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INTERNATIONAL COMPARISON OF PHYSICIAN INCOMES

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ABSTRACT

We compare physician incomes using tax data from the United States, Canada, Sweden, and the Netherlands. Physicians are concentrated in the top percentiles of the income distribution in all four countries, especially in the United States and certain specialties. Physician incomes are highest in the United States, and a decomposition shows that this mainly reflects differences in overall income distributions, rather than physicians' locations in those distributions. This suggests that broader labor market differences, and thus physicians' outside options, drive absolute incomes. Shifting US physicians' incomes to match relative positions in other countries' distributions would only marginally reduce healthcare spending.

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Introduction

Physicians are some of the highest-skilled and highest-earning professionals in advanced economies. Their incomes affect the allocation of top talent in the economy and are often cited as contributing to high and rising healthcare costs, especially in the United States. Since the public sector is deeply involved in healthcare, regulatory choices guide the valuation of much of the output in this market, and thus physicians' incomes (Gottlieb et al., 2025). At the same time, market forces also shape the earnings distribution and constrain policy options (Gottlieb et al., 2023; Dodini et al., 2025).

We use administrative data to investigate doctors' income distributions in four developed countries, focusing on physicians' incomes relative to each country's income distribution. Physicians are highly concentrated in the top decile of each country's income distribution. In the U.S., over 84% of physicians are in the top decile, with 26% in the top percentile alone. In the other three countries, roughly 60% of physicians are in the top decile. Sweden differs in having a lower share in the top percentile: only 5% of Swedish doctors, compared with around 20% in Canada and the Netherlands.

1 Data

We use administrative 2017 tax data from the United States, Sweden, and the Netherlands, and 2015 tax data from Canada. We identify physicians by linking individual tax records to occupational codes or healthcare provider registries. We observe the universe or near-universe of physicians in each country. We harmonize the definition of income across the four countries to the extent possible, adjust values for inflation, and convert to 2025 USD at purchasing power parity. We compute income level and positions in the national income distribution for each physician. The position in the income distribution is measured using household-level income (Adjusted Gross Income) in the U.S. and at the individual level in the other countries, reflecting the respective tax systems.

Table 1 summarizes data sources and income definitions for each country, and reports sample sizes and mean incomes. The Online Appendix provides details on measurement and healthcare institutions in each country. Average individual physician incomes in the U.S. are more than twice those in the other countries. Canada and the Netherlands offer similar average incomes, with average Swedish physician incomes 40% lower.

Table 1: Summary Statistics

	United States		Canada	Netherlands	Sweden
Income level	Household	Individual	Individual	Individual	Individual
Mean income (2025 USD)	$562,100	$458,100	$194,700	$185,700	$115,200
Number of physicians	819,500		100,660	70,295	55,097
Data year	2017		2015	2017	2017
Data source	IRS tax data Form 1040		Canadian Census with linked tax records	Personal Records Database (BRP) with linked tax records	LISA Database with linked tax records
Income measure	adjusted gross income (AGI)	individual total income	wage and salary, self-employment, and capital gains	wage and salary, and self-employment	wage and salary, self-employment, and capital gains
Physician definition	National Provider Identifier (NPI) Registry (2018)		National Occupation Classification (2016)	BIG (Professions in Individual Healthcare) online register	Swedish Standard Classification of Occupations (SSYK)

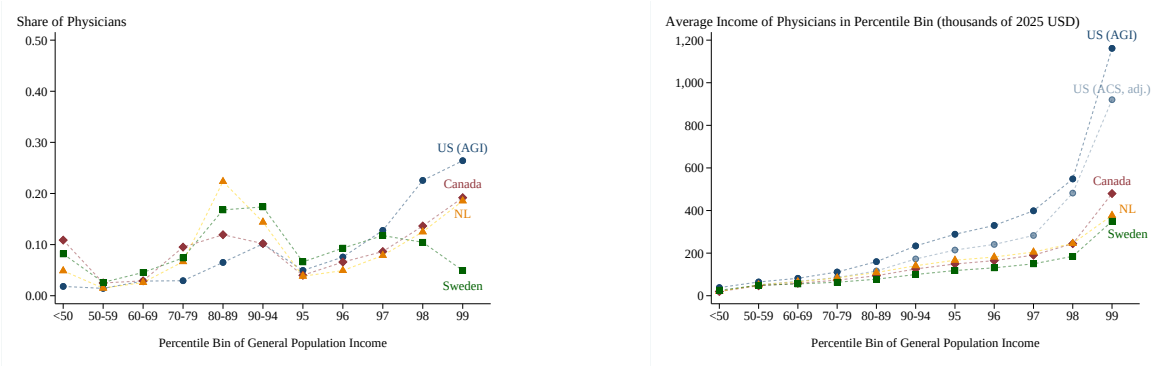
Note: This table summarizes the data on physician incomes in the United States, Canada, the Netherlands, and Sweden. Data sources and income definitions are specified in the table for each country. Samples are restricted to individuals age 20 to 70. Individual total income for the U.S. is defined as in Gottlieb et al. (2025). Income is reported in 2025 USD and adjusted for purchasing power parity.
Source: Disclosure Review Board approval no. CBDRB-FY23-0319.

2 Results

2.1 All Physicians

Figure 1 presents the main results. Panel A plots the distribution of physicians by position in the national income distribution in each country. For example, the rightmost navy dot in Panel A means that 26 percent of U.S. physicians have incomes at or above the 99th percentile of the U.S. income distribution. Percentiles below the 95th percentile of the national income distribution are aggregated for visual clarity as specified on the horizontal axis. Panel B shows the corresponding levels of physician incomes within each bin. For the U.S., Panel B reports both household-level AGI and individual-level income based on

the American Community Survey (ACS) and adjusted for income under-reporting following Gottlieb et al. (2025); the Online Appendix provides details.



Panel A: Position in the National Income Distribution

Panel B: Income Levels

Figure 1: Physician Incomes Relative to the National Income Distributions

Note: Panel A plots the share of physicians in each country with incomes in different percentile bins of the national income distribution; Panel B plots average income levels within each bin. Percentiles of the national income distribution below the 95th percentile on the horizontal axis are aggregated into bins for visual clarity. Percentiles are defined using the floor, so that, *e.g.*, "99" means top 1% of earners. Table 1 provides the definition of the samples and income measures. We report two income measures for the U.S.: one using data from IRS Form 1040 for Adjusted Gross Income (AGI series) and the other based on IPUMS estimates from 2015–2019 for individual total income (ACS series) adjusted for under-reporting following Gottlieb et al. (2025)

Source: Administrative tax-linked registers as specified in Table 1. Disclosure Review Board approval no. CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, CBDRB-FY23-0319.

