

# **Innovation, Imitation, and Political Cleavages in International Trade and Patent Protection**

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Princeton University

October 27, 2023 (IPES)



# Motivation

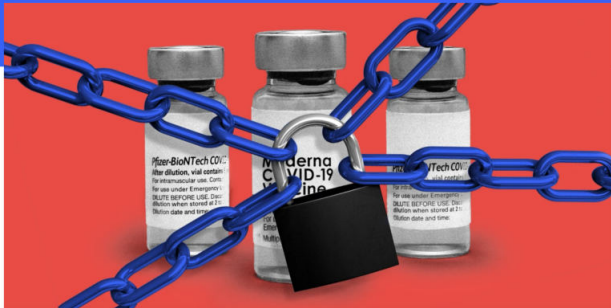
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## Pfizer and Moderna protecting their patents leaves much of the world at risk

Most of the hundreds of millions of doses Pfizer and Moderna have produced have gone to Western countries, most notably the U.S.

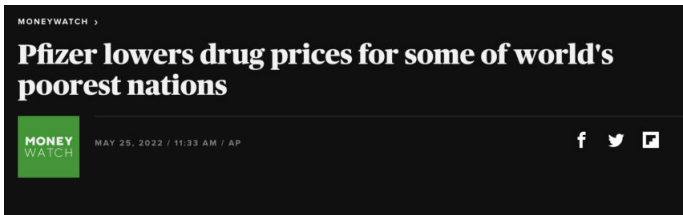


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Pfizer said Wednesday that it will provide nearly two dozen products, including its top-selling COVID-19 vaccine and treatment, at not-for-profit prices in some of the world's poorest countries.

The drugmaker announced the program at the World Economic Forum's annual gathering in Davos, Switzerland, and said it was aimed at improving health equity in 45 lower-income countries. Most of the countries are in Africa, but the list also includes Haiti, Syria, Cambodia and North Korea.

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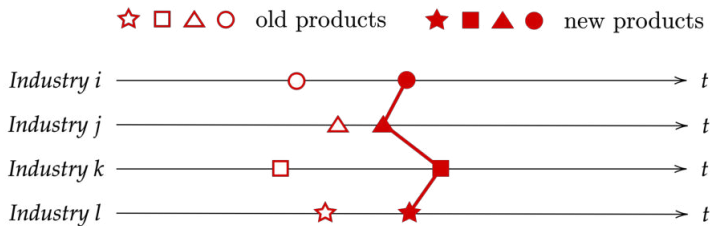
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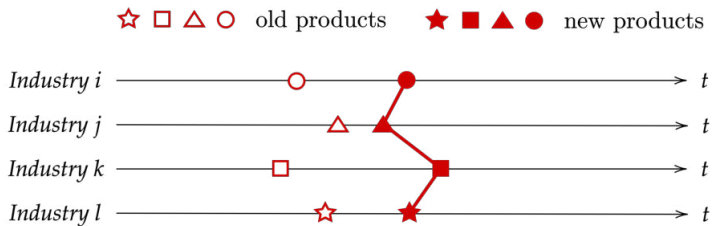
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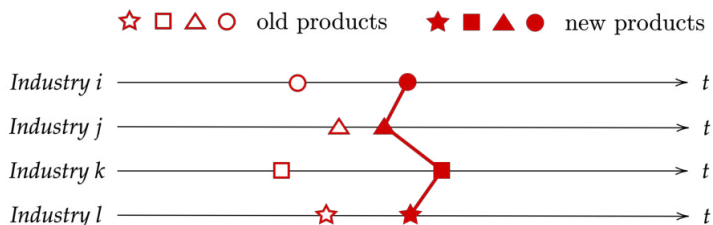
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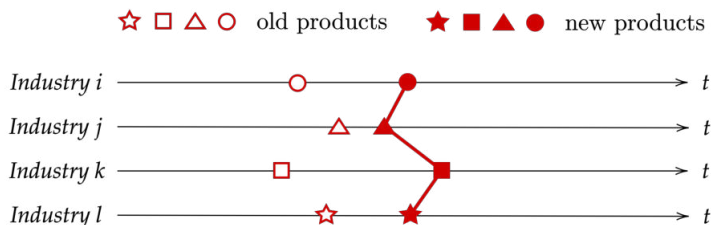
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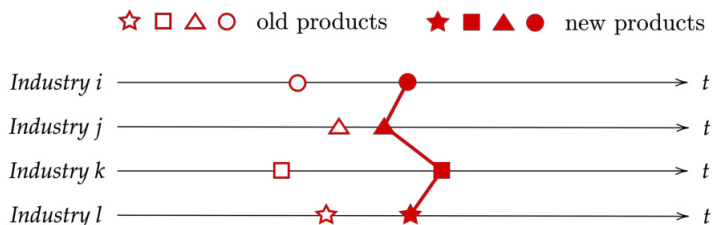


