

MAXIMUM RESALE PRICE MAINTENANCE AND RETAILER CARTEL PROFITS:  
EVIDENCE FROM THE INDIAN PHARMACEUTICAL INDUSTRY

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**ONLINE APPENDIX: ADDITIONAL MATERIALS**

TABLE A1:  
TIMELINE OF EVENTS RELATED TO TRADE MARGINS AND PRICE CONTROLS IN THE  
INDIAN PHAMACEUTICAL INDUSTRY

Year	Significant event
1960s	Competing trade associations of retailers present in the Indian pharmaceutical industry
1970	Price Controls bestowed 75 to 150 percent markups for manufacturers and retailers began demanding greater retailer margins for themselves
1975	AIOCD became the single retailer trade association and began fighting for greater retailer margins
1979	Price controls revised, included margins from 40 to 100 percent on essential medicines and unlimited margins on non-essential medicines for manufacturers
1980	Mumbai affiliate of AIOCD began boycotting pharmaceutical manufacturers and spread the boycott to other states such as Rajasthan, Gujarat, Maharashtra, Kerala, Karnataka and parts of North India
1982	AIOCD signed an agreement with the trade associations of India and foreign pharmaceutical manufacturers, in which thresholds for retailer trade margins were fixed
1987	Price controls revised for the third time and suggested a trade margin of 18 to 20 percent with 3 percent reserved for the wholesalers
1988	AIOCD organized a strike in which 200,000 retailers shuttered their pharmacies for one day in May
1990	MRPM made mandatory: printing of maximum resale price on packaged goods in India is made compulsory
1995	Price controls revised for the fourth time, threatening AIOCD's profits; manufacturers responded by selectively increasing MRP but not PTR
2002	Proposal to shrink price controls opposed leading to a lengthy legal battle
2004	Government contemplated a proposal to limit trade margin at 35 percent but failed to garner consensus
2004	Sandhu Committee proposes a trade margin of 50 percent but manufacturers oppose
2005	Government contemplated taxing on MRP as opposed to PTR but firms used tax free zones to avoid such measures
2011	National list of essential medicines revised based on WHO model list
2012	Details of which medicines will be regulated were announced and a market-based method to determine the ceiling price introduced; May 2012 prices become the basis for fixing the ceiling price
2013	Price controls fixed for some medicines based on revenues during May 2012-April 2013 and price controls came into effect in August 2013

**TABLE A2:**  
**RETAILER MARGINS DURING NOVEMBER 2012, ONE MONTH BEFORE THE**  
**NOTIFICATION OF 2013 DPCO, AND MAY 2013, ONE MONTH BEFORE THE FIXING OF**  
**CEILING PRICES UNDER 2013 DPCO**