The graphs show a few clear patterns. First, across all four countries, physicians are a common high-income occupation. Few physicians are below the top two deciles of earners nationally. Second, the U.S. has particularly high mass in the top two percentiles. Physicians in Canada and the Netherlands are somewhat less concentrated in the top percentiles; their distributions show more mass from percentiles 70 to 95. Approximately 19% of Canadian and Dutch physicians are in the top percentile, with the majority in the top decile. In these countries, a meaningful share of physicians is located further down the income distribution than in the U.S. The Swedish distribution appears different from the other three countries, as only about 5% of Swedish physicians are in the top percentile of the Swedish income distribution. More Swedish physicians fall in the 80th–94th percentiles than in the other countries.[1]

[1]Previous research (*e.g.*, Karimi, Lucke and Palme, 2024) has shown that realized capital gains constitute

The U.S. difference is most pronounced when we consider physicians' average income level rather than their relative position in the income distribution.[2] Panel B reports these average incomes for physicians.[3] U.S. physicians in the top percentile earn nearly $1.2 million at the household level and $1 million at the individual level, compared with $500,000 in Canada and under $400,000 in Sweden and the Netherlands. Physicians in the 98th percentile earn over $500,000 in the U.S. and around $200,000 in all three other countries. U.S. physicians are concentrated at percentile 95 and above, where incomes exceed $280,000. In contrast, physicians in other countries are concentrated in percentiles 80–94 and earn around $100,000.

How much of the difference between the mean individual incomes in Table 1 reflects differences in physicians' relative locations in each country's income distribution, as opposed to differences in the incomes at each level? To answer this, in Table 2 we take the average individual physician income by percentile bin in one country, and re-weight them based on the share of physicians in each bin from a second country. When that second country is the United States, this exercise explains at most 22% of the difference in mean incomes between each other country and the U.S. So U.S. physicians' higher incomes largely reflects differences in incomes at a particular point in the income distribution, rather than U.S. physicians being more prevalent in the top percentiles.

2.2 Specialty Differences

Figure 2 reports the distribution of physicians' location in the income distribution disaggregated by specialties. Panel A shows primary care physicians (PCPs) and Panel B shows all specialists. Panel C focuses on obstetricians/gynecologists and Panel D on surgeons, specialties that we can separately observe in the U.S. and the Netherlands.

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an important component of income at the top of the Swedish income distribution. Excluding capital gain income from the income measure, we find that 13% of Swedish physicians are located in the 99th percentile of the income distribution.

[2]This result aligns with Leigh (1992), who used OECD data to compare average physician salaries across 14 countries in the mid-1980s, finding that physician incomes are highest in the United States.

[3]By construction the average incomes of physicians in each bin are similar to the overall population's average income within each bin. This is less true for the top percentile, since top incomes are unbounded.

Table 2: Decomposition of income differences: share explained by levels vs. relative positions

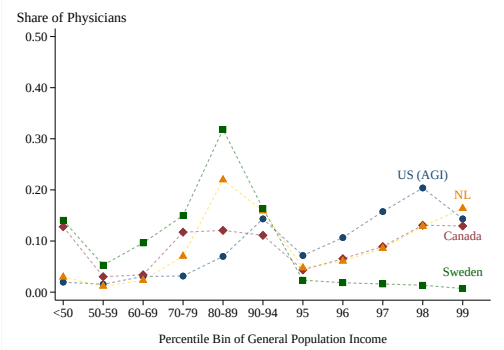
		Country 2			
		US	Canada	Sweden	NL
Country 1:					
US	% of (Country 2 - US) inc. gap explained:		43%	66%	43%
Canada	% of (Country 2 - Canada) inc. gap explained:	21%		63%	0%
Sweden	% of (Country 2 - Sweden) inc. gap explained:	22%	44%		49%
NL	% of (Country 2 - NL) inc. gap explained:	14%	-33%	49%	

Note: This table shows the percentage of the difference in mean earnings between two countries that is explained by the relative positions of physicians in their respective national income distributions. The numerator of the percentage is counterfactual country 1 mean income (re-weighted using shares in country 2) minus observed country 1 mean income. The denominator is observed country 2 mean income minus observed country 1 mean income. NL denotes the Netherlands.
Source: Administrative tax-linked registers as specified in Table 1. Disclosure Review Board approval no. CBDRB-FY23-0319, CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01.

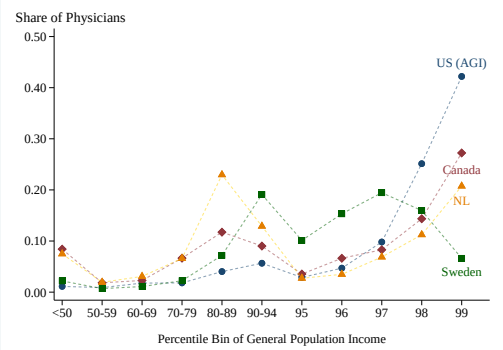
Across all countries, the distribution for primary care physicians is shifted to the left. Panels B—D show that physicians' concentration at the top of the income distribution is more pronounced for specialists than for physicians overall. For primary care physicians, in contrast, there is more mass in percentiles 60–94. In the U.S., 42% of specialists are in the top percentile of the national income distribution. Combined with the 98th percentile, over half of American specialists are in the top 2%. Canadian and Dutch specialists are also prominent at the top, with over one-quarter of Canadian specialists and over one-fifth of Dutch specialists in the top percentile. While specialization does predict higher income for Swedish physicians, the absolute concentration at the top remains below the other countries, with only 7% of specialists being in the top percentile.[4]

Table 3 summarizes the overall patterns by specialty. Outside of Sweden, PCPs have a similar top-decile share as physicians overall, but lower top-percentile shares. Surgeons are notably more prevalent in the top percentile in both the U.S. and the Netherlands, and in the U.S. show a stark concentration in the top percentile relative to obstetricians/gynecologists (Figure 2).

