Supplementary Material

(not for publication, to be made available on the web)

Appendices for

Offshoring and Intellectual Property Rights Reform

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APPENDICES (not for publication, to be made available on line)

Appendix A: Constructing the offshoring measures

In order to construct the offshoring measures we need to match 3 different datasets. First, we use IO tables from the BEA. From 1973 to 1999 the data is classified according to the industry codes described in Table A1. From 2000 to 2008 there was a change in industry classification (incorporates the 1999 comprehensive revision of the NIPAs) and the new IO tables contain fewer manufacturing industries (see Table A2). Finally, we use the US bilateral imports assembled by Robert Feenstra and accessible at the Center for International Data at UC Davis. Details regarding the final matching among all three datasets are given in Table A3.

For each industry (i) and year (t) we construct the following broad offshoring intensity measure to a particular country (c). Similarly, we do for the high-tech and low-tech measures:

$$O_{cit} = \sum_j a_{ijt} \cdot \frac{M_{cjt}}{C_{jt}}$$

Total imports by country and industry at each point in time (M_{cit}) comes from the bilateral imports dataset. Then, from the IO tables we obtain both the dollar value of input that industry i gets from industry j to produce one dollar worth of i product (a_{ijt}); and the total consumption by each industry (C_{it}). However, we add some structure for the IO tables from 2000 to 2006 in order to extend the smaller set of industries in this period as a consequence of the NIPA revisions undertaken by the BEA[1]. In particular, we reconstruct the consumption variable for the 2000-06 by means of the following assumptions given by this example (using the matching information provided in Table 3 Appendix 1):

$$C_1^{23\text{sec}tor} = C_1^{13\text{sec}tor} \cdot \alpha_1$$
$$C_2^{23\text{sec}tor} = C_1^{13\text{sec}tor} \cdot \alpha_2$$
$$\text{with } \alpha_1 = \frac{C_1^{23\text{sec}tor,year99}}{C_1^{23\text{sec}tor,year99} + C_2^{23\text{sec}tor,year99}} \text{ and } \alpha_2 = \frac{C_2^{23\text{sec}tor,year99}}{C_1^{23\text{sec}tor,year99} + C_2^{23\text{sec}tor,year99}}$$

where $C_1^{23\text{sec}tor}$ and $C_2^{23\text{sec}tor}$ are the constructed consumption measures for sectors 1 and 2, respectively, out of the 23 final sectors; $C_1^{23\text{sec}tor,year99}$ is the consumption in sector 1 for year 1999 obtained from the IO tables that have a perfect match with our final 23 industries. Thus, we use the consumption in year 1999 to construct a weight in order to expand the data for year 2000 and onwards. The results are very similar using years previous to 1999 as weights.

Similarly, we proceed for the construction of the coefficients a_{ijt}. Nonetheless, the weighting is more complex for such measures. For instance, from the original IO tables 2000-

[1] As bilateral import data set ends in 2006, our final dataset will also stop this year.

06 we are able to obtain for each year the following coefficient: $a_{1,3}^{13sector}$. And this coefficient needs to be disaggregated in 4 IO coefficients for the final 23 sector dataset. That is, from $a_{1,3}^{13sector}$, we need to construct the final $a_{1,4}^{23sector}, a_{1,12}^{23sector}, a_{2,4}^{23sector}, a_{2,12}^{23sector}$ such that:

$$a_{1,4}^{23sector} = a_{1,3}^{13sector} \cdot \beta_{1,4}$$

$$where\ \beta_{1,4} = \frac{a_{1,4}^{23sector,year99}}{a_{1,4}^{23sector,year99} + a_{2,4}^{23sector,year99} + a_{1,12}^{23sector,year99} + a_{2,12}^{23sector,year99}}$$

The 3 other IO coefficients are constructed in an analogous way.

Table A1

Input Output Tables 1973 - 1999

1 Livestock and livestock products	26 Paints and allied products	51 Electronic components and accessories
2 Other agricultural products	27 Petroleum refining and related products	52 Miscellaneous electrical machinery and supplies
3 Forestry and fishery products	28 Rubber and miscellaneous plastics products	53 Motor vehicles (passenger cars and trucks), Truck and bus bodies, trailers, and motor vehicles parts
4 Agricultural, forestry, and fishery services	29 Footwear, leather, and leather products	54 Aircraft and parts
5 Metallic ores mining	30 Glass and glass products	55 Other transportation equipment
6 Coal mining	31 Stone and clay products	56 Scientific and controlling instruments
7 Crude petroleum and natural gas	32 Primary iron and steel manufacturing	57 Ophthalmic and photographic equipment
8 Nonmetallic minerals mining	33 Primary nonferrous metals manufacturing	58 Miscellaneous manufacturing
9 New construction	34 Metal containers	59 Railroads and related services, Motor freight transportation and warehousing, ...
10 Maintenance and repair construction	35 Heating, plumbing, and fabricated structural metal products	60 Communications, except radio and TV
11 Ordnance and accessories	36 Screw machine products and stampings	61 Radio and TV broadcasting
12 Food and kindred products	37 Other fabricated metal products	62 Electric services (utilities), Gas production and distribution (utilities),Water and sanitary services
13 Tobacco products	38 Engines and turbines	63 Wholesale trade, Retail trade
14 Broad and narrow fabrics, yarn and thread mills	39 Farm, construction, and mining machinery	64 Finance, Insurance
15 Miscellaneous textile goods and floor coverings	40 Materials handling machinery and equipment	65 Owner-occupied dwellings, Real estate and royalties
16 Apparel	41 Metalworking machinery and equipment	66 Hotels and lodging places, Personal and repair services (except auto)
17 Miscellaneous fabricated textile products	42 Special industry machinery and equipment	67 Computer and data processing services, including own-account software, Legal, engineering, accounting, and related services, Other business and professional services, except medical, Advertising
18 Lumber and wood products	43 General industrial machinery and equipment	68 Eating and drinking places
19 Furniture and fixtures	44 Miscellaneous machinery, except electrical	69 Automotive repair and services
20 Paper and allied products, except containers	45 Computer and office equipment	70 Amusements
21 Paperboard containers and boxes	46 Service industry machinery	71 Health services, Educational and social services, and membership organizations
22 Newspapers and periodicals, Other printing and publishing	47 Electrical industrial equipment and apparatus	72 Federal Government enterprises
23 Industrial and other chemicals, Agricultural fertilizers and chemicals	48 Household appliances	73 State and local government enterprises
24 Plastics and synthetic materials	49 Electric lighting and wiring equipment	74 General government industry
25 Drugs, Cleaning and toilet preparations	50 Audio, video, and communication equipment	75 Household industry

Source: BEA

Table A2

Input Output Tables 2000-2008

1	Farms
2	Forestry, fishing, and related activities
3	Oil and gas extraction
4	Mining, except oil and gas
5	Support activities for mining
6	Utilities
7	Construction
8	Wood products
9	Nonmetallic mineral products
10	Primary metals
11	Fabricated metal products
12	Machinery
13	Computer and electronic products
14	Electrical equipment, appliances, and components
15	Motor vehicles, bodies and trailers, and parts
16	Other transportation equipment
17	Furniture and related products
18	Miscellaneous manufacturing
19	Food and beverage and tobacco products
20	Textile mills and textile product mills
21	Apparel and leather and allied products
22	Paper products
23	Printing and related support activities
24	Petroleum and coal products
25	Chemical products
26	Plastics and rubber products
27	Wholesale trade
28	Retail trade
29	Air transportation
30	Rail transportation
31	Water transportation
32	Truck transportation
33	Transit and ground passenger transportation
34	Pipeline transportation
35	Other transportation and support activities
36	Warehousing and storage
37	Publishing industries (includes software) and internet broadcasting
38	Motion picture and sound recording industries
39	Broadcasting (except internet) and telecommunications
40	Other information services
41	Federal Reserve banks, credit intermediation, and related activities
42	Securities, commodity contracts, and investments
43	Insurance carriers and related activities
44	Funds, trusts, and other financial vehicles
45	Real estate
46	Rental and leasing services and lessors of intangible assets
47	Legal services
48	Computer systems design and related services
49	Miscellaneous professional, scientific, and technical services
50	Management of companies and enterprises
51	Administrative and support services
52	Waste management and remediation services
53	Educational services
54	Ambulatory health care services
55	Hospitals and nursing and residential care facilities
56	Social assistance
57	Performing arts, spectator sports, museums, and related activities
58	Amusements, gambling, and recreation industries
59	Accommodation
60	Food services and drinking places
61	Other services, except government
62	Federal general government
63	Federal government enterprises
64	State and local general government
65	State and local government enterprises
66	Scrap, used and secondhand goods
67	Noncomparable imports and rest-of-the-world adjustment

Source: BEA

New code	Matching from IO tables codes to 13 industries	IO codes 00-08
1	Food and Tobacco	19
2	Textile	20
3	Apparel, footwear and leather	21
4	Lumber and wood products	8
5	Furniture and fixtures	17
6	Paper and similar	22,23
7	Industrial and other chemical, drugs and cleaning prep	25
8	Plastic and rubber products	26
9	Non met mineral machinery	9
10	Iron, steel, non ferrous, metal manuf	11
11	machinery except electrical, office, computer, electrical machinery	12,13,14
12	Motor vehicles and related	15,16
13	Scientiphic, photographic, opthalomlogic instruments and miscel. Manufacturing	18

