CARTELS PORTRAYED:
CARTEL STRUCTURES:
A 21-Year Perspective, 1990 to 2010

Author: John M. Connor,
Purdue University
jconnor@purdue.edu

Introduction

- The following charts illustrate the global size and economic impacts of the modern international cartel movement and the enforcement responses of the world's antitrust authorities and national courts.

- The sample encompasses 640 private hard-core cartels that were subject to government or private legal actions (*i.e.*, formal investigations, damages suits, fines, or consent decrees) between January 1990 and December 2010. Each cartel had participants with headquarters in two or more nations. The sample is believed to be a reasonably complete list of all *contemporary private international cartels* discovered by jurisdictions with an active press or informative antitrust-authority Web site.

- All monetary data are expressed in nominal U.S. dollars using exchange rates during the cartel's life or on the day a legal action was announced.

- A special effort is made to create charts that illustrate **trends** in cartel dimensions and antitrust decisions.

Numbers of Firms in Cartels

- Median numbers vary little by jurisdiction or over time.
- The great majority of cartels have fewer than ten members
- However, bid-rigging cartels with few buyers or with third-party involvement tend to involve more firms
- The number of corporations per cartel is inversely related to the frequency of discovered cartels
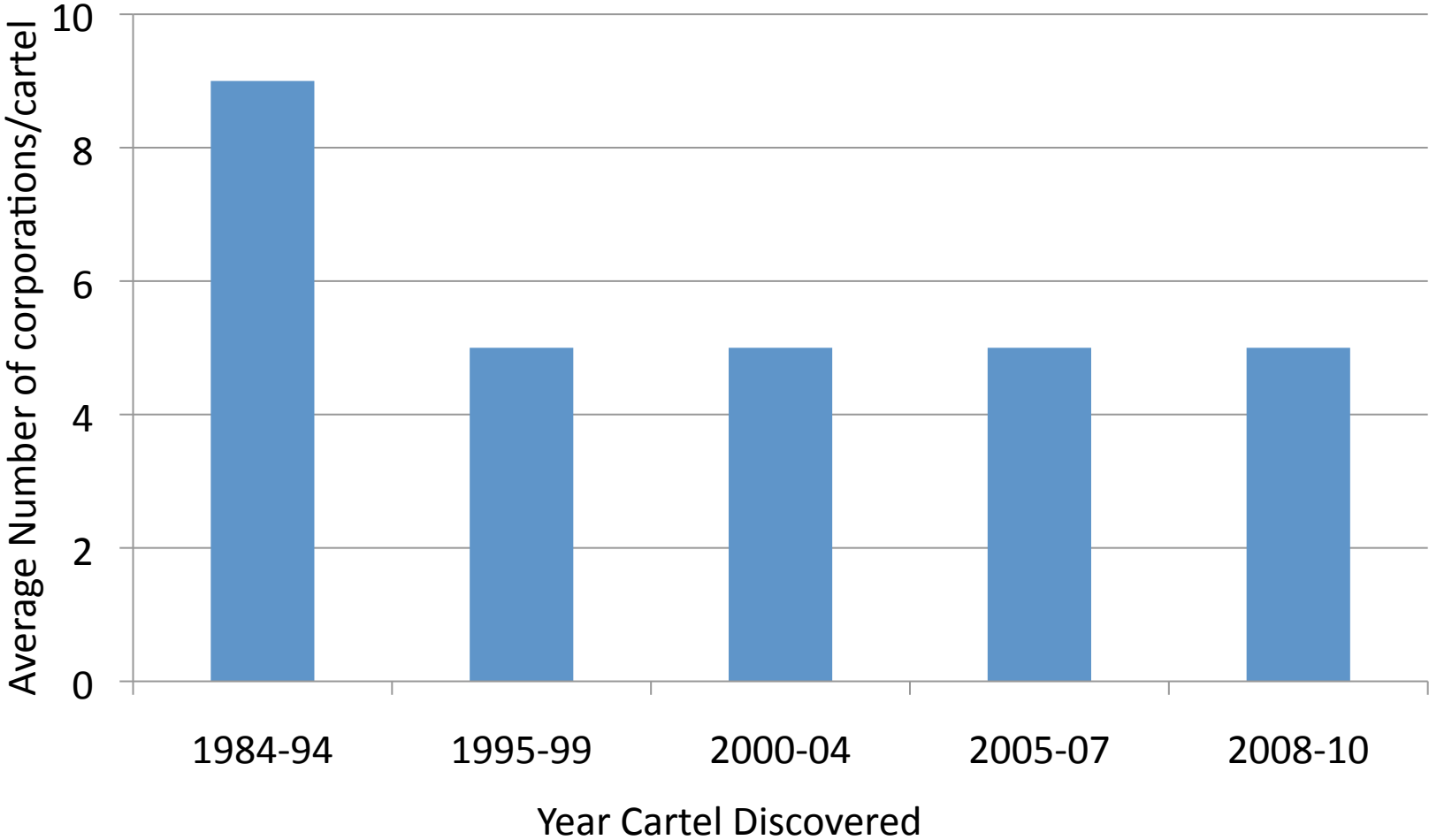
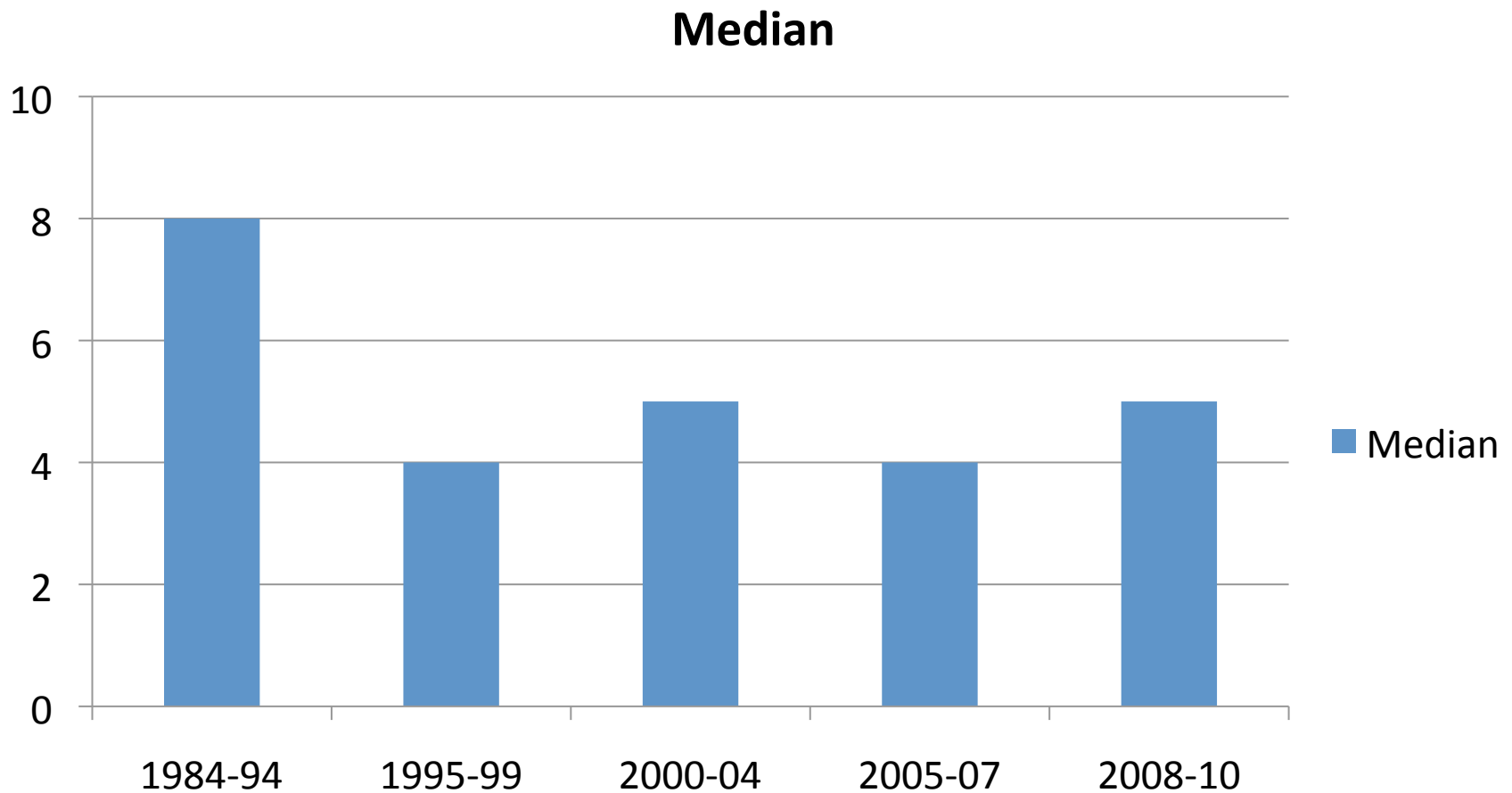# Median Average **Number of Defendants** Varies Little by Region
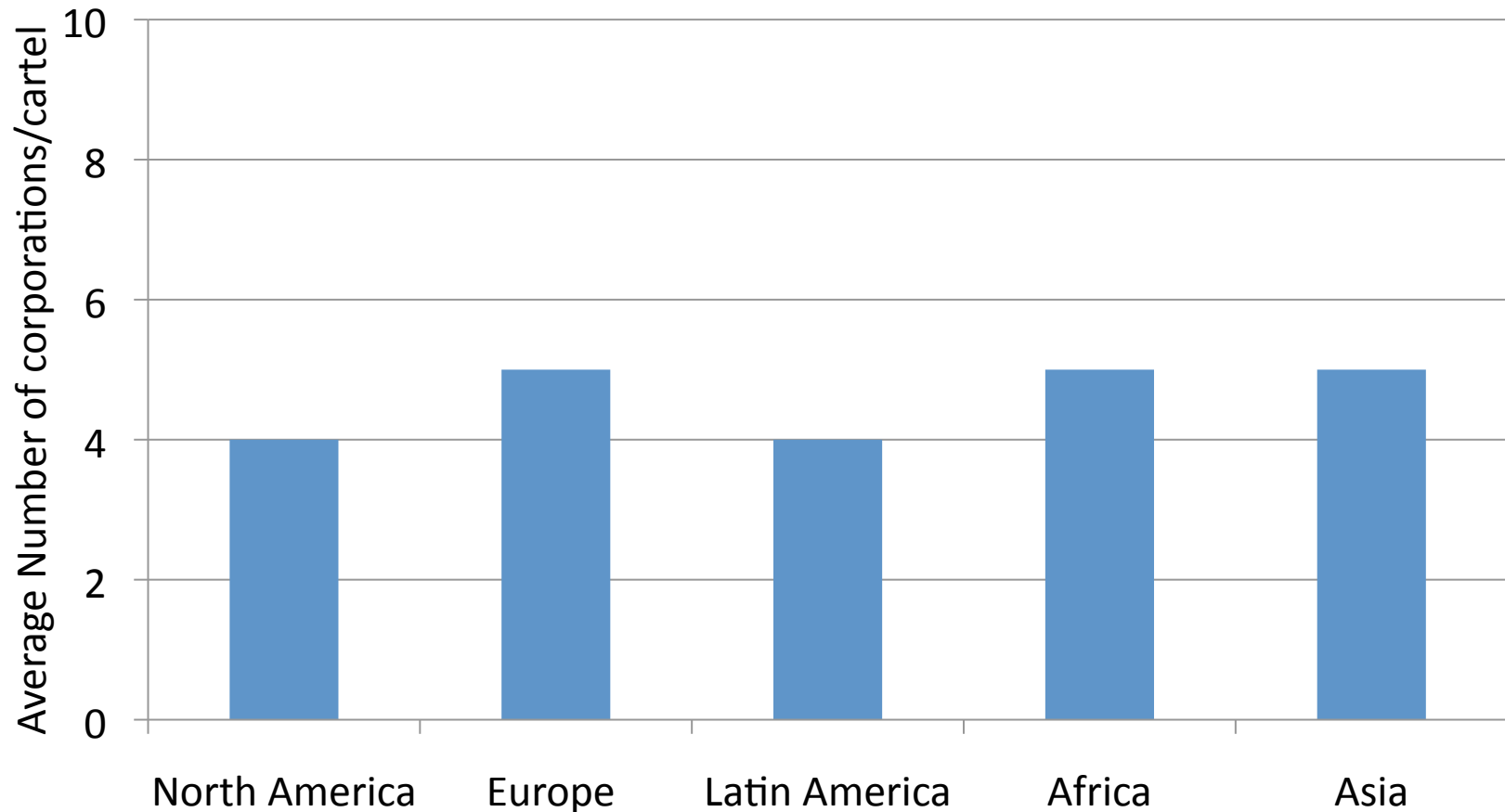
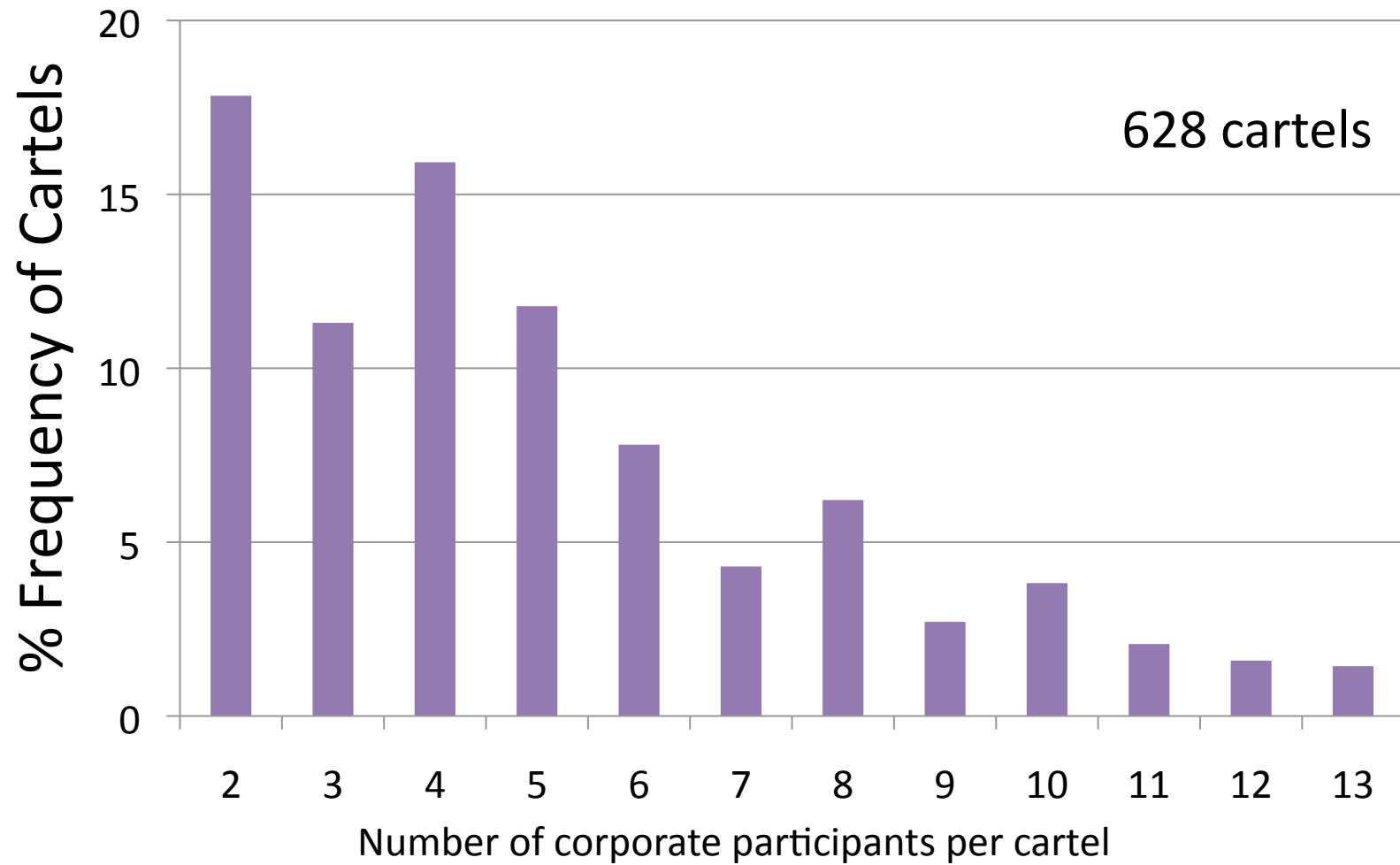# **Median Number** of Defendants:
North American-Convicted Cartels
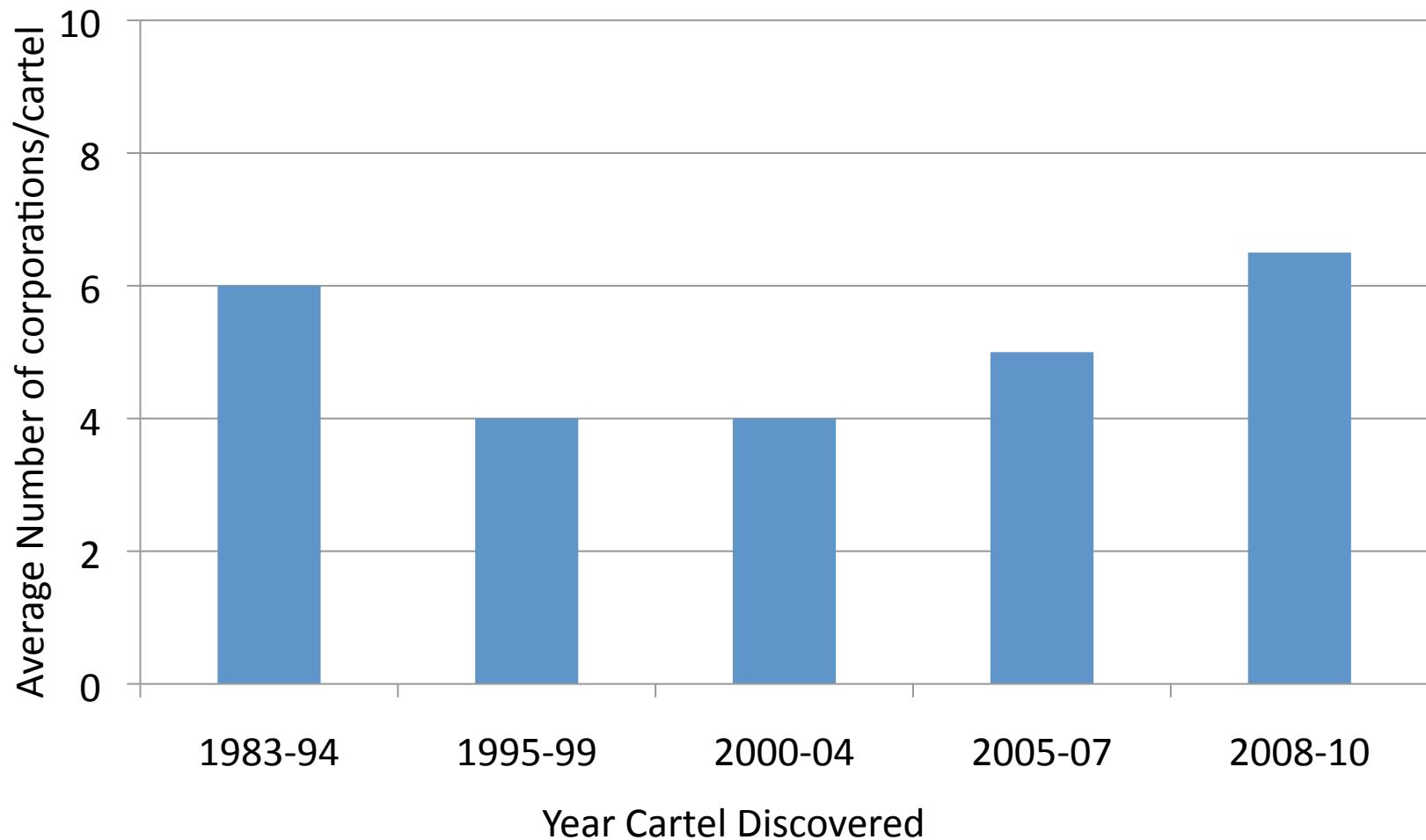
Median Number of Defendants: European-Convicted Cartels

