Discussion of Gottlieb Polyakova Rinz Shiplett Udalova "Who Values Human Capitalists' Human Capital? Healthcare spending and physician earnings"

Owen Zidar
Princeton and NBER

NBER Health Care Summer Institute Meeting

July 2020

Summary

Great paper!

1. **Excellent data and descriptive work:** physician pay over the lifecycle
   - Earn about 360K per year, varies widely across specialties, and biz income key at top

2. **Effect of government intervention on pay**
   - Use Medicaid fee variation in ACA (Alexander and Schnell, 2019; Polsky et al (2015)) to find about half goes to physicians
   - Use Cabral Geruso Mahoney (2018) approach and find about 20 cents of every dollar of subsidy goes to physicians

3. **Counterfactuals:**
   - Compare earnings to lawyers, other specialties, and pay structure in Sweden
   - Conclude that it's difficult to reduce spending on US healthcare by cutting pay

Outline of Comments

Want a framework to integrate three components:

1. Measurement
2. Causal effects of government intervention
3. Counterfactuals

Key themes to incorporate

1. Market for human capital services, relationship to lifetime pay, and **quantities**
2. The behavior and pay of workers versus private business owners
3. Importance of non-tax government intervention, especially in healthcare

Physicians prevail among top-owned private firms

2014 S-corporation sample. Statistics in millions of 2014 USD.

	S-corporation Industry (NAICS)	Top 1-0.1 π ($M)
1	Offices of physicians (6211)	9063
2	Other professional/technical svc (5419)	4778
3	Offices of dentists (6212)	4317
4	Other specialty trade cntrctr (2389)	3893
5	Legal svc (5411)	3485
6	Insurance agencies/brokerages (5242)	2678
7	Computer sys design/related svc (5415)	2662
8	Architectural/engineering svc (5413)	2642
9	Building equipment cntrctr (2382)	2595
10	Restaurants (7225)	2421
11	Management/technncl consulting svc (5416)	2196
12	Nonresidential building constr (2362)	1906
13	Offices of other health practitioners (6213)	1886
14	Misc. durable goods merch whlsl (4239)	1684
15	Other fabricated metal prod mfg. (3329)	1670

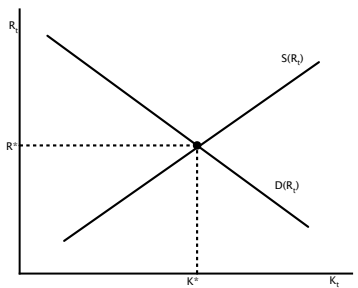
	S-corporation Industry (NAICS)	Top 0.1 π ($M)
1	Other financial investment actvty (5239)	5786
2	Automobile dealers (4411)	5176
3	Oil/gas extraction (2111)	4820
4	Other professional/technical svc (5419)	4186
5	Offices of physicians (6211)	3621
6	Computer sys design/related svc (5415)	3206
7	Management/technncl consulting svc (5416)	3185
8	Other specialty trade cntrctr (2389)	3086
9	Legal svc (5411)	2847
10	Misc. durable goods merch whlsl (4239)	2836
11	Other fabricated metal prod mfg. (3329)	2727
12	Other miscellaneous mfg. (3399)	2477
13	Activities related to real estate (5313)	2286
14	Other heavy constr (2379)	2248
15	Nonresidential building constr (2362)	1940

Source: Smith Yagan Zidar Zwick (2019). Note Top 1% and 0.1% thresholds are approx $400K and $1.5M

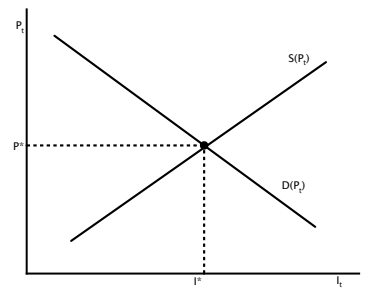
Start with framework for thinking about physical capital

There are two key markets: (1) using capital services and (2) buying capital

Rental Market



Asset Market



where R_t is the **rental price** of using capital services K_t and P_t is the **purchase price**, which depends on the level of investment I_t.

