Hospital Price Transparency: Collusion, Search, and Equilibrium Price

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Ashecon, June 24, 2019

Lack of Transparency in Health Care Prices

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- Health policy advocates point to this lack of price transparency
  - An impediment to more price competition
  - Proposed Congressional legislation seeking to require provider price transparency
  - If patients (or referring physicians) are able to compare the prices, market forces will drive down provider prices

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  - Whaley, (2015), Whaley, Brown, Robinson, (2019)
- Low deductibles/ low coinsurance consumers might use price information as a proxy for quality
  - May choose a provider with a higher price
  - Hussey, Wertheimer, and Mehrotra (2013)

Introduction

- In this paper we have All-Payer Claims Databases (APCDs) from NH and Maine
- NH introduced a public website in 2007
  - price information for a range of common hospital outpatient procedures
  - hospitals and insurers able to access competitors' prices
- No contemporaneous regulatory changes for Maine during the same period athough they also introduced a price transparency portal much later (2015)

Introduction

- We are interested in seeing the impact of this price transparency on different parts of market
- We can see different patients with different levels of co-insurance/deductibles
- Also, some procedures are available for patients to observe directly and some are not
- The prices change for different insurance companies which seems to be a function of their size
- Use these to identify the effect of price transparency

Relation to Literature

- Grennan & Swanson (2019)
- Brown (2016, 2018)
- Whaley (2015), Whaley, Brown, Robinson (2019)
- Gowrisankaran, Nevo, Town (2014)

Data

- NH and Maine APCDs (2005-2015)
  - Inpatient and outpatient admissions
  - ID for patients
  - Name of facility, parent insurance company
- NH launched a public website in 2007
  - providers and patients could check prices on certain outpatient procedures
  - mostly lab work
  - potentially patients can use the website to infer information on prices of other procedures
- Insurance companies as well as hospitals could also request to get complete pricing data

The Model

- Following GNT (2014)
- Insurance and hospitals negotiate on prices using a Nash-in-Nash framework
- Patients get a health shock
- Given characteristics and prices, they choose the facility

The Model

- The Nash-in-Nash framework
- Maximize weighted value added to the hospital and insurance company
- Weights are proportional to relative bargaining power of hospital/insurance company
- We let these weights to vary across years
  - This will help us understand the effect of the price transparency on bargaining power of insurance companies vs. hospitals
- Also the demand function for the patients can change
- This will lead to different willingness to pay from the insurance company side

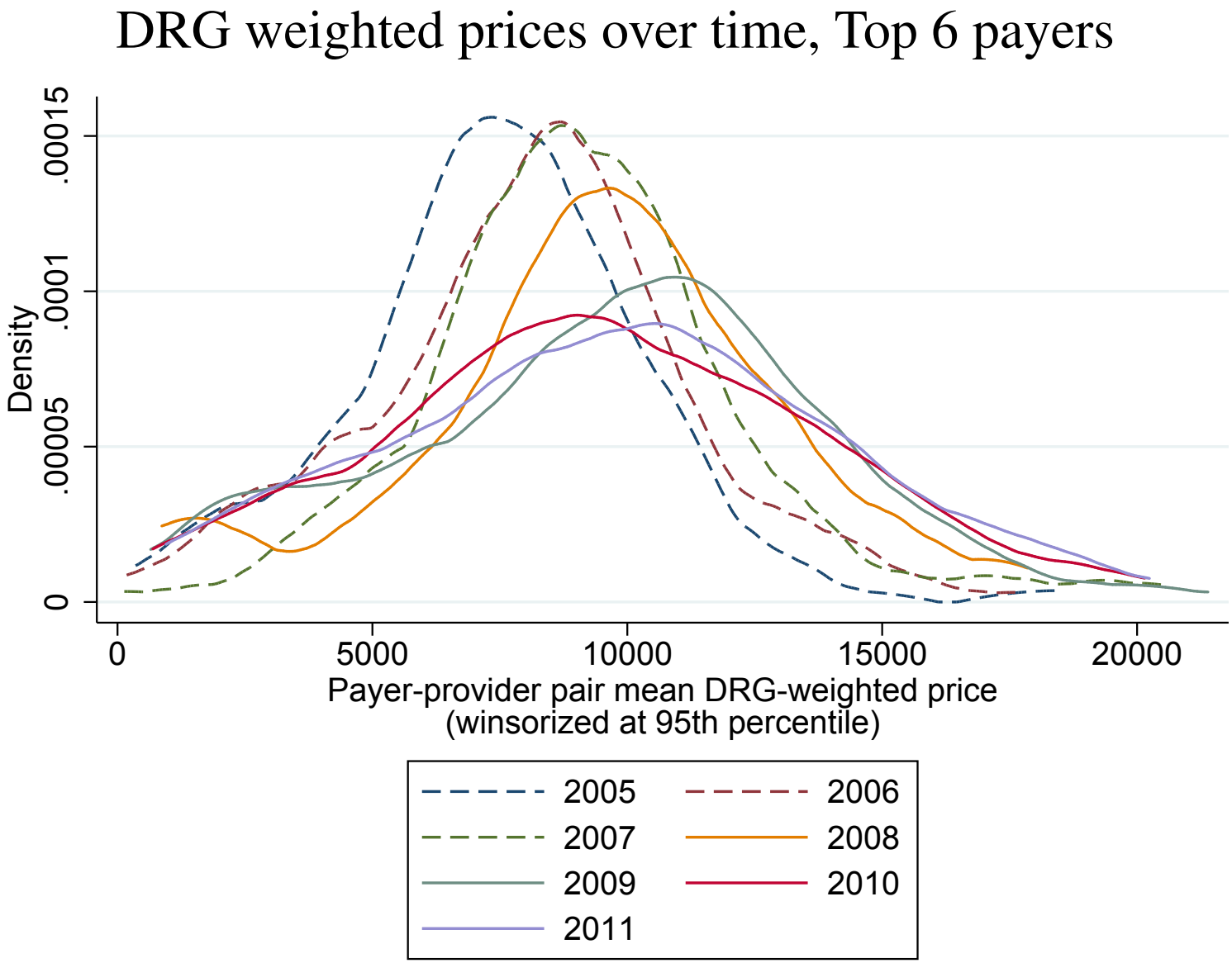
Preliminary Results

- Very concentrated market
- Look at the impact of the policy on the top 3 vs top 6 insurance companies
- Also the impact on price dispersion for biggest hospitals
- The relationship between willingness to pay and prices