Median Number of Defendants: Rest of the World

Median

Number of Companies per Cartel:
Worldwide, 1990-2010

628 cartels

Y-axis: % Frequency of Cartels (0, 5, 10, 15, 20)

X-axis: Number of corporate participants per cartel (2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13)

Number of Companies in Specific Markets, 1990-2010

653 total

% Frequency of Cartels (y-axis, 0 to 20)

Number of corporate participants per cartel (x-axis, 2 to 13)
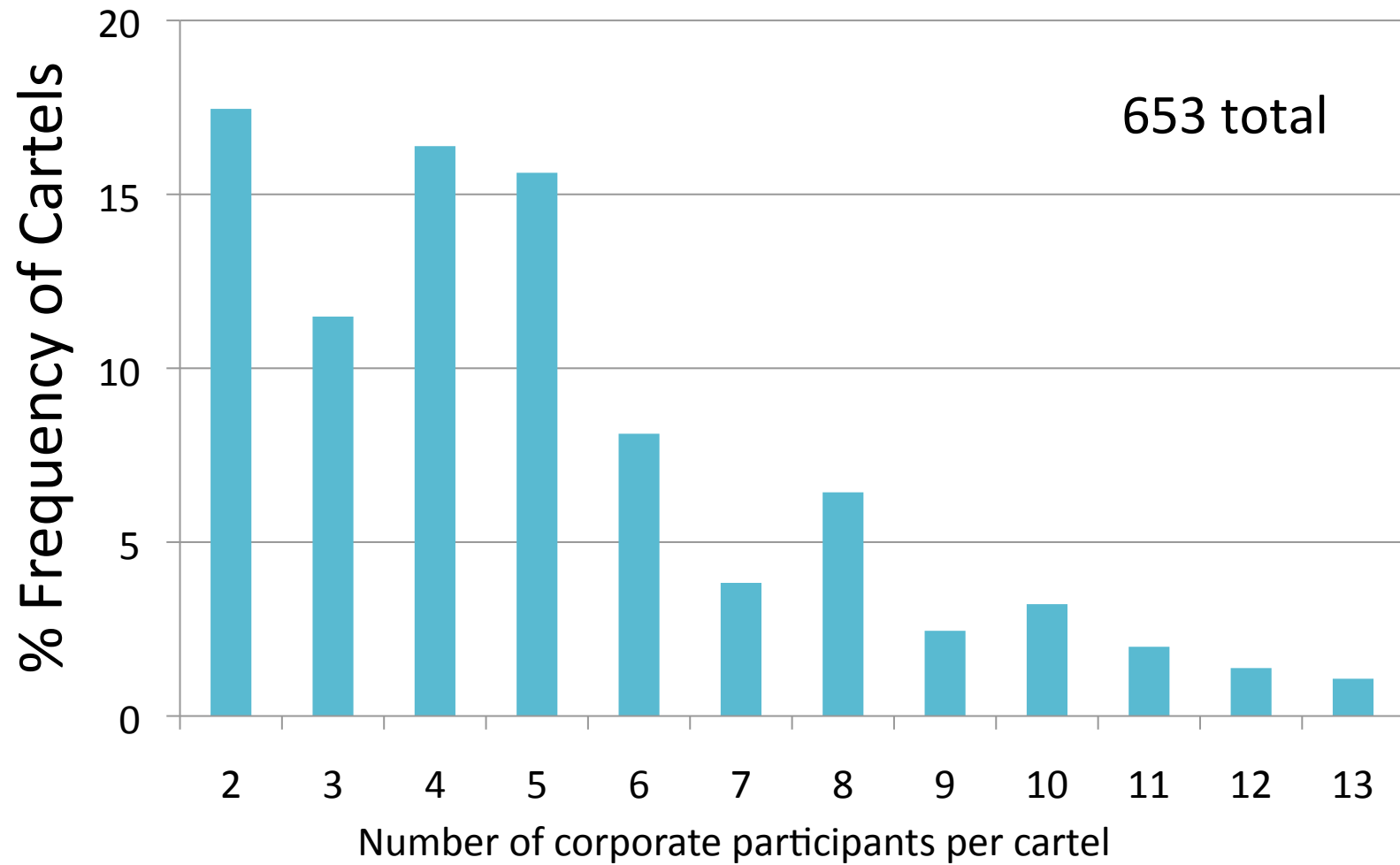
Trend in Frequency of All Cartels, by Number of Participants, 1990-2010
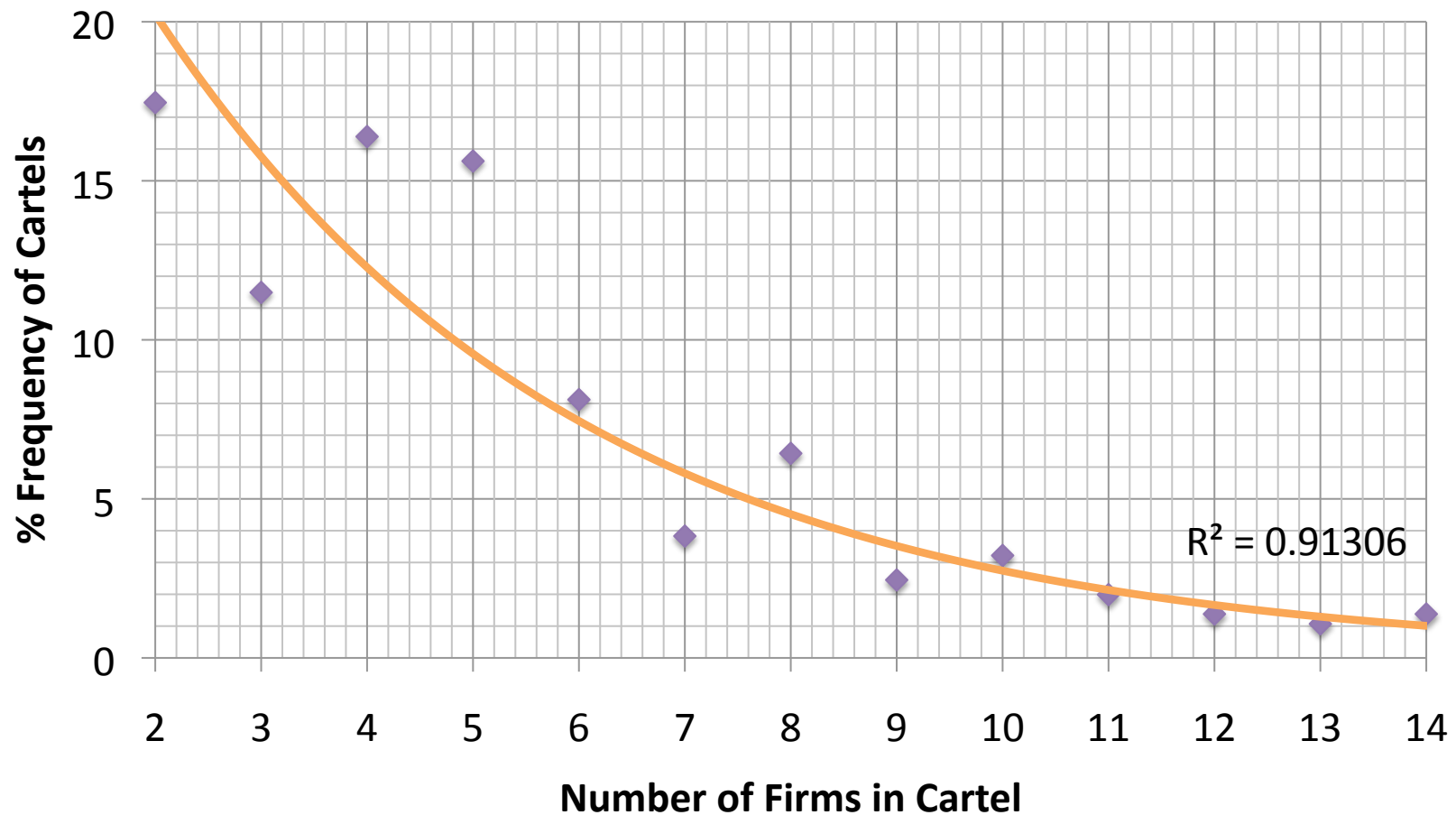
Bid Rigging Supports Large Numbers
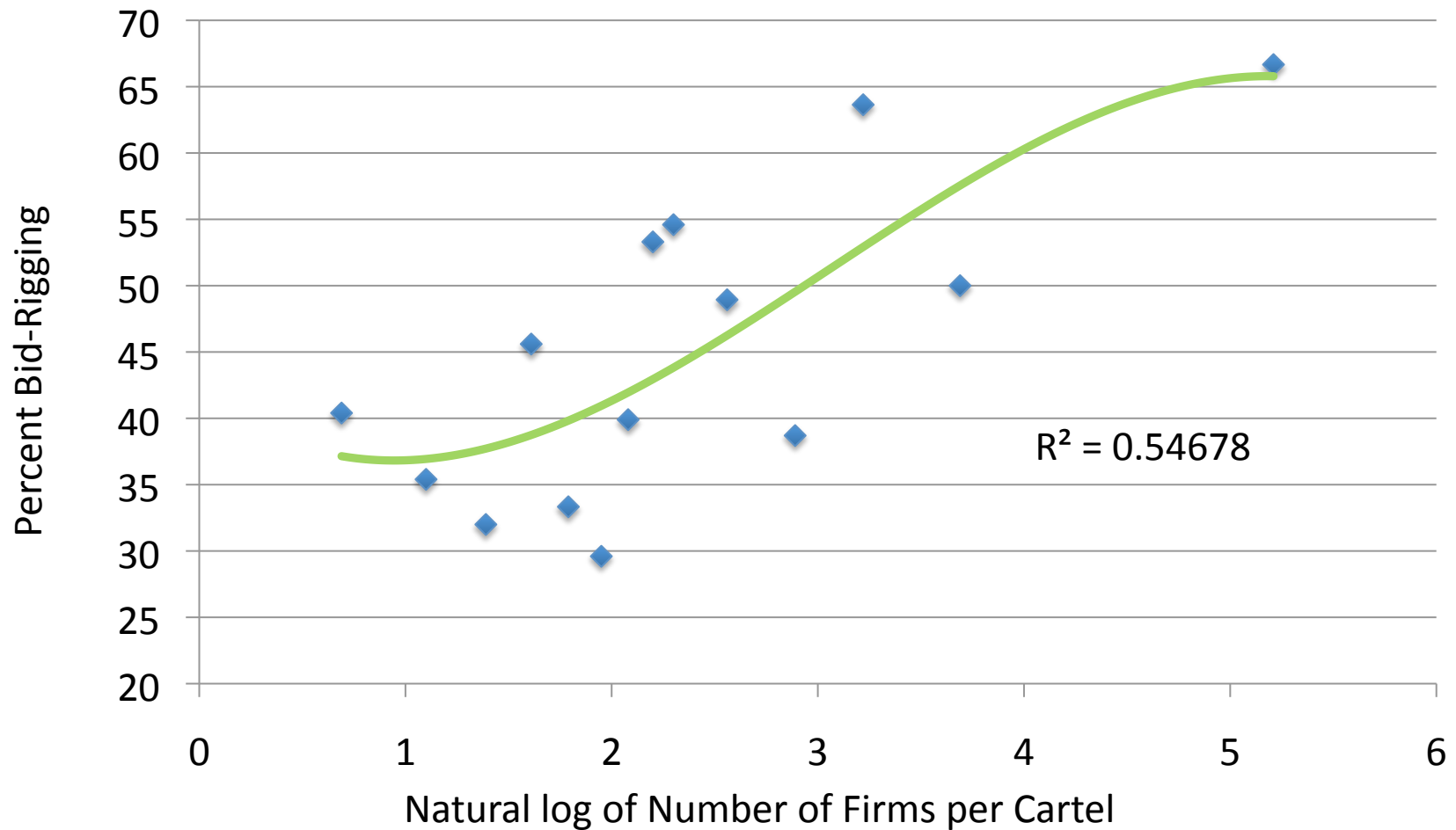
% bid rigging
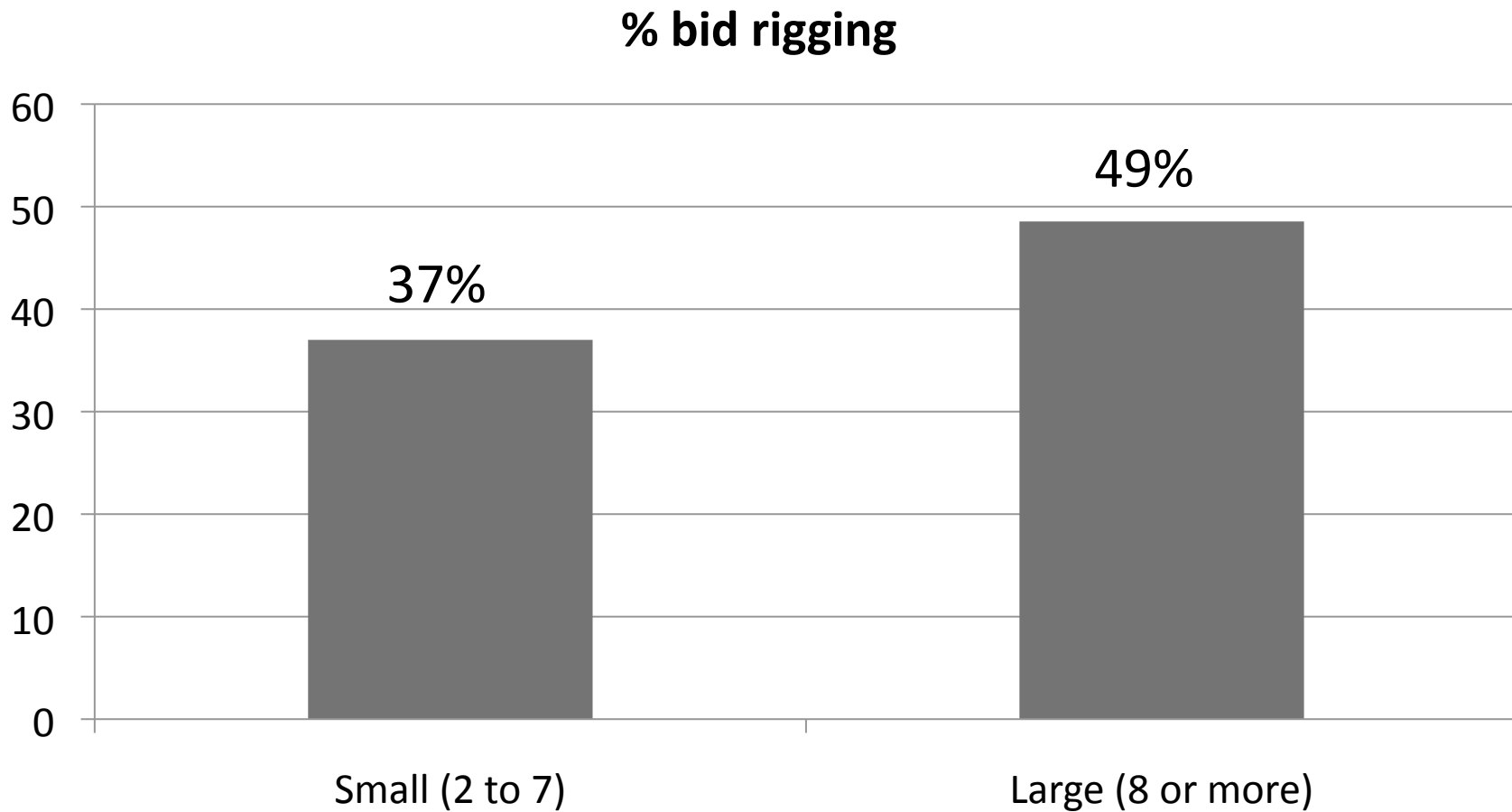
Proportion of Cartels that Rigged Bids, by Number of Firms

