

AUG ANNUAL FTT COST

INCOME LEVELS	MEDIAN INCOME	COST/ YEAR*
01-19%	\$ 15,100	\$ 4
20-39%	\$ 31,400	\$ 9
40-59%	\$ 52,700	\$ 13
60-79%	\$ 86,100	\$ 25
80-89%	\$136,000	\$ 57
90-100	\$260,200	\$155

*Cost to retirement accounts. Only a small minority of Americans own stocks outside of retirement accounts.

A Progressive Tax With Beneficial Effects

A Small Levy on Financial Transactions Would Steer Clear of Struggling Americans, Raise Meaningful Revenue, and Possibly Retire An Abusive Wall Street Industry

September 16, 2019



Acknowledgments

This paper was written by Taylor Lincoln, Research Director of the Congress Watch division of Public Citizen, and edited by Susan Harley, deputy director of Congress Watch.

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Public Citizen's Congress Watch

215 Pennsylvania Ave. S.E

Washington, D.C. 20003

P: 202-546-4996

F: 202-547-7392

<http://www.citizen.org>

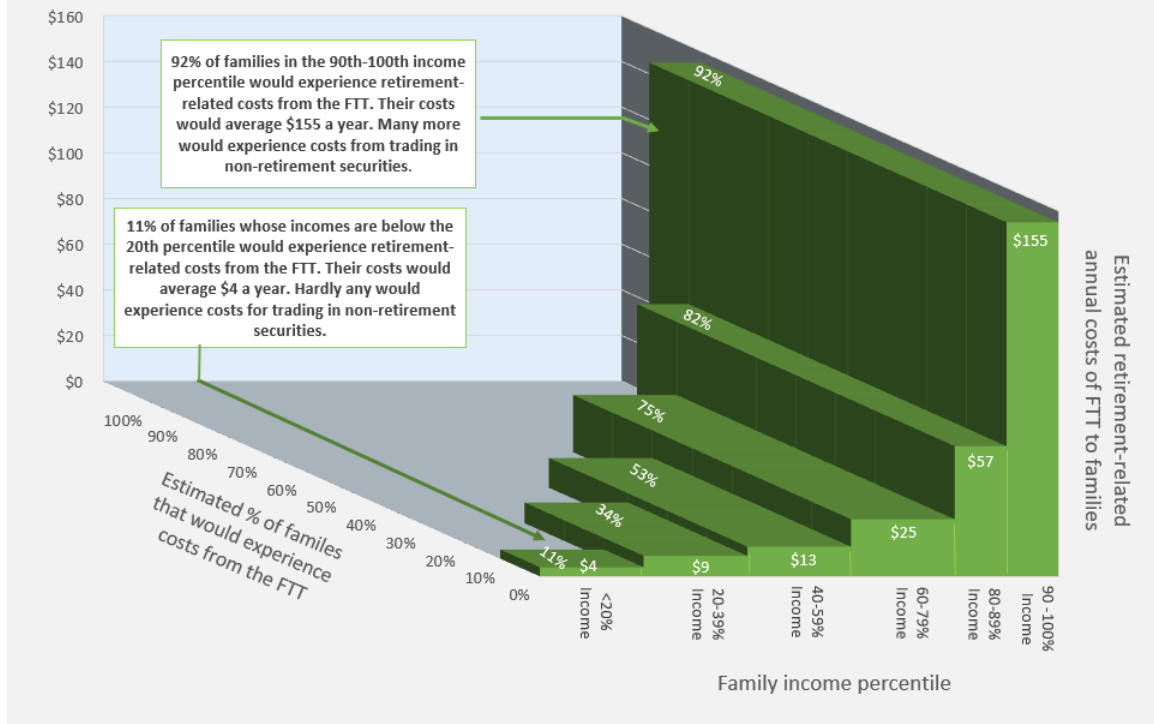
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TAKEAWAYS

A small tax on financial transactions, such as a one-tenth of 1 percent levy on the purchase of stocks and bonds, would likely end the viability of high-frequency trading while raising consequential sums for the U.S. Treasury. Opponents of this proposal have claimed it would hinder the ability of middle-class families to save for retirement. In contrast, we conclude that the costs of a modest financial transaction tax (FTT) would be little to nothing for middle-income families and would be easily manageable for average families in top income bracket.

- **Only about half of U.S. families would likely experience any costs at all from a financial transaction tax.** Because only about half the families in the United States have retirement accounts and very few of the families lacking retirement accounts likely own non-retirement securities, about half the families in the country would likely experience no costs at all from a financial transaction tax.
- **An FTT could actually save families money.** Incentives posed by an FTT could result in families saving more money than their costs from the tax. That is primarily because existing overhead and transaction costs that mutual fund investors already pay dwarf their potential costs from the FTT. An FTT would encourage mutual funds to reduce the rate with which they buy and sell stocks. This would not only reduce costs that consumers experience from an FTT, but would yield additional savings in reduced mutual fund overhead and non-FTT transaction costs.
- **An FTT would be progressive.** An average family in the lowest fifth of family incomes (median 2016 earnings of \$15,100 a year) that has a retirement account would experience estimated costs of about \$4 a year from a one-tenth of 1 percent FTT, according to Public Citizen's estimate. An average middle-income family (median income: \$52,700) that has a retirement account would experience about \$13 in annual costs. Families in the top 10 percent of incomes (median income: \$260,200) would experience about \$155 in average costs relating to their retirement accounts, while many would owe additional taxes for trading stocks outside of retirement accounts. [Figure on next page shows the prospective effects of the tax on retirement accounts by income group.] Costs based on estimates issued by the Investment Company Institute, discussed later in this report, would be somewhat higher, but still modest, and similarly progressive in relation to income groups.