Pharmaceutical Manufacturer	SKUs of the Regulated Amoxicillin Clavulanic Acid 625 mg	Nov 2012		May 2013		Margin in		Diff
		MRP	PTR	MRP	PTR	Nov	May	
Abbott Healthcare Pvt. Ltd	Amoxyclav 500/125 Mg Tablet 6	10.42	8.33	43.33	7.67	25	465	440
Cadila Pharmaceuticals Ltd	Mokcan Cv 500/125 Mg Tablet 6	10.35	8.28	41.67	8.28	25	403	378
Psychotropics India Ltd	Moxipil Cv 500/125 Mg Tablet 6	8.91	7.13	33.33	7.17	25	365	340
Cipla Ltd.	Cipmox Cv 500/125 Mg Tablet 6	12.08	9.67	42	10.37	25	305	280
Monokem Labs	Monomox Cl 500/125 Mg Tablet 10	24	18.29	22.86	6.86	31	233	202
Calibar Pharmaceuticals	Ms Clav 500/125 Mg Tablet 10	29.7	23.76	29.7	11.55	25	157	132
Talent Healthcare	Clevermox 500/125 Mg Tablet 10	28.9	23.12	27.2	11.6	25	134	109
Micro Labs Ltd	Hexamentin 500/125 Mg Tablet 6	11.77	9.42	20.83	9.67	25	116	91
Biochem Pharmaceutical Inds	Penclav 500/125 Mg Tablet 6	14.99	11.65	25.5	11.65	29	119	90
Symbiosis Lab	Amoxy Plus Cv 500/125 Mg Tablet 10	18.09	14.48	19	9.29	25	105	80
Inga Laboratories Pvt. Ltd.	Clamox 500/125 Mg Tablet 6	35.85	28.68	35	18.96	25	85	60
Indian Drug & Pharma Ltd	Clavifast 500/125 Mg Tablet 10	35.24	28.19	35.24	19.28	25	83	58
Comed Chemicals Pvt Ltd	Lacom Cv 500/125 Mg Tablet 10	19.42	15.54	20.4	11.43	25	78	53
Litaka Pharmaceuticals Ltd	Lariclav 500/125 Mg Capsule 10	20.91	16.73	23.9	13.94	25	71	46
Strides Shasun Limited	Octamox Cv 500/125 Mg Tablet 6	18.05	14.44	18.95	11.43	25	66	41
Syncom Formulations (I) Limited	Pensyn 500/125 Mg Tablet 6	17.28	13.82	18	11.43	25	58	33
Cipla Ltd.	Novaclav 500/125 Mg Tablet 6	35	28	42	28	25	50	25
Prescription Medicines Pvt Ltd	Claxin 500/125 Mg Tablet 6	22	20.72	26.32	20.72	6	27	21
Dr. Johns Laboratories Pvt Ltd	Navclav 500/125 Mg Tablet 10	23.99	10.69	23.95	9.85	124	143	19
Speciality Meditech Pvt Ltd	Sp Clav 500/125 Mg Tablet 6	22.82	18.25	23	16.67	25	38	13
Psychotropics India Ltd	Radimentin 500/125 Mg Tablet 6	14.69	11.75	16.25	12.32	25	32	7
Deys Medical	Ac (Deys) 500/125 Mg Tablet 6	18.21	14.57	19.17	14.57	25	32	7
Fdc Ltd.	Ab-Cv 500/125 Mg Tablet 6	15.55	12.44	16.33	12.44	25	31	6
Macleods Pharmaceuticals Pvt.Ltd	Polyclav 500/125 Mg Tablet 6	11.24	8.99	11.8	8.99	25	31	6
Abbott Healthcare Pvt. Ltd	Tresmox Cv 500/125 Mg Tablet 6	15.24	12.19	16	12.19	25	31	6
Molekul (Ind)Pvt Ltd	Penhance 500/125 Mg Tablet 6	22.86	18.28	24	18.28	25	31	6
Usv Ltd	Twinox 500/125 Mg Tablet 6	16.2	12.97	17.02	12.97	25	31	6
Morepen Laboratories Limited	Eradiclav 500/125 Mg Tablet 6	17.62	14.1	18.5	14.1	25	31	6
Mankind Pharmaceuticals Ltd.	Moxikind Cv 500/125 Mg Tablet 6	11.42	9.14	11.99	9.14	25	31	6
Mankind Pharmaceuticals Ltd.	Moxiforce Cv 500/125 Mg Tablet 6	11.42	9.14	11.99	9.14	25	31	6
Novartis India Ltd	Pactel 500/125 Mg Tablet 6	36.19	28.95	38	28.95	25	31	6
Dr. Reddys Laboratories Ltd	Clamp 500/125 Mg Tablet 10	17.62	14.09	18.5	14.09	25	31	6
Indoco Remedies Ltd	Amclaid 500/125 Mg Tablet 6	15.71	12.57	16.5	12.57	25	31	6
Indoco Remedies Ltd	Axl Cv 500/125 Mg Tablet 6	15.71	12.57	16.5	12.57	25	31	6
Veritaz Healthcare Ltd	Pressclav 500/125 Mg Tablet 6	15.71	12.57	16.5	12.57	25	31	6