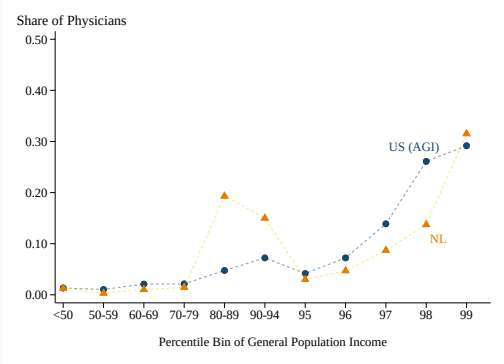
[4]Excluding capital gains from the income measure would yield 20% of Swedish specialists in the 99th percentile (see footnote 1).



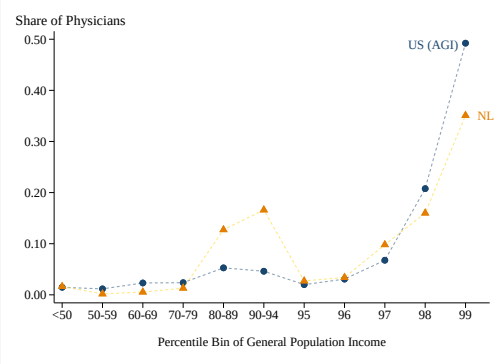
Panel A: Primary Care



Panel B: Specialists



Panel C: Obstetrics and Gynecology



Panel D: Surgery

Figure 2: Distribution of Physician Incomes by Specialty and Country

Note: The panels in this figure replicate Panel A of Figure 1 for a selection of specialty groupings. Each panel shows the share of physicians in a given specialty (as specified in panel titles) whose income falls within a given income percentile bin of the national distribution. Percentiles are defined using the floor (*e.g.*, "99" means the top 1% of incomes). In Panel A, primary care doctors in Sweden are defined as physicians who have not yet obtained specialist certification.

Source: Administrative tax-linked registers as specified in Table 1. Disclosure Review Board approval no. CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, CBDRB-FY2020-CES005-035.

Table 3: Share of Physicians in Top Income Percentiles

	All Physicians		Primary Care		Specialists	
Country	Top Decile	Top 1%	Top Decile	Top 1%	Top Decile	Top 1%
US	84%	26%	83%	14%	90%	42%
Canada	62%	19%	57%	13%	69%	27%
Netherlands	62%	19%	65%	16%	58%	21%
Sweden	60%	5%	24%	1%	87%	7%

Note: The table reports the share of physicians in each country with incomes in the top decile and in the top percentile of the national income distribution, overall and by specialty. Percentiles are defined using the floor, so that, *e.g.*, top decile means physicians earning at or above the 90th percentile of their country's national income distribution. Table 1 provides the definition of income measures and physicians.
Source: Administrative tax-linked registers as specified in Table 1. Disclosure Review Board approval no. CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, CBDRB-FY2020-CES005-035.

3 Interpretation and Implications

This paper documents the distribution of physician incomes across four high-income countries using tax data. We find that physicians are consistently near the top of the national income distributions in the U.S., Canada, and the Netherlands, with the majority in the top decile and substantial representation in the top percentile. Specialists are particularly concentrated in the top percentiles.

Perhaps the most fundamental finding is that the overall income distribution within each country is so closely related to physician incomes. U.S. physicians earn substantially more than their counterparts in Canada, the Netherlands, and Sweden, but much of this difference can (statistically) be attributed to higher incomes at given percentiles of the overall U.S. income distribution. The U.S. income distribution is more dispersed than that in these other countries and, in particular, features higher incomes at the top. This fact, rather than differences in physicians' relative locations in the income distribution, statistically explains the bulk of the U.S. physician earnings premium. Economically, this could arise from physicians' labor market alternatives and from high-income consumers' willingness to pay for health (Murphy and Topel, 2006; Gottlieb et al., 2023).

While the income distributions and common economic fundamentals are key factors,

institutional differences across countries also likely influence the patterns we document. U.S. physicians' greater representation in the very top income percentiles may reflect greater business opportunities in the American healthcare system. In contrast, Swedish physicians' lower presence near the very top of the income distribution likely reflects the predominance of salaried, public-sector healthcare employment, and perhaps the use of this dominant employer's monopsony power to reduce physician incomes.

These observations highlight an important caveat for any efforts to reduce U.S. healthcare spending by lowering physician pay. If average individual physician incomes in the U.S. fell to the Swedish level, healthcare spending would fall by 6%, corresponding to $291 billion or 1.0% of GDP (from 17.6% of GDP to 16.6% of GDP). In other words, this change would have a modest effect on U.S. healthcare spending, but would represent a $342,900, or 75%, reduction in average U.S. physician incomes, which would likely have a substantial impact on workers' choices of whether to become physicians. Nicholson (2002), Gottlieb et al. (2025), Dodini et al. (2025), and Alexander and Schnell (2026) show that physicians' talent allocation and labor supply respond to potential earnings, so a 75% fall in incomes could reshape these choices.

If U.S. physician incomes instead shifted to match Swedish doctors' *relative* income distribution, the change would be smaller. This would imply a $230,400, or 50%, reduction in average U.S. physician incomes, inducing a somewhat smaller impact on labor supply. This would generate a correspondingly smaller reduction in spending: healthcare spending would fall by 3.8%, corresponding to $195 billion, or 0.7% of GDP.[5]

The relative differences across specialties are largely consistent across countries. This suggests that similar economic fundamentals, regulations, or political forces are at play. Economic fundamentals include different skill requirements or compensating differentials for job amenities (Gottlieb et al., 2025). Regulatory differences could include entry barriers and administrative price setting. Although the broad patterns are similar, specialists

[5]The Online Appendix explains this calculation and reports analogous comparisons using Canada and the Netherlands instead of Sweden.

commanding the very top incomes is more pronounced in the U.S., suggesting that business opportunities or the higher return to skill may interact with specialty fundamentals to create particularly good earning opportunities.

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A Data Appendix

A.1 Data construction

The underlying data source for each country is administrative tax records. We link these tax records to occupation codes or health care professional registers to identify physicians, and then calculate physicians' locations in their country's national income distribution. For the top five percentiles, we express this information using the share of physicians in each percentile. For the rest of the income distribution, we report the share of physicians that fall within a percentile range. Percentiles are defined using the floor; for example, percentile "99" means physicians at or above the 99th percentile cutoff of the national income distribution, and "98" means physicians between the 98th percentile cutoff and the 99th percentile cutoff. We exclude physicians with negative incomes from our sample. Table A.1 below summarizes the data and the definitions that follow.