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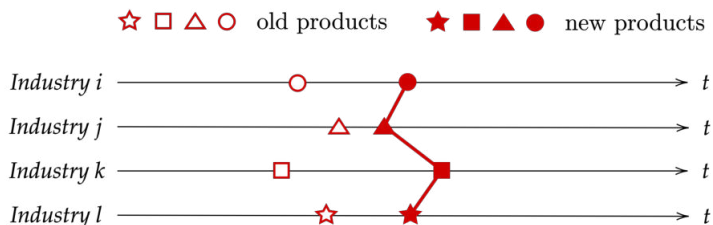
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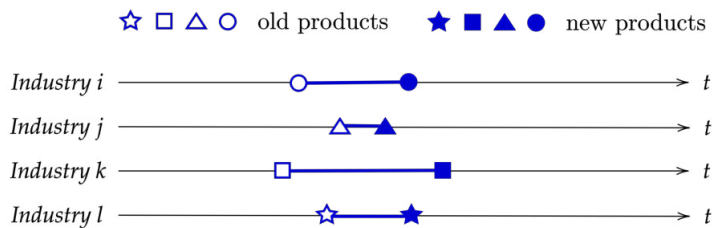
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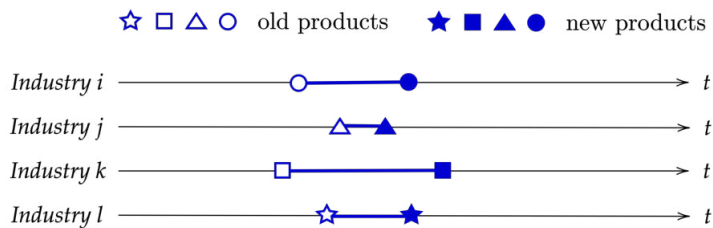
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  - ② lobbying: who are winners losing otherwise?

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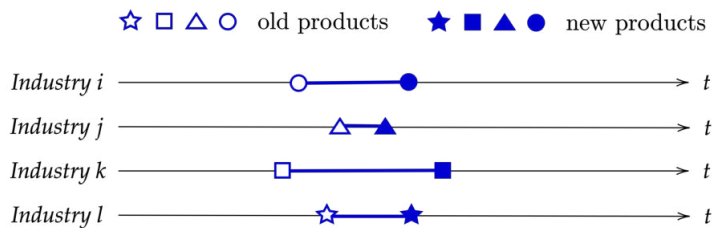
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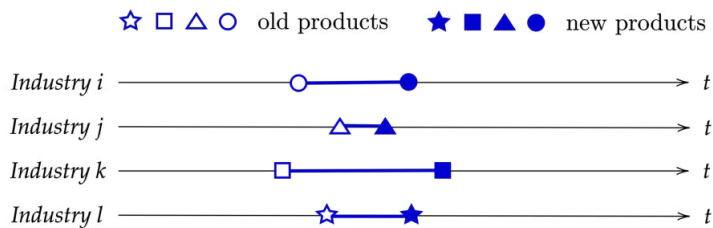
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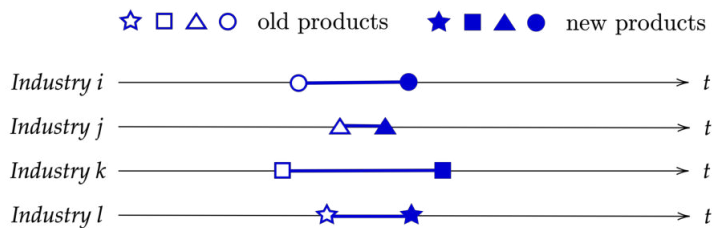
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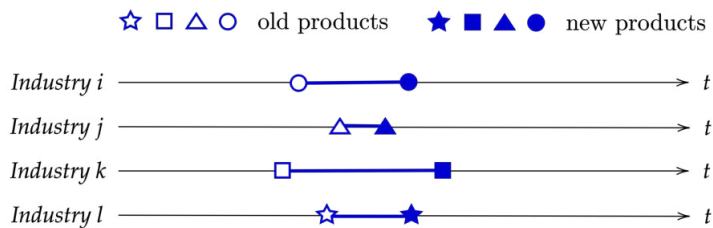
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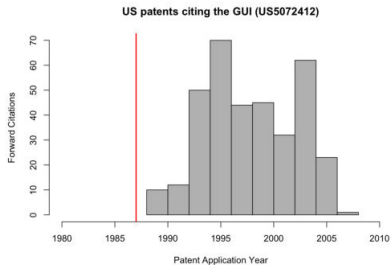
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- Model: logistic regression with FEs