Applying this framework to human capital of physicians

1. **Stock Adjustment:** $K_t = (1-\delta)K_{t-1} + I_t$
   - K_t is the stock of physician human capital (or number of doctor hours in a location)
   - δ is depreciation (could represent retirement and obsolescence)
   - I_t is the flow of new human capital (represents new residents, immigrants, and retraining)
   - We want to measure and report these quantities as well as pay

2. **PDV of pay**

$$P_t = R_t + \frac{R_{t+1}(1-\delta)}{(1+r)} + \frac{R_{t+2}(1-\delta)^2}{(1+r)^2} + ...$$

3. **Rental market: demand is downward sloping** $K = D(R)$

4. **Investment market: supply is upward sloping** $I = S(P)$

Implications for physician pay, causal effects, counterfactuals

I'd like to see more integration and focus on determinants of pay, quantities, ε^S, and ε^D

1. **Demand for local physician services:**
   1. Local population, demographics, and income
   2. Technological growth and capital deepening
   3. Government intervention and effects on demand (e.g., Medicaid fees, MA subsidies, etc)
2. **Supply of local physician services:**
   1. Number of local doctors, their human capital, hours worked, resident flows
   2. To extent many working full time, extra-hours require even higher pay b/c rising disutility of effort (Murphy and Topel, 2016)
   3. Some of these services provided via physician laborers and some via small practices, so supply depends in part on span of control and effectiveness of non-physician inputs
   4. Substitution across specialties and occupations, and δ are also important determinants

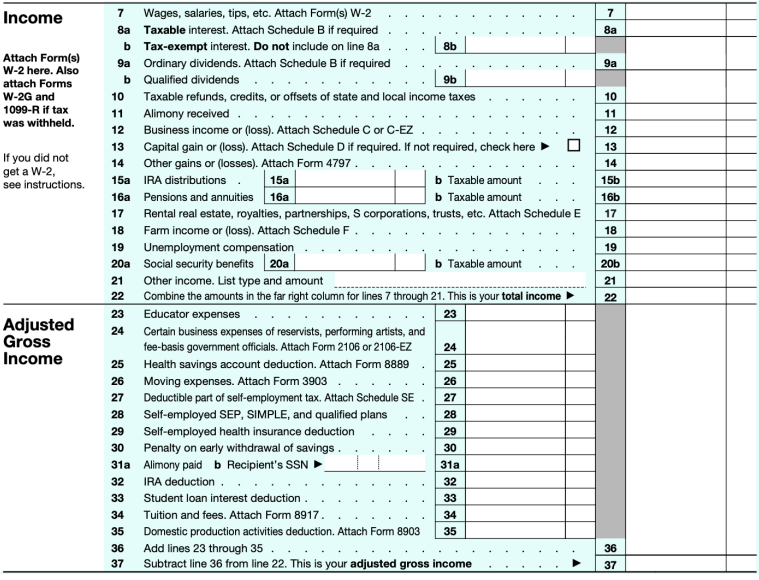
In terms of connecting parts of the paper,

1. How do the incidence estimates in part 2 relate to ε^S and ε^D?
2. How do ε^S, δ, and ε^D inform the counterfactuals?

Part I. Comments on Measurement

1. **Aggregates** are helpful
   1. K_t, I_t: How many (new) doctors? By time, place, speciality?
   2. How many firms/small practices? By time, place, type?
   3. How much total pay? By time, place, specialty?
   4. Where do the 20% of health resources and 8% of GDP numbers come from exactly? $\Rightarrow$ **How big are rents in healthcare and who gets them?**
   5. How do your business income aggregates compare to SOI stats or SYZZ(2019) stats (15B and 5B of pass-through profits of Top 1-.1% and Top 0.1% in 2014)?
2. **Risk**: by time, place, specialty? Malpractice insurance, income volatility, gov't policy, etc?
3. **Industrial structure**: inform anecdotes of sole props becoming big multi-owner practices?
4. Clarify what spine of dataset is for different stats—all docs in ACS or all from NPPES file?
5. "Top 1" definition: fiscal income vs. distribution of income and national accounts (DINA)
6. Adjusted gross income (AGI) affected by capital gains and deductions

