
Does Culture Matter for National Innovation Rates?

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Q1: Does national culture* matter for innovation rates?

Initial Bias: No!

Why? Culture is a spectrum from which a very wide range of values can be drawn to fit almost any situation/goal.

Examples:

- * Japan has plenty of individualist actions and values
- * US has plenty of collectivist actions and values
- * Almost every culture has been at S&T frontier at some point in human history

Science: what does the data say?

Surprise Finding: Yes!

*culture = a country's "central tendencies" in terms of values, beliefs, and preferences (Hofstede 1991)

Examples of National Cultural Values

- **Individualism**
- **Collectivism (institutional)**
- **Collectivism (in-group)**
- **Social autonomy**
- **Intellectual autonomy**
- **Hierarchy**
- **Egalitarianism**
- **Uncertainty avoidance**
- **Long-term orientation**
- **Performance orientation**
- **Humane orientation**
- **Assertiveness**

Measurement of National Cultural Values

1) Geert Hofstede (Groningen University, INSEAD, Tilburg University):

- *117,000 surveys
- *80,000 questionnaires
- *72 countries
- *1967, 1971, 1976, 1980, and 1992
- *generated 5 cultural values

2) Shalom Schwartz (Hebrew University):

- *two survey instruments
- *75,000 schoolteachers (k-12) and college students
- *67 nations
- *1988-2000
- *also: European Social Survey 2002-2003 (20 countries)
- *generated 7 cultural value orientations

3) Robert House et. al. (GLOBE, New Mexico State)

- * 735 questionnaire items
- *17,000 managers from 951 organizations
- *62 countries
- *1993-2003
- *generated 9 cultural values

Also: Fons Trompenaars & Charles Hampden-Turner (7 cultural values), Ronald Inglehart

Surprise Findings: Culture Matters

1) Cultural value “individualism” strongly correlates with national innovation rates.

- Regardless of measures used and even if we control for economic and policy variables:

- level of development

- military spending

- trade openness

- fuel exports

- education spending

- R&D spending

- Demand-side individualism may be more important for science and technology than individualism on the supply-side.

2) Cultural value of in-group “collectivism” (friends, family, tribe) negatively correlates with national innovation rates.

- Local collectivism may hurt progress in science worse than technology

3) Cultural value of institutional “collectivism” (patriotism) also positively correlates with national innovation rates.

4) BUT beware drawing overly strong conclusions from statistics! Need qualitative research for causal mechanisms, unknown causal variables, to confirm stats.

So What?

1) It is popular to stereotype “collectivist” cultures as being anti-innovation. We must avoid this stereotype.

2) Institutions & policies (i.e. different incentive structures) may have a “cultural fit.”

Reward systems that foster innovation in one cultural context may fail to do so in another.

Why study culture → innovation in the first place?

1) Significant residual of S&T outcomes *not* explained by institutions, policies, or resources

2) Theory: culture may affect innovation via:

- environment of tolerance
- incentives/rewards for innovative activity
- attitudes toward risk
- attitudes towards change

3) Many well-respected scholars believe culture matters for long-run S&T progress:

ECONOMICS: Avner Greif, David Landes, Joel Mokyr, Jeffrey Sachs, Peter Temin, Hal Varian, etc.

BUSINESS/INNOVATION: Ronald Dore, Richard Florida, Michael Porter, etc.

POLITICS/SOCIOLOGY: Francis Fukuyama, Sam Huntington, Bob Putnam, Lucian Pye, etc.

BUT: most evidence = 1 or 2-country case studies

Why rely solely on case studies when...?

Data on National Culture:

- Hofstede
- House (GLOBE)
- Inglehart
- Schwartz

← INDEPENDENT measures of same phenomena!