Indoco Remedies Ltd	Clamchek 500/125 Mg Tablet 6	15.71	12.57	16.5	12.57	25	31	6
Flamingo Pharmaceuticals	Flamclav 500/125 Mg Tablet 6	15.71	12.57	16.5	12.57	25	31	6
Ordain Healthcare Pvt. Ltd	Mucoclav 500/125 Mg Tablet 6	31.73	25.38	33.32	25.38	25	31	6
Ozone Pharmaceuticals	Xpand 500/125 Mg Tablet 6	14.28	11.43	15	11.43	25	31	6
Ozone Pharmaceuticals	Clavcare 500/125 Mg Tablet 6	14.28	11.43	15	11.43	25	31	6
Lupin Ltd	Duet 500/125 Mg Tablet 10	17.14	13.71	18	13.71	25	31	6
United Biotech (P) Ltd	Clavox 500/125 Mg Tablet 6	35	28	36.58	27.87	25	31	6
Shreya Life Sciences Pvt. Ltd	Hibrid 500/125 Mg Tablet 6	19.05	15.24	20	15.24	25	31	6
Troikaa Pharmaceuticals Ltd	Auguka 500/125 Mg Tablet 6	19.05	15.24	20	15.24	25	31	6
Khandelwal Laboratories Ltd	Clarence 500/125 Mg Tablet 6	16.98	13.59	17.83	13.59	25	31	6
Gujarat Terce Laboratories Ltd	Moxxil Duo 500/125 Mg Tablet 10	21.43	17.14	19	14.48	25	31	6
Shine Pharmaceuticals Ltd	Romox Cl 500/125 Mg Tablet 6	27.24	21.8	28.33	21.59	25	31	6
Cadila Pharmaceuticals Ltd	Symbiotik Xl 500/125 Mg Tablet Xl 6	20.71	16.57	21.75	16.57	25	31	6
Elder Pharmaceuticals Ltd	Clavactum 500/125 Mg Tablet 6	13.81	11.05	15.83	12.06	25	31	6
Bestochem Formulations (I) Ltd	Bestomax 500/125 Mg Tablet 6	15.71	12.57	16.55	12.61	25	31	6
Overseas Healthcare Pvt Ltd.	Moxigem 500/125 Mg Tablet 6	18.95	15.16	19.9	15.16	25	31	6
Pfizer Ltd	Warclav 500/125 Mg Tablet 6	18.95	15.16	19.9	15.16	25	31	6
Indchemie Health Specialities Pvt. Ltd.	Indclav 500/125 Mg Tablet 10	17.05	13.64	17.9	13.64	25	31	6
Medreich Lifecare Limited	Benzoclav 500/125 Mg Tablet 10	19.97	15.97	20.97	15.97	25	31	6
Medreich Lifecare Limited	Benzoclav 500/125 Mg Tablet 7	28.52	22.82	29.95	22.82	25	31	6
Panacea Biotech Ltd	Valumentin 500/125 Mg Tablet 10	19.05	15.24	20	15.24	25	31	6
Dial Pharmaceuticals Pvt. Ltd.	Dilmox Cv 500/125 Mg Tablet 10	19.05	15.24	20	15.24	25	31	6
Lupin Ltd	Clavidur 500/125 Mg Tablet 6	16.56	13.24	17.38	13.24	25	31	6
	Joyclav (Aku) Solu 500/125 Mg Tablet 6							
Akumentis Healthcare Ltd		18.89	15.11	19.83	15.11	25	31	6
Blue Cross Laboratories Ltd	Blumox Ca 500/125 Mg Tablet 6	20	16	29.17	22.22	25	31	6
United Biotech (P) Ltd	Clavox (United) 500/125 Mg Tablet 4	52.27	41.82	54.88	41.81	25	31	6
Wanbury Ltd	Clavcure 500/125 Mg Tablet 6	30.95	24.76	32.5	24.76	25	31	6
Novartis India Ltd	Curam 500/125 Mg Tablet 10	36.19	28.95	38	28.95	25	31	6
Aristo Pharmaceuticals Pvt.Ltd	Mega Cv 500/125 Mg Tablet 6	15.79	12.63	16.58	12.63	25	31	6
Dr. Johns Laboratories Pvt Ltd	Roclav 500/125 Mg Tablet 10	27.53	22.03	27.49	20.94	25	31	6
Fdc Ltd.	Flemiclav 500/125 Mg Tablet 6	15.6	12.48	16.38	12.48	25	31	6
Dwd Pharmaceuticals Ltd	Moxbro Cv 500/125 Mg Tablet 10	14.28	11.42	14.99	11.42	25	31	6
Abaris Healthcare	Barrister 500/125 Mg Tablet 6	18.09	14.48	19	14.48	25	31	6
Abbott Healthcare Pvt. Ltd	Co Symoxyl 500/125 Mg Tablet 6	11.33	9.07	11.9	9.07	25	31	6
Sh Pharmaceuticals Ltd	Kokkos Clav 500/125 Mg Tablet 6	16.67	13.33	17.5	13.33	25	31	6
Dr. Johns Laboratories Pvt Ltd	Roclav 500/125 Mg Tablet 6	43.63	34.91	45.82	34.91	25	31	6