$R^2 = 0.54678$

Percent Bid-Rigging

Natural log of Number of Firms per Cartel

Average Number of Firms per Cartel by Third-Party Involvement
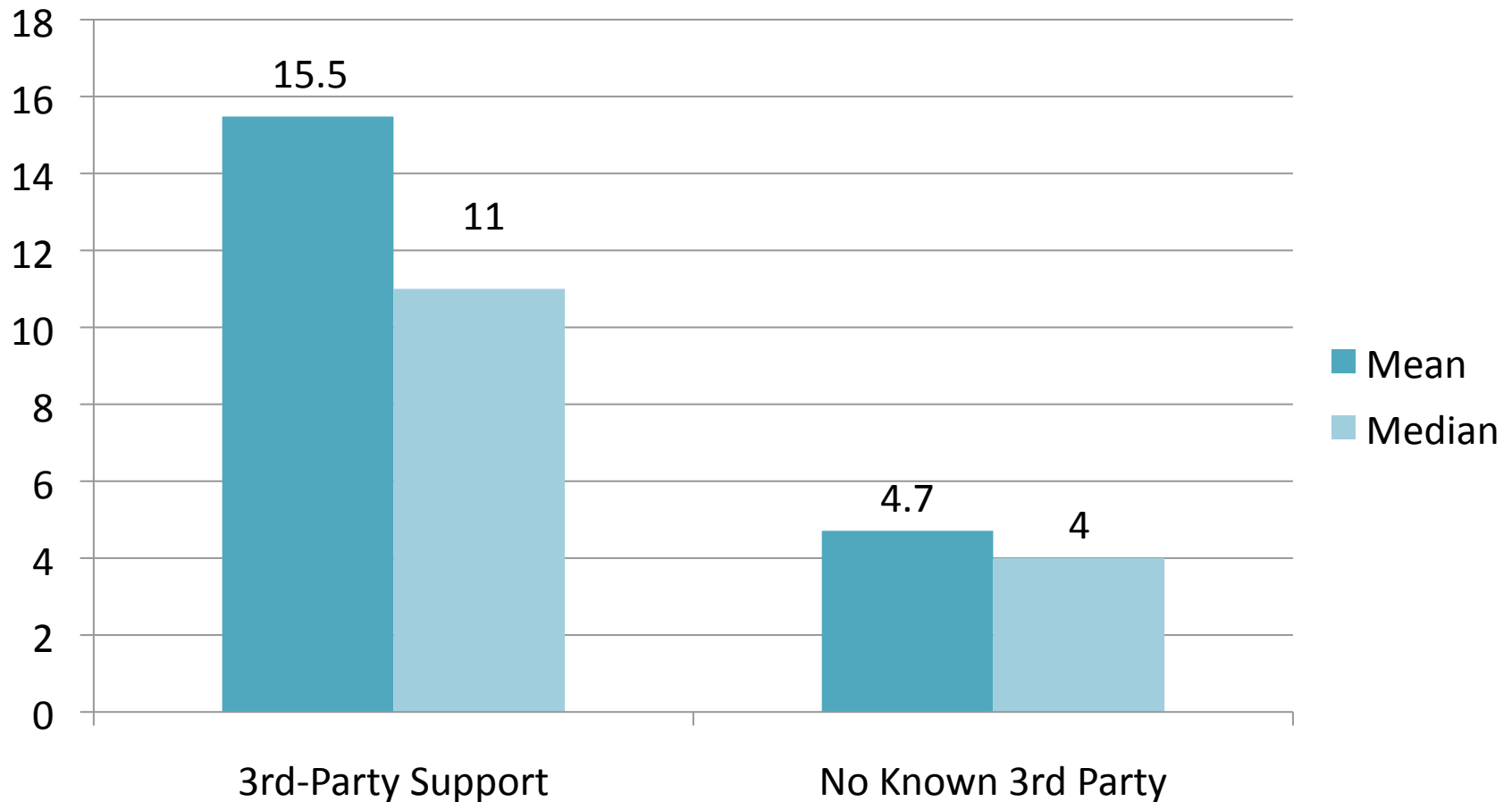
Average Number of Firms per Cartel, by Number of Buyers
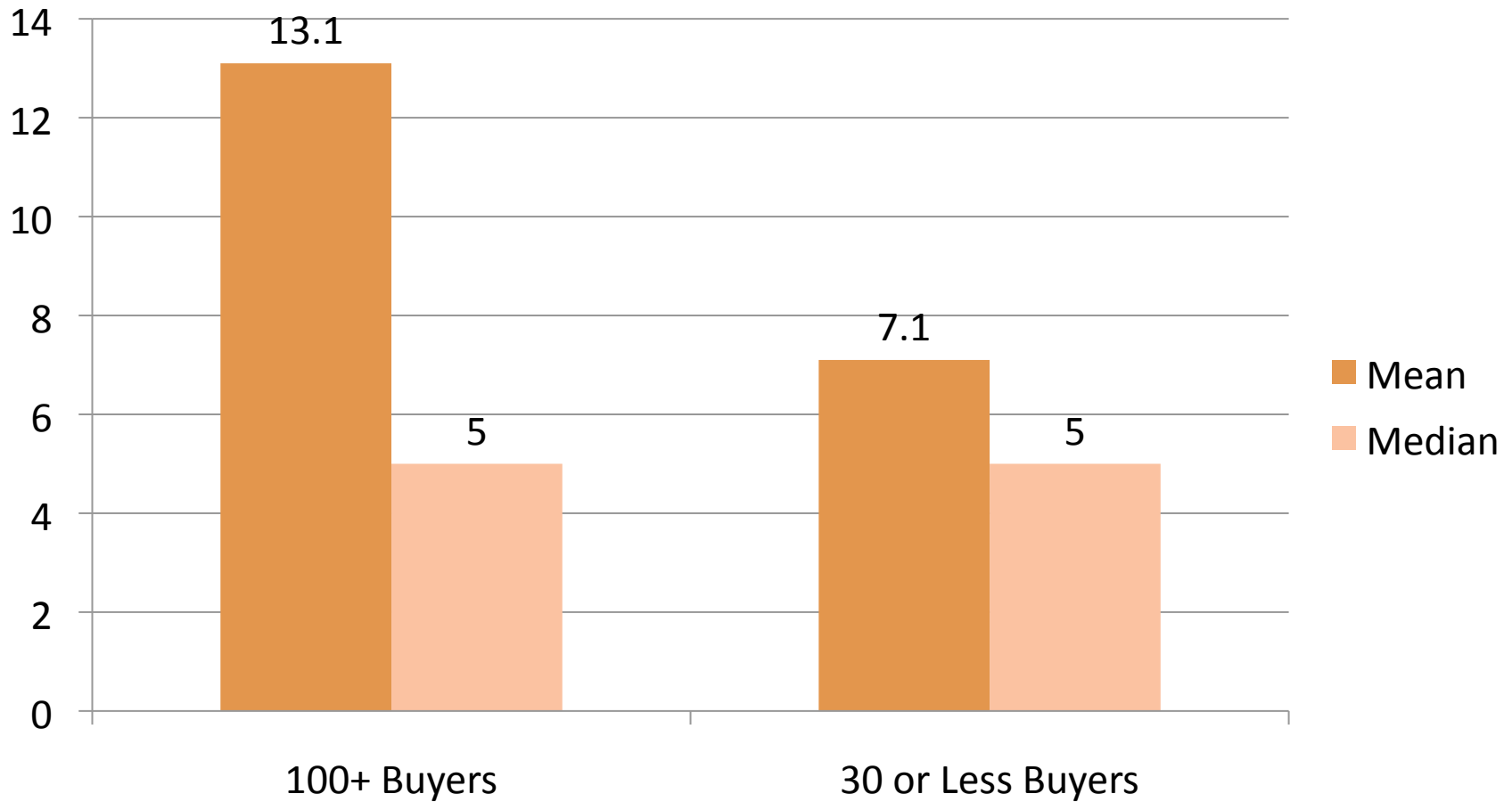
Duration of Cartels

- Median duration is 57 months, mean 82 months
- Global cartels last 57% longer the average cartel; cartels in ROW most fragile (but could be due to measurement problems)
- Duration is slowly declining in No. America & Europe
- Duration trend of Global cartels is constant

