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How much does health insurance cost? Comparison of premiums in administrative and survey data

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HIGHLIGHTS

- Using IRS data, we estimate the employer-sponsored health insurance costs.
- Average premiums are roughly $1,000 higher in IRS records than in survey data.
- For middle-income workers, this represents approximately 2% of total compensation.

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ABSTRACT

Using newly available administrative data from the IRS, this paper studies the distribution of employer-sponsored health insurance premiums. Previous estimates, in contrast, were almost exclusively from household surveys. After correcting for coverage limitations of IRS data, we find average premiums for employer-sponsored plans are roughly $1,000 higher in IRS records than in the Current Population Survey. The downward bias in the CPS results from underestimating premiums of married workers and topcoding of high premiums.

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1. Introduction

Slow wage growth in the United States is a substantial concern, but existing statistics may not fully capture fringe benefits — especially employer-sponsored health insurance.[1] Until recently, no comprehensive source of administrative data on the value of workers' health benefits was available. Instead, researchers relied on aggregate statistics or household surveys including the Medical Expenditure Panel Survey and the Current Population Survey (CPS). These survey-based data on insurance premiums are widely used to understand inequality trends and income growth throughout the distribution (Burkhauser et al., 2012; Congressional Budget Office, 2016).

Under the Affordable Care Act, many employers must report health insurance premiums to the IRS on Form W-2. We use these new administrative data to measure the distribution of premiums, and compare these estimates to those from the CPS. The average cost of employer health plans from the two sources is similar for single workers. However, for married workers both the mean and median cost is higher in administrative data. We also document how CPS topcoding suppresses the upper-tail of the insurance distribution, resulting in an understatement of average benefit levels.

2. Data

This paper uses W-2 records from IRS population data for 2015. Starting in 2011, employers have reported insurance premiums on Form W-2, with increased reporting in subsequent years. This amount includes the combined premiums paid by the employee and employer.[2] Although insurance reporting was generally only required of firms with at least 250 employees in 2015, many smaller firms also reported this information to the IRS. For our

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[1] Baicker and Chandra (2006) and Kolstad and Kowalski (2016) provide evidence that these benefits result in lower wages.

[2] Dental and vision insurance are generally excluded from both datasets, although their reporting is optional on Form W-2 (Internal Revenue Service, 2018).

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analysis, we assume the distribution of premiums for a given firm size is similar for reporting and non-reporting firms and adjust for underreporting among small firms using coverage counts by firm size in the CPS, as discussed below.

We compare the premium distribution in the 2015 IRS data and 2016 March CPS (capturing 2015 health insurance). The CPS determines insurance premiums separately for employee and employer contributions. Employee contributions are self-reported, whereas Census imputes employer contributions using firm and worker characteristics (see Janicki et al., 2013).

While this is the first paper to compare health insurance premiums between W-2 and survey data, Heim et al. (2018a) and Heim et al. (2018b) previously used these administrative data to study the effect of insurance coverage on family and labor market decisions. Additionally, several papers have used W-2 data (and data derived from it) to consider the quality and validity of wages and retirement contributions – although not insurance premiums – in administrative and survey data. For example, using matched data Bollinger et al. (2018) observe that administrative wages exceed those in the CPS by 2 percent for linked respondents, with survey non-response contributing to this gap. Also using matched W-2 and Census data, Dushi et al. (2011) observe misreporting and underreporting of retirement plan take-up in survey data. In these comparison studies the administrative records are typically treated as the more accurate source given IRS penalties for employer misreporting on Form W-2.[3] However, one potential limitation of using these employer-reported premium data is that employers may report average premiums across all workers, reducing individual-level variance (Dorn, 2009).

In both datasets, premiums are measured at the individual level and reflect the total payments made by the policyholder and their employer for all insured individuals. Premiums for family plans cover multiple individuals, although IRS data do not specify plan types or how many people are covered. We partially address this issue by separately analyzing premiums by the policyholder's marital and parental status.

Reflecting that small firms are not required to report premiums to the IRS, more workers report employer-sponsored health insurance in the CPS than in IRS records. In the CPS, 35 percent of workers at firms with under 100 employees have employer-sponsored insurance, compared to 11 percent in IRS data. The share of insured workers converges in the two datasets as firm size increases.[4] In subsequent results, we therefore reweight coverage in IRS data – increasing the weight on workers at small firms who are underrepresented due to the reporting requirements – so that coverage counts by firm size match those from the CPS.[5]

3. Distribution of health insurance premiums

The distribution of premiums for single workers from the two data sources, shown in Figs. 1 and 2, are similar with two exceptions. First, IRS data show more single workers with premiums under $2,000 and fewer with premiums between $2,000 and $4,000. This likely reflects part-year workers with insurance for a small portion of the year, which IRS data may capture more accurately than retrospective questions or imputations in the CPS.

