Online Data Appendix:

Our analysis is based on a linked database constructed from three separate sources:

1. The list of pharmaceutical products registered at the Chilean National Public Health Institute (ISP).
2. A database of all patent applications filed with the Chilean Patent Office (INAPI) between 1991 and 2010.
3. A database of all trademark filings at INAPI between 1991 and 2010.

Constructing the linked database required matching the active ingredients in the pharmaceutical products with the associated patent application(s) and matching the product names with the associated trademark filing(s). In both cases there is no easy reliable way to do the matching and a large part of it was done manually. We describe the data sources and the matching effort in more detail in this appendix.

Description of the ISP database

Our data construction begins with a list of pharmaceutical products given to us by the National Public Health Institute (ISP). In Chile, all pharmaceutical products that are to be sold on the domestic market have to be registered with the ISP. The registration includes the name of the product, the form and size in which it comes, the principal active ingredient, and the specific active ingredient being registered. That is, a product may have one or more entries in the database depending on whether it comes in multiple forms, or has multiple active ingredients. Because many active ingredients are useful in several products, there are far fewer active ingredients listed than there are products or ISP registration entries. In addition, the names of the same active ingredient are sometimes given in differing ways, which required us to standardize the names by hand.[1] We obtained the ISP register in October 2012, which means it includes only products that have been registered up to five years earlier or that had been renewed.

Between 1934 and 2012, there were 14,504 ISP registrations for 12,116 pharmaceutical products.[2] Of these, 2,630 contained an active ingredient that had not yet appeared in an ISP

[1] E.g., pentahydrate recorded as 5-hydrate on occasion. Calcium spelled out or recorded as the Chemical symbol Ca.

[2] 439 (3 per cent) of the registrations were missing the ISP registration date and are not included in these figures.

registration. Figure A1 shows three time series: all ISP registrations, those where the name of a drug appeared for the first time, and those where an active ingredient appeared for the first time. Until about 1975, each registration contained a new product and active ingredient; after this date the series begin to diverge and by the year 2000 the introduction of products with active ingredients that are new to the Chilean market begins to decline.

Figure A2 shows a distribution of the number of active ingredients per product. Almost 70 per cent of the products have only one active ingredient, and almost 90 per cent have 1 or 2. The products with more than 5 active ingredients tend to be things like multi-vitamins and minerals or alternative medicines. Figure A3 shows the distribution of the number of registrations associated with an active ingredient. About 37 per cent are registered only once, but 5 generics (ibuprofen, paracetamol, ascorbic acid, the antihistamine chlorphenamine maleate, and the decongestant pseudoephedrine) are registered more than 200 times.

Figure A1: Registrations (ID), products (drugs) and active ingredients (AI) registered at the Chilean ISP