Preliminary Results

- Payer enrollment market shares (from NH insurance market reports):
  - 2007: Anthem 57%, Cigna 23%, Harvard Pilgrim 17%
  - 2008: Anthem 55%, Harvard Pilgrim 25%, Cigna 15%
  - 2009: Anthem 51%, Harvard Pilgrim 25%, Cigna 16%
  - 2010: Anthem 44%, Harvard Pilgrim 24%, Cigna 22%
  - 2011: Anthem 44%, Cigna 25%, Harvard Pilgrim 22%

Preliminary Results



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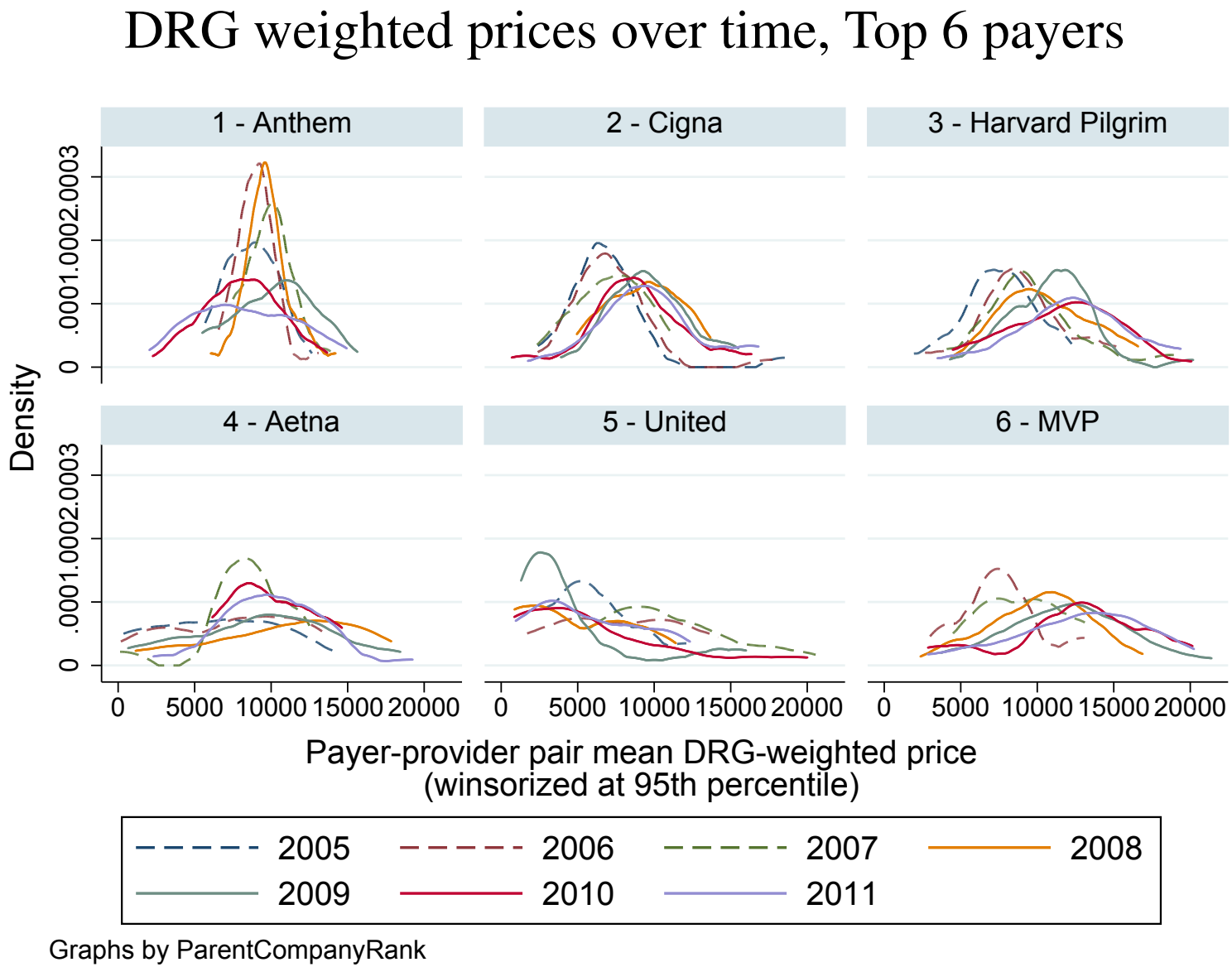