Projected Percentages of Families That Would Experience Retirement-related Costs From 0.1% Financial Transaction Tax, and What Their Costs Would Be, By Income Percentile



INTRODUCTION

Unlike on purchases of most goods, there is no tax on purchases of stocks, bonds or other securities.¹ Over the years, policy advocates and public officials have put forth various proposals to institute a small levy on these transactions.²

Such proposals might appeal to those who wish to create a more progressive tax system, raise money for public investments, reduce the federal deficit, or deter high-frequency, computer algorithmic trading.

A financial transaction tax,³ or FTT, would inherently be targeted toward people of greater means. That is because it would be assessed only on those who have investments in the stock market, and roughly in proportion to the size of investors' assets. Stock ownership is closely correlated with wealth.

Such a tax has the potential to raise meaningful amounts of revenue. The Wall Street Tax Act introduced by Sen. Brian Schatz (D-Hawaii) and Rep. Peter DeFazio (D-Ore.)⁴ – which would tax the sale of most stocks, bonds and derivatives at one-tenth of 1 percent – is similar to a proposal that the congressional Joint Committee on Taxation last year estimated would raise \$777 billion over a decade.⁵

An FTT also would discourage high-frequency trading. This is a strategy, memorialized in Michael Lewis's best-selling book "Flash Boys," that involves buying and selling securities in intervals of milliseconds based on computer algorithms. High-frequency trading is estimated to account for more than half of stock trades.⁶

High-frequency trading may pose a risk to ordinary investors because the phenomenon of computers acting on other computers' signals could trigger a runaway chain reaction, causing a stock market meltdown. High-frequency traders have been blamed in part for the 2010 "flash crash," in which the Dow Jones Industrial Average lost about 10 percent of its value in 10 minutes for no apparent reason.⁷

¹ At present, there is a very small fee on transactions that resembles a tax but is not technically a tax. Brokerages often charge a fee, typically less than 10 cents per trade, to cover regulatory fees that they must pay to the Securities and Exchange commission. See, for example, *Fees to Consider before Your Sell Your Stock*, FINANCIAL WEB (viewed on Jan. 23, 2014), <http://bit.ly/1hPdmY9>.

² Aside from a financial transaction tax or Wall Street tax, proposals to tax financial transactions have been labeled a Tobin Tax, after Nobel-prize winning economist James Tobin, and the Robin Hood tax, after the folklore hero.

³ Proposals to institute small levies on financial transactions also have been labeled a Tobin Tax, after Nobel-prize winning economist James Tobin, and the Robin Hood tax, after the folklore hero.

⁴ Wall Street Tax Act of 2019, S. 647 (introduced on March 5, 2019), <http://bit.ly/2MUKnvB> and Wall Street Tax Act of 2019, H.R. 1516 (introduced on March 5, 2019), <http://bit.ly/2XZrrgm>. Separately, Sen. Bernie Sanders (I-Vt.) and Rep. Barbara Lee (D-Calif.) have introduced legislation, the Inclusive Prosperity Act of 2019, that would tax stock trades at 0.5 percent. The analysis in this report is limited to the Wall Street Tax Act because Joint Committee on Taxation has provided an assessment on the amount of revenue that would be raised by a proposal similar to that bill.

⁵ Press release, Sen. Brian Schatz, Sen. Schatz, Rep. DeFazio Introduce New Legislation to Tax Wall Street, Address Economic Inequality (March 5, 2019), <http://bit.ly/2XZsm0i> and *Impose a Tax on Financial Transactions*, CONGRESSIONAL BUDGET OFFICE (Dec. 13, 2018), <http://bit.ly/2XZcCu4>.

⁶ Gregory Meyer, Nicole Bullock and Joe Rennisson, *How High-Frequency Trading Hit a Speed Bump*, FINANCIAL TIMES (Jan. 1, 2018), <https://on.ft.com/2MVw89U>.

⁷ Andrei Kirilenko, Albert S. Kyle, Mehrdad Samadi, Tugkan Tuzun, *The Flash Crash: High-Frequency Trading in an Electronic Market*, JOURNAL OF FINANCE (forthcoming) (last revised March 10, 2018), <http://bit.ly/2IqmXdm>.

Setting aside the potential of high-frequency traders to infuse risk into the stock market, the strategies they employ are simply unfair. High-frequency traders enjoy advantages that enable them to receive information and complete orders a split-second sooner than others. This allows them to profit at the expense of other traders.

A financial transaction tax would presumably suffocate the high-frequency trading industry because the tax would largely correlate with trading volume, and high volume is the oxygen of high-frequency trading.

Critics of an FTT, such as mutual fund industry representative Investment Company Institute, have predicted that the tax would hurt all investors “especially middle-income Americans workers saving for retirement.”⁸

We find this claim to be unfounded.