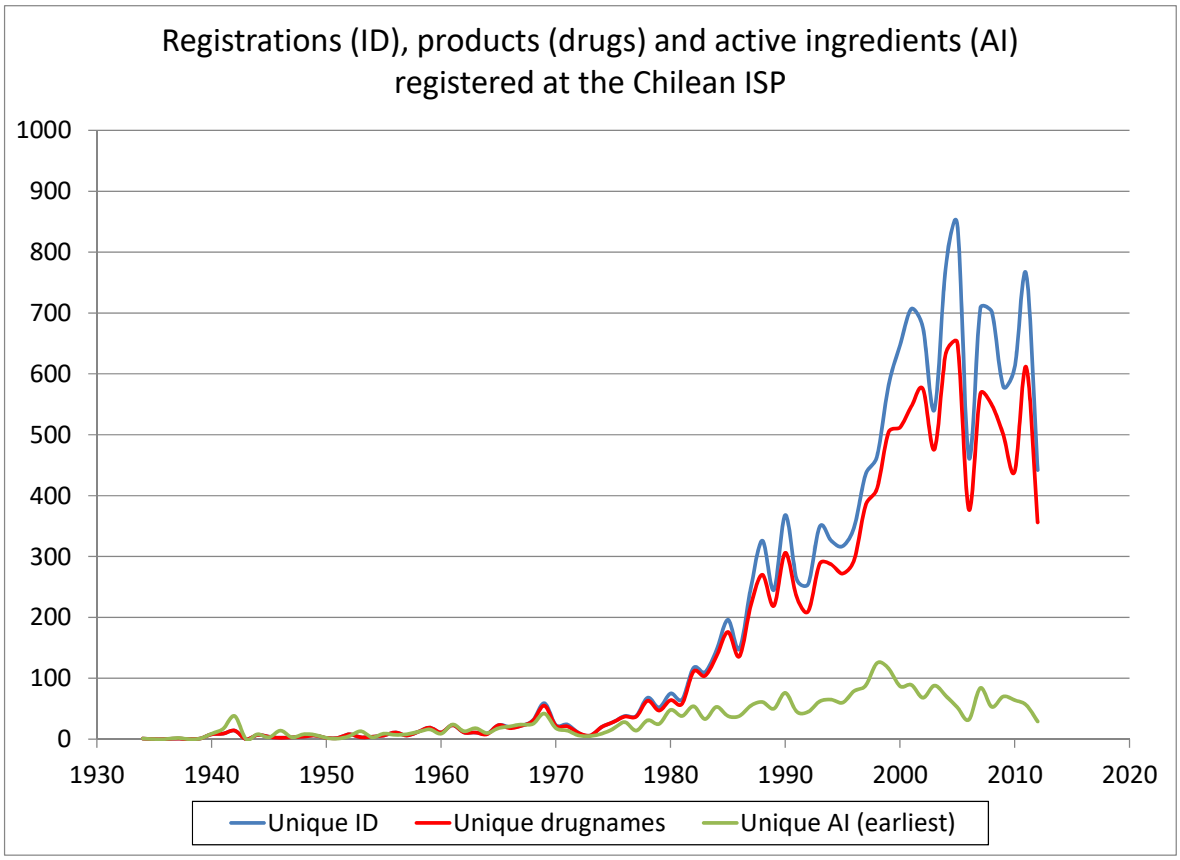


Figure A2: Share of drugs with number of active ingredients

