The global context of drug trafficking:
A social network analysis of seizure data

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Transnational drug trafficking

- A current issue since... 1961 (Single Convention on Narcotic drugs)

- Two sides
  - Demand: consumption, drug-related crime
  - Supply: production, trafficking, retail

- What we know:
  - Relatively high levels of consumption, throughout the world (demand)
  - Estimates of potential production levels (cocaine and heroin)
    - Other drugs?
  - Trafficking routes and strategies
  - Evolution of many indicators
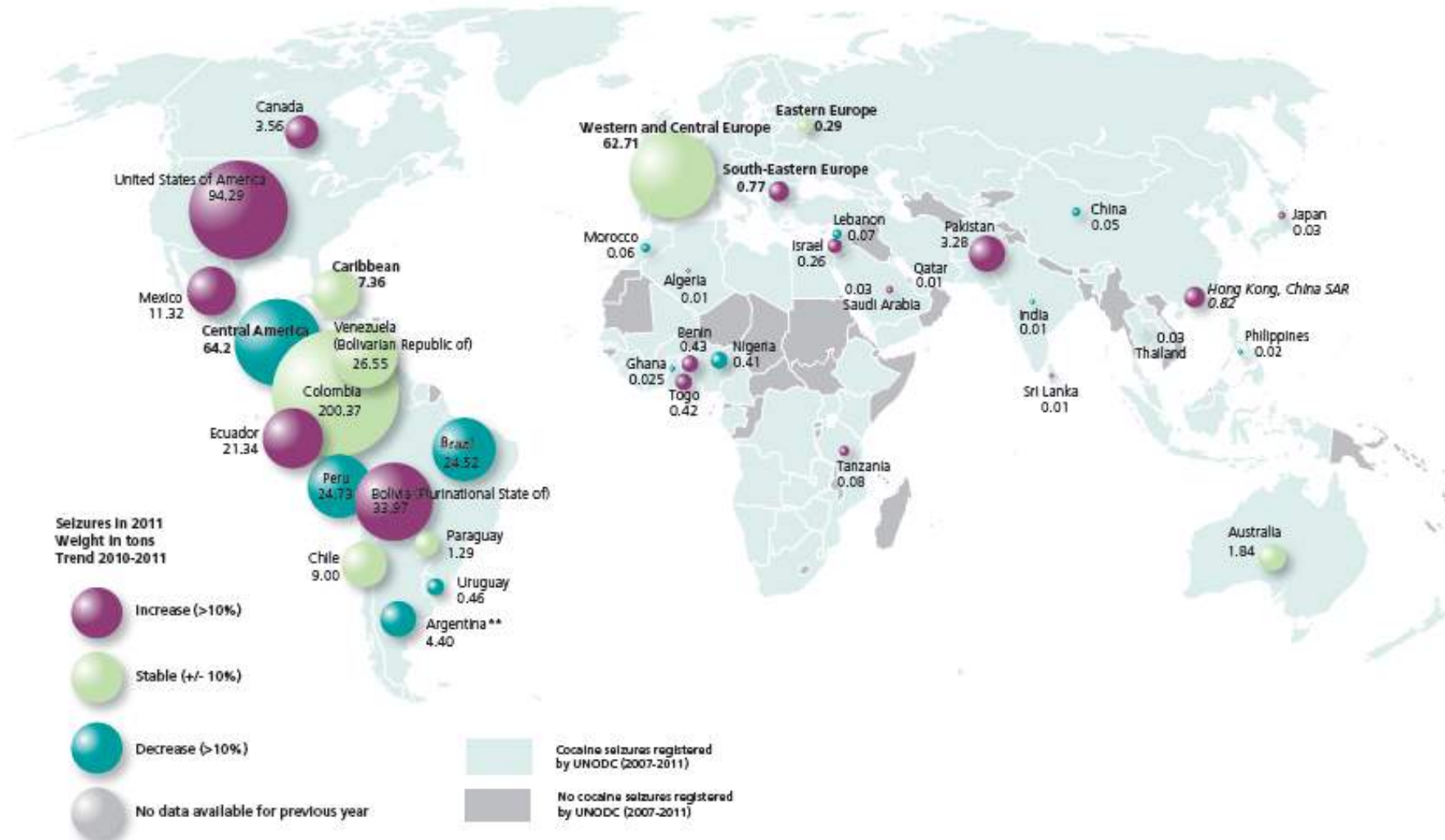   - Most are available since the 1980s