By our calculations, an average middle-income family that has a retirement account would experience only about \$13 a year in costs from the proposed FTT. (Most families would not pay the tax directly; instead, mutual funds would pay it, and then presumably pass their costs on to their customers.) If we apply the Investment Company Institute’s estimates, we conclude that the same average middle-income family would experience about \$13 to \$35 in annual costs from the tax, depending on the family’s mix of investments.

Meanwhile, any costs from the tax would apply only to families that have retirement accounts or other securities. About half of U.S. families do not have retirement accounts, and available data indicate that families without retirement accounts are unlikely to own non-retirement securities. Therefore, about half of U.S. families likely would not experience any costs at all from an FTT.

The effects of the tax would be somewhat different for upper-income Americans, although hardly onerous. About 90 percent of families in the top 10 percent of incomes (median 2016 earnings: \$260,200) have retirement accounts. They would experience an average of about \$155 a year in costs relating to their retirement accounts from an FTT by our estimate, and between \$202 and \$564 if the estimates published by the Investment Company Institute are applied. Many in this income strata – unlike those in other income bands – own stocks and other securities outside of retirement accounts and would owe taxes for trading in those assets, as well.

Notably, these estimates do not take into account the near certainty that incentives created by the financial transaction tax would depress trading activity. This would result in actual FTT costs for investors that are lower than those estimated based on current trading volumes. A reduction in trading motivated by the implementation of an FTT would have the salutary effect of reducing mutual fund overhead costs and transaction costs that hinder investors’ returns.

Taking these factors into account, it is quite possible that ordinary families would experience net savings after an FTT begins because their savings from reduced trading activity by their funds would exceed the costs that families experience from an FTT.

⁸ Letter from Investment Company Institute CEO Paul Schott Stevens to U.S. Sen. Chris Van Hollen (D-Md.) (March 16, 2016), <http://bit.ly/2YQ8snP>.

I. AVERAGE ANNUAL RETIREMENT ACCOUNT COSTS RESULTING FROM THE FTT FOR A MIDDLE INCOME FAMILY WOULD RANGE FROM \$13 TO \$35

Opponents of a modest financial transaction tax have said that it would hurt ordinary families. In this report, we take a close look at the costs that families could expect to experience from a 0.1 percent financial transaction tax. By two methodologies, including one that applies industry estimates, we reach a conclusion that costs to most families would somewhere between trivial and nonexistent.

As stated in the introduction, our estimates do not take into account the near certainty that incentives posed by the tax would dampen stock trading volume, which would result in lower financial transaction taxes than projected in this report, and would yield ancillary savings for consumers.

In both of the methodologies, we estimated the costs to families' retirement accounts from a financial transaction tax according to families' income levels. We focused on retirement accounts because relatively few American families own stocks or other securities that are not held in retirement accounts.

Public Citizen Methodology

We estimated the costs to families from the financial transaction tax by taking the median retirement account size by family income level, as reported by the Federal Reserve, and assuming that families contribute 9.9 percent of their income to their retirement accounts annually. This is the median rate of contribution to retirement accounts, as reported by mutual fund company Vanguard in its most recent annual report on retirement savings. This contribution rate takes into account both employee and employer-financed portions.⁹

We assumed that families would invest in mutual funds with 32 percent annual turnover, the industry average. Mutual fund turnover – which regards the frequency with which funds buy and sell the securities that make up their portfolios – stands to be the primary cause of costs to retirement accounts from an FTT.

We assumed that the FTT would result in costs to family retirement accounts in two ways, each of which concern costs that would be paid by mutual funds and passed on to consumers:

1. Costs relating to mutual funds' purchase and sale of securities

When a mutual fund buys shares of stocks or bonds to change its portfolio or it purchases securities by reinvesting dividends, those purchases would be taxed. We assume that those taxes would be passed on to consumers.

2. Costs relating to consumers' purchases and sales of mutual fund securities

When consumers purchase shares of a mutual fund security, they would not be taxed on the purchase itself under Wall Street Tax Act because new issues of a security are excluded from the tax, and a mutual fund offering would count as a new issue. But consumers' purchases of a mutual fund security could require the mutual fund to purchase the underlying stocks that make up the mutual fund offering. For instance, if the mutual fund's portfolio consisted of all the stocks in the S&P 500, the mutual fund would need to own those underlying stocks to

⁹ *How America Saves 2019*, VANGUARD (2019), <https://vgi.vg/2L0HOFt>.

populate its fund offering. To the extent that the mutual fund experiences more incoming investment than withdrawals, the fund would need to purchase additional stocks on the open market. Those purchases would be taxed.

We are not able to estimate how frequently a fund would need to purchase new shares, as opposed to simply filling orders with the shares freed up by other customers' withdrawals. In this report, to offer a broad interpretation of potential costs to consumers, we assume that the fund would need to purchase new shares each time consumers contribute to their retirement accounts. This assumption almost certainly exaggerates the frequency with which funds would need to purchase shares.

Eventually, families cease to make contributions to their retirement accounts and begin making withdrawals. When families sell shares of mutual funds back to mutual fund management companies, those sales would count as purchases for the mutual fund, and would be taxed under the proposed FTT. Again, we assume that mutual fund companies would pass those costs on to their customers.

For simplicity, calculations for this report assume that families would withdraw funds at the same rate that they previously contributed funds. Therefore, we assume that families that are withdrawing funds from their retirement account would experience the same annual costs from the FTT as those making contributions at the corresponding income levels.