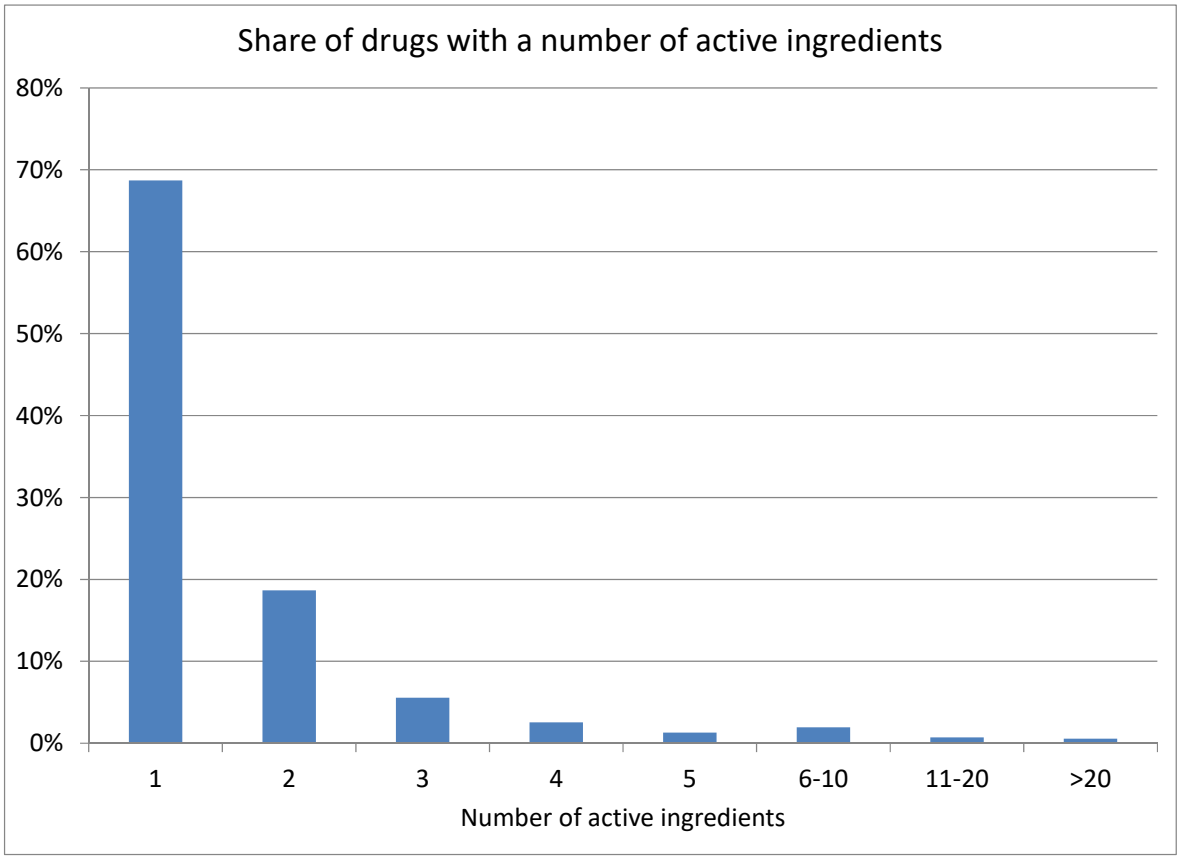
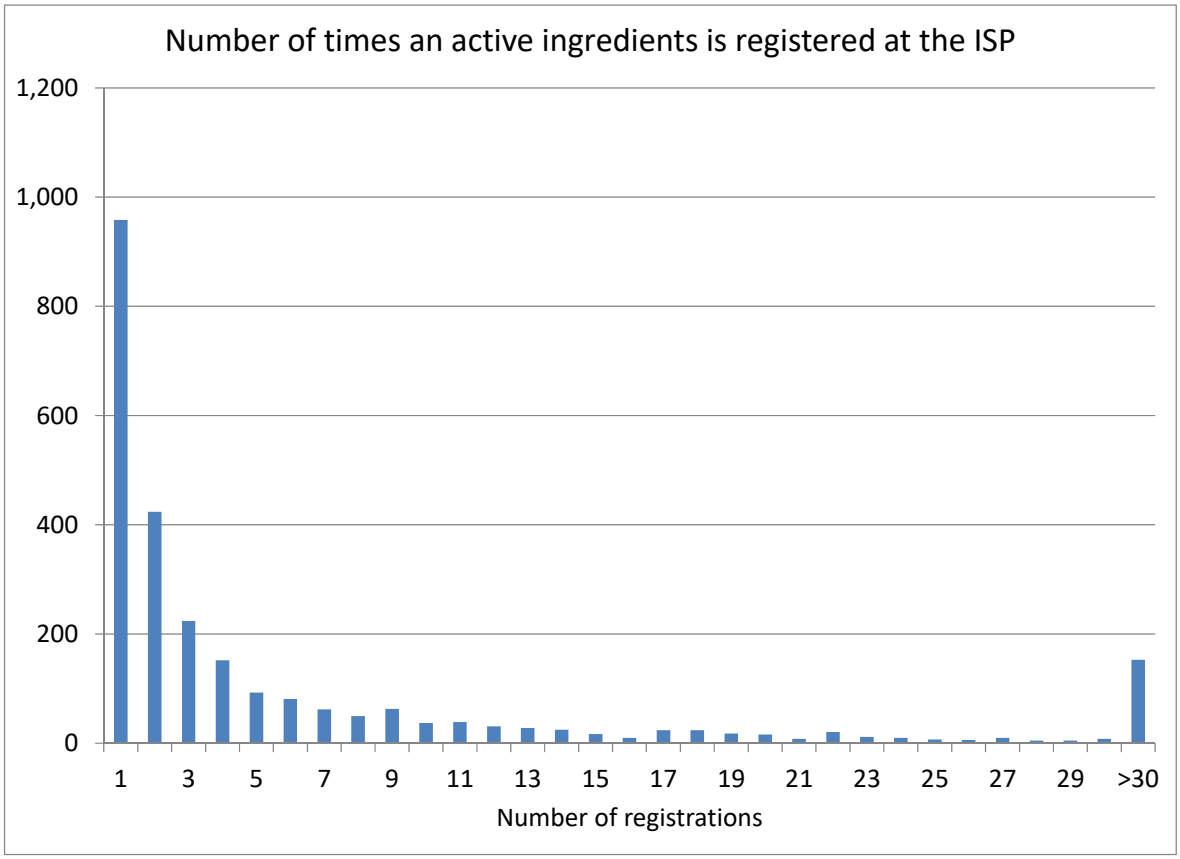