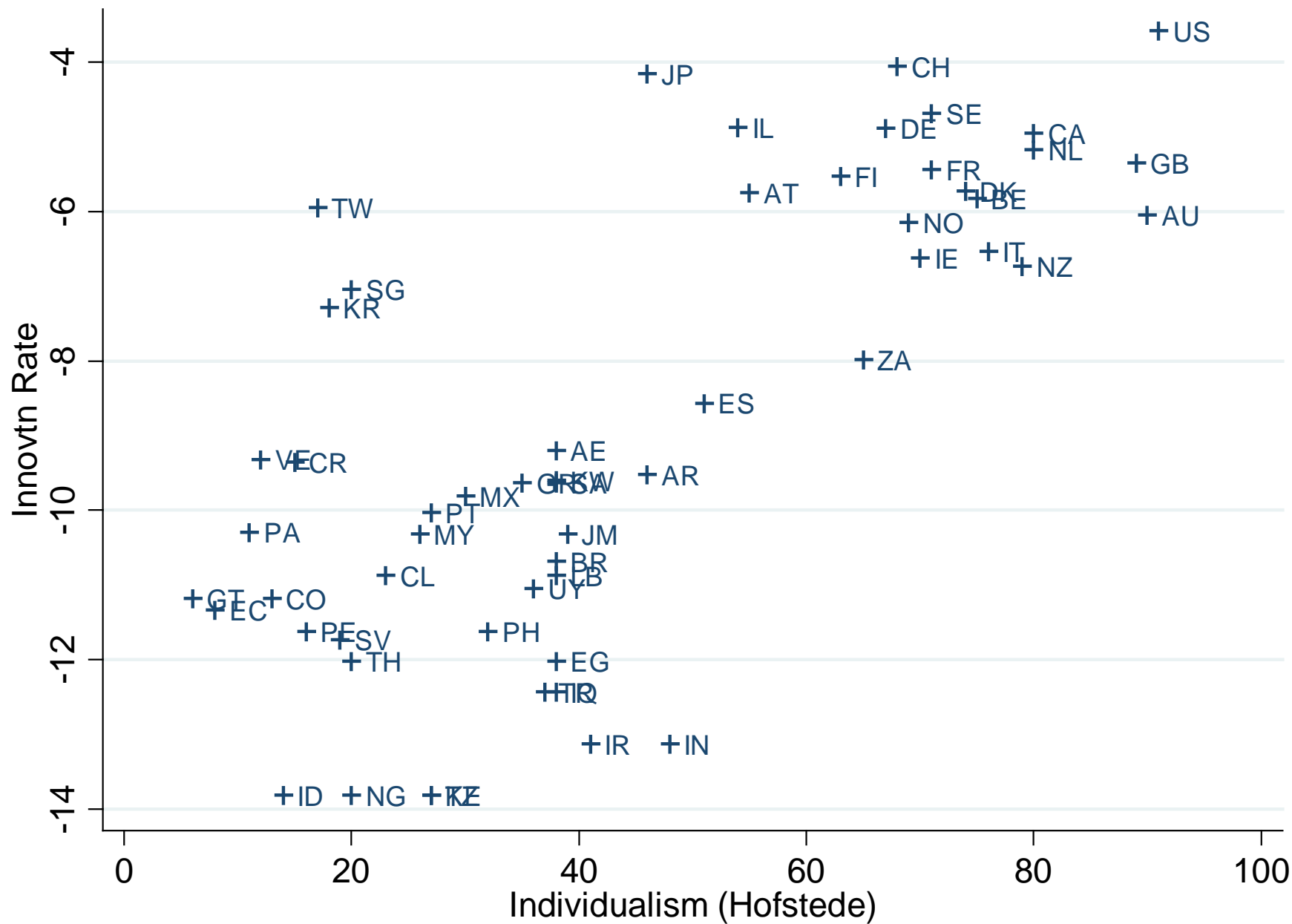
Data on National Innovation Rates:

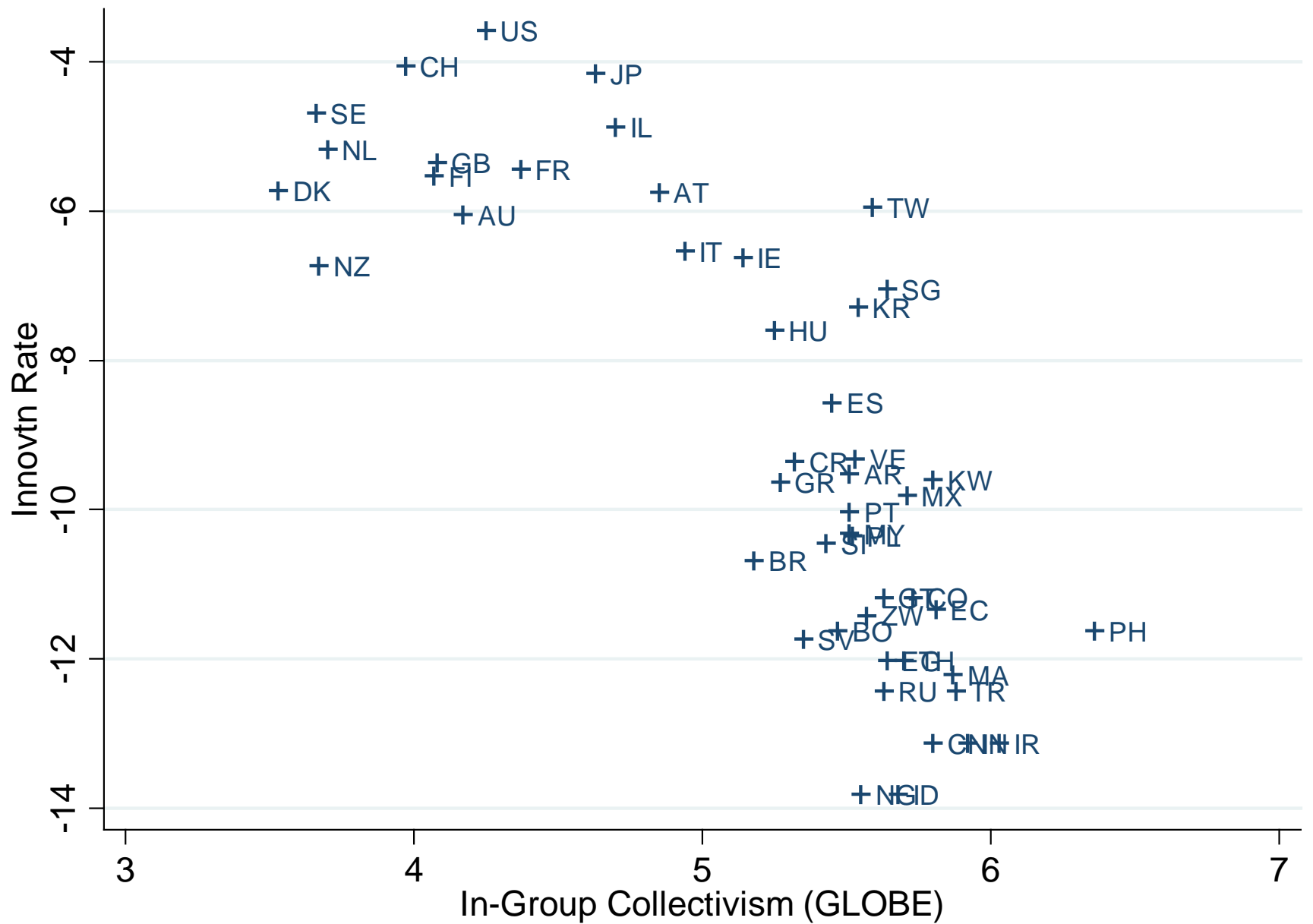
- Per Cap. Patents weighted by forward cites
- Per Cap. STEM pubs weighted by forward cites
- Survey-based indices