Table A3

Matching codes to final 23 industries

	Final industries	IO codes 73-99 Table 1 Appendix	New IO codes 00-08 (13 industries) Table 2 Appendix	Bilateral Imports - Feenstra dataset - SITC 2 code Data up to 2006
1	Food and kindred products	12	part 1	4-9,11
2	Tobacco products	13	part 1	12
3	Textile products	14,15,17	2	65
4	Apparel	16	part 3	83,84
5	Lumber and wood products	18	4	63
6	Furniture and fixtures	19	5	81,82
7	Paper and similar products	20,21,22	6	64
8	Industrial and other chemicals	23,26	part 7	51,52,53,56,59
9	Plastic and synthetic materials	24	part 8	57,58
10	Drugs, cleaning and toilete preparations	25	part 7	54,55
11	Rubber and miscellaneous plastics	28	part 8	62
12	Footwear, leather, and leather products	29	part 3	61,85
13	Non-metallic mineral manufacturing	30,31	9	66
14	Iron and steel manufacturing	32	part 10	67
15	Non-ferrous metals manufacturing	33	part 10	68
16	Metal containers	34	part 10	69
17	Machinery except electrical	35-44,46	part 11	71-74
18	Office machines and automatic data processing machines	45	part 11	75
19	Electric machinery, equipment and supplies	47-52	part 11	76,77
20	Motor vehicles and related	53,54,55	12	78,79
21	Scientific and controlling instruments	56	part 13	87
22	Ophtalmologic and photographic instruments	57	part 13	88
23	Miscellaneous manufacuring	58,11	part 13	89,93,95-99

Appendix B: Robustness Checks

We now run some robustness checks on the main results reported in Tables 4 and 5. We consider the baseline specifications (Columns (3) and (4) of Tables 4 and 5) and perform the following regressions one at a time. The results are reported in Tables B1 and B2, for broad offshoring intensity and intra-industry offshoring intensity, respectively. In Columns (1) and (2), we exclude from the data set China and Argentina, two countries for which some concerns have been raised regarding the enforcement of new patent laws. In Columns (3) and (4), we exclude trade openness as a covariate as it may respond to IPR reform and distort the interpretation of the IPR dummy. In Columns (5) and (6), we exclude GDP as a covariate following the specification of Branstetter et al. (2011, p 34). Comparing the findings in Tables B1 and B2 to the baseline specifications in Columns (3) and (4) of Tables 4 and 5 shows that the coefficient estimates and the standard errors are indeed very close.

Table B1: Robustness Checks on IPR reforms and Broad Offshoring

Dependent Variable	Log US Broad Offshoring Intensity from industry *i* to country *c* at time *t*.					
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	Drop CHN and ARG	Drop CHN and ARG	DROP Trade	DROP Trade	Drop GDP	Drop GDP
Reform Dummy (R)	0.0237	-0.0417	0.0997	0.0284	0.0574	-0.0139
	(0.0910)	(0.0901)	(0.131)	(0.134)	(0.115)	(0.113)
Reform * High-Tech (R·Tech)		0.251		0.273*		0.273*
		(0.157)		(0.152)		(0.152)
log GDP per capita	-0.209	-0.209	-0.636	-0.636	0.399*	0.399*
	(2.302)	(2.302)	(2.249)	(2.250)	(0.202)	(0.202)
log GDP	0.849	0.849	0.865	0.865		
	(2.238)	(2.238)	(2.208)	(2.208)		
log Real Exchange Rate	0.127	0.127	0.230	0.230	0.0584	0.0584
	(0.269)	(0.269)	(0.175)	(0.175)	(0.149)	(0.149)
log Trade Openness	0.784***	0.784***			0.588**	0.588**
	(0.203)	(0.203)			(0.211)	(0.211)
p-values for H_0: R+R·Tech=0		0.226		0.113		0.164
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y
Industry-Specific Time Trends	N	N	N	N	N	N
Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	7406	7406	8464	8464	8464	8464
R-squared	0.602	0.606	0.673	0.676	0.676	0.679

Note: We define broad offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports from *all* industries of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude China and Argentina from the sample. In Columns (3) and (4), we drop log Trade Openness. In Columns (5) and (6), we drop GDP as one of the covariates. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Table B2: Robustness Checks on IPR Reforms and Intra-Industry Offshoring

Dependent Variable	Log US Intra Offshoring Intensity from industry *i* to country *c* at time *t*.					
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	Drop CHN and ARG	Drop CHN and ARG	DROP Trade	DROP Trade	Drop GDP	Drop GDP
Reform Dummy (R)	-0.0538	-0.260	0.00175	-0.214	-0.0246	-0.240
	(0.146)	(0.150)	(0.165)	(0.173)	(0.160)	(0.162)
Reform * High-Tech (R·Tech)		0.789***		0.824**		0.825**
		(0.237)		(0.281)		(0.281)
log GDP per capita	-1.918	-1.878	-1.972	-1.943	0.0768	0.0794
	(2.883)	(2.885)	(2.446)	(2.451)	(0.257)	(0.258)
log GDP	2.254	2.215	1.948	1.921		
	(2.892)	(2.895)	(2.422)	(2.427)		
log Real Exchange Rate	0.266	0.268	0.0996	0.102	-0.00707	-0.00537
	(0.473)	(0.476)	(0.257)	(0.259)	(0.256)	(0.257)
log Trade Openness	0.300	0.302			0.338	0.340
	(0.280)	(0.279)			(0.195)	(0.196)
p-values for H_0: R+R·Tech=0		0.049		0.046		0.058
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y
Industry-Specific Time Trends	N	N	N	N	N	N
Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	7292	7292	8346	8346	8346	8346
R-squared	0.440	0.451	0.494	0.504	0.494	0.505

Note: We define intra-industry offshoring intensity (also known as narrow offshoring) for an industry-country pair as the value of intermediate goods that a US industry imports from the *same exact* industry of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude China and Argentina from the sample. In Columns (3) and (4), we drop log Trade Openness. In Columns (5) and (6), we drop GDP as one of the covariates. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix C: Lagged Effects of IPR Reform

IPR reforms require major changes in the institutional and legal framework; thus, it is reasonable to expect that its effects be observed with some lag. To investigate this, we lagged our IPR-Reform dummy by one year, two years and so on, and we interacted these Reform dummies with the Tech dummy. We then added the resulting dummy variables to our baseline difference-in-difference specifications, that is, equations (3) and (4). To run the regressions, and as in case of the event study exercise in the main text (see Section 5), we need to have complete data for the entire 1973-2006 period. Thus we had to make certain assumptions about the input-output (IO) coefficients for the missing years (see footnote 33 of the main text for details).

We first consider broad offshoring intensity as the dependent variable and report the regression results in Table C1. In Columns (1) and (2), we use the baseline specification without lags. In Column (1), the coefficient estimate for R is 0.0678 but insignificant. In Column (2), the coefficient estimate for R is 0.0745 but again insignificant. The coefficient estimates for the interaction term R*Tech is 0.231 and significant at 10% level. These results are in line with the original baseline results reported in Table 4, Columns (3) and (4). Thus, the baseline broad offshoring intensity results are robust to considering the complete data set that covers the entire 1973-2006 period.

We define LagR as a dummy variable that takes the value of 1, one year after reform and thereafter. We define Lag2R as a dummy variable that takes the value of 1, two years after reform and thereafter. The rest of the lagged reform dummies are defined analogously." Beginning with Column (3) of Table C1, we add lagged Reform dummies and their interaction terms. More specifically, in Column (3), we add the one-year lagged Reform dummy LagR to our baseline specification. In Column (4), we add the interaction term LagR*Tech. In Column (5) and forward, we keep adding further lagged Reform dummies and their interaction terms. Our interpretation of the lagged R terms are as follow. LagR captures the *persistent* effects of IPR reform one-year after reform and thereafter. Lag2R captures the *persistent* effects of IPR reform one-year after reform and thereafter. Similar interpretations apply for further lagged variables.

The estimates for Reform and Lagged Reform dummies in Columns (3), (5), (7), and (9) are positive but insignificant. Hence the results suggest that in a typical industry broad offshoring intensity does not respond to Reform dummy and lagged Reform dummies in a statistically significant way. In Columns (4),(6),(8) and (10), where the high-tech interaction term is included, we observe statistically significant terms. In Column (4), LagR is 0.0318 but insignificant and Lag2R*Tech is 0.232 and significant at 1% level. This suggests that one-year after reform and thereafter high-tech industries increase their broad offshoring by 26.1% ($e^{0.232}$ – 1) relative to the insignificant increase in low-tech industries by 0.031 ($e^{0.031}$ - 1). As we add more lagged reform dummies, the impact on high-tech industries captured by 4the longest lag

of the previous regression appears to get distributed over the earlier lagged effects in the next regression.[2] Also, note that as more lags are added, the coefficients for the shorter lags attain stable levels. For example in Columns (6), (8) and (10), LagR*Tech becomes stabilized around 0.0584 and is significant at 10% level. Similarly, in Columns (8) and (10), Lag2R*Tech becomes stabilized around 0.0552 and is significant at 5%. Hence, we focus on the results in Column (10), where we have the longest lagged reform terms with 4 years. The results in Column (10) suggest that IPR Reform has a *persistent* and statistically significant effect on broad offshoring 2 years after reform. In particular, high-tech industries increase their broad offshoring intensity by around 5.67% ($e^{0.055} - 1$) two years after reform and thereafter relative to the insignificant increase in low-tech industries by 0.7% ($e^{0.007} - 1$). The other lagged effects for high-tech industries are positive but not significant at conventional levels of significance.