A.1.1 United States

The U.S. data are obtained from the Census Bureau, which links physicians' tax records to their National Provider Identification (NPI) numbers.[1] We observe approximately 820,000 physicians in 2017. We use the income tax data and definition of physicains as in Gottlieb et al. (2025). We categorize physicians into specialty groups including primary care, surgical specialties, medical subspecialties, anesthesiology, radiology, obstetrics and gynecology, neurology, hospital-based physicians, and procedural specialties. These specialty groups are aggregates of Medicare specialty codes defined by the Centers for Medicare & Medicaid Services. See Appendix Table E.1 of Gottlieb et al. (2025) for a crosswalk.

Our primary income measure when reporting relative position in the income distribution is adjusted gross income (AGI). AGI is measured at the household level, whereas our income measures for other countries are measured at the individual level. We therefore supplement these data with individual total income (`inctot`) from the American Community Survey IPUMS (Ruggles et al., 2025). We pool 1-year estimates for 2015–2019 to measure incomes with greater precision. Physicians are identified using 1990 IPUMS occupation codes.

Gottlieb et al. (2025) show that physicians substantially underreport business income. Section A.4 describes how we adjust for this under-reporting.

[1] A physician is in our sample if they appeared in the NPI registry in 2018 or had an NPI number that was deactivated prior to 2018. This technically includes physicians who stopped practicing medicine and changed to a different career. Empirically, this matters little: Gottlieb et al. (2025) show in Appendix Table E.3 that among NPI-holders who were surveyed in the 2017 American Community Survey, individual total income is very similar for physicians classified as "doctors" using ACS occupation codes compared to individuals who reported a non-physician occupation code.

A.1.2 Canada

The Canadian data are from approximately 100,000 physicians in the 2016 Canadian Census. Incomes are measured using tax records linked to the survey responses, and are from 2015. Our income measure is individual total income plus net capital gains and losses. Physicians are identified using occupation codes from the 2016 National Occupation Classification. We use these codes to separately categorize physicians as primary care doctors ("General practitioners and family physicians") or specialists ("Specialist physicians").

A.1.3 Sweden

The Swedish data cover approximately 55,000 physicians from the LISA (Longitudinal Integration Database for Health Insurance and Labor Market Studies) database. Income measures are from linked tax records. We define "physician" as individuals in the LISA register with a physician occupation code in at least one calendar year during 2005–2017. This is defined as SSYK96 4-digit code "2221" during 2005–2013 and SSYK12 3-digit code "221" during 2014–2017.

The Swedish system for training physicians consists of three stages: (a) medical school (5.5–6 years); (b) general clinical training in the healthcare sector (allmäntjänstgöring, AT; minimum 18 months); and (c) specialist training (specialisttjänstgöring, ST; five years). Completion of stages (a) and (b) qualifies an individual to work as a licensed medical doctor. This is our definition of "all physicians" in the Swedish data. Completion of stage (c), which is typically hospital-based and includes formal examinations, is required to practice as a specialist. Physicians undergoing training in stages (b) and (c) are classified as "other doctors."

Income is measured in Swedish kronor, and we compute positions relative to the Swedish income distribution. Our primary income measure of Sweden is total pretax taxable income (including capital income surplus), which includes wages, salaries, and self-employment. In section B.3, we report additional results excluding capital income from the Swedish income measure.

A.1.4 Netherlands

The Dutch data cover approximately 70,000 physicians drawn from the universe of the Dutch population. Data are from the Professions in Individual Healthcare (Dutch acronym BIG) register, individual tax records, and the Personal Records Database (BRP). We observe detailed specialty categories including primary care, surgical specialties, medical subspecialties, anesthesiology, radiology, obstetrics and gynecology, neurology, hospital-based physicians,

and procedural specialties. These are the same broad specialty groups which we use to group U.S. physicians. We also observe junior doctors—doctors who have completed medical school, but never complete a residency—whom we exclude from our primary specialist comparisons. Some small cells (10 or fewer physicians) were censored for privacy reasons. When computing total counts, we assume these censored cells have 5 observations each.

Dutch income is measured using Personal Gross Income. This measure includes wages, salaries, and self-employment income, but does not include capital income.

A.2 Institutional context

Table A.2 provides a background summary of key facts about each country's healthcare institutions. These data are from the OECD and other publicly available sources, for the most recent year available.

Table A.1: Summary Statistics

	United States		Canada	Netherlands	Sweden
Income level	Household	Individual	Individual	Individual	Individual
Mean income (All)	$562,100	$458,100	$194,700	$185,700	$115,200
Number of physicians	819,500		100,660	70,295	55,097
Mean income (PCPs)	$499,800	$282,300	$164,600	$181,900	$75,400
Number of PCPs	314,000		56,710	37,182	18,657
Mean income (Specialists)	$818,700	$526,500	$233,400	$186,700	$140,600
Number of Specialists	332,254		43,960	30,547	28,650
Data year	2017		2015	2017	2017
Data source	IRS tax data Form 1040		Canadian Census with linked tax records	Personal Records Database (BRP) with linked tax records	LISA Database with linked tax records
Income measure	adjusted gross income (AGI)	individual total income	wage and salary, self-employment, and capital gains	wage and salary, and self-employment	wage and salary, self-employment, and capital gains
Physician definition	National Provider Identifier (NPI) Registry (2018)		National Occupation Classification (2016)	BIG (Professions in Individual Healthcare) online register	Swedish Standard Classification of Occupations (SSYK)

Notes: This table summarizes the data on physician incomes in the United States, Canada, the Netherlands, and Sweden. Data sources and income definitions are specified in the table for each country. In column 2, "Individual total income" refers to the primary income measure in Gottlieb et al. (2025). Income mean is computed for physicians age 20 to 70, with the exception of U.S. specialists, where incomes are measured for physicians age 40-55. Income is reported in 2025 USD and adjusted for purchasing power parity. Disclosure Review Board approval no. CBDRB-FY23-0319.

