Discussion:
An Opium Curse?

Marijn Bolhuis

University of Toronto

marijn.bolhuis@mail.utoronto.ca

June 4, 2019

Comments: Overview

- Pleasure to read!
  - interesting topic
  - clear purpose and execution
  - neat identification
  - organized and well-written
- Discussion:
  1. How I See The Paper
  2. Major Comments
  3. Minor Issues (not in presentation)

How I See The Paper (1)

Motivation:

- add to literature on long-run development effects of local (colonial) institutions; new:

How I See The Paper (1)

Motivation:

- add to literature on long-run development effects of local (colonial) institutions; new:
  1. coerced cultivation of a (narcotic) crop (opium poppy)
     - historical data on cultivation, public goods provision, within-country variation
     - 'opium suitability index' (factor endowments)

How I See The Paper (1)

Motivation:

- add to literature on long-run development effects of local (colonial) institutions; new:
  1. coerced cultivation of a (narcotic) crop (opium poppy)
     - historical data on cultivation, public goods provision, within-country variation
     - 'opium suitability index' (factor endowments)
  2. extractive cultivation system did **not** persist after independence (what did?)

How I See The Paper (2)

Identification:

- cross-sectional DID using $poppy.production_{id} \times opium.district_{id}$
- 'exogenous' variation:
  - $poppy.production_{id}$: predict using climatic data (a la FS IV)
  - $opium.district_{id}$: use only villages close to border (a la RDD)

How I See The Paper (3)

Findings and Mechanisms:

- $\downarrow$ historical public goods provision $\rightarrow$
  - persistence $\rightarrow$
    - contemporary literacy $\downarrow$, public goods provision $\downarrow$

Major Comments (1): Motivation

- Paper contributes to popular literature on local institutions and historical development
  - started by Banerjee & Iyer (2005), Dell (2010)
  - getting satiated?
    - e.g. Michalopoulos & Papaioannou (2013,2016), Dell & Olken (2017), Lowess & Montero (2017,2018), Fujiwara et al. (2017), Valencia Caicedo (2018), Chaudhary et al. (2018)

Major Comments (1): Motivation

- Paper contributes to popular literature on local institutions and historical development
  - started by Banerjee & Iyer (2005), Dell (2010)
  - getting satiated?
    - e.g. Michalopoulos & Papaioannou (2013,2016), Dell & Olken (2017), Lowess & Montero (2017,2018), Fujiwara et al. (2017), Valencia Caicedo (2018), Chaudhary et al. (2018)
- How do you stand out from the crowd?
  - new data? theory? empirical method?
  - what insight does paper provide that others don't?

Major Comments (1): Motivation

- Paper contributes to popular literature on local institutions and historical development
  - started by Banerjee & Iyer (2005), Dell (2010)
  - getting satiated?
    - e.g. Michalopoulos & Papaioannou (2013,2016), Dell & Olken (2017), Lowess & Montero (2017,2018), Fujiwara et al. (2017), Valencia Caicedo (2018), Chaudhary et al. (2018)
- How do you stand out from the crowd?
  - new data? theory? empirical method?
  - what insight does paper provide that others don't?
- Considerable potential upside highlighting strengths of paper
- Is this a...
  - development paper?
  - history paper?

Major Comments (2): Identification

$$Y_{id} = \alpha + \beta_1 suitability_{id} + \beta_2 suitability \times opium.district_{id} + \delta_d + X_{id} + \epsilon_{id}$$

Identifying assumption:

- Poppy suitability affects **contemporary** outcomes only **discontinuously** through effect on **historical** opium production

Major Comments (2): Identification

$$Y_{id} = \alpha + \beta_1 suitability_{id} + \beta_2 suitability \times opium.district_{id} + \delta_d + X_{id} + \epsilon_{id}$$

Identifying assumption:

- Poppy suitability affects **contemporary** outcomes only **discontinuously** through effect on **historical** opium production
- Reader needs more reassurances:
  1. Assigning opium districts obviously not random. What was procedure?

Major Comments (2): Identification

$$Y_{id} = \alpha + \beta_1 suitability_{id} + \beta_2 suitability \times opium.district_{id} + \delta_d + X_{id} + \epsilon_{id}$$

Identifying assumption:

- Poppy suitability affects **contemporary** outcomes only **discontinuously** through effect on **historical** opium production
- Reader needs more reassurances:
  1. Assigning opium districts obviously not random. What was procedure?
  2. Is suitability index really exogenous?
     - what happens when using historical production (a la OLS) rather than suitability?
     - when would exclusion restriction be violated? (explain)

Major Comments (2): Identification

$$Y_{id} = \alpha + \beta_1 suitability_{id} + \beta_2 suitability \times opium.district_{id} + \delta_d + X_{id} + \epsilon_{id}$$

Identifying assumption:

- Poppy suitability affects **contemporary** outcomes only **discontinuously** through effect on **historical** opium production
- Reader needs more reassurances:
  1. Assigning opium districts obviously not random. What was procedure?
  2. Is suitability index really exogenous?
     - what happens when using historical production (a la OLS) rather than suitability?
     - when would exclusion restriction be violated? (explain)
  3. If index construction is like FS IV, need to adjust standard errors (bootstrap?)

