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IMPACT OF HORIZONTAL MERGERS ON PLAN PREMIUMS & DRUG FORMULARIES IN MEDICARE PART D

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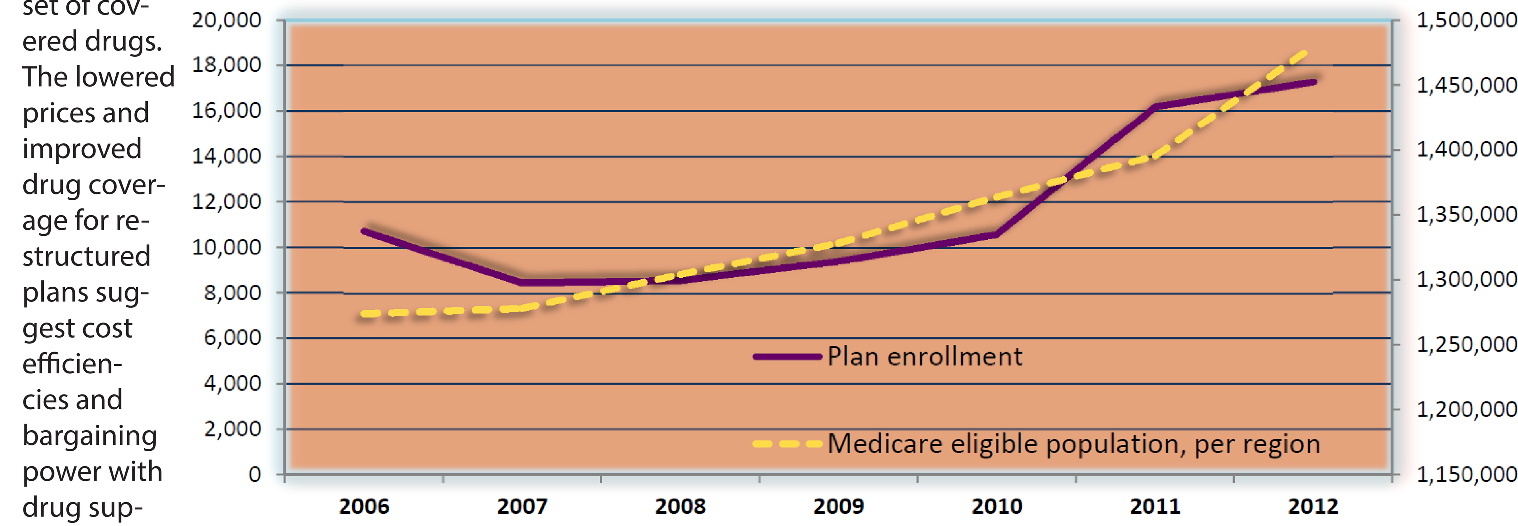
ABSTRACT

In this paper, we examine the impact of horizontal mergers amongst insurers on competition in the Medicare Part D prescription drug market. Theory predictions about the effect of mergers on price and product quality are confounded by three competing forces: increased cost efficiency, market power, and bargaining power with upstream suppliers. Using panel data for the full set of plans offered by Part D insurers between 2006-2012, we use a differences-in-differences identification strategy to document the effect that merger activity has on plan pricing and drug coverage characteristics. We find that plans affected by a merger experience higher premiums as a result of increased market power. However, for merging insurers that restructure their plan offerings, price falls to offset the market power effect. The results on drug formulary measures show that merging on its own has no effect on the generosity of drug coverage. Yet for restructured plans, there are sizable merger effects on coverage in the form of reduced copay/coinsurance rates and increased scope in the set of covered drugs. The lowered prices and improved drug coverage for restructured plans suggest cost efficiencies and bargaining power with drug suppliers are a major source of gains stemming from mergers.

Trends in Medicare Part D Enrollment, 2006-2012.



