Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Supplementary Methods

Financially-Integrated Practices and Bargaining

We analyze private fee-for-service prices. The principal organizational concept for this analysis is thus the financial integration of a practice. Physicians in the same medical group, physicians whose practices are owned by the same hospital, and physicians whose practices are owned by the same system, are typically in the same financially-integrated entity and are thus allowed by law to negotiate jointly over payment and other contract terms with health plans.[1] However, physicians in separate practices with looser linkages (e.g. practices that are members of IPAs) are normally considered competitors and under antitrust law may not normally bargain together for fee-for-service prices (though they may bargain together over contracts involving capitation or other provisions that put the IPA at risk).[1] The FTC has successfully challenged at least some situations in which IPAs have attempted to jointly negotiate non-risk contracts.

Some ambiguity in the law does exist. Anti-trust law does allow physicians in IPAs to negotiate jointly for non-risk contracts if they can show that they are sufficiently clinically integrated across their member practices, though IPAs using the clinical integration enforcement safety zone to jointly negotiate non-risk contracts appear to be uncommon.[2] Another source of uncertainty comes from the legality of the so-called "messenger model" of physician organizations and negotiations.[1] This model is intended to allow a non-interested third party to collect and convey information from multiple physician practices to payors for the purpose of facilitating contracting, though not to engage in joint negotiations. Some have argued that some messenger model arrangements in fact have facilitated unlawful joint contracting. The DOJ and FTC have challenged what they believe to have been abuses of the messenger model, which may limit the degree to which this is an issue that could lead to measurement error in our study, but this remains a debated area and the extent of the practice is uncertain.[3]

Medicare Claims Data for Concentration Measurement

We use data from 2002 and 2009 Medicare carrier claims files that include bills for services provided by physicians to a 20% sample of traditional (fee-for-service) Medicare enrollees, and corresponding denominator files that record information about enrolled beneficiaries. These contain, among other things, the reported ZIP code of the patient's residence, the reported ZIP code of the physician practice, the physician specialty, the CPT (HCPCS) code of the service provided, and the tax identification number (TIN) of the practice.

From these files, we select claims with positive Medicare allowed charges, a TIN that meets stated length and digit configuration requirements, and provider and patient ZIP codes that can be matched to databases containing valid ZIP codes. We restricted attention to claims where the recorded provider specialty code indicated a physician in one of the 10 study specialties.

Identifying Practices

We identify physician practices in the claims using the reported TIN. Solo practice physicians normally have their own unique TIN. When multiple physicians use the same TIN, they will be part of the same financially integrated entity. In many cases, a financially integrated entity will use the same TIN for all of the affiliated physicians. Physicians in traditional medical group practices, perhaps the most common and most integrated form of practice organization, nearly always use the same TIN. Identifying practices using TINs thus seems to provide a useful means of obtaining information about financially-integrated physician organizations.

There is some ambiguity in the precise set of organizations that will be identified. The IRS permits organizations to use multiple TINs in some cases. For example, in cases where a physician group is purchased by a hospital but retains its structure as a medical group, we are advised it could switch to the hospital TIN, but could in other cases continue to use a group TIN.

Some very large medical groups have also elected to organize themselves with subsidiaries that have their own TINs. We understand that there may be large "networks" of practices that have become financially integrated and jointly bargain over prices, but that retain separate practice TINs. Therefore, TINs should be regarded as a measure of physician organizations with some noise. It seems most likely that this would cause us to understate the amount of competition (overstate the HHI). If multiple practices are integrated but have separate TINs, we would regard them as competitors when in fact they are not.

The effects of measurement error could lead to attenuation bias in our estimates, reducing the chance that we will observe an association between HHI and prices. In particular, this would happen if there is additive measurement error in the estimates. If there are other forms of measurement error, though, it is more difficult to determine which way any bias would go.

One source of support for this approach is the fact that previous work on physician organizations and competition,[4-6] as well as CMS demonstrations and regulatory efforts,[7-9] rely on TINs to identify practices in much the same way we do here.

An external source of information about the types of organizations identified by TINs in the claims data is publicly available data from IRS Form 990s. A 990 must be filed annually by most tax-exempt organizations in the United States. Among other items, the 990s report the name, business type, and TIN of reporting organizations. Nonprofit health care related groups are among the entities filing 990s. Though confined to non-profits, the 990 data do provide some useful insights. We find more than 1,800 hospitals among the practice entities identified by TINs in the claims, consistent with the view that a TIN-based measure will capture many cases where hospitals are serving as a vehicle for physician practice consolidation. We also find nearly 400 large non-profit physician groups among the practices we identify. Among the large organizations in the form 990 data that we find in the claims data are many large and well

known health care systems and physician groups in the country, including the Cleveland Clinic (1,834 physicians in the claims data), Mayo Clinic (2,199 physicians), Partners (558), Henry Ford (1,056), and the Palo Alto Medical Foundation (880). We conclude that in many cases, the claims data will identify organizations at the large end of the spectrum, not just the individual physicians or smaller groups that may be owned by larger entities, and that this will include entities that would be expected to bargain jointly over prices.

Another source for validation is survey data on physician practices from SK&A. These data are obtained by contact with physicians, and include information about group affiliation as well as hospital or system ownership of practice. SK&A reports that the data are updated twice per year, and contain information about nearly all physicians practicing in the United States. We used SK&A data from 2008-2010, selecting data for physicians in the specialties of interest for this paper. About 60% of physicians in the SK&A data have a group, hospital, or system code indicating that the doctor is part of a larger entity. We match SK&A data to the Medicare claims data on the basis of NPI physician identifiers. Between 83% and 88% of physicians in the SK&A data had either a UPIN or NPI with which to attempt a match. Of all physician-specialty-practice (TIN) combinations in the claims data, we matched between 60 and 66% to information from the SK&A data.

Using the matched data, we computed HHIs for practices to examine the effects of characterizing practices in different ways. We first compare to results that use the group code reported on the SK&A data as the indicator of practice. This code appears to seek to identify medical groups of which a doctor is part, but not hospitals or systems that might own the practice. Using this code, we find more practices than using the TIN approach, and the median HHI across practices is typically 10 to 20% lower.

We next consider the effect of incorporating SK&A hospital ownership information. We assign physicians to the hospital they indicate owning their practice first. If there is no hospital

indicated, we assign them to their group. This reduces the number of practices by a modest amount, and slightly increases the measured HHIs relative to measures using just the group code. Finally, we considered the effects of assigning physicians to the indicated system owner first, followed by hospital, followed by group. This further reduces the number of practices and increases the measured HHIs. Overall, the effect of using information about hospital and system ownership from SK&A has some effect on measures of concentration, but does not substantially change the patterns observed. Even using the three-level categorization, practice HHIs produced using the SK&A data tend to be somewhat smaller than using TINs. This is not consistent with the view that using TINs to construct competition measures will overstate the HHI.

We also examined practice size measures. We determined the number of physicians in the largest affiliated organization reported to SK&A by the physician – a medical group, hospital owner, or health care system owner of a practice, and compared those to practice size measures computed using TINs in the claims, in 5 categories – 1 physician, 2-4 physicians, 5-9, 10-19, and 20+ physicians. 61% of physicians were in the same category using both measures. Another 18% are in an adjacent category. In all, about 80% of the practice size measures match within 1 or 2 physicians with the TIN measures being slightly larger than the survey based data.

Feasible measures of physician organizational structure will be subject to some uncertainty because of the inherently grey and evolving nature of these structures. Because large organizations are known to use multiple TINs in some cases, a TIN based measure seems likely to overstate HHIs to at least some extent. At the same time, we conclude that there is reason to believe that concentration measures based on TINs will provide valuable information about financially integrated organizations, appropriate for studying private fee-for-service payments, and sufficient for us to identify the effects of interest.

Included physicians

Note that our concentration measures do not themselves incorporate counts of the number of physicians – they are based on TINs and observed patient flows. We present data on the number of apparent physicians in the data here to answer possible queries about the number of physicians who contribute data to the study, which may be relevant to a broader assessment of the application of the Medicare claims to the problem of competition measurement.

The claims data include information about practicing physicians who submit bills for patients in the 20% sample of fee-for-service Medicare beneficiaries. (This will not typically include residents and fellows, who do not file Medicare claims for their services.) We believe this will include the vast majority of physicians providing services to Medicare patients. The number of NPIs found in the 2009 data is consistent with other calculations that, though done in a slightly different way, reported the number of physicians appearing in a 100% sample of Medicare claims.[4] As a further way of gaining information about the completeness of the 20% sample data, we computed the number of unique NPIs in the 2010 5% sample of Medicare claims. We found 532,375 unique NPIs, 94% of the 566,139 in the 20% sample. Because nearly all of the physicians identified in the 20% sample are also identified with only the 5% sample, we take it as unlikely that there would be a large number of additional physicians providing services to Medicare patients but not found in the 20% sample.

The set of physicians providing services to Medicare patients is likely to be a large subset of all physicians in the United States, though will not contain all physicians. Based on results from the National Ambulatory Medical Care Survey, MedPAC recently reported that more than 90% of U.S. physicians report that they accept new Medicare patients.[10] Some physicians in pediatrics and obstetrics/gynecology may not frequently see Medicare patients. Physicians who primarily serve managed care patients would not be expected to frequently appear in fee-for-

service claims data. Other physicians may also have practices focused on non-Medicare patients. To get a better sense for the share of physicians represented in the claims data, we used data from the National Plan and Provider Enumeration System **(**NPPES) to identify physicians active in 2010, for non-student physicians in specialties that we include in the analysis. We found 667,265 total NPIs in the NPPES data, in the included specialties. 2010 claims data contain 566,139 NPIs, 85% of this number. This is consistent with the view that the claims data contain a large share of all physicians, particularly given that the NPPES may overstate the number of active physicians by retaining NPIs for a time after physicians retire and including some physicians who are not actively practicing. Further evidence of consistency is the fact that about 80% of physicians in the SK&A data can be found in the claims data. However, the number of physicians we find appears to be much lower than numbers reported from the AMA physician masterfile, though the masterfile may substantially overstate the number of active physicians.[11]

Physicians taking care of Medicare patients seem likely to overlap with the set of physicians seeing private PPO patients. In particular, we expect physicians only working in Medicare Advantage plans will also be more likely to be participating principally in private HMOs, rather than the private PPOs that we study.

It may be worth noting that using competition measures based on Medicare claims data to study private prices may be advantageous for two reasons. One possible source of bias in estimates like ours could arise if the same patients are used to generate the price data and the competition measure. While it may not be a major concern in this particular instance, it is possible that this could lead to biased results. By using separate populations to construct the price measures and the competition measures we avoid this potential issue. In addition, network choices by insurance companies can restrict the number of doctors for whom data would be observed in some private claims databases. Since Medicare does not restrict choice of

physician in this way, the Medicare data may more accurately represent the complete set of physicians in an area who could be competitors, which economic theory generally suggests will produce a superior competition measure.