Major Comments (3): Mechanisms

- Paper provides evidence for lower public goods provision in treated areas
  - what is story? $\rightarrow$ (Banerjee & Iyer, 2005; Dell, 2010)
  - rent-seeking by public officials?

Major Comments (3): Mechanisms

- Paper provides evidence for lower public goods provision in treated areas
  - what is story? $\rightarrow$ (Banerjee & Iyer, 2005; Dell, 2010)
  - rent-seeking by public officials?

- But there are numerous other mechanisms consistent with findings.:

  1. lower incomes $\rightarrow$ lower local tax base, e.g. due to
     - limited agricultural diversification (Fiszbein, 2017)
     - higher drug use and crime externalities
     - higher tax burden from central government

Major Comments (3): Mechanisms

- Paper provides evidence for lower public goods provision in treated areas
  - what is story? $\rightarrow$ (Banerjee & Iyer, 2005; Dell, 2010)
  - rent-seeking by public officials?

- But there are numerous other mechanisms consistent with findings.:

  1. lower incomes $\rightarrow$ lower local tax base, e.g. due to
     - limited agricultural diversification (Fiszbein, 2017)
     - higher drug use and crime externalities
     - higher tax burden from central government
  2. higher fertility rates (Galor & Mountford, 2008) $\rightarrow$ diluting public resources

Major Comments (3): Mechanisms

- Paper provides evidence for lower public goods provision in treated areas
  - what is story? $\rightarrow$ (Banerjee & Iyer, 2005; Dell, 2010)
  - rent-seeking by public officials?

- But there are numerous other mechanisms consistent with findings.:

  1. lower incomes $\rightarrow$ lower local tax base, e.g. due to
     - limited agricultural diversification (Fiszbein, 2017)
     - higher drug use and crime externalities
     - higher tax burden from central government
  2. higher fertility rates (Galor & Mountford, 2008) $\rightarrow$ diluting public resources
  3. specialized in agriculture $\rightarrow$ lower return to education $\rightarrow$ lower demand for schooling (Blanchard & Olney, 2017)
     - path-dependent comparative advantage in agriculture (e.g. dynamic scale economies)
     - low efficiency due to historic sharecropping arrangements

Major Comments (3): Mechanisms

- What leads you to push your particular mechanism?
- Can you rule out any other explanations?
  - using new data?
  - by pointing out inconsistencies?

Conclusion

- An interesting, complete, and well-written piece of research
- Motivation and mechanisms need work
- Credible identification that requires more detailed explanation
- Overall, a pleasure to discuss this paper

MINOR ISSUES (NOT IN PRESENTATION)

Minor Issues

Style etc.

- Your Maps 1 and 2 are hard to read when printing black-white, which might be a problem with future referees or JMCs

Some thoughts

- Is spatial correlation a concern?
- Why not use GAEZ for GIS data? Can you use their suitability index for a crop that is similar to poppies?
- You find significant coefficient for most of your specifications, but are these substantial effects? e.g. 2-3 % drop in literacy or primary school seems small
- You compare opium production with the depletion of a natural resource, but as long as soil etc. is not permanently damaged, locals can keep growing poppies forever

Minor issues (3)

More thoughts

- It seems puzzling that there is no village level data on contemporary incomes, wages, consumption etc. Are you sure about this? No census data?
- I do not understand your use of the LASSO. Do you employ LASSO to select variables, and then run OLS using these? If you care only about maximizing your first stage, then regular LASSO should be fine, and elastic net or a random forest should probably be better.
- Why not run IV for suitability index? Do you need to adjust standard errors for constructing the index?
- What do results look like without index just using the opium production numbers instead of suitability index?
- Would be more credible to only use geographic data and not closeness to processing factories

Minor issues (3)

More thoughts

- If you pursue the rent story, is there any possibility of access to tax data from British or local officials?
- Do geographic variables really affect poppy production only through their effect on potential yield?
- In Table 2 it might make more sense to report R2 in addition to RMSE
- In Table 4, wheat and sugarcane have similar magnitude but only larger standard errors. Why are there such big differences between standard errors on poppies, and the other crops?
- In Table 5, your outcome is sometimes binary but you seem to use a Linear Probability Model
- In Table 6 and 7 (mechanisms), the significant coefficients seem small. Are these economically meaningful relationships?