Gold Line	Amclue 500/125 Mg Tablet 10	24.76	19.81	26	19.81	25	31	6
Divine Lifecare Pvt Ltd	Zyclav 500/125 Mg Tablet 10	17.14	13.71	18	13.71	25	31	6
Corona	Xoclave 500/125 Mg Tablet 6	14.6	11.68	15.33	11.68	25	31	6
Alembic Ltd	Megaclav 500/125 Mg Tablet 10	16.91	13.52	17.75	13.52	25	31	6
Cachet Pharmaceuticals Pvt Ltd	Lactoclaav 500/125 Mg Tablet 10	16.29	13.03	17.1	13.03	25	31	6
I-Med Healthcare	Monk Cv 500/125 Mg Tablet 6	20.95	16.76	33	25.14	25	31	6
Karnataka Antibiotics & Pharma Ltd	Verclav 500/125 Mg Tablet 6	19.84	15.87	20.83	15.87	25	31	6
Eris Life Sciences Pvt Ltd	Nikomox Cv 500/125 Mg Tablet 6	23.81	19.05	25	19.05	25	31	6
Eris Life Sciences Pvt Ltd	Nikomox Cv 500/125 Mg Tablet 10	14.29	11.43	15	11.43	25	31	6
Cadila Pharmaceuticals Ltd	Lmx Forte 500/125 Mg Tablet 6	20.81	16.65	21.85	16.65	25	31	6
Abbott Healthcare Pvt. Ltd	Fightox 500/125 Mg Tablet 6	11.33	9.07	13	9.9	25	31	6
Morepen Laboratories Limited	Eradiclav 500/125 Mg Tablet 10	10.62	8.5	11.1	8.46	25	31	6
Que Pharma Pvt. Ltd.	Q Mox Cv 500/125 Mg Tablet 6	13.33	10.67	15.5	11.81	25	31	6
Morepen Laboratories Limited	Cvmox 500/125 Mg Tablet 6	10.42	8.33	27.5	20.95	25	31	6
An Pharmaceuticals Pvt.Ltd.	Ansquare 500/125 Mg Tablet 10	28.58	22.87	30	22.86	25	31	6
East India Pharmaceutical Works Ltd.	Flemoxin Cv 500/125 Mg Tablet 6	28.97	23.17	30.13	22.96	25	31	6
Indswift Laboratories Ltd.	Topclav 500/125 Mg Tablet 10	18.55	14.84	19.38	14.84	25	31	6
Indswift Laboratories Ltd.	Topclav 500/125 Mg Tablet 4	46.38	37.1	48.45	37.1	25	31	6
Skymax Laboratories Ltd.	Ulticlav 500/125 Mg Tablet 6	20.14	16.11	16.5	12.66	25	30	5
Cipla Ltd.	Omniclav 500/125 Mg Tablet 6	17.26	13.81	18	13.81	25	30	5
Cipla Ltd.	Clavmox 500/125 Mg Tablet 6	17.26	13.81	18	13.81	25	30	5
Centaur Pharmaceuticals Pvt.Ltd	Abclox Cv 500/125 Mg Tablet 6	15.79	12.63	16.58	12.73	25	30	5
Apostle Remedies	Penom Clav 500/125 Mg Tablet 6	12.49	9.99	13	9.99	25	30	5
Apex Laboratories Ltd.	Pexooclav 500/125 Mg Tablet 6	18.22	14.58	19	14.6	25	30	5
Hetero Healthcare Ltd	Mpx Cv 500/125 Mg Tablet 6	15.85	12.68	16.5	12.68	25	30	5
Galpha Laboratories Ltd	Clanoxo 500/125 Mg Tablet 10	21.06	16.85	21.9	16.83	25	30	5
Glaxosmithkline Pharmaceuticals Ltd.	Augmentin 500/125 Mg Tablet 6	42.19	33.75	43.92	33.75	25	30	5
Glaxosmithkline Pharmaceuticals Ltd.	Augmentin Duo 500/125 Mg Tablet 6	42.19	33.75	43.92	33.75	25	30	5
Unichem Laboratories Ltd	Myclav 500/125 Mg Tablet 6	18.81	15.05	19.88	15.28	25	30	5
Zuventus Healthcare Ltd	Augpen Bid 500/125 Mg Tablet 10	14.46	11.57	15.05	11.57	25	30	5
Cipla Ltd.	Advent 500/125 Mg Tablet 6	17.29	13.84	18	13.84	25	30	5
Cipla Ltd.	Novamox Cv 500/125 Mg Tablet 6	17.29	13.84	18	13.84	25	30	5
Micro Labs Ltd	Bactoclav 500/125 Mg Tablet 6	17.29	13.84	19.33	14.86	25	30	5
Unireach Healthcare Pvt Ltd	Amplifyer 500/125 Mg Tablet 10	16.33	13.07	17	13.07	25	30	5
Leben Laboratories Pvt.Ltd	Moxileb Cv 500/125 Mg Tablet 6	15.24	12.19	16	12.31	25	30	5
