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Thesis Review for Davit Adunts

Dear Madam or Sir,

I have been asked by Dr Anatolyev, Deputy Director of Graduate Studies, to review the PhD thesis of Davit Adunts. Please find my review below.

Introduction

David Adunts has submitted a very good thesis that showcases his potential as a scholar and is deserving of a PhD in economics. The thesis consists of three scientific papers on the effects of migration on sending countries. This is an important and under-studied topic in the economics of migration. Through a combination of clever research designs and interesting new data, all three papers provide novel insights into this important aspect of global mobility of workers.

In the report to follow, I will highlight the contribution of each paper and provide suggestions for improvement. The comments are split into two blocks: <u>major comments</u> are comments the author should address before the final submission of the thesis. <u>Minor comments</u> are comments that don't need to be addressed before submission; however, these comments may be very important if the author plans to submit his work to academic journals. The bar for getting into top journals can be very high and crossing it often requires more time than what is possible during a PhD.

Paper 1

The first paper answers a highly important question, namely whether the absence of fathers who emigrated affects child development. Given the large number of temporary migrants and families left behind, this question is more relevant than ever. The author uses data from a school survey that he collected in collaboration with an NGO in Ternopil/Ukraine. I applaud the author for collecting such data, especially during a PhD. The only other dataset of this type that I'm aware of was collected by Joanna Clifton-Sprigg on emigration from Poland. Such data are invaluable, even if they are not perfect. We can't study the effects of emigration with most conventional datasets. The examination committee should recognise that this data collection is an excellent achievement. The main outcome --- perseverance

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as a measure of socioeconomic development --- is measured through a survey experiment.

At a basic level, the author compares children whose father is currently working abroad to children whose father is present in the household. The identification challenge is that these two groups may be fundamentally different and, thus, the difference in outcomes may be explained by differences in family characteristics rather than difference in the presence of a father. The author addresses this issue by comparing children whose fathers are currently away to those whose fathers have returned, arguing that these families are relatively similar. Moreover, the author exploits the introduction of a maximum duration of migration in Poland --- the main destination country --- which induces exogenous variation in returns to Ukraine. The main finding is that children whose father is currently not present display lower perseverance.

Overall, the paper is well-written and well-crafted, although the author needs to discuss the identification strategy in greater detail. I applaud the author for carrying out the behavioural experiments to measure the outcome.

Major comments

- Please add a discussion of the parameter you want to estimate, the ideal control group, and explain to what extent your setting is congruent with an ideal experiment. It is not clear a priori what the right control group should be or how we should think about a counterfactual. It would be helpful to have an idea of what parameter the author wants estimate here. It's probably some sort of ATT: you want the counterfactual child outcomes for children whose father is currently away. The difference between the observed outcomes and the counterfactual outcomes gives you the ATT. However, if that is the goal, one needs to think hard whether the children of previous migrants is a good counterfactual. To my mind, the best counterfactual would be children whose fathers never migrated for random reasons. This would give you a clean counterfactual. The author correctly states that migrant and non-migrant families are different and, thus, using non-migrants as a control group may lead to selection bias. The author argues that the outcomes children of previous migrants are a better counterfactual because there is less scope for selection bias. This may well be true, but using this control group does not give you an unbiased estimate of

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the ATT either. Much of the child development literature shows that shocks early in life have long-run consequences for child outcomes. For the control group, this means that they may still suffer from the previous migration of their father, thus biasing your results towards zero. I would encourage the author to show regressions with non-migrants as a control group (and discuss why there is a problem) and to discuss the bias stemming from using children of prior migrants as a control group. It might also be possible to derive bounds on the true effect.

- It is unclear how the author uses the change in the permitted duration of stay for identification. When I first read that the author uses this change, I was really enthusiastic because it sounds like a very neat idea to help identification. However, in the paper it is not clear at all how this feature is used and how it helps identification. Much more discussion is needed on that. Why not show a timeline and explain the institutional setting in great detail. Then explain why this feature adds quasi-experimental variation, what the nature of this variation is, etc. It needs to be crystal clear to a reader what children we compare with one another, why it is as good as random whether someone is in the treatment or control group, etc.

- It will also be very important to show and discuss the balancing tests in the main text. Basically, for every claim that the treatment and control group are as good as randomly assigned, the author should show a balancing test. These should be regression based, i.e. regress each pre-determined variable on the treatment and fixed effects. You can also run a joint balancing test by regressing the treatment on all X variables. Given that your main estimator is a regression, you should only show regression-based balancing tests.

- For the different groups (current emigrants, previous emigrants, never migrants), it would be helpful to show the distributions of propensity scores (based on predetermined characteristics), to see to what extent the groups differ.

- Table 1.2: I would want to see the uncontrolled results for all students. Show the results without any controls, just with classroom FE, and just with controls. This is to give a feel for a potential bias.

- Please discuss to what extent the outcome is really reflective of socioeconomic development.