In reality, a family's annual rate of withdrawal would likely differ from its annual rate of contributing. But even if our methodology has significantly underestimated the rate of withdrawal, the effect on our overall conclusion on costs resulting from the FTT would not likely be significant for most families. That is because most of the costs from an FTT would result from mutual funds buying and selling their portfolio securities, rather than from consumers exchanging mutual fund shares.

In this report, we estimate that average families below the 80th income percentile that are withdrawing funds from their retirement account would experience between about \$1.50 and \$9 in average annual costs from a 0.1 percent FTT associated with their sales of mutual fund shares. Thus, even if families' actual rates of withdrawal proved to be three-times greater than our estimate, they would only experience only about \$27 a year in costs for these withdrawals at the high end. By our estimate, families in the top 10 percent of incomes would experience about \$25 a year in average annual costs relating to purchases and sales. Thus, they would experience about \$75 a year in sales-related costs if their actual rate of withdrawals were three-times greater than our methodology assumes.

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Combining factors 1 and 2, described above, households with retirement accounts that have incomes in the lowest 20 percent (median 2016 income: \$15,100) would experience an average of about \$4 a year in annual costs from the FTT. But only about one-tenth of these households have a retirement account, and even fewer own non-retirement securities. Therefore, nearly 90 percent of households with incomes in the lowest 20 percent would likely experience zero costs due to a financial transaction tax.

Only about half the families in the middle-income band (median 2016 income: \$52,700) have a retirement account. They would pay an average of about \$13 per year in financial

transaction taxes relating to their retirement account by our methodology. The 47 percent of families in this income band that do not have a retirement account would pay zero, unless they hold stocks or other securities in non-retirement accounts. Only a small percentage of middle-income families own non-retirement securities, and those that do are likely among those that also have retirement accounts.

More than 90 percent of families in the top 10 percent of income (median 2016 income: \$260,200) have a retirement account. They would pay an average of about \$155 annually in financial transaction taxes relating to their retirement account, according to our methodology. A significant percentage of families in this income band also would owe taxes for trading in other securities. [Table 1]

Table 1: Estimated Costs From Financial Transaction Tax by Income Bracket (Public Citizen methodology)

Income Percentile	Median Income	Pct. of Population in Income Percentile With Retirement Account	Median Retirement Account Size	Estimated Annual Contribution or Sale*	FTT Costs for Retirement Accounts Based on Fund Turnover**	FTT Costs Relating to Family Contributions or Sales	Total FTT-related costs
Less than 20	\$15,100	11.3	\$7,800	\$1,495	\$2.50	\$1.49	\$3.99
20–39.9	\$31,400	33.6	\$17,000	\$3,109	\$5.44	\$3.11	\$8.55
40–59.9	\$52,700	53.1	\$25,000	\$5,217	\$8.00	\$5.22	\$13.22
60–79.9	\$86,100	75.2	\$51,000	\$8,524	\$16.32	\$8.52	\$24.84
80–89.9	\$136,000	82.2	\$136,000	\$13,464	\$43.52	\$13.46	\$56.98
90–100	\$260,200	91.9	\$403,000	\$25,760	\$128.96	\$25.76	\$154.72

Source Public Citizen analysis of Federal Reserve 2016 Survey of Consumer Finances.

* Based median contribution rate of 9.9 percent on income, inclusive of employer and employee contributions, as reported by Vanguard for 2018.¹⁰ ** Assumes 32 percent turnover, the weight-adjusted industry average, according to the Investment Company Institute.¹¹

Alternative Methodology: Public Citizen Application of Investment Company Institute Calculations

The methodology above could overestimate the cost of the FTT because it assumes that mutual funds would always purchase component stocks on the open market whenever their customers buy new mutual fund shares. It could underestimate costs because it assumes that retirement savers maintain a “buy and hold” strategy and do not shift their retirement investments from one fund to another. To offer another perspective, we also cross-referenced estimates by the Investment Company Institute on the costs of an FTT against income-sorted retirement account data.

The Investment Company Institute estimated the potential costs of a 0.1 percent FTT by looking backwards at mutual funds’ actual activities in 2018. The ICI has only issued its top line findings, not its underlying data. The ICI explained in communications with Public Citizen that the group’s estimates were derived by looking at aggregate data on mutual funds’ sales and purchases, which the vast majority of mutual funds privately provide to the ICI.

The ICI calculated that a 0.1 percent FTT would have resulted in investors in index mutual funds experiencing annual costs of 0.05 percent of their total investment in 2018. The ICI

¹⁰ *Id.*

¹¹ 2019 Investment Company Fact Book, INVESTMENT COMPANY INSTITUTE (2019), <http://bit.ly/2Y55A6U>.

estimated that investors in average mutual funds (aggregating index funds and actively managed funds) would have experienced FTT-related costs of 0.14 percent of their investment from the FTT in 2018.¹²

When cross-referenced with Federal Reserve data, these estimates lead to a conclusion that families in the middle-income band that have retirement accounts would experience average annual costs relating to the FTT of about \$13 if they invested solely in index funds and \$35 a year if they invested in a blend of funds that represent a composite of index and actively managed funds. [Table 2]

Table 2: Estimated Costs From Financial Transaction Tax by Income Bracket (Public Citizen Application of Investment Company Institute Calculations)