MOTIVATION

Part D is a recently created program that established a regulated and subsidized insurance exchange for senior citizens to purchase prescription drug coverage from competing private insurers. The program lifetime overlapped with a dozen large scale horizontal M&A deals involving the parent companies of insurers offering Part D plans. Each year, an average of 16% of all insurance plans are directly affected by an M&A deal.

Theoretical effect of mergers is ambigous. There are three competing forces involved:

1. Increased productive efficiency or enhanced quality of product offerings (+)
2. Increased monopsony or bargaining power over suppliers (+)
3. Reduced competition that leads to higher prices for customers and/or lower product quality if firms compete on quality dimensions (-)

We overcome one of the main drawbacks experienced by the earlier research by obtaining a highly detailed data set.

BACKGROUND: MEDICARE PART D

Medicare Part D is a program that expands existing health insurance coverage for the elderly. It adds prescription drug coverage to Medicare.

It was authorized under the 2003 "Medicare Prescription Drug, Improvement, and Modernization" Act and enacted in 2006.

As of January 1st, 2006 22.5mln of 43mln eligible individuals signed up. Enrollment is voluntary*.

Estimated 10-year program cost between 2009-2018 is $727.3bn (Medicare Trustees Report).

Part D is subsidized by the government but the benefit is offered by private insurers who may freely enter and exit the market, choose the number of plans to offer, and set monthly premiums. They are also largely responsible for the benefit design: the number and type of drugs to cover and the conditions of such coverage.

The regulations establish a number of coverage standards. All providers are required to offer at least one basic plan that meets (or is actuarially equivalent to) a minimum coverage level with respect to the deductible, coinsurance and copayment rates, and the scope of drugs covered on the formulary. In addition to a basic plan, the companies may offer enhanced plans that have more generous coverage through a combination of lower deductibles, lower copay/coinsurance rates, and drug coverage for a larger set of medical condition.

The government is not involved in drug prices negotiations.

PLAN-LEVEL DATA

We utilize detailed longitudinal data on plans that includes an average of 1,500 stand-alone, Part D plans (PDPs) per year. The data span 7 years from 2006 when Medicare Part D was introduced to the most recently available data in 2012 and covers all 39 geographical markets.

During the sample period the premium increased by 43% and the average plan market share went up by approximately the same amount. Another way to look at it, average plan enrollment of all and in particular subsidized beneficiaries increased. The number of plans offered in each region plummeted. The program enrollment grew by 16% over 7 years.

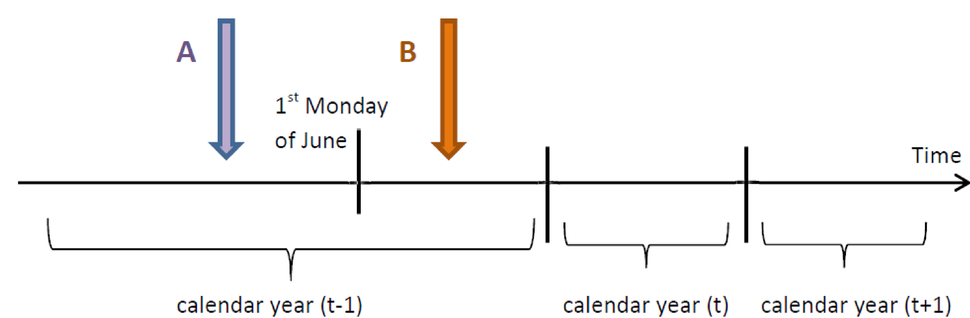
Plan-level data come from the Centers for Medicare and Medicaid.

MERGER DEALS

We collected data on M&A activity from the Securities Data Company merger and acquisition module which contains detailed information on all deals involving public and private companies.