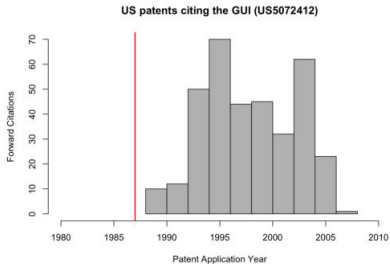
- 1 DV: whether lobbied on the bills
- 2 IV: product cycles  $\times$  patent ownership



# Estimating the Rate of Innovation

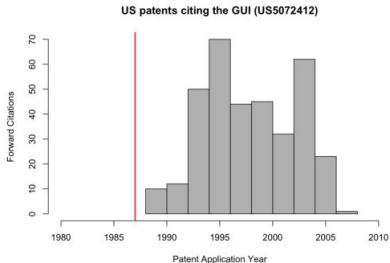


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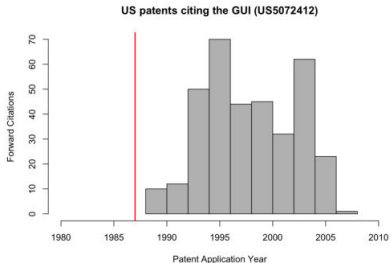
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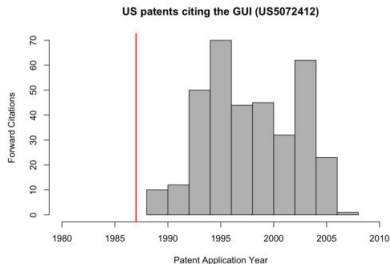
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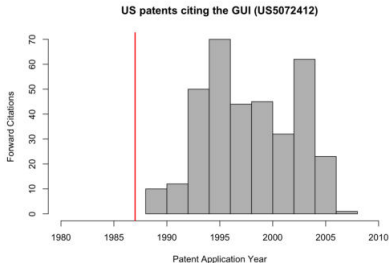
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  - 4 match compustat (011636) with LobbyView (011636)

# Patent Provisions in US FTAs

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Negotiating party	Year (signed)	Year (effective)	Bills	Congress	Term of protection	Extension of protection									
						Delays under marketing approval		Violation of test data protection (Pharmaceutical)				Violation of test data protection (Agrochemical)			
						From the date of filing	After a request for examination	Marketing approval (domestic)	Marketing approval (foreign)	New clinical information (domestic)	New clinical information (foreign)	Marketing approval (domestic)	Marketing approval (foreign)	New uses (domestic)	New uses (foreign)
Singapore	2003	2004	HR2739, S1417	108	20 years	4 years	2 years	5 years	5 years	no	no	10 years	10 years	no	no
Chile	2003	2004	HR2738, S1416	108	20 years	5 years	3 years	5 years	no	no	no	10 years	no	no	no
Australia	2004	2005	HR4759, S2610	108	20 years	4 years	2 years	5 years	5 years	3 years	3 years	10 years	10 years	10 years	10 years
Morocco	2004	2006	HR4842, S2677	108	20 years	4 years	2 years	5 years	5 years	3 years	3 years	10 years	10 years	no	no
Dominican Republic - Central America	2004	2006	HR3045, S1307	109	20 years	4 years	2 years	5 years	5 years	no	no	10 years	10 years	no	no
Bahrain	2004	2006	HR4340, S2027	109	20 years	4 years	2 years	5 years	5 years	3 years	3 years	10 years	10 years	10 years	10 years
Oman	2006	2009	HR5684, S3569	109	20 years	4 years	2 years	5 years	5 years	3 years	3 years	10 years	10 years	10 years	10 years
Peru	2006	2009	HR3688, S2113	110	20 years	5 years	3 years	5 years	no	no	no	10 years	no	no	no
Colombia	2006	2012	HR3078, S1641	112	20 years	5 years	3 years	5 years	5 years	no	no	10 years	10 years	no	no
Republic of Korea	2007 (2010)	2012	HR3080, S1642	112	20 years	4 years	3 years	5 years	5 years	3 years	3 years	10 years	10 years	10 years	10 years
Panama	2007	2012	HR3079, S1643	112	20 years	5 years	3 years	5 years	5 years	no	no	10 years	10 years	no	no