Income Percentile	Median Income	Pct. of Population in Income Percentile With Retirement Account	Median Retirement Account Size	ICI Estimate of 0.1% FTT Tax Effect on Index Mutual Fund Returns	ICI Estimate of 0.1% FTT Tax Effect on Average of Average Mutual Funds Returns (Index and active)	Annual Costs to Retirement Investors in Index-only Funds	Annual Costs to Retirement Investors in Average Mutual Funds (Index and Active)
Less than 20	\$15,100	11.3	\$7,800	-0.05%	-0.14%	\$3.90	\$10.92
20–39.9	\$31,400	33.6	\$17,000	-0.05%	-0.14%	\$8.50	\$23.80
40–59.9	\$52,700	53.1	\$25,000	-0.05%	-0.14%	\$12.50	\$35.00
60–79.9	\$86,100	75.2	\$51,000	-0.05%	-0.14%	\$25.50	\$71.40
80–89.9	\$136,000	82.2	\$136,000	-0.05%	-0.14%	\$68.00	\$190.40
90–100	\$260,200	91.9	\$403,000	-0.05%	-0.14%	\$201.50	\$564.20

Source: Public Citizen analysis of data issued by the Investment Company Institute and Federal Reserve 2016 Survey of Consumer Finances.

There are some reasons to believe the costs projected in Table 2 are higher than retirement savers should expect. Michael Edesess, an economist, investment strategist and author of books offering investment advice for consumers, commented in an op-ed in *Bloomberg* that consumers' sales and purchases of mutual fund shares in 2018 were unusually large, a factor that would have resulted in higher-than-usual projected FTT costs.¹³

Also, there is evidence that costs from an FTT would be lower for retirement investors than average investors. That conclusion requires a quick summary of the data that mutual funds report. Mutual funds charge their customers fees for their overhead costs that they report as "expense ratios." Funds' expense ratios vary widely and roughly correlate with the frequency with which funds buy and sell stocks in their portfolios. Such buying and selling is reported as their annual "turnover."

¹² Paul Schott Stevens, president and CEO of the Investment Company Institute, letter to Sen. Chuck Grassley, Sen. Ron Wyden, Rep. Richard Neal and Rep. Kevin Brady (March 14, 2019), <http://bit.ly/33FXtkN>. *Note:* Stevens wrote that a 0.14 percent increase in cost would result in increased overall costs of 31 percent for retirement investors in mutual funds. The 31 percent figure has been widely cited by opponents of the proposal. But it is misleading unless put into context. The fees (officially known as the "expense ratio" costs) covering the average retirement mutual fund investment at the time the letter was written, according to the ICI, were 0.45 percent, or 45 cents for every \$100 invested. An increase of 0.14 percent to those costs would indeed represent a 31 percent increase, but it would be 31 percent of a very small number.

¹³ Michael Edesess, *The Case for a Financial Transaction Tax*, BLOOMBERG (June 20, 2019), <https://bloom.bg/2ZDtasw>. (Public Citizen provided a draft of this report to Edesess and incorporated some of his comments.)

Money in 401(k) retirement accounts is invested in funds that have expense ratios about 25 percent lower than the industry average, according to data that the ICI has separately published.¹⁴ Funds with lower expense ratios typically have lower turnover. Funds that have lower turnover will experience lower FTT costs. These facts suggest that retirement accounts would experience lower FTT costs than investors on the whole.

An additional way that the ICI may have overestimated costs from the proposed FTT concerns how sales of securities should be treated. The ICI's calculations assumed that mutual funds would experience FTT costs both on purchases and sale of securities, the ICI told Public Citizen. The Wall Street Tax Act would tax purchases only.¹⁵ The ICI told Public Citizen that it assumed that the market would, in essence, adjust to require sellers to share in FTT costs. This assumption warrants additional review. The public and policymakers could better evaluate the ICI's calculations if it published its underlying math and methodology.¹⁶

II. THE COST OF AN FTT FOR TRANSACTIONS OUTSIDE OF RETIREMENT ACCOUNTS WOULD BE ZERO FOR MOST FAMILIES

Here, we look at the likelihood of families owing financial transaction taxes due to holdings of securities outside of retirement accounts. Among families below the 80th income percentile, no more than 26 percent hold stock or mutual fund investments. In the 60th to 79th income percentile 13.8 percent of families own stocks and 12.5 percent own pooled investments, which include mutual funds, according to data provided by the Federal Reserve. [Table 3] It is not possible to determine from this data to determine the degree to which the owners of stocks overlap with owners of pooled investments. Because many of the families

¹⁴ *The Economics of Providing 401(k) Plans: Services, Fees, and Expenses*, INVESTMENT COMPANY INSTITUTE (2019), <http://bit.ly/2GRJYVs> and *2019 Investment Company Fact Book*, INVESTMENT COMPANY INSTITUTE (2019), <http://bit.ly/2Y55A6U>.

¹⁵ Wall Street Tax Act of 2019, S. 647 (introduced on March 5, 2019), <http://bit.ly/2MUKnvB> and Wall Street Tax Act of 2019, H.R. 1516 (introduced on March 5, 2019), <http://bit.ly/2XZrrgm>.