The leading data collection:
the *Annual Reports Questionnaire*

- Extensive report
  - Part IV: Extent and patterns of and trends in drug crop cultivation and drug manufacture and trafficking
- Good coverage (if you add up several years...)
- Available data
  - Comprehensive *World Drug Report*
  - 'Raw' dataset (online)
- Example: Cocaine salts, Canada, 2011
  - Seizures: 3 tons
  - Prices: 81$/g (retail), 35 502$/kg (wholesale)
  - Purity: ?

World Drug Report 2011
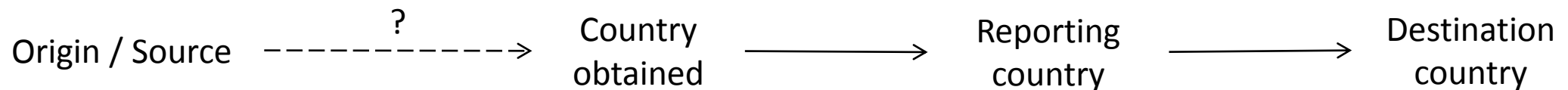
Seizures of cocaine, 2011
The present map includes data from countries and territories for which official seizure data are available and amount to more than 10 kgs.
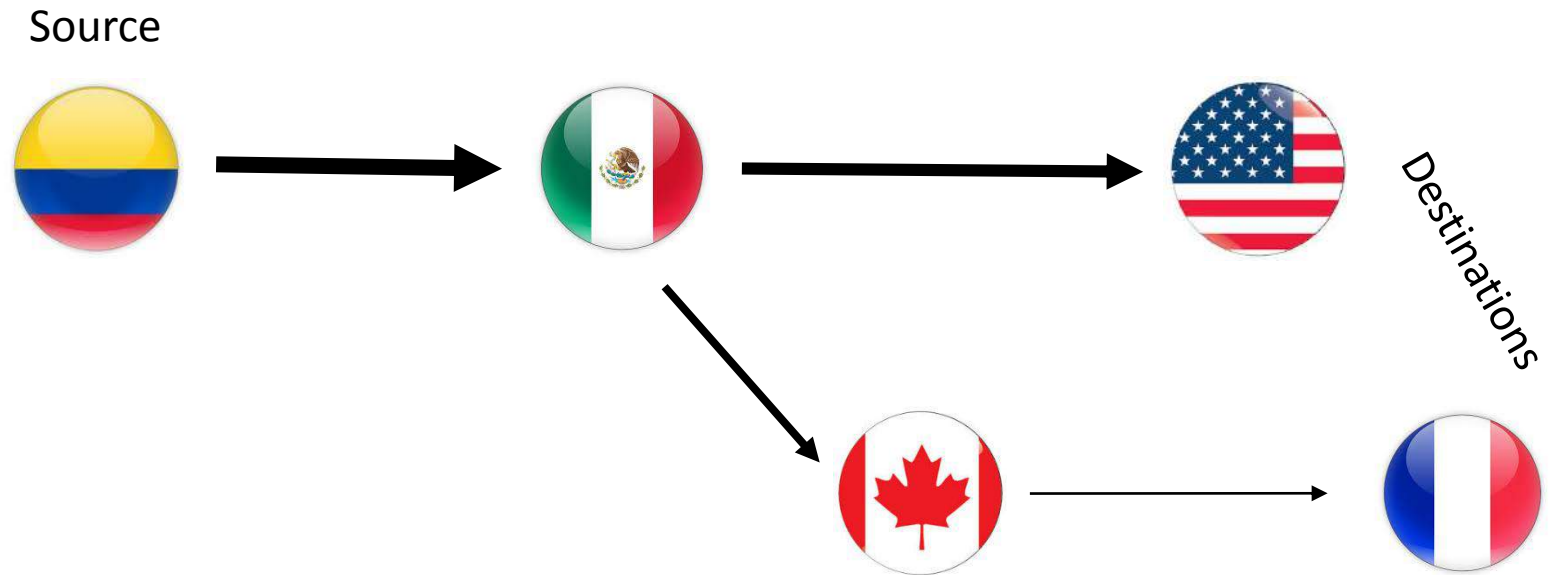
Canada
3.56

