seen as a social norm difficult to break. While relating to the literature, explain how corruption can be minimized.

**Question 3**
Designing proper incentives for teachers and health workers in developing countries is central to improvements in education and health.
    (i)      What is the evidence on the effectiveness of financial incentives?
    (ii)    Since financial incentives are difficult to set up in many settings, namely for health workers, what are the alternatives?
Note: be sure to briefly describe the main literature that support your answers.

## Question 4

Agricultural productivity in Africa is lowest in the world and has been stable for decades. Moreover, financial inclusion is limited, and farmers need to save to invest in improved technologies, namely fertilizer. At the same time many developing countries are spending significant resources in subsidizing improved inputs for farmers with little success.

Explain which policy innovations can increase the adoption of improved technologies while relating to the specific findings in the table that follows taken from Duflo, Esther, Michael Kremer, and Jonathan Robinson (2011), Nudging Farmers to Use Fertilizer: Evidence from Kenya, published at the American Economic Review.

TABLE 4 (*Continued*)

| | Used fertilizer season 1 | | Used fertilizer season 2 | | Used fertilizer season 3 | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Panel B. 2004 season 2 treatments* | | | | | | |
| SAFI season 2 | −0.009 | 0.042 | 0.165 | 0.181 | −0.024 | −0.005 |
| | (0.053) | (0.057) | (0.061)*** | (0.066)*** | (0.056) | (0.061) |
| SAFI season 2 with choice on date of return | −0.014 | 0.030 | 0.207 | 0.216 | −0.027 | 0.003 |
| | (0.048) | (0.053) | (0.055)*** | (0.060)*** | (0.050) | (0.056) |
| Half-price subsidy visit at top dressing | −0.035 | −0.039 | 0.142 | 0.127 | 0.023 | 0.041 |
| | (0.052) | (0.057) | (0.059)** | (0.065)* | (0.054) | (0.061) |
| Full-price and free delivery visit at top dressing | −0.065 | −0.034 | 0.096 | 0.104 | −0.053 | −0.031 |
| | (0.052) | (0.058) | (0.059) | (0.066) | (0.054) | (0.061) |
| Bought maize | −0.002 | −0.011 | −0.042 | −0.079 | 0.002 | −0.014 |
| | (0.043) | (0.048) | (0.049) | (0.054) | (0.046) | (0.050) |
| Bought maize × SAFI season 2 | −0.048 | −0.073 | −0.085 | −0.057 | 0.005 | −0.011 |
| | (0.075) | (0.082) | (0.087) | (0.096) | (0.080) | (0.087) |
| Household had used fertilizer prior to season 1 | 0.369 | 0.316 | 0.325 | 0.283 | 0.278 | 0.248 |
| | (0.031)*** | (0.035)*** | (0.035)*** | (0.040)*** | (0.033)*** | (0.037)*** |
| Male | | 0.01 | | 0.014 | | 0.028 |
| | | (0.033) | | (0.037) | | (0.035) |
| Home has mud walls | | −0.197 | | −0.197 | | −0.017 |
| | | (0.081)** | | (0.091)** | | (0.086) |
| Education primary respondent | | 0.004 | | −0.003 | | 0.015 |
| | | (0.004) | | (0.005) | | (0.005)*** |
| Income in past month (in 1,000 Kenyan shillings) | | 0.004 | | 0.006 | | 0.003 |
| | | (0.003) | | (0.003)** | | (0.003) |
| Mean usage among season 2 comparison | 0.372 | 0.329 | 0.260 | 0.241 | 0.479 | 0.472 |
| Mean usage among pure comparison group | 0.296 | 0.227 | 0.182 | 0.111 | 0.423 | 0.381 |
| Observations | 876 | 716 | 756 | 626 | 902 | 734 |

*Notes:* Dependent variable is an indicator equal to one if the farmer adopted planting or top dressing fertilizer in the given season. All regressions include school controls, and a control for whether the farmer was a parent of a standard 5 or 6 child (see text). Panel B also include controls for the season 1 treatments listed in panel A. Two comparison group means are listed in the bottom of each panel: those who did not participate in any trial that season, and those who did not participate in any trial in either season. Exchange rate was roughly 70 Kenyan shillings to US$1 during the study period. Standard errors in parentheses.

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

**Question 5**

Access to energy can be a force towards economic development. Explain the potential mechanisms while relating to the literature and the specific findings in the table that follows taken from Dinkelman, Taryn (2011), The Effects of Rural Electrification on Employment: New Evidence from South Africa, published at the American Economic Review. Make sure to explain how empirical identification of causal effects is achieved.

