

The lifetime burden of schizophrenia applying a government perspective fiscal analytic framework

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KEY FINDINGS

- On average, schizophrenia is associated with a lifetime excess fiscal loss of \$887,927 to the US government, \$35K per life year lived with schizophrenia.
- Assuming a 1.19% prevalence of schizophrenia, the estimated annual fiscal loss would total \$106.6 billion nationwide.
- The substantial fiscal impact of schizophrenia across economic sectors should be considered along with cost-effectiveness evidence to inform health policy and healthcare investments.



Entire poster



Model schematic

INTRODUCTION

- Schizophrenia is a chronic and complex mental illness severely affecting individuals, often early in life ¹.
- Persistent symptoms impact everyday functioning, social interactions, academic and professional activities, and the ability of living independently ².
- It is estimated that 3.04 million adult individuals live with schizophrenia in the US ^{3,4}.
- Despite its relatively small prevalence, the economic burden of schizophrenia to society has been estimated to exceed \$341.5 billion in 2019 ⁵.
- A substantial share of this burden falls on the US Government and Social Security Administration (SSA).

OBJECTIVES

- To estimate the fiscal consequences of schizophrenia compared to the general US population applying a “government perspective” fiscal analytical modeling framework to estimate lost tax revenue and broader government costs.

METHODS

- The analysis used a US government and Social Security Administration perspective of costs.
- The model was run over a 70-year time horizon.
- Costs and life years were discounted at 3% annually.

Disease progression

- Schizophrenia progression was modeled from the age of 30 years using a cohort-based Markov chain with a 6-week cycle length, simulating the effect of 4 lines of antipsychotic treatment on remission (stable disease) and relapse (unstable disease) status. The model schematic can be accessed using the rightmost QR code.
- The Markov states were defined using efficacy and safety outcomes from short-term and long-term trials.

Mortality

- Mortality was modeled using US lifetables and schizophrenia-related excess mortality from suicide and cardiovascular disease.

Socio-economic states

- A semi-Markov process with annual cycles was used to model the likelihood of incarceration and homelessness in community-based individuals and their resulting costs.

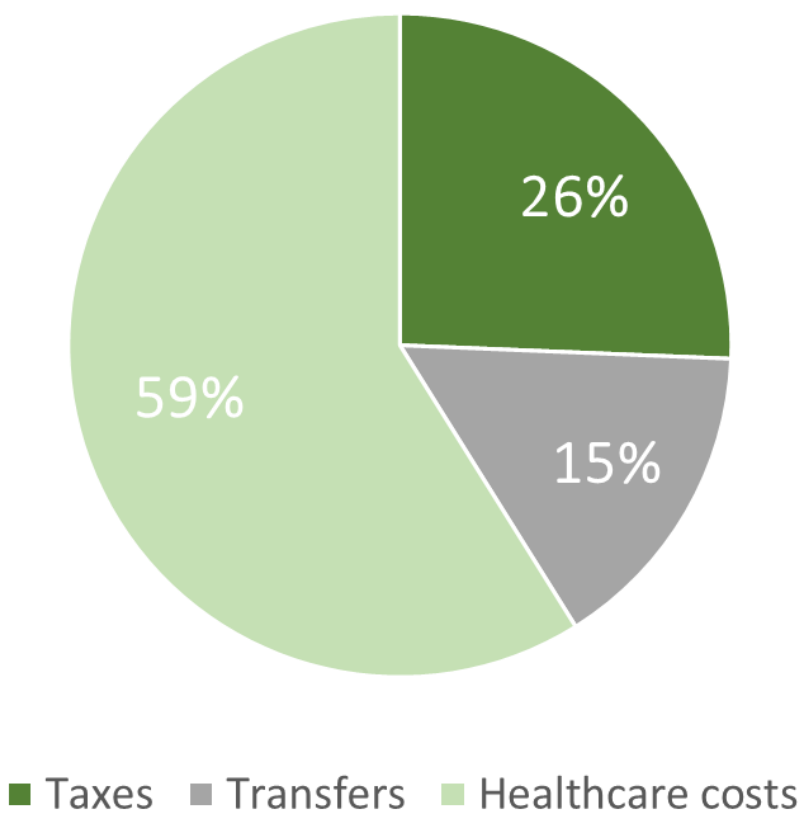
Fiscal consequences

- Survival, remission/relapse status and social state estimates were combined with fiscal costs and tax revenue to predict lifetime incremental net fiscal consequences (INC).

