Internet as a network, relevant internet data for macroeconomics

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Workshop on Internet Economics 2020 - CAIDA

December 17, 2020

Internet data can help answer macro questions

Want to know how information flows across countries and how it affects macro variables.

- Do trade/financial links develop around internet connections?
- How does internet access affect local labor markets?
- Is internet infrastructure a "good" public investment?

Internet as a graph/network can be helpful to create instruments and achieve identification (work in progress)

Bottom line: building adjacency matrices from internet nodes/links is useful.

So what do we need? Bilateral data

CAIDA has a lot of information on the internet topology, AS links, DNS lookups, IXPs etc. . .

Not necessarily usable for macro questions/does not match country level statistics or the time horizon is too short

Ideally, need internet data at country level over long periods of time:

- matrices of bilateral connections for all countries, like trade I/O tables (STAN OECD)
- At US level, matrices representing connections between regions/cities

How to measure the links in the network?

Depends on the research question. Some suggestions:

- maximum physical bandwidth capacity
- bandwidth usage over a given period
- A latency measure: bilateral pings?
- A reliability measure
- bilateral cost of transit
- number of users/types of users

Could be useful to distinguish by types of connections/providers to see the effect of diversification/monopolies.

spatial data could be useful too

For spatial regression studies on the effect of internet access, useful to have precise geolocation data for nodes:

- IXPs
- Points of Presence for residential/business coverage
- Core routers
- data centers

What data sources are available currently?

There are some existing options, albeit all quite limited

- Telegeography
- Infrapedia
- PingER

What else? CAIDA 2021?