Constructing Concentration Measures

We constructed Hirschman-Herfindahl Indices (HHIs) for physician practices. By convention, HHIs have a maximum value of 10,000, reached in monopoly markets. As the amount of competition increases, the HHI falls and approaches 0 as the number of sellers increases and the size of each individual seller falls.

Computing HHIs requires defining product markets. Here we take product markets to include all services produced by physicians in one of the specialties studied in the paper. HHIs also require defining geographic markets. We derive geographic markets for each practice empirically, based on observed patient flows in the claims data. This approach seems superior to approaches that would identify HHIs under the assumption that practices serve areas with boundaries defined by larger areas like Hospital Referral Region or Metropolitan Statistical Area. We compute our HHIs using Medicare allowed charges as the unit of service, following the guidance issued by the DOJ and FTC for evaluation of market power when considering Accountable Care Organizations.[7]

Our analytic approach adapts the approach of Kessler and McClellan (2000) to the case of hospitals.[12] We derive HHIs for (specialty-specific) practices in two steps. We begin by constructing a ZIP code HHI for each ZIP code, by specialty, by year. Denote by $service_{i,j}$ the number of service units provided by physicians in practice *i* to patients who reside in ZIP code *j* . Denoting the total number of service units provided to patients in ZIP *j* as $service_j$, the market share of practice *i* for ZIP *j* is $share_{i,j} = service_{i,j} / service_j$. The ZIP code HHI is then the sum of squared market shares:

$$ZIPHHI_j = \sum_{\substack{practices \\ i\ serving \\ ZIP\ j}} share_{i,j}^2$$

This construction allows flexibility in the market size, basing the HHI on the set of physicians actually observed to provide services to patients in the given ZIP code. We exclude from this calculation claims where the physician is more than 100 miles from the patient ZIP, to reduce the potential for bias from cases where a patient, perhaps while traveling, sees a distant physician who does not play a substantial role in competition for patients residing in the ZIP code. (Distances were determined based on the centroid of the patient and provider ZIP codes, using the Haversine formula. Between 90 and 95% of claims meet the 100 mile criteria in any given year.)

In the second step, for each practice we identified the set of patient ZIP codes with non-zero service units (i.e. the set of *j* for which $service_{i,j} > 0$), excluding cases where the patient ZIP is more than 100 miles from the physician ZIP. Following the FTC/DOJ guidance, we then took the smallest set of these ZIP codes that accounted for 75% of allowed charges as the practice market area for analysis. We averaged the ZIPHHI values for the ZIP codes in the market area, weighting by the number of services practice *i* provides in each of the patient ZIPs in its market area, to create a practice level HHI:

$$PRACHHI_i = \sum_{\substack{ZIPs\ j \\ in market \\ area\ of \\ practice i}} w_{i,j} ZIPHHI_j$$

where $w_{i,j}$ is a weight with sum 1 derived from the $service_{i,j}$ values (i.e. $service_{i,j} / service_i$ where $service_i$ is the sum of all services provided by practice *i*).

This approach diverges somewhat from approaches that would simply define the market area of the practice as the set of ZIP codes served and then compute the HHI from the market shares of all practices serving the area. Our approach allows us to increase the weight put on areas from which the practice draws most of its patients. Many practices draw patients

from a large number of ZIP codes in total, but have a much smaller set of areas from which the bulk of their patients come. Weighting by the concentration of patients should make the HHIs more accurate in this sense.

For analysis, we created county level measures of the average PRACHHI of physicians located in the county. Denoting areas by k, we take the average of PRACHHI values over the practices *i* with provider locations in county k, weighting by the services provided by the practice attributable to area k.

$$GEOHHI_k = \sum_{\substack{\text{practices } i \\ \text{with provider} \\ \text{ZIPs in} \\ \text{area } k}} b_{i,k} PRACHHI_i$$

where *b* is a weight that sums to one, capturing the distribution across practices of services attributable to county *k* (i.e. $b_{i,k} = service_{i,k} / service_k$). The principle of weighting here is to upweight practices that have a prominent presence in the area, and downweight practices that do not.

To examine robustness to alternate specifications, we computed HHIs in a number of different ways. We examined the effects of 1) using the number of claims as the service unit; 2) using the number of work RVUs as the service unit; 3) using all ZIPs, rather than the subset accounting for 75% of allowed charges, as the service area; and 4) relaxing the restriction that the physician and patient must be within 100 miles for the claim to be included. All of these produced very similar results, with county-level correlations of 0.97 or higher within each specialty. Finally, we computed HHIs using the SK&A data linked to the Medicare claims, using the largest reported practice entity for each physician (SK&A data allow physicians to designate a group practice, a hospital owner, a system owner, or any combination of those 3. From that, we took the practice size with the most other physicians). The correlations between the specialty median HHIs based on TIN and SK&A group code are very high -- 0.98 or higher across specialties.

Constructing Price Indices

In some analyses, we use a price index, meant to capture the mean prices for office visits to doctors in a county, relative to national prices. We construct the price index as follows. First, for each CPT-specialty-county, we compute the mean price: $\overline{p_{c,s,r,2010}}$ where c indexes counties, s indexes specialties, and r indexes procedure (CPT) codes. We then take the national mean over all counties (weighting counties equally): $\overline{p_{s,r,2010}}$. Then for each county-specialty, we compute total actual spending as the number of procedures in a given code times the county average price for the code, summed over all codes observed in the county: $s_{c,s,2010} = \sum_r n_{c,s,r,2010} * \overline{p_{c,s,r,2010}}$, where n is the number of procedures. We also compute spending as if the procedures (codes) had been paid at the national mean prices: $\hat{s}_{c,s,2010} = \sum_r n_{c,s,r,2010} * \overline{p_{s,r,2010}}$. The price index is then: $index_{c,s,2010} = {}^{s}/_{\hat{s}}$. When we compute the index for 2003, we use 2010 national mean prices, so that the change in the index between 2003 and 2010 will include both variation across counties and growth in mean prices over time.

Complete Regression Results

ETable 3 reports the complete regression results for models in which the dependent variables are the price index and the price paid for CPT code 99213. In ETable 3, the values shown are coefficients and robust standard errors. Note that HHI is in units of 10,000 here, but in units of 1,000 in the main paper.

Robustness checks

ETable 1 shows results from robustness tests: 1) including a control for the share of doctors in multispecialty group practices, 2) specifying a quadratic function for HHI, 3) including a measure of the HHI for PPOs in the area (note this is only available for a subset of the study counties), and 4) using a categorical specification for HHI (omitted category 0-1,999). Where reported, the joint F and joint F p-value are from tests of the joint significance of the HHI terms in the model.

ETable 2 shows results from models in which both in-network and out-of-network claims were included. Physician market power may influence whether or not physicians are included in networks. Physicians with the most market power may be able to command the highest prices and may be more easily able to move out of insurance networks. Including out-of-network prices paid with in-network prices paid does not strongly affect the results of the analysis. Note that the sample sizes change in this test because more counties satisfy the inclusion criteria when out-of-network claims are used.

Regression results for changes over time

eTable 4 reports complete results from models of changes between 2003 and 2010 in prices and 2002 and 2009 in HHI.

eTable 1. Alternate Specifications

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	internal medicine							
Price Index								
HHI (0000s)	0.6030***	0.1993***	1.0889***	0.3459***	0.6032***	0.2000***		
	(0.0625)	(0.0412)	(0.1640)	(0.1025)	(0.0636)	(0.0401)		
% multispec	0.1279***	0.0731***						
	(0.0305)	(0.0196)						
HHI^2			-0.7043**	-0.2112				
			(0.2792)	(0.1739)				
PPO HHI (000s)					-0.0238***	-0.0014		
					(0.0033)	(0.0030)		
HHI 2000-3999							0.1009***	0.0310***
							(0.0140)	(0.0078)
HHI 4000-5999							0.1790***	0.0552**
							(0.0397)	(0.0215)
HHI 6000+							0.2464***	0.0645
							(0.0694)	(0.0446)
N	920	920	920	920	896	896	920	920
R2	0.3996	0.8038	0.3961	0.8011	0.4130	0.8011	0.3533	0.7973
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			68.10	18.12			25.57	6.448
Joint F P-val			0	1.91e-08			0	0.000254
99213 Price								
HHI (0000s)	43.3994***	14.6061***	72.6903***	21.6626**	43.4362***	14.5480***		
	(4.6235)	(3.2834)	(12.5851)	(8.4131)	(4.6605)	(3.1721)		
% multispec	10.1177***	6.5277***						
	(2.2831)	(1.5716)						
HHI^2			-41.1262*	-8.9814				
			(21.7536)	(14.6004)				
PPO HHI (000s)					-1.8733***	-0.1929		
					(0.2402)	(0.2255)		
HHI 2000-3999							7.0562***	2.2442***
							(1.0245)	(0.6164)
HHI 4000-5999							13.1837***	4.2455***
							(2.9057)	(1.6010)
HHI 6000+							18.1371***	4.8823
							(5.3662)	(3.6022)
N	920	920	920	920	896	896	920	920
R2	0.3981	0.7892	0.3898	0.7844	0.4148	0.7882	0.3488	0.7808
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			63.47	15.29			24.08	5.825
Joint F P-val			0	2.94e-07			0	0.000607

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	family practice							
Price Index								
HHI (0000s)	0.4508***	0.0302	0.6746***	0.3450***	0.4359***	0.0589*		
	(0.0580)	(0.0326)	(0.1856)	(0.0872)	(0.0575)	(0.0351)		
% multispec	0.0973***	0.0720***						
	(0.0232)	(0.0146)						
HHI^2			-0.3012	-0.4614***				
			(0.3146)	(0.1354)				
PPO HHI (000s)					-0.0223***	-0.0049**		
					(0.0029)	(0.0024)		
HHI 2000-3999							0.0533***	0.0146**
							(0.0106)	(0.0064)
HHI 4000-5999							0.1726***	0.0069
							(0.0275)	(0.0167)
HHI 6000+							0.1982***	0.0203
							(0.0669)	(0.0258)
N	1,052	1,052	1,052	1,052	1,028	1,028	1,052	1,052
R2	0.3579	0.7944	0.3480	0.7912	0.3762	0.7925	0.3337	0.7894
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			44.30	8.037			20.34	1.778
Joint F P-val			0	0.000344			0	0.150
99213 Price								
HHI (0000s)	32.2719***	2.4876	44.8741***	25.7350***	31.1994***	4.5516*		
	(4.3688)	(2.5057)	(14.1980)	(6.3682)	(4.3039)	(2.6796)		
% multispec	6.8740***	5.1904***						
	(1.7066)	(1.1032)						
HHI^2			-16.2010	-34.1398***				
			(24.4227)	(9.8576)				
PPO HHI (000s)					-1.6362***	-0.3720**		
					(0.2110)	(0.1813)		
HHI 2000-3999							3.5620***	1.0097**
							(0.7648)	(0.4773)
HHI 4000-5999							12.3745***	0.6226
							(2.0473)	(1.2746)
HHI 6000+							14.5192***	1.3997
							(5.1984)	(1.9178)
N	1,052	1,052	1,052	1,052	1,028	1,028	1,052	1,052
R2	0.3585	0.7822	0.3486	0.7792	0.3788	0.7832	0.3349	0.7771
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			40.66	8.358			18.36	1.526
Joint F P-val			0	0.000250			0	0.206