Indica Laboratories Pvt. Ltd.	Moxica Cv 500/125 Mg Tablet 6	13.48	10.78	18.17	13.97	25	30	5
Sanat Products Ltd	Forticlav 500/125 Mg Tablet 6	23.65	18.92	24.83	19.1	25	30	5
Paras Pharmaceuticals Ltd.	Aksimax 500/125 Mg Tablet 10	16.16	12.93	16.8	12.93	25	30	5
Kaptab	Amotid Clav 500/125 Mg Tablet 6	15.85	12.68	16.5	12.7	25	30	5
Medo Pharma	Cledomox 500/125 Mg Tablet 6	18.25	14.6	19	14.63	25	30	5
Ordain Healthcare Pvt. Ltd	Mucoclav 500/125 Mg Tablet 10	19.3	15.44	19.99	15.44	25	29	4
Alkem Laboratories Ltd.	Clavam 500/125 Mg Tablet 10	19.29	15.43	20.08	15.55	25	29	4
Algen Healthcare Pvt Ltd	Fmclav 500/125 Mg Tablet 6	43.33	34.39	44.42	34.39	26	29	3
Intel Pharmaceuticals	Clavosis 500/125 Mg Tablet 10	22.36	17.89	22.9	17.89	25	28	3
Kenn Pharmaceuticals	Clavlin 500/125 Mg Tablet 6	23.54	18.83	26.9	21.21	25	27	2
Apex Laboratories Ltd.	Monoclav 500/125 Mg Tablet 10	20.4	16.32	20.4	16.12	25	27	2
Vintage Labs Pvt. Ltd.	Vinclav 500/125 Mg Tablet 10	25.04	20.03	25	19.8	25	26	1
Dr. Johns Laboratories Pvt Ltd	Jonclav 500/125 Mg Tablet 10	26.17	20.94	27.48	21.81	25	26	1
Symbiotic Drugs	Duroclav 500/125 Mg Tablet 6	19.34	15.48	19.5	15.48	25	26	1
Ronyd Health Care Pvt Ltd	Ronclav 500/125 Mg Tablet 6	28.09	22.47	28.32	22.47	25	26	1
Shrinivas Gujarat Laboratories Pvt Ltd	Niomox Cv 500/125 Mg Tablet 6	13.54	10.83	13.65	10.83	25	26	1
Icarus Healthcare Primus	Laciclav 500/125 Mg Tablet 6	21.68	17.34	21.85	17.34	25	26	1
Biochem Pharmaceutical Inds	Penclav 500/125 Mg Tablet 10	15.3	11.8	15.3	11.76	30	30	0
Alde Medi Impex	Demoxin Cv 500/125 Mg Tablet 6	26.1	20.88	26.1	20.88	25	25	0
Dr. Johns Laboratories Pvt Ltd	Jonclav 500/125 Mg Tablet 6	26.18	20.94	45.8	36.64	25	25	0
Pfizer Ltd	Warclav Duo 500/125 Mg Tablet 6	36.28	29.03	36.28	29.03	25	25	0
Obsurge Biotech Ltd	Duciclav 500/125 Mg Tablet 5	22.8	17.37	22.8	17.37	31	31	0
Vilberry Healthcare Pvt Ltd	Bilclav 500/125 Mg Tablet 10	23.81	19.05	23.81	19.05	25	25	0
Cipla Ltd.	Cipclav 500/125 Mg Tablet 6	36	28.8	36	28.8	25	25	0
Aksigen Hospital Care	Aksimax 500/125 Mg Tablet 6	28	21.33	28	21.33	31	31	0
Medley Pharmaceuticals	Zoxil Cv 500/125 Mg Tablet 6	18.08	13.78	18.08	13.78	31	31	0
Cipla Ltd.	Novamox Cv 500/125 Mg Tablet 10	16.09	13.08	16.09	13.08	23	23	0
Goddres Pharmaceuticals Ltd	Godclav 500/125 Mg Tablet 6	28	21.33	28	21.33	31	31	0
Ozone Pharmaceuticals	Xtend 500/125 Mg Tablet 6	36.22	28.98	36.22	28.98	25	25	0
Mmc Healthcare Ltd.	Moxodin Cv 500/125 Mg Tablet 6	20	15.35	20	15.35	30	30	0
Macleods Pharmaceuticals Pvt.Ltd	Acuclav 500/125 Mg Tablet 6	18.51	8.99	18.51	8.99	106	106	0
Macleods Pharmaceuticals Pvt.Ltd	Sensiclav 500/125 Mg Tablet 6	16.82	13.46	16.82	13.46	25	25	0
Torrent Pharmaceuticals Ltd.	Tormoxin Clav 500/125 Mg Tablet 6	19.5	14.86	19.5	14.86	31	31	0
Abbott Healthcare Pvt. Ltd	Megamox Cv 500/125 Mg Tablet 10	7.09	5.67	13	10.4	25	25	0
Frankfurt Pharma Pvt Ltd	Co Clav 500/125 Mg Tablet 10	18.01	14.41	17.94	14.41	25	24	0