Table A.2: Background characteristics on countries

		United States	Canada	Netherlands	Sweden
National Statistics	Physicians per 1,000 people	2.72	2.81	3.94	2.93
	Share physicians specializing	0.45	0.44	0.43	0.26
	Healthcare expenditures per capita	$13,659	$6,871	$6,367	$6,528
	Public share of expenditures	0.39	0.70	0.85	0.86
	GDP per capita	$87,937	$67,086	$86,310	$72,792
Physician Training	Years of medical school	4	3-4	6	5.5-6
	Years of residency	4-7	2-7	4-6	5
	4-year degree before medical school	Yes	Yes	No	No
	Average cost of medical school ($1,000)	$263	$49	$18	$0
Employment	Employment arrangements	Employed by hospitals, systems, corporate groups; private practice	Independent contractors billing public plans; some salaried roles	GPs mostly self-employed; Specialists are salaried or contract with hospitals	Salaried employees of regional health authorities

Notes: This table presents background information on the physicians and healthcare systems of the U.S., Canada, the Netherlands, and Sweden. Physicians per capita is for 2022 and is taken from the OECD Health Statistics website. Share of physicians specializing comes from our disclosed administrative data for the U.S., Canada, and the Netherlands. Sweden defines "specialist" more broadly than other countries, so we use data from Socialstyrelsen (the Swedish National Board of Health and Welfare) to calculate the share of specialist using a definition more similar to the U.S. (for example, excluding family practice physicians and pediatricians from the "specialist" category). This data source covers the same universe of physicians as our Swedish administrative data, and the total specialist counts are similar. Per-capita health expenditures are from the 2022 Global Health Expenditure Database (in 2025 USD). Share of total health expenditures from public sources are from the Centers for Medicare and Medicaid Services, the Canadian Medical Association, and the European Observatory on Health Systems and Policies. Data on training requirements are from Gottlieb et al. (2025) for the U.S., the Canadian Post-MD Education Registry and Canadian Medical Association for Canada, Kroneman et al. (2016), Kringos et al. (2015), and Federatie Medisch Specialisten (the Federation of Medical Specialists) for the Netherlands, and Sveriges Läkarförbund (the Swedish Medical Association) for Sweden. GDP per capita estimates are from the World Bank International Comparison Program (ICP), in 2025 USD. Data on tuition costs for medical school from The Association of American Medical Colleges (AAMC), The Association of Faculties of Medicine of Canada (AFMC), and Maastricht University. For Sweden tuition is 0 for EU residents (though non-EU residents pay tuition). We take the average annual cost by country, convert to 2025 USD, and multiply by years of training (4 years for the U.S. and Canada, and 6 for the Netherlands). Disclosure Review Board approval no. CBDRB-FY2020-CES005-035, CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, and CBDRB-FY23-0319.

A.3 Calculating U.S. physician shares in the bottom percentiles

To ensure compliance with disclosure restrictions, we use data for 50 kernel density points and a linear interpolation to compute the share of physicians in each percentile of the U.S. AGI distribution. We use publicly available percentile cutoffs from the IRS.

We use the same kernel density based interpolation to compute mean AGI values within each percentile.

A.4 Adjusting IPUMS individual total income for underreporting

Gottlieb et al. (2025) report average incomes for the subset of physicians surveyed in the 2017 ACS. Average individual total income is $478,200 using IRS data, and $337,800 using ACS data. The age restriction is the same as this paper (20–70) and the underlying data sources are similar (the only difference is that Gottlieb et al. (2025) use the 2017 restricted-use ACS, whereas we use pooled 2015–2019 IPUMS 1-year estimates). We scale IPUMS individual total income (`inctot`) to account for underreporting of business income. We scale by the ratio of IRS to ACS estimates, 1.42, applied in proportion to the ratio of business income to `inctot` within each percentile of the (unadjusted) `inctot` distribution.[2] Our method scales up incomes in higher percentiles of the income distribution more than in lower percentiles, reflecting the fact that higher-earning physicians have a larger share of income from business income, and thus underreport a larger share of their overall income.

Let y_i denote the income of physician i. Let s_p denote the share of `inctot` from business income within a percentile of the unadjusted `inctot` distribution. The adjustment we apply is

$$y_i^{adj} = y_i^{obs}\left(1 + \lambda s_{p(i)}\right)$$

where λ is a positive scalar to adjust for underreporting. We calibrate λ so that average adjusted physician earnings equals mean earnings scaled by disclosed IRS-to-ACS earnings ratio. Let w_i be the ACS sample weight for individual i, and let $\mathcal{P}$ be the set of physicians

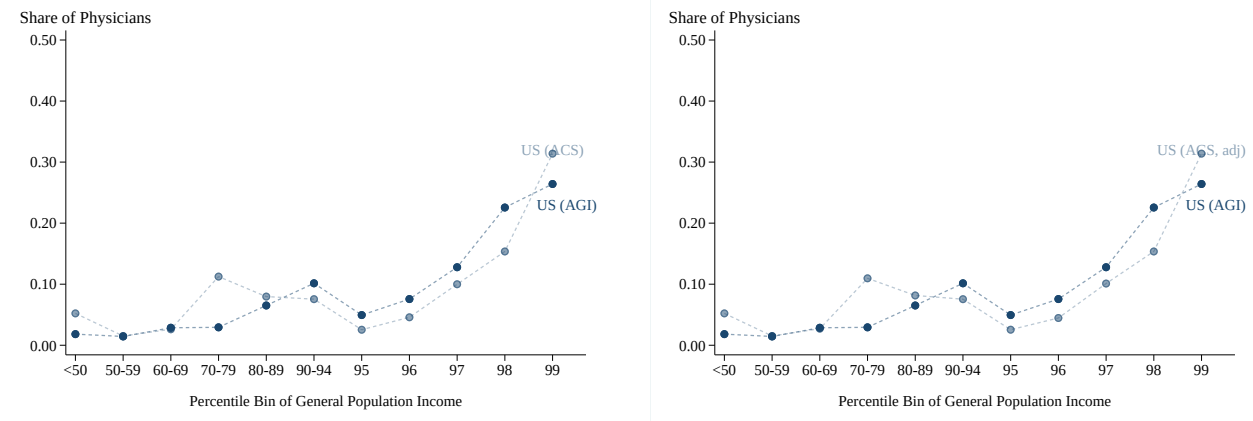
[2] We measure business income using the IPUMS variable `incbus00`. We set negative values to 0.

in IPUMS. We solve for λ.