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	cardiology							
Price Index								
HHI (0000s)	0.3098***	0.1107***	0.6322***	0.3135***	0.3338***	0.1237***		
	(0.0422)	(0.0366)	(0.1620)	(0.1195)	(0.0439)	(0.0374)		
% multispec	0.2835***	0.0802**						
	(0.0521)	(0.0325)						
HHI^2			-0.3263*	-0.2202				
			(0.1776)	(0.1364)				
PPO HHI (000s)					-0.0268***	-0.0061		
					(0.0044)	(0.0042)		
HHI 2000-3999							0.0882***	0.0296**
							(0.0168)	(0.0118)
HHI 4000-5999							0.1424***	0.0545***
							(0.0241)	(0.0158)
HHI 6000+							0.1876***	0.0554***
							(0.0281)	(0.0214)
N	678	678	678	678	657	657	678	678
R2	0.3737	0.8088	0.3451	0.8079	0.3834	0.8062	0.3352	0.8063
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			34.12	8.191			20.15	4.350
Joint F P-val			0	0.000305			0	0.00478
99213 Price								
HHI (0000s)	20.3862***	6.4535**	45.6931***	27.0124***	22.3608***	7.3548**		
	(3.2112)	(2.9486)	(11.5729)	(9.2728)	(3.3338)	(3.0250)		
% multispec	21.9310***	7.9272***						
	(3.6971)	(2.4789)						
HHI^2			-25.6501**	-22.3376**				
			(12.9348)	(10.9944)				
PPO HHI (000s)					-1.9800***	-0.4363		
					(0.3210)	(0.3193)		
HHI 2000-3999							5.7800***	2.0007**
							(1.1888)	(0.8554)
HHI 4000-5999							9.5565***	3.6588***
							(1.7141)	(1.1616)
HHI 6000+							12.4688***	3.1134*
							(2.1458)	(1.7258)
N	678	678	678	678	657	657	678	678
R2	0.3603	0.7803	0.3275	0.7788	0.3667	0.7764	0.3182	0.7767
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			29.56	7.774			17.45	3.402
Joint F P-val			0	0.000459			6.40e-11	0.0174

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	dermatology							
Price Index								
HHI (0000s)	0.3273***	0.0741**	0.8312***	0.1208	0.3348***	0.0787**		
	(0.0541)	(0.0361)	(0.1946)	(0.1431)	(0.0550)	(0.0362)		
% multispec	0.3468***	0.1329***						
	(0.0454)	(0.0317)						
HHI^2			-0.5791**	-0.0609				
			(0.2312)	(0.1686)				
PPO HHI(000s)					-0.0275***	-0.0002		
					(0.0042)	(0.0042)		
HHI 2000-3999							0.0437***	0.0090
							(0.0165)	(0.0105)
HHI 4000-5999							0.1204***	0.0172
							(0.0235)	(0.0153)
HHI 6000+							0.1081***	0.0229
							(0.0338)	(0.0222)
N	650	650	650	650	630	630	650	650
R2	0.4063	0.7901	0.3578	0.7838	0.3977	0.7860	0.3366	0.7829
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			26.82	2.021			9.897	0.570
Joint F P-val			0	0.133			2.18e-06	0.635
99213 Price								
HHI (0000s)	23.8009***	4.5363*	61.2978***	7.3135	24.3567***	4.8292*		
	(4.0600)	(2.6495)	(14.4542)	(10.9673)	(4.1089)	(2.6956)		
% multispec	25.1320***	9.6399***						
	(3.2816)	(2.1885)						
HHI^2			-43.1359**	-3.6939				
			(17.1340)	(13.0769)				
PPO HHI(000s)					-1.9378***	0.1779		
					(0.3245)	(0.3538)		
HHI 2000-3999							3.1515***	0.7175
							(1.1923)	(0.7731)
HHI 4000-5999							8.9802***	1.1434
							(1.7437)	(1.1047)
HHI 6000+							7.5933***	1.4177
							(2.4907)	(1.6380)
N	650	650	650	650	630	630	650	650
R2	0.3758	0.7728	0.3286	0.7666	0.3650	0.7667	0.3085	0.7661
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			25.46	1.400			9.864	0.484
Joint F P-val			0	0.247			2.28e-06	0.693

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	gastroenterology							
Price Index								
HHI (0000s)	0.2658***	0.1044***	0.6888***	0.1513	0.3156***	0.1167***		
	(0.0445)	(0.0296)	(0.1774)	(0.1204)	(0.0426)	(0.0305)		
% multispec	0.3939***	0.1993***						
	(0.0572)	(0.0351)						
HHI^2			-0.4181**	-0.0497				
			(0.1847)	(0.1109)				
PPO HHI (000s)					-0.0311***	-0.0034		
					(0.0048)	(0.0040)		
HHI 2000-3999							0.1020***	0.0570***
							(0.0232)	(0.0187)
HHI 4000-5999							0.1620***	0.0643***
							(0.0266)	(0.0201)
HHI 6000+							0.1857***	0.0768***
							(0.0312)	(0.0226)
N	615	615	615	615	595	595	615	615
R2	0.3389	0.7739	0.2886	0.7621	0.3397	0.7635	0.2839	0.7627
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			25.69	5.926			15.60	4.141
Joint F P-val			0	0.00282			8.59e-10	0.00640
99213 Price								
HHI (0000s)	18.5651***	7.5999***	47.6130***	11.8626	22.3140***	8.4341***		
	(3.2152)	(2.1714)	(12.4962)	(8.4118)	(3.0837)	(2.2771)		
% multispec	27.0158***	14.1266***						
	(4.0950)	(2.5740)						
HHI^2			-28.7161**	-4.4781				
			(13.1289)	(7.7637)				
PPO HHI (000s)					-2.3328***	-0.2385		
					(0.3355)	(0.2945)		
HHI 2000-3999							6.4031***	3.6507***
							(1.4491)	(1.1964)
HHI 4000-5999							11.1013***	4.5759***
							(1.7689)	(1.3652)
HHI 6000+							12.0741***	5.0089***
							(2.0906)	(1.5329)
N	615	615	615	615	595	595	615	615
R2	0.3381	0.7705	0.2899	0.7585	0.3486	0.7605	0.2844	0.7583
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			25.20	5.768			16.10	4.208
Joint F P-val			0	0.00330			4.40e-10	0.00583

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	neurology							
Price Index								
HHI (0000s)	0.2481***	0.1300***	0.3976*	0.1045	0.2746***	0.1161***		
	(0.0549)	(0.0435)	(0.2035)	(0.1557)	(0.0593)	(0.0442)		
% multispec	0.4155***	0.1544***						
	(0.0542)	(0.0382)						
HHI^2			-0.1380	0.0229				
			(0.2210)	(0.1763)				
PPO HHI (000s)					-0.0283***	-0.0046		
					(0.0047)	(0.0045)		
HHI 2000-3999							0.0705***	0.0420**
							(0.0195)	(0.0165)
HHI 4000-5999							0.1097***	0.0511***
							(0.0254)	(0.0184)
HHI 6000+							0.1461***	0.0933***
							(0.0391)	(0.0284)
N	611	611	611	611	594	594	611	611
R2	0.3558	0.7291	0.2975	0.7227	0.3375	0.7229	0.2929	0.7244
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			11	4.139			8.025	4.179
Joint F P-val			2.04e-05	0.0164			2.98e-05	0.00608
99213 Price								
HHI (0000s)	17.2572***	8.9992***	23.9264	-1.5673	19.4864***	8.1323**		
	(4.0828)	(3.4420)	(15.6529)	(11.9662)	(4.3602)	(3.6480)		
% multispec	28.8204***	11.1033***						
	(3.9746)	(2.9796)						
HHI^2			-5.5025	11.2837				
			(16.9941)	(13.4714)				
PPO HHI (000s)					-1.9948***	-0.2081		
					(0.3628)	(0.3963)		
HHI 2000-3999							5.8359***	2.7806*
							(1.7589)	(1.5102)
HHI 4000-5999							8.3733***	3.7253**
							(2.1091)	(1.6998)
HHI 6000+							11.4351***	6.7377***
							(2.9679)	(2.3885)
N	611	611	611	611	594	594	611	611
R2	0.3392	0.6730	0.2946	0.6682	0.3239	0.6667	0.2954	0.6695
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			9.648	3.123			6.998	2.767
Joint F P-val			7.49e-05	0.0447			0.000124	0.0411

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	general surgery							
Price Index								
HHI (0000s)	0.3681***	0.1461***	1.1711***	0.4198***	0.4127***	0.1663***		
	(0.0596)	(0.0438)	(0.1966)	(0.1575)	(0.0613)	(0.0445)		
% multispec	0.2963***	0.1025***						
	(0.0472)	(0.0330)						
HHI^2			-0.9705***	-0.3449*				
			(0.2493)	(0.2062)				
PPO HHI(000s)					-0.0256***	-0.0011		
					(0.0040)	(0.0040)		
HHI 2000-3999							0.0829***	0.0274**
							(0.0143)	(0.0117)
HHI 4000-5999							0.1499***	0.0533***
							(0.0253)	(0.0168)
HHI 6000+							0.1958***	0.0584
							(0.0466)	(0.0386)
N	717	717	717	717	696	696	717	717
R2	0.3593	0.7624	0.3328	0.7599	0.3608	0.7559	0.3166	0.7575
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			35.22	8.968			18.63	3.685
Joint F P-val			0	0.000142			0	0.0118
99213 Price								
HHI (0000s)	25.4033***	9.4744***	79.9995***	31.7087***	28.8487***	11.0477***		
	(4.4862)	(3.3465)	(14.3055)	(11.8425)	(4.6519)	(3.3897)		
% multispec	21.6862***	8.2991***						
	(3.4720)	(2.5215)						
HHI^2			-65.6437***	-28.0250*				
			(18.0336)	(15.2259)				
PPO HHI(000s)					-1.7940***	0.0787		
					(0.2979)	(0.2959)		
HHI 2000-3999							5.8164***	1.9790**
							(1.0515)	(0.8916)
HHI 4000-5999							10.3951***	3.4473***
							(1.8899)	(1.3200)
HHI 6000+							14.2454***	4.0544
							(3.5217)	(2.7208)
N	717	717	717	717	696	696	717	717
R2	0.3375	0.7355	0.3090	0.7324	0.3373	0.7304	0.2958	0.7300
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			30.10	7.134			16.73	2.735
Joint F P-val			0	0.000855			1.63e-10	0.0428

