

# International Licensing of Copyrighted Works by U.S. Firms

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December 2013

The statistical analysis of firm level data on US multinational companies and their foreign affiliates was conducted at the Bureau of Economic Analysis, United States Department of Commerce, under arrangements that maintain legal confidentiality requirements. Views expressed in this paper are those of the authors and do not necessarily reflect the official positions of the US Department of Commerce.

# Objective

- Illustrate an example or application of our project (i.e., developing **measures** of copyright policies)
- Exercise in “**Reverse Engineering**”: What policy and other factors might explain what we observe in the data?

# Conceptual Framework

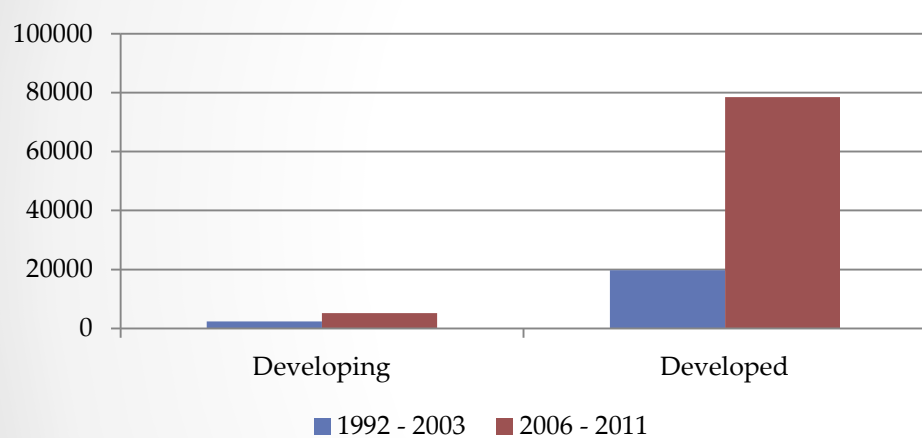
- Effect of Copyright Regime on U.S. Firms' Technology Transfer (i.e., licensing of copyrighted works):
  - Profit Effect:
    - Copyright protection affects the owner's ability to appropriate returns from the works licensed
  - Market Creation:
    - Copyright flexibilities and user access affect *opportunities* for exploiting copyrighted works, adding value to copyrighted works

# Dataset

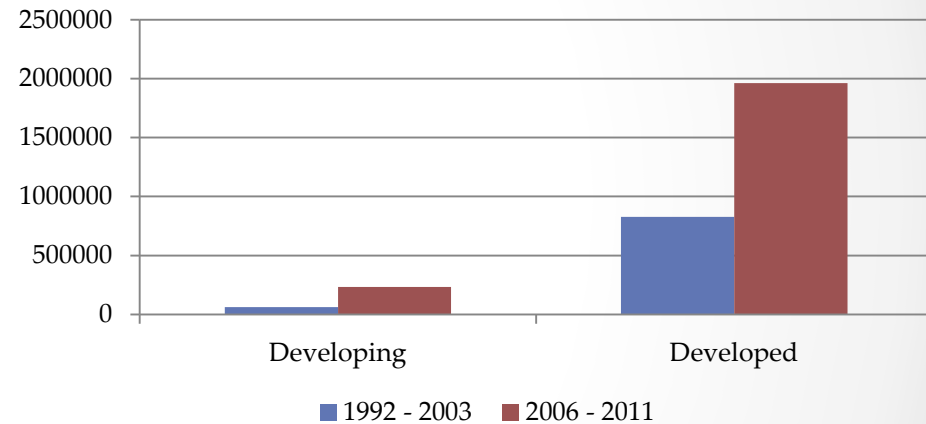
- U.S. Firms:
  - Transactions with Unaffiliated parties outside the U.S.
  - 1992 - 2011
- Two kinds of industries
  - 'ART' (Performing Arts, Entertainment, and Recreation)
  - 'INFO' (Information Industries: Newspaper, Periodical, Book, and Database publishers; software publishers; motion picture and video industries; sound recording; radio and TV broadcasting, cable networks and program distribution; information services.)
- Types of Copyrighted Works:
  - Books,
  - Films & TV
  - Broadcasting
  - Performances
- 52 Countries
  - 15 Developed
  - 37 Developing

# Total Transfers over the period

U.S. Firms' Licensing of Copyrighted Works:  
'Art' Industries



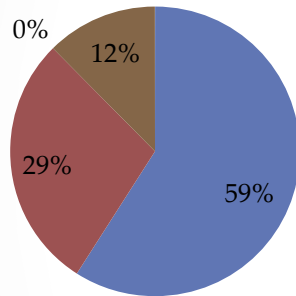
U.S. Firms' Licensing of Copyrighted Works:  
'Info' Industries