$$\begin{aligned}
\bar{y}^{adj}_{i\in\mathcal{P}} = 1.42 \cdot \bar{y}^{obs}_{i\in\mathcal{P}} &= \frac{\sum w_i y_i^{obs}\left(1+\lambda s_{p(i)}\right)}{\sum w_i} \\
&= \frac{\sum w_i y_i^{obs}}{\sum w_i} + \lambda \frac{\sum w_i y_i^{obs} s_{p(i)}}{\sum w_i} \\
&= \bar{y}^{obs}_i + \lambda \frac{\sum w_i y_i^{obs} s_{p(i)}}{\sum w_i} \\
1.42 \cdot \bar{y}^{obs}_i - \bar{y}^{obs}_i &= \lambda \frac{\sum w_i y_i^{obs} s_{p(i)}}{\sum w_i} \\
(1.42-1)\,\bar{y}^{obs}_i \sum w_i &= \lambda \sum w_i y_i^{obs} s_{p(i)} \\
(1.42-1)\sum w_i y_i^{obs} &= \lambda \sum w_i y_i^{obs} s_{p(i)} \\
\implies \lambda &= \frac{(1.42-1)\sum y_i^{obs} w_i}{\sum w_i y_i^{obs} s_{p(i)}} \\
&= 4.55
\end{aligned}$$

Figure A.1 plots the share of physicians in each percentile bin before and after the underreporting adjustment. Figure A.2 plots average physician earnings in each percentile bin including the adjusted `inctot` series. The adjusted income series lies between AGI and unadjusted `inctot`.

Figure A.1: U.S. physicians' location in the national income distribution

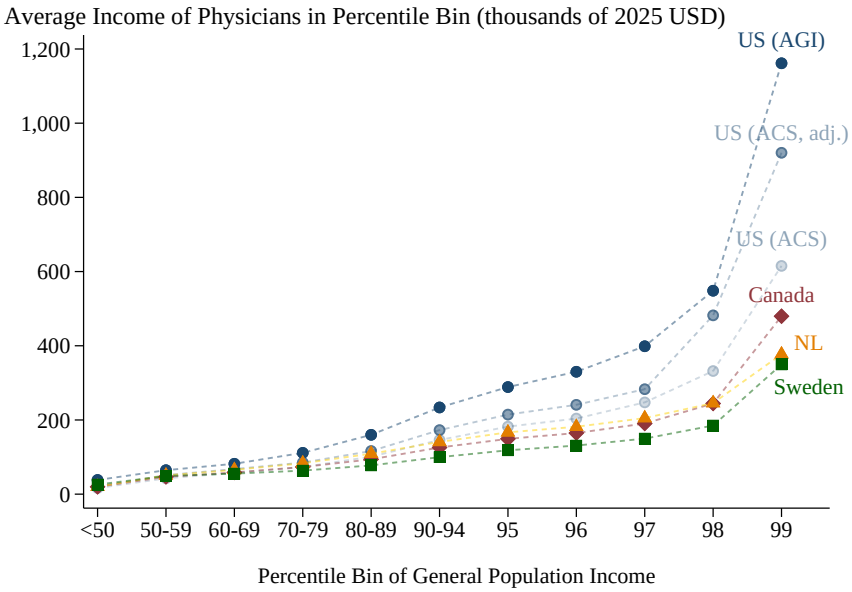


(a) Unadjusted

(b) Adjusted

Notes: Disclosure Review Board approval no. CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, CBDRB-FY23-0319.

Figure A.2: Average physician earnings by percentile bin, adjusted for underreporting



Notes: Disclosure Review Board approval no. CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, CBDRB-FY23-0319.

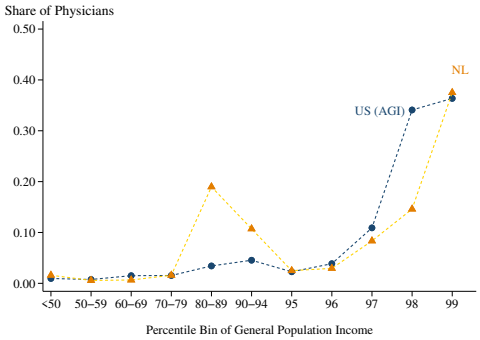
B Additional Results

B.1 U.S.-Netherlands Comparison by Specialty

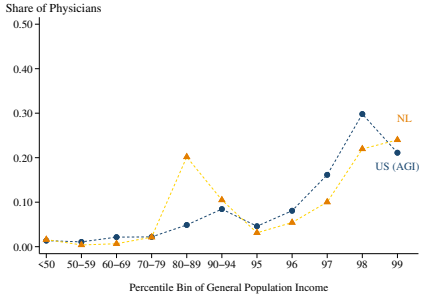
Our most granular specialty measures are for the U.S. and the Netherlands. In the paper, we compare the relative position of OB/GYNs and Surgeons. Here, we present the full set of specialty comparisons.