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	orthopedics							
Price Index								
HHI (0000s)	0.2321***	0.1243***	0.3667**	0.2196	0.2525***	0.1235***		
	(0.0485)	(0.0339)	(0.1772)	(0.1363)	(0.0490)	(0.0347)		
% multispec	0.2749***	0.0888***						
	(0.0443)	(0.0302)						
HHI^2			-0.1367	-0.1143				
			(0.1957)	(0.1580)				
PPO HHI (000s)					-0.0297***	-0.0063*		
					(0.0039)	(0.0036)		
HHI 2000-3999							0.0257	0.0019
							(0.0170)	(0.0120)
HHI 4000-5999							0.0631***	0.0285*
							(0.0244)	(0.0158)
HHI 6000+							0.1064***	0.0390*
							(0.0344)	(0.0218)
N	723	723	723	723	702	702	723	723
R2	0.3796	0.7719	0.3407	0.7689	0.3952	0.7707	0.3304	0.7668
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			12.54	6.858			4.209	2.684
Joint F P-val			4.45e-06	0.00112			0.00578	0.0457
99213 Price								
HHI (0000s)	16.2088***	7.6519***	20.6375	12.8417	17.6521***	7.4403***		
	(3.6707)	(2.5747)	(13.1954)	(10.3586)	(3.7171)	(2.6443)		
% multispec	20.7788***	7.2240***						
	(3.2947)	(2.3513)						
HHI^2			-3.3901	-6.1787				
			(14.6129)	(12.0069)				
PPO HHI (000s)					-2.1467***	-0.3874		
					(0.2854)	(0.2684)		
HHI 2000-3999							1.2273	-0.3579
							(1.2771)	(0.9213)
HHI 4000-5999							3.9559**	1.5332
							(1.8293)	(1.2162)
HHI 6000+							7.0683***	1.8769
							(2.6220)	(1.6414)
N	723	723	723	723	702	702	723	723
R2	0.3683	0.7570	0.3276	0.7532	0.3801	0.7548	0.3179	0.7521
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			11.06	4.511			3.409	2.027
Joint F P-val			1.86e-05	0.0113			0.0172	0.109

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	urology							
Price Index								
HHI (0000s)	0.1984***	0.1122***	0.2240	0.1157	0.2210***	0.1137***		
	(0.0473)	(0.0335)	(0.2359)	(0.1776)	(0.0466)	(0.0355)		
% multispec	0.3809***	0.1855***						
	(0.0529)	(0.0390)						
HHI^2			-0.0239	-0.0035				
			(0.2282)	(0.1734)				
PPO HHI (000s)					-0.0266***	-0.0009		
					(0.0046)	(0.0055)		
HHI 2000-3999							0.1544***	0.0823***
							(0.0366)	(0.0256)
HHI 4000-5999							0.1853***	0.1046***
							(0.0384)	(0.0286)
HHI 6000+							0.2043***	0.1184***
							(0.0411)	(0.0285)
N	630	630	630	630	611	611	630	630
R2	0.3594	0.7244	0.3041	0.7142	0.3461	0.7117	0.3057	0.7152
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			8.813	6.031			8.748	6.194
Joint F P-val			0.000168	0.00255			1.09e-05	0.000376
99213 Price								
HHI (0000s)	14.0757***	7.8444***	13.0614	7.1248	15.7615***	7.9179***		
	(3.4870)	(2.5661)	(16.8920)	(13.1222)	(3.4020)	(2.7040)		
% multispec	27.7833***	13.5462***						
	(3.9618)	(3.0013)						
HHI^2			0.9587	0.6555				
			(16.2371)	(12.8079)				
PPO HHI (000s)					-1.9958***	-0.0043		
					(0.3414)	(0.4219)		
HHI 2000-3999							10.3540***	5.3545***
							(2.5542)	(1.9140)
HHI 4000-5999							12.2140***	6.7036***
							(2.7254)	(2.1633)
HHI 6000+							13.9343***	7.7724***
							(2.9048)	(2.1526)
N	630	630	630	630	611	611	630	630
R2	0.3402	0.7070	0.2867	0.6972	0.3284	0.6949	0.2864	0.6973
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			7.994	4.955			7.876	4.590
Joint F P-val			0.000373	0.00732			3.65e-05	0.00345

eTable 1. Alternate Specifications (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	otolaryngology							
Price Index								
HHI (0000s)	0.2041***	0.0879***	0.6142***	0.2562*	0.2274***	0.0900***		
	(0.0491)	(0.0330)	(0.2115)	(0.1387)	(0.0484)	(0.0339)		
% multispec	0.3618***	0.1360***						
	(0.0486)	(0.0305)						
HHI^2			-0.3993*	-0.1714				
			(0.2158)	(0.1376)				
PPO HHI (000s)					-0.0285***	-0.0051		
					(0.0042)	(0.0038)		
HHI 2000-3999							0.0841***	0.0156
							(0.0298)	(0.0243)
HHI 4000-5999							0.1130***	0.0267
							(0.0332)	(0.0267)
HHI 6000+							0.1499***	0.0443
							(0.0380)	(0.0278)
N	660	660	660	660	641	641	660	660
R2	0.3676	0.7757	0.3177	0.7704	0.3603	0.7684	0.3099	0.7688
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			12.73	4.478			5.662	1.634
Joint F P-val			3.77e-06	0.0117			0.000783	0.180
99213 Price								
HHI (0000s)	14.0682***	5.2124**	39.5974**	17.0912	15.7534***	5.3242**		
	(3.8621)	(2.5220)	(17.1458)	(10.8064)	(3.8379)	(2.6028)		
% multispec	25.2649***	8.6039***						
	(3.6016)	(2.2908)						
HHI^2			-24.7563	-12.0891				
			(18.0231)	(11.0176)				
PPO HHI (000s)					-2.0626***	-0.4108		
					(0.3156)	(0.2965)		
HHI 2000-3999							5.6883***	0.9199
							(2.1989)	(1.7929)
HHI 4000-5999							7.6099***	1.5324
							(2.4708)	(1.9852)
HHI 6000+							10.1416***	2.6781
							(2.8328)	(2.0741)
N	660	660	660	660	641	641	660	660
R2	0.3349	0.7532	0.2886	0.7493	0.3280	0.7465	0.2817	0.7482
State FE	no	yes	no	yes	no	yes	no	yes
Joint F			10.54	3.188			4.634	1.019
Joint F P-val			3.11e-05	0.0419			0.00324	0.384

eTable 2. Alternate Specifications – Include Out of Network Claims

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	internal medicine		family practice		cardiology	
	Price Index					
HHI (10,000s)	0.6332***	0.1975***	0.4876***	0.0654**	0.3262***	0.1012***
	(0.0613)	(0.0393)	(0.0589)	(0.0331)	(0.0406)	(0.0312)
N	929	929	1,053	1,053	690	690
R-squared	0.3747	0.8086	0.3448	0.7951	0.3479	0.8169
state FE	no	yes	no	yes	no	yes
	99213 Price					
HHI (10,000s)	45.8182***	14.4635***	34.9746***	4.9914*	22.6736***	6.4689**
	(4.5989)	(3.1380)	(4.4285)	(2.5509)	(3.1207)	(2.5896)
N	929	929	1,053	1,053	690	690
R-squared	0.3678	0.7956	0.3437	0.7812	0.3170	0.7817
state FE	no	yes	no	yes	no	yes

	dermatology		gastroenterology		neurology	
	Price Index					
HHI (10,000s)	0.3650***	0.0909**	0.2884***	0.1129***	0.2625***	0.1177***
	(0.0549)	(0.0388)	(0.0473)	(0.0316)	(0.0568)	(0.0424)
N	661	661	629	629	633	633
R-squared	0.3364	0.7647	0.2751	0.7686	0.2802	0.7112
state FE	no	yes	no	yes	no	yes
	99213 Price					
HHI (10,000s)	26.7832***	5.8910**	20.6871***	8.4993***	16.4935***	6.3828*
	(4.0673)	(2.7853)	(3.4540)	(2.2255)	(4.2995)	(3.6412)
N	661	661	629	629	633	633
R-squared	0.3173	0.7592	0.2663	0.7707	0.2627	0.6095
state FE	no	yes	no	yes	no	yes

eTable 2. Alternate Specifications – Include Out of Network Claims (continued)