We now consider intra-industry offshoring intensity as the dependent variable and report the regression results in Table C2. In Columns (1) and (2), we essentially use the baseline specification without lags. In Column (1), the coefficient estimate for R is -0.0127 but insignificant. In Column (2), the coefficient estimate for R is -0.194 and significant only at 10% level. The coefficient estimate for the interaction term R*Tech is 0.694 and significant at 1% level. These results are quite close to the baseline results reported in Columns (3) and (4) of Table 5. Thus, the baseline intra-industry offshoring results are robust to considering the full set of years.

Beginning with Column (3) of Table C2, we add the lagged IPR Reform effects and their interaction terms as we do above. The estimates for R and LagR in Columns (3), (5), (7), and (9) are positive or negative but insignificant in all cases. Hence the results suggest that in a typical industry, broad offshoring intensity does not respond to Reform or lagged Reform in a statistically significant way. In Columns (4), (6), (8) and (10), where the high-tech interaction term is included, we observe again statistically significant terms.

In Column (4), Lag R is -0.176 and LagR*Tech is 0.608, both significant. This suggests that one-year after reform and thereafter high-tech industries increase their intra offshoring intensity by 83.6% ($e^{0.608} - 1$) relative to the decrease in low-tech industries by 16.1% ($e^{-0.176} - 1$). Again, as we add more lagged effects, the impact on high-tech industries captured by the longest lag of the previous regression appears to get distributed over shorter lagged effects in the next regression. [3] Also, note that as more lags are added, the coefficients for the shorter lags attain stable levels. For example in Columns (6), (8) and (10), LagR*Tech becomes stabilized at 0.135 and is significant at 10% level. Similarly, in Columns (8) and (10), Lag2R*Tech becomes stabilized around 0.0103 but is insignificant. Hence, as in the case of

[2] To see this, note that in Column (4), lagR*Tech = 0.232. Then in Column (6), LagR*Tech = 0.058 and Lag2R*Tech = 0.188. Their summation is 0.2464 which is close to 0.232. In Column (8), lagR*Tech = 0.0584, Lag2R*Tech = 0.0552, Lag3R*Tech = 0.144. Their summation is 0.2576, which is again close to 0.232. A similar outcome is obtained for Column (10).

[3] To see this, note that in Column (4), lagR*Tech = 0.608. Then in Column (6), LagR*Tech = 0.135 and Lag2R*Tech = 0.509. Their summation is 0.644 which is close to 0.694. In Column (8), lagR*Tech = 0.135, Lag2R*Tech = 0.0103, Lag3R*Tech = 0.541. Their summation is 0.6863, which is again close to 0.694. A similar outcome is obtained for Column (10).

broad offshoring, we focus on the results in Column (10), where we have the longest lagged reform terms up to 4 years. The regressions suggest that IPR Reform has a *persistent* and statistically significant effect on intra-industry offshoring 3 years and 4 years after reform. More specifically, 3 years after reform and thereafter, high-tech industries increase their intra-industry offshoring intensity by around 19.0% ($e^{0.174} - 1$) relative to the insignificant decrease in low-tech industries by 1.4% ($e^{-0.0143} - 1$). In addition, 4 years after reform and thereafter, high-tech industries increase their intra-industry offshoring intensity by around 49.3% ($e^{0.401} - 1$) relative to the marginally significant decrease in low-tech industries by 12.3% ($e^{-0.132} - 1$).

Table C1: Lagged Effects of IPR Reforms on Broad Offshoring

Dependent Var.	Log US Broad Offshoring Intensity from industry *i* to country *c* at time *t*.									
Sample Coverage	1973-2006 (complete), 16 countries, 23 industries									
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
	No Lag	No Lag	1yr lag	1 yr	1, 2 yrs	1,2 yrs	1,2,3 yrs	1,2,3 yrs	1,2,3,4 yrs	1,2,3,4 yrs
Reform Dummy (R)	0.0678	0.00745	0.0226	0.0187	0.0263	0.0223	0.0311	0.0270	0.0348	0.0307
	(0.0749)	(0.0744)	(0.0584)	(0.0611)	(0.0573)	(0.0611)	(0.0566)	(0.0613)	(0.0562)	(0.0614)
R·Tech		0.231*		0.0150		0.0153		0.0155		0.0158
		(0.129)		(0.148)		(0.148)		(0.148)		(0.148)
LagR			0.0638	0.00318	0.0110	-0.00424	0.0111	-0.00408	0.0126	-0.00259
			(0.0620)	(0.0495)	(0.0334)	(0.0316)	(0.0334)	(0.0315)	(0.0340)	(0.0322)
LagR·Tech				0.232***		0.0584*		0.0584*		0.0584*
				(0.0751)		(0.0309)		(0.0309)		(0.0309)
Lag2R					0.0708	0.0218	0.0222	0.00784	0.0221	0.00767
					(0.0598)	(0.0505)	(0.0287)	(0.0262)	(0.0290)	(0.0266)
Lag2R·Tech						0.188**		0.0552**		0.0552**
						(0.0647)		(0.0191)		(0.0191)
Lag3R							0.0657	0.0283	0.0251	0.0164
							(0.0537)	(0.0445)	(0.0186)	(0.0162)
Lag3R·Tech								0.144**		0.0332
								(0.0652)		(0.0312)
Lag4R									0.0556	0.0242
									(0.0578)	(0.0547)
Lag4R·Tech										0.121*
										(0.0593)
Observations	12512	12512	12512	12512	12512	12512	12512	12512	12512	12512
R-squared	0.637	0.640	0.637	0.640	0.637	0.641	0.637	0.641	0.638	0.641

Note: We define broad offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports from *all* industries of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). LagR is obtained by lagging the IPR reform dummy by one year, Lag2R is obtained by lagging the IPR reform dummy by 2 years and so on. Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. All regressions include country-industry pair fixed effects, year fixed effects and country-specific time trends. Robust standard errors clustered on country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Table C2: Lagged Effects of IPR Reforms on Intra Offshoring

Dependent Var.	Log US Intra Offshoring Intensity from industry *i* to country *c* at time *t*.									
Sample Coverage	1973-2006 (complete), 16 countries, 23 industries									
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
	No Lag	No Lag	1yr lag	1 yr	1, 2 yrs	1,2 yrs	1,2,3 yrs	1,2,3 yrs	1,2,3,4 yrs	1,2,3,4 yrs
Reform Dummy (R)	-0.0127	-0.194*	-0.000149	-0.0340	-0.00147	-0.0355	-0.000641	-0.0349	-0.00245	-0.0369
	(0.103)	(0.110)	(0.0665)	(0.0776)	(0.0676)	(0.0792)	(0.0689)	(0.0812)	(0.0695)	(0.0822)
R·Tech		0.694***		0.128		0.129		0.130		0.131
		(0.225)		(0.218)		(0.218)		(0.218)		(0.218)
LagR			-0.0178	-0.176**	0.00138	-0.0340	0.00141	-0.0340	0.000689	-0.0347
			(0.0730)	(0.0656)	(0.0418)	(0.0398)	(0.0419)	(0.0398)	(0.0414)	(0.0394)
LagR·Tech				0.608***		0.135*		0.135*		0.135*
				(0.0950)		(0.0689)		(0.0689)		(0.0689)
Lag2R					-0.0257	-0.159**	-0.0342	-0.0368	-0.0341	-0.0367
					(0.0690)	(0.0684)	(0.0340)	(0.0398)	(0.0338)	(0.0396)
Lag2R·Tech						0.509***		0.0103		0.0103
						(0.0542)		(0.0460)		(0.0460)
Lag3R							0.0115	-0.130**	0.0311	-0.0143
							(0.0574)	(0.0574)	(0.0344)	(0.0345)
Lag3R·Tech								0.541***		0.174***
								(0.0752)		(0.0488)
Lag4R									-0.0269	-0.132*
									(0.0609)	(0.0744)
Lag4R·Tech										0.401***
										(0.105)
Observations	12360	12360	12360	12360	12360	12360	12360	12360	12360	12360
R-squared	0.456	0.464	0.456	0.465	0.456	0.466	0.456	0.466	0.456	0.466

Note: We define intra-industry offshoring intensity (also known as narrow offshoring) for an industry-country pair as the value of intermediate goods that a US industry imports from the *same exact* industry of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). LagR is obtained by lagging the IPR reform dummy by one year, Lag2R is obtained by lagging the IPR reform dummy by 2 years and so on. Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. All regressions include country-industry pair fixed effects, year fixed effects and country-specific time trends. Robust standard errors clustered on country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix D: Regressions with Unlogged Offshoring Intensities