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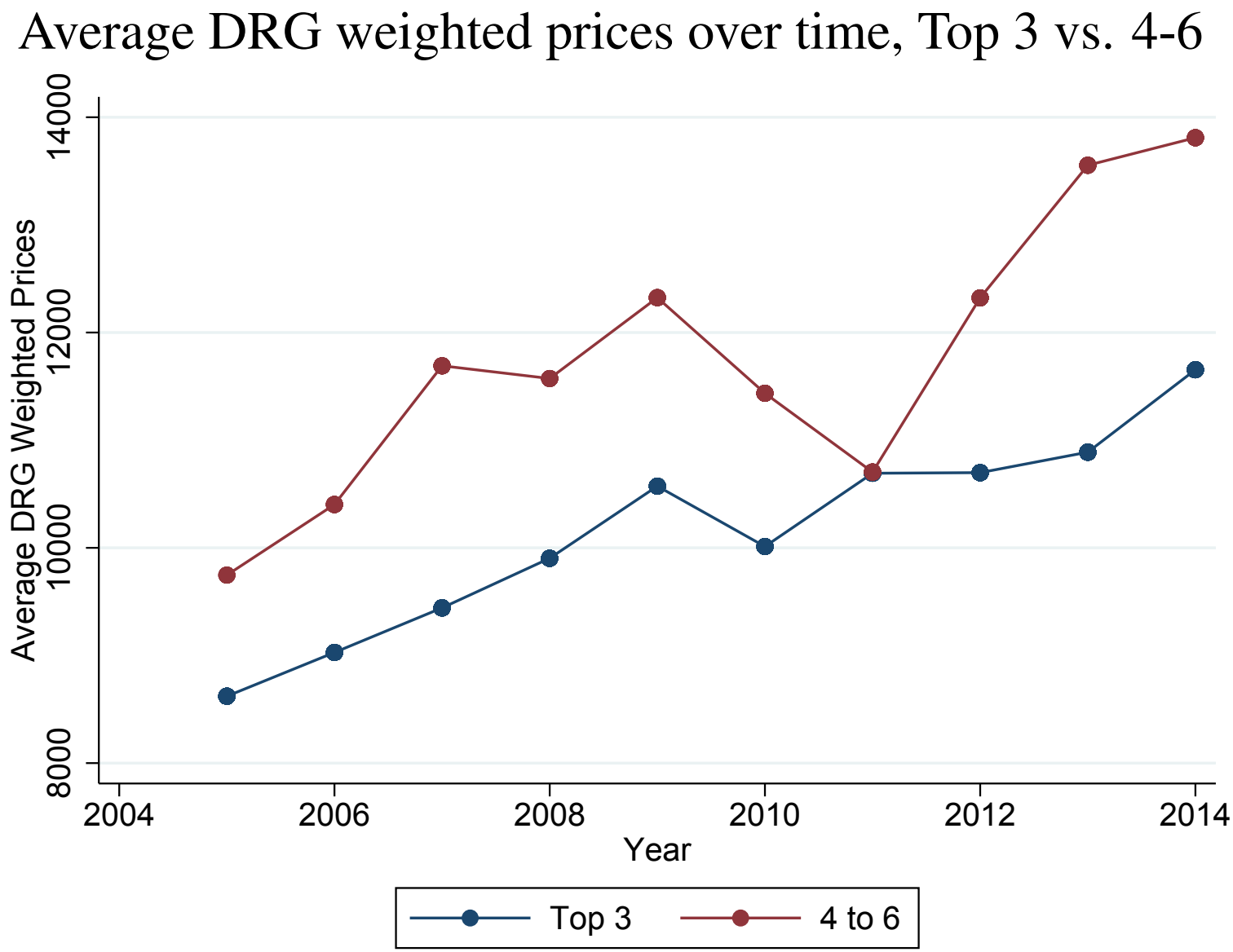

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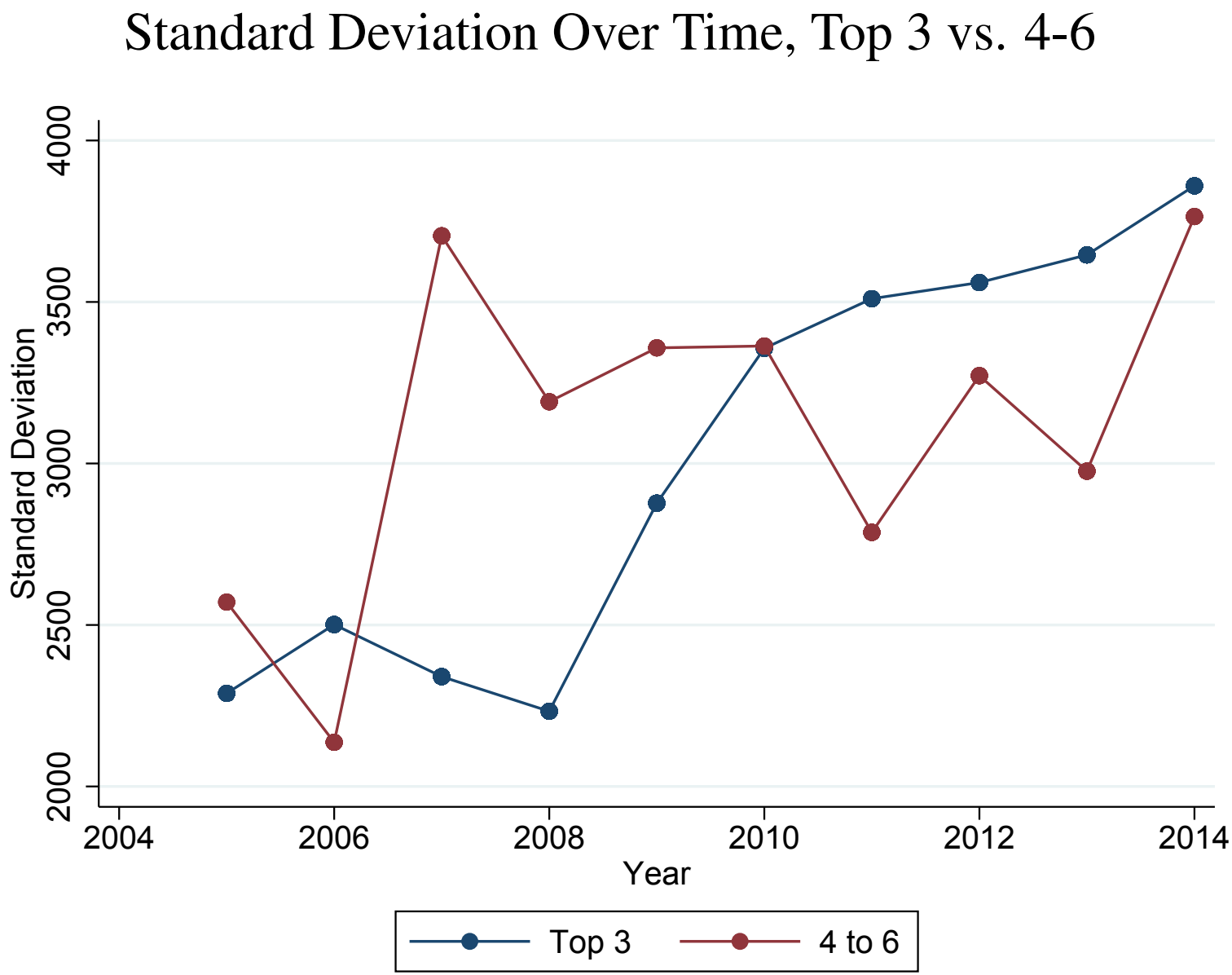
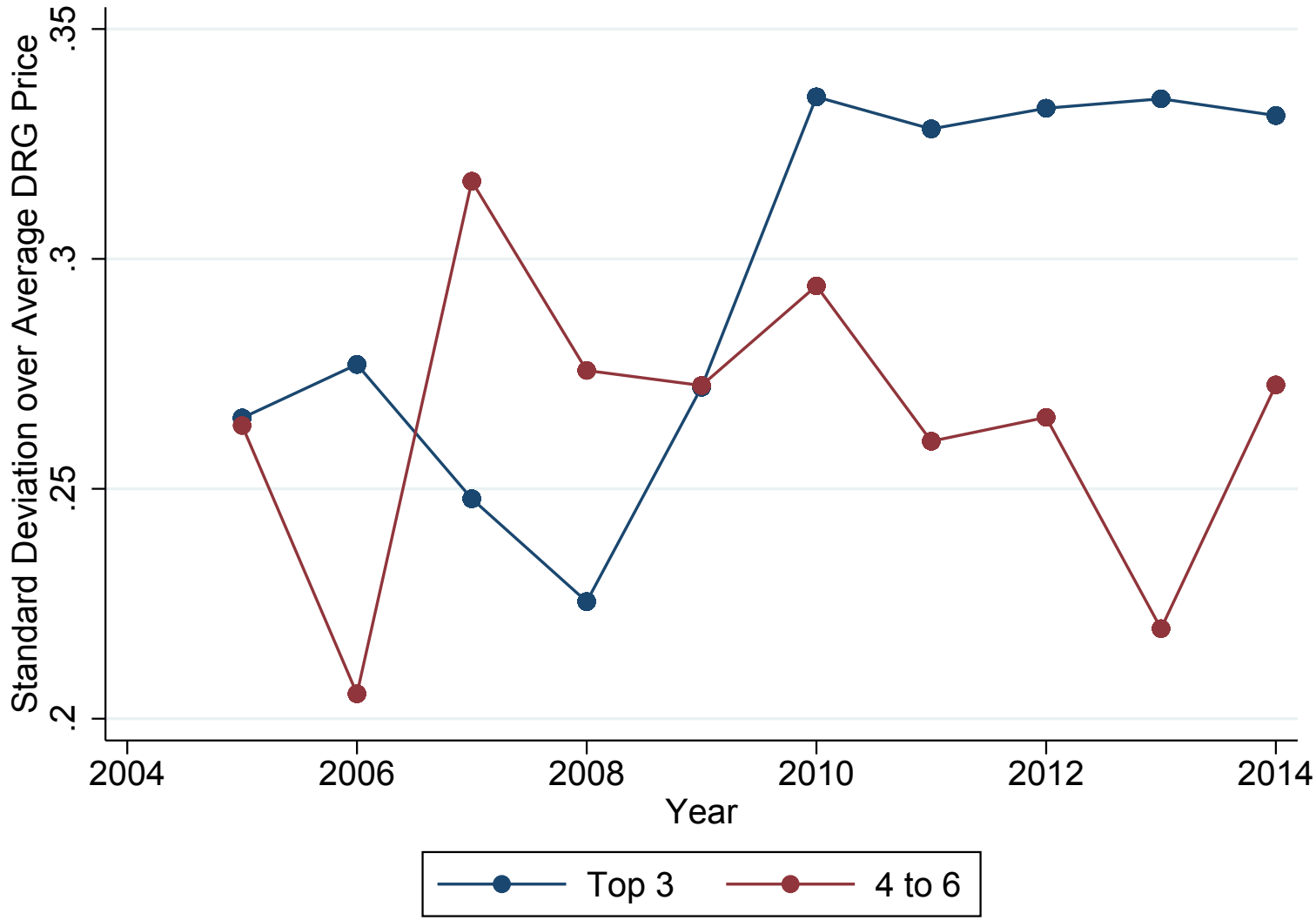