Note: Models also control for additional variables shown in ETable 3. Robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

	general surgery		orthopedics		urology	
	Price Index					
HHI (10,000s)	0.4503***	0.1759***	0.2371***	0.1124***	0.2037***	0.1176***
	(0.0671)	(0.0492)	(0.0486)	(0.0308)	(0.0476)	(0.0307)
N	743	743	734	734	638	638
R-squared	0.3644	0.7704	0.3367	0.7654	0.3318	0.7476
state FE	no	yes	no	yes	no	yes
	99213 Price					
HHI (10,000s)	27.9260***	8.1242**	16.7668***	7.2835***	14.2422***	8.0761***
	(4.5277)	(3.1538)	(3.7397)	(2.4179)	(3.5272)	(2.3432)
N	743	743	734	734	638	638
R-squared	0.3233	0.7523	0.3193	0.7483	0.3108	0.7402
state FE	no	yes	no	yes	no	yes

	otolaryngology	
	Price Index	
HHI (10,000s)	0.1816***	0.0604*
	(0.0495)	(0.0342)
N	678	678
R-squared	0.3252	0.7669
state FE	no	yes
	99213 Price	
HHI (10,000s)	12.0301***	2.9509
	(3.8171)	(2.5865)
N	678	678
R-squared	0.2942	0.7474
state FE	no	yes

