

The Economic Impact *of the* **New York Health Act**

*Analysis Prepared For
the Realities of Single-Payer*

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Executive Summary

This report provides an analysis of the economic impact of the New York Health Act (NYHA), which would establish single-payer health care in New York State. Our key findings are as follows:

1. Immediate Impact of Eliminating the Private Health Insurance Industry:

- a. **Sectoral Effects:** The abolition of the private health insurance industry would result in the loss of over 161,000 jobs statewide, with over 90,000 jobs lost in the *Finance and Insurance* sector, the highest paying sector in the state and a key contributor to the state's fiscal balance. Other heavily affected sectors include *Real Estate*, 13,000 jobs; *Health Care*, 10,000 jobs; and *Professional, Scientific, and Technical Services*, 9,000 jobs.
- b. **Local Effects:** Local employment effects would be greatest for Albany, Erie, and New York counties, with job losses equal to 3.45%, 2.2%, and 2.2% of total employment. An additional 13 counties would experience job losses exceeding 1% of total employment.

2. Macroeconomic Impact: The NYHA is expected to reduce gross state product by 6.92%, reduce state employment by 10.7%, produce a health-care budget deficit of 10.8%, and reduce personal income tax receipts by 10.3%, in 2022. Key contributors to these effects are as follows:

- a. **Benefits Migration:** The provision of free health care for NY state residents is expected to induce substantial benefits migration, with 85,000 low-income migrants increasing state health-care expenses by \$1.51 billion in 2022, equal to 1.09% of the health-care budget.
- b. **Tax Flight:** Tax flight is expected to result in 44,000 high-income individuals leaving the state, creating a \$5.52 billion deficit in the state's health-care budget in 2022, equal to 4.0% of the projected budget.
- c. **Elimination of Employer-Sponsored Insurance:** The abolition of employer-sponsored insurance is expected to significantly reduce the incentive to work, reducing employment by 527,000 full-time positions in 2022, with an additional 156,000 positions switching from full-time to part-time work, the equivalent of 6.24% of projected state employment.
- d. **Informal Economic Activity:** The projected increase in payroll taxes would create a significant incentive for individuals to work informally, or under the table, reducing state employment by 477,000 in 2022, the equivalent of 4.83% of projected state employment.

If they persist, the economic and health crises associated with the coronavirus would tend to increase the macroeconomic costs associated with NYHA and make the resulting economic dislocations and fiscal deficits more difficult to address.

3. Long-Run Dynamism: The imposition of highly progressive income taxes to finance NYHA is expected to significantly reduce the return to innovation, decreasing annual state patent production by 39%, with important implications for long-run economic performance.

Introduction

This report provides an analysis of the economic impact of the New York Health Act (NYHA), which would establish single-payer health care in New York State. The NYHA was originally proposed in 1992, and versions of the law were considered by the state legislature and passed by the NY State Assembly each of the last four years.

The NYHA would create New York Health (NYH), a publicly-funded single-payer health plan that would cover every resident of NY state. The medical benefits provided would include those currently provided by Medicare, Medicaid, and Child Health Plus, and essential benefits as defined by the Affordable Care Act (ACA). Patients would have no co-payments or deductibles for covered benefits and no restrictions on which providers they could see. NYH would be financed in part by federal waivers that allowed Medicaid and Medicare payments for NY residents to flow directly to the state and in part by “progressively graduated” state income taxes. Although it does not specifically prohibit the provision of other forms of health insurance, NYHA is expected to replace Medicare, Medicaid, the NY State Health Insurance Program, and private insurance programs in the state of New York.

Despite its long history, there is considerable uncertainty regarding the implementation of NYHA, not least because the Act is vague about key aspects of the health-care system it would establish, including the determination of health-care provider reimbursement rates and the schedule of new taxes necessary to finance NYH.¹

Among the various analyses of the NYHA, Liu et al. (2018), hereafter the “RAND report,” has received the most attention.² This owes both to the depth of the analysis and to the authors’ willingness to make explicit assumptions about the implementation of NYHA, allowing them to generate quantitative predictions about the economic effects of adopting the NYHA. In particular, the RAND report assumes that average provider payment rates are essentially unchanged and that the new state taxes used to finance NYH would consist of three-tier payroll and non-payroll income taxes of roughly 6%, 12%, and 18%, with income thresholds based on the federal poverty line and the maximum taxable income level under social security (RAND, p. xi).³

Given these and other key assumptions, the RAND report finds that NYHA would have no appreciable impact on total spending on health care in NY state and would generate a highly progressive pattern of net benefits, with substantial gains to individuals in the bottom 50% of the population by income and substantial costs to those in the top 5%. Financing NYH would entail an unprecedented 155% increase in the size of state government, with projected state tax revenues rising from \$89.3 billion to \$228.4 billion in 2022, an increase of \$139.1 billion.

As the RAND report (p. 36) openly acknowledges, “the NYHA could have broad effects on the state economy that we do not consider in this analysis.” Here, we build on the RAND analysis by considering several important factors that it does not address. First, we estimate the immediate sectoral and local impacts of eliminating the private health insurance industry. Our results indicate that eliminating the private insurance industry would cost the state 161,000 jobs statewide in 2020, with losses concentrated in the *Finance and Insurance, Real Estate, Health Care, and Professional, Scientific, and Technical Services* sectors. The local economic impact is greatest for Albany, Erie, and New York counties, with job losses of over 2% of total employment. An additional 13 counties would experience job losses exceeding 1% of total employment.

¹ Implementing the NYHA is also subject to significant legal and political challenges (e.g., Liu et al., 2018, p. 15–20).

² For additional analyses, see Friedman (2015), Roy (2017), Hammond and Pope (2018), and Hammond (2019).

³ In 2020, the NYHA was amended to provide for the continuity of provider reimbursement rates. See section 5105(a)(4)(iii).

Second, we consider statewide economic impacts of the NYHA related to interstate migration and the labor supply impact of tax and benefits changes, factors omitted from the RAND analysis. Our findings suggest that these factors would have a significant impact on the state economy. In 2022, passage of the NYHA would decrease total state employment by 10.7%, reduce gross state product by 6.9%, give rise to an 8.8% health-care budget deficit, and decrease state personal income tax receipts by 10.4%.

Finally, we estimate the impact of NYHA on innovation, a key long-run determinant of economic growth and entrepreneurship, finding that the imposition of health-care taxes would decrease annual patenting by 40%. Together, the macroeconomic and long-run effects raise significant questions regarding the long-term economic viability of the NYHA.