Notes: I show in this table the relative increase in retail margins for various brands of Amoxicillin Clavulanic Acid over a six month period between November 2012, just before the public notification of the 2013 DPCO and May 2013, just before the ceiling price for the medicine is fixed.

TABLE A3:  
DETERMINING THE CEILING PRICE PER TABLET FOR AMOXICILLIN CLAVULANIC ACID USING MRP AND PTR (PER TABLET) AND  
USING MAY 2012 PRICES DRAWN FROM THE AIOCD DATA FOR SKUs WITH MORE THAN 1 PERCENT MARKET SHARE

Company	SKU	MRP	PTR	Share
Glaxosmithkline Pharmaceuticals Ltd.	Augmentin Duo 500/125 Mg Tablet 6	43.92	33.75	16.61
Mankind Pharmaceuticals Ltd.	Moxikind Cv 500/125 Mg Tablet 6	11.99	9.14	14.28
Alkem Laboratories Ltd.	Clavam 500/125 Mg Tablet 10	20.08	15.55	12.53
Glaxosmithkline Pharmaceuticals Ltd.	Augmentin 500/125 Mg Tablet 6	43.92	33.75	10.04
Macleods Pharmaceuticals Pvt.Ltd	Sensiclav 500/125 Mg Tablet 6	16.83	13.46	3.24
Ranbaxy Laboratories Ltd	Moxclav 500/125 Mg Tablet 10	38.69	30.71	2.90
Aristo Pharmaceuticals Pvt.Ltd	Mega Cv 500/125 Mg Tablet 6	16.58	12.64	2.35
Abbott Healthcare Pvt. Ltd	Megamox Cv 500/125 Mg Tablet 10	13.00	10.40	2.12
Macleods Pharmaceuticals Pvt.Ltd	Polyclav 500/125 Mg Tablet 6	11.80	8.99	1.67
Abbott Healthcare Pvt. Ltd	Fightox 500/125 Mg Tablet 6	13.00	9.91	1.63
Indchemie Health Specialities Pvt. Ltd.	Indclav 500/125 Mg Tablet 10	17.90	13.64	1.62
Micro Labs Ltd	Bactoclav 500/125 Mg Tablet 6	19.33	14.86	1.59
Mankind Pharmaceuticals Ltd.	Moxiforce Cv 500/125 Mg Tablet 6	11.99	9.14	1.48
Cipla Ltd.	Advent 500/125 Mg Tablet 6	18.00	13.84	1.39
Lupin Ltd	Duet 500/125 Mg Tablet 10	18.00	13.71	1.01
Cipla Ltd.	Novamox Cv 500/125 Mg Tablet 6	18.00	13.84	1.01
Hetero Healthcare Ltd	Mpx Cv 500/125 Mg Tablet 6	16.50	12.68	1.00
Ceiling price calculated as the simple average of May 2012 MRPs for SKUs with >1% share		<b>20.56</b>		
Ceiling price calculated as the simple average of May 2012 PTRs for SKUs with >1% share + 16 % retailer margin			<b>18.42</b>	
Total Market Share of SKUs with > % market share during May 2012 – April 2013				<b>76.5</b>

TABLE A4:  
ESTIMATES OF THE IMPACT OF LOW RETAIL TRADE MARGIN ON MANUFACTURER  
MARKET SHARE

Column	1	2
		All Seven Medicine Markets
	Amoxicillin Clavulanic Acid Tablet Market	(Tablets, Syrups, and Injection)
Sample Dependent Variable (zero to one)	SKU Market Share	SKU Market Share
Maximum Retail Price (MRP, measured in thousands of INR)	-0.10 [0.143]	0.21*** [0.077]
Low Margin (=1 if Margin <= 30 percent)	0.05** [0.025]	-0.00 [0.017]
After 2013 Regulation (=1 if after August 2013)	0.03 [0.084]	0.02 [0.054]
Regulation (=1 if Regulated under 2013 Regulation)	2.20*** [0.160]	3.17*** [0.225]
Low Margin X After 2013 Regulation	0.07* [0.037]	0.06*** [0.021]
After 2013 Regulation X Regulation	-0.04 [0.023]	0.02 [0.024]
Regulation X Low Margin	0.07*** [0.027]	0.01 [0.021]
<b>Low Margin X After 2013 Regulation X Regulation</b>	<b>-0.14***</b> [0.048]	<b>-0.06*</b> [0.033]
Market Concentration (HHI Index)	-1.12 [1.598]	0.41* [0.245]
		-
Constant	-9.25*** [0.130]	10.38*** [0.198]
Observations	25,468	120,808
SKU Fixed Effects	Included	Included
Month Fixed Effects	Included	Included
Pseudo R Squared	0.26	0.38