Preliminary Results

Standard Deviation Over DRG Weighted Prices, Top 3 vs. 4-6



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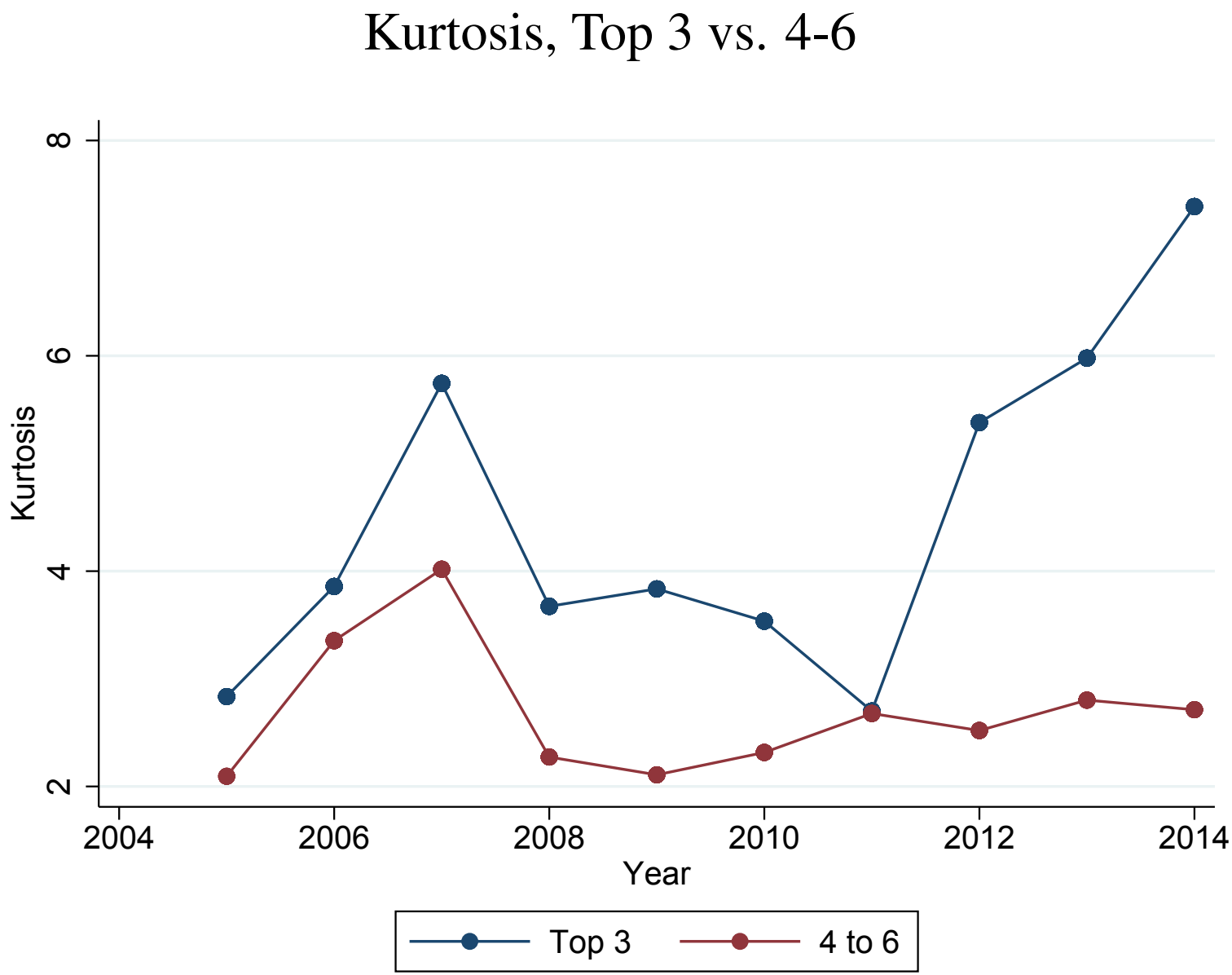