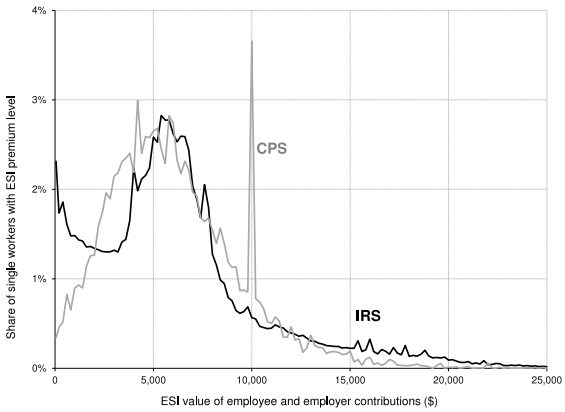

Fig. 1. Distribution of health insurance premiums among single workers.
Notes: Authors' calculations using Census and IRS data. Results are for 2015 at the individual level and include both employer and employee contributions. Individuals with wages under $2,000 are excluded. Premiums are topcoded in IRS data at $40,000, affecting 0.02% of workers. Since not all firms are required to report insurance coverage, IRS results are reweighted by firm size to match the count of insured workers in the CPS. Shares are per $200 range.

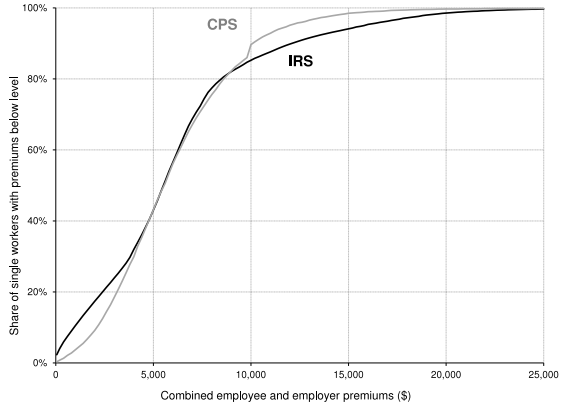

Fig. 2. Cumulative distribution of health insurance premiums among single workers.
Notes: See Fig. 1.

A second difference occurs at the Census Bureau's $10,000 topcoding threshold. This threshold is only weakly binding as it applies to only the employer's share of premiums. Nevertheless, nearly 4 percent of single workers in the CPS have premiums at this threshold. As a result, IRS data show more single workers with premiums over $10,000.

Figs. 3 and 4 turn to the premiums for married workers. Here, larger differences emerge. Most notably, Census topcoding binds more frequently, reflecting the higher cost of family plans. Nearly 12 percent of insured married workers in the CPS have total premiums at the $10,000 topcode threshold. Twenty-four percent are at the topcode level for the employer's share, even if their combined employer and employee premiums are higher. As a result, while one-third of married policyholders have plans that cost over $15,000 in IRS data, just 7 percent do in the CPS.

While topcoding is a substantial source of the divergence between the datasets for married workers, it cannot fully explain the differences. Only 15 percent of policies for married workers have premiums between $6,500 and $9,900 in IRS data, whereas 27 percent do in the CPS. Since this is below the topcode threshold, this difference cannot result from topcoding.

Table 1 provides summary statistics for the insurance premiums in the datasets, separated by marital status and the presence

[3] The IRS also indicates that income components with third party reporting (as with a W-2) has the least misreporting. They find that W-2 wages closely match self-reported income on annual tax forms including Form 1040, with a net misreporting of wages and salaries on annual tax forms of 1.2 percent (Internal Revenue Service, 2007).

[4] Firm size in IRS data is estimated using employer identification numbers (EINs) matched to Form 941, an employer-level tax form with the number of employees. Unmatched individuals are included with firms with over 1,000 workers since this often results from large firms using multiple EINs. Coverage by firm size is available upon request from the authors.

[5] Further justifying reweighting, unadjusted IRS data observes $572 billion of premiums, versus $672 billion in national accounts.

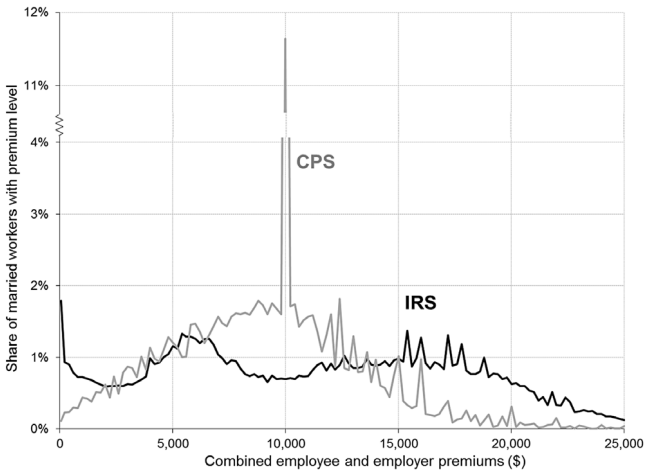

Fig. 3. Distribution of health insurance premiums among married workers.
Notes: See Fig. 1.