At the time of this writing, the New York economy is in the process of reopening following a significant wave of coronavirus infections. Because of lags in data availability, our quantitative analysis is, of necessity, based on pre-crisis economic data. As such, it may be thought of as estimating the economic effects of NYHA following a return to the economic *status quo ante*, such as might occur with the introduction of an effective vaccine. If they persist, however, the health and economic crises caused by the coronavirus are likely to both increase the economic cost of implementing NYHA and make the economic and fiscal consequences of the NYHA more difficult to address. A persistent crisis might also increase the consequences of dramatically overhauling the state's health-care system as envisioned by NYHA, given that some individuals may lose coverage during the transition.

1. The Sectoral and Local Economic Impact of Eliminating Private Health Insurance

A significant drawback of the RAND report is that it estimates outcomes for New York State as a whole, an approach that may overlook significant disparities in the local impact of implementing NYHA. Local economic impacts are particularly important when individuals have strong family, community, and other ties to the local area and are therefore not fully mobile across the state. Here, we estimate the sectoral and local effects of the economic shock associated with eliminating the private health insurance industry.

The economic impact of eliminating an industry comprises three distinct parts. There is a direct effect, related to the jobs and incomes in the affected industry; an *indirect* “upstream” effect, related to the value of inputs purchased by the industry; and an *induced* or “downstream” effect that captures the impact of reduced spending by individuals employed in the industry.

The indirect and induced effects extend beyond both the health insurance industry and the local economy, reflecting a web of business and consumer relationships that tie the state together. For example, a health insurance company in Albany may purchase computers from Buffalo, or an employee of this company may eat at a restaurant in Saratoga. We estimate local indirect and induced effects in two steps. First, we use data on input–output relationships among industries and spending patterns by households to estimate statewide effects of eliminating the private health insurance industry on employment and output for 22 broadly defined industry groups. These state-level effects are then allocated across counties to estimate local economic impacts.

Sectoral Effects

Industry-level effects are based on changes to final demand in the private health insurance industry and multipliers that reflect how a dollar of spending in one industry affects related industries. In 2020, New York residents were expected to spend an estimated \$103 billion on private health insurance. However, a large share of premium payments is used to pay medical service providers (doctors and hospitals), and

these expenditures would be replaced by payments by NYH. However, an estimated 18% of health insurance premiums, totaling \$18.6 billion in 2020, paid for services directly provided by the industry. We use this significantly lower number to estimate the change in final demand. Restricting attention to payments for the administrative services provides a highly conservative estimate of the economic effects of eliminating this industry.

Table 1 presents results for the direct and indirect and induced effects of eliminating the private health insurance industry for 22 industries in 2020. Taken together, the elimination of the private health insurance industry would have cost the state 161,715 jobs in output in 2020. (See Appendix A for data sources and methods.)

The elimination of the private health insurance industry is expected to result in the loss of 129,693 jobs in other industries, due to indirect and induced effects, accounting for roughly 75% of the total jobs lost statewide. The sector most affected by the elimination of private health insurance is *Finance and Insurance*, with indirect and induced losses of over 58,092 jobs, reflecting strong economic ties between the health insurance industry and other portions of the finance and insurance sector. The impact on the finance and insurance sector has significant implications for the state, as this sector has the highest wages in the state, averaging \$231,000 in 2018, accounts for over 17% of total wage payments, and plays a disproportionately large role in the state's public finances.⁴ The finance and insurance sector has also been a key source of economic resilience and stability during the economic crisis caused by the coronavirus.⁵

Employment effects are also concentrated in *Real Estate*, with 12.7K jobs lost; *Health Care*, with 10.2K jobs lost; and *Professional, Scientific, and Technical Services*, with 9.3K jobs lost. As expected, accounting for indirect and induced effects results in significantly larger estimates of the total economic impact of the NYHA. As these estimates make clear, the economic impact of eliminating the private health-care industry would by no means be restricted to that industry.

Local Effects

Table 2 presents county-level impacts on employment, both as a total number of job losses and as a share of total county employment. These effects are estimated based on each county's share of the state's industry. For example, Albany County has 2.27% of the state's jobs in *Professional, Scientific, and Technical Services*, so it is estimated to lose 211 jobs in that industry, which equals 2.27% of the 9,301 jobs in this industry lost statewide.

According to these estimates, New York County is expected to lose nearly 64.5K jobs, an outcome that reflects the county's concentration of highly affected industries, especially *Finance and Insurance*, *Real Estate*, and *Professional, Scientific, and Technical Services*. Other highly affected areas include Erie County, with a loss of over 12.2K jobs, Albany, with losses of over 9.5K jobs, and Nassau, Kings, and Queens Counties, with losses of over 8K jobs each. These employment effects are also large relative to the local economy, representing 3.45% of employment in Albany County, 2.20% of employment in New York and Erie Counties, and 1.17% of total employment in Nassau County, and 0.97% of total employment in Kings and Queens Counties, respectively. Overall, sixteen counties are expected to lose 1% or more of their jobs. In addition, several of these counties, including New York, Kings, Nassau, and Queens, have already experienced significant negative economic shocks from the coronavirus.

⁴ FY2012 Economic and Revenue Outlook, <https://www.budget.ny.gov/pubs/archive/fy21/exec/ero/fy21ero.pdf>, p.46, 59.

⁵ Between February and April of 2020, when the national unemployment rate reached 14.7%, the finance and insurance sector lost only 0.5% of its employment. See <https://fivethirtyeight.com/features/the-industries-hit-hardest-by-the-unemployment-crisis/>

Two factors are important in determining the expected duration of unemployment related to the elimination of the private health insurance industry. First, the passage of NYHA will create employment opportunities in the public sector related to the administration of NYH. However, administrative costs for NYH are expected to be roughly one-third of those for the private health insurance industry, suggesting job creation related to the creation of NYH should equal roughly one-third of job loss in the private health insurance industry. Thus, roughly one-third of job losses resulting from the elimination of the private health insurance industry can be expected to be relatively short lived.

The duration of unemployment can be expected to be much longer for the remainder of the unemployed. In particular, the duration of unemployment spells tends to be longer in the case of structural unemployment, which occurs when some economic change affects an entire industry. Typically, structural unemployment results in 1) prolonged unemployment, 2) re-employment at significantly lower wages, or 3) withdrawal from the labor force.