Mean, Median Duration of International Cartels Is Fairly Steady over Time
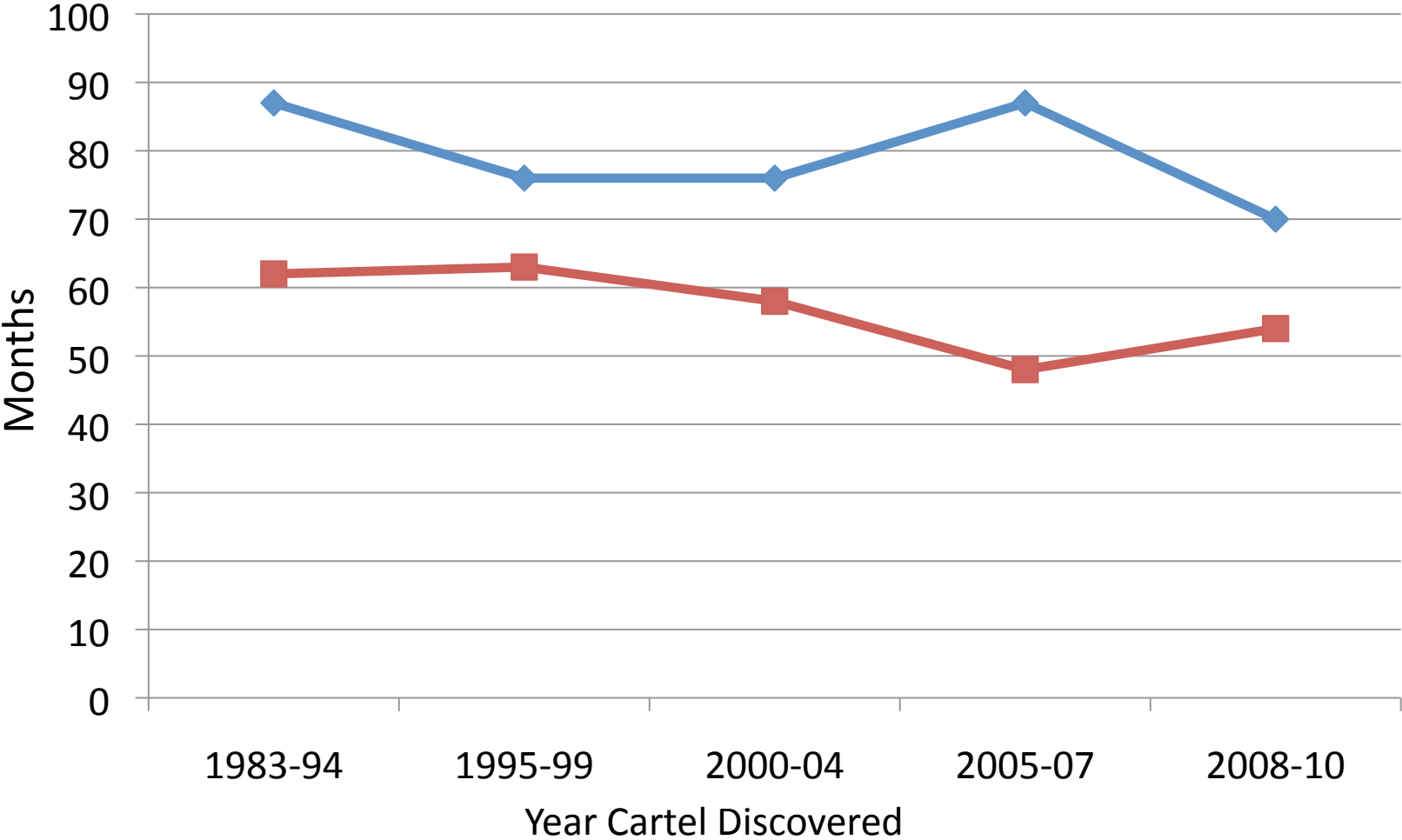
Duration of Cartels Varies by Type and Jurisdiction
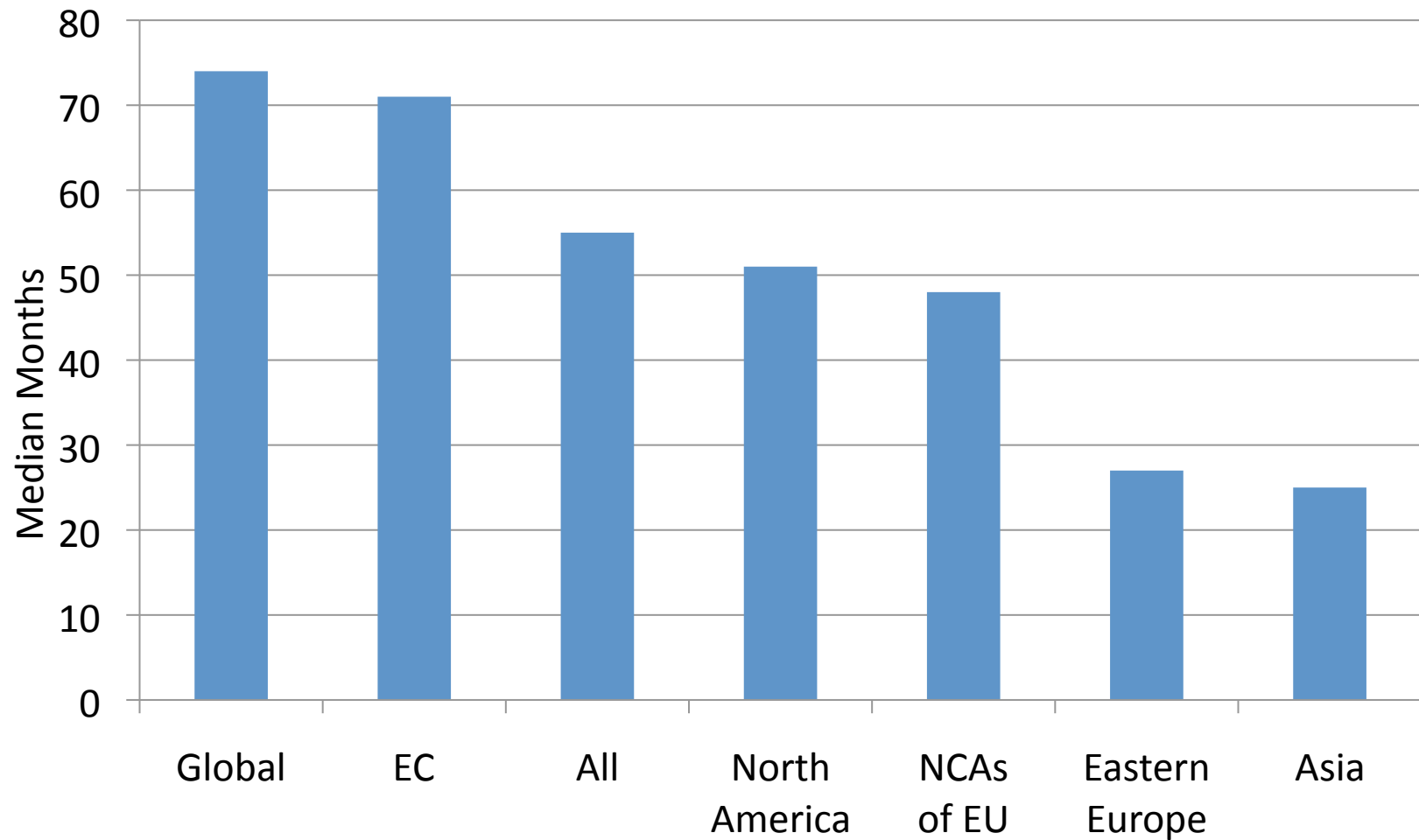
Duration of Global Cartels by Year Discovered Is also Falling (Slowly)
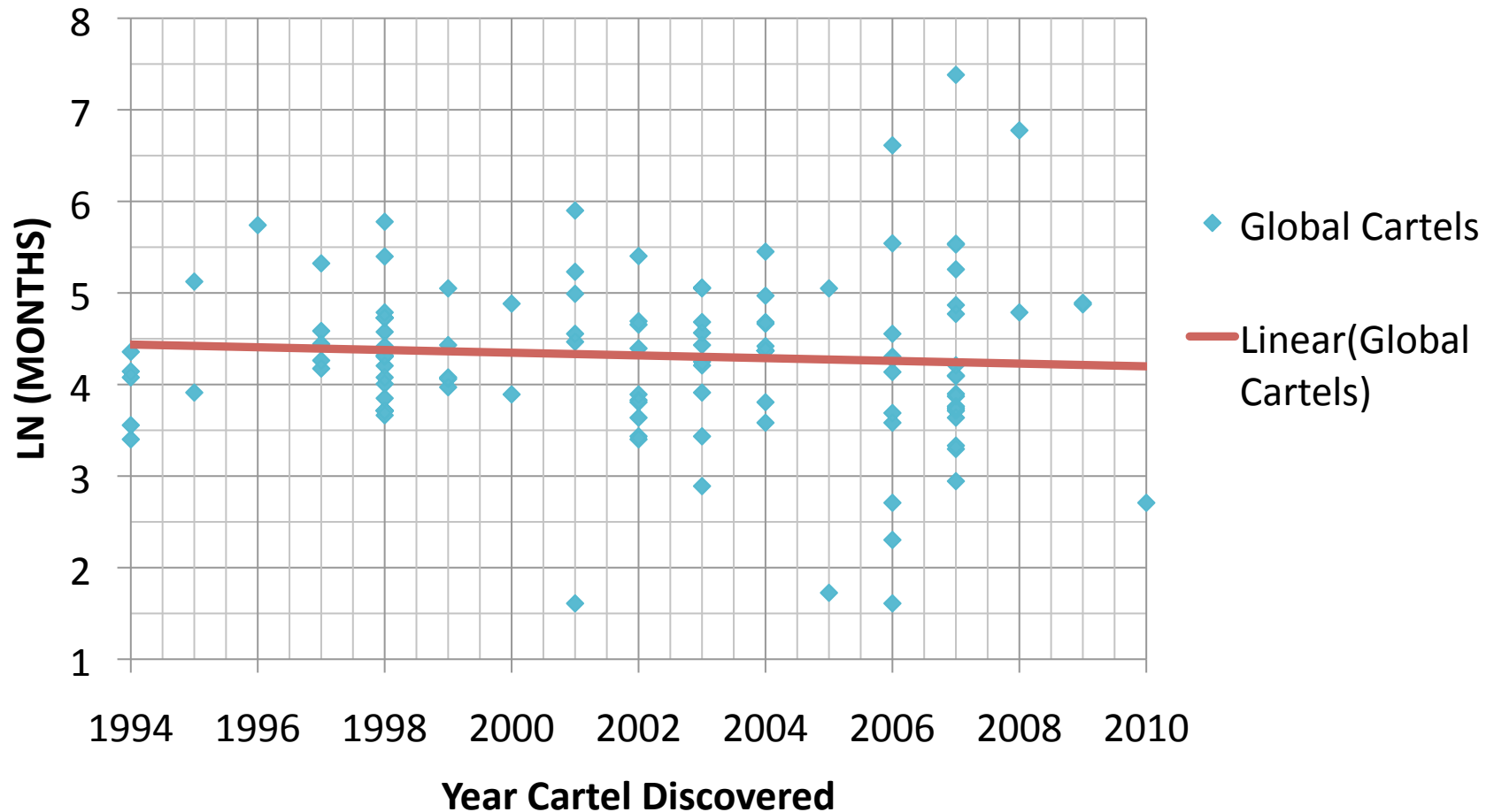
Duration of Western European Cartels Fined Since 1990 Is Virtually Constant
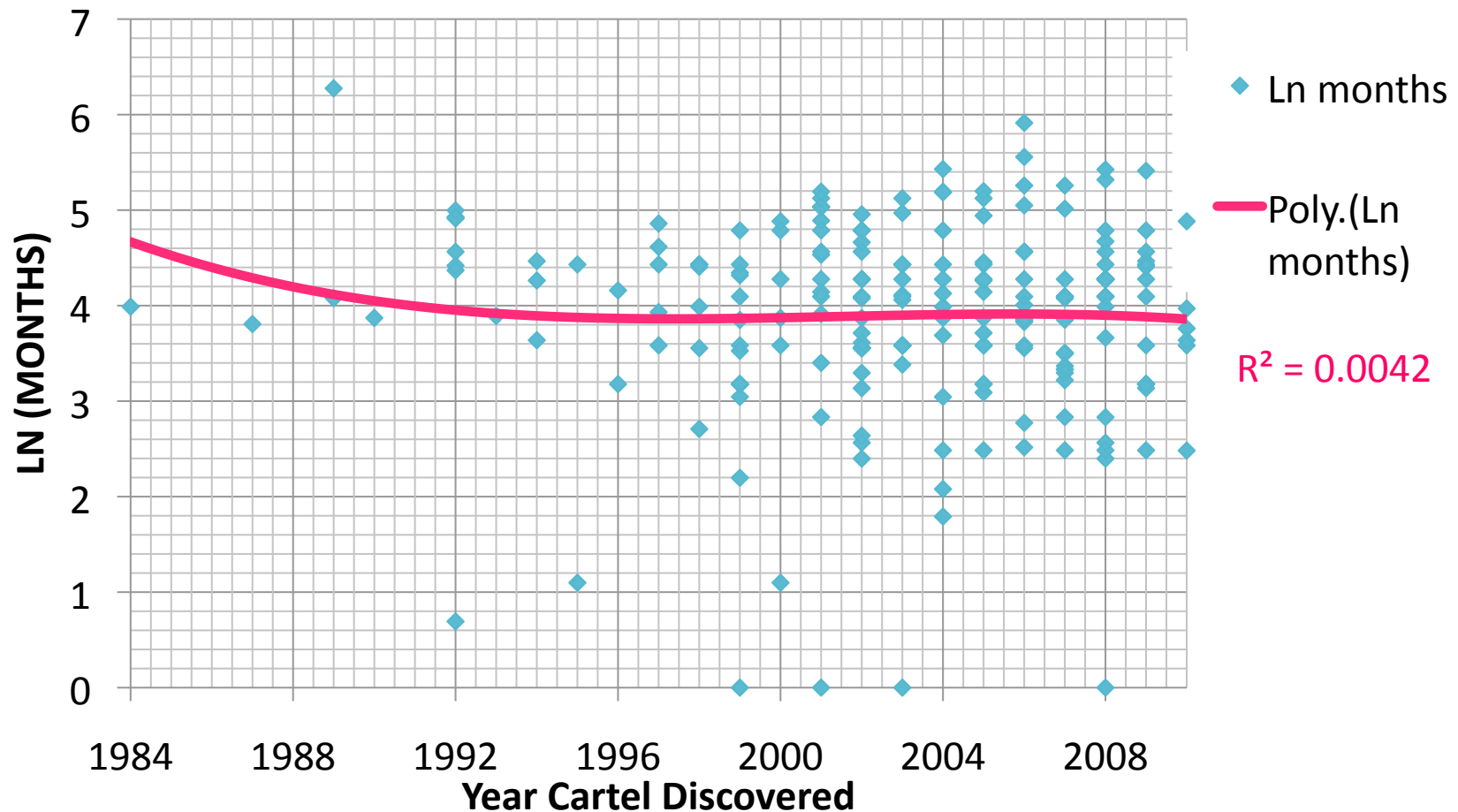
Duration of Cartels Fined by the EC Since 1990 Is Virtually Constant