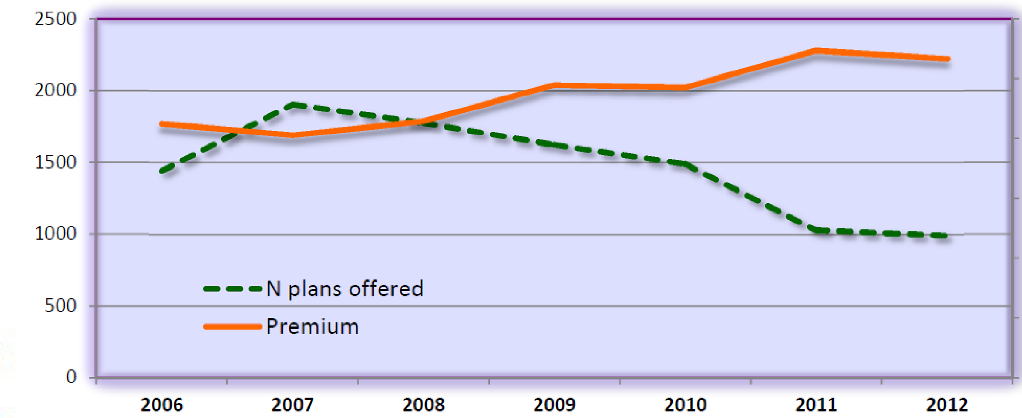
In the time frame suitable for our analysis, from 2006 to 2011 we identified a total of 11 completed horizontal M&A deals amongst companies that offer Medicare Part D policies.

We restrict attention to horizontal mergers and acquisitions of assets where either participants or their immediate subsidiary offered a PDP at least in the year prior to the merger completion date. We exclude all the deals where one or both companies belong to a non-Part D line of insurance (such as life insurance), joint ventures of Part D insurers into related lines of business (such as pharmacy management) and vertical mergers with pharmacies.