We now rerun the regressions in Table 4 and 5 of the main text by using unlogged offshoring intensities as dependent variables. We first focus on the results with broad offshoring intensity as reported in Table D1. In all regressions, the Reform dummy is positive but insignificant. In Columns (2) and (4), the coefficient for interaction term R*Tech equals 0.00126 and significant at 1% level. The magnitude of the estimated coefficient drops down to 0.000951 in Column (5) but remains significant when we consider industry 10 as part of the High-Tech group. The coefficient estimate becomes insignificant in Column (7) when industry-specific trends are included. To compare the estimates with those in Table 4, we need to calculate the reform elasticity of offshoring, which we define as $\eta \equiv$ d(Offshoring)/d (Reform)* (Reform/Offshoring). For illustrative purposes we focus on the baseline specification of Column (4) and the differential effect in high-tech industries. In this case, d(Offshoring)/d(Reform)= 0.0126. To approximate a point elasticity, we need to use averages for Reform and Offshoring. Reform is a discrete variable between one and zero, thus we take R= 0.5 as the average. From our data, we calculate the average offshoring intensity in high-tech industries as Offshoring = 0.001995. Substituting these values into the η expression above gives η = 0.315, which is very close to the 0.313, the value implied by the point estimate 0.2732 in the baseline specification for logged broad offshoring ($e^{0.273} - 1 = 0.313$). Doing the analogous calculations for other coefficients of interest, one can conclude that the regressions results with unlogged and logged offshoring are more or less the same in terms of statistical significance and quantitative magnitudes. The only point to note is that with unlogged offshoring, the statistical significance of the interaction coefficients increases to 5% level in Columns (2), (4), and (5).

We now focus on the results with unlogged intra-industry offshoring intensity as reported in Table D2. In all regressions, the Reform dummy is positive but insignificant. In Columns (2) and (4), the coefficient for interaction term R*Tech equals 0.000614 and significant at 5% level. The magnitude of the estimated coefficient drops down to 0.00045 but remains significant in Column (5) when we consider industry 10 as part of the High-Tech group. The coefficient estimate becomes insignificant in Column (7) when industry-specific trends are included.

To compare the estimates with those in Table 4, we again use $\eta \equiv$ d(Offshoring)/d (Reform)* (Reform/Offshoring). For illustrative purposes we focus on the baseline specification of Column (4) and the differential effect in high-tech industries. In this case, d(Offshoring)/d(Reform)= 0.000614. To approximate point elasticity, we need to use averages for Reform and Offshoring. As above, we take R=0.5 as the average. From our data, we calculate the average intra-industry offshoring intensity in high-tech industries as Offshoring = 0.0009676. Substituting these values in the elasticity expression above gives η = 0.317 , which is quite lower than 128%, the value implied by the point estimate 0.824 in the baseline specification for logged broad offshoring ($e^{0.824} - 1 = 1.23$). However, the value for R+R*Tech = 0.00614 + 0.0000822 implies an elasticity of 0.359, which is closer to the regression result with

logged offshoring, which was 79.6%. We thus conclude that the regression results with unlogged offshoring are comparable to those with logged offshoring. The only point to note is that with unlogged intra-industry offshoring, the magnitudes of the coefficients are somewhat lower. As a final note, in the unlogged regressions of Tables D1 and D2, the R-squared values are much lower than the ones shown in Tables 4 and 5 of the main text.

Table D1: Effects of IPR Reforms on Unlogged Broad Offshoring

Dependent Variable	Unlogged US Broad Offshoring Intensity from industry *i* to country *c* at time *t*.						
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	Industry 10 as High-Tech	Industry-Specific Time Trends	Industry-Specific Time Trends
Reform Dummy (R)	0.000378	0.0000501	0.000318	-0.0000100	0.0000281	0.000318	0.000188
	(0.000309)	(0.000294)	(0.000222)	(0.000218)	(0.000216)	(0.000222)	(0.000230)
R·Tech		0.00126**		0.00126**	0.000951**		0.000499
		(0.000482)		(0.000483)	(0.000384)		(0.000415)
log GDP per capita			-0.00150	-0.00150	-0.00150	-0.00150	-0.00150
			(0.00303)	(0.00303)	(0.00303)	(0.00303)	(0.00303)
log GDP			0.00269	0.00269	0.00269	0.00269	0.00269
			(0.00332)	(0.00332)	(0.00332)	(0.00333)	(0.00333)
log Real Exchange Rate			0.000180	0.000180	0.000180	0.000180	0.000180
			(0.000384)	(0.000384)	(0.000384)	(0.000384)	(0.000384)
log Trade Openness			0.000558	0.000558	0.000558	0.000558	0.000558
			(0.000326)	(0.000326)	(0.000326)	(0.000326)	(0.000326)
p-values for H_0: R+R·Tech=0		0.028		0.019	0.026		0.1127
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y	Y
Country Specific Time Trends	Y	Y	Y	Y	Y	Y	Y
Industry Specific Time Trends	N	N	N	N	N	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Observations	8464	8464	8464	8464	8464	8464	8464
R-squared	0.324	0.339	0.329	0.344	0.338	0.401	0.401

Note: We define broad offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports from *all* industries of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Column (5) High-tech dummy set is constructed by including industry 10, "Drugs, Cleaning and Toilette Preparations" in the high-tech group. In Columns (6) and (7), we include industry-specific time trends. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Table D2: Effects of IPR Reforms on Unlogged Intra Offshoring

Dependent Variable	Unlogged US Intra Offshoring Intensity from industry *i* to country *c* at time *t*.						
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	Industry 10 as High-Tech	Industry-Specific Time Trends	Industry-Specific Time Trends
Reform Dummy (R)	0.000263	0.000103	0.000242	0.0000822	0.000105	0.000242	0.000259
	(0.000216)	(0.000209)	(0.000169)	(0.000168)	(0.000176)	(0.000169)	(0.000199)
R·Tech		0.000614**		0.000614**	0.000450*		-0.0000623
		(0.000237)		(0.000237)	(0.000212)		(0.000344)
log GDP per capita			-0.00242	-0.00242	-0.00242	-0.00242	-0.00242
			(0.00230)	(0.00230)	(0.00230)	(0.00230)	(0.00230)
log GDP			0.00302	0.00302	0.00302	0.00302	0.00302
			(0.00246)	(0.00246)	(0.00246)	(0.00246)	(0.00246)
log Real Exchange Rate			0.000163	0.000163	0.000163	0.000163	0.000163
			(0.000244)	(0.000244)	(0.000244)	(0.000245)	(0.000245)
log Trade Openness			0.000146	0.000146	0.000146	0.000146	0.000146
			(0.000235)	(0.000235)	(0.000235)	(0.000236)	(0.000236)
p-values for H_0: R+R·Tech=0		0.0357		0.0195	0.031		0.511
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y	Y
Country Specific Time Trends	Y	Y	Y	Y	Y	Y	Y
Industry Specific Time Trends	N	N	N	N	N	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Observations	8464	8464	8464	8464	8464	8464	8464
R-squared	0.186	0.193	0.189	0.196	0.193	0.241	0.241

Note: We define intra-industry offshoring intensity (also known as narrow offshoring) for an industry-country pair as the value of intermediate goods that a US industry imports from the *same exact* industry of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Column (5), High-tech dummy set is constructed by including industry 10, "Drugs, Cleaning and Toilette Preparations" in the high-tech group. In Columns (6) and (7), we include industry-specific time trends. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix E: Robustness Checks with a Tighter Time Period (1982-2002)

We now run some robustness checks tightening the data coverage to 1982-2002. The median year of reform in our data is 1992 and the average year is 1991. Thus, by focusing on (1982-2002) period, we consider 10 years before and after the median year. To run the regressions, we had to make certain assumptions about the input-output (IO) coefficients for the missing years to complete the data for the entire 1973-2006 period (See footnote 33 in the main text for details). The regressions results are reported in Table E. A quick glance at this table suggests that the findings regarding the coefficient of interest are in line with those from the baseline specifications of Columns (3) and (4) of Tables 4 and 5. In Columns (1) and (2) of Table E, where the dependent variable is broad offshoring intensity, the coefficient for R and R*Tech are not significant at conventional levels of significance. When we look at Columns (3) and (4), where the dependent variable is intra-industry offshoring, we observe significant estimates only when the R*Tech interaction term is included. The coefficient estimates for R and R*Tech are -0.207 and 0.656, respectively, with both estimates being significant at 1% level. Recall that these were -0.238 and 0.824 in the baseline specification with only the latter being significant. Thus, with the tighter time period, the coefficient on R*Tech declines, but the coefficients are now estimated with more precision.