Minor comments

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- Table 1.1: please show what share of children are with a father who migrated at some point (currently or previously)

Paper 2

The second paper studies the effect of emigration opportunities on skill formation. This question is commonly known as the Brain Gain hypothesis, i.e. the idea that emigration opportunities can lift the skill level in the country of origin. There is some evidence out there that this channel is quantitatively important, but more data points are most welcome. The author uses a very interesting setting, namely the change in the visa rules, allowing Ukrainians to travel to the EU without a visa. The challenge is that all of Ukraine was exposed at the same time. The author overcomes this challenge through the reduced form of (basically) a shift-share, whereby he measures regional differences in pre-existing intentions to migrate based on the Gallup World Poll. The idea is that places with a stronger pre-existing intention to migrate would have a greater benefit from the loosening of visa restrictions and, thus, a greater incentive to invest in their skills. To measure skill formation or specialisation, the author uses the results from a standardised test at the end of high school in Ukraine, whereby students can choose the subject in which they take the test. The main finding is that students in areas with higher migration aspirations chose subjects that signal internationally transferable skills. Just as paper 1, paper 2 is well-written and relevant. At the same time, the paper could benefit from a more thorough discussion of the identification strategy.

Major comments

- It would be very helpful to show the distribution of tests taken before and after the change in visas. And perhaps even show the before-after changes in the distribution in more and less exposed areas separately. This would basically be an eyeballing difference-in-differences: take highly exposed areas and show the difference in distribution; then do the same for less exposed areas.
- The author needs to provide a better discussion on the Gallup World Poll. How many people are there in the sample overall? And how many are there per region? Are there enough in each region to create meaningful averages? In other words, if the averages are based on just a handful of respondents, the entire identification strategy rests on noisy data.
- I miss a discussion of recent methodological papers on shift-share IVs. The author doesn't use a classic shift-share IV, but his approach is closely related because it is basically the reduced form of a shift-share IV. Borusyak and Hull

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have a forthcoming paper in Econometrica that looks at similar settings. The work by Goldsmith-Pinkham et al (AER) and Borusyak et al (ReStud) is also very relevant. Essentially the author needs to explain why he presents a valid identification strategy in light of these recent methodological developments.

- The author then uses other attitudes from the Gallup World Poll as instruments for emigration intentions. Instrumenting one attitude with another is always problematic because both can be driven by the same underlying forces. In that case, the conditional independence assumption of the IV (which is not discussed in the paper, btw) is violated. There may also be a violation of the exclusion restriction: the regional force that drives attitudes also drives specialisation after 2017 or is correlated with an underlying trend in specialisation. The author needs to provide a much more profound discussion on the identification strategy and show supporting evidence in favour of the identification assumptions.
- I don't understand in Table 2.4 why the first stage only has 6,300 observations, much fewer than the other columns. My guess is that this is just the gallup sample. However, it would be important to show the first stage based on the full sample.
- The empirical model in Equation 2.1 and 2.2 is difficult to interpret because there are no subscripts on the interaction term. Please add them so that readers understand where your variation comes from.
- One straightforward placebo test would be to see whether the instrument predicts the cross-sectional variation in outcomes in 2016. Or if you had data from before 2016, you could run a fully fledged placebo analysis with a placebo policy change long before the actual policy change.
- There is also a challenge with inference. Ideally, the standard errors should be clustered at the region level. Given the low number of clusters, parametric clustered SEs are likely invalid and a block bootstrap should be used.

Minor Comments

- (Not) using these weird parentheses is (good) really bad style! Don't ever do this. Spare the reader the thinking work and just write out a longer sentence.

Paper 3
The third paper also looks at emigration and skill formation. It uses data from Armenia, from where many migrants work in Russia, and exploits shocks to the exchange rate of the ruble to look at the effect of remittance receipts on human

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capital. Following a shock after the annexation of Crimea, the ruble devalued considerably, thereby reducing remittance receipts in Armenia. To identify a causal effect, they interact the exchange rate shock with The authors show that this shock led to lower performance in math among 12th graders, mainly among men. This result appears to be driven by an increase in labor supply among young men. They work more to compensate for the loss in remittance income. This is an excellent paper. It answers a relevant question and I really like the research design.

Major comments

- It would be helpful and very convincing to show the diff-in-diff graphically. Show two graphs: 1) distributions of maths grades in highly- vs less exposed regions before 2014; 2) the same distributions afterwards. Does picture 2 look fundamentally different from picture 1?
- As with paper 2, the empirical model is difficult to read because there are no indices.
- The result appears pretty big, but the interquartile range is also a very big change. What is one standard deviation in the share of seasonal workers? That should be the benchmark.

Minor comments

- It would be nice to have some more discussion on economic theory. The behavioural responses across people are likely consistent with an income and substitution effect. It seems like the result you find is consistent with an income effect: households need to reach an income target, so they increase their labor supply. There would probably not be much scope for a substitution effect, i.e. people working less as a result of remittance income dropping. But that's worth discussing.
- Is there a possibility to compare migration to Russia vs other countries? I'm thinking of the paper by Omar Mahmoud et al (AEJ Applied) on emigration and voting in Moldova, where they have some region from where people mainly emigrate towards the West and other regions where people mainly migrate towards the East. If that's the same in Armenia, exploiting this would make the paper a lot more convincing.

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Conclusion

David Adunts has submitted an excellent thesis that meets and exceeds the professional standards of a PhD in Economics. All three papers are original pieces of research, well-crafted and of high societal relevance. Subject to some revisions, the candidate should be able to publish these pieces in highly ranked journals in economics. The thesis satisfies the requirements --- formal and content-wise --- of a PhD in Economics and I strongly recommend the thesis for defense.

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(Benjamin Elsner)