United States of America
94.29

Caribbean
7.36

Mexico
11.32

Central America
64.2

Venezuela
(Bolivarian Republic of)
26.55

Colombia
200.37

Ecuador
21.34

Brazil
24.52

Peru
24.73

Bolivia (Plurinational State of)
33.97

Paraguay
1.29

Chile
9.00

Uruguay
0.46

Argentina **
4.40

Western and Central Europe
62.71

Eastern Europe
0.29

South-Eastern Europe
0.77

Morocco
0.06

Algeria
0.01

Lebanon
0.07

Israel
0.26

Qatar
0.01

Saudi Arabia
0.03

Pakistan
3.28

China
0.05

Japan
0.03

India
0.01

Hong Kong, China SAR
0.82

Thailand
0.03

Philippines
0.02

Benin
0.43

Nigeria
0.41

Ghana
0.025

Togo
0.42

Sri Lanka
0.01

Tanzania
0.08

Australia
1.84

Seizures in 2011
Weight in tons
Trend 2010-2011

Increase (>10%)

Stable (+/- 10%)

Decrease (>10%)

No data available for previous year

Cocaine seizures registered
by UNODC (2007-2011)

No cocaine seizures registered
by UNODC (2007-2011)

The neglected data collection:
Bi-annual seizure reports

- Detailed information on seizure cases of significant quantities
  - Date
  - Transportation
  - Method of concealment
  - Countries involved