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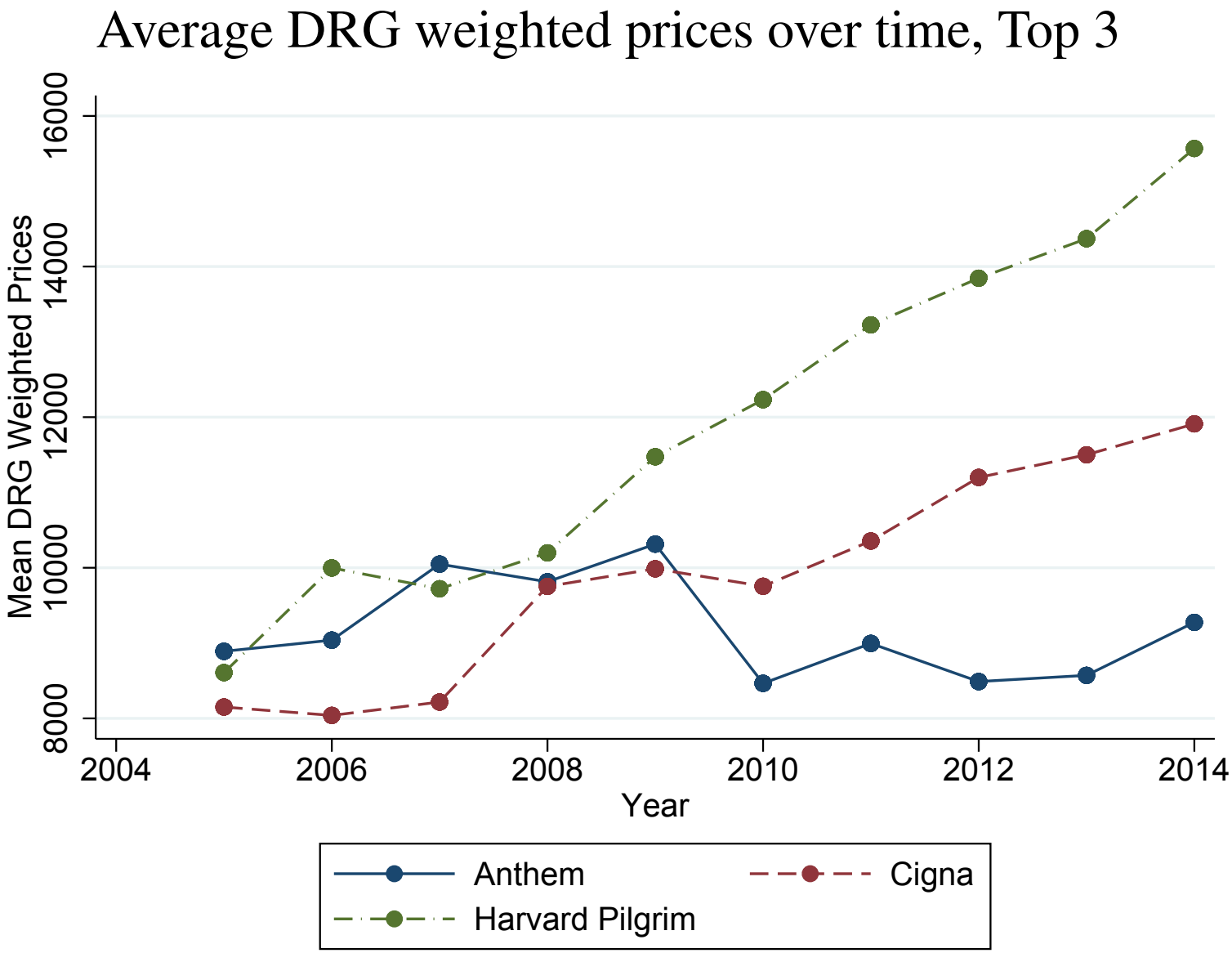