TableE1: Effects of IPR Reforms within a tighter window (1982-2002)

Dependent Variable	Log US Broad Offshoring Intensity		Log US Intra Offshoring Intensity	
Sample Coverage	1982-2002 (complete), 16 countries, 23 industries		1982-2002 (complete), 16 countries, 23 industries	
	(1)	**(2)**	**(3)**	**(4)**
	Broad	Broad	Intra	Intra
Reform Dummy (R)	0.0723	0.0133	-0.0355	-0.207***
	(0.0577)	(0.0569)	(0.0710)	(0.0634)
R·Tech		0.226*		0.656***
		(0.116)		(0.174)
log GDP per capita	-4.574*	-4.574*	-9.314***	-9.320***
	(2.288)	(2.288)	(2.711)	(2.710)
log GDP	4.860**	4.860**	9.695***	9.702***
	(2.116)	(2.116)	(2.548)	(2.547)
log Real Exchange Rate	0.196	0.196	0.404	0.405
	(0.277)	(0.277)	(0.276)	(0.276)
log Trade Openness	0.400	0.400	0.554**	0.554**
	(0.239)	(0.239)	(0.196)	(0.196)
p-values for H_0: R+R·Tech=0		0.056		0.021
Country-Industry Pair Effects	Y	Y	Y	Y
Country Specific Time Trends	Y	Y	Y	Y
Industry Specific Time Trends	N	N	N	N
Year Fixed Effects	Y	Y	Y	Y
Observations	7728	7728	7709	7709
R-squared	0.529	0.534	0.359	0.374

Note: Broad offshoring intensity for an industry-country pair is defined as the value of intermediate goods that a US industry imports from all industries of a given country to produce one dollar worth of output. Similarly, intra-industry offshoring intensity measures offshoring (again understood as imported intermediate inputs) that takes place within the same industry. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix F: Regressions with Separate Fixed Effects for Countries and Industries.

In this section, we replicate the regressions in Tables 4 and 5, but this time using *separate* fixed effects for countries and industries. Recall that in the specifications used in Tables 4 and 5 of the main text, we used country-industry pair fixed effects. The new results for broad offshoring intensity and intra-offshoring intensity are reported in Tables F1 and F2. A quick glance at these tables show that the estimated coefficients and their standard errors are very to the ones reported in Tables 4 and 5.

TableF1: Separate Country and Industry Fixed Effects (Broad Offshoring)

Dependent Variable	Log US Broad Offshoring Intensity from industry *i* to country *c* at time *t*.						
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	Industry 10 as High-Tech	Industry-Specific Time Trends	Industry-Specific Time Trends
Reform Dummy (R)	0.112	0.0414	0.0583	-0.0125	0.0126	0.0583	0.0197
	(0.138)	(0.138)	(0.112)	(0.107)	(0.106)	(0.112)	(0.0902)
R·Tech		0.271*		0.271*	0.150		0.148
		(0.149)		(0.149)	(0.135)		(0.242)
log GDP per capita			-0.624	-0.624	-0.624	-0.624	-0.624
			(2.319)	(2.319)	(2.319)	(2.322)	(2.322)
log GDP			1.023	1.023	1.023	1.023	1.023
			(2.269)	(2.269)	(2.269)	(2.272)	(2.272)
log Real Exchange Rate			0.0653	0.0653	0.0653	0.0653	0.0653
			(0.152)	(0.152)	(0.152)	(0.152)	(0.152)
log Trade Openness			0.590**	0.590**	0.590**	0.590**	0.590**
			(0.203)	(0.203)	(0.203)	(0.204)	(0.204)
p-values for H_0: R+R·Tech=0		0.121		0.1665	0.348		0.53
Country Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y	Y
Industry-Specific Time Trends	N	N	N	N	N	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Observations	8464	8464	8464	8464	8464	8464	8464
R-squared	0.771	0.772	0.773	0.774	0.773	0.785	0.785

Note: We define broad offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports from *all* industries of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Column (5), High-tech dummy set is constructed by including industry 10, "Drugs, Cleaning and Toilette Preparations" in the high-tech group. In Columns (6) and (7), we include industry-specific time trends. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

TableF2: Separate Country and Industry Fixed Effects (Intra Offshoring)

Dependent Variable	Log US Intra Offshoring Intensity from industry *i* to country *c* at time *t*.						
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	Industry 10 as High-Tech	Industry-Specific Time Trends	Industry-Specific Time Trends
Reform Dummy (R)	0.00880	-0.194	-0.0135	-0.217	-0.198	-0.0126	-0.163
	(0.173)	(0.175)	(0.145)	(0.146)	(0.156)	(0.145)	(0.108)
R·Tech		0.778**		0.778**	0.607**		0.578*
		(0.280)		(0.281)	(0.253)		(0.289)
log GDP per capita			-2.589	-2.566	-2.578	-2.540	-2.548
			(2.333)	(2.335)	(2.330)	(2.393)	(2.392)
log GDP			2.642	2.622	2.633	2.585	2.593
			(2.302)	(2.305)	(2.300)	(2.365)	(2.364)
log Real Exchange Rate			-0.0310	-0.0298	-0.0308	-0.0345	-0.0343
			(0.231)	(0.232)	(0.231)	(0.242)	(0.242)
log Trade Openness			0.333*	0.335*	0.334*	0.342*	0.342*
			(0.174)	(0.175)	(0.174)	(0.181)	(0.181)
p-values for H_0: R+R·Tech=0		0.064		0.063	0.110		0.230
Country Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Country Specific Time Trends	Y	Y	Y	Y	Y	Y	Y
Industry Specific Time Trends	N	N	N	N	N	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y
Observations	8346	8346	8346	8346	8346	8346	8346
R-squared	0.623	0.626	0.623	0.626	0.625	0.660	0.661

Note: We define intra-industry offshoring intensity (also known as narrow offshoring) for an industry-country pair as the value of intermediate goods that a US industry imports from the *same exact* industry of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Column (5), High-tech dummy set is constructed by including industry 10, "Drugs, Cleaning and Toilette Preparations" in the high-tech group. In Columns (6) and (7), we include industry-specific time trends. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix G: Regressions using the Ginarte and Park Index

The Ginarte and Park (GP) index is a widely used cross-country index of IPR protection. It has five main components and is compiled every five years for a total of 122 countries covering the period 1960-2005.[4] Since we have annual data, we interpolate the missing years by assuming that the index gradually evolves between the two reported five-year intervals. For China and Indonesia, we have missing GP observations for early years in our sample. Thus, we had to make certain assumptions to construct this data.[5] We run the basic regressions in Tables 4 and 5 using the GP index instead of the Reform dummy.

The results with broad offshoring intensity as the dependent variable are reported in Table G1. In all columns, the coefficient estimates for GP and GP interacted with Tech are statistically insignificant. Thus, as in the case with Reform dummy, US broad offshoring intensity does not appear to change at conventional levels of significance, in response to higher GP index. The regression results with intra-industry offshoring intensity as the dependent variable are reported in Table G2. The estimated coefficients for GP are negative but insignificant in Columns (1), (3), (5) and (7). The estimated coefficient for the interaction term is 0.362 in Columns (2) and (4), the specifications without and with country controls, respectively. In Column (5), when we include industry 10 in the high-tech group, the coefficient estimate drops down to 0.283. In Column (7), with industry-specific time trends, the coefficient estimate drops down further and becomes insignificant. In Columns (8) and (9), we drop the observations for China and Indonesia to check the robustness of estimates. The interaction term coefficient is estimated to be at 0.258, not far off from the baseline estimates.

The GP Index takes values between 0 and 5. For our country sample, the mean is 2.417 and the standard deviation is 1.153. For illustrative purposes consider a 2 full unit increase in the GP Index. This is associated with a 106% ($e^{0.724} - 1$) increase in intra-industry offshoring in high-tech industries relative to a 32.5% ($e^{-0.394} - 1$) decrease in the same measure in low-tech industries. However, we cannot reject the null hypothesis that their summation is equal to zero. To sum up, the results with the GP index are qualitatively similar to the ones with Reform Dummy, but the magnitudes appear to be somewhat smaller and statistical significance is weaker.

[4] The GP index has five components: coverage, membership in international treaties, duration of protection, enforcement mechanisms, and restrictions on patent rights. See Park (2008) for further details.

[5] For Indonesia, our first GP index observation is in 1995. To recover the data, we set 1960=0 and then assumed that the index increased in equally distributed fixed increments annually until 1995. For China, our first GP index observation is in 1985. To recover the data, we set 1960=0 and then assumed that the index increased in equally distributed fixed increments annually until 1985.