Duration of Cartels Fined by EU NCAs Since 1990 Is Virtually Constant

Duration of N. American Cartels by Discovery Year Is Declining Slowly
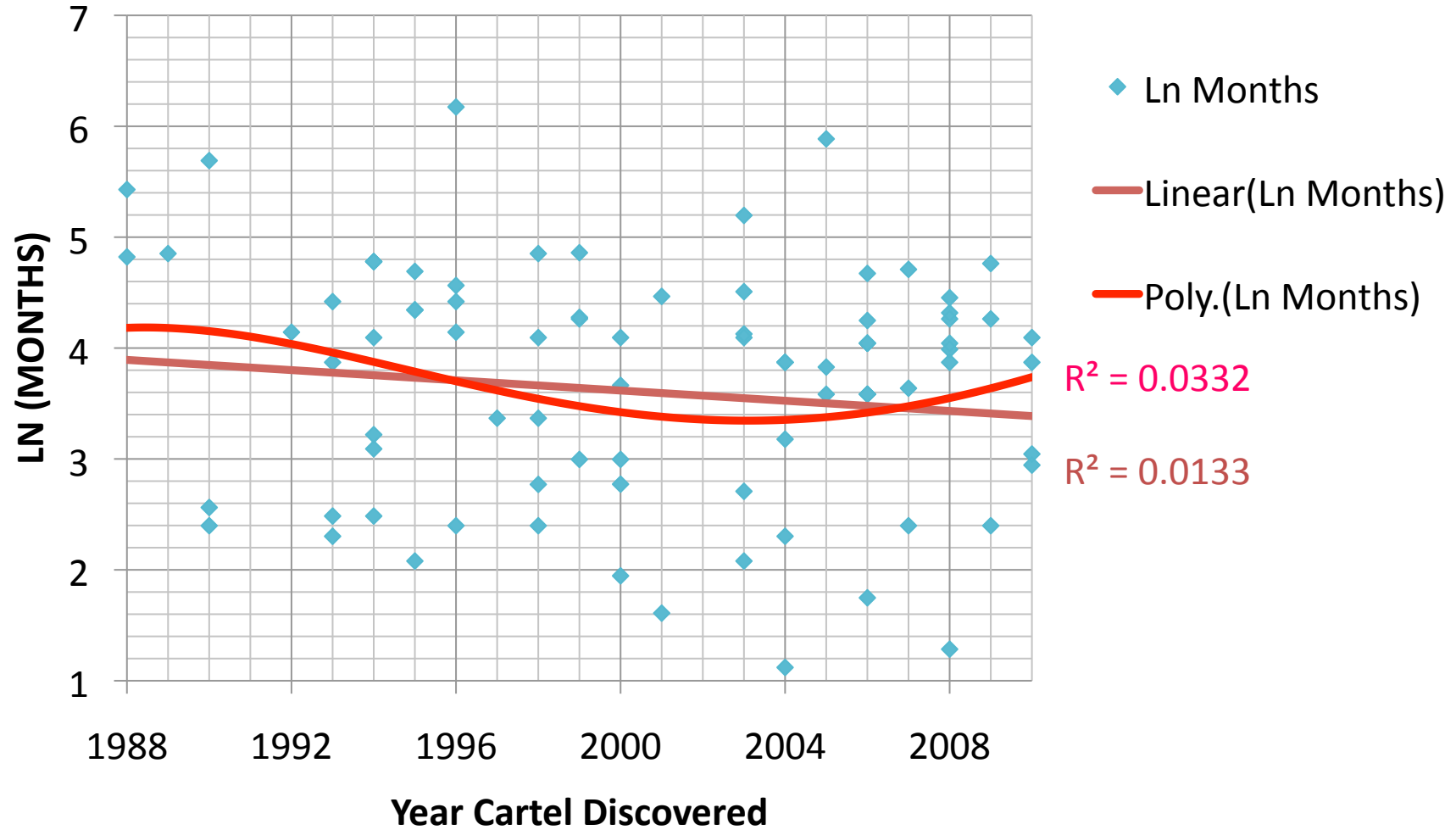
Sources

- John M. Connor. *Private International Cartels: Full Data.* [The *PICs* spreadsheet, first created about 1998, is continuously updated. As of March 2011, the full data file was 11MB and consisted of 640 observations of suspected or convicted cartels and 8500 cartelists (companies and individual participants) with 2.8 million cells of data. There are also 13 back-up spreadsheets.]

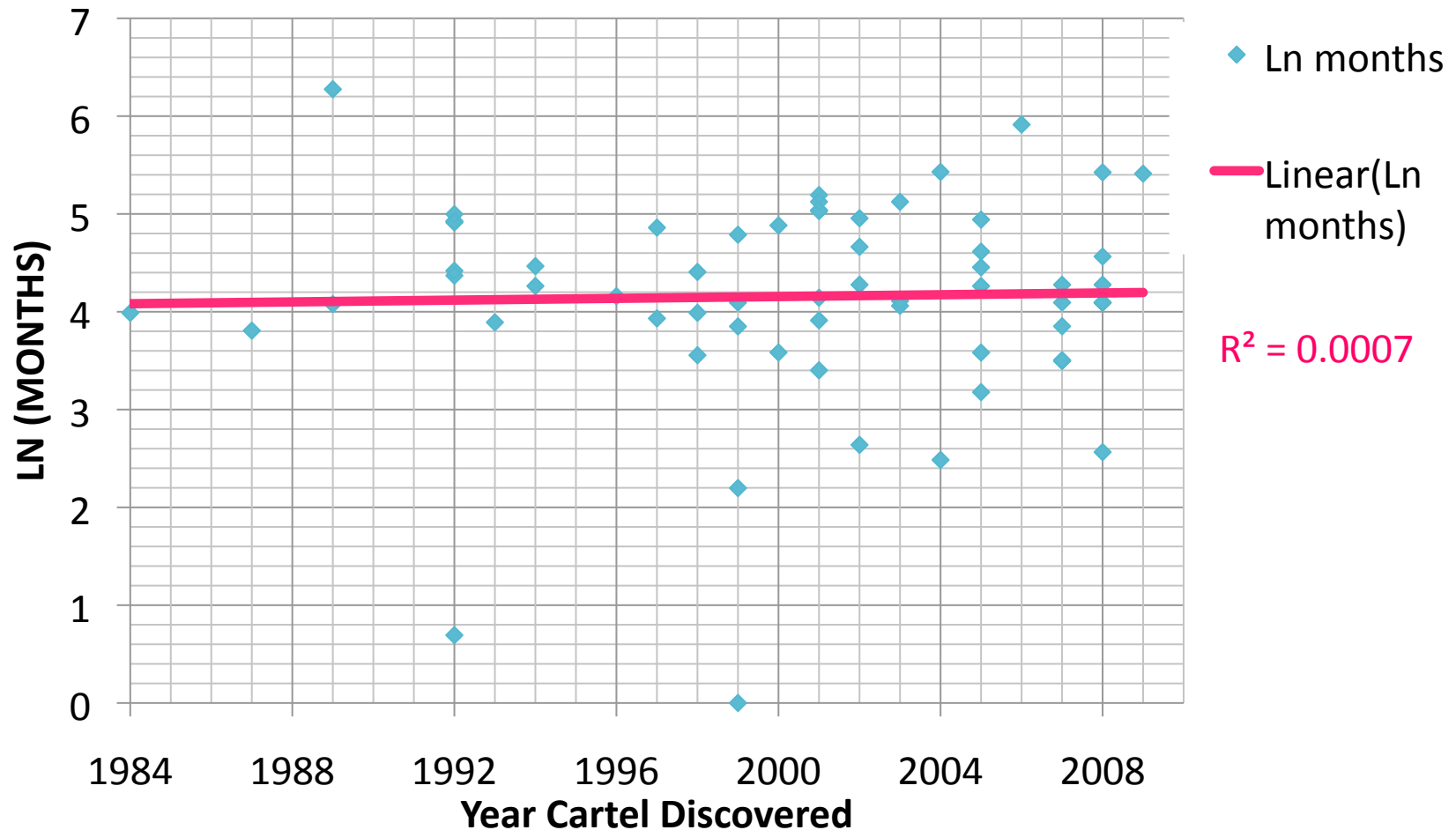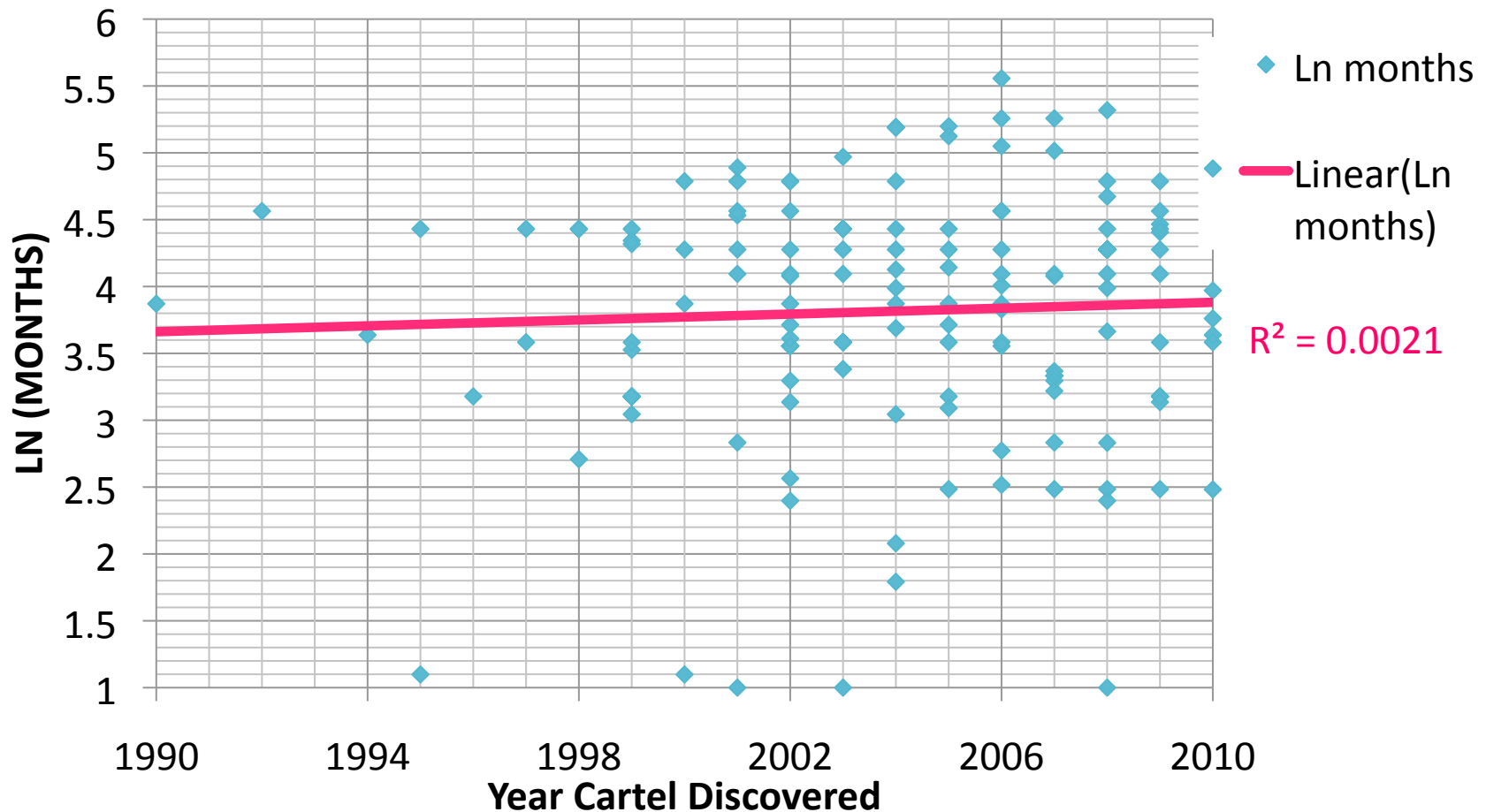- John M. Connor. *DOJ Cartel Enforcement 1990-2010.* [*A* spreadsheet created late 2007 that contains annual budgets, activities, and criminal enforcement actions of the U.S. DOJ with respect to hard-core cartels.]