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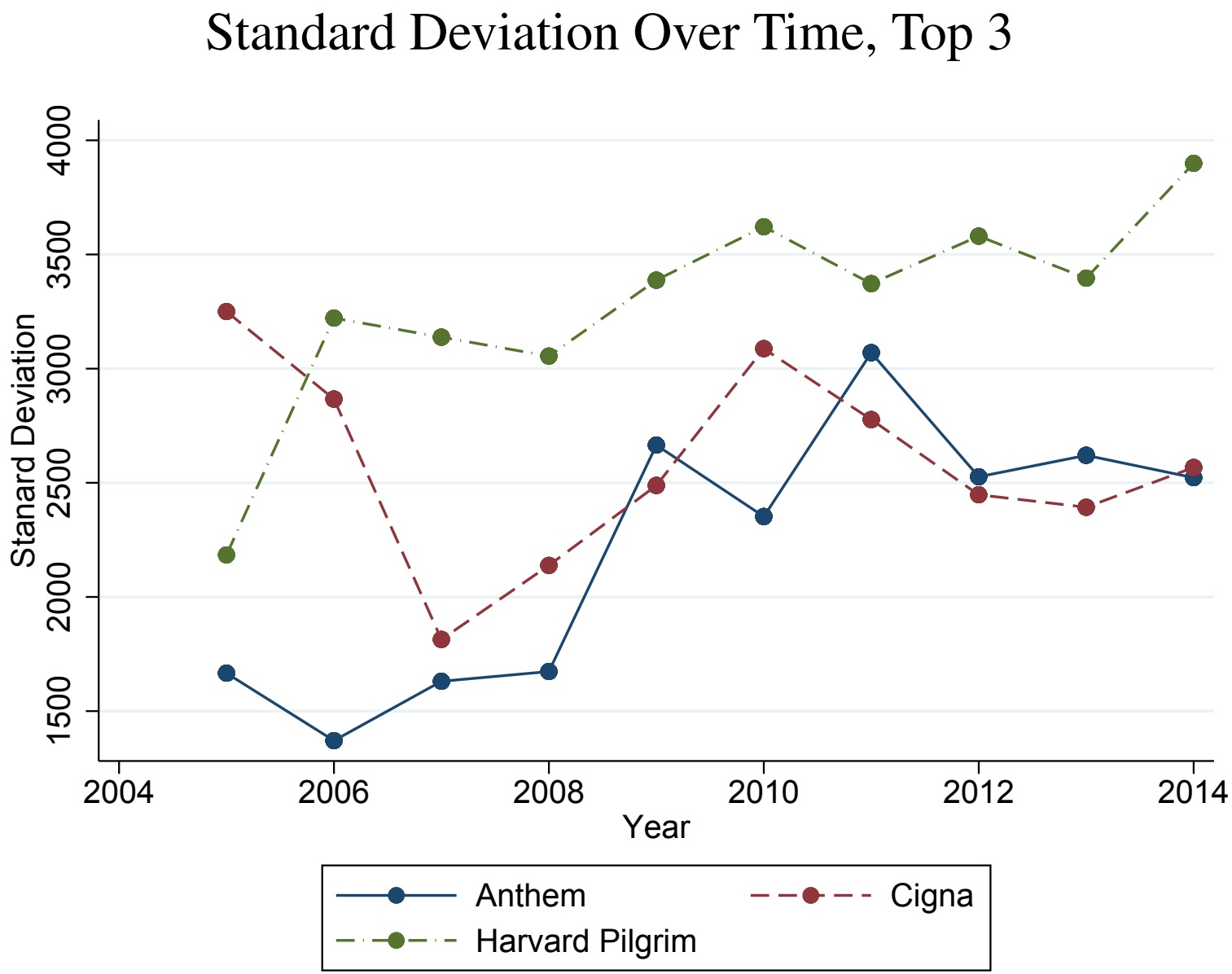

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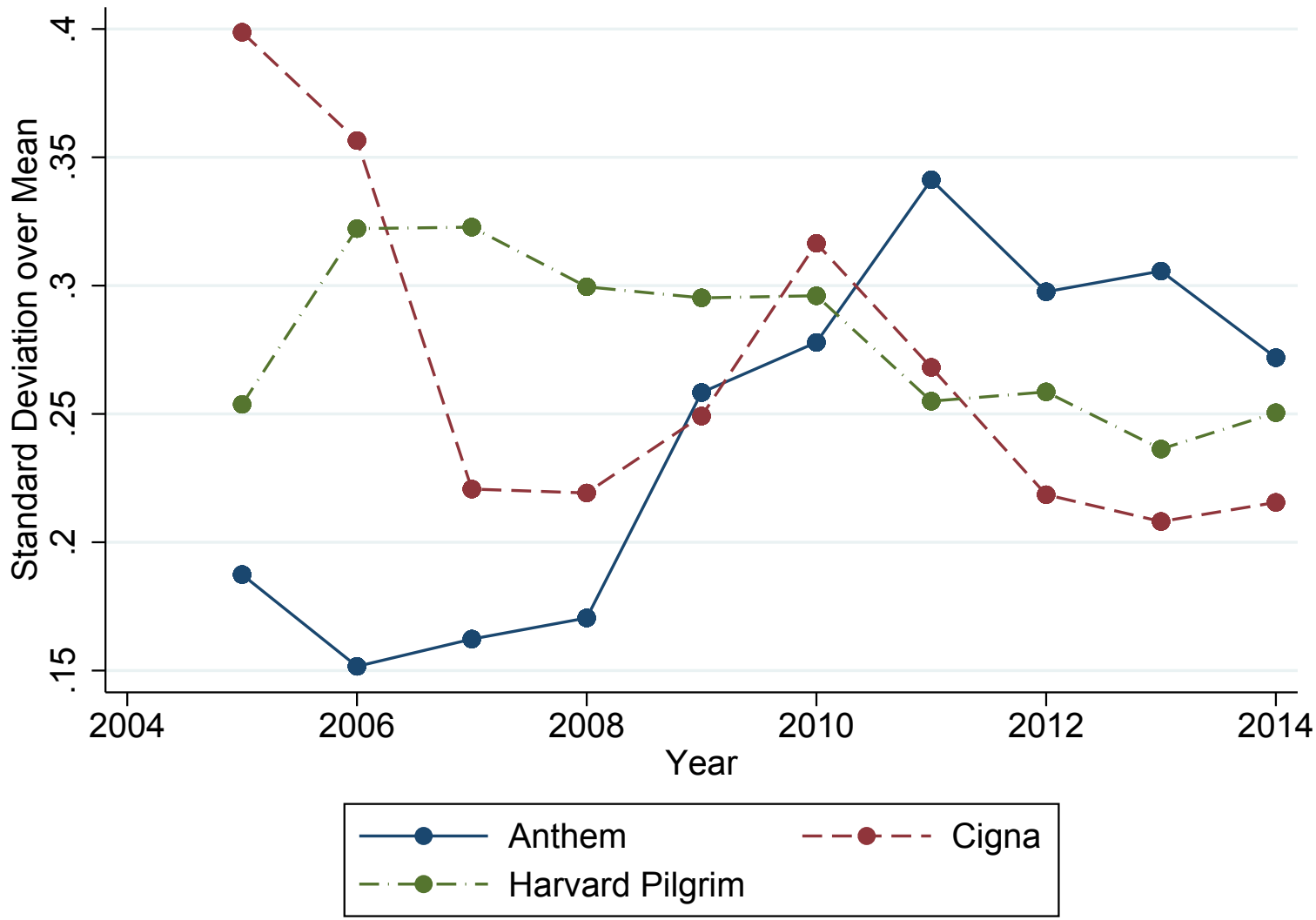
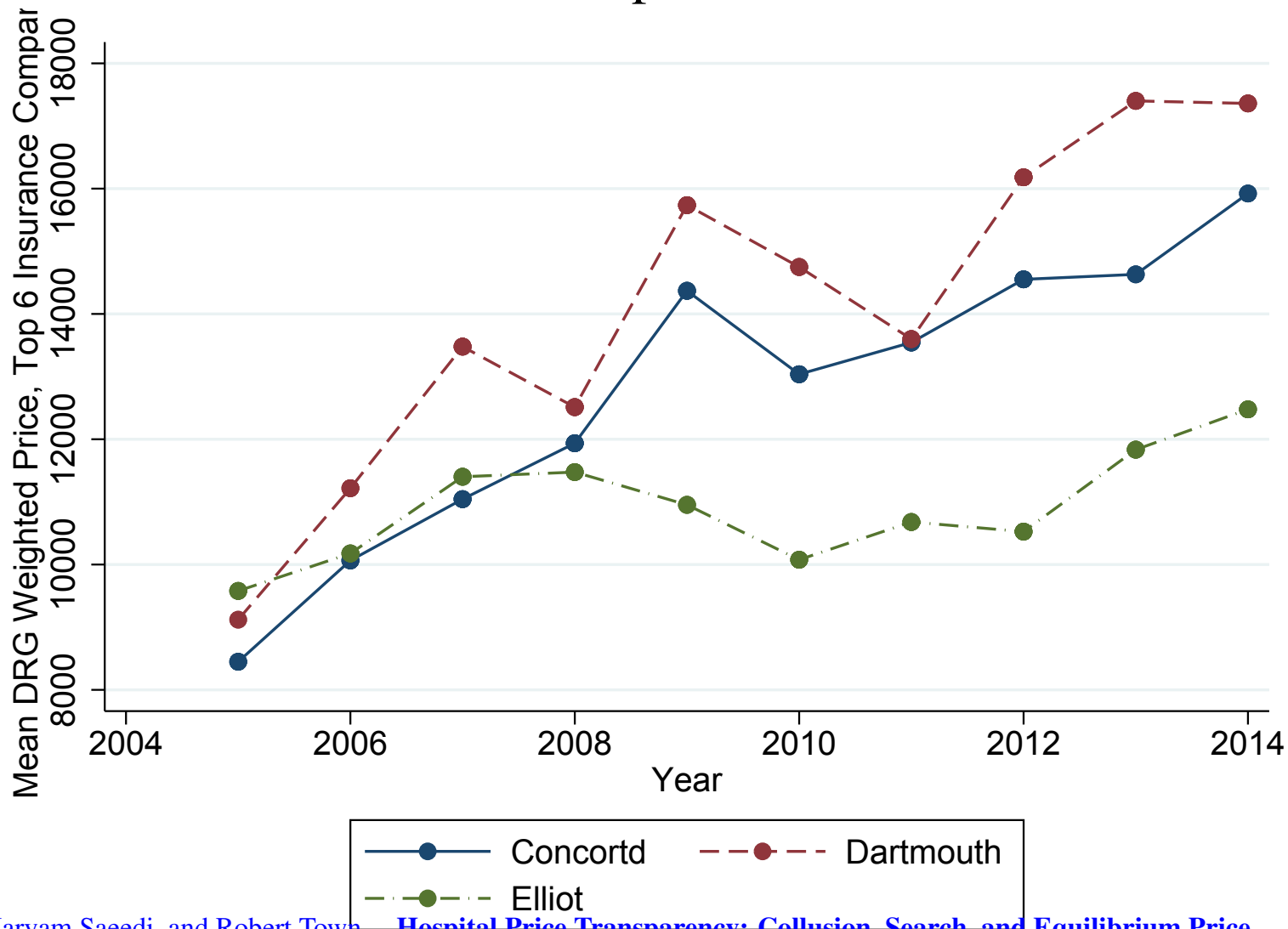
Standard Deviation Over DRG Weighted Prices, Top 3