Figure A3: Number of times an active ingredient is registered at the ISP



ISP registrants

The ISP database contains the names and addresses of organizations that are registering the product, but they are not standardized.[3] Our first step was to standardize the names by removing such things at "LTD" and "S A", but preserving the country associated with the name. This resulted in about 3,500 unique name-country combinations. These were examined by hand to correct misspellings and further standardize the names. The resulting list contained 2,322 unique name-country combinations. After cleaning, the largest number of companies associated with a single registration was 18 (for products Plavix and Adenosine, with much the same list of international firms plus the Chilean importers and quality control). The left hand panel of Table A1 gives the distribution of these organizations across countries, and the right hand side gives the same thing weighted by the number of times the organization appears in the registry.

[3] The raw file contains about 104,000 entries, with several for each ISP id, firms listed more than once for a single id if they performed multiple functions, and some duplication due to simple spelling errors.

Only 15 per cent of the organizations have a Chilean address, but 68 per cent of the entries are for a Chilean organization. That is, the average number of ISP registrations for a Chilean firm is much higher than for firms from other countries.[4] Chile is followed in both lists by the U.S., Argentina, Germany, and India. The presence of India suggests the importance of the generics market in Chile.

Table A1: Geographic distribution of ISP registrants

Geographic distribution of ISP registrants

By firm-country				*Weighted by the number of ISP regs per firm*			
Country	*Number*	*Share*	*Cum. Share*	*Country*	*Number*	*Share*	*Cum. Share*
CHILE	348	15.0%	15.0%	CHILE	46,281	68.4%	68.4%
USA	244	10.5%	25.5%	USA	2,487	3.7%	72.0%
ARGENTINA	154	6.6%	32.1%	ARGENTINA	2,436	3.6%	75.6%
GERMANY	151	6.5%	38.6%	INDIA	2,175	3.2%	78.9%
INDIA	130	5.6%	44.2%	GERMANY	1,659	2.5%	81.3%
FRANCE	115	4.9%	49.1%	CHINA	1,153	1.7%	83.0%
ITALY	113	4.9%	54.0%	SWITZERLAND	1,137	1.7%	84.7%
SPAIN	94	4.0%	58.0%	COLOMBIA	1,050	1.6%	86.2%
UK	93	4.0%	62.0%	BRASIL	1,007	1.5%	87.7%
CHINA	80	3.4%	65.5%	UK	919	1.4%	89.1%
BRASIL	78	3.4%	68.8%	MEXICO	906	1.3%	90.4%
MEXICO	72	3.1%	71.9%	FRANCE	895	1.3%	91.8%
SWITZERLAND	71	3.1%	75.0%	URUGUAY	794	1.2%	92.9%
COLOMBIA	62	2.7%	77.7%	SPAIN	641	0.9%	93.9%
CANADA	44	1.9%	79.6%	ITALY	608	0.9%	94.8%
PUERTO RICO	38	1.6%	81.2%	BELGIUM	458	0.7%	95.4%
IRELAND	36	1.5%	82.7%	NETHERLANDS	298	0.4%	95.9%
URUGUAY	36	1.5%	84.3%	PANAMA	271	0.4%	96.3%
Other countries	365	15.7%		Other countries	2,512	3.7%	
	2,324			**Total**	**67,687**		

The first panel counts each firm-country combination once.
The second panel counts every appearance of a firm-country combination in the ISP registry.

One advantage of the ISP database is that it contains information on the role that each registrant plays in the production and distribution of the drug being registered. In many cases a registrant will perform more than one function, sometimes as many as five (packager, importer, distributor, quality control, and manufacturer). This fact explains why there are 104,612 entries in the database but only 67,687 unique ISP id-firm-country combinations. Table A2 shows the

[4] Note that almost all of the organization names are in fact firm names, with a few individuals and universities in addition.

distribution of the various functions performed by the registrants, by broad geographical region (Chile, the rest of Latin America, the U.S. and Canada, Europe, and the rest of the world). With a few minor exceptions, the distribution looks reasonable: Chilean firms specialize in finished manufacturing, packaging, importing, distributing, and quality control, whereas foreign firms manufacture, serve as the source or licensor of the product, and occasionally package, especially if they are European or Latin American firms.

Table A2: Functions performed by ISP registrants, by region

Functions performed by ISP registrants, by region

	Chile	*Europe*	*Latin America*	*US & Canada*	*Rest of world*	***Total***
Chilean mfg - finished	11,609	6	10	1	1	**11,627**
Chilean mfg - bulk	76	6	6	0	3	**91**
Foreign mfg - finished	25	3,483	4,008	879	2,839	**11,234**
Foreign mfg - bulk	9	1,006	1,313	269	503	**3,100**
Mfg of principal AI	0	218	0	6	52	**276**
Quality control	16,826	2	5	0	38	**16,871**
Source	9	4,577	6,513	1,028	3,421	**15,548**
Licensor	22	4,071	1,016	1,857	543	**7,509**
Foreign packager	6	83	123	22	7	**241**
Chilean packager	2,813	0	3	0	1	**2,817**
Packer	3,737	169	154	23	1	**4,084**
Importer	9,378	0	1	0	2	**9,381**
Distributor	21,832	1	0	0	0	**21,833**
Total	**66,342**	**13622**	**13152**	**4085**	**7,411**	**104,612**

As indicated in the introduction to this appendix, our main objectives in the data construction are twofold: 1) to link pharmaceutical products to the patents that protect the active pharmaceutical ingredients and processes embodied in the products; and 2) to link products to trademarks. The ISP provides us with data that contains information on products and active ingredients, that is, we have a database with all pharmaceutical products registered in Chile and the active ingredients that they contain. The challenge then consists in (a) finding all patents that protect the active ingredients contained in the products and in (b) linking trademarks to products and companies. We divide our discussion below into these two challenges.

Finding and linking patents to active ingredients

We have data on all patent applications filed with the Chilean patent office (INAPI) between 1991 and 2010. This includes all patent filings by domestic as well as foreign entities. The objective is to identify those patents that protect the active ingredients listed in ISP's pharmaceutical product database. We also attempt to identify patents that protect the processes used in the production of the products, but this is more difficult because these cannot necessarily be identified directly from our data sources.