2. Macroeconomic and Fiscal Impacts

This section estimates the macroeconomic consequences of enacting NYHA. We build on the analysis presented in the RAND report by addressing the effects of key issues that it omits, including the impact of NYHA on interstate migration and labor supply. To facilitate comparison with the RAND report, all macroeconomic effects are estimated for 2022.

2.1 Interstate Migration: Benefits Migration and Tax Flight

In discussing the limitations of their analysis, RAND (p. 36–37) notes that NYHA will “affect individuals’ decisions to establish residency in New York and businesses’ decisions to locate within the state. While those who face new taxes under the NYHA might be inclined to leave the state, individuals in need of health care could enter.” The RAND report also highlights the importance of migration decisions for the financial viability of NYH, noting (p. 56) that because “new taxes to support NYH fall disproportionately on a small share of the population, even a small amount of tax avoidance or migration could substantially reduce the funding base, requiring higher tax rates to fully finance NYH.” Despite its potential importance, interstate migration is not covered by the RAND report.

Here, we consider the implications of two aspects of the law are of particular importance for understanding its impact on migration. First, the prospect of free health care for NY residents may attract people to the state, particularly those with low-to-moderate incomes or a high demand for health care. Second, the law will be funded via progressive income taxation, which raises the possibility of tax flight by the wealthy. Together these two migration effects will substantially increase the cost of providing health care for NY residents and decrease the ability of the state to fund it adequately, raising concerns about the financial viability of the proposed policy.

Benefits Migration: People Seeking Free Health Care

Under NYHA, health care will be free for all residents, including those who do not work, and it will be substantially subsidized for low- and middle-income workers. Given the absence of a proposed tax structure in the NYHA, there is considerable uncertainty regarding exactly how generous the resulting subsidy will be for different individuals. But using the tax structure suggested by RAND, a family of four with wage income of \$27,500 will pay only \$1,650 for the whole family’s health care, and New Yorkers with household compensation below the 90th percentile will spend less on health care than their status quo on average (Rand, p. xi). Access to free health care can be expected to attract significant numbers of low- and middle-income individuals to move to NY. Migration incentives will be particularly strong for those

who cannot work, have high health-care demand, are uninsured, and live near the NY border in neighboring states. Older (55–64) unhealthy people also have incentives to migrate to NY because they can retire early and enjoy free health care.

An extensive body of theoretical and empirical work indicates that public policies affect where people decide to live (Tiebaut, 1956; Cebula 1978; Nannestad, 2007; Giulietti and Wahba, 2012). For example, studies of cash benefits and the welfare reforms of the 1990s produced substantial interstate migration flows (Kaestner et al., 2003; De Jong et al., 2005; Enchautegui 1997; Gelbach 2004).

The sweeping nature of NYHA makes it hard to find past policy experiments on which to base estimates of its impact on migration.⁶ Perhaps the closest proxy to NYHA is the Massachusetts health-care reform of 2006, which significantly expanded health insurance coverage and provided free or subsidized health care to people earning under 300% of the federal poverty line (FPL). Despite these similarities, NYHA is significantly more generous for low- and middle-income people and provides more comprehensive benefits than the Massachusetts health reform.

We base our estimates of the benefits migration of the NYHA on Alm and Enami (2017), who find that migration following the Massachusetts health-care reform significantly increased the number of low-income people in Massachusetts border cities. (See *Appendix B1* for details.). Applying their findings to NY, we estimate that NYHA will result in 85,000 low-income individuals moving to New York. Benefits migration will increase the net cost of financing the NYHA by \$1.51 billion in 2022, equal to 1.09% of the total NYHA budget. It is also expected to cause very modest increases in employment (up 0.58%), output (up 0.07%), and tax receipts (up 0.04%), as detailed in Table 3.

These estimates should be viewed as highly conservative for four reasons. First, the Massachusetts reform is significantly less generous than NYHA in terms of costs and coverage. Second, in estimating the effect of migration on state budget, we assume that health-care expenditures for each migrant are the same as per capita expenditures for existing residents. Individuals with lower health and higher health-care costs have a higher demand for health insurance (Cutler and Reber 1998; Cutler and Zeckhauser 1998) and are more likely to migrate to obtain free, comprehensive health-care. Third, aspects of the tax structure assumed by RAND are less progressive than is required by the current text of the NYHA, section 4(2)(a), which exempts individuals making less than \$25,000 per year and the first \$50,000 of income of Medicare beneficiaries from the new health care taxes. Finally, if the coronavirus persists, it will tend to increase the demand for health care and reduce the cost of relocation for displaced out-of-state workers, both of which would tend to increase benefits migration.

Tax Flight: People Fleeing High Taxes

State taxes (such as income taxes, property taxes, inheritance taxes, and consumption taxes) affect interstate migration decisions, shifting the supply of workers and taxpayers to other states (e.g., Conway and Houtenville 2001; Saltz, 1998; Cebula, 1990; Gius, 2011). Higher state tax rates both deter immigration and prompt some existing residents to leave. While evidence suggests that state income tax affects migration for most races and age groups (Gius, 2011), the wealthy are particularly sensitive to changes in the income tax structure, having both the motive and the means to flee high tax states (Bakija and Slemrod, 2004; Kleven et al., 2013; Kleven et al., 2014). This matters for the NYHA, as the top 10 percent of households are expected to bear approximately 80% of the total cost of providing health care to the state.

⁶ For example, Medicaid expansion under the Affordable Care Act applies only to families with incomes below 138% of the federal poverty level. Goodman (2016) and Schwartz and Sommers (2014) study migration effects of Medicaid expansion.

Under the tax structure analyzed by RAND (p. xi, p. 49), the NYHA would decrease the average cost of health-care among residents whose household compensation is below the 90th percentile, around \$230,000 in 2019, while increasing it slightly for those between the 90th and 95th percentile (\$340,000) but raising it dramatically for the top 5% (RAND, p xi., p.49 footnote). Under the NYHA, an average household in this income bracket would see their health-care expenditures increase by \$138,000, equal to 11 percent of their household income.

This tax structure would create incentives for wealthy residents to leave New York and discourage rich non-residents from moving into the state. Tax flight by high-income New Yorkers would decrease state tax revenues, leading to budget gaps in the financing of NYH and other public programs. Attempts to close this gap by increasing taxes on those who remain could either target the wealthy, with the potential of generating additional out-migration, or the middle class, reducing the net gains to a broad segment of the population.