- 1998-2007: n = 85 265 seizures (n = 20 567 dyads/relations)
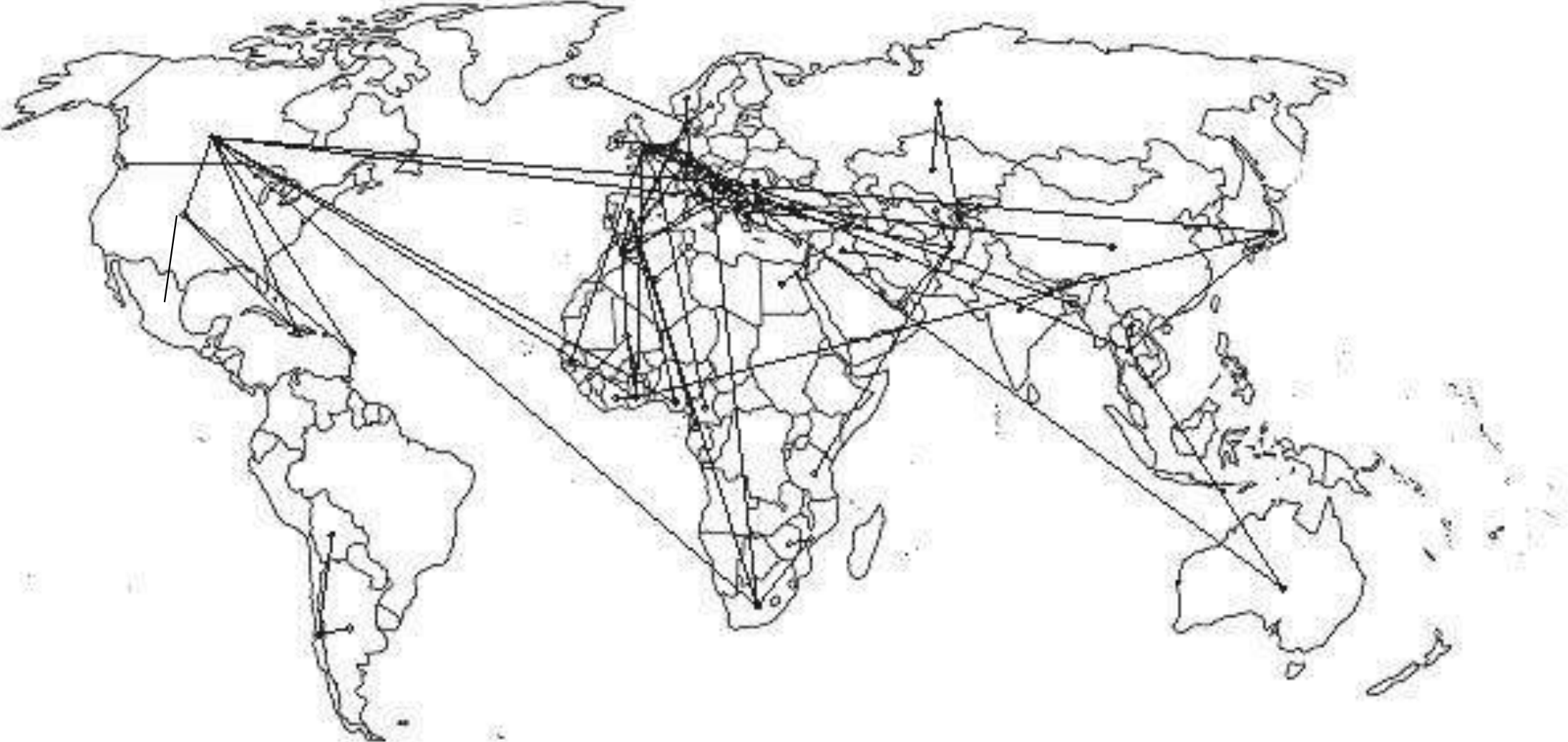 - Now available online (until 2011)

Origin / Source ---- ? ----> Country obtained -----> Reporting country -----> Destination country

From dataset to network…

Sender	Receiver	Quantity
Colombia	Mexico	500 kg
Mexico	USA	100 kg
Mexico	Canada	5 kg
Canada	France	1 kg

Source

Destinations

The final result

Social Network Analysis

- Three levels of analysis:
  - Nodes (countries)
  - Networks
  - Relations

- Analysis:
  - Network: mostly descriptive
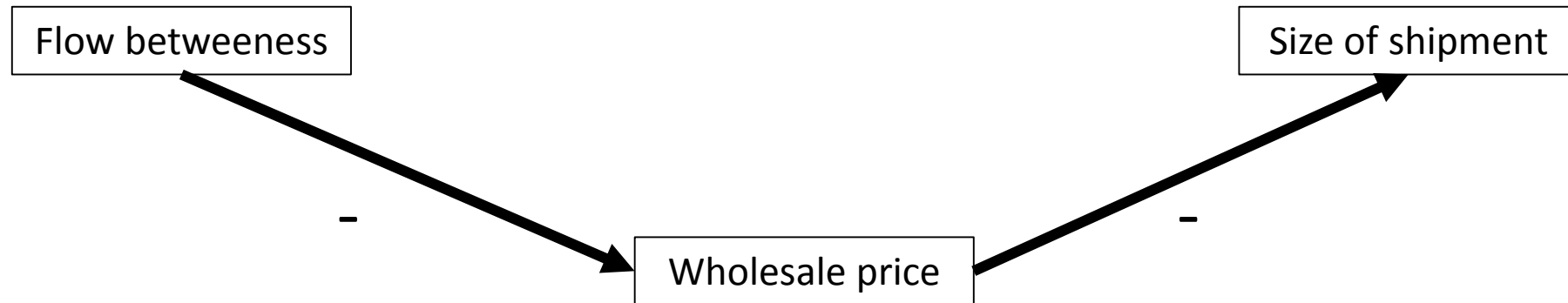 - Network measure as explanations