Figure B.1: U.S. and Netherlands relative income distributions by specialty

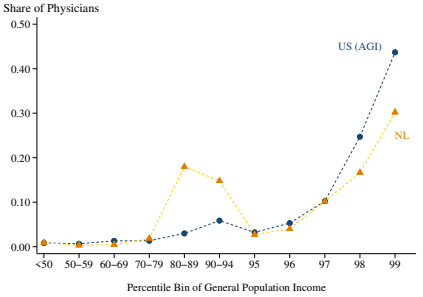
(a) Anesthesiology



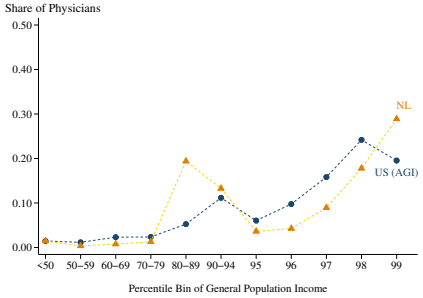
(b) Hospital-Based



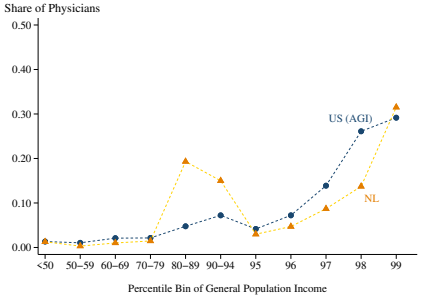
(c) Medicine Subspecialty



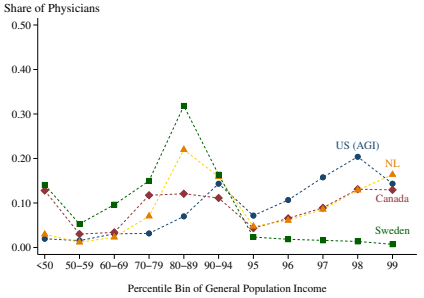
(d) Neurology



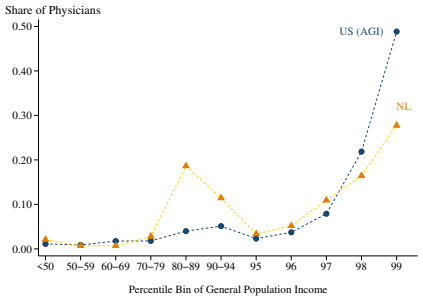
(e) Obstetrics and Gynecology



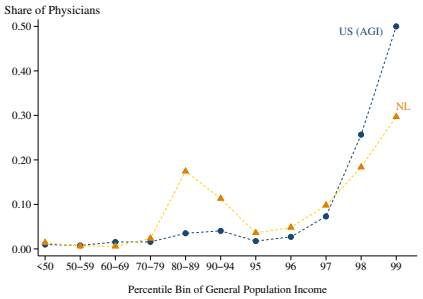
(f) Primary Care



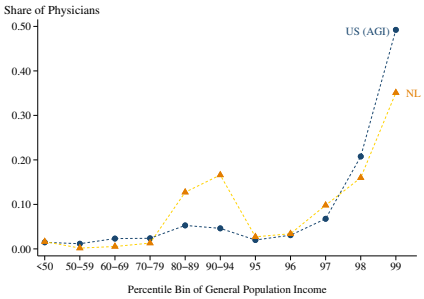
(g) Procedural Specialties



(h) Radiology



(i) Surgery



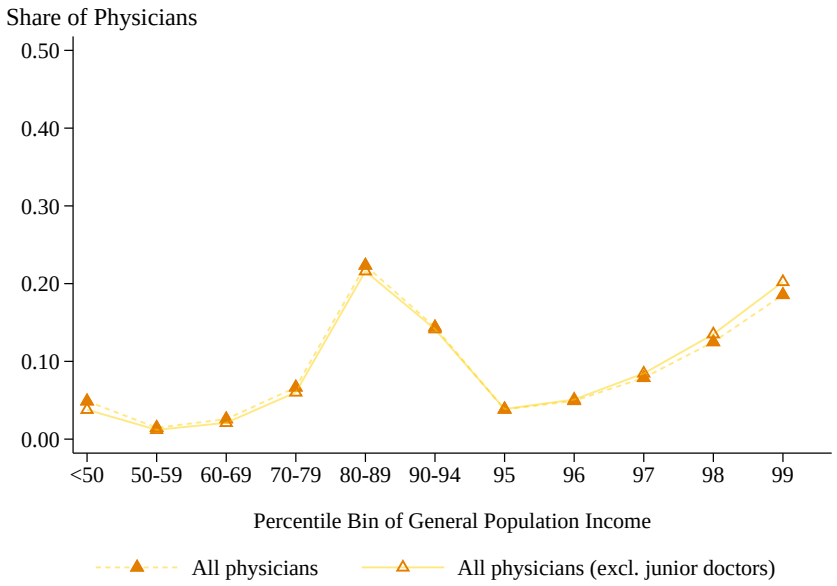
Notes: Disclosure Review Board approval no. CBDRB-FY2020-CES005-035.

B.2 Junior Doctors in the Netherlands

It is relatively common for physicians in the Netherlands to complete medical school, register in the Professions in Individual Healthcare (BIG) register, but take substantial time to complete a residency (or never do so). These physicians in the Netherlands can practice medicine as a consultant or as an assistant doctor. In 2024, 17% of doctors in the BIG register had not completed a residency within 10 years of first appearing in the register.[3] We classify these doctors as "junior doctors", and test whether including them in the definition of "All physicians" affects our results.

Figure B.2 shows that the shares of physicians in each income bin remain nearly identical when junior doctors are excluded. In the paper, we use the Netherlands sample that includes junior doctors in the definition of "All physicians". This is to be consistent with the United States, where medical residents with NPI numbers appear in our sample.

Figure B.2: Netherlands physicians location in the income distribution



B.3 Swedish results excluding capital income

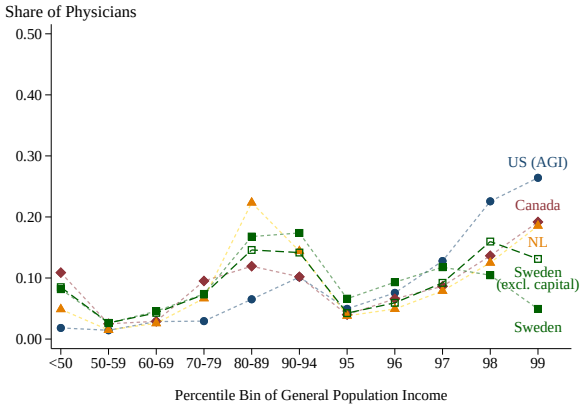
Our primary measure for Swedish physician income is total taxable income. Previous research (see, *e.g.* Karimi, Lucke, and Palme, 2025) has shown that realized capital gains constitute an important component of income at the top of the income distribution. Figure B.3 shows

[3]Some of these junior doctors may have started a residency program and never finished it, while others may have never started residency at all. We cannot distinguish between these two pathways because we only observe residency information once a doctor completes a residency program.

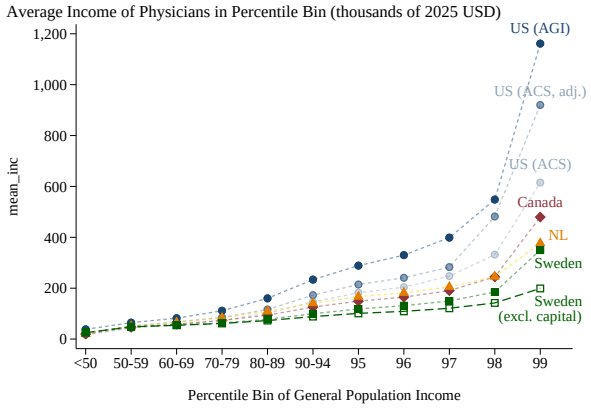
how the results of the paper change when we exclude capital income from the Swedish income measure. We find that 13% of Swedish physicians are located in the 99th percentile of the income distribution (vs. 5% in our main income measure).