¹⁶ Shortly before this report was published, mutual fund company Vanguard issued a [paper](#) that claimed a 0.1 percent FTT would result in a 1.09 percent reduction in annual returns for investors. This estimate was nearly 8 times higher than the estimate put forth by the Investment Company Institute, and it should be viewed with extreme skepticism. In its paper, Vanguard said that FTT costs to consumers would result from increased transaction costs due to fund turnover (presumably taxes) and by the FTT's impact on "market spreads and liquidity" (which likely refers to increased bid-ask spreads, a concept that is discussed later in this paper). Vanguard's paper provides no substantive data, such as the rate of fund turnover or the amount of change to bid-ask spreads it assumed in its model. The paper does say that its estimates are based on investments in a "small-capitalization active equity fund." Selecting such a fund for its model was a strange methodological choice for Vanguard to make, and one that was most likely made to arrive at about the highest possible projected FTT costs. Vanguard is best known as the pioneer of index funds, which have very low annual turnover. For instance, the Vanguard "total stock market index" – which mirrors the entire stock market and has the most assets of any mutual fund in the world – has annual turnover of just 3 percent. Vanguard's "strategic small-cap equity fund," an actively managed small-capitalization fund such as the one Vanguard refers to in its paper, has annual turnover of 88 percent. This rate is nearly 30 times higher than that of its flagship index fund, and would profoundly affect projected FTT costs. But, even if Vanguard assumed an 88 percent turnover rate in its model, that would not come close to explaining the whopping total costs Vanguard claims. By our calculations, annual turnover of 88 percent would result in reduced returns of about 0.1 percent under the proposed FTT. That is less than a tenth of Vanguard's estimated total cost. The rest of Vanguard's cost conclusions, according to the skeletal methodological details the company provides, apparently were derived from an assumption that bid-ask spreads would widen dramatically. As we discuss in Section IV of this report, we believe that it is doubtful that implementation of an FTT would result in expansions of bid-ask spreads that would affect investors' returns much at all. We asked Vanguard for details on the assumptions it made in its model. The company did not provide a substantive response by the time this report was issued.

that own stocks are probably among those that own pooled investments, the percentage holding one type or the other (or both) is likely significantly less than 26 percent.

The percentage of families holding securities outside of retirement accounts rises with income level. In the 90th to 100th income percentile, 46 percent hold stocks and 37 percent hold investments in pooled investment funds. Again, the dataset provides no window into the degree of overlap of these two universes.

Because families' trading practices, unlike mutual funds, are not publicly disclosed and likely vary greatly, it would be difficult to arrive at a *typical* stock-holding family to estimate the effects of an FTT. We can, however, offer some snapshots.

If a middle-income family possessed the median value of stocks and pooled investments for its income band, and if it traded 10 percent of its portfolio in the course of a year, it would owe about \$6 in financial transaction taxes annually for these trades. If it traded 30 percent of its portfolio, it would owe about \$18 in financial transaction taxes. If it traded 50 percent, it would owe about \$30. Note that, at most, only 16 percent of families in the middle-income band (the 40th to 60th percentile of annual incomes) own securities outside of retirement accounts. Therefore, no more than 16 percent could owe any financial transaction taxes for trading non-retirement securities.

Meanwhile, if a family in the 90th to 100th percentile held the median level of both stocks and pooled investments for families in that income band, it would owe about \$58 a year in annual financial transaction taxes if it traded 10 percent of its portfolio, \$173 if it traded 30 percent, and \$288 if it traded 50 percent. [Table 4]

Table 3: Value of Stocks and Pooled Investments Held By U.S. Families by Income Percentile (Non-Retirement Accounts)

Income Percentile	Stocks		Pooled Investment Funds (includes mutual funds)	
	Median Pct. Holding	Median Value	Median Pct. Holding	Median Value
Less than 20	3.9	\$7,500	1.6	\$20,000
20–39.9	6.0	\$15,000	3.2	\$90,000
40–59.9	10.5	\$8,200	5.4	\$50,000
60–79.9	13.8	\$12,000	12.5	\$61,000
80–89.9	25.1	\$21,200	17.6	\$120,000
90–100	45.9	\$125,000	37.3	\$450,500

Source: Federal Reserve 2016 Survey of Consumer Finances.

Table 4: Snapshot of Prospective FTT Costs to Families Trading Securities Outside of Retirement Accounts

Income Percentile	Combined Median Value of Stocks and Pooled Investments	Maximum Pct. of Families That Own Such Investments	Annual FTT Costs for Families That Own Median Level of Both Stocks and Pooled Investments at 10 Pct. Annual Turnover	Annual FTT Costs for Families That Own Median Level of Both Stocks and Pooled Investments at 20 Pct. Annual Turnover	Annual FTT Costs for Families That Own Median Level of Both Stocks and Pooled Investments at 30 Pct. Annual Turnover
Less than 20	\$27,500	5.5	\$2.75	\$8.25	\$13.75
20–39.9	\$105,000	9.2	\$10.50	\$31.50	\$52.50
40–59.9	\$58,200	15.9	\$5.82	\$17.46	\$29.10
60–79.9	\$73,000	26.3	\$7.30	\$21.90	\$36.50
80–89.9	\$141,200	42.7	\$14.12	\$42.36	\$70.60
90–100	\$575,500	83.2	\$57.55	\$172.65	\$287.75

Source: Federal Reserve 2016 Survey of Consumer Finances.

