

The Political Economy of Economic Complexity: Theory, Data, Methods

Section 3

Practical exercises and assessment of the CAD

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³ZOE. Institute for Future-Fit Economies

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Outline

1. General introduction & motivation: drivers of economic development
2. Introducing the *Economic Complexity Index* (ECI)
 - 2.1 Historical genesis
 - 2.2 How to compute economic complexity
 - 2.3 Theories underlying economic complexity
 - 2.4 Advantages and critiques of the measure
3. **Practice: using data from the Atlas of Economic Complexity**
4. Selected applications
5. Outlook: using economic complexity in your own research

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- We first try out the section option, and return to the first one later

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Team task 3: Using the product space

Compare the product spaces of selected rich and poor countries and figure out a pattern. What is the central challenge for these countries with regard to technological upgrading?

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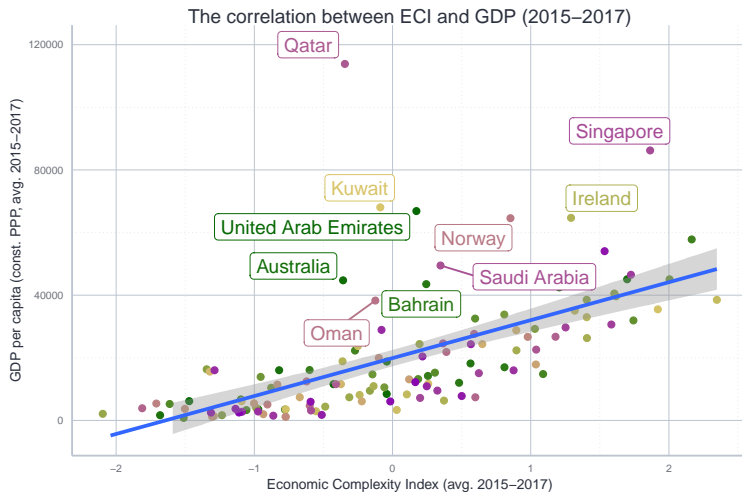
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*``[...] the complexity of a country's economy is correlated with income and [...] deviations from this relationship are predictive of future growth, suggesting that **countries tend to approach the level of income associated with the capability set available in them** (Hidalgo and Hausmann, 2009, p. 10570).*

Deviations



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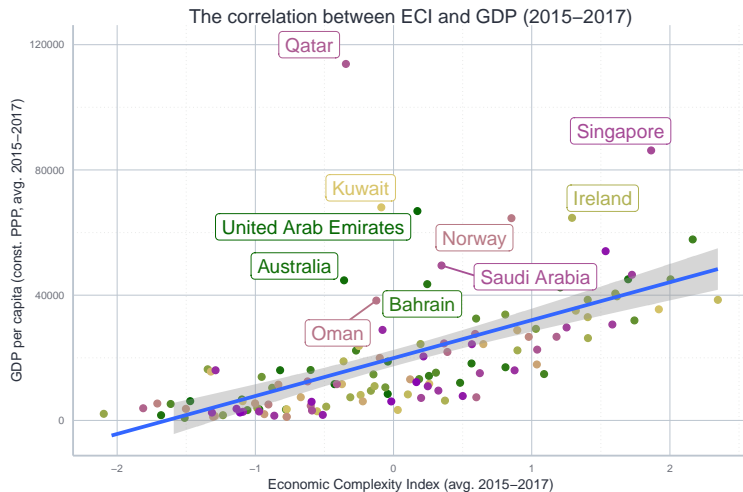
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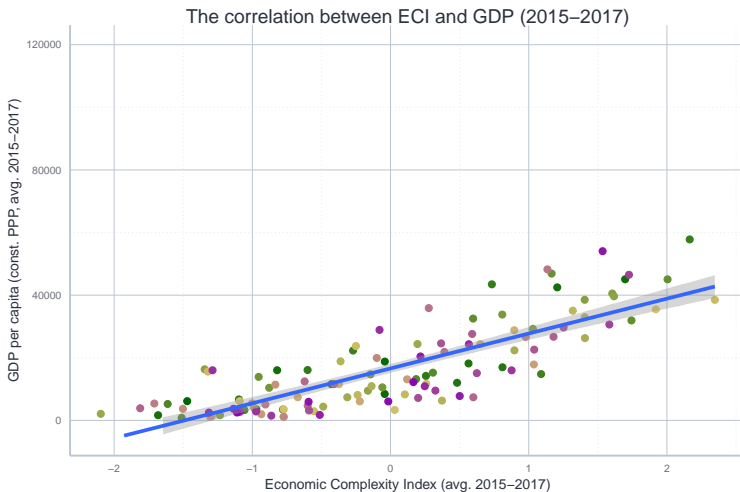
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- A good exercise is to control for some variable, e.g. oil exports, and then see whether some outliers got eliminated