Table G1: Ginarte and Park Index: Impact on Broad Offshoring

Dependent Variable	Log US Broad Offshoring Intensity from industry *i* to country *c* at time *t*.								
Sample Coverage	1973-2006 (complete years), 16 countries, 23 industries								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	Industry 10 as High-Tech	Industry-Specific Time Trends	Industry-Specific Time Trends	No CHN-IDN	No CHN-IDN
Ginarte & Park IPR Index (GP)	-0.107	-0.136	-0.131	-0.160*	-0.148	-0.131	-0.129	-0.0657	-0.0867
	(0.0931)	(0.0929)	(0.0855)	(0.0857)	(0.0859)	(0.0856)	(0.0895)	(0.0841)	(0.0844)
GP * High-Tech		0.110		0.110	0.0559		-0.00711		0.0802
		(0.0654)		(0.0654)	(0.0581)		(0.0966)		(0.0671)
log GDP per capita			-1.377	-1.377	-1.377	-1.377	-1.377	-0.843	-0.843
			(1.809)	(1.809)	(1.809)	(1.810)	(1.810)	(1.837)	(1.837)
log GDP			1.836	1.836	1.836	1.836	1.836	1.312	1.312
			(1.784)	(1.784)	(1.784)	(1.785)	(1.785)	(1.815)	(1.815)
log Real Exchange Rate			0.168	0.168	0.168	0.168	0.168	0.136	0.136
			(0.113)	(0.113)	(0.113)	(0.113)	(0.113)	(0.142)	(0.142)
log Trade Openness			0.589***	0.589***	0.589***	0.589***	0.589***	0.565**	0.565**
			(0.171)	(0.171)	(0.171)	(0.171)	(0.171)	(0.212)	(0.212)
p-values for H_0: GP+GP·Tech=0		0.815		0.631	0.360		0.238		0.950
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry-Specific Time Trends	N	N	N	N	N	Y	Y	N	N
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	12512	12512	12512	12512	12512	12512	12512	10948	10948
R-squared	0.632	0.634	0.638	0.640	0.639	0.676	0.676	0.543	0.545

Note: We define broad offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports from *all* industries of a given country to produce one dollar worth of output. The Ginarte and Park (GP) index is a cross-country index of IPR protection. High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Columns (5) High-tech dummy set is constructed by including industry 10, "Drugs, Cleaning and Toilette Preparations" in the high-tech group. In Columns (6) and (7), we include industry-specific time trends. In Columns (8) and (9), we exclude China and Argentina from the sample. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Table G2: Ginarte and Park Index: Impact on Intra-Industry Offshoring

Dependent Variable	Log US Intra Offshoring Intensity from industry i to country c at time t.								
Sample Coverage	1973-2006 (complete years), 16 countries, 23 industries								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	Industry 10 as High-Tech	Industry-Specific Time Trends	Industry-Specific Time Trends	No CHN-IDN	No CHN-IDN
Ginarte and Park IPR Index (GP)	-0.147	-0.242	-0.107	-0.202	-0.194	-0.104	-0.143	-0.0205	-0.0882
	(0.132)	(0.147)	(0.0996)	(0.117)	(0.115)	(0.0986)	(0.104)	(0.0930)	(0.107)
GP * High-Tech		0.362**		0.362**	0.283**		0.149		0.258**
		(0.123)		(0.124)	(0.108)		(0.119)		(0.102)
log GDP per capita			-4.229	-4.206	-4.216	-4.194	-4.199	-4.160	-4.142
			(2.979)	(2.987)	(2.983)	(3.041)	(3.040)	(3.041)	(3.049)
log GDP			4.390	4.368	4.377	4.351	4.356	4.381	4.362
			(2.956)	(2.964)	(2.960)	(3.016)	(3.015)	(3.016)	(3.022)
log Real Exchange Rate			0.166	0.169	0.167	0.169	0.169	0.149	0.149
			(0.187)	(0.188)	(0.188)	(0.198)	(0.197)	(0.197)	(0.198)
log Trade Openness			0.482**	0.482**	0.482**	0.489**	0.489**	0.404	0.405
			(0.196)	(0.196)	(0.196)	(0.200)	(0.200)	(0.246)	(0.246)
p-values for H_0: GP+GP·Tech=0		0.363		0.136	0.386		0.963		0.093
Industry-Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry-Specific Time Trends	N	N	N	N	N	Y	Y	N	N
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	12360	12360	12360	12360	12360	12360	12360	10832	10832
R-squared	0.454	0.462	0.456	0.465	0.462	0.566	0.567	0.348	0.354

Note: We define intra-industry offshoring intensity (also known as narrow offshoring) for an industry-country pair as the value of intermediate goods that a US industry imports from the *same exact* industry of a given country to produce one dollar worth of output. The Ginarte and Park (GP) index is a cross-country index of IPR protection. High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country *c*. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Columns (5) High-tech dummy set is constructed by including industry 10, "Drugs, Cleaning and Toilette Preparations" in the high-tech group. In Columns (6) and (7), we include industry-specific time trends. In Columns (8) and (9), we exclude China and Argentina from the sample. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix H: The coefficient estimates for High-Tech Industry Effects in 9 year window

We now present the figures that shows the estimates and confidence intervals for the summation of coefficients (R9Pre + R9Pre*Tech), (R8Pre + R8Pre*Tech) and so on until (R9Post + R9Post*Tech). In essence, these estimates measure the change in offshoring intensity for high-tech industries in absolute terms. Figures Ha and Hb show the changes for broad-offshoring intensity and intra-industry offshoring intensity, respectively. The exact estimates for the sum of the coefficients and the p-values for the test that the sum of the coefficients equals zero are reported in Table H.

In the case of broad offshoring intensity, all of the estimates prior to 4 years after reform are insignificant. The estimates for (Post4 + Post4*Tech) and onward are either significant at 5% or marginally significant at 10%. These results suggest that broad offshoring intensity increases in high-tech industries around 4-5 years after reform, with a magnitude of 40-50% ($e^{0.35}$ - 1, $e^{0.45}$ - 1). In the 6^{th} year and on, the impact increases to around 64% ($e^{0.50}$ – 1).

In the case of intra-industry offshoring intensity, all of the estimates prior to 8 years post reform are positive but significant only at 10% levels. The estimates for (Post8 + Post8*Tech) is 0.623 and the p-value for the null hypothesis that the sum is zero is 0.055. The estimate for (Post9 + Post9*Tech) is 0.861 and the p-value for the null hypothesis that the sum is zero is 0.023. Thus, intra-industry offshoring increases in high-tech industries around 8 years after reform, with a percentage change of 86% ($e^{0.623}$ – 1). In the 9^{th} year and onwards, the impact increases to 136.5% ($e^{0.861}$ – 1).

Figure Ha: Log Broad Offshoring: IPR Reform Effects Pre-Post 9 years on High-Tech Industries, Period(i)+Period(i)*Tech coef. estimates

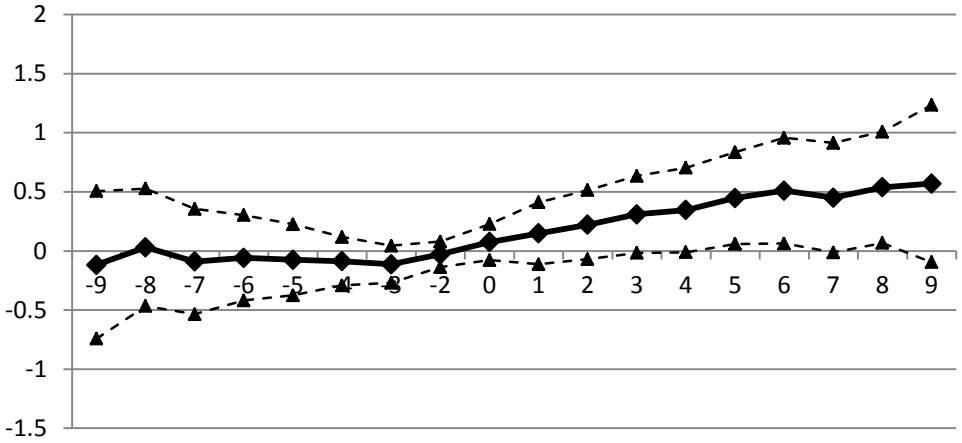
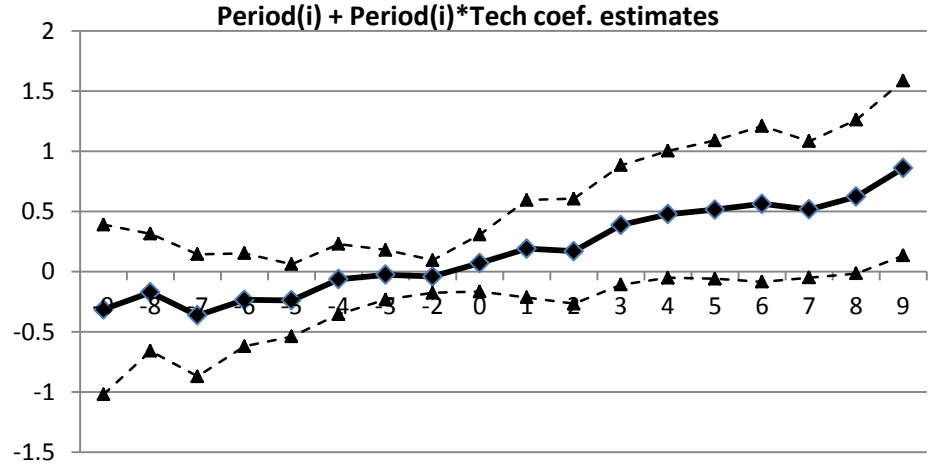


Figure Hb: Log Intra -Industry Offshoring: IPR Reform Effects Pre-Post 9 years on High-Tech Industries, Period(i) + Period(i)*Tech coef. estimates



Note: Broad offshoring intensity for an industry-country pair is defined as the value of intermediate goods that a US industry imports from all industries of a given country to produce one dollar worth of output. Similarly, intra-industry offshoring intensity measures offshoring (again understood as imported intermediate inputs) that takes place within the same industry. We define Period(i) with i $\in$ {-8, +8} as a dummy variable that corresponds to each pre and post-reform year for a window of 8 years before and after reform. Period (-9) equals one 9 years before reform and all years prior to this. Period (+9) equals one 9 years after reform and thereafter. We regress broad offshoring intensity on Period(i) and the interaction of Period(i) with Tech dummy. Figure Ha plots the sum of the coefficient estimates, Period(i) + Period(i)*Tech for each year pre and post reform. The dotted lines show the 95% confidence intervals. The regression includes country-industry pair fixed effects, year fixed-effects and country controls, GDP, GDP Per Capita, Trade Openness, and Real Exchange Rate (no country-specific linear time trends). To construct, Figure Hb we perform the same exercise but this time use intra-industry offshoring as the dependent variable.