*Notes:* The table presents estimates of fractional logit regression of SKU market shares in medicine markets. The first column contains the estimates for the subsample of Amoxicillin Clavulanic Acid tablets and the second column contains the estimates for the sample of seven anti-infective medicines with no prior history of regulation before 2013 that entered into partial price regulation after the 2013 regulation (see Table 1). Some doses of these medicines in each delivery form became regulated, and some remained unregulated, providing an opportunity to compare the changes to market shares controlling for supply-side factors such as changes in input costs. I estimate the following triple-differences equation:

$$\begin{aligned}
 \text{Market Share}_{it} = & \alpha + \beta \cdot \text{Price}_{it} + \gamma \cdot \text{Low Margin}_{it} + \delta \cdot \text{Regulation}_{it} + \theta \cdot \text{After 2013} + \\
 & \omega \cdot \text{Low Margin}_{it} * \text{Regulation}_{it} + \kappa \cdot \text{Regulation}_{it} * \text{After 2013} + \nu \cdot \text{Low Margin}_{it} * \\
 & \text{After 2013} + \eta \cdot \text{Low Margin}_{it} * \text{Regulation}_{it} * \text{After 2013} + \psi_i + \delta_t + \epsilon_{it} \quad (1)
 \end{aligned}$$

where Market Share is an SKU-specific market share of the manufacturer within medicine, within a delivery type, within a regulation category. The SKU is indexed by  $i$  and time indexed by  $t$ . The variable Price is MRP measured in thousands of Rupees. The variable Low Margin is set to one if an SKU offers a trade margin of 30 percent or less and zero otherwise. The variable Regulation is set to one if the dosage strength of the SKU is regulated and zero otherwise. The variable After 2013 is set to one beginning in August 2013 and zero otherwise. I include SKU fixed effects ( $\psi_i$ ) and time fixed effects ( $\delta_t$ ). I am interested in the coefficient estimate of  $\eta$ . A negative estimate indicates that the regulated SKUs of Amoxicillin Clavulanic Acid that did not inflate their MRP to offer a trade margin of more than 30 percent prior to the 2013 regulation experienced a decline in their market share after the 2013 regulation relative to before and relative to other regulated SKUs and relative to other SKUs in unregulated doses of the same medicine. Robust standard errors in brackets; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

TABLE A5:  
ESTIMATES OF THE IMPACT OF LOW RETAIL TRADE MARGIN ON RETAILER PROFIT

Column	1	2
		All Seven Medicine Markets
	Amoxicillin Clavulanic Acid Tablet Market	(Tablets, Syrups, and Injection)
Sample	Log SKU Retailer Revenue	
Dependent Variable		
Maximum Retail Price (MRP, measured in thousands of INR)	2.00* [1.141]	2.31** [0.962]
Low Margin (=1 if Margin <= 30 percent)	-0.31*** [0.034]	-0.43*** [0.018]
After 2013 Regulation (=1 if after August 2013)	-0.05 [0.086]	-0.09** [0.044]
Regulation (=1 if Regulated under 2013 regulation)	-	-
Low Margin X After 2013 Regulation	-0.03 [0.042]	-0.03 [0.022]
After 2013 Regulation X Regulation	-0.06 [0.040]	-0.15*** [0.021]
Regulation X Low Margin	-0.08* [0.044]	-0.19*** [0.022]
<b>Low Margin X After 2013 Regulation X Regulation</b>	<b>-0.15**</b> [0.059]	<b>-0.08***</b> [0.028]
Market Concentration (HHI Index)	-2.79** [1.240]	-2.71*** [0.196]
Constant	11.07*** [0.195]	10.78*** [0.090]
Observations	25,460	120,784
SKU Fixed Effects	Included	Included
Month Fixed Effects	Included	Included
Pseudo R Squared	0.843	0.848