III. CONSUMERS AND FUNDS COULD MORE THAN OFFSET THE COSTS OF AN FTT BY ALTERING INVESTMENT STRATEGIES

The estimates above do not account for incentives created by the FTT to trade less, which would result in families experiencing lower costs from an FTT than shown in these projections. A reduction in trading by mutual funds would likely provide an extra benefit to consumers because it would also reduce non-FTT costs that hinder rates of return.

Mutual funds experience significant transaction costs when they buy and sell stocks. These costs include administrative fees (analogous to “commissions” that consumers pay); costs regarding the discrepancy between what buyers are offering and sellers are demanding (known as the “bid-ask” spread, which is discussed later in this report); and costs relating to the effect on a stock’s price of a fund making large quantity purchases or sales (known as the “price impact” or “market impact”).

In a 2014 report, we cited three estimates of costs associated with mutual fund transactions. They ranged from 0.4 percent to 0.8 percent of the value of each transaction.¹⁷ If one accepts the midpoint of those estimates, that means investors’ essentially lose 0.6 percent of the value of every transaction a fund makes. Because a fund’s sale of a stock is usually coupled with a purchase of about equal value, each change to a mutual fund’s portfolio, in effect, hits investors with an invisible cost equal to 1.2 percent of the amount in question. Mutual funds, on average, replace about one-third of their portfolios annually. This leads to a conclusion that the average annual hidden costs to consumers from mutual funds’ turnover of their portfolios is about 0.4 percent (*i.e.*, one-third of 1.2 percent is 0.4 percent).

Mutual funds also charge their investors official costs, which are reported as “expense ratios,” to cover the fund’s overhead expenses.¹⁸ The average expense ratio for all mutual funds in 2018 was 0.55 percent of the amount of capital invested.¹⁹

These figures suggest that investors experience an average reduction in returns from turnover and expense ratios of nearly 1 percent annually (*i.e.*, 0.4% plus 0.55% = 0.95%). That far exceeds potential costs from the proposed financial transaction tax.

Common sense suggests that a financial transaction tax would give mutual funds an incentive to be more judicious about their trading to avoid hindering returns. Evidence from studies on the effects of trading costs on trading volume supports this conclusion.

A researcher for the International Monetary Fund in 2011 reviewed studies that tabulated 20 empirical findings on how changes to transaction costs affected trading volume.²⁰ In most cases, higher trading costs were associated with reduced trading volume. In about half the cases, the percent reduction in trading volume was the same or greater than the percent increase in trading costs. That means that in about half the cases, traders ended up paying the same or less in total transaction costs even though costs for individual transactions were increased.

¹⁷ Taylor Lincoln, *A Matter of Perspective*, PUBLIC CITIZEN (March 12, 2014), <http://bit.ly/2XSrtK3>.

¹⁸ *Expense Ratio*, MORNINGSTAR (viewed on Jan. 27, 2014), <http://bit.ly/L1ifpg>.

¹⁹ *2019 Investment Company Fact Book*, INVESTMENT COMPANY INSTITUTE (2019), <http://bit.ly/2Y55A6U>.

²⁰ Thornton Matheson, *Taxing Financial Transactions*, IMF WORKING PAPER (2011), <http://bit.ly/1KDCGvK>.

Incentives from an FTT will likely cause turnover to decline, reducing the prospective FTT costs and yielding ancillary savings from reduced transactions. The tax could prompt funds to reduce trading enough that reduced transaction costs could more than compensate for the tax.

Families also could reduce their FTT costs – as well as other costs – by choosing lower-cost funds. One way consumers can enjoy lower transaction costs and expense ratio fees is to invest in index funds – sometimes called passive investment funds – which consist of a basket of stocks in a certain universe, such as the S&P 500. Index funds contrast with actively managed funds, in which managers choose securities that they believe will outperform the market. Index funds tend to have much lower turnover and expense ratios than actively managed funds.

Studies have consistently shown that, over time, index funds outperform the bulk of actively managed funds. The chief explanation for this is that actively managed funds need to achieve higher returns to overcome their higher expense ratios and transaction costs. This is difficult to accomplish over the long term.²¹

IV. FACTORS THAT COULD INCREASE OR DECREASE COSTS OF AN FTT THAT ARE NOT DISCUSSED ABOVE

There are some additional factors that this report does not attempt to quantify that could result in greater costs or savings to consumers. Although these topics have been the subject of much speculation on the potential effects of an FTT, we believe the impact of these factors would be minimal for ordinary investors.

Increase in bid-ask spreads

If the FTT led, as intended, to the demise of the high-speed trading industry, that would likely result in a modest increase in bid-ask spreads. Bid-ask spreads represent the difference between the highest price that a buyer is willing to pay for a stock and the lowest price a seller is willing to accept. Market makers – who act as middlemen between buyers and sellers – buy at the bid price and sell at the ask price. To draw an analogy, a broker who buys and sells concert tickets for a living might offer to buy (bid for) tickets for \$25 and then sell them (ask) at \$30. The ticket broker would pocket the difference.

The spreads for stock transactions are much smaller and have fallen to minuscule levels in recent decades. From the latter half of the 1990s through 2004, as Internet trading took hold, bid-ask spreads for high-volume stocks were reduced by an order of magnitude, from about 0.2 percent to about 0.02 percent of the value of a stock offering.²² This period straddled the 2001 change from markets pricing stocks in fractions of a dollar (such as one-sixteenth of a

²¹ See, for example, Kent Thune, *Index Funds vs. Actively-Managed Funds*, THE BALANCE (June 2, 2019), <http://bit.ly/2Ywxb5i>.