To estimate out-migration by high-income individuals, we use migration-tax elasticities from Lai, Cohen, and Steindel (2011), who study the impact of New Jersey’s 2004 “millionaires” tax. Assuming a similar degree of tax rate sensitivity among New York residents, an 11% increase in the highest marginal tax rate envisioned by NYHA would result in the net out-migration of 44,000 taxpayers in the top 5% of the income distribution. (See Appendix B2 for details.) Table 3 summarizes the macroeconomic impacts of tax flight. In 2022, tax flight is expected to reduce state output by \$50.23 billion, or 2.54% of the projected 2022 gross state product, resulting in a net loss \$5.52 billion in health-care tax receipts, equal to 3.97% of the health-care budget, and decrease personal income tax receipts by \$3.48 billion or 5.93% of total receipts. These results reflect the disproportionate role of wealthy individuals in the state’s finances.

These estimates do not account for the potential extension of NYH benefits to cover long-term care. This would significantly increase the fiscal consequence of interstate migration, creating a substantial incentive for the elderly to move to the state and increasing tax revenue collection by 40% (RAND, p. 55), resulting in additional tax flight.

2.2 Labor Supply Effects

There are potentially important omissions in RAND’s analysis of how NYHA affects labor supply. The authors “estimate how changes in health-care spending and disposable income affect employment but did not analyze other ways employment could change. Ex: if health insurance is not tied to employment, some individuals may choose to leave the workforce or reduce hours” (RAND, p. 25). Here, we extend their analysis by considering two particularly important additional channels through which NYHA may affect employment: the elimination of employer-sponsored insurance and the impact of new taxes on the decision to work informally or “under the counter.”

Elimination of Employer-Sponsored Insurance

New York residents currently rely extensively on employer-sponsored insurance (ESI) for access to health insurance. ESI accounts for the coverage of 49% of New York residents and 76% of the working population.⁷ Under the Affordable Care Act, US companies with 50 or more full-time employees are required to provide health insurance to their full-time workers. The value of ESI is also amplified by a feature of US tax policy whereby the employer’s cost is exempted from income taxation. A large body of

⁷ See “Health Insurance Coverage of the Total Population,” provided by the Henry J. Kaiser Family Foundation, available at: <https://www.kff.org/other/state-indicator/total-population/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

evidence indicates that receiving ESI affects an individual's decision to participate in the labor market and to seek full-time over part-time employment (Garthwaite et al. 2014; Rust and Phelan 1997; Kan and Lin 2007). The effect is particularly strong among individuals near retirement age, who have a high demand for health insurance and, often, significant savings.⁸

To estimate the employment effects of eliminating ESI, we rely primarily on the health insurance-labor supply elasticity from Feng and Zhao (2018), who assess the impact of different health insurance systems on full-time and part-time employment in the US and in European countries.⁹ (See Appendix B3 for details.) The elimination of ESI is expected have the elimination of 526,688 full-time positions in 2022, with an additional 155,941 positions switching from full-time to part-time work. In evaluating each part-time position as one-half of a full-time position, we find that eliminating ESI would reduce employment by the equivalent of 604,658 full-time jobs, equal to 6.24% of 2022 employment.

This reduction in labor supply is expected to significantly affect state output and fiscal balances. As summarized in Table 3, the elimination of ESI is projected to reduce state output by \$34.47 billion in 2022, equal to 1.74% of gross state product; reduce health-care tax receipts by \$2.75 billion or 1.98% of the 2022 health-care budget; and reduce projected personal income tax receipts by \$1.28 billion or 2.19%.

Expansion of the Underground Economy

In response to an increase in payroll taxes, some workers may opt to work “under the table,” contributing to the underground economy, which consists of otherwise legal economic activities conducted by unregistered firms and individuals. Informal employment is commonly associated with domestic services and the trades, but it is possible across a wide range of occupations. Recent estimates put the overall size of the unofficial economy in NY state at around 8%, which is roughly 1% below estimates for the US economy (Wiseman, 2013; Schneider and Buehn, 2012). Informality has two important social costs. It reduces the ability of the state to collect tax revenues and is often associated with a reduction in labor productivity, as informal status restricts the ability of firms to raise capital or sign legally binding contracts.

The two primary causes of informality are the tax burden and the degree of regulation by the state, both of which provide incentives for firms and workers to avoid detection.¹⁰ Recent estimates find that the tax sensitivity of the underground economy for wealthy economies varies from 0.27 to 0.40 (Schneider and Buehn, 2012). Using the average of these values and RAND's (p. x) estimate of the increase in taxes necessary to finance NYHA, we find that predicted increase in the underground economic activity will reduce the size of the official economy by 2.46%, or \$48.6 billion in 2022. (See *Appendix B4* for details.) Because underground economic activity is concentrated among lower-skilled workers, this will have an outsized effect on employment, eliminating the equivalent of 477,000 full-time jobs in 2022, equal to 4.8% of state employment. The loss of reported income will reduce revenues from state health-care and income taxes by an estimated \$2.47 billion and \$1.32 billion, respectively, in 2022, equal to 1.79% and 2.25% of health-care and income tax revenues.

⁸ Existing studies find that post-retirement health insurance provided by employer or government among people below 65 increases the retirement rate by 12–80% (Gruber and Madrian 1995; Karoly and Rogowsky 1994; Blau and Gilleskie, 1997; Blau and Gilleskie, 2001; Rust and Phelan 1997) and reduces the age at retirement by 6–24 months (Madrian, 1994a; Blau and Gilleskie 1997). ESI may also increase employment of individuals, especially married men, over 65 years of age, as Medicare does not cover an individual's spouse (Madrian and Beaulieu 1998; Rust and Phelan 1997).

⁹ Other studies find a similar total impact of ESI on labor supply. For example, Garthwaite et al. (2014) find a return to ESI in Tennessee following the TennCare disenrollment increased employment by 4.6%, and Blau and Gilleskie (1997) find that ESI reduces the retirement rate by about 5% among active employees.

¹⁰ See, for example, Dell'Anno R. (2007); Dell'Anno R., Gomez-Antonio, M., and A. Alanon Pardo (2007); Johnson, S., Kaufmann, D., and P. Zoido-Lobaton (1998a, 1998b); and Schneider, F. (2003, 2005).

2.3 Summary of Macroeconomic Effects

Table 3 summarizes key findings regarding the macroeconomic and fiscal impact of NYHA. We extend the RAND analysis by considering the impact of NYHA on benefits migration, tax flight, the elimination of ESI, and the increase in underground economic activity. Taken together, in 2022 the NYHA is expected to reduce state employment by 10.7% and gross state product by 6.9%, result in an 8.8% health-care budget deficit, and reduce personal income tax receipts by 10.4%. In short, passage of the NYHA would substantially reduce the level of state economic activity and pose significant challenges to health-care financing and the state's fiscal balances.