AGI (line 37) affected by capital gains (13), deductions (36), etc



Income	7	Wages, salaries, tips, etc. Attach Form(s) W-2		7	
	8a	**Taxable** interest. Attach Schedule B if required		8a	
Attach Form(s) W-2 here. Also attach Forms W-2G and 1099-R if tax was withheld.	b	**Tax-exempt** interest. **Do not** include on line 8a	8b		
	9a	Ordinary dividends. Attach Schedule B if required		9a	
	b	Qualified dividends	9b		
	10	Taxable refunds, credits, or offsets of state and local income taxes		10	
	11	Alimony received		11	
	12	Business income or (loss). Attach Schedule C or C-EZ		12	
	13	Capital gain or (loss). Attach Schedule D if required. If not required, check here ▶ ☐		13	
If you did not get a W-2, see instructions.	14	Other gains or (losses). Attach Form 4797		14	
	15a	IRA distributions 15a	b Taxable amount	15b	
	16a	Pensions and annuities 16a	b Taxable amount	16b	
	17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E		17	
	18	Farm income or (loss). Attach Schedule F		18	
	19	Unemployment compensation		19	
	20a	Social security benefits 20a	b Taxable amount	20b	
	21	Other income. List type and amount		21	
	22	Combine the amounts in the far right column for lines 7 through 21. This is your **total income** ▶		22	
Adjusted Gross Income	23	Educator expenses	23		
	24	Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ	24		
	25	Health savings account deduction. Attach Form 8889	25		
	26	Moving expenses. Attach Form 3903	26		
	27	Deductible part of self-employment tax. Attach Schedule SE	27		
	28	Self-employed SEP, SIMPLE, and qualified plans	28		
	29	Self-employed health insurance deduction	29		
	30	Penalty on early withdrawal of savings	30		
	31a	Alimony paid b Recipient's SSN ▶	31a		
	32	IRA deduction	32		
	33	Student loan interest deduction	33		
	34	Tuition and fees. Attach Form 8917	34		
	35	Domestic production activities deduction. Attach Form 8903	35		
	36	Add lines 23 through 35		36	
	37	Subtract line 36 from line 22. This is your **adjusted gross income** ▶		37	

Part II and III. Comments on Causal Effects and Counterfactuals

1. I'd imagine there are many inframarginal doctors who benefit from reforms
2. How do the incidence results relate to the seemingly high elasticities implied in counterfactual section?
3. How does the market for physician services relate to other health markets and lead to spillovers (e.g., market for nurses, insurance, etc) and how should that affect conclusions about the size and allocation of rents in healthcare?

Overall, excellent paper, great data, and emphasis on importance of human capital, business income, and non-tax government interventions

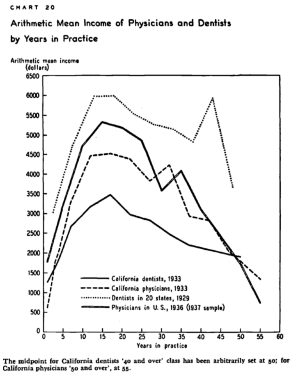
Bonus Material

Compiled by Dustin Swonder

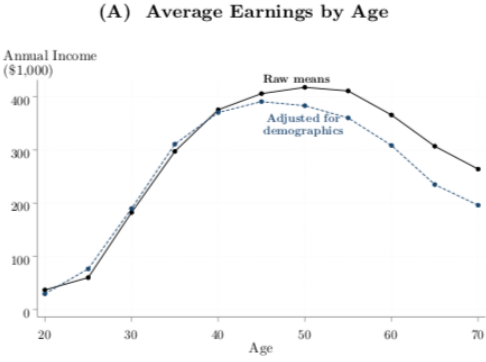
Friedman and Kuznets vs. GPRSU

Physician earnings over the lifetime

Friedman and Kuznets (1954) figure 20



GPRSU (2020) figure 1 (a)



- Friedman and Kuznets, GPRSU show steep earnings increase shortly after starting practice
- Friedman Kuznets sample peaks $\approx$ 20 years later with steep decline; GPRSU see later peak ($\approx$ 30 years after starting) and less steep decline

Friedman and Kuznets vs. GPRSU

Geographic distribution of physician earnings

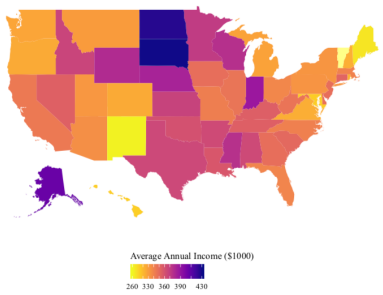
Friedman Kuznets (1954) table 18

Arithmetic Mean Income, Relatives of Arithmetic Mean Income and Number of Persons Covered, by Region