eTable 3. Complete Regression Results From Main Models

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	internal medicine		N=920	
variable	price index		99213 price	
HHI (10,000s)	0.6475***	0.2169***	46.9183***	16.1733***
	(0.0640)	(0.0408)	(4.7462)	(3.2511)
Total Population (00000000s)	0.4045	-0.4880	93.2319	-15.1855
	(1.1054)	(0.8531)	(82.2882)	(62.3338)
Median HH Income (00000s)	-0.0516	-0.0100	-2.5257	-0.9641
	(0.0968)	(0.0675)	(6.9905)	(4.8735)
% Pop Graduated High School	1.2858***	0.1195	95.2333***	12.6308
	(0.1963)	(0.1378)	(14.4252)	(10.3995)
% Pop Graduated College	0.0233	0.1668*	0.6691	12.2253
	(0.1308)	(0.0990)	(9.8719)	(7.6262)
% Pop Uninsured	0.4086**	0.0573	31.7430***	6.6452
	(0.1630)	(0.1960)	(11.7251)	(13.9882)
% Pop Enrolled in Medicare	-0.1694	0.0520	-9.0429	4.1338
	(0.1241)	(0.0882)	(9.2334)	(6.8611)
% Pop Eligible for Medicaid	0.3464**	-0.1050	27.0926***	-6.3832
	(0.1401)	(0.1121)	(9.9425)	(8.2133)
Total Physicians per 1000 pop	0.0036	0.0001	0.1546	-0.1360
	(0.0058)	(0.0049)	(0.4361)	(0.3868)
Same Spec Phys per 1000 pop	0.4894	-0.3138	31.3775	-20.6291
	(0.3916)	(0.2346)	(28.6384)	(17.4011)
ST general hospitals per 100	-0.0082**	0.0024	-0.5370**	0.1519
	(0.0033)	(0.0024)	(0.2440)	(0.1759)
STG hosp beds per 1000 pop	0.0619*	0.0026	3.7507	0.3943
	(0.0336)	(0.0206)	(2.4134)	(1.5830)
Work GPCI	1.2023***	0.0024	77.1474***	5.0801
	(0.1679)	(0.7164)	(11.7653)	(57.5973)
Practice Expense GPCI	0.1875**	0.1348	19.8378***	11.6843
	(0.0871)	(0.1038)	(6.1690)	(8.0398)
Malpractice GPCI	-0.1074***	-0.1212***	-7.6546***	-7.6458***
	(0.0151)	(0.0238)	(1.1009)	(1.7810)
Constant	-1.6186***	0.5523	-116.3954***	29.3579
	(0.2173)	(0.6503)	(15.5581)	(51.4546)
R2	0.3885	0.8006	0.3849	0.7842
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	family practice		N=1,052	
variable	price index		99213 price	
HHI (10,000s)	0.4841***	0.0538	34.6263***	4.1843
	(0.0599)	(0.0346)	(4.4861)	(2.6420)
Total Population (00000000s)	0.5427	-0.6492	88.5589	-36.3852
	(1.0241)	(0.7655)	(75.7709)	(58.6029)
Median HH Income (00000s)	-0.1459*	-0.0669	-10.5534*	-6.1877
	(0.0863)	(0.0637)	(6.2356)	(4.5848)
% Pop Graduated High School	1.2450***	0.1176	91.4556***	9.1906
	(0.1575)	(0.1120)	(11.5922)	(8.3294)
% Pop Graduated College	0.0251	0.1563**	0.8861	10.5432*
	(0.1027)	(0.0763)	(7.5567)	(5.7160)
% Pop Uninsured	0.3468**	-0.0944	25.0800**	-7.6223
	(0.1436)	(0.1739)	(10.5557)	(12.9707)
% Pop Enrolled in Medicare	-0.1109	0.1335	-6.1053	10.0608
	(0.1090)	(0.0980)	(7.8687)	(6.6716)
% Pop Eligible for Medicaid	0.2464**	-0.1256	19.6800**	-9.9657
	(0.1139)	(0.0909)	(8.3807)	(6.7169)
Total Physicians per 1000 pop	0.0066	0.0019	0.4491	0.1665
	(0.0042)	(0.0041)	(0.3037)	(0.2993)
Same Spec Phys per 1000 pop	-0.3719	-0.5146***	-28.4691	-39.4804***
	(0.2899)	(0.1776)	(21.6908)	(13.6319)
ST general hospitals per 100	-0.0033	0.0025	-0.2629	0.1238
	(0.0023)	(0.0018)	(0.1700)	(0.1232)
STG hosp beds per 1000 pop	0.0569	0.0089	4.2326*	0.7335
	(0.0347)	(0.0157)	(2.5165)	(1.1644)
Work GPCI	1.1216***	-0.0379	76.0904***	7.6191
	(0.1791)	(0.5805)	(12.1318)	(46.1475)
Practice Expense GPCI	0.1877**	0.0415	18.4541***	5.3656
	(0.0822)	(0.0943)	(5.8700)	(7.2577)
Malpractice GPCI	-0.1089***	-0.1258***	-7.8641***	-8.8455***
	(0.0137)	(0.0219)	(0.9916)	(1.6168)
Constant	-1.4262***	0.7492	-104.0722***	42.7744
	(0.2028)	(0.5270)	(14.1507)	(41.3655)
R2	0.3469	0.7889	0.3480	0.7768
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	cardiology		N=678	
variable	price index		99213 price	
HHI (10,000s)	0.3385***	0.1150***	22.6040***	6.8704**
	(0.0427)	(0.0360)	(3.2201)	(2.8786)
Total Population (00000000s)	-0.3777	-1.2915*	0.9224	-93.8709*
	(1.0342)	(0.6961)	(68.5942)	(56.3156)
Median HH Income (00000s)	-0.0924	0.1142	-5.0403	5.6881
	(0.1123)	(0.0827)	(8.2701)	(6.3146)
% Pop Graduated High School	1.8084***	0.1811	127.2265***	13.8192
	(0.2646)	(0.1972)	(19.4243)	(16.0956)
% Pop Graduated College	-0.1124	0.0643	-6.4149	8.4022
	(0.1316)	(0.0910)	(9.4898)	(7.7630)
% Pop Uninsured	0.5576***	0.2643	42.8119***	20.1911
	(0.2021)	(0.2704)	(14.6357)	(20.8660)
% Pop Enrolled in Medicare	-0.5639***	-0.1339	-30.8673**	-2.3972
	(0.1883)	(0.1290)	(13.8871)	(10.4068)
% Pop Eligible for Medicaid	0.3713**	0.0112	28.3181**	-0.7761
	(0.1592)	(0.1365)	(11.8537)	(10.6484)
Total Physicians per 1000 pop	0.0193***	0.0100**	1.5206***	0.7257*
	(0.0056)	(0.0039)	(0.4512)	(0.4290)
Same Spec Phys per 1000 pop	2.6895***	0.6947	204.4848***	64.5313
	(0.9517)	(0.5233)	(74.1490)	(41.1704)
ST general hospitals per 100	-0.0079*	0.0023	-0.5558*	0.1607
	(0.0041)	(0.0021)	(0.2901)	(0.1899)
STG hosp beds per 1000 pop	-0.0263	-0.0752	-10.4041*	-11.3004**
	(0.0752)	(0.0511)	(5.8269)	(4.9544)
Work GPCI	0.7186***	-1.1333	49.1937***	-35.3992
	(0.2620)	(0.8596)	(17.3586)	(82.4280)
Practice Expense GPCI	0.2443**	0.2355*	22.6155***	13.0577
	(0.1135)	(0.1414)	(8.0392)	(12.4706)
Malpractice GPCI	-0.1199***	-0.1056***	-8.8046***	-6.1262***
	(0.0189)	(0.0256)	(1.3753)	(2.0316)
Constant	-1.5911***	1.4426*	-115.4080***	61.6414
	(0.3234)	(0.8003)	(22.4603)	(74.2811)
R2	0.3422	0.8067	0.3241	0.7765
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	dermatology		N=650	
variable	price index		99213 price	
HHI (10,000s)	0.3441***	0.0690*	25.0196***	4.1704
	(0.0556)	(0.0362)	(4.1697)	(2.6542)
Total Population (00000000s)	0.1238	-1.7959**	30.7351	-145.4160*
	(0.9876)	(0.8533)	(74.2643)	(75.5747)
Median HH Income (00000s)	-0.1837*	-0.1818**	-14.3883*	-12.9687**
	(0.1040)	(0.0783)	(7.7128)	(5.4758)
% Pop Graduated High School	1.7278***	0.3300*	125.6079***	24.3141*
	(0.2431)	(0.1877)	(17.8168)	(13.9064)
% Pop Graduated College	-0.0222	0.0436	-1.0477	3.9528
	(0.1301)	(0.0993)	(9.9350)	(7.6235)
% Pop Uninsured	0.5146**	0.2578	41.8532***	23.2740
	(0.2030)	(0.2523)	(15.1753)	(19.2338)
% Pop Enrolled in Medicare	-0.3675***	-0.2059**	-22.6150**	-12.5733**
	(0.1384)	(0.0859)	(9.4017)	(6.0733)
% Pop Eligible for Medicaid	0.3586**	-0.1534	27.0811**	-8.0316
	(0.1645)	(0.1317)	(12.4692)	(9.4031)
Total Physicians per 1000 pop	0.0104*	0.0073	0.7189	0.4548
	(0.0063)	(0.0046)	(0.4762)	(0.3605)
Same Spec Phys per 1000 pop	3.4014***	0.4158	247.3029***	21.9942
	(0.9162)	(0.7157)	(68.2642)	(55.5491)
ST general hospitals per 100	-0.0095**	0.0011	-0.7822***	0.0517
	(0.0038)	(0.0024)	(0.2723)	(0.1607)
STG hosp beds per 1000 pop	0.2129	-0.0547	9.0413	-6.7672
	(0.3023)	(0.2230)	(23.0141)	(18.0507)
Work GPCI	1.1520***	1.9800**	72.0305***	125.1102*
	(0.1935)	(0.8305)	(14.2139)	(65.6489)
Practice Expense GPCI	0.2860***	-0.0195	23.1823***	1.3656
	(0.1015)	(0.1366)	(7.4453)	(10.3981)
Malpractice GPCI	-0.1073***	-0.0935***	-7.8580***	-6.9813***
	(0.0164)	(0.0270)	(1.2065)	(1.9298)
Constant	-2.0041***	-1.3982*	-138.3932***	-85.0614
	(0.2686)	(0.7574)	(19.5874)	(59.1550)
R2	0.3514	0.7838	0.3220	0.7666
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	gastroenterology		N=615	
variable	price index		99213 price	
HHI (10,000s)	0.2737***	0.1024***	19.1061***	7.4573***
	(0.0447)	(0.0299)	(3.2211)	(2.1924)
Total Population (00000000s)	0.8683	-1.2243	114.8306	-66.8825
	(1.3495)	(0.8736)	(83.5350)	(55.0924)
Median HH Income (00000s)	-0.1385	-0.0470	-7.3466	-2.6464
	(0.1189)	(0.0933)	(8.1170)	(6.3191)
% Pop Graduated High School	1.6759***	0.1957	124.0266***	27.5305*
	(0.3080)	(0.1952)	(20.8799)	(14.8372)
% Pop Graduated College	-0.1867	0.0343	-16.5577	-1.4283
	(0.1482)	(0.1046)	(10.5147)	(7.5102)
% Pop Uninsured	0.4469*	0.0738	32.3793**	15.9356
	(0.2350)	(0.2846)	(16.4295)	(20.0627)
% Pop Enrolled in Medicare	-0.6699***	-0.2601*	-35.9309***	-8.0473
	(0.1962)	(0.1492)	(13.1230)	(10.0741)
% Pop Eligible for Medicaid	0.3142*	-0.0727	23.5737*	-3.8596
	(0.1848)	(0.1457)	(12.3260)	(10.2757)
Total Physicians per 1000 pop	0.0166**	0.0092*	1.1806**	0.6517*
	(0.0082)	(0.0053)	(0.5556)	(0.3404)
Same Spec Phys per 1000 pop	2.1262**	-0.4537	164.1808**	-25.7777
	(1.0740)	(0.6410)	(73.2640)	(42.7333)
ST general hospitals per 100	-0.0115**	0.0024	-0.7749**	0.1665
	(0.0046)	(0.0026)	(0.3140)	(0.1670)
STG hosp beds per 1000 pop	0.3758*	0.0680	8.5486	-10.8100
	(0.2006)	(0.1367)	(13.6630)	(9.6059)
Work GPCI	0.6544	0.9200	53.3784*	80.8621
	(0.5198)	(0.9121)	(30.9770)	(54.3936)
Practice Expense GPCI	0.2797**	0.0110	21.9864***	2.0762
	(0.1261)	(0.1585)	(8.3281)	(10.2420)
Malpractice GPCI	-0.1240***	-0.0745**	-9.3681***	-5.0229**
	(0.0208)	(0.0318)	(1.4585)	(1.9983)
Constant	-1.3496**	-0.3010	-109.4453***	-49.1638
	(0.5598)	(0.8415)	(34.1368)	(50.7646)
R2	0.2820	0.7620	0.2836	0.7584
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	neurology		N=611	
variable	price index		99213 price	
HHI (10,000s)	0.2721***	0.1252***	18.9233***	8.6512**
	(0.0597)	(0.0442)	(4.3668)	(3.4776)
Total Population (00000000s)	0.2256	-0.8276	34.5858	-120.5827
	(1.2319)	(0.9697)	(97.1465)	(92.2360)
Median HH Income (00000s)	-0.3176**	-0.2280*	-14.2869	-17.8631*
	(0.1416)	(0.1267)	(11.0780)	(10.7974)
% Pop Graduated High School	1.8940***	-0.0190	147.1628***	11.9188
	(0.2845)	(0.2825)	(22.0782)	(22.0885)
% Pop Graduated College	-0.0653	0.1131	0.5190	12.0459
	(0.1765)	(0.1435)	(14.3204)	(11.9949)
% Pop Uninsured	0.6031**	-0.2252	52.8882***	-15.6575
	(0.2400)	(0.4098)	(19.3279)	(31.4188)
% Pop Enrolled in Medicare	-0.6015***	-0.3522***	-28.3729**	-16.9680
	(0.1448)	(0.1149)	(13.1100)	(14.4002)
% Pop Eligible for Medicaid	0.3305*	-0.2431	43.6336***	-18.7636
	(0.1983)	(0.1846)	(15.6593)	(16.6100)
Total Physicians per 1000 pop	0.0146	0.0115*	1.4649*	1.3190**
	(0.0093)	(0.0064)	(0.8482)	(0.6707)
Same Spec Phys per 1000 pop	3.3589***	0.1967	257.8951***	18.8313
	(1.0352)	(0.6719)	(78.8926)	(53.9735)
ST general hospitals per 100	-0.0135***	0.0018	-0.9964***	0.1658
	(0.0042)	(0.0026)	(0.3337)	(0.2088)
STG hosp beds per 1000 pop	0.2114	-0.0313	-4.8653	-20.6830
	(0.1763)	(0.1343)	(16.8346)	(14.0721)
Work GPCI	0.9823***	0.1478	69.5395***	94.5080
	(0.2411)	(1.1093)	(18.6469)	(134.5623)
Practice Expense GPCI	0.3518***	0.2901	37.4623***	24.9682
	(0.1263)	(0.1977)	(12.3642)	(23.0953)
Malpractice GPCI	-0.1120***	-0.0963***	-9.1080***	-8.3156**
	(0.0212)	(0.0370)	(1.6391)	(3.7826)
Constant	-1.9212***	0.5627	-167.7982***	-56.2619
	(0.3285)	(1.0208)	(24.8715)	(114.9509)
R2	0.2971	0.7227	0.2945	0.6678
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	general surgery		N=717	
variable	price index		99213 price	
HHI (10,000s)	0.4199***	0.1562***	29.1916***	10.2924***
	(0.0620)	(0.0433)	(4.6735)	(3.3135)
Total Population (00000000s)	0.3098	-0.2710	115.2195	16.8373
	(1.1903)	(0.9341)	(96.5323)	(74.5258)
Median HH Income (00000s)	-0.2116**	-0.0670	-14.1712*	-4.3531
	(0.1063)	(0.0805)	(7.8689)	(6.1258)
% Pop Graduated High School	1.6331***	0.0988	124.4945***	18.0979
	(0.2661)	(0.2030)	(19.0454)	(14.7710)
% Pop Graduated College	-0.1496	0.0680	-10.6480	6.3044
	(0.1313)	(0.0931)	(9.5826)	(7.2205)
% Pop Uninsured	0.5399***	0.1326	42.9376***	17.3578
	(0.1971)	(0.2668)	(14.4094)	(20.0737)
% Pop Enrolled in Medicare	-0.5396***	-0.1788	-32.3101**	-14.8243
	(0.1733)	(0.1319)	(12.9220)	(10.1397)
% Pop Eligible for Medicaid	0.3290**	-0.1006	27.8271**	-1.0132
	(0.1556)	(0.1375)	(11.6728)	(10.6262)
Total Physicians per 1000 pop	0.0190***	0.0147***	1.2217***	0.8408***
	(0.0063)	(0.0036)	(0.4109)	(0.3164)
Same Spec Phys per 1000 pop	1.1954	-0.0120	70.7484	-8.6032
	(0.7722)	(0.5122)	(53.3606)	(35.9559)
ST general hospitals per 100	-0.0102**	0.0014	-0.7188**	0.1511
	(0.0044)	(0.0022)	(0.3086)	(0.1605)
STG hosp beds per 1000 pop	0.2237	-0.0658	10.4683	-8.2434
	(0.1568)	(0.1076)	(11.6927)	(8.4085)
Work GPCI	1.2658***	1.7675*	86.6274***	97.2499
	(0.2655)	(0.9713)	(18.1388)	(79.7213)
Practice Expense GPCI	0.3182***	-0.1140	22.6961***	-7.3911
	(0.1069)	(0.1445)	(7.8668)	(11.4631)
Malpractice GPCI	-0.0932***	-0.0742***	-6.9819***	-4.3799**
	(0.0167)	(0.0285)	(1.2341)	(2.2227)
Constant	-2.0159***	-0.9984	-146.8226***	-50.6442
	(0.3347)	(0.8825)	(23.3712)	(70.9902)
R2	0.3210	0.7587	0.2988	0.7309
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	orthopedics		N=723	
variable	price index		99213 price	
HHI (10,000s)	0.2536***	0.1256***	17.8346***	7.7619***
	(0.0504)	(0.0343)	(3.8031)	(2.6035)
Total Population (00000000s)	-0.5110	-0.7631	-0.4491	-65.1851
	(0.9799)	(0.7841)	(75.6191)	(58.1111)
Median HH Income (00000s)	-0.2669***	-0.1357*	-19.6588**	-10.0988
	(0.1019)	(0.0822)	(7.7727)	(6.2666)
% Pop Graduated High School	1.7695***	0.0310	130.0983***	1.7877
	(0.2578)	(0.2204)	(18.6197)	(16.7074)
% Pop Graduated College	-0.0593	0.2021**	-4.0739	15.4545*
	(0.1265)	(0.1018)	(9.7174)	(8.0877)
% Pop Uninsured	0.5885***	-0.0745	42.5297***	-9.9290
	(0.1865)	(0.2843)	(14.1308)	(22.1013)
% Pop Enrolled in Medicare	-0.6512***	-0.1595	-46.4236***	-13.4359
	(0.1643)	(0.1209)	(12.6655)	(9.5392)
% Pop Eligible for Medicaid	0.3831***	-0.0520	30.9809***	1.6068
	(0.1461)	(0.1311)	(11.0609)	(10.7002)
Total Physicians per 1000 pop	0.0120**	0.0065	0.7969**	0.4226
	(0.0050)	(0.0043)	(0.3903)	(0.3840)
Same Spec Phys per 1000 pop	2.2397***	0.2585	142.3466**	-8.6800
	(0.7795)	(0.5525)	(56.6459)	(41.1307)
ST general hospitals per 100	-0.0104***	-0.0010	-0.7797**	-0.0492
	(0.0040)	(0.0023)	(0.3041)	(0.1759)
STG hosp beds per 1000 pop	0.3086***	0.0943	22.3601***	6.7135
	(0.1125)	(0.0724)	(8.5939)	(5.9298)
Work GPCI	0.9974***	0.3856	67.9881***	60.2461
	(0.1792)	(0.9808)	(13.3266)	(73.8136)
Practice Expense GPCI	0.3668***	0.2108	29.4824***	14.7248
	(0.0991)	(0.1455)	(7.5817)	(11.2840)
Malpractice GPCI	-0.1030***	-0.0955***	-7.9178***	-7.2079***
	(0.0168)	(0.0260)	(1.2469)	(1.9412)
Constant	-1.8633***	0.1459	-133.4719***	-15.4795
	(0.2640)	(0.8767)	(19.4909)	(65.7989)
R2	0.3404	0.7687	0.3275	0.7531
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	urology		N=630	
variable	price index		99213 price	
HHI (10,000s)	0.1985***	0.1120***	14.0842***	7.8245***
	(0.0491)	(0.0339)	(3.5997)	(2.5925)
Total Population (00000000s)	0.0376	-1.4753	33.3143	-117.9521
	(1.1379)	(1.1232)	(81.6700)	(81.4624)
Median HH Income (00000s)	-0.0923	-0.0073	-9.8476	-2.8387
	(0.1208)	(0.0951)	(9.0158)	(7.1175)
% Pop Graduated High School	1.9949***	0.4433	145.0740***	32.8962
	(0.2815)	(0.2838)	(20.7925)	(21.5928)
% Pop Graduated College	-0.2565*	-0.0676	-21.2163*	-5.1995
	(0.1418)	(0.1095)	(11.0821)	(9.2680)
% Pop Uninsured	0.7005***	0.4917	49.1185***	34.4220
	(0.2259)	(0.3507)	(16.7665)	(25.9235)
% Pop Enrolled in Medicare	-0.4666***	-0.2051*	-35.3780***	-15.2304*
	(0.1361)	(0.1045)	(10.3341)	(7.7887)
% Pop Eligible for Medicaid	0.5494***	-0.0020	36.4829***	0.2531
	(0.1859)	(0.1586)	(13.9367)	(11.6494)
Total Physicians per 1000 pop	0.0250***	0.0151***	1.7010***	0.9049**
	(0.0056)	(0.0039)	(0.4655)	(0.4157)
Same Spec Phys per 1000 pop	2.9503***	0.2253	227.3218***	15.3572
	(1.1252)	(0.8582)	(87.5377)	(66.1996)
ST general hospitals per 100	-0.0137***	-0.0023	-1.0194***	-0.1554
	(0.0049)	(0.0025)	(0.3640)	(0.2077)
STG hosp beds per 1000 pop	0.0579	-0.0572	1.2158	-3.0029
	(0.1696)	(0.1168)	(13.2641)	(9.3805)
Work GPCI	1.2392***	1.2372	77.2250***	92.2361
	(0.2250)	(0.8608)	(14.4715)	(64.0477)
Practice Expense GPCI	0.2190**	-0.0353	23.0527***	1.7009
	(0.1079)	(0.1511)	(8.0027)	(11.5283)
Malpractice GPCI	-0.1227***	-0.0801***	-9.3798***	-4.9983**
	(0.0188)	(0.0308)	(1.3713)	(2.2867)
Constant	-2.2704***	-0.8872	-153.7232***	-66.9172
	(0.3161)	(0.8153)	(21.9157)	(60.8549)
R2	0.3041	0.7142	0.2867	0.6972
State Fixed Effects	no	yes	no	yes