The persistence of the current health and economic crises associated with the coronavirus would tend to increase the macroeconomic impact of implementing NYHA. A persistent health crisis would be expected to increase the demand for health insurance, increasing the incentive for out-of-state residents to move to New York. The increased ease and acceptability of telecommunication, especially among high-income service sector professions, would also tend to facilitate tax flight.¹¹ Virus-related increases in interstate migration would make implementing the NYHA more costly. More generally, if it persists, the economic crisis caused by the virus would tend to reduce the base levels of output, employment, and taxable income in the state to the levels of pre-crisis projections, making the economic dislocations and fiscal deficits caused by the NYHA more difficult to address.

3. Economic Dynamism and Long-Run Economic Performance

The NYHA may affect the economic dynamism of the state in ways not fully captured by the static, equilibrium analysis that underlies the estimates presented above. In particular, the NYHA is expected to significantly decrease entrepreneurship and innovation in New York State, key drivers of long-run economic performance and prosperity.

Three aspects of the law are especially important to entrepreneurial activity. First, new firms, including tech start-ups, tend to be small, and the ACA currently exempts firms with fewer than 50 employees from providing health insurance. As a result, these firms will be required to pay additional payroll taxes without an offsetting decrease in the cost of providing health care, placing them at a disadvantage relative to competitors in other states. Second, workers and firms in knowledge-based industries are less tied to location than those in other sectors of the economy, as their most important resource, highly skilled employees, is also highly mobile. Finally, highly progressive taxation may decrease individual incentive for entrepreneurial risk-taking, as it decreases the return to successful outcomes (Cullen and Gordon, 2006).

The NYHA will also significantly decrease the attractiveness of the state as a location for research and innovation. Current research finds that state tax rates play a highly significant role in the location decisions of scientists and other innovators. For example, Moretti and Wilson (2018) show that state tax rates play a key role in the location decisions of star scientists, defined as those with more than 25 patents. In recent years, the migration of star scientist into and out of New York State have both been about 5.9% annually, resulting in a stable population of highly productive innovators. Drawing on their analysis, we find that passage of the NYHA is expected to dramatically change this equilibrium, resulting in annual net out-migration of star scientists from New York State of 9.2% per year. (See *Appendix C1* for details.)

¹¹ For a discussion of the effect of coronavirus on telecommuting, see <https://www.brookings.edu/blog/up-front/2020/04/06/telecommuting-will-likely-continue-long-after-the-pandemic/>.

Not surprisingly, the available evidence also suggests that state tax rates have a large impact on innovative output, as measured by the production of patents. Akcigit et al. (2018) find that higher personal income and corporate taxes in a state significantly reduce the number of patents produced annually. Using their estimates and the tax structure adopted by RAND, passage of the NYHA is expected to reduce the annual patent applications in NY by state residents by 39%. (See *Appendix C2* for details.) This rather dire prediction is borne out by an analysis of the New York tax reform bill of 1968, which raised the top marginal personal income tax rate from 10% to 14% and the corporate tax rate from 5.5% to 7%. According to Akcigit et al. (2018), by 1980, patenting in New York was down by over 25% relative to its pre-reform trajectory.

The potential for the NYHA to reduce the equilibrium rate of innovation in New York is deeply troubling. Innovation has long been recognized as the single most important driver of economic growth (Solow, 1957). It also produces substantial windfall benefits for consumers (Griliches, 1958), generates technological spillovers that extend to other firms and industries (Bernstein, 1989), and increases social mobility (Aghion et al. 2019).

4. Conclusion

This report estimates the impact of the NYHA on the New York economy. The analysis presented here raises important questions regarding the economic cost and fiscal sustainability of the NYHA. Our key findings are as follows:

First, over 75% of the jobs losses associated with eliminating the private health-care industry will occur in other industries, especially those in the finance and insurance sector. Local employment effects will be greatest for Albany, New York, Erie, Nassau, and Kings counties.

Second, the NYHA will have considerable negative macroeconomic and fiscal consequences. As summarized in Table 3, the passage of NYHA is expected to reduce state employment by 10.7%, reduce gross state product by 6.9%, create a 10.8% health-care budget deficit, and decrease personal income tax receipts by 10.3%.

Third, we consider the potential impact of NYHA on the economic dynamism of the state, finding that the NYHA is expected to reduce the annual rate of state patent creation by nearly 40%. This finding is particularly troubling given the pivotal role of innovation in long-run economic growth.

Finally, if they persist, the economic and health crises associated with the coronavirus are likely to make NYHA more costly to implement. The persistence of the current health crisis would tend to increase interstate migration, including benefits migration by individuals seeking health-care and tax flight by innovators and other high-income individuals, while persistence of the economic effects of the virus would significantly increase the difficulty of addressing the employment shocks and fiscal deficits caused by NYHA.

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Table 1: Statewide Reductions in Output and Employment by Industry for 2020

<i>RIMS Code</i>	Industry	<i>Direct Effects</i>	<i>Indirect and Induced</i>
		Employment	Employment
1	Agriculture, forestry, fishing and hunting		266
2	Mining, quarrying, and oil and gas extraction		5
3	Utilities		360
4	Construction		608
5	Durable goods manufacturing		410
6	Nondurable goods manufacturing		1,352
7	Wholesale trade		1,247
8	Retail trade		7,855
9	Transportation and warehousing		2,033
10	Information		1,736
11	Finance and insurance	32,022	58,092
12	Real estate and rental and leasing		12,663
13	Professional, scientific, and technical services		9,301
14	Management of companies and enterprises		902
15	Administrative and support and waste management and remediation services		5,114
16	Educational services		2,425
17	Health care and social assistance		10,217
18	Arts, entertainment, and recreation		1,823
19	Accommodation		1,157
20	Food services and drinking places		6,289
21	Other services		5,837
	Total	32,022	129,693

Table 2: County-Level Employment Effects of Eliminating the Private Health Insurance Industry