Linking patents to active ingredients is difficult for the following reasons:

1) Active ingredients are registered at the ISP using the International Nonproprietary (INN)[5] classification whereas patents rely on the International Union of Pure and Applied Chemistry (IUPAC)[6] classification. These classifications differ substantially. For example, the INN denomination for the active ingredient Imatinib is "imatinib mesilate" and its IUPAC is "4-[(4-methylpiperazin-1-yl)methyl]-N-(4-methyl-3-{[4-(pyridin-3-yl)pyrimidin-2-yl]amino}phenyl)benzamide."

2) While the ISP register lists the active ingredients that belong to a given pharmaceutical product, patents may protect a family of different pharmaceutical ingredients related to the active ingredient in question.[7] This means that a single patent may protect several different active ingredients. Specific ingredients covered by the patent can only be identified through the examples given in the patent application.

3) A product registered at ISP can be associated with a number of different patents. Only some of these patents protect the relevant active ingredient. This can occur for several reasons. First, other patents protect different forms of the active ingredient, related ingredients, or for example the manufacturing process of the drug. Second, in the early stages of the development of a new drug, producers commonly patent a large number of molecules, formulations and compositions that have potential to be developed into new active ingredients. This means while there can be a large number of patents related to the

[5] The INN is the official nonproprietary or generic name given to a pharmaceutical substance designated by the World Health Organization (WHO).

[6] This organization names new compounds according to the rules of organic chemistry.

[7] This is due the "Markush" formula. This formula represents a group of compounds related with an active ingredient. These related compounds are usually modifications of the original active ingredient.

eventually developed active ingredient, they need not all protect the ingredient. Third, it is possible to patent the "second use" of a drug.

Mindful of these challenges, we proceed as follows. As a starting point, we use data compiled by WIPO from information provided by INAPI that contain the active ingredient-patent mapping for all active ingredients contained in new pharmaceutical products registered with ISP between 2005 and 2010. The mapping was undertaken by patent examiners specialized in pharmaceutical patents.

For all remaining products registered with the ISP we proceed as follows:

1) The ISP products are grouped by active ingredients. For example, focusing on the active ingredients Imatinib and Drospirenone, we group thirteen ISP products under the active ingredient Imatinib and thirty-three products under the active ingredient Drospirenone. For the cases that a product has more than one active ingredient, we include the product in each group of its active ingredients. For example, the product "Femelle Fol Comprimidos Recubiertos" has three active ingredients: Drospirenone, Ethinyl Estradiol and Levomefolate. Therefore, the drug will be part of three different groups, one for each active ingredient.

2) Each active ingredient is translated from Spanish into English using online translators and our own expertise.

3) Each active ingredient is searched in the Merck Index (MI). The MI contains the first filings of patents on an active ingredient, which can be at any patent office around the world. This provides us with the direct association between active ingredient and corresponding patent(s). We search the priority dates, inventor names, title and abstract of the patent(s) listed in the MI. For example, Imatinib has two patents in the MI: EP564409 and US5521184 with priority date 03/04/1992. The inventor name for both patents is "Juerg Zimmerman."

4) The Orange Book (OB) of the U.S. Food and Drug Administration (USFDA) is used to identify U.S. patents on or related to the active ingredients of the products registered in Chile. The OB provides the patent-active ingredient mapping for all drugs registered with the USFDA, and patents filed with the USPTO. Patents may not only protect the active ingredient directly but also other features of a registered drug. We search for each active

ingredient in the OB.[8] If an active ingredient is found in the OB, we extract the corresponding list of products that contain the active ingredient and the patents associated with these products.[9] We obtain priority dates, inventor names, title and abstract for the USPTO patents identified through the OB. The main challenge is to determine whether the patents found in this way protect the active ingredient or a related ingredient or process. For example, we found two registered products in the FDA that contain Imatinib: Gleevec 100mg and Gleevec 400mg. Each product has the same four USPTO patents. One of the four patents listed in the OB corresponds to the MI priority patent (US5521184), which means this is the one that protects the active ingredient Imatinib. If the product has only a single ingredient, it is likely that the other patents that do not protect the active ingredient directly, but a modification, a related process, manufacturing method, a second use, or treatment. If the product has several ingredients, the patents can also be associated with other ingredients. To determine this, each patent has to be assessed individually. We do not assess this directly, but rely on the assessment of the Chilean equivalent by patent examiners specialized in pharmaceutical patents. So for example, the three other U.S. patents found in the OB in the case of Imatinib (US6894051, US7544799 and US6958335) are indeed related to Imatinib. The first two patents are a crystal modification of the active ingredient and the third one is a treatment using Imatinib. This would only be relevant, however, if any of these patents had a Chilean equivalent.