Descriptive analysis (examples)

- Nodes:
  - Centrality: Indegree, Outdegree, Betweeness
- Networks:
  - Density:
    - Coffee: 21.8%
    - Cocaine: 3.2%
    - Heroin: 2.1%
    - Marijuana: 0.5%
- Relations: Estimates of flows between countries (valued relations)

Boivin, R. (2014). Macrosocial network analysis: The case of transnational drug trafficking. In Masys, A. (ed.). *Networks and network analysis for defence and security*. Cham : Springer International Publishing (pp.49-61).
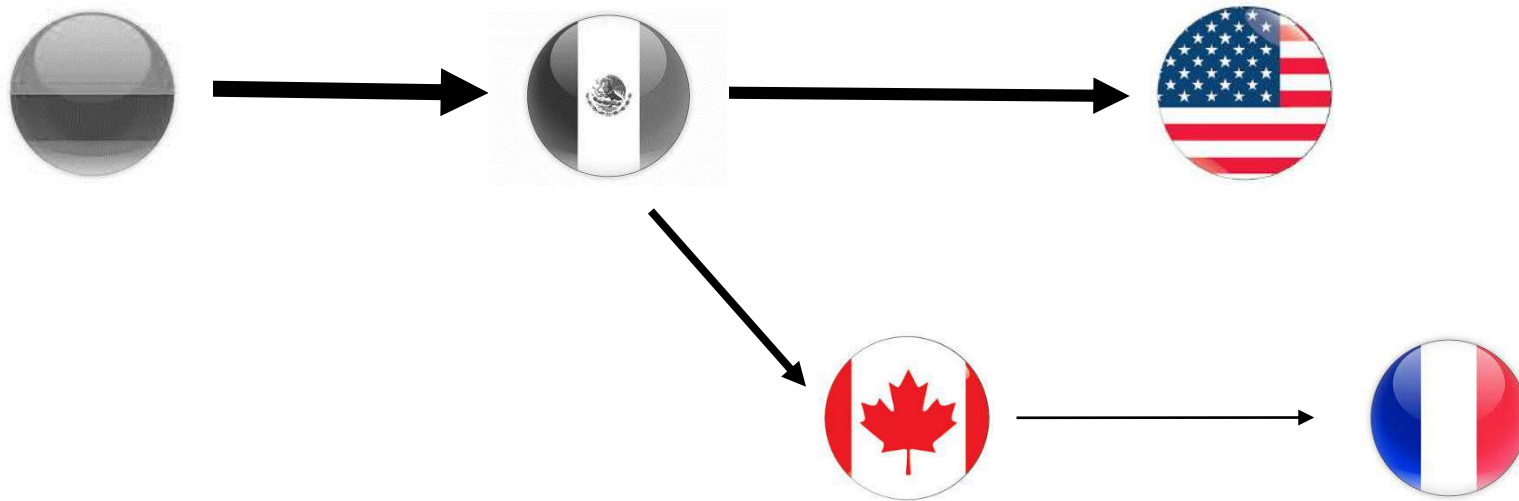
Networks as explanations (example)

- What is the relation between the position in the trafficking network, wholesale prices and the size of shipment? (cocaine and heroin)

Boivin, R. (2014). Risks, prices, and positions: A social network analysis of illegal drug trafficking in the world-economy. *International Journal of Drug Policy*, 25(2), 235-243.

Conclusion

- SNA adds to our knowledge of drug trafficking
  - A neglected dataset (Bi-annual seizure reports)
  - A different point of view (relations, not attributes)
  - A set of methodological tools
- Limitation: Seizures are reported on a voluntary basis
  - Complete network vs detailed reations

Thank you!

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