Figures are all in real 2005 U.S. dollars

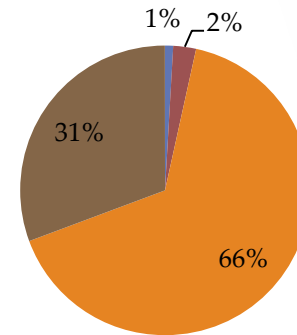
# Breakdown

Percentage Distribution by Type of Work:  
U.S. Firms in the 'Art' Industries



■ Books ■ Broadcasting ■ Software ■ Film & TV

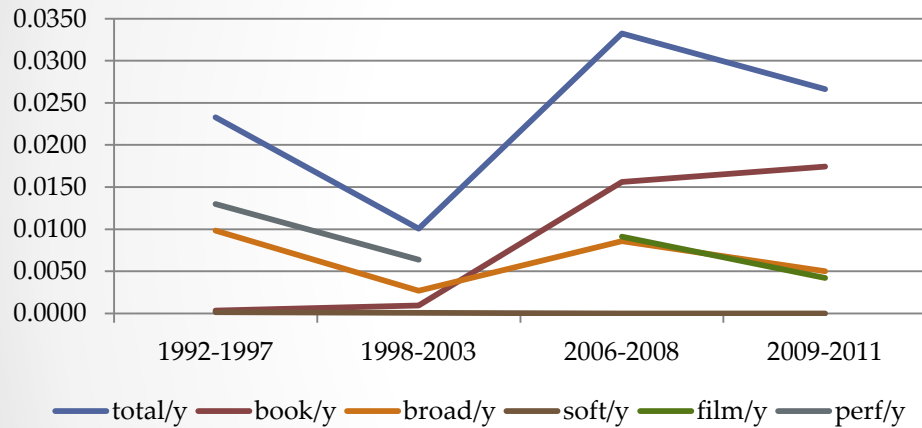
Percentage Distribution by Type of Work:  
U.S. Firms in the 'Info' Industries



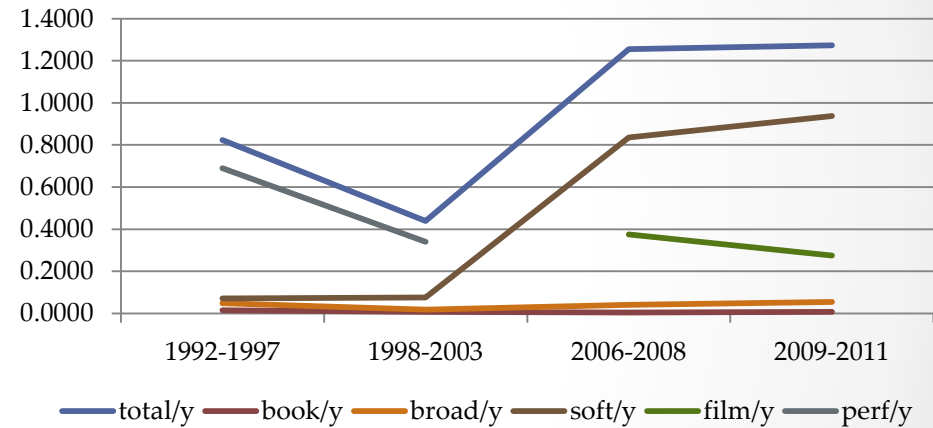
■ Books ■ Broadcasting ■ Software ■ Film & TV

# Relative to Market Size

Copyright Licensing per Destination GDP (Market Size): 'Art' Industries



Copyright Licensing per Destination GDP (Market Size): 'Info' Industries



# Change in Licensing per GDP from 1992-2003 to 2006-2011

	Total	Books	Broadcasting	Software	Films
Australia	+	+	+	+	-
Belgium	+	+	-	+	-
Canada	+	+	-	+	-
France	+	+	+	+	-
Germany	+	+	-	+	-
Ireland	+	+	+	+	-
Italy	+	+	-	+	-
Japan	+	+	+	+	-
Netherlands	+	+	-	+	-
NewZeal	+	-	+	+	-
Norway	+	+	-	+	-
Spain	-	+	+	+	-
Sweden	+	+	-	+	-
Switzerland	+	+	+	+	-
UK	+	+	+	+	-