eTable 3. Complete Regression Results From Main Models (continued)

Note: Results from OLS regressions. Robust standard errors in parentheses. *** p<.01; **p<.05; *p<.10

	otolaryngology		N=660	
variable	price index		99213 price	
HHI (10,000s)	0.2169***	0.0859***	14.9668***	5.0836**
	(0.0509)	(0.0331)	(3.9859)	(2.5181)
Total Population (00000000s)	-0.2988	-1.4962**	9.0381	-97.6507*
	(1.1058)	(0.7117)	(80.0436)	(55.5516)
Median HH Income (00000s)	-0.2112*	-0.1047	-18.9438**	-9.7615
	(0.1166)	(0.0822)	(8.9225)	(6.5177)
% Pop Graduated High School	1.9482***	0.1704	136.2427***	8.2485
	(0.2707)	(0.2179)	(19.8377)	(16.3365)
% Pop Graduated College	-0.1535	0.0189	-7.2297	5.1919
	(0.1362)	(0.0957)	(10.1869)	(7.9158)
% Pop Uninsured	0.5807***	0.0129	40.5692**	-3.5187
	(0.2134)	(0.2717)	(16.3413)	(21.2378)
% Pop Enrolled in Medicare	-0.6504***	-0.2157	-47.4420***	-19.1833*
	(0.1747)	(0.1338)	(13.4921)	(10.6939)
% Pop Eligible for Medicaid	0.5317***	-0.0277	35.3798***	1.7532
	(0.1653)	(0.1507)	(12.3375)	(11.5415)
Total Physicians per 1000 pop	0.0165***	0.0094***	1.0815**	0.4755
	(0.0060)	(0.0034)	(0.4365)	(0.3436)
Same Spec Phys per 1000 pop	3.6821***	0.8107	269.3484***	50.0009
	(0.9794)	(0.6562)	(81.0373)	(58.9463)
ST general hospitals per 100	-0.0138***	-0.0011	-0.9423***	0.0069
	(0.0047)	(0.0023)	(0.3238)	(0.1982)
STG hosp beds per 1000 pop	0.5738*	0.1754	28.8759	8.2661
	(0.3151)	(0.1768)	(23.9684)	(13.4832)
Work GPCI	0.9933***	1.0444	48.3345***	48.9263
	(0.2179)	(0.9363)	(18.4438)	(84.0801)
Practice Expense GPCI	0.3418***	0.1381	31.8897***	19.3987
	(0.1100)	(0.1573)	(8.2774)	(13.0629)
Malpractice GPCI	-0.1128***	-0.0572*	-8.5710***	-5.3660**
	(0.0197)	(0.0302)	(1.4614)	(2.2049)
Constant	-2.0298***	-0.5205	-122.3790***	-10.0453
	(0.2991)	(0.8383)	(23.6769)	(74.5750)
R2	0.3138	0.7698	0.2858	0.7488
State Fixed Effects	no	yes	no	yes

eTable 4. Complete Results From Models of Changes Over Time

	index	99213 price	index	99213 price
variable	IM	IM	FP	FP
2002 HHI high (>=2500)	0.0596***	4.6433***	0.0468***	3.2195***
	(0.0141)	(1.0985)	(0.0103)	(0.7595)
HHI dif, 2002 HHI low	0.3051***	23.3489***	0.1121	9.7022
	(0.0902)	(6.9037)	(0.0874)	(6.6295)
HHI dif, 2002 HHI high	-0.0029	2.1985	0.1437*	12.8108**
	(0.0928)	(7.0666)	(0.0761)	(5.3665)
Δ Total Population (00000000s)	-19.6879**	-1,200.9068	-21.0209**	-1,222.3193
	(9.3712)	(805.3010)	(9.6983)	(761.9357)
Δ Median HH Income (00000s)	-0.2117*	-9.5035	-0.2620**	-16.3959*
	(0.1234)	(9.5102)	(0.1161)	(8.7241)
Δ % Pop Graduated High School	-2.8804***	-235.1313***	-2.6425***	-192.8789***
	(0.4991)	(37.9427)	(0.3726)	(27.8992)
Δ % Pop Graduated College	2.0868***	159.7999***	1.5318***	109.6319***
	(0.6165)	(46.8290)	(0.5069)	(37.8872)
Δ % Pop Uninsured	-0.1995	-10.5209	-0.1196	-12.4188
	(0.1469)	(11.3360)	(0.1290)	(9.5731)
Δ % Pop Enrolled in Medicare	-0.1573	-19.1697	-0.1980	-16.3097
	(0.2459)	(19.5594)	(0.2200)	(17.3041)
Δ % Pop Eligible for Medicaid	0.2686	16.6034	0.2900*	18.2547
	(0.2035)	(16.0950)	(0.1539)	(11.4680)
Δ Total Physicians per 1000 pop	0.0342**	2.7375**	0.0300**	2.2714**
	(0.0166)	(1.3061)	(0.0138)	(1.0054)
Δ Same Spec Phys per 1000 pop	-0.1915	-4.0392	-0.0442	-18.0394
	(0.4024)	(31.5521)	(0.3935)	(29.1471)
Δ ST general hospitals per 100	0.0010	0.1072	0.0004	0.0703
	(0.0009)	(0.0777)	(0.0010)	(0.0953)
Δ STG hosp beds per 1000 pop	-0.0147	-2.0949	-0.0012	-0.2618
	(0.0307)	(2.3931)	(0.0113)	(0.8753)
Δ Work GPCI	0.4648**	38.1691**	0.5314***	38.3225***
	(0.1919)	(17.9396)	(0.1867)	(13.9457)
Δ Practice Expense GPCI	-0.1855	-15.0034*	-0.1995**	-14.2248**
	(0.1128)	(7.9789)	(0.0868)	(6.8141)
Δ Malpractice GPCI	-0.0752***	-4.8805***	-0.0593***	-3.8316***
	(0.0156)	(1.1485)	(0.0138)	(1.0310)
Constant	0.2914***	23.3143***	0.2885***	22.4183***
	(0.0217)	(1.7231)	(0.0184)	(1.3667)
N	860	860	1,030	1,030
R2	0.1590	0.1562	0.1314	0.1192

eTable 4. Complete Results From Models of Changes Over Time (continued)

	index	99213 price	index	99213 price
variable	Card	Card	Derm	Derm
2002 HHI high (>=2500)	0.0431***	2.9150***	0.0197	1.4593
	(0.0133)	(1.0067)	(0.0120)	(0.9075)
HHI dif, 2002 HHI low	0.5149***	35.8386***	0.1631	8.4679
	(0.1389)	(10.6318)	(0.2066)	(14.8997)
HHI dif, 2002 HHI high	-0.0200	1.6456	0.0576	1.0367
	(0.1018)	(7.5744)	(0.0686)	(6.9034)
Δ Total Population (00000000s)	-7.6124	-295.1993	-28.7203***	-1,952.8348***
	(10.2053)	(776.8545)	(8.6223)	(634.6103)
Δ Median HH Income (00000s)	-0.1688	0.3167	0.0427	0.2174
	(0.1890)	(14.6991)	(0.1574)	(11.9050)
Δ % Pop Graduated High School	-2.7939***	-246.1687***	-2.8474***	-207.7014***
	(0.7647)	(55.2762)	(0.6702)	(54.6792)
Δ % Pop Graduated College	4.2293***	276.7756***	1.6200*	63.2558
	(1.0171)	(72.5558)	(0.8385)	(64.0866)
Δ % Pop Uninsured	0.5156**	40.2391**	-0.0054	-8.3482
	(0.2053)	(17.7602)	(0.1920)	(14.8302)
Δ % Pop Enrolled in Medicare	-0.1525	-2.5460	-0.4792	-20.5180
	(0.3796)	(29.5723)	(0.3184)	(20.3954)
Δ % Pop Eligible for Medicaid	0.7205***	36.6416**	0.2270	-12.6809
	(0.2538)	(18.4863)	(0.2364)	(18.6672)
Δ Total Physicians per 1000 pop	0.0308	1.7647	0.0507***	3.5090**
	(0.0246)	(2.1168)	(0.0181)	(1.4891)
Δ Same Spec Phys per 1000 pop	2.5522	69.0594	0.3803	-16.6130
	(2.2632)	(170.7531)	(2.2135)	(186.3183)
Δ ST general hospitals per 100	-0.0134	-0.7977	0.0020	0.1730
	(0.0086)	(0.6658)	(0.0028)	(0.2317)
Δ STG hosp beds per 1000 pop	0.1729	7.6583	-0.1331	-8.7159
	(0.1287)	(9.5291)	(0.3088)	(23.7894)
Δ Work GPCI	0.1864	6.1596	0.4833	28.8307
	(0.4031)	(32.6483)	(0.3869)	(31.4260)
Δ Practice Expense GPCI	-0.1659	-5.0486	-0.2126	-8.8966
	(0.1379)	(10.9976)	(0.1656)	(13.6857)
Δ Malpractice GPCI	-0.0737***	-4.7169***	-0.0749***	-5.0762***
	(0.0221)	(1.6123)	(0.0186)	(1.4474)
Constant	0.2076***	17.2732***	0.1987***	19.0141***
	(0.0264)	(2.0869)	(0.0235)	(1.8583)
N	548	548	550	550
R2	0.1384	0.1050	0.1007	0.0718

