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EFFECTS OF BAT ON LIFE INSURANCE AND ANNUITIES

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CONTENTS

EXECUTIVE SUMMARY

Reforming the federal tax code is long overdue, but comprehensive reform may have unintended consequences. Since Republicans in the House of Representatives released their "blueprint" for tax reform more than a year ago, details about how it would operate in practice have been sparse. The nebulous possibility that a border-adjustment tax system could be applied to cross-border purchases of insurance and other financial services is of particular concern.

This paper examines how such a tax would impact the availability and affordability of life insurance and annuity products within the United States. It finds that, should insurers be disallowed from deducting the cost of internationally sourced reinsurance, then under an assumed U.S. corporate income tax of 20 percent, the cost of life insurance over a 20-year period—the average term of a policy—would increase by $59 billion, while simultaneously driving down the amount of life insurance and annuity considerations sold by $24.6 billion over the same period.

This projection is derived by examining the impact a border-adjustment tax ("BAT") system would have on the supply of international reinsurance and calculating the effects that changes in price and availability would have on the nation's insurance market and its policyholders. Because more than a tenth of the life insurance and annuity premiums written by life insurers in the United States are ceded to international reinsurers, the market is particularly vulnerable to the impact of a BAT.

The effects of these market distortions will be unwelcome for Americans. Life insurance premiums will have to increase, an additional cost that will almost certainly be borne by individual consumers. Simultaneously, there will be a decline in investment in private life insurance products. The second order impacts associated with these market distortions will be dramatic, and will grow over time.

New affordability barriers will lead to an increase in the amount of public assistance needed to sustain the living standards of those who become unable to purchase private life and annuity products. This will lead to an expansion in various federal welfare programs and even to the obligations secured by the federal Pension Benefit Guaranty Corp. The decrease in premiums written also will have an undesirable impacts on general economic growth; the U.S. life insurance industry currently invests 75 percent of every new premium dollar in fixed-income debt markets.[1] Funding this debt is a vital component of long-term capital formation. Additionally, as a result of the fall in written premiums, state revenues also would fall, due largely to a decrease in the amount of gross premium tax collected. In other words, lower life insurance industry growth will limit both the availability and cost of capital to support U.S. economic growth.

The scale of these distortions would dwarf the capital generated by the tax cuts funded by applying a BAT system to

1. Robert McMenamin, "What do U.S. life insurers invest in?," *Chicago Fed Letter*, April 2013. https://www.chicagofed.org/publications/chicago-fed-letter/2013/april-309

internationally sourced insurance and reinsurance. The same is true for other similar proposals like a "partial" BAT, a reciprocal tax, territorial tax, a discriminatory tax on insurance affiliates or a minimum tax, insofar as each would constrict the ability of U.S. life insurers to access international capital.

Ultimately, if Congress moves forward with a BAT as part of its tax-reform package, it should note that developed nations that employ the conceptually similar value-added tax (VAT) system almost universally exempt financial services like reinsurance from the tax.

TAX REFORM AND THE BAT

More than 30 years after Congress last passed a major overhaul of the U.S. tax code, comprehensive tax reform is back on the agenda, thanks to unified Republican control of the White House and both chambers of Congress. However, Republicans' narrow two-vote edge in the U.S. Senate serves to constrain the sorts of permanent changes they would be able to make on a strictly party-line vote.

Senate rules require only 50 votes to pass legislation moved through the "budget reconciliation" process, which limits floor debate to 20 hours for budget measures. However, under the so-called "Byrd Rule"—named for the former majority leader—a reconciliation measure can be blocked on the floor if it either includes extraneous nonbudget provisions or if it would increase the size of the federal deficit in years subsequent to the 10-year congressional budget window. To waive such points of order requires 60 votes, similar to the rule to invoke cloture and cut off a filibuster.[2] Therefore, to achieve Republicans' longstanding goal of reducing the U.S. corporate income tax rate, which is among the highest in the world, would require a plan that either cuts spending or raises other taxes in ways that are deficit-neutral.

At the time of this writing, Republican leadership had yet to introduce tax-reform legislation in the 115th Congress. For its part, the White House has offered a one-page summary of its tax-reform plan that does not spell out many of the specific details of its approach.[3] Thus, given that tax legislation must originate in the House of Representatives, most early attention remains focused on the "Better Way" plan drafted by the House Republican Tax Reform Task Force.[4] Initially unveiled in June 2016, the proposal identified a series of problems with the existing code and offered solutions intended to broaden the base, lower rates, minimize taxes on savings and investment and make the corporate tax system more competitive internationally.

Among the plan's most notable changes is a proposed shift to a border-adjustment tax, which would eliminate taxes on foreign income earned by U.S. companies, while simultaneously removing U.S. firms' ability to write off the costs of goods and services sourced from abroad. The revenues raised by this shift—estimated to be roughly $1 trillion over a decade—would be used to lower the federal corporate tax rate from the current 35 percent to about 20 percent.[5]

The BAT often is compared to a value-added tax, or VAT, a system currently in place in roughly 160 countries around the world.[6] However, there are significant differences between the two. Most obviously, the former is a system for taxing corporate income, while the latter taxes consumption—specifically, the value added at each stage of production for both goods and services. One significant feature both the BAT and VAT do have in common is that both have the effect of taxing imports, but not exports.

However, the overwhelming majority of countries that maintain a VAT—including all members of the European Union—exempt insurance and other financial services. This is due largely to the inherent difficulty in calculating the portion of interest income or underwriting premium that actually constitutes "value added," separate from the risk-free interest rate and premium for risk of default (in banking) or the discounted present value of expected future benefits and any risk premium (in insurance).[7] Applying the VAT to financial services would thus overtax the sector in ways that discourage capital formation.