5) The WIPO-INAPI database is searched for Chilean equivalents of the patents found in the MI and OB. We do this through inventor names, priority date, title and abstract of the patents found in the MI and OB. The Chilean patents found in this way, where we distinguish between the patents protecting directly the active ingredient and related patents, represent the patents that protect a given active ingredient and hence pharmaceutical product. For example, in the case of Imatinib we did not find a Chilean equivalent for US5521184 but we found an equivalent for US689405, a crystal modification of Imatinib (CL199801692). In this way we create patent families related to each active ingredient and pharmaceutical product.

[8] The OB does not provide historical patent data, that is, if a patent expires or lapses at the USPTO, the patent is deleted from the register. Bhaven Sampat provided historical records that allow us to correct this problem.

[9] We could have also searched directly for the products contained in the ISP register, but going via active ingredients seems to be the 'cleaner' way of proceeding.

In case we were unable to find an active ingredient in the MI or the OB, we link patents to ingredients directly. However, this is not straightforward as explained above and was therefore done by Chilean patent experts specialized in pharma patents. Due to the large number of pharmaceutical patents and the extremely labor-intensive process of matching patents and pharmaceutical products, we limited the direct match to the remaining set of unmatched granted pharmaceutical patents (approximately 3,000 patents).[10]

The ISP database contains additional information on pharmaceutical products such as the registration, expiration and renovation date, the owner of the drug, whether the drug is produced domestically or abroad, and drug packaging information. The information on the owner of the drug is especially useful for the patent-compound matching as it provides a possible cross-check with the assignee names of patents.

The match between drug names on the ISP and these various patent data bases yielded 602 unique Chilean patents: 463 from the Orange Book, 26 from the Merck Index, 44 from the WIPO-INAPI match for 2005-2010, and 69 from the search of remaining granted patents. After cross-checking of the matches by Chilean patent experts, this number was reduced to 504 unique Chilean patents matched to 322 unique active ingredients from 4,304 ISP registrations. There are 619 unique patent-active ingredient combinations. Table A3 below shows a count of the number of ISP registrations and the number of unique active ingredient names that are matched to no, one, two, etc. patents. The drug and active ingredient with the largest number of associated Chilean patents (9) is ciprofloxacin, an antibiotic. One third of the ISP registrations but only 12 per cent of the unique active ingredients match to at least one patent. Only 3 per cent of the patents in the organic fine chemistry, biotechnology, and pharmaceutical classes match to an active ingredient, but that is not too surprising, because many of the patents in these classes are associated with agriculture or aquaculture.

[10] The search for additional matches to the ISP ingredients in these 3,000 granted patents yielded 69 patents (2 per cent). Therefore the remaining unsearched patent applications are unlikely to contain many additional matches, especially since they include a majority of rejected or abandoned filings.

Table A3: Number of ISP registrations associated with patents/trademarks

	Number of patents associated with			*Number of trademarks associated with*			*Number of ISP reg. associated with*	
	ISP registration	*Product name*	*active ingredient*	*ISP registration*	*Product name*	*active ingredient*	*patent**	*trademark***
Total	14,504	12,116	2,630	14,504	12,116	2,630	17,956	148,696
0	10,200	8,407	2,308	4,809	2,843	298	17,452	138,235
1	3,845	3,250	176	2,440	2,264	261	217	2,845
2	400	392	73	4,812	4,629	675	67	2,861
3	35	42	38	993	974	252	40	1,117
4	10	11	16	629	600	186	31	1024
5	5	5	7	193	189	109	12	564
6-10	9	9	11	403	396	354	43	1234
>10	0	0	1	225	221	495	94	816
Nonzero total	4,304	3,709	322	9,695	9,273	2,332	504	10,461
Nonzero share	30%	31%	12%	67%	77%	89%	3%	7%

* Total of all patents in pharma classes, broadly defined.

**Total of all trademarks in pharma classes, broadly defined.

In Table A4 we look at the patent-active ingredient match by the grant status of the patents. We again restrict the Chilean patent database to those patents classified in ISIO 14 (organic fine chemistry), 15 (biotechnology), and 16 (pharmaceutical). Only 6 of our matched patents lie outside these classes and we have added these manually to the sample. In this table we show the match by the patent status. Clearly granted patents are more likely to be matched (at 8 per cent) and abandoned/withdrawn patents are the least likely to be matched (<2 per cent). However the overall match rate is fairly low (3 per cent).