eTable 4. Complete Results From Models of Changes Over Time (continued)

	index	99213 price	index	99213 price
variable	Gastro	Gastro	Neuro	Neuro
2002 HHI high (>=2500)	0.0589***	3.3114***	0.0072	-0.6863
	(0.0175)	(1.1223)	(0.0183)	(1.9783)
HHI dif, 2002 HHI low	0.1049	1.0038	0.3783**	20.5430
	(0.1432)	(9.1474)	(0.1802)	(16.5385)
HHI dif, 2002 HHI high	0.0528	2.6247	0.0694	3.9933
	(0.0632)	(4.4727)	(0.0630)	(4.9747)
Δ Total Population (00000000s)	-11.8112	-1,404.0688*	-15.6003	-1,811.7319
	(10.4720)	(798.9080)	(10.3560)	(1,145.7596)
Δ Median HH Income (00000s)	0.0941	9.3964	-0.2418	10.9990
	(0.1873)	(12.8787)	(0.2110)	(21.8387)
Δ % Pop Graduated High School	-3.5344***	-270.3406***	-3.5518***	-333.4633***
	(0.8454)	(60.1469)	(0.8843)	(81.5348)
Δ % Pop Graduated College	3.3040***	201.2234***	2.1237*	179.0470*
	(0.9984)	(72.1236)	(1.2356)	(101.3104)
Δ % Pop Uninsured	0.0314	1.8394	-0.1226	-21.2175
	(0.2182)	(15.2940)	(0.2623)	(21.3837)
Δ % Pop Enrolled in Medicare	0.0153	4.7032	-0.5195	-13.2622
	(0.3853)	(28.2964)	(0.3938)	(40.1681)
Δ % Pop Eligible for Medicaid	0.5399*	23.0809	0.2999	27.7650
	(0.2890)	(18.6113)	(0.3305)	(30.0250)
Δ Total Physicians per 1000 pop	0.0728***	4.7681**	0.0687***	3.5270*
	(0.0260)	(2.0727)	(0.0215)	(1.8809)
Δ Same Spec Phys per 1000 pop	1.5307	73.9580	-1.2709	-96.3870
	(2.3320)	(160.5807)	(1.7354)	(146.4685)
Δ ST general hospitals per 100	0.0014	0.2195	-0.0017	-0.1851
	(0.0074)	(0.5200)	(0.0073)	(0.5487)
Δ STG hosp beds per 1000 pop	0.0753	-0.3833	-0.0914	-10.8803
	(0.3137)	(20.9428)	(0.1871)	(14.8716)
Δ Work GPCI	0.5075	28.0820	0.4606	49.2416
	(0.4386)	(31.2783)	(0.4533)	(42.5732)
Δ Practice Expense GPCI	-0.2544	-14.9700	-0.0131	-16.7782
	(0.1869)	(13.7894)	(0.1741)	(16.2985)
Δ Malpractice GPCI	-0.0682***	-4.5755***	-0.0575**	-5.6726*
	(0.0263)	(1.6235)	(0.0248)	(3.3417)
Constant	0.2177***	18.3691***	0.2551***	19.5950***
	(0.0286)	(1.9669)	(0.0377)	(3.1061)
N	506	506	467	467
R2	0.1328	0.1206	0.0811	0.0951

eTable 4. Complete Results From Models of Changes Over Time (continued)

	index	99213 price	index	99213 price
variable	Gen Surg	Gen Surg	Ortho	Ortho
2002 HHI high (>=2500)	0.0359**	2.2352**	0.0381***	2.6957***
	(0.0141)	(1.0036)	(0.0111)	(0.8425)
HHI dif, 2002 HHI low	0.3788**	33.0347***	0.2541*	20.9955*
	(0.1705)	(12.2223)	(0.1467)	(10.8289)
HHI dif, 2002 HHI high	0.0664	3.2264	0.0026	-0.2733
	(0.0829)	(6.3648)	(0.0567)	(4.5585)
Δ Total Population (00000000s)	-7.6212	-292.1492	-6.2737	-385.7337
	(11.8546)	(958.7270)	(8.1400)	(629.9628)
Δ Median HH Income (00000s)	-0.0660	-1.9588	-0.1556	-11.9087
	(0.1793)	(12.8783)	(0.1560)	(12.1365)
Δ % Pop Graduated High School	-2.5019***	-194.7118***	-3.2795***	-257.3028***
	(0.8101)	(59.1713)	(0.6384)	(50.0701)
Δ % Pop Graduated College	2.7347***	179.9034**	3.3638***	201.8537***
	(0.9472)	(70.4199)	(0.8110)	(62.8610)
Δ % Pop Uninsured	0.0902	8.7065	0.0564	8.7766
	(0.2381)	(17.9975)	(0.1581)	(12.6496)
Δ % Pop Enrolled in Medicare	-0.1575	11.6622	-0.3560	-35.6611
	(0.4371)	(45.0458)	(0.3187)	(24.1681)
Δ % Pop Eligible for Medicaid	0.6680**	29.2952	0.5834***	31.2946*
	(0.2824)	(19.9387)	(0.2165)	(17.4425)
Δ Total Physicians per 1000 pop	0.0667***	3.8351***	0.0252	2.0162
	(0.0208)	(1.3579)	(0.0164)	(1.3000)
Δ Same Spec Phys per 1000 pop	-1.1814	-94.2111	0.2732	-6.4554
	(1.8830)	(142.4448)	(1.3439)	(108.1790)
Δ ST general hospitals per 100	-0.0028	-0.3639	-0.0080	-0.3170
	(0.0082)	(0.6673)	(0.0061)	(0.4776)
Δ STG hosp beds per 1000 pop	0.2277	17.0345	0.1127	9.4131
	(0.2519)	(18.8669)	(0.1119)	(8.9516)
Δ Work GPCI	0.5896	35.8392	0.1974	16.7377
	(0.4178)	(30.1292)	(0.3190)	(24.3787)
Δ Practice Expense GPCI	-0.2627*	-23.1164**	-0.1600	-17.9142
	(0.1511)	(11.3951)	(0.1571)	(12.1365)
Δ Malpractice GPCI	-0.0477**	-2.8108*	-0.0669***	-4.9531***
	(0.0229)	(1.6238)	(0.0184)	(1.4085)
Constant	0.2009***	17.3706***	0.2213***	20.7134***
	(0.0274)	(2.0284)	(0.0236)	(1.8237)
N	542	542	654	654
R2	0.1012	0.0934	0.1190	0.1073

eTable 4. Complete Results From Models of Changes Over Time (continued)

	index	99213 price	index	99213 price
variable	Urol	Urol	Otolaryn	Otolaryn
2002 HHI high (>=2500)	0.0065	0.0417	0.0337**	1.7168
	(0.0210)	(1.7072)	(0.0170)	(1.3803)
HHI dif, 2002 HHI low	0.0862	2.9026	0.2084	13.9282
	(0.1579)	(12.7176)	(0.1994)	(16.6147)
HHI dif, 2002 HHI high	-0.0829	-5.6492	0.0264	1.7503
	(0.0531)	(4.0626)	(0.0476)	(4.1107)
Δ Total Population (00000000s)	-11.2558	-779.4877	-24.1608***	-1,300.3755*
	(9.0985)	(700.9823)	(9.3422)	(783.8550)
Δ Median HH Income (00000s)	-0.0199	-5.0695	-0.0235	-0.4539
	(0.1769)	(14.2113)	(0.1728)	(14.0994)
Δ % Pop Graduated High School	-2.7099***	-187.9011***	-3.4550***	-293.6858***
	(0.7121)	(55.7382)	(0.6930)	(56.7668)
Δ % Pop Graduated College	2.2185**	123.7007*	2.3697**	178.2746**
	(0.9284)	(74.4216)	(0.9384)	(77.5622)
Δ % Pop Uninsured	0.0522	-6.5220	-0.0185	2.1281
	(0.2002)	(15.8070)	(0.1971)	(15.5161)
Δ % Pop Enrolled in Medicare	-0.6006	-62.8786*	-0.2529	-32.0256
	(0.3934)	(33.9234)	(0.3708)	(32.6212)
Δ % Pop Eligible for Medicaid	0.7251***	37.7115**	0.4500	21.2703
	(0.2445)	(18.9243)	(0.2844)	(24.0181)
Δ Total Physicians per 1000 pop	0.0626***	4.3264***	0.0590***	4.4487***
	(0.0172)	(1.3511)	(0.0213)	(1.6747)
Δ Same Spec Phys per 1000 pop	0.2909	-2.0151	2.8260	226.5925
	(2.0064)	(153.2542)	(1.9307)	(180.1449)
Δ ST general hospitals per 100	-0.0032	-0.1388	-0.0082	-0.8458
	(0.0082)	(0.6606)	(0.0071)	(0.6276)
Δ STG hosp beds per 1000 pop	0.1300	6.2334	0.3481	26.0541
	(0.1969)	(15.8947)	(0.3672)	(30.3446)
Δ Work GPCI	0.7982***	55.0269***	0.1995	34.8071
	(0.1707)	(13.2525)	(0.3716)	(31.0678)
Δ Practice Expense GPCI	-0.3943***	-25.5999**	-0.0775	-12.3930
	(0.1350)	(11.5532)	(0.1543)	(13.4515)
Δ Malpractice GPCI	-0.0277	-3.0503**	-0.0697***	-4.7422***
	(0.0192)	(1.4737)	(0.0211)	(1.5826)
Constant	0.2151***	19.1755***	0.2313***	19.6050***
	(0.0249)	(1.9619)	(0.0258)	(2.0091)
N	518	518	567	567
R2	0.1205	0.0932	0.1166	0.1036

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