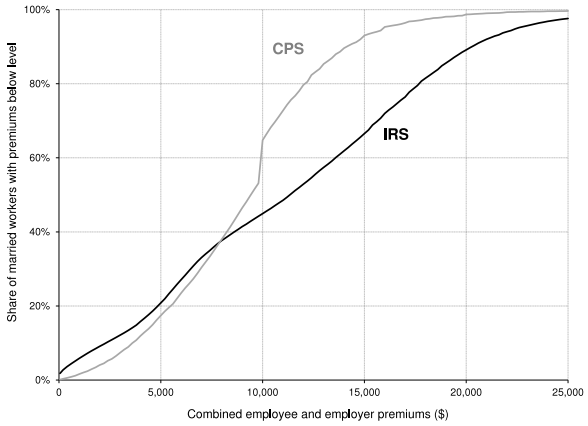

Fig. 4. Cumulative distribution of health insurance premiums among married workers.
Notes: See Fig. 1.

of children (or dependents). For the entire population, the median premium is approximately $600 lower in the IRS data than in the CPS. But, because the CPS largely misses the upper tail of premiums, average premiums in IRS data are just over $1,000 higher.

Considering only single workers, both mean and median premiums in the two datasets are within $150 of one another – matching the relatively similar cumulative distributions in Fig. 2. On average, however, the CPS overestimates premiums for single workers with children and underestimates them for single workers without children, relative to that reported to the IRS. Consistent with Figs. 3 and 4, more substantial differences emerge among married workers. The average premium for married workers in the CPS is $2,300 (20 percent) lower than that reported to the IRS on Form W-2, and the median premium is $1,900 (17 percent) lower.

4. Robustness to firm-size reweighting

As described in Section 2, we increase the weight on workers at small firms to match the number of insured workers by firm size in CPS data. Underlying this approach is an implicit assumption that non-reporting firms offering health insurance have similar premiums to similarly-sized reporting firms. We consider two alternative approaches. First, without reweighting, the average IRS-based premiums are almost $500 higher ($9,415 versus $8,958). This overstates average premiums by overweighting workers at large firms, but bounds the reweighting effect.

Second, we use the panel nature of IRS data to consider the average premiums reported in 2015 for workers at firms that filed W-2s in 2014 but did not report premiums (including those offering insurance for the first time in 2015). Assuming non-reporting firms have premiums matching new reporters, rather than all similarly-sized firms, reduces the average premiums in IRS data by about $200 ($8,756 versus $8,958). However, even with this alternate approach, the IRS-based average premium remains $865 above the CPS-based average. We therefore conclude that reweighting by firm size is not driving the main results.

5. Relationship between health insurance premiums and wages

The rising values of health insurance may offset potential wage gains for middle-income workers. To understand how premiums vary with wages, Table 2 documents the share of workers receiving insurance through their job and average premiums for each quintile of the wage distribution. For the middle wage quintile, average premiums were about $750 higher in IRS data. This suggests that combined total compensation is approximately 2 percent higher for middle-income workers than is observed in the CPS.

Nevertheless, while including health insurance boosts median compensation, Table 2 also shows that the insurance-wage gradient is greater in IRS data than in the CPS – both when considering the share with insurance and the average premiums among those insured. Administrative estimates of insurance premiums therefore imply more inequality in total compensation than survey estimates.

6. Conclusion

Administrative data on health insurance premiums provides valuable information on the cost of these benefits. Using data from IRS records, we observe that the CPS understates the upper tail of the premium distribution and, as a result, understates average premiums. This suggests that total compensation may be higher than previously believed and that health insurance benefits represent a larger share of employee compensation. For middle-income workers, this understatement represents approximately 2 percent of total compensation. However, we also observe that the underestimate is concentrated among higher income workers, suggesting higher overall compensation inequality.

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Conflict of interest

The authors have no relationships, financial or otherwise, that present a conflict of interest with respect to this article.

Table 1
Health insurance premiums by marital status and presence of dependents.

	IRS			CPS		
	Policy-holders (thous.)	Mean premium ($)	Median premium ($)	Policy-holders (thous.)	Mean premium ($)	Median premium ($)
All	78,744	8,958	7,000	78,744	7,891	7,595
Single	34,836	6,242	5,600	33,475	6,102	5,659
With children	7,368	7,395	6,000	6,413	8,152	8,336
Without children	27,467	5,932	5,600	27,061	5,616	5,248
Married	40,459	11,510	11,400	45,269	9,214	9,517
With children	20,683	12,598	13,200	24,667	10,071	9,999
Without children	19,777	10,371	9,600	20,601	8,188	8,261
Non-filers	3,449	6,458	5,000			

See Fig. 1.

Table 2
Health insurance coverage and premiums by policyholder wages.

	IRS			CPS		
Wage quintile	Mean wages ($)	Policy-holders (%)	Mean premium ($)	Mean wages ($)	Policy-holders (%)	Mean premium ($)
Bottom	8,015	9	2,847	9,081	15	4,841
Second	19,493	34	5,068	23,077	14	5,595
Middle	32,553	62	7,371	36,819	62	6,625
Fourth	51,131	75	9,394	56,254	71	8,080
Top	132,177	82	12,012	129,502	75	10,624

Notes: See Fig. 1. Wage quintiles are among all workers with at least $2,000 of wages, including non-policyholders. Mean premiums are only among policyholders.

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