## Imitation Risks $\Rightarrow$ Demanding Patent Protection

- H1: product cycles  $\uparrow \Rightarrow$  lobbying for patent protection  $\uparrow$

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	Dependent Variable: Lobbied					
	(1)	(2)	(3)	(4)	(5)	(6)
<b>product life-cycle (squared)</b>		0.015***	0.049***			
$\times$ <b>patent (stock, thousands)</b>		(0.004)	(0.014)			
<b>product life-cycle (squared)</b>					0.016***	0.040***
$\times$ <b>patent (reassign, thousands)</b>					(0.004)	(0.012)
product life-cycle (squared)		0.020**			0.018*	
		(0.012)			(0.012)	
patent (stock, thousands)	0.225**	-1.427***	-4.593***			
	(0.097)	(0.415)	(1.425)			
patent (reassign, thousands)				0.232**	-1.482***	-3.710***
				(0.097)	(0.408)	(1.158)
Controls	YES	YES	YES	YES	YES	YES
Industry FE	YES	NO	YES	YES	NO	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	6,175	6,175	6,175	6,175	6,175	6,175
Log Likelihood	-137.335	-346.631	-130.543	-137.150	-345.787	-130.689
Akaike Information Criterion	286.669	709.262	275.085	286.299	707.575	275.379

*Note:* Robust standard errors are shown in parentheses. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

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	Dependent Variable: Lobbied			
	2003–2008 (1)	2005–2008 (2)	2011–2012 (3)	2011–2012 (4)
<b>product life-cycle (squared)</b>	0.032*	0.040**	0.060***	0.083***
<b>× patent (stock, thousands)</b>	(0.025)	(0.020)	(0.022)	(0.035)
patent (stock, thousands)	-3.016*	-3.842**	-5.530***	-7.538***
	(2.452)	(1.996)	(2.169)	(3.414)
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	4,023	3,193	1,291	1,291
Log likelihood	-43.025	-75.593	-47.790	-13.122
Akaike Information Criterion	100.051	165.185	109.580	40.245

*Note:* Robust standard errors are shown in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

(1) US-Chile & US-Peru FTAs excluded, (2) US-Peru FTA excluded, (4) US-Panama FTA

## Were the Clients Lobbying For or Against?

- H2: product cycles  $\uparrow \Rightarrow$  latent topics (e.g. “counterfeit”)  $\uparrow$

## Were the Clients Lobbying For or Against?

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- Analyze the content of the reports: `stm` (Roberts et al, 2013, 2014; ...)



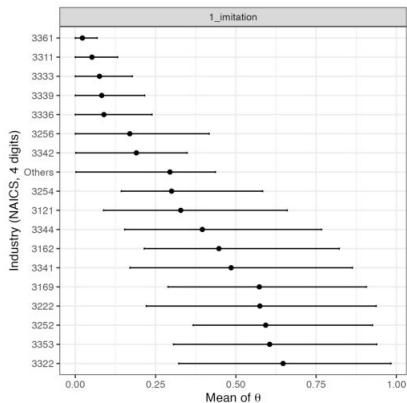
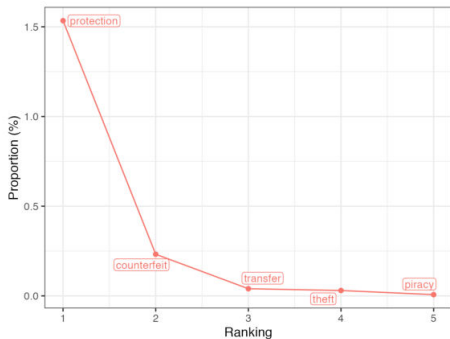


# Preventing Post Hoc Interpretation

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  - ① exporters who can be caught up by others easily
  - ② product cycles and the returns to lobbying
- Less innovative firms engage more in rent-seeking  
: when firms' political connections can hinder progress



# Thank You



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