Table A4: Match of Chilean pharmaceutical patents to AIs

Match of Chilean pharmaceutical patents to AIs

	Number		*Share*		
Patent status	*Not matched*	*Matched to AI*	*Not matched*	*Matched to AI*	*Share matched*
Pending	6,414	165	36.8%	32.7%	2.5%
Granted	2,830	256	16.2%	50.8%	8.3%
Rejected	1224	24	7.0%	4.8%	1.9%
Combined to another	23	1	0.1%	0.2%	4.2%
Abandoned or withdrawn	6,961	58	39.9%	11.5%	0.8%
Total	**17,452**	**504**			**2.8%**

Pharmaceutical patents are all patents in ISIO 14, 15, 16.

Linking products to trademarks

The ISP database provides the names under which drugs are marketed as well as their owners and potential licensees that might market products under their own name. We have all trademark filings with INAPI for the period 1991-2010, which contains filings by both residents and non-residents. To associate registered trademarks to pharmaceutical products, we search for product trademarks associated with the drugs' names as well as the owners as reported by ISP in INAPI´s trademark database. Needless to say, this is a very complex process and the current data file by no means exhausts the trademarks that might be associated with our products.

To give an idea of the difficulty, recall that there are about 12,000 pharmaceutical products in the ISP database. The trademark database has about 780,000 registrations (averaging 2 registrations per each distinct trademark), of which there are about 150,000 registrations in the NICE classes 3 (soaps and cosmetics), 5 (pharmaceuticals, dietary, medical supplies), 10 (medical and surgical instruments), and 44 (medical services & beauty care). About 50,000 of these registrations are renewals, leaving 100,00 unique trademarks. Matching even 12,000 names with 100,000 names requires an automated approach. Our initial algorithm cleaned each name (product and trademark) for special characters and did some standardization by removing frequently repeated words from the product name (e.g. "acido" or "compuesto"). We then matched on the first word in each name. The result of this match was examined for obvious errors, and those were removed. A manual search of the trademark database using the remaining unmatched drug names was then performed, which added a few more matches.

The resulting match contains 10,461 unique trademark registration numbers for 4,255 unique trademarks. 9,273 of the 12,116 product names (76 per cent) have been matched to at least one trademark.[11] There are 1,323 unique names of trademark owners. About half of the registrations are renewals and the vast majority of the trademark names are from Nice class 5 (pharmaceuticals), as shown in Table A5 below.

Table A5: Number of trademarks matched, by Nice class

[11] Multiple registrations correspond to the same trademark text: there are many renewals, and text that is the same even if the owner and true trademark are different. So the statistics here may require more work.

Number of trademarks matched, by Nice class

		Number		Shares	
	NICE class	All	Without renewals	Number	Without renewals
3	Soap & cosmetics	775	521	7.4%	10.3%
5	Pharmaceuticals, dietary & medical supplies	9,448	4,385	90.3%	86.3%
10	Medical & surgical instruments	189	129	1.8%	2.5%
44	Medical & beauty services	49	44	0.5%	0.9%
	Total	**10,461**	**5,079**		

Only one NICE class per trademark chosen in order of importance: 5, 10, 3, 44

Table A6 shows the trademark status of the matched and unmatched patents. The majority (77 per cent) of trademark applications are granted and about 21 per cent are rejected or abandoned. As in the case of patents, pending and granted trademarks are much more likely to have been matched to a product in our ISP dataset, although the share that matched is still rather low.

Table A6: Chilean pharma trademark status

Chilean pharma trademark status

	Not matched	Matched to product	Not matched	Matched to product	Share matched
Pending	2,067	102	1.5%	1.0%	4.7%
Granted	105,560	9,525	76.4%	91.1%	8.3%
Rejected	20,443	582	14.8%	5.6%	2.8%
Cancelled	241	7	0.2%	0.1%	2.8%
Abandoned or withdrawn	9,588	245	6.9%	2.3%	2.5%
Not known	336	0	0.2%	0.0%	0.0%
Total	**138,235**	**10,461**			

Pharma NICE classes are 3,5,10, and 44.

Therapeutic classes

The final step in our data construction was to standardize the therapeutic classes attached to each ISP registration. The raw data in the ISP register contained a total of 1,542 distinct therapeutic classes. 248 (1.7 per cent) of the ISP registrations were missing the therapeutic class and we filled in the missing information. The classes in the raw data do not follow a common structure and the same classes may be labelled in different ways. In addition, each entry potentially contains multiple therapeutic classes. We translated these classes and standardized them which included spelling corrections, name harmonizations, and the grouping of related classes (for example we group "antidepressant selective inhibitor of serotonin reuptake" and "antidepressant"), yielding 594 standardized therapeutic classes. In a final step we match the

cleaned and standardized therapeutic classes to a hierarchical classification system maintained by www.drugs.com. This allows us to group therapeutic classes under broad headers and to collapse our data into 19 broad therapeutic groups consisting of 183 classes; we use these classifications for the analysis.