RESULTS

- Individuals with schizophrenia, particularly those in relapse, were more likely to be unemployed, disabled, incarcerated, homeless, and use more healthcare resources than individuals without schizophrenia.
- Over a 70-year time horizon, the cohort with schizophrenia was associated with 25.1 discounted life years compared to 25.6 in their general population, a 0.5 life years difference.
- Since onset of the disease at age 30, a person with schizophrenia was associated with an excess fiscal burden of \$870,012 to the US government and Social Security Administration (Table 1, Figure 2).
- In a person with schizophrenia the largest component of the fiscal burden was related to healthcare costs (60.1%, \$522,941), followed by lost tax revenue (23.6%, \$209,833), and the remaining 15.5% due to criminal justice, incarceration, victimization, and homelessness costs (Table 1, Figure 2).
- The model also predicted that 2.0% (\$15,149) of the incremental net consequences were related to foregone tax revenue in informal caregivers (Table 1, Figure 2).

Figure 1. Total fiscal costs in people with schizophrenia and their caregivers, by type of cost



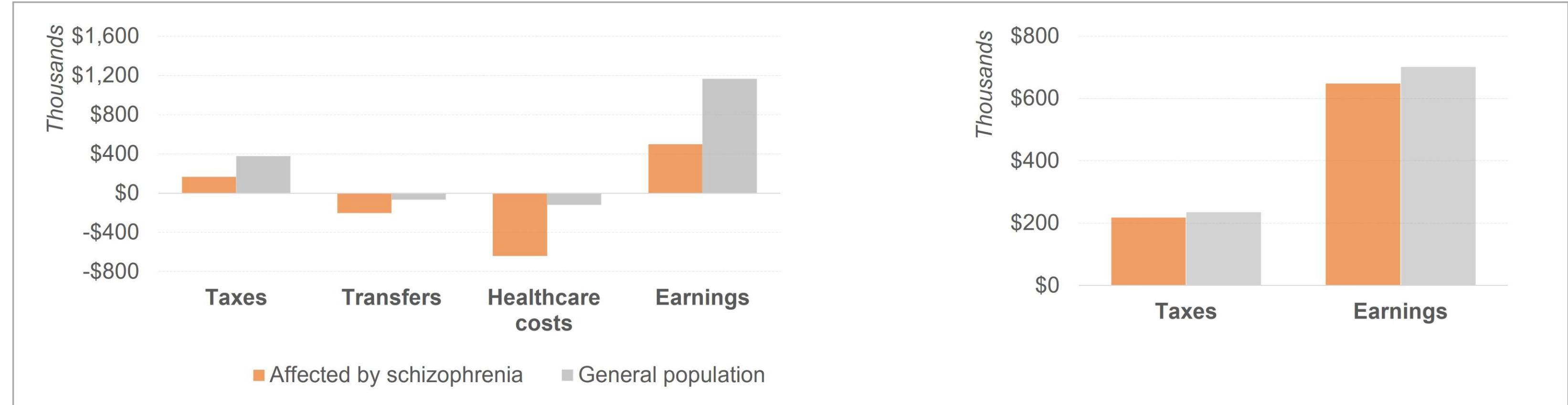
- Overall, the fiscal loss added to \$887,927 over the time horizon of the analysis, \$35,102 per life year lived with schizophrenia.
- Assuming a US population of adults with schizophrenia of approximately 3.04 million individuals and a cost per life-year lived with schizophrenia of \$35.1K, we estimate that the fiscal cost to the US government and SSA would add to \$106.6 billion annually. To society, the estimated economic loss, inclusive of productivity losses would correspond to \$189.5 billion annually.

Table 1. Base case results

	Fiscal consequences	Affected by schizophrenia	General population	Incremental ^a
Person with schizophrenia or general population equivalent	Direct tax	\$141,358	\$316,642	-\$175,284
	Indirect tax	\$25,932	\$60,480	-\$34,548
	Disability benefits	-\$2,404	-\$2,294	-\$110
	Criminal justice	-\$7,260	-\$2,524	-\$4,736
	Incarceration	-\$148,861	-\$52,270	-\$96,591
	Homelessness	-\$40,058	-\$7,321	-\$32,738
	Victimization	-\$4,590	-\$1,527	-\$3,062
	Healthcare costs	-\$640,497	-\$117,556	-\$522,941
Caregiver or general population analogue	Direct tax	\$184,057	\$199,206	-\$15,149
	Indirect tax	\$33,603	\$36,369	-\$2,766
Overall fiscal consequences ^a		-\$458,722	\$429,205	-\$887,927

^a Calculated as the difference between fiscal consequences for people with schizophrenia and those for the general US population. Negative values represent a loss to the US government and Social Security Administration; positive values represent a source of revenue.

Figure 2. Fiscal consequences and earnings



A – Person with schizophrenia or equivalent in the general US population; B – Caregiver or equivalent in the general US population. Negative values represent losses to the US government and Social Security Administration. Transfers consist of public expenses related to imprisonment, criminal justice, homeless, and social services support.

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