<i>County</i>	<i>Job Losses</i>	<i>Employment (%)</i>	<i>County</i>	<i>Job Losses</i>	<i>Employment (%)</i>
<i>Albany</i>	9,576	3.45%	<i>Niagara</i>	640	0.74%
<i>Allegany</i>	96	0.61%	<i>Oneida</i>	1,465	1.17%
<i>Bronx</i>	5,065	1.33%	<i>Onondaga</i>	4,348	1.49%
<i>Broome</i>	1,156	1.13%	<i>Ontario</i>	595	0.94%
<i>Cattaraugus</i>	239	0.69%	<i>Orange</i>	1,779	1.03%
<i>Cayuga</i>	195	0.64%	<i>Orleans</i>	107	0.73%
<i>Chautauqua</i>	508	0.88%	<i>Oswego</i>	282	0.70%
<i>Chemung</i>	442	1.06%	<i>Otsego</i>	274	0.97%
<i>Chenango</i>	207	1.00%	<i>Putnam</i>	260	0.84%
<i>Clinton</i>	378	0.92%	<i>Queens</i>	8,097	0.97%
<i>Columbia</i>	182	0.70%	<i>Rensselaer</i>	483	0.76%
<i>Cortland</i>	164	0.76%	<i>Richmond</i>	1,280	0.88%
<i>Delaware</i>	117	0.67%	<i>Rockland</i>	1,358	0.90%
<i>Dutchess</i>	1,201	0.89%	<i>St. Lawrence</i>	268	0.63%
<i>Erie</i>	12,260	2.19%	<i>Saratoga</i>	1,339	1.27%
<i>Essex</i>	113	0.65%	<i>Schenectady</i>	761	1.02%
<i>Franklin</i>	119	0.56%	<i>Schoharie</i>	75	0.71%
<i>Fulton</i>	141	0.71%	<i>Schuyler</i>	38	0.63%
<i>Genesee</i>	184	0.66%	<i>Seneca</i>	103	0.69%
<i>Greene</i>	122	0.69%	<i>Steuben</i>	354	0.80%
<i>Hamilton</i>	20	0.93%	<i>Suffolk</i>	7,312	0.93%
<i>Herkimer</i>	119	0.60%	<i>Sullivan</i>	357	1.05%
<i>Jefferson</i>	456	0.93%	<i>Tioga</i>	103	0.65%
<i>Kings</i>	8,815	0.97%	<i>Tompkins</i>	406	0.67%
<i>Lewis</i>	51	0.65%	<i>Ulster</i>	594	0.82%
<i>Livingston</i>	155	0.63%	<i>Warren</i>	418	0.92%
<i>Madison</i>	188	0.74%	<i>Washington</i>	101	0.55%
<i>Monroe</i>	5,225	1.13%	<i>Wayne</i>	207	0.62%
<i>Montgomery</i>	150	0.65%	<i>Westchester</i>	5,993	1.18%
<i>Nassau</i>	8,823	1.17%	<i>Wyoming</i>	105	0.65%
<i>New York</i>	64,527	2.20%	<i>Yates</i>	63	0.75%

Table 3: Macroeconomic and Fiscal Impact of NYHA in 2022

	<i>Employment</i>	<i>Gross State Product</i>	<i>Health-care Budget</i>	<i>State Fiscal Balance</i>
<i>Benefits Migration</i>	Gain of 57,058 low-skill jobs or 0.58% of state employment	Gain of \$1.41 billion or 0.07% of projected 2022 GSP	An increase in net health-care expenses of \$1.51 billion, or 1.09% of the 2022 health-care budget	Gain of \$22.3 million or 0.04% of projected 2022 personal income tax receipts
<i>Tax Flight</i>	Loss of 28,600 high-income jobs	Loss of \$50.23 billion or 2.54% of projected 2022 GSP	A net loss to the system of \$5.52 billion, or 3.97% of the 2022 health-care budget	Loss of \$3.48 billion or 5.93% of projected 2022 personal income tax receipts
<i>Elimination of Employer-Sponsored Insurance</i>	Loss of 604,658 full-time jobs, equal to 6.24% of 2022 state employment	Loss of 34.47 billion in 2022, equal to 1.74% of 2022 GSP	Loss of \$2.75 billion or 1.98% of the 2022 health-care budget	\$1.28 billion or 2.19% of projected 2022 personal income tax receipts
<i>Underground Economy</i>	Loss of 476,791 jobs or 4.83% of 2022 state employment	Loss of \$48.65 billion, equal to 2.46% of 2022 GSP	Loss of \$2.47 billion or 1.79% of projected 2022 health-care tax revenues	\$1.32 billion or 2.25% of projected 2022 personal income tax receipts
<i>Total Effects</i>	A net loss of 1,052,992 jobs, equal to 10.66% of 2022 state employment	A net loss of \$136.84 billion or 6.92% of projected GSP	A net loss of \$12.27 billion, or 8.82% of the projected state health-care budget	A net loss of \$6.08 billion, or 10.36% of projected personal income tax receipts

Analytical Appendix

This appendix provides key analytical and methodological information on how the estimates presented in this report were reached. It is broken into two sections, corresponding to the sections of the report.

Appendix A: Local Effects

Local economic effects are calculated in two steps. First, we estimate the impact of disbanding the private health insurance industry on various industries at the state level. This estimate uses a regional input–output matrix (RIMS) for the state of New York, which may be ordered from the Bureau of Economic Analysis (BEA). Next, industry-level employment and output losses are allocated to counties based on their share of the state’s employment and output in each industry.

The Change in Final Demand for Private Health Insurance

Industry-level effects are based on changes to final demand in the private health insurance industry and multipliers that reflect how a dollar of spending in one industry affects related industries. In 2020, New York residents are expected to spend an estimated \$103.5 billion on private health insurance. This estimate assumes a constant rate of premium growth between 2014, the last year for which data on total spending on private health insurance premiums is available, and 2022, for which RAND estimates total spending of \$123 billion. Information on insurance premiums for 2014 is from the Kaiser Family Foundation: <https://www.kff.org/private-insurance/state-indicator/private-health-insurance-spending-by-state-in-millions/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>.

However, a large share of premium payments is used to pay medical service providers (doctors and hospitals) and these expenditures would be replaced by payments by NYH. An estimated 18% of health insurance premiums, totaling \$18.6 billion in 2020, pay for services directly provided by the industry. We use this lower number to estimate the change in final demand. Restricting attention to payments for the administrative services provides a highly conservative estimate of the economic effects of eliminating this industry.