Table H1: Exact Values for Period(i) + Period(i)*Tech and F-tests

	Broad Offshoring		Intra Offshoring	
	(1)	(2)	(3)	(4)
	Coef.	P-value	Coef.	P-value
Pre9+Pre9*Tech	-0.118	0.692	-0.314	0.358
Pre8+Pre8*Tech	0.030	0.898	-0.171	0.465
Pre7+Pre7*Tech	-0.090	0.673	-0.362	0.149
Pre6+Pre6*Tech	-0.058	0.736	-0.233	0.217
Pre5+Pre5*Tech	-0.075	0.602	-0.237	0.113
Pre4+Pre4*Tech	-0.087	0.378	-0.062	0.659
Pre3+Pre3*Tech	-0.112	0.148	-0.025	0.798
Pre2+Pre2*Tech	-0.028	0.585	-0.040	0.541
R_new	0.075	0.310	0.072	0.526
Post1+Post1*Tech	0.149	0.243	0.192	0.329
Post2+Post2*Tech	0.222	0.126	0.170	0.418
Post3+Post3*Tech	0.309*	0.061	0.389	0.116
Post4+Post4*Tech	0.346*	0.057	0.477	0.073
Post5+Post5*Tech	0.447**	0.027	0.516	0.074
Post6+Post6*Tech	0.510**	0.028	0.564	0.083
Post7+Post7*Tech	0.451*	0.055	0.518	0.070
Post8+Post8*Tech	0.538**	0.028	0.624	0.055
Post9+Post9*Tech	0.570*	0.088	0.862	0.023

Note: Broad offshoring intensity for an industry-country pair is defined as the value of intermediate goods that a US industry imports from all industries of a given country to produce one dollar worth of output. Similarly, intra-industry offshoring intensity measures offshoring (again understood as imported intermediate inputs) that takes place within the same industry. Table H1 accompanies Figures Ha and Hb. Columns (1) and (2) are based on regressions where the dependent variable is broad offshoring. Column (1) reports the sum of the coefficient estimates for testing the hypothesis that Period(i) + Period(i)*Tech . Column (2) reports the p-values for testing Period(i) + Period(i)*Tech =0 for each pre- and post- reform year. Columns (3) and (4) report the same information but based on regressions where the dependent variable is intra-industry offshoring. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix I

Using our data set, we also create two measures that capture the *technology content of offshoring* for each industry. In particular, we distinguish between high-tech-intensive and low-tech-intensive offshoring in each industry as O_{cit}^{H} and O_{cit}^{L} respectively. We measure these as:

$$O_{cit}^{H} = \sum_{\forall j \in H} a_{ijt} \cdot \frac{M_{cjt}}{C_{jt}} \tag{1}$$

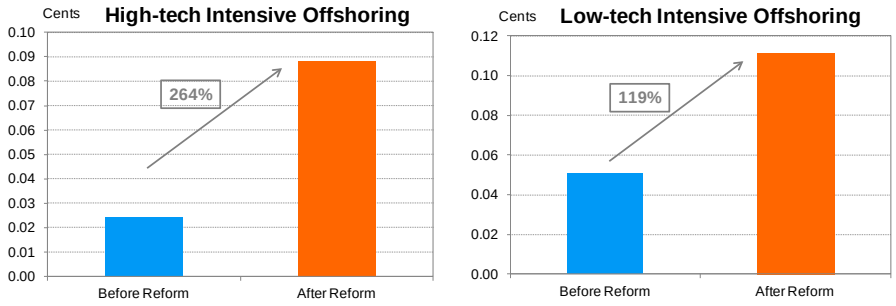
$$O_{cit}^{L} = \sum_{\forall j \in L} a_{ijt} \cdot \frac{M_{cjt}}{C_{jt}} \tag{2}$$

where *H* and *L* stands for high-tech and low-tech industries which are outlined in Table 1. Our objective is to assess whether high-tech-intensive and low-tech-intensive offshoring intensities respond differently to IPR reform and also whether the responses differ between high-tech and low-tech industries. In this empirical exercise, we can analyze how industries change their within-industry-group offshoring behavior (e.g., whether high-tech industries offshore more from high-tech industries abroad) and cross-industry-group offshoring (e.g., whether high-tech industries offshore more or less from low-tech industries). The former measure is essentially an expansion of the intra-industry offshoring measure to include offshoring within the same group of industries. The latter is the counterpart that includes offshoring to industries that are outside the own industry group.

We first provide a general picture of the broad trends in high-tech-intensive and low-tech intensive offshoring, we demonstrate in Figures I1 and I2 the unconditional average offshoring intensity levels (measured in cents per dollar of output) before and after IPR reforms. The bars in these figures represent the sample averages based on our industry-country pair data. We observe that after IPR reform the percentage increase in high-tech-intensive offshoring (for the typical industry-country pair) is more than double that in low-tech intensive offshoring (264% versus 119%) (see Figure I1). If we further differentiate between types of offshoring within high-tech and low-tech industries, we observe that high-tech industries increase their high-tech-intensive offshoring intensity by a relatively large margin, while the low-tech-industries increase their low-tech-intensive offshoring intensity by a smaller margin (see Figure 2 Appendix B). Moreover, for the high-tech industries, the percentage increase in high-tech-intensive offshoring is larger than that of low-tech-intensive offshoring after the IPR reform. The same is true for low-tech industries.

Figure I1

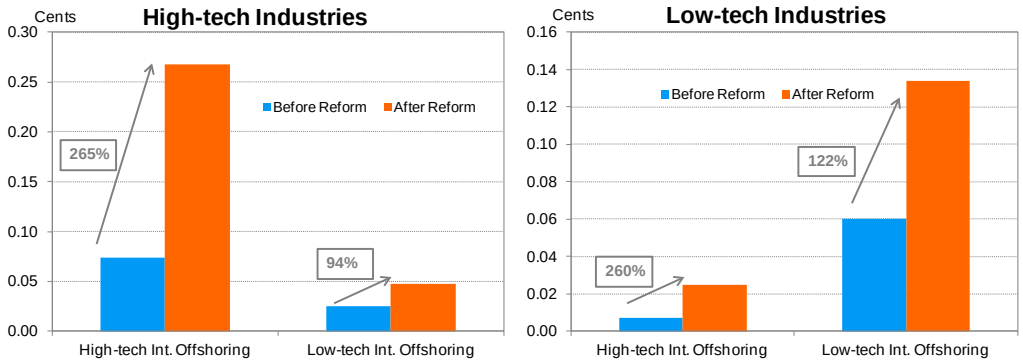
Offshoring intensity (cents per dollar of output)



Note: We define high-tech intensive offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports only from *high-tech* industries of a given country to produce one dollar worth of output. Similarly, low-tech intensive offshoring intensity for an industry-country pair is the value of intermediate goods that a US industry imports only from *low-tech* industries of a given country to produce one dollar worth of output. The bars in the left panel of Figure I1 show separately the unconditional averages for high-tech intensive offshoring intensities over the before-reform years and after-reform years. The bars in the right panel of Figure I1 show the unconditional averages for low-tech intensive offshoring intensities over the before-reform years and after-reform years. The IPR reform years for our sample of countries are given in Table 1. The list of high-tech and low-tech industries is in Table 2.

Figure I2

Offshoring intensity (cents per dollar of output)



Note: We define high-tech intensive offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports only from *high-tech* industries of a given country to produce one dollar worth of output. Similarly, low-tech intensive offshoring intensity for an industry-country pair is the value of intermediate goods that a US industry imports only from *low-tech* industries of a given country to produce one dollar worth of output. The first two bars in the left panel of Figure I2 show separately the unconditional averages for high-tech intensive offshoring intensities over the before-reform years and after-reform years for the industry-country pairs that belong to the high-tech (patent-sensitive) industry group. Similarly, the following two bars in the left panel of Figure I2 show separately the unconditional averages for low-tech intensive offshoring intensities over the before-reform years and after-reform years for the industry-country pairs that belong to the high-tech (patent-sensitive)industry group. The right panel of Figure I2 follows the same organization as the left graph but it averages for the industry-country pairs that belong to the low-tech (patent-insensitive) industry group. The IPR reform years for our sample of countries are given in Table 1. The list of high-tech and low-tech industries is in Table 2.