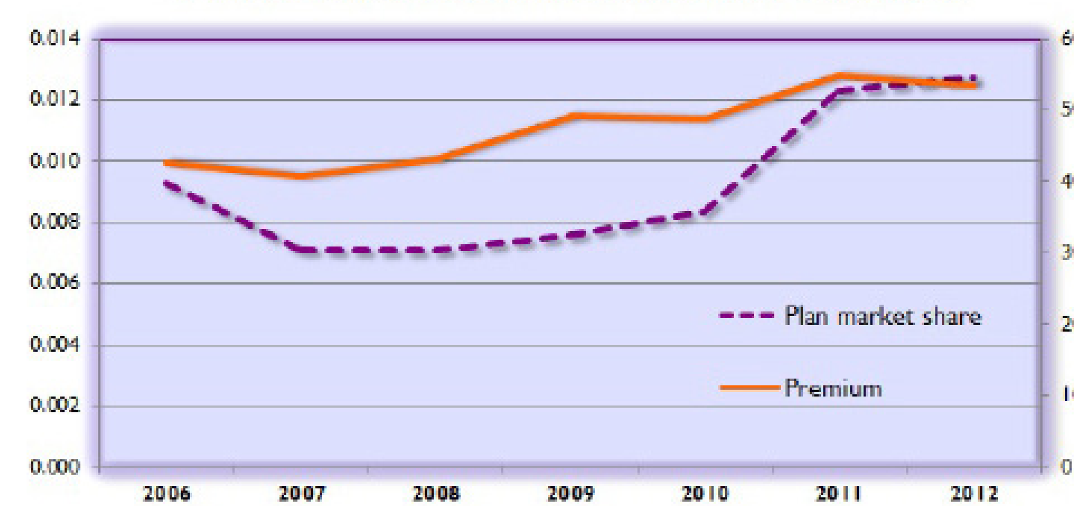


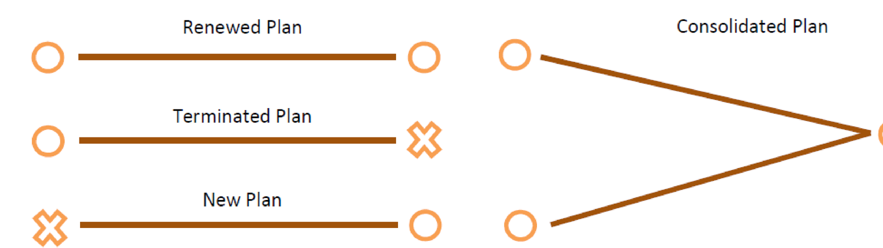
Deal	Acquiror	Target	Merger Value, ($mil)	Completion Date	Form
1	United HealthCare Services Inc	PacifiCare Health Systems Inc	$7,510.9	12/21/05	M
2	MemberHealth Inc	AmeriHealth Ins Co-Medicare	N/A	11/16/06	AA
3	Medical Mutual of Ohio	Carolina Care Plan Inc	N/A	05/18/07	AA
4	Universal Holding Corp	MemberHealth Inc	$780.0	09/21/07	AA
5	UnitedHealth Group Inc	Sierra Health Services Inc	$2,425.3	02/25/08	M
6	CVS Caremark Corp	Longs Drug Stores Corp	$2,637.4	10/30/08	M
7	CVS Caremark Corp	Universal American Corp	N/A	12/31/08	DJV
8	United HealthCare Services Inc	Health Net-US Northeast	$630.0	12/11/09	AA
9	HealthSpring Inc	Bravo Health Inc	$545.0	11/30/10	M
10	Munich Health North America	Windsor Health Group Inc	$131.0	01/04/11	M
11	CVS Caremark Corp	Universal American Corp	$1,058.8	04/29/11	M

PLAN PREMIUMS VS. NUMBER OF PLANS



PLAN PREMIUMS VS. MARKET SHARES





EMPIRICAL MODEL

We run several differences-in-differences specifications to estimate the treatment effect of M&A deals on health plan characteristics. The first set of specifications considers the effect of mergers on the monthly premium (plan price). Then, these specifications are re-estimated for the plan quality characteristics.

$$p_{it}-p_{it-1}=\alpha+\beta D_{it}+(\mathbf{X}_{it}-\mathbf{X}_{it-1})'\beta+\varphi_t+\theta_t^{Reg}+\phi_t^{Ins}+\epsilon_{it}$$

- p_{it} = monthly premium of plan **i** in year **t**.
- D_{it} = 1 if plan **i** in year **t** was involved in a merger.
- X_{it}: controls (plan attributes).
- φ_t: Year F.E.
- θ_t^{Reg}: Region F.E.
- ϕ_t^{Ins}: Insurer F.E.

$$p_{it}-p_{it-1}=\alpha+\beta_1 D_{it}^{cons}+\beta_2 D_{it}^{merge}+\beta_3 D_{it}^{cons}\times D_{it}^{merge}+(\mathbf{X}_{it}-\mathbf{X}_{it-1})'\beta+\varphi_t+\theta_t^{Reg}+\phi_t^{Ins}+\epsilon_{it}$$

- D_{it}^{cons} = 1 if plan **i** in year **t** was consolidated.
- D_{it}^{merge} = 1 if plan **i** in year **t** was involved in a merger.
- X_{it}: controls (plan attributes).

RESULTS

We report four main sets of results on the effects of mergers:

- I. Price effects (on plan premiums)
- II. Quality effects
  1. number of top100 drugs covered
  2. total number of drugs covered
  3. price of the basket of top-100 drugs

PREMIUMS

RESULTS(1): EFFECT OF MERGERS ON PLAN PREMIUMS

	A		B		C	
	(1)	(2)	(1)	(2)	(1)	(2)
Merger plan	1.703	3.607			2.241	3.840
	(0.363)	(2.219)			(0.400)	(2.494)
Consolidated plan			-4.221	-3.861	-3.911	-3.422
			(0.320)	(1.339)	(0.343)	(1.547)
Consolidated x Merger plan					-2.199	-2.105
					(0.827)	(2.127)
Year & Region fixed effects	Y	Y	Y	Y	Y	Y
Insurer fixed effects		Y		Y		Y
Number of year-pairs	8,839		F-test		29.7	0.58
Number of M&A affected plans	1,375					
Number of consolidated plans	1,994					
Number of M&A consolidated plans	296					

- $3.8 (9.5%) increase in premium (market power).
- $3.4 (8.5%) decrease in premium (cost efficiency & bargaining power).
- $2.1 (5.3%) decrease in premium if mergers take advantage of cost savings.