Under existing law, domestic insurance companies may deduct the cost of purchasing reinsurance—whether from a foreign or domestic source, and whether underwritten by an affiliated or unaffiliated reinsurer—as a legitimate business expense. Reinsurance is the primary tool that insurers use to manage their exposure to large risks. To counter the possibility that reinsurance transactions may be used for "income stripping" purposes, premiums ceded to jurisdictions deemed by the Treasury Department to be "tax-exempt

2. Gregory Koger, "8 questions about the Senate's Byrd Rule you were too embarrassed to ask," *Vox*, Oct. 28, 2015. http://www.vox.com/mischiefs-of-faction/2015/10/28/9603518/byrd-rule-planned-parenthood

3. White House, "2017 Tax Reform for Economic Growth and American Jobs," April 26, 2017. http://www.journalofaccountancy.com/content/dam/jofa/news/2017-tax-reform-for-economic-growth.jpg

4. House Republican Tax Reform Task Force, "A Better Way: Our Vision for a Confident America," June 24, 2016. http://abetterway.speaker.gov/_assets/pdf/ABetterWay-Tax-PolicyPaper.pdf

5. Kyle Pomerleau and Stephen J. Entin, "The House GOP's Destination-Based Cash Flow Tax, Explained," Tax Foundation, June 30, 2016. https://taxfoundation.org/house-gop-s-destination-based-cash-flow-tax-explained/

6. U.S. Government Accountability Office, "Value-Added Taxes: Lessons Learned from Other Countries on Compliance Risks, Administrative Costs, Compliance Burden, and Transition," April 2008. http://www.gao.gov/assets/280/274387.pdf

7. Peter R. Merrill, "VAT treatment of the financial sector," *Tax Analysts*, p. 163-185, 2011. http://www.taxanalysts.com/www/freefiles.nsf/Files/MERRILL-13.pdf/$file/MERRILL-13.pdf

countries" are subject to a 4 percent federal excise tax for insurance premiums and a 1 percent excise tax for reinsurance premiums. In addition, both the Internal Revenue Service and state insurance commissioners have authority to unwind reinsurance transactions judged not to constitute legitimate risk transfers.

In several recent sessions of Congress, legislation has been introduced that would limit domestic insurers' ability to expense the cost of reinsurance ceded to offshore affiliates.[8] Should a BAT be applied to international insurance transactions, it would go further still. Domestic insurance companies would only be permitted to deduct the cost of reinsurance purchased from a reinsurer domiciled in the United States, while deductions for reinsurance purchased from foreign reinsurers—whether affiliated or unaffiliated—would be disallowed entirely.

The "Better Way" plan did not clarify whether House Republicans intend their BAT proposal to apply to international financial services transactions. Recent reporting suggests House Ways and Means Committee Chairman Kevin Brady, R-Texas, is preparing a proposal that would phase in a BAT over five years, with "targeted rules for the financial services, insurance, communications and digital-services industries."[9] However, there is not, at the time of this publication, any public clarity on what the targeted rules for insurance and financial services might entail.

Were Congress to adopt a BAT that includes insurance and financial services, it would make the United States a global aberration. In fact, among major nations, only China currently applies a VAT to cross-border reinsurance transactions, excluding long-term life and health insurance. It also is important to note that, while China's reinsurance market is growing, it remains small, at a mere $35 billion in 2013.[10] [11] Should Congress implement a BAT system that applies to the import of insurance and reinsurance, the effects would be particularly acute on life insurance and annuity products.

SOCIAL BENEFITS OF LIFE INSURANCE

Life insurers help consumers mitigate the risks both of premature death and of unexpected longevity. For an individual family, either can be destructive. In the case of premature death, a person working and earning income may leave dependents without adequate resources should he or she die without coverage.

Longevity presents its own financial challenges. A person who has retired or been rendered permanently disabled may outlive his or her retirement savings and be forced to turn to public or private assistance. To manage these risks, insurers offer life insurance products to mitigate the financial impact of a premature death and annuity products to manage the potentially ruinous impact of an unexpectedly long life.

The consumer-facing benefits of life insurance and annuities are clear, but both also benefit society in varied and unexpected ways.

Economic impact/taxpayer relief

In addition to the consumer benefits of life insurance, the life insurance industry supports economic activity and reduces taxpayer burdens for social safety-net programs.

In 2016, life insurers held $3.9 trillion in invested assets, of which 88 percent were composed of debt securities and loans. Like other financial services firms, life insurers seek to balance the durations of their liabilities and assets to mitigate exposure to interest rate risk. However, life insurers are unusual in the length of time covered by their liabilities. For example, a term-life policy frequently may be in force for more than 20 years. This creates private demand for long-term debt that likely would not otherwise exist. In effect, this process efficiently transforms individual savings into large-scale economic commerce.

Several studies show that the life insurance industry drives economic growth. For example, economist Marco Arena[12] finds a significant causal relationship between life insurer market activity and economic growth. In his model, a 1.0 percentage point increase in the ratio of life insurance premiums to gross domestic product leads to a 0.15 percentage point increase in the rate of real GDP growth.

In 2016, life insurance premiums totaled just over $177 billion, while U.S. GDP was $18.63 trillion. Therefore, each $6.7 billion increase in life insurance premium results in about $1 billion growth in GDP. Importantly, the converse is also true. Decreasing life insurance premiums by $6.7 billion would decrease GDP by about $1 billion.

8. U.S. Sen. Mark Warner, "Sen. Warner, Rep. Neal