Professions and All Persons

	ALL PERSONS (per capita)[1] 1929–36	PHYSICIANS[2] 1929–36	DENTISTS[2] 1929–34	LAWYERS[2] 1932–36	CERTIFIED PUBLIC ACCOUNTANTS[2] 1929–36	CONSULTING ENGINEERS[2] 1929–32
	Arithmetic Mean Income (dollars)					
New England	623	4,850	3,778	4,253	4,961	6,327
Middle Atlantic	691	4,239	4,423	4,425	6,188	11,527
E. N. Central	517	4,075	3,225	5,427	4,905	5,854
W. N. Central	402	3,886	2,843	2,976	4,812	4,818
S. Atlantic	339	4,046	3,657	3,510	4,638	5,388
E. S. Central	220	3,174	2,840	3,690	4,727	
W. S. Central	295	3,294	3,269	2,866	4,609	4,176
Mountain	440	4,057	3,367	2,786	4,114	2,815
Pacific	653	4,282	3,762	4,141	4,118	4,450
U. S. actual avg.	486	4,031	3,517	4,082	5,180	7,720
U. S. standardized avg.[4]		4,000	3,530	4,057	5,018	6,557

GPRSU (2020) figure 3



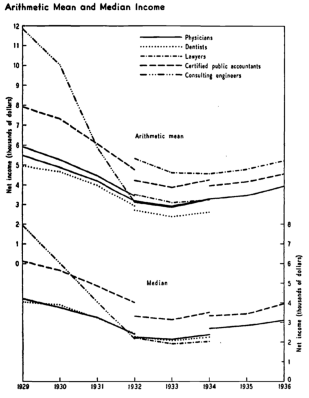
Notes: `maptile` had not been invented in 1954.

- Friedman Kuznets show physicians do best in New England, Mid Atlantic, Pacific; flipped in GPRSU
- Friedman Kuznets show between-region differences driven by differences community composition of region: physicians do best in medium-large (pop = 100k-1.5M) communities, worst in small communities (pop < 2500); not explored in GPRSU

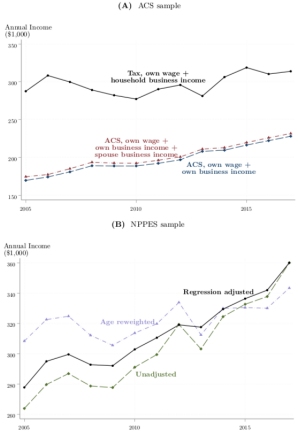
Friedman and Kuznets vs. GPRSU

Physician earnings dropped 1929-1932, climbed 1932-1936 and 2005-2018

Friedman Kuznets (1954) figure 7



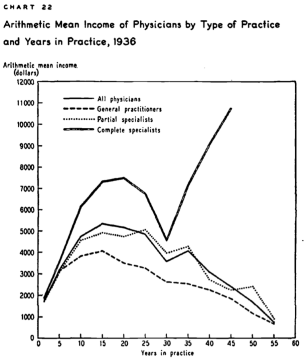
GPRSU (2020) figure 2



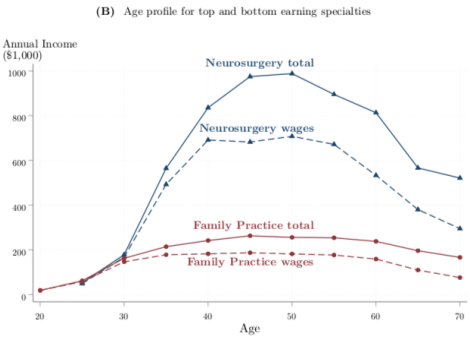
Friedman and Kuznets vs. GPRSU

Estimates of physician earnings over the lifetime by specialization

Friedman Kuznets (1954) figure 22



GPRSU (2020) figure 10 (b)



- Both studies show financial returns to specialization
- Friedman Kuznets argue this is selection: only excellent general practitioners can afford to specialize (doctors specialized after spending time as general practitioners)
- GPRSU see returns as compensation for greater training

References

- Friedman, Milton and Simon Kuznets (1954). *Income from Independent Professional Practice*. National Bureau of Economic Research. http://www.nber.org/books/frie54-1.