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Problem Set 5

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1. Table 1 shows summary statistics



Looking at crimes rates across birth year, there is a very small increase in crimes rates with the lowest crime rate being 6.79% in 1959 and the highest being 7.05% in 1962. There is also a small change in conscription rates across years with 1959 and 1960 having slightly lower rates than 1961 and 1962. There are very few indigenous or naturalized citizens with over 99% of the population being non-indigenous Argentinean.

2. Table 2 shows regression of crime rate on conscripted and other covariates using robust standard errors



A ten percentage point increase in conscripted is predicted to increase crime rate by .022 percentage points and is significant at the 1% level. This would mean that the more people conscripted into the military, the higher the crime rate is. The covariates are insignificant other than the birth year 1962 but it is barely significant at the 5% level. The other crime types on conscripted coefficients are either insignificant or have a slightly positive effect on crime rate type. These results do not reflect a casual effect of conscription since there could be omitted variable biased. The conscription assignment could also not have been completely random which would also be a problem. The assignment of ID numbers could be based on region which would cause conscription to be nonrandom and since we have no region variables, we cannot rule this idea out. Since crime type is only available after 2000, we are ignoring the crimes committed history of the people conscripted in the dataset.

3. In do-file

4. Table 3 shows regression of conscripted on eligible and other covariates using robust standard errors



We should control ethnic composition since these variables could show if eligible would be a good instrument for conscripted. We should also control for birth year since this will account for fixed effects based on birth year. Even though the ethnic variables are insignificant, they do signal that region was not a significant variable when it came to assigning ID numbers because generally people from the same background live together.

5. Table 4 shows regression of crime rate on eligible and other covariates



Like question 2, the regression shows that eligible has a significant positive effect on crime rate at the 1% level. The other regression of crime rate type on eligible end up being either insignificant or only having slightly positive significance. These results do reflect casual effects on conscription if these two conditions hold for eligible to be a valid instrument. One, eligible must be correlated with conscripted which was proven in question 4. Second, eligible must be uncorrelated with all other determinates of crime rate which is called instrument exogeneity. Instrument exogeneity holds in this regression since the other covariates in the regression are insignificant, but to be more confident, it would be nice to add more determinates.

6. In do-file

7. Table 5 shows the second stage of two-stage least squares of crime rate on conscripted using eligible as an instrument for conscripted



Since the coefficient from the second stage of two-stage least squares is the same as the point estimates from question 6, our calculations from question 6 are correct. There is a difference between the 2SLS and OLS since 2SLS is using a predicted value for conscriptions using eligibility as an instrument in the regression and OLS is using the actual value of conscriptions. Eligibility is a valid instrument if the conscription lottery is truly random and eligibility only effects conscription and not the residual. But if the lottery was not completely random where the ID numbers were associated with region or group, then eligibility would be associated with those determinates. If the region or group had a different crime rate than the average crime rate of Argentina, then the ID numbers are associated with region or group which is associated with crime rate. This would make eligibility an invalid instrument since its associated with determinates of crime rates.

9. A ten percentage point increase in conscription rate is associated with an increase in crime rate by .026 percentage points. The 2SLS estimates the treatment effect for compliers which are people that are eligible and are either conscripted or not conscripted. It is the LATE effect or the local average treatment effect since it accounts for always takers or people who are eligible but join the military regardless of conscription status. It is not reasonable to call it a treatment on the treated since there are always takers and they have already been induced to join the military regardless of conscription status.

10. Yes, the distinction does effect whether we can use the estimates from Argentina to predict the effect of the repeal of the draft in Israel. Since Israelites are much more inclined to join the military, there are many more always takers in Israel than in Argentina. There are also so many differences between Argentina and Israel that the regression estimates from Argentina would be a terrible predictor for crime rates in Israel. The model also does not control for many covariates which would make it harder to apply the results to other countries.