To isolate the impact of IPR reform on O_{cit}^{H} and O_{cit}^{L} we run the following regressions:

$$O_{cit}^{H} = \alpha_{ci}^{H} + \alpha_{t}^{H} + \beta_{C}^{H} t + \beta_{1}^{H} H_{ct} + \beta_{2}^{H} R_{ct} + \beta_{3}^{H} R_{ct} \cdot Tech_{i} + \varepsilon_{cit}^{H} \quad , \tag{3}$$

$$O_{cit}^{L} = \alpha_{ci}^{L} + \alpha_{t}^{L} + \beta_{C}^{L} t + \beta_{1}^{L} H_{ct} + \beta_{2}^{L} R_{ct} + \beta_{3}^{L} R_{ct} \cdot Tech_{i} + \varepsilon_{cit}^{L} \tag{4}$$

The coefficient interpretations are the same as before. Our working hypothesis here is that both types of offshoring respond positively to IPR reform ($\beta_2^H > 0$ and $\beta_2^L > 0$) for the reasons outlined in Section 2 of the paper. We also hypothesize that this response could be stronger in high-tech industries ($\beta_3^H > 0$ and $\beta_3^L > 0$), again appealing to the patent sensitive nature of high-tech industries.

Table I1 shows the regression results with high-tech-intensive offshoring O_{cit}^{H} as the dependent variable. As in Tables 4 and 5 of the main text, we consider a number of alternative specifications to check the robustness of our findings. Columns (1) and (2) show our parsimonious regressions with year fixed effects, industry-country pair dummies and country-specific linear trends but without country control variables. Columns (3) and (4) present our *baseline* regressions, which add country controls. Columns (5) and (6) present the regressions by excluding China and Argentina from the sample. Columns (7) and (8) present the regressions by including industry-specific time trends.

In Table I1 Columns (1), (3), (5), and (7), the coefficient β_2 on the Reform Dummy R_{ct} is positive but insignificant in all cases. Thus, following IPR reform, high-tech-intensive offshoring intensity does not change in a statistically significant way for a typical industry. In Columns (2), (4) and (6) when the interaction term is added, the coefficient β_2 on the Reform Dummy R_{ct} is negative but again insignificant. The coefficient β_3 on the interaction term $R_{ct} \cdot Tech_i$ is estimated to be between 0.354 and 0.465 but significant only at the 10% level. In Column (6), the estimate for β_3 is positive but insignificant. Thus, we observe no additional effects of IPR reform in high-tech industries relative to low-tech industries at conventional levels of significance. Finally, we test the hypothesis that $\beta_2 + \beta_3 = 0$ and found that it cannot be rejected in all specifications with the $R_{ct} \cdot Tech_i$ dummy. Thus, high-tech industries do not change their high-tech intensive offshoring intensity at conventional levels of significance.

Table I2 presents our regression results with low-tech intensive offshoring, O_{cit}^{L}, as the dependent variable. We consider the same alternative specifications as in the case of high-tech intensive offshoring intensity. In Columns (1), (3), (5) and (7), the coefficient β_2 on the Reform Dummy R_{ct} is positive but not significant. Thus, following IPR reform, low-tech intensive offshoring does not change in a statistically significant way for a typical industry. In Columns

(2), (4), (6), and (8), when the interaction term is added, the coefficient β_2 on the Reform Dummy R_{ct} is positive but remains insignificant. However, the coefficient β_3 on the interaction term $R_{ct} \cdot Tech_i$ is significant at 5% level and estimated to be between -0.29 and -0.21. These results suggest that high-tech industries decrease their low-tech intensive offshoring intensity relative to low-tech industries. We also test the hypothesis that $\beta_2 + \beta_3 =$ 0 and found that it cannot be rejected at conventional significance levels. Thus, high-tech industries do not change their low-tech-intensive offshoring intensity at conventional levels of significance.

To sum up, the regressions imply that in a typical industry neither high-tech ~~intensive~~ offshoring and nor low-tech-intensive offshoring respond to IPR reform. In addition, the responses to IPR reform do not change when we distinguish between low-tech and high-tech industries. These results taken together with the results in the main text suggest that increased offshoring takes place at the intra-industry level and exclusively in high-tech industries; this result does not extend to broader measures of offshoring based on clustering of multiple industries.

Table I1

How IPR reforms affect High-Tech Intensive Offshoring Intensity

Dependent Variable	Log US High-Tech Intensive Offshoring Intensity from industry *i* to country *c* at time *t*.							
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries							
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	No CHN-ARG	No CHN-ARG	Industry-Specific Time Trends	Industry-Specific Time Trends
Reform Dummy (R)	0.0657	-0.0268	0.0364	-0.0560	0.0146	-0.0426	0.0364	-0.0848
	(0.232)	(0.236)	(0.229)	(0.232)	(0.216)	(0.224)	(0.229)	(0.243)
R·Tech		0.354*		0.354*		0.219		0.465*
		(0.191)		(0.191)		(0.144)		(0.223)
log GDP per capita			3.893	3.893	4.538	4.538	3.893	3.893
			(4.912)	(4.912)	(5.450)	(5.450)	(4.918)	(4.918)
log GDP			-3.858	-3.858	-4.228	-4.228	-3.858	-3.858
			(4.935)	(4.935)	(5.509)	(5.509)	(4.941)	(4.942)
log Real Exchange Rate			0.166	0.166	0.179	0.179	0.166	0.166
			(0.209)	(0.209)	(0.335)	(0.335)	(0.210)	(0.210)
log Trade Openness			0.171	0.171	0.289	0.289	0.171	0.171
			(0.273)	(0.273)	(0.387)	(0.388)	(0.274)	(0.274)
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y	Y	Y
Industry Specific Time Trends	N	N	N	N	N	N	Y	Y
Year-Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	8464	8464	8464	8464	7406	7406	8464	8464
R-squared	0.697	0.700	0.699	0.702	0.676	0.678	0.768	0.769

Note: We define high-tech intensive offshoring intensity for an industry-country pair as the value of intermediate goods that a US industry imports from *high-tech* industries of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country c. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Columns (5) and (6), we exclude China and Argentina.. In Columns (7) and (8), we include industry-specific time trends. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Table I2

How IPR reforms affect Low-Tech Intensive Offshoring Intensity

Dependent Variable	Log US Low-Tech Intensive Offshoring Intensity from industry *i* to country *c* at time t.							
Sample Coverage	1973-2006 (with gaps), 16 countries, 23 industries							
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	Country Controls Excluded	Country Controls Excluded	Country Controls Included	Country Controls Included	No CHN-ARG	No CHN-ARG	Industry-Specific Time Trends	Industry-Specific Time Trends
Reform Dummy (R)	0.186	0.263*	0.137	0.215	0.112	0.189	0.137	0.192
	(0.148)	(0.149)	(0.137)	(0.137)	(0.133)	(0.132)	(0.137)	(0.132)
R·Tech		-0.297**		-0.297**		-0.294*		-0.210**
		(0.122)		(0.122)		(0.140)		(0.0889)
log GDP per capita			-1.363	-1.363	-1.238	-1.238	-1.363	-1.363
			(2.876)	(2.876)	(2.996)	(2.996)	(2.879)	(2.879)
log GDP			1.735	1.735	1.767	1.767	1.735	1.735
			(2.791)	(2.791)	(2.873)	(2.873)	(2.794)	(2.795)
log Real Exchange Rate			-0.0093	-0.0093	0.123	0.123	-0.0093	-0.0093
			(0.186)	(0.186)	(0.347)	(0.347)	(0.186)	(0.186)
log Trade Openness			0.588**	0.588**	0.683**	0.683**	0.588**	0.588**
			(0.209)	(0.209)	(0.229)	(0.229)	(0.209)	(0.209)
Country-Industry Pair Effects	Y	Y	Y	Y	Y	Y	Y	Y
Country-Specific Time Trends	Y	Y	Y	Y	Y	Y	Y	Y
Industry Specific Time Trends	N	N	N	N	N	N	Y	Y
Year-Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	8464	8464	8464	8464	7406	7406	8464	8464
R-squared	0.604	0.608	0.609	0.613	0.515	0.520	0.665	0.665

Note: We define low-tech intensive offshoring intensity for an industry-country pair is the value of intermediate goods that a US industry imports from *low-tech* industries of a given country to produce one dollar worth of output. Reform Dummy is equal to one for the year of IPR reform and thereafter (See Table 1 for the timing of reform for each country in our sample). High-tech dummy equals one for patent-sensitive industries and zero otherwise (See Table 2 for the complete list of industry classification). Log GDP and GDP per capita in US$ come from World Development Indicators (WDI) of World Bank. Log of Real Exchange Rate is calculated by using nominal exchanges rate and inflation measures for the US and country c. Log of Trade Openness is computed as (Exports + Imports)/GDP. In Columns (1) and (2), we exclude country-level control variables. In Columns (3) and (4), we include these controls. In Columns (5) and (6), we exclude China and Argentina. In Columns (7) and (8), we include industry-specific time trends. Robust standard errors clustered by country are reported in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels.

Appendix J

We now present a comparison of patent reform years vs. openness years.

Table J1

Country	Patent reform year	Openness Year
Argentina	1996	1991
Brazil	1997	1991
Chile	1991	1976
China	1993	*a*
Colombia	1994	1986
Indonesia	1991	1970
Japan	1987	1964
Mexico	1991	1986
Philippines	1997	1988
Portugal	1992	*b*
S. Korea	1987	1968
Spain	1986	1959
Taiwan	1986	1963
Thailand	1992	*b*
Turkey	1995	1989
Venezuela	1994	1996

Note: a indicates closed. *b* indicates always.
Source: Branstetter et al. (2006) for patent reform years. Wacziarg and Welch (2008) for openness years based on their analysis of the period 1970-1999.