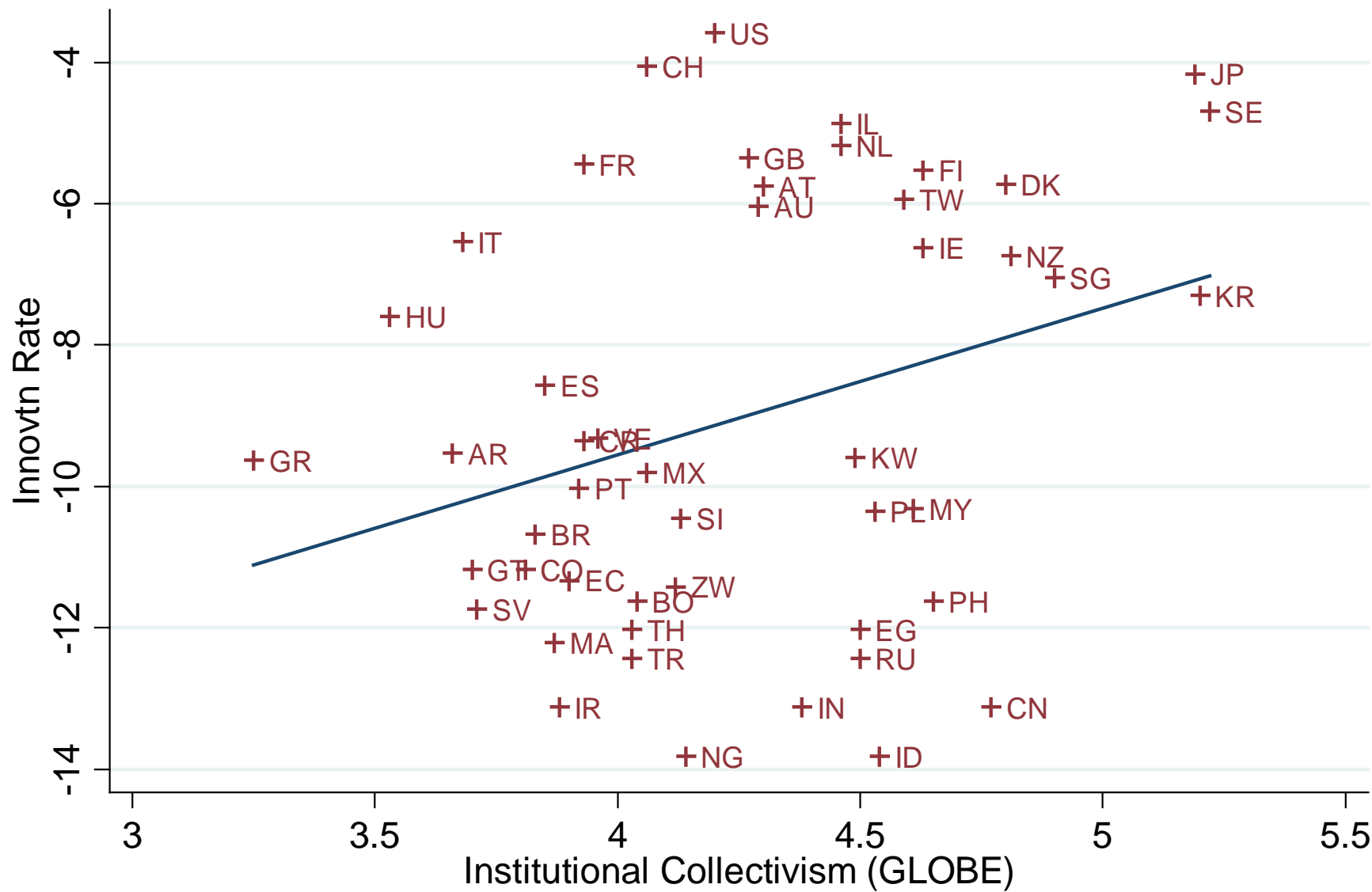
INDEPENDENT measures of same phenomena!

Data on economic, institution, and policy variables

So let's triangulate, run regressions, and let the data speak for itself!







Results hold even when controls added for:

- | | |
|-----------------------|--------------------|
| -level of development | -military spending |
| -trade openness | -fuel exports |
| -education spending | -R&D spending |

For full results and discussion: (www.mzak.net/research)

Taylor, Mark Z. and Sean P. Wilson

**“Does Culture Still Matter?: The Effects of Individualism on National Innovation Rates”
Journal of Business Venturing 27:234-247 (Jan 2012).**

Q2: Is there a cultural “fit” to STI Policies & Institutions?

Tentative answers (macro-institutions): Yes!

- FREE MARKETS may aid innovation more in individualistic societies than collectivist**
- DEMOCRACY may aid innovation more in individualistic societies than collectivist**
- POLITICAL DECENTRALIZATION may aid innovation more in indiv. societies than collectivist**

Surprise Finding:

CULTURE MATTERS FOR INNOVATION:

- in the aggregate**
- over the long-run**

So What?

Business: don't let stereotypes guide geographic R&D investments
do consider culture when designing incentives and rewards

Policymakers: do consider culture when designing/importing institutions & policies

SciSIP Scholars: consider adding culture as a causal variable
bring in anthropologists to confirm stats, find causal mechanisms, etc.