²² See, for example, Terry Hendershott, Charles M. Jones, Albert J. Menkveld, and Matthew O'Brien, *Does Algorithmic Trading Improve Liquidity?* THE JOURNAL OF FINANCE (February 2011), <http://bit.ly/2M8wQ25>.

dollar) to pennies. Subsequently, pricing in fractions pennies was introduced. The change to decimal pricing enabled tighter bid-ask spreads.²³

From 2004 until 2011 – the period of the greatest expansion in high-frequency trading²⁴ – bid-ask spreads for large stocks tightened by another order-of-magnitude, according to data cited in a 2011 speech prominent British economist Andrew G. Haldane.²⁵

Experts attribute much of the reduction in bid-ask spreads over recent decades primarily to advances in technology that more efficiently match buyers and sellers, as well as the introduction of more granular pricing.²⁶ But the expansion of high-frequency trading – which creates a glut of buyers and sellers – also likely played a role in shrinking bid-ask spreads.

An end to high-frequency trading could result in a modest widening of bid-ask spreads. But even if bid-ask spreads returned to levels that existed before the rise of high-frequency trading, costs to ordinary families would be minimal. A return to 0.02 percent bid-ask spreads, which was roughly the average in 2004, would equal only 2 cents per \$100 traded.

Demise of High-Frequency Trading Could Result in Non-HFT Traders Obtaining Better Prices

A factor that could save consumers money from an FTT is that the end to high-frequency trading would put conventional mutual funds on equal footing with other traders. This would end the practice of non-high frequency traders being consigned to accepting disadvantageous prices in their securities transactions. As Michael Edesess wrote in his *Bloomberg* op-ed, referenced above, the “lightning trades” by high-frequency firms come at the expense of “whales,” like mutual and pension fund traders, who are left to watch desirable offers disappear before they can act on them.²⁷ Ending the “lightning trades” could result in mutual and pension funds obtaining more favorable prices on the market, benefiting American consumers.

Fallout From FTT Could Cause Mutual Funds to Charge Lower Fees

Also among the factors that could save consumers money from an FTT are that the tax could increase competition within the financial services industry to lower prices. If the FTT put the high-speed trading industry out of business and dampened conventional trading activity, that would likely result in reduced business for the financial services sector. Common sense economic theory holds that those who remained in business would be inclined to lower their prices wherever possible to retain a share of the shrinking market. Therefore, it is

²³ Matthew O’Brien, *Everything You Need to Know About High-Frequency Trading*, THE ATLANTIC (April 11, 2014), <http://bit.ly/2YS31bc> and Ben Walsh, *Do stocks really trade for fractions of a penny? Sort of*, REUTERS (Nov. 18, 2013), <https://reut.rs/31zmvQF>.

²⁴ Computerized trading has existed since the 1980s. The greatest expansion of high-frequency trading appears to have occurred from about 2004 to 2010. See, for example, Michael J. McGowan, *The Rise Of Computerized High Frequency Trading: Use And Controversy*, DUKE LAW & TECHNOLOGY REVIEW (2010), <http://bit.ly/2ZFLfGo> and Daniel Cross, *The Rise of High-Frequency Trading: A Brief History*, TRADERHQ.COM (July 1, 2015), <http://bit.ly/2yKek7C>.

²⁵ Andrew G. Haldane, *The Race to Zero*, Address to the International Economic Association Sixteenth World Congress, in Beijing (July 8, 2011), <http://bit.ly/2TiwiHQ>.

²⁶ See, for example, Charles M. Jones, *A Century Of Stock Market Liquidity And Trading Costs* (May 22, 2002), <http://bit.ly/2yPYFnm> and Josh Bivens and Hunter Blair, *A Financial Transaction Tax Would Help Ensure Wall Street Works for Main Street*, ECONOMIC POLICY INSTITUTE (July 28, 2016), <http://bit.ly/30tLXHd>.

²⁷ Michael Edesess, *The Case for a Financial Transaction Tax*, BLOOMBERG (June 20, 2019), <https://bloom.bg/2ZDtaww>.

conceivable that mutual funds might in essence absorb some of the cost from an FTT, instead of passing it on to their customers, to compete for market share.

CONCLUSION

A financial transaction tax, such as the one proposed in the Wall Street Tax Act, has the potential to raise meaningful amounts of revenue with minimal impact on ordinary Americans. Even its prospective effect on average families in the top income tier is not particularly onerous.

Slamming the breaks on high-speed trading would good for just about all Americans except for those who benefit by treating Wall Street like a casino. Faced with the prospect of less action, Wall Street's croupiers will warn of harms to ordinary Americans from an FTT. Evaluators of those forecasts should consider the industry's incentives.

Those who endorse the concept of a more progressive tax code, meanwhile, should find much to like in a financial transaction tax because it would apply roughly proportionately to families' holdings in securities, and those holdings disproportionately belong to the wealthiest Americans.

Critics of proposed public investments – such as those to improve the nation's health, increase access to education, and address climate change – often base their opposition on affordability grounds. A financial transaction tax would offer a way to make a down payment on long-term investments in the nation's welfare that would be paid almost entirely by those who clearly can afford it.