Statewide Industry-Level Impacts: Table 1

Regional industry-specific multipliers are available from the Bureau of Economic Analysis. These multipliers “provide a measure of the effects of local demand shocks on total gross output... and employment.” RIMS multipliers are available for a wide variety of regions and are reported for 374 narrowly defined industry classifications. Here, we use the RIMS multipliers for NY state for North American Classification Industry System (NAICS) industry #5241XX, which corresponds to *Insurance carriers, except direct life insurance*, a category that includes NAICS 524114 *Medical and health insurance carriers* as well as NAICS 52412 *Direct insurers, except life and health* and NAICS 52413 *Reinsurance carriers*. These multipliers are multiplied by the change in final demand (e.g., \$18.6 billion), to arrive at estimates for state-level employment and output losses for each major industry in 2020.

Local Economic Effects: Table 2

County-level data on employment and wages by six-digit industry classifications are available from the Bureau of Labor Statistics: <https://www.bls.gov/cew/downloadable-data-files.htm>. For privacy reasons, the BLS does not disclose employment or wages in counties with only a few firms in any given industry.

We use state-level data to calculate the average employment per establishment and county-level establishment counts to estimate county employment in these industries. There are minor differences in the RIMS and NAICS industry classification schemes. As a result, we aggregate RIMS industry 5 and 6, Durable and Nondurable Manufacturing Goods, to match NAICS industry 31-33, Manufacturing, and RIMS industry codes 19 – Accommodations and 20 – Food Services, to match NAICS Accommodations and Food Service. County-level employment effects are estimated based on each county’s share of the state’s industry. For example, Albany County has 2.27% of the state’s jobs in *Professional, Scientific and Technical Services*, so it is estimated to lose 211 jobs in that industry, which equals 2.27% of the 9,301 industry jobs lost statewide.

Appendix B: Macroeconomic Effects

We evaluate the macroeconomic impact of four factors omitted in the baseline RAND estimate: benefits migration, tax flight, the elimination of ESI, and the increase in the underground economy. In each case, we provide estimates for 2022, which allows a direct comparison with RAND, for the impact on state employment, gross state product (GSP), the health-care budget (health-care tax revenues less expenditures), and personal income tax receipts. Our estimates draw on data from the RAND report and detailed individual-level information in the 2017 and 2018 American Community Surveys (ACS). These results are projected forward using observed and estimated growth rates for state employment, GSP, and NY state adjusted gross income taken from official and other third-party sources.

B1. Benefits Migration

We base our estimates of benefits migration on Alm and Enami (2017), who find that migration following Massachusetts health-care reform significantly increased the number of low-income people in Massachusetts border cities by 25%, and data from the 2017 American Community Survey and 2010 US Census. Approximately 11.4 million people live in NY border counties, of whom 15% live in border cities, and 20% have family incomes less than 150% of FPL. That is, 340,000 low-income NY residents are living close to the border. Based on Alm and Enami (2017), we expect this group to grow by 25%, meaning an additional 85,748 low-income people will migrate to NY border cities. Per capita health-care spending for this group of people is about \$20,000 (RAND, p. 43), and the median health-care taxes paid are \$1200, the average per capita health-care burden for this group of people is at least \$18,800, leading to a total financial cost of \$1.6 billion to the state.

Assuming a 65% labor force participation rate, their arrival would create 55,250 jobs. The ACS marriage rate for this income range is 40%, so we have $85748 * 0.8 = 68,598$ households which average \$17,392 income. Their contribution to GSP is \$1.193 billion. Assuming income is distributed roughly uniformly between zero and \$39,300, we get an average state tax of \$276 per household and \$1061 in health-care taxes per household. That makes a total state income collection of \$18.9 million and \$72.8 million in health-care taxes.

We scale employment gains by 3.27% to reflect employment growth from 2017 to 2022, resulting in an estimated gain of 57,058 jobs, or 0.58% of state employment in 2022. We scale GSP gains to reflect expected nominal GSP growth from 2018 to 2022 of 18.4%, resulting in a gain of \$1.41 billion in 2022, equal to 0.07% of GSP.¹² Tax numbers are scaled to reflect the 17.85% growth of adjusted state income, the basis for state tax calculations (FY21 Economic Report and Outlook, p. 86), resulting in a gain of \$22.3 million or 0.04% of state income tax revenues and \$85.8 million in health-care tax revenues in 2022. Combining the modest health-care tax gains with the health-care outlays noted above, the net effect on the health-care budget in 2022 is a loss of \$1.51 billion, or 1.09% of the health-care budget.

¹² For 2022 NY state GDP, see https://www.usgovernmentspending.com/compare_state_spending_2022bZ0g.

B2. Tax Flight

RAND (p.47) finds that NYHA would increase net health-care payments for households in the top 5% income group by 11% of household compensation, the equivalent of an 11% increase in average tax rate. Using estimates from Lai et al. (2011), who study the impact of NJ's 2004 "millionaires' tax" on tax flight, this tax increase is expected to result in an out-migration of 44,000 individuals among the top 5%. A labor force participation rate of 65% is used to calculate the employment effect, a loss of 28,600 jobs.

Among the top 5% income group, their expected average household compensation is \$1,255,700 in 2022 (RAND, p.49, footnote 19), and would see an increase in net contributions to the health-care system of $\$1,255,700 \times 0.11 = \$138,000$. A loss of 44,000 taxpayers in 40,000 households (allowing for some inmarriage within this group) would reduce the NYH budget by $40,000 \times \$138,000 = \5.52 billion. (2022\$).

The impact on GSP is calculated by multiplying the number of households that leave, 40,000, by average income of \$1,255,700 per household, which yields a total decrease in GSP of \$50.23 billion or 2.54% of projected 2022 GSP.

The decrease in income tax receipts resulting from tax flight is \$3.48 billion, or 5.93% of 2022 PIT receipts, which equals \$82,723 per household (from the tax calculator) multiplied by 40,000 households to get the state taxes. The personal income tax number assumes married households; the number for single households is slightly higher, at \$87,531 per household.

B3. Elimination of Employer-Sponsored Insurance

Existing studies find that the elimination of ESI reduces employment by roughly 5%, with additional workers moving from full-time to part-time employment. Applying estimates from Blau and Gilleskie (1997) to 2017 NY employment data, we calculate that the elimination of ESI would cause 510,000 workers to leave their jobs, with an additional 151,000 switching to part-time work.

According to the NY State Office of the Comptroller for 2020–2022, state employment is expected to grow by 3.27% between 2017 and 2022 (<https://osc.state.ny.us/reports/budget/2019/quick-start-final.pdf>). Scaling our results by this factor, we have the elimination of 526,688 full-time positions with an additional 155,941 positions switching from full time to part time. Evaluating each part-time position as one-half of a full-time position, we find that the elimination of ESI would reduce employment by the equivalent of 604,658 full-time jobs, equal to 6.24% of the 2022 labor force.