Preliminary Results

Biggest 3 Hospitals, Average DRG weighted prices over time, Top 6



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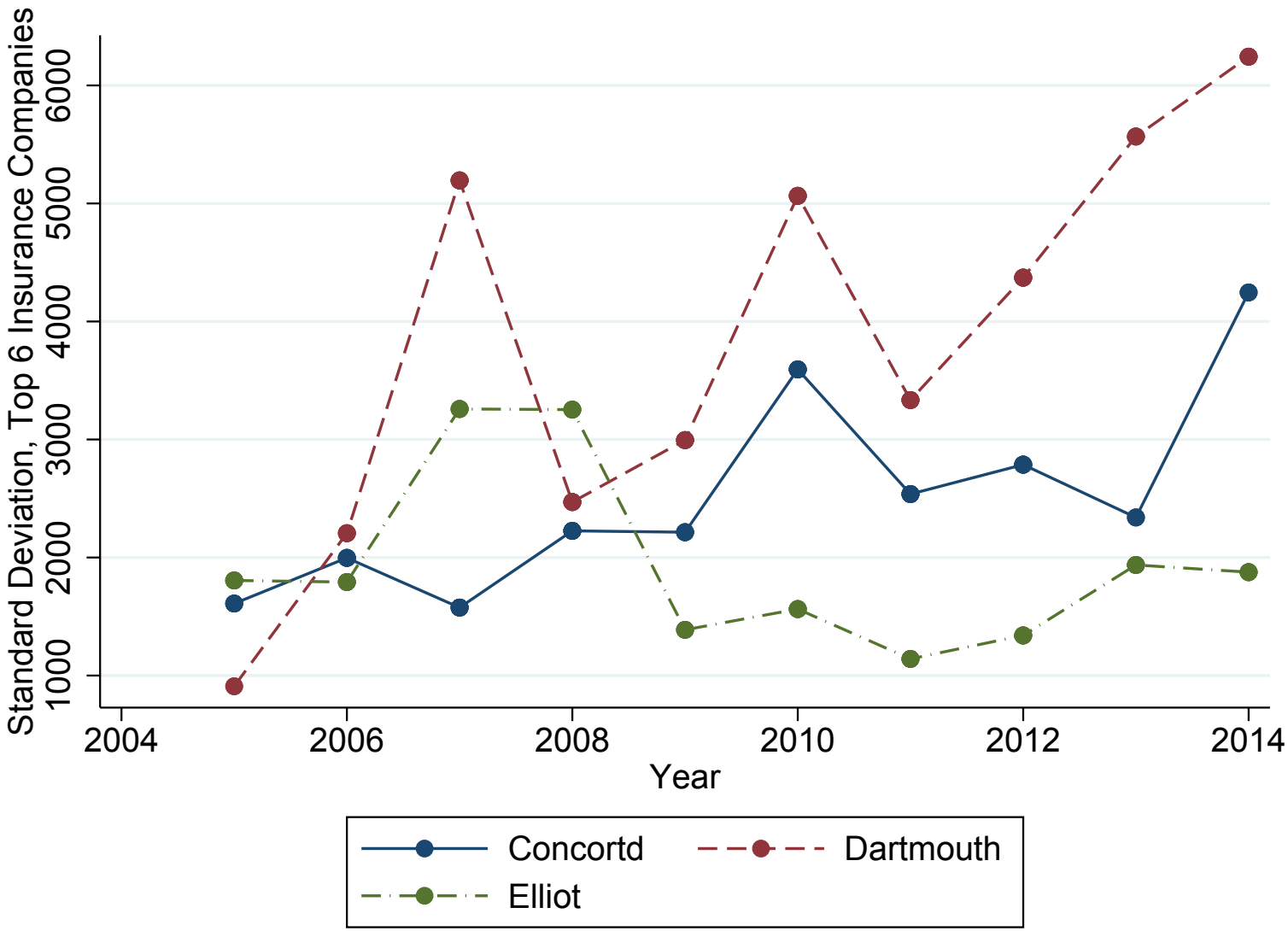
Biggest 3 Hospitals, Standard Deviation Over Time, Top 6