Table A7 shows the number of ISP registrations by broad therapeutic group and Table A8 shows the number of registrations for the more detailed classes that have 100+ associated registrations. In both cases, the numbers are weighted by the inverse of the number of classes attached to that registration.[12] Table A8 shows that many of the most common registrations are for products that are "off-patent", such as NSAIDs, vitamins, analgesics, penicillin, etc., as we expect. Finally Table A9 shows the distribution of products and active ingredients across therapeutic classes. Columns 1 and 3 of Table A9 show that 19 therapeutic classes account for over half the products between them, with the remainder accounted for by the other 164 classes. The remaining columns (2 and 4) of Table A9 show the number of active ingredients associated with each therapeutic class. The class with the largest number of active ingredients is vitamins, which includes various homeopathic remedies that tend to be mixtures containing a number of ingredients.

Table A7: ISP registrations by therapeutic group

[12] There may be as many as 4 classes per registration, although most have only one or two.

ISP registrations by therapeutic group

Broad therapeutic group	*Number*
allergenics	7
alternative medicines	4
anti-infectives	1936
anti-neoplastics	1055
biologicals	3
cardiovascular agents	1165
central nervous system agents	2856
coagulation modifiers	242
gastro-intestinal agents	878
genito-urinary tract agents	99
hormones	771
immunologic agents	315
metabolic agents	743
miscellaneous agents	256
nutritional products	711
plasma expanders	224
psychotherapeutic agents	880
radiologic agents	48
respiratory agents	1064
topical agents	1197
unknown	489
Weighted total	**14,943**

Table A8: ISP registrations by therapeutic class

ISP registrations by therapeutic class

Standardized therapeutic class	*Number*
analgesics	720
nonsteroidal anti-inflammatory agents	712
anti-neoplastics	586
agents for pulmonary hypertension	571
anti-viral agents	443
anti-depressants	397
vitamins	396
antibiotics/anti-neoplastics	377
anti-convulsants	364
anti-fungals	363
anti-histamines	361
anti-psychotics	330
gastrointestinal agents	304
anti-diabetic agents	288
anxiolytics,sedatives,and hypnotics	251
penicillins	249
topical steroids	244
anti-septic and germicides	242
plasma expanders	225
anti-asthmatic combinations	206
contraceptives	172
cephalosporins	165
immunologic agents	164
antacids	154
anti-cholinergics/anti-spasmodics	141
broncho-dilators	140
vasodilators	137
estrogens	136
anti-coagulants	136
macrolide derivatives	135
bone resorption inhibitors	132
anti-emetic/anti-vertigo agents	128
cholesterol absorption inhibitors	123
minerals and electrolytes	120
immuno-stimulants	119
quinolones	119
benzodiazepines	118
anti-tussives	117
topical acne agents	114
hormones	112
Remainder	4,746
Weighted total	**14,943**

Table A9: Products or active ingredients per therapeutic class

Products or active ingredients per therapeutic class

	Number		*Share*	
Class	*Products*	*Active ingredient*	*Products*	*Active ingredient*
analgesics	581	57	4.8%	2.2%
nonsteroidal anti-inflammatory agents	564	41	4.7%	1.6%
anti-neoplastics	464	93	3.8%	3.6%
agents for pulmonary hypertension	435	41	3.6%	1.6%
anti-viral agents	373	89	3.1%	3.4%
vitamins	366	249	3.0%	9.5%
anti-depressants	324	28	2.7%	1.1%
anti-convulsants	323	24	2.7%	0.9%
anti-histamines	303	39	2.5%	1.5%
anti-fungals	292	30	2.4%	1.1%
anti-psychotics	285	31	2.4%	1.2%
anti-diabetic agents	248	33	2.0%	1.2%
antibiotics/anti-neoplastics	247	55	2.0%	2.1%
antiseptic and germicides	223	59	1.8%	2.2%
topical steroids	215	34	1.8%	1.3%
plasma expanders	211	44	1.7%	1.7%
gastrointestinal agents	208	44	1.7%	1.7%
anxiolytics,sedatives,and hypnotics	191	31	1.6%	1.2%
anti-asthmatic combinations	178	16	1.5%	0.6%
penicillins	168	20	1.4%	0.8%
contraceptives	161	17	1.3%	0.6%
immunologic agents	155	41	1.3%	1.6%
antacids	136	25	1.1%	1.0%
anti-cholinergics/anti-spasmodics	132	24	1.1%	0.9%
anti-coagulants	127	37	1.0%	1.4%
estrogens	124	20	1.0%	0.8%
bone resorption inhibitors	121	24	1.0%	0.9%
immuno-stimulants	119	137	1.0%	5.2%
cephalosporins	118	21	1.0%	0.8%
topical acne agents	114	22	0.9%	0.8%
Remainder	4601	1200	38.0%	45.7%
Total	**12104**	**2626**		