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Deviations - oil countries removed



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 4. The expected growth in the value of natural resource exports per capita.

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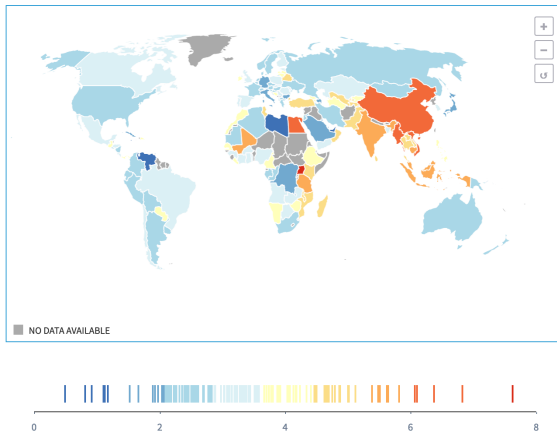
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- Thus, growth projections are just elaborated versions of the claim that deviations from the level of income predicted by the ECI are usually meaningful for future development

Example for growth projections



Source: [The Atlas of Economic Complexity](#)

Group work: ECI and income (10 minutes)

- Get together in small groups
- Go to the [Atlas of Economic Complexity](#) and download data on economic complexity
 - Use HS data on the one digit level (called 'section' data)
- Go to the [course homepage](#) and download data on GDP
- Check the correlation between a country's income with its ECI
- Test whether changing time horizons changes the results
- After 10 minutes, shortly present your results to the others

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Advantages & disadvantages I

Group work (10 minutes)

- Get together in small groups
- Discuss the potential advantages & disadvantages of the complexity approach introduced so far
- How does it align with development theories you know about? Are their complementarities such that they can address their mutual shortcomings?
- After 10 minutes, shortly present your results to the others

Disadvantages

- **Ambiguous concept of 'capabilities'**
 - No full-fledged theory of capabilities backing the indicator
 - Capabilities include diverse aspects such as human and physical capital, national institutions, organizational capacities to coordinate diverse teams, ...
 - It is recognized that capabilities come in both embodied and disembodied form, in tacit and codified versions, and that they relate both to the creation and dissemination of knowledge

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- **Only considers final exports**
 - No explicit consideration of trade-in-value-added
 - Problematic values for tax havens

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Advantages II

- **Few degrees of freedom**

- Many composite indicators aggregate the information from various sources.
- During the aggregation procedure, the various ingredients usually get weighted -- a source of subjectivity and variation.
- For the ECI, on the other hand, there are not many ways to compute it.
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- **Intuitive interpretation and good predictor for economic growth**

- The interpretation of the ECI is straightforward.
- Complex countries have many and sophisticated capabilities.
- They tend to be rich because they can transform inputs to outputs in fancy ways.
- Less complex products do not have these capabilities, which is why they are less developed.
- Also, the complexity and relatedness of products can be illustrated very nicely through the *product space*

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- Also, little research has been done on the political economy of the product space

References I

Daniele Archibugi, Mario Denni, and Andrea Filippetti. "The technological capabilities of nations: The state of the art of synthetic indicators". In: *Technological Forecasting and Social Change* 76.7 (Sept. 2009), pp. 917–931.

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