To predict the resulting change to GSP and state finances, we calculate household income, state income taxes and state health-care taxes for individuals based on age (55-64 or 18-54), marital status, and full-time or part-time status, using average wage income from the ACS sample for each of the eight groups. We assume that married workers file jointly and that half of full-time workers are married to full-time workers and half to part-time workers (given that income taxation is done by family income). We calculate the taxes paid by full-time workers in all four combinations of age and marital status and, similarly, the taxes paid by part-time workers in all four combinations. We assume that two-thirds of the people who leave full-time work are ages 55–64 and the rest ages 18–54.

See the table below for household income, personal income tax, and health-care tax payments for each group. The final two columns of the table indicate the number of households in each group with a worker who leaves the workforce and the number who switch to part-time work. Combining impacts for each

group, the estimated total losses to GSP are \$29.11 billion, of which \$24.56 billion comes from those who leave entirely and \$4.55 billion from those who switch to part-time work. We scale GSP losses to reflect expected nominal GSP growth from 2018 to 2022 of 18.4%, resulting in a loss of \$34.47 billion in 2022, equal to 1.74% of state GDP.¹³

We calculate lost taxes payments for each group, dividing them into married and single according to population proportions from the 2018 ACS sample, and sum up the lost taxes over all groups. Results are then scaled by 17.8% to reflect the 17.85% expected growth of NY state adjusted gross income, the basis for state tax calculations (FY21 Economic Report and Outlook, p. 86). Health-care taxes are expected to fall by \$2.33 billion in 2018, or \$2.75 billion in 2022, equal to 1.98% of the health-care budget. In addition, state income tax revenues fall by \$1.089 billion in 2018, or \$1.28 billion in 2022, equal to 2.19% of projected personal income tax receipts for 2022.¹⁴

<i>Group</i>	<i>HH Income</i>	<i>Personal Income Tax</i>	<i>Health-care Tax</i>	<i>HHs Drops</i>	<i>HHs FT to PT</i>
<i>Married, Full, Old</i>	\$ 92,578	\$ 4,215	\$ 4,972	140,903	41,718
<i>Married, Full, Young</i>	\$ 112,567	\$ 5,480	\$ 6,671	135,430	40,098
<i>Single, Full, Old</i>	\$ 40,240	\$ 1,728	\$ 2,256	79,097	23,419
<i>Single, Full, Young</i>	\$ 40,315	\$ 1,733	\$ 2,753	154,570	45,765
<i>Married, Part, Old</i>	\$ 59,725	\$ 3,175	\$ 964		
<i>Married, Part, Young</i>	\$ 63,972	\$ 3,942	\$ 743		
<i>Single, Part, Old</i>	\$ 24,093	\$ 729	\$ 982		
<i>Single, Part, Young</i>	\$ 14,039	\$ 242	\$ 612		

B4. Expansion of the Underground Economy

RAND estimates revenues from new taxes at \$139.1 billion in 2022, which equals 7.03% of the projected state GDP of \$1976.1 billion for that year. Multiplying this number by the average coefficient on personal taxation from Schneider and Buehn (2012), we have $7.74\% * 0.35 = 2.46\%$ decline in GSP, equal to \$48.65 billion.

We estimate employment effects for three different educational levels: less than high school, high school diploma, and college degree or higher, based on their relative levels of informal sector participation, which are 2, 1, and 0.7 (Haigner et al, 2013) and each group’s share of state employment, which is based on data from the 2018 ACS. The results indicate a decrease in employment of 461,684 jobs in 2018. This result is scaled to reflect employment growth of 3.27%, resulting in 476,791 jobs lost in 2022, which equals a 4.83% decrease in total employment.

Health-care and income taxes are calculated using average income levels for each group (ACS, 2018), the health-care tax schedule assumed in RAND, and the SmartAsset NY State Income Tax Calculator (<https://smartasset.com/taxes/new-york-tax-calculator>). Estimated losses are \$2.11 billion in health-care tax revenues and \$1.12 billion in income tax revenues. These are scaled by 17.85% to reflect the growth of adjusted gross income, resulting in \$2.47 billion or 1.79% of projected health-care tax revenues and \$1.32 billion or 2.25% of projected personal income tax revenues.

¹³ For 2022 NY state GDP, see https://www.usgovernmentsspending.com/compare_state_spending_2022bZ0g.

¹⁴ The FY21 Economic Report and Outlook predicts state income tax receipts of \$56.8 billion in 2021, p. 97, which the Comptroller’s Office predicts will grow by 1.9 billion in 2022, e.g. <https://osc.state.ny.us/reports/budget/2019/quick-start-final.pdf>, p. 7.

Appendix C: Innovation

C1. Migration of Star Scientists:

Moretti and Wilson (2017) study the effect of changes in the average tax rate for an individual at the 99th percentile of the income distribution on the rates of in- and out-migration of a state's star scientists. We estimate the impact of NYHA on the migration of star scientists as follows. In 2019, an individual in the 99th percentile of the national income distribution would have made \$329,551 and been subject to average US and NY state tax rates of 26.2% and 6.29% respectively, for a total average tax rate of 32.49%. The NYHA would increase their total tax payments by \$47,043, or 14.27 percentage points, increasing their average tax rate by 43.94%. Based on Moretti and Wilson, these taxes would increase out-migration and decrease in-migration of star scientists by $1.76 * 43.94\% = 77\%$. Recent data indicate that in- and out-migration rates are similar, at 5.9% each, so after the reform, we expect out-migration of 10.5% and in-migration of 1.3%, for net out-migration of 9.2% per year.

C2: Patenting

The change in the patent production is predicted using information from Akcigit, Ufuk, Grigsby, Nicholas, and Stantcheva (2018). Because the NYHA will change marginal tax rates, and most inventors are or can expect to be relatively wealthy, we use their estimates for the impact of the 90% marginal tax rate on patenting, which has an elasticity of -0.041.

For 2019, the income of individuals at 90% of the income distribution in 2019 is \$116,250 and is computed using IPUMS-CPS data, per <https://dqydj.com/income-percentile-calculator/>. Moreover, the standard deduction was \$12,200, so taxable income would be \$104,050. Passage of the NYHA increases the marginal state income tax by 12%. Given the elasticity of patents with respect to personal income taxes, this is expected to reduce patent production by $\exp(-0.041 * 12) - 1 = -0.388$ or 38.8%.