Figure B.3: Comparison of main results including and excluding capital income in Sweden

(a) Share of physicians in each income bin



(b) Average income by bin



Notes: Disclosure Review Board approval no. CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01, CBDRB-FY23-0319.

C Details of the Counterfactual Analysis

C.1 Calculating counterfactual incomes

Average physician incomes can be expressed as a weighted average of the mean incomes in each percentile bin, with weights given by the share of physicians in each bin. Our counterfactual income calculations change these weights while holding constant the average income in each bin. We denote by "Country 1" the country from which we obtain the average income in each bin. We then calculate counterfactual incomes where we weight these bin-level averages using another country's (denoted "Country 2") share of physicians in each bin. Using observed and counterfactual average physician incomes, we then compute what fraction of the actual difference in physician incomes between Country 2 and Country 1 can be (statistically) explained by differences in the relative location of physicians in the national income distribution (the weights).

$$\%\ \text{Country 2} - \text{Country 1 inc. gap explained} = \frac{\text{Ctfl. Country 1} - \text{Obs. Country 1}}{\text{Obs. Country 2} - \text{Obs. Country 1}}$$

For example, let Country 1 be the U.S., and Country 2 be Canada. Observed incomes are $\$443,300$ for U.S. physicians and $\$194,700$ for Canadian physicians. Taking the U.S. average physician incomes by bin as given, and calculating a counterfactual average U.S. physician income using the Canadian relative incomes distribution gives $\$336,300$. Thus, the share of the U.S.-Canada physician incomes difference explained by differences in relative incomes distributions is

$$\frac{336,300 - 443,300}{194,700 - 443,300} = 43\%.$$

For this exercise, we measure U.S. incomes using our adjusted ACS measure. Using AGI would risk overstating income differences between the U.S. and other countries. The share of the U.S.-other country incomes difference explained by differences in relative incomes distributions is similar using either income measure.

Table C.1 reports the results of this counterfactual exercise. The percentages appear in the main text; here, we further report the counterfactual and observed mean incomes for each country.

Table C.1: Counterfactual incomes:
Mean Country 1 bin incomes, weighting by shares from Country 2

		Country 2			
		US	Canada	Sweden	NL
	Observed mean income:	443	195	115	186
Country 1:					
US	Counterfactual mean income:		336	228	333
	% of (Country 2 - US) inc. gap explained:		43%	66%	43%
Canada	Counterfactual mean income:	247		145	195
	% of (Country 2 - Canada) inc. gap explained:	21%		63%	0%
Sweden	Counterfactual mean income:	187	150		150
	% of (Country 2 - Sweden) inc. gap explained:	22%	44%		49%
NL	Counterfactual mean income:	221	183	151	
	% of (Country 2 - NL) inc. gap explained:	14%	-33%	49%	

Notes: Disclosure Review Board approval no. CBDRB-FY23-0319, CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01.

C.2 Counterfactuals vs. national health expenditures

The paper considers how two counterfactual scenarios would affect national health expenditures in the U.S. In the first, we change U.S. physicians' average incomes to equal Swedish physicians' average incomes. In the second, we change U.S. physicians' relative income distribution to match Swedish physicians' relative income distribution (relative to the respective country's national income distribution). We calculate the magnitude of each counterfactual change in terms of total dollars, physician earnings as a share of total national health expenditures, and expenditure as a share of GDP. This section describes how we conduct this calculation.

We measure U.S. incomes using our adjusted ACS measure of individual total income. This choice of measure is conservative; using AGI would risk overstating the difference in incomes between the U.S. and other countries (because AGI includes spousal income), whereas our adjusted ACS measure would, if anything, understate the difference in incomes between the U.S. and other countries, since IPUMS incomes are top coded in the 99.5th percentile of the income distribution.

For the U.S., we measure national health expenditures (NHE) using data from the Centers for Medicare & Medicaid Services National Health Expenditure Accounts (NHEA). For GDP in all countries and NHE in non-U.S. countries, we use data from the World Health Organization (WHO) Global Health Expenditure Database. We use measures from 2023, as it is the most recent year available in both sources. Gottlieb et al. (2025) estimate that physician incomes comprise 8.6% of total U.S. NHE. For the other countries, we calculate the analogous share by multiplying average physician incomes by the number of physicians and dividing by total NHE.

Table C.2 reports the results. The counterfactuals involving Sweden are the same as those reported in the main text. Relative to these, reducing mean U.S. physician incomes to the levels observed in Canada or the Netherlands would result in smaller reductions in total healthcare spending. If U.S. physician incomes shifted to match the relative distribution of physician incomes in Canada or the Netherlands, reductions in physician earnings would be smaller relative to the analogous reductions under the Swedish counterfactual, but the reductions in health expenditure would be much smaller as well, accounting for approximately 2% of total national health expenditures in the U.S.

Table C.2: Reductions in U.S. physician income and national health expenditures under counterfactual scenarios

	Sweden	Canada	Netherlands
Panel A: Match mean income level			
Δ mean physician income (2025 USD)	$342,900	$263,400	$272,400
% change in mean physician income	75%	57%	59%
Δ total healthcare spending (billions)	$291	$223	$231
% change total healthcare spending	6%	4.4%	4.5%
Δ spending as % of U.S. GDP	1.0%	0.8%	0.8%
Panel B: Match relative income distribution			
Δ mean physician income (2025 USD)	$230,400	$121,800	$124,700
% change in mean physician income	50%	27%	27%
Δ total healthcare spending (billions)	$195	$103	$106
% change total healthcare spending	3.8%	2.0%	2.1%
Δ spending as % of U.S. GDP	0.7%	0.4%	0.4%

Notes: This table reports counterfactual results where we replace U.S. physician incomes with those from other countries. Panel A shows the resulting reductions in physician income and total healthcare spending when we replace mean U.S. physician incomes with mean incomes from another country, specified in the column. Panel B shows the analogous results where we re-weight U.S. physician incomes to match the relative income distribution of another country. Income for the U.S. is measured using our adjusted ACS measure of individual total income. Disclosure Review Board approval no. CBDRB-FY23-0319, CBDRB-FY21-009, CBDRB-FY2021-CES010-015, CBDRB-FY2021-CES010-01.

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