# Change in Licensing per GDP from 1992-2003 to 2006-2011

	Total	Books	Broadcasting	Software	Films
Argentina	+	+	-	+	+
Bangladesh	+	0	+	+	-
Belarus	+	+	+	+	-
Chile	+	+	+	+	+
China	+	-	+	+	+
Costa Rica	+	-	+	+	+
Egypt	+	-	+	+	-
Fiji	-	0	+	+	-
India	+	+	-	+	+
Indonesia	+	-	-	+	-
Israel	+	+	-	+	-
Jordan	+	0	+	+	+
Kenya	+	0	+	+	-
Korea	+	-	+	+	-
Lebanon	-	-	-	+	-
Luxem	+	+	+	+	-
Malaysia	+	-	+	+	-
Mexico	+	-	+	+	+
Morocco	+	0	+	+	-
Nigeria	+	0	+	+	-
Pakistan	+	-	-	+	+
Philippines	-	-	-	+	-
Romania	+	+	+	+	-
SAfrica	+	-	+	+	-
Singapore	+	+	+	+	-
Slovenia	+	+	+	+	+
Thailand	+	-	-	+	-
Ukraine	+	+	+	+	+
Venez	+	-	+	+	+
Vietnam	+	-	+	+	+
Zambia	-	0	0	+	-

# Source of Trends

- Need Policy Measures (e.g., copyright policy shifts) and other control variables
- For now, we examine country and time effects (to pick up whether specific countries or time periods are associated with significant licensing activities)
- Regress  $\ln(X)$  on 'Country Dummies', 'Time Dummies', and  $\ln(Y)$ 
  - where  $X = \{\text{total licensing receipts, books, films \& TV, broadcasting, or software, all in real U.S. dollars}\}$  and  $Y = \text{real GDP}$ .
- Or, regress  $\ln(X/Y)$  on 'Country Dummies' and 'Time Dummies'
- Technical notes
  - Natural logs are taken to smooth out the data
  - Samples will include or exclude 'Developed Countries'

# Overview of Regressions

- Four Tables:
  - Firms from 'Art' Industries licensing to 52 Countries
  - Firms from 'Info' Industries licensing to 52 Countries
  - Firms from 'Art' Industries licensing to 37 Developing Countries
  - Firms from 'Info' Industries licensing to 37 Developing Countries
- In each table, two models:
  - Level of Licensing
  - Ratio of Licensing to (Destination) GDP
- Six dependent variables per model
  - Total Copyrighted Works
  - Books
  - Broadcasting
  - Software
  - Films & TV
  - Performances

# Highlights

- Licensing tracks GDP
- Country-specific factors matter more than global 'macro' shocks – and relatively more so for “Art”, cultural industries than for “Info” industries
- Diffusion of Artistic works tend to be concentrated in a few countries; diffusion of software works more widespread
- Variables so far – country *fixed* effects, time *fixed* effects, and market size – explain at least 85% of the data.
  - What can explain the remaining 15%?
  - What would the omitted explanatory factors look like?

# Residual Analysis:

Working Backwards to see what policy shift would be consistent

$$\ln X_{it} = \alpha_i + \alpha_t + H_{it} + \alpha_y \ln Y_{it} + \varepsilon_{it}$$

$\alpha_i$  = Country Fixed Effects

$\alpha_t$  = Time Fixed Effects

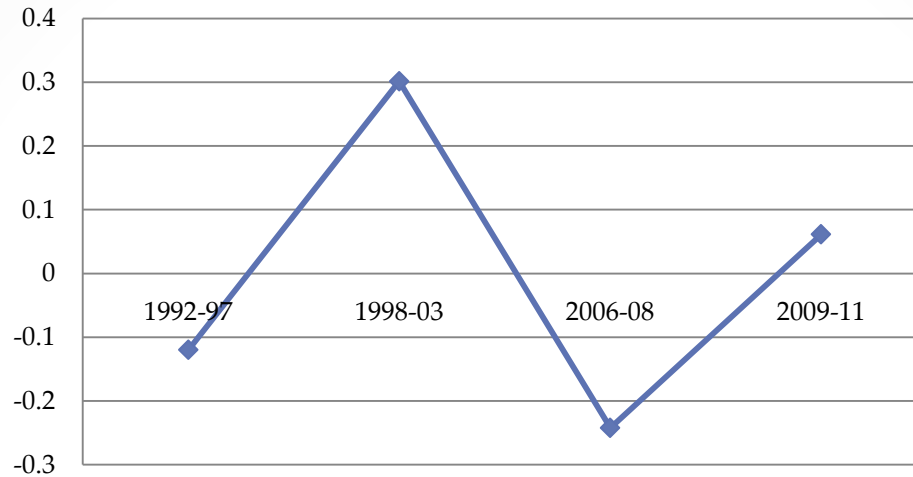
$H_{it}$  = Host Country Specific Time Trends

$Y_{it}$  = Host Country GDP (market size)