- John M. Connor and Gustav Helmers. *Statistics on Modern Private International Cartels: Working Paper 07-01.* Washington, DC: American Antitrust Institute (January 2007). [http://www.antitrustinstitute.org/recent2/567.pdf]

- John M. Connor. *Cartel Amnesties Granted: Worldwide Whistleblowers* (October 2008, updated). [at SSRN: http://ssrn.com/abstract=1285469]

Notes

- Slide 3: Covers all years.

- Slide 5: There are 135 N. American cartels with data on numbers of companies. Excludes alleged cartels that were cleared and six with one defendant. The mean for 1983-2010 is 10.3 firms, and the median is 4.

- Slide 6: There are 359 cartels with data on numbers of companies. The higher number in 1984-94 is due to shipping conferences. Excludes alleged cartels that were later cleared and 3 cartels with single defendants. The mean average for all years is 11.7 firms, and the mean is higher than the median in each sub period.

- Slide 7: There are 359 cartels with data on numbers of companies. The higher number in 1984-94 is due to shipping conferences. Excludes alleged cartels that were later cleared and 3 cartels with single defendants. The mean average for all years is 11.7 firms .

- Slide 8: These data show the number of cartel members that fixed prices anywhere in the world; in geographically dispersed cartels, this may exaggerate the number of firms colluding in a given jurisdiction or region. [See next slide for more precise counts]. Note that 65% of the 628 cartels shown have 6 or fewer members. Note the large fall-off in frequency of cartels from any even number to the next odd number. There are 628 observations. Excludes suspected but cleared cartels. Cartels with more than ten companies (22% of the sample) tend to be bid rigging or assisted by a strong trade association or both.

- Slide 9: These data show the number of cartel members that fixed prices in specific geographic markets, viz., N. America, Europe, Africa, Asia, and Latin America. Note that 69% of the 653 cartels shown have 6 or fewer members. Note the significant fall-off in frequency of cartels from any even number to the next odd number. This suggests that cartels with odd numbers of members are harder to negotiate than a cartel with one more member. There are 653 observations. Excludes suspected but cleared cartels. Cartels with more than ten companies (15% of the sample) tend to be bid rigging or assisted by a strong trade association or both.

Notes Cont.

- Slide 10: Best fit is the exponential function. Note the significant fall-off in frequency of cartels from any even number to the next odd number. This suggests that cartels with odd numbers of members are harder to negotiate than a cartel with one more member. There are 653 observations. Excludes suspected but cleared cartels. Cartels with more than ten companies (15% of the sample) tend to be bid rigging or assisted by a strong trade association or both.

- Slide 11: There are 588 cartels with data on both numbers of firms (per cartel) and information of bid rigging as the dominant form of conduct.

- Slide 12: Line is a semi-log least-squares cubic regression, a functional form that reduces the effect of the few very large (51+ firms) cartels. Linear and second-degree equations fit almost as well (52%, 53%). More than half of all cartels tend to have large numbers of firms, but about 1/3 of cartels with few firms engage in bid rigging. There is a hint that the relationship is sigmoidal. There are 588 cartels with data on both numbers of firms (per cartel) and information on whether bid rigging is the dominant form of conduct.

- Slide 13: There are 73 cartels with decisions (most in the EU) that mention that the conspiracy was supported by a "third party," such as a trade association, accounting firm, or consultancy; in several cases, the third party was made to pay a symbolic fine. The other 546 cartels have no information about third-party involvement.

- Slide 14: There are 277 cartels with many buyers (roughly more than 100) and 85 cartels with few buyers (less than 30). All bid-rigging cartels have very few buyers (usually only one). The rest have either a moderate number (31 to 99) or an unknown number of buyers.

-

Notes Cont.

- Slide 16: There are 539 cartels with sufficient data. **The mean duration for all 539 is 79.2 months, and the median is 55 months (6.6 and 4.58 years, respectively).** Duration is highly negatively skewed (the maximum is 134 years). Excludes alleged cartels that were later cleared of wrongdoing. Duration is biased downward, because many newer antitrust authorities *charge* cartels only from the year their anti-cartel laws were passed even if they have evidence of a longer duration.

- Slide 17: There are 539 cartels with data on reported duration. Asia and E. Europe may have artificially short durations because beginning years cannot be earlier than ipromulgation of the antitrust law. Africa (not shown) has a median duration of 89 months. Excludes alleged cartels that were cleared of wrongdoing

- Slide 18: N=209 cartels operating in W. Europe, investigated by either the EC or NCAs. **Median duration** of the European cartels types is 60 months or 5.0 years. It follows that the duration of non-global cartels (i.e., those operating in one continent or one nation) is half as long as global cartels.   Excludes alleged cartels that were cleared of wrongdoing.

- Slide 19: N=206 cartels operating in W. Europe, investigated by either the EC or NCAs. **Median duration** of the European cartels types is 59.5 months or 5.0 years. However, these data are skewed downward (especially in the earlier years) because some NCAs report a beginning year of the infringement as the year the nation's competition law was effective (some as late as 1990) rather than the cartel's collusive beginning year. The cubic regression curve suggests that the mean duration fell by about 49 months from 1984 to 2010, but a linear regression narrows that difference to 4 months.   Excludes alleged cartels that were cleared of wrongdoing.

- Slide 20: N=61 cartels operating in W. Europe and investigated by the EC. **Median duration** of these cartels is 71 months or 5.9 years. The linear regression has a non-significant upward slope.   Excludes alleged cartels that were cleared of wrongdoing.

Notes Cont.

- Slide 21: N=145 cartels operating in W. Europe and investigated by a National Competition Authority of the EU. **Median duration** of these cartels is 48 months or 4.0 years. The linear regression has a non-significant upward slope.   Excludes alleged cartels that were cleared of wrongdoing.
- Slide 22: There are 84 cartels with sufficient data. The median duration of all 84 cartels is 51 months – 31% lower than global cartels. Excludes alleged cartels that were cleared of wrongdoing.

J M Connor, Purdue U.