*Notes:* The table presents estimates of OLS regression of retailer revenues at the SKU level in medicine markets. The first column contains the estimates for the subsample of Amoxicillin Clavulanic Acid tablets and the second column contains the estimates for the sample of seven anti-infective medicines with no prior history of regulation before 2013 that entered into partial price regulation after the 2013 regulation (see Table 1). Some doses of these medicines in each delivery form became regulated, and some remained unregulated, providing an opportunity to compare the changes to market shares controlling for supply-side factors such as changes in input costs. See notes for Table 3 for additional information. Robust standard errors in brackets; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

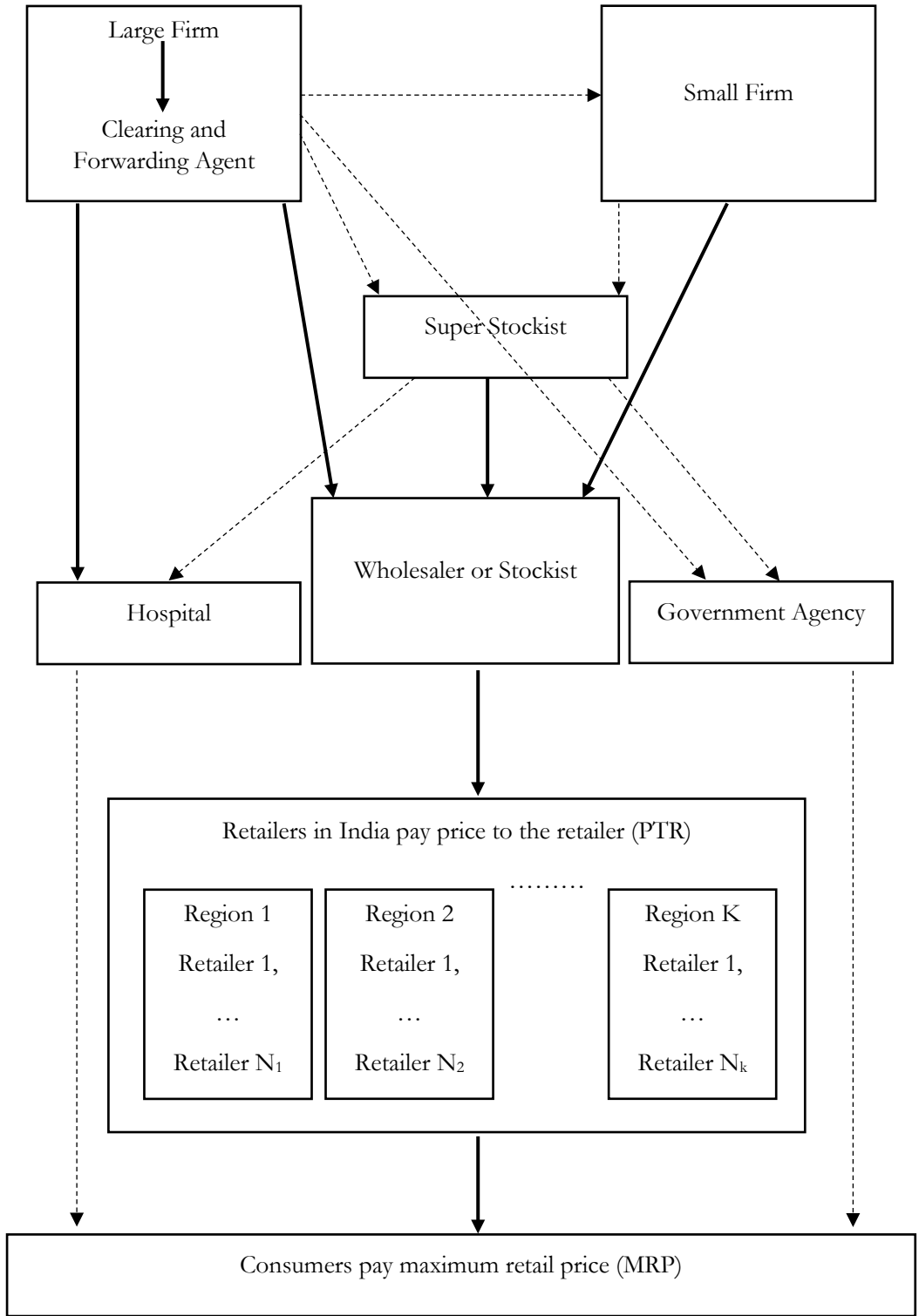


FIGURE A1: THE INDIAN PHARMACEUTICAL DISTRIBUTION SYSTEM

*Notes.* The solid lines indicate major channels of distribution and the dashed lines indicate minor channels of distribution of pharmaceuticals in India.