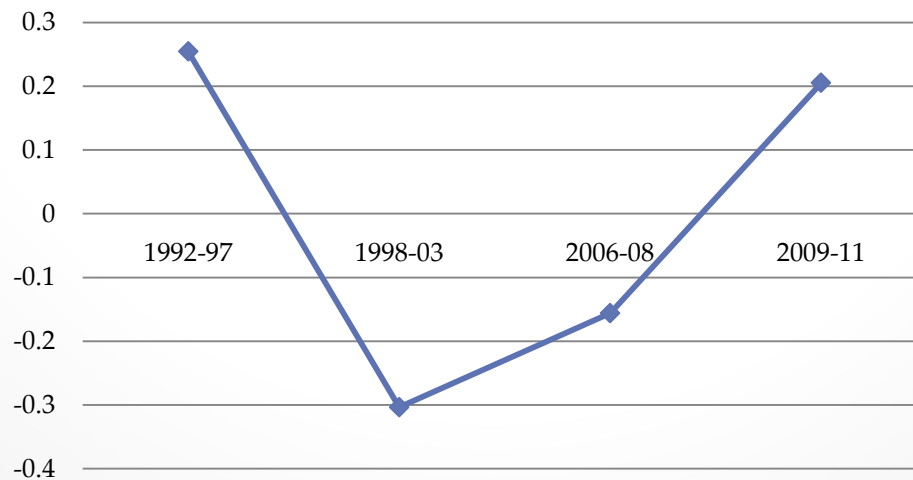
↑  
“Unexplained”

# U.S. Firms' Licensing in Canada: Residuals

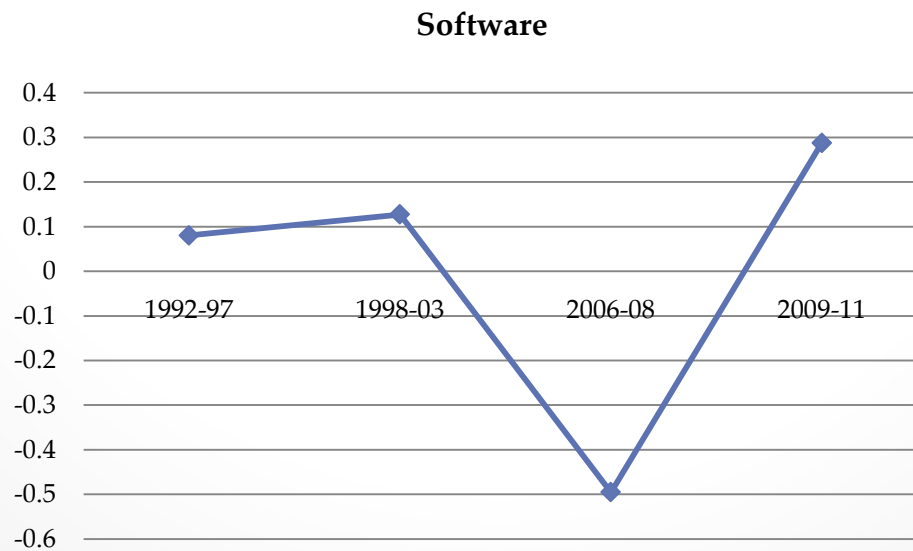
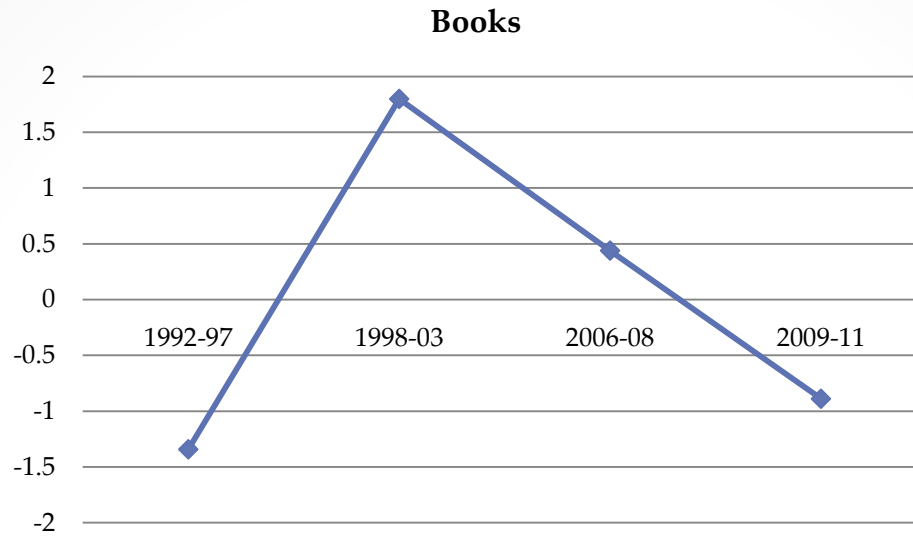
**Total Arts, Entertainment Related**