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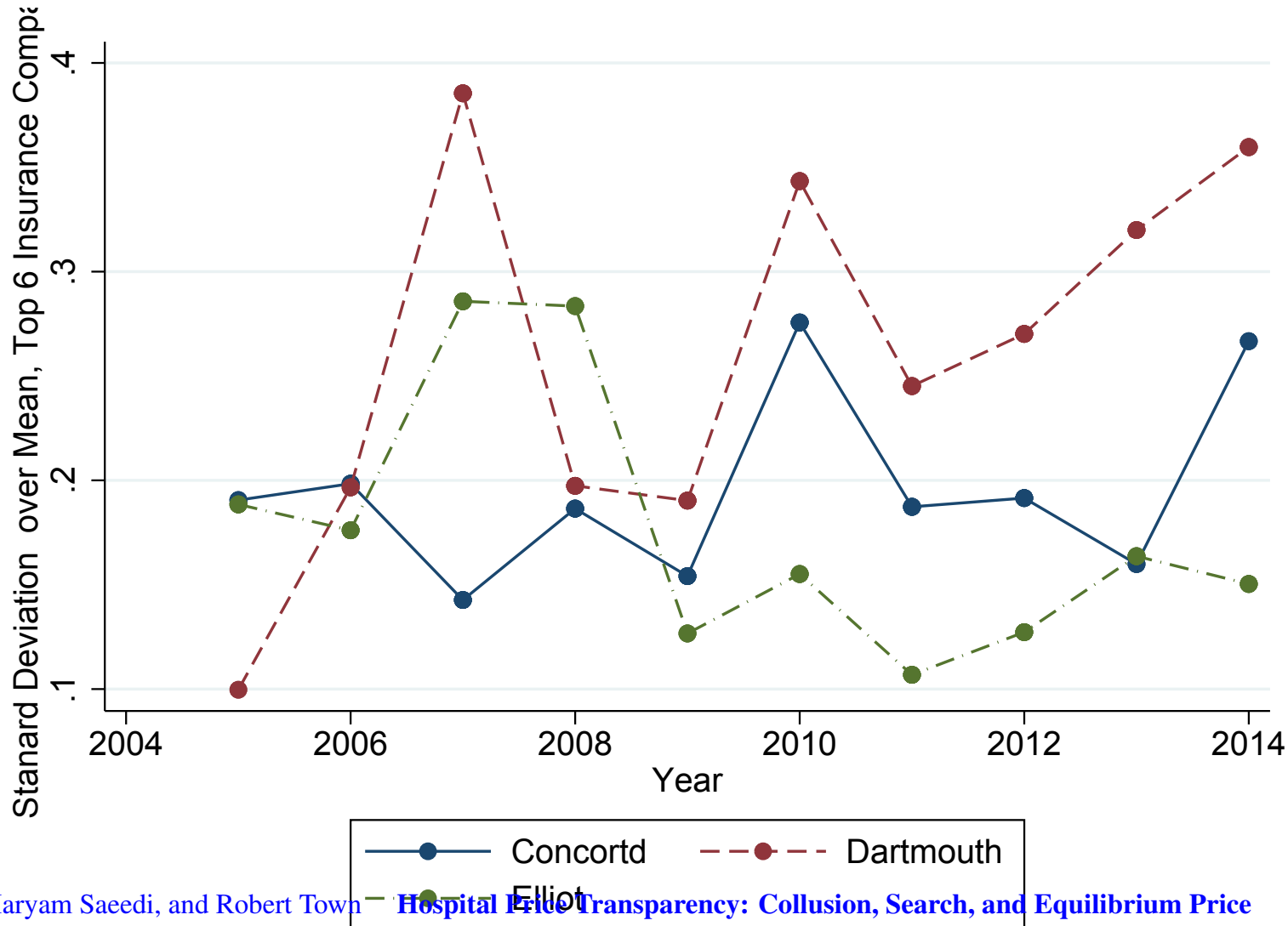
Biggest 3 Hospitals, Standard Deviation Over DRG Weighted Prices, Top 6



Willingness to Pay

- Estimate Willingness to Pay
- Using the demand estimations
- Assuming that insurance companies maximize a weighted sum of patients' utility minus cost

Willingness to Pay and Price

Relationship between WTP and Price, before and after policy

	Anthem	Cigna	Harvard Pilgrim
WTP	0.44	18.29	-0.8
	(0.25)	(9.15)	(4.16)
WTP*Post Dummy	0.83	-13.34	5.48
	(0.36)	(9.32)	(4.33)
Year Fixed Effects	Y	Y	Y
Constant	9101	3573	8319
	(678)	(2481)	(2782)
R^2	0.35	0.59	0.56

Next Steps

- Bring in outpatient and Maine data. Allows for cleaner identification
- Estimate full GNT model
- Explore estimating a bargaining model with asymmetric information
- Counterfactuals with different benefit designs, market and information structures.