TABLE 4—EFFECTS OF ELECTRIFICATION ON EMPLOYMENT: CENSUS COMMUNITY DATA

| | $\Delta_t$ female employment rate | | | | | | | |
| | OLS regression coefficients | | | | IV regression coefficients | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Eskom project | −0.004 | −0.001 | 0.000 | −0.001 | 0.025 | 0.074 | 0.090* | 0.095* |
| | (0.005) | (0.005) | (0.005) | (0.005) | (0.045) | (0.060) | (0.055) | (0.055) |
| A. R. 95 percent C.I. | | | | | | | [0.05; 0.3] | [0.05; 0.3] |
| Poverty rate | | 0.029*** | 0.033*** | 0.031*** | | 0.027** | 0.032** | 0.031** |
| | | (0.011) | (0.010) | (0.010) | | (0.012) | (0.013) | (0.013) |
| Female-headed HHs | | 0.042** | 0.051*** | 0.047** | | 0.014 | 0.036 | 0.033 |
| | | (0.019) | (0.019) | (0.020) | | (0.031) | (0.026) | (0.026) |
| Adult sex ratio | | 0.019** | 0.017** | 0.020*** | | 0.033** | 0.029** | 0.032*** |
| | | (0.009) | (0.008) | (0.007) | | (0.014) | (0.012) | (0.012) |
| Baseline controls? | N | Y | Y | Y | N | Y | Y | Y |
| District fixed effects? | N | N | Y | Y | N | N | Y | Y |
| $\Delta_t$ other services? | N | N | N | Y | N | N | N | Y |
| N communities | 1,816 | 1,816 | 1,816 | 1,816 | 1,816 | 1,816 | 1,816 | 1,816 |

*Notes:* Robust standard errors clustered at subdistrict level. Eskom project is instrumented with mean community land gradient. See Table 3 for full list of control variables. The last two columns provide confidence intervals (C.I.) from the Anderson-Rubin (A.R.) test for the coefficient on Eskom project. The test is robust to weak instruments and implemented to be robust to heteroskedasticity.

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

## Solution Guidelines - Pedro C. Vicente

**Students are not required to memorize authors' names – their grades should not decrease for that reason, as long as they describe well the corresponding contributions.**

**Question 1**

    (i)    The two papers are Armand et al. for counteracting the political resource curse in Mozambique and Collier and Vicente for counteracting electoral violence in Nigeria. The two papers should be described in some detail: research question, method, and main results. Then students should talk about mechanisms of

impact. In Mozambique, the main mechanism of impact on decreasing conflict is through increasing the perceived future opportunity cost of conflict and by increasing community mobilization. In Nigeria, the anti-violence campaign increased electoral participation and empowerment against violence. Both seem to have worked through community mobilization.

(ii)  CDR: the paper by Fearon et al in Liberia should be referred. This family of interventions is typically post-conflict and aims at increasing social cohesion, a sort of community mobilization as well, to rebuild institutions and prevent future conflict.

**Question 2**

Fisman and Miguel on diplomats' parking violations in New York should be described in some detail. This paper also embeds an anti-corruption measure by activating enforcement of punishments for the violations from a certain point of time on. This is an example of top-down incentives. Then, we also expect students to refer to Olken's paper on Indonesia, which contrast top-down to bottom-up incentives aiming to reduce corruption in road construction. This paper should be described in some detail. In doing so, students could relate to CDD interventions which generally aim at producing accountability from the bottom.

**Question 3**

(i)  The main papers I covered on financial incentives are Duflo et al on financial incentives for teachers in India, Ashraf et al on incentivizing barbers to sell condoms, and Nyqvist et al on entrepreneurial incentives for health workers. Apart from Ashraf et al, which has low-powered financial incentives, the effects of financial incentives on performance are clearly positive. The referred papers should be described in some detail.

(ii)  Indeed, funding financial incentives for community health workers is a common problem. Most of these workers are volunteers. Ashraf et al and Fracchia et al analyze the impact of social status interventions, which show very good results. Fracchia et al also look at an intrinsic motivation intervention based on task significance. Results are not very clear there.

**Question 4**

The paper by Duflo et al should be explained in detail relating to the table. Namely the effects for using fertilizer in season 2 should be explained for the first four treatment effects (the same in the flagged red square from the lectures). Students should explain that the smart subsidy (SAFI program) is helping time inconsistent farmers of the procrastination type. To a certain extent, it is substituting for a savings account of the type we studied in the financial inclusion lecture (e.g., Ashraf et al). Hence, a tailored savings account for farmers could act as a policy substitute. I have quickly mentioned something like this tested in Mozambique using mobile money as the platform for the savings account – but this was a very quick mention in the lectures, so I would not value it significantly in the answer.

**Question 5**

The papers by Dinkelman and Lipscomb et al should be explained in detail, especially the first while linking to the table. The IV structure of both papers should be described and evaluated critically. The first paper is more about female participation in the labor market enabled by simplified technologies at home, while the second explores more general human

development outcomes. Students should reflect on potential mechanisms of impact on human development.