**Total Information Industry-Related**

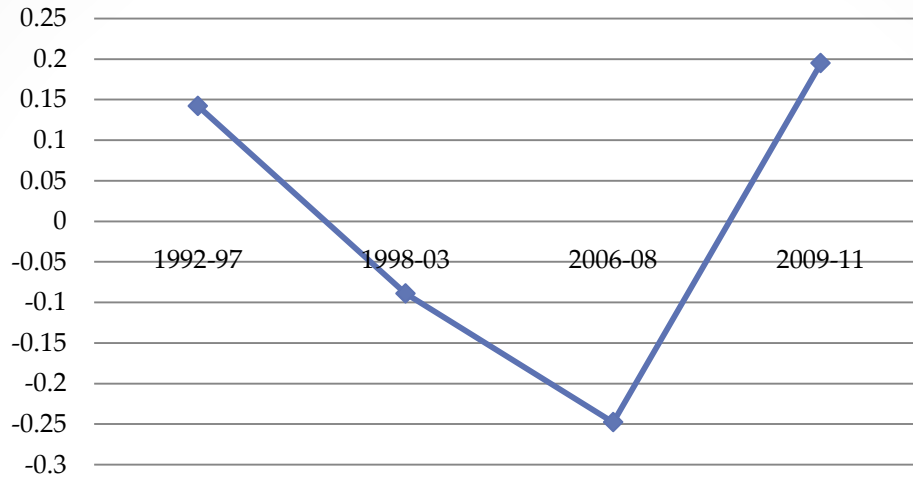


# U.S. Firms' Licensing in Canada: Residuals

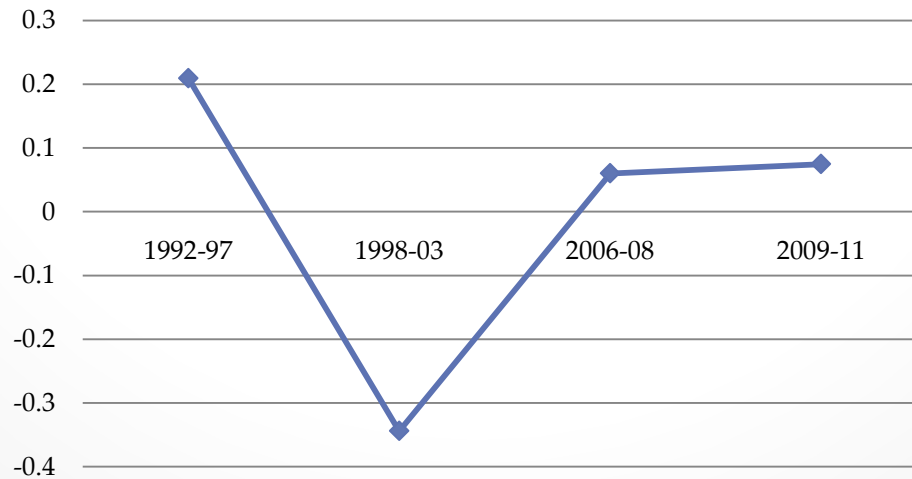


# U.S. Firms' Licensing in Netherlands: Residuals

## Total Arts, Entertainment-Related



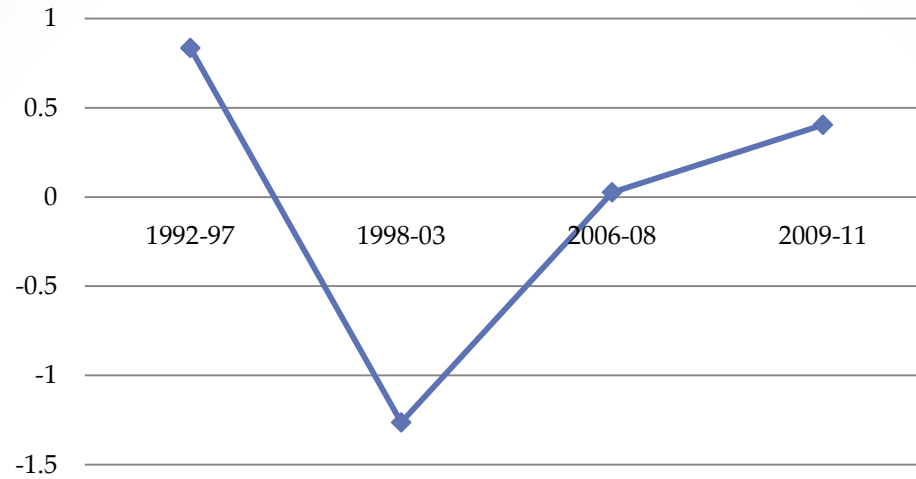
## Total Information Industry-Related



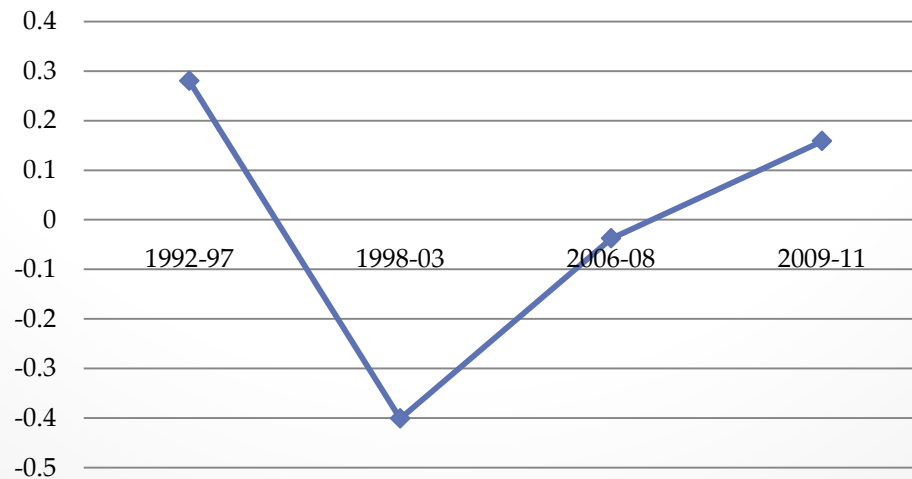


# U.S. Firms' Licensing in Netherlands: Residuals

## Books

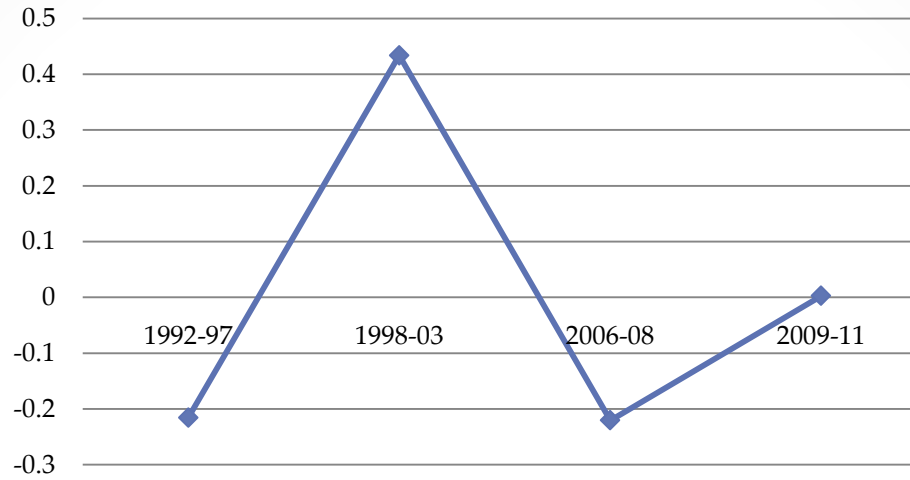


## Software

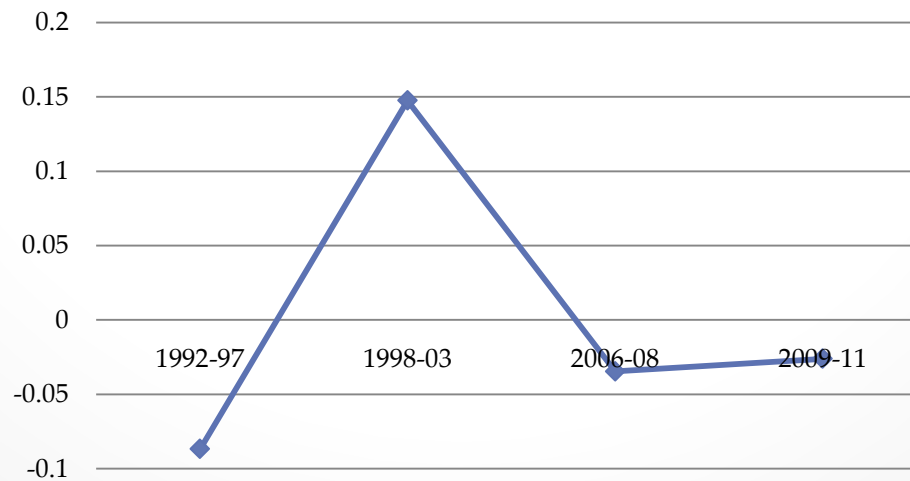


# U.S. Firms' Licensing in S. Africa: Residuals

## Total Arts, Entertainment Related

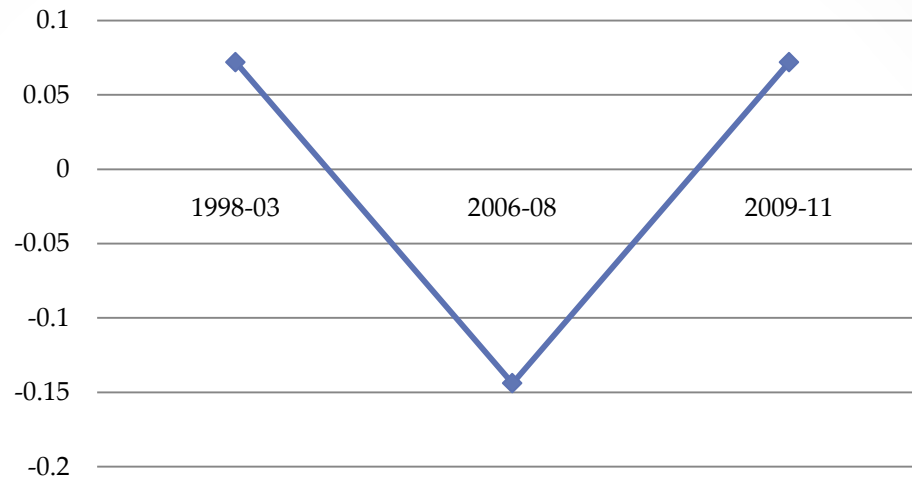


## Total Information Industry-Related

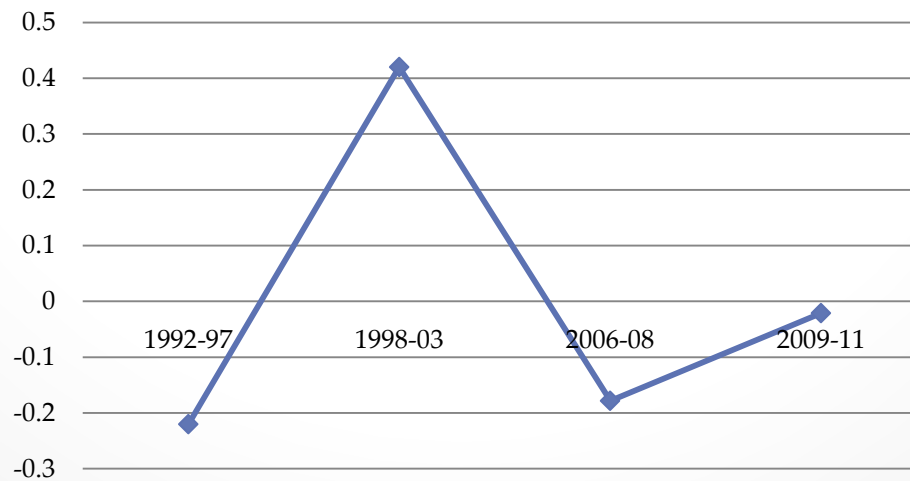


# U.S. Firms' Licensing in S. Africa: Residuals

## Books

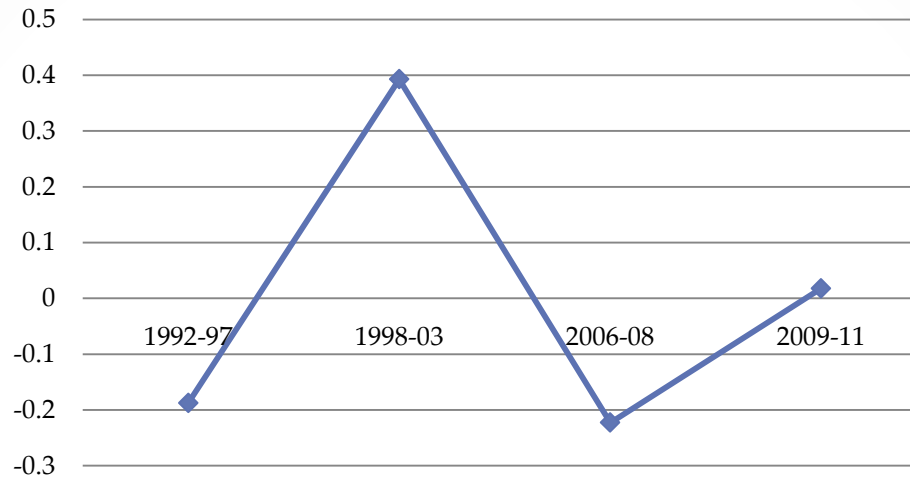


## Software

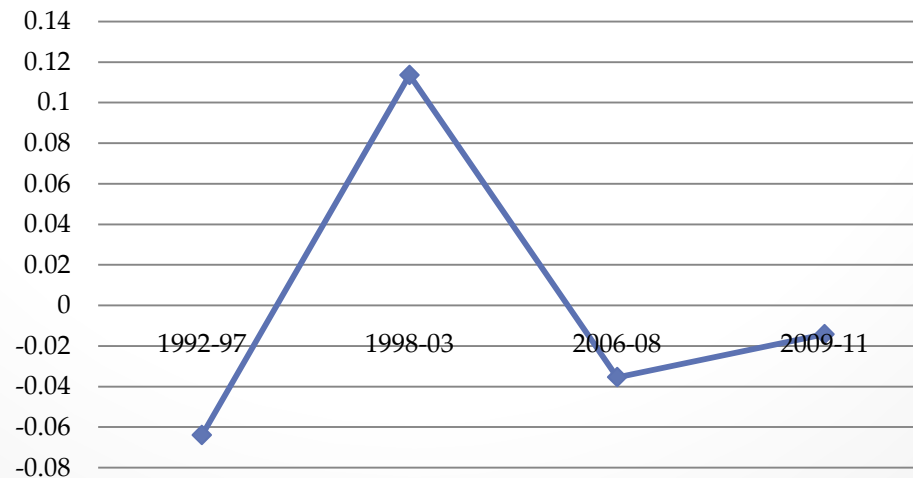


# U.S. Firms' Licensing in Israel: Residuals

## Total Arts, Entertainment Related

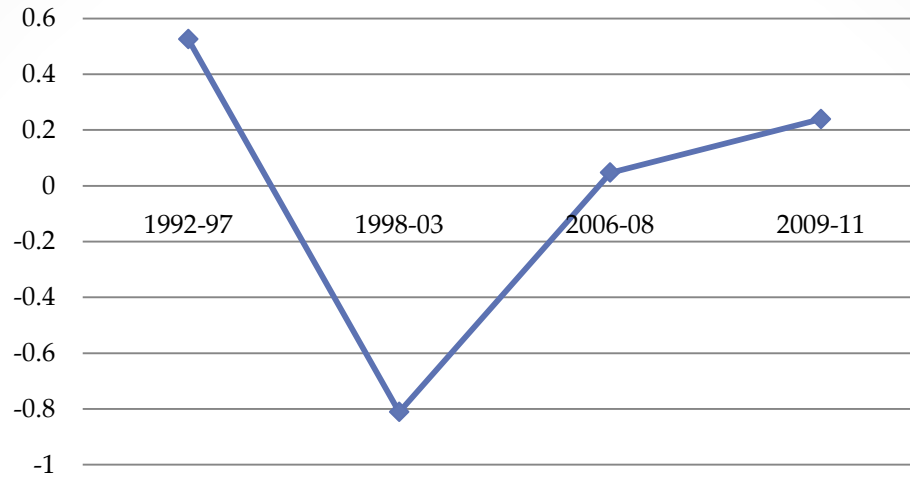


## Total Information Industry-Related

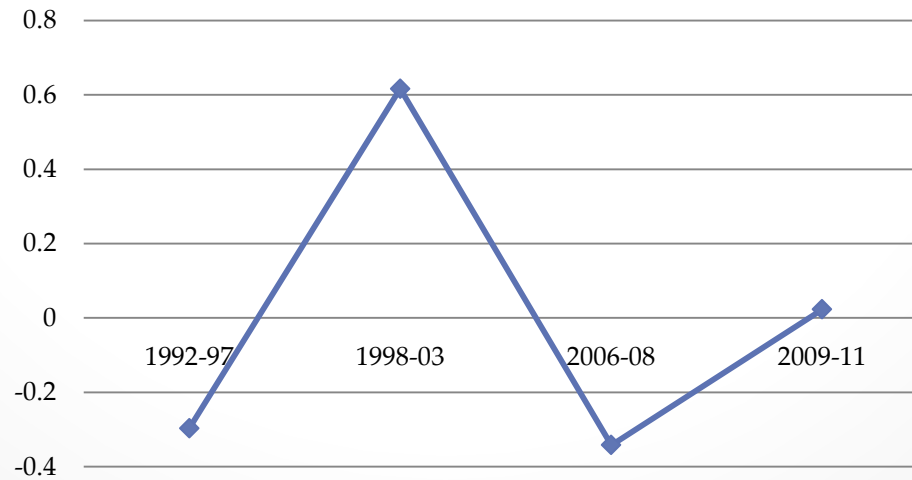


# U.S. Firms' Licensing in Israel: Residuals

## Books



## Software



# Implications

- This is work in progress
- Need to Construct an “Index” of Copyright Strength and Flexibilities, Limitations & Exceptions.
- Need to control for market size
- U.S. technology transfers (via licensing) has in many cases kept pace with the growth (or decline) in markets
- Access to market-mediated copyrighted works has exhibited varied developments over time and across countries, particularly developing.