TOP-100 DRUGS COVERAGE

RESULTS(2): EFFECT OF MERGERS ON DRUG COVERAGE (TOP100)

	A		B		C	
	(1)	(2)	(1)	(2)	(1)	(2)
Merger plan	0.391	-0.146			-0.492	-1.081
	(0.172)	(1.872)			(0.189)	(2.025)
Consolidated plan			-0.196	-0.176	-0.866	-0.880
			(0.155)	(0.922)	(0.165)	(0.940)
Consolidated x Merger plan					4.357	4.459
					(0.396)	(2.244)
Year & Region fixed effects	Y	Y	Y	Y	Y	Y
Insurer fixed effects		Y		Y		Y
Number of year-pairs	8,839		F-test		77.39	1.48
Number of M&A affected plans	1,375					
Number of consolidated plans	1,994					
Number of M&A consolidated plans	296					

- 1-drug (1.3%) decrease in # of covered drugs (market power), noisy.
- 0.9-drug (1%) decrease in # of covered drugs (cost efficiency), noisy.
- 4.5-drugs (5%) increase in # of covered drugs if merger is "proactive".

ALL-DRUGS COVERAGE

RESULTS(3): EFFECT OF MERGERS ON DRUG COVERAGE (ALL)

	A		B		C	
	(1)	(2)	(1)	(2)	(1)	(2)
Merger plan	43.555	-182.801			-47.084	-320.229
	(25.834)	(338.649)			(29.148)	(354.326)
Consolidated plan			16.570	30.604	-45.124	-62.340
			(22.582)	(109.959)	(24.292)	(123.18)
Consolidated x Merger plan					373.068	552.925
					(56.411)	(221.745)
Year & Region fixed effects	Y	Y	Y	Y	Y	Y
Insurer fixed effects		Y		Y		Y
Number of year-pairs	7,396		F-test		34.94	0.22
Number of M&A affected plans	1,082					
Number of consolidated plans	1,746					
Number of M&A consolidated plans	276					

- 320-NDCs (11.9%) decrease in # of covered drugs (market power), noisy.
- 62-NDCs (2.3%) decrease in # of covered drugs (cost efficiency), noisy.
- 553-NDCs (20.5%) increase in # of covered drugs if merger is "proactive".

DRUG PRICES

RESULTS(4): EFFECT OF MERGERS ON DRUG PRICE

	A		B		C	
	(1)	(2)	(1)	(2)	(1)	(2)
Merger plan	-0.424	1.755			0.076	2.441
	(0.311)	(2.240)			(0.344)	(2.033)
Consolidated plan			1.706	0.908	2.132	1.440
			(0.280)	(1.152)	(0.300)	(1.299)
Consolidated x Merger plan					-2.723	-3.070
					(0.722)	(3.311)
Year & Region fixed effects	Y	Y	Y	Y	Y	Y
Insurer fixed effects		Y		Y		Y
Number of year-pairs	8,839		F-test		0.69	0.98
Number of M&A affected plans	1,375					
Number of consolidated plans	1,994					
Number of M&A consolidated plans	296					

- $2.4 (3.8%) increase in drug costs (market power), noisy.
- $1.4 (2.2%) increase in drug costs (cost efficiency), noisy.
- $3.1 (4.9%) decrease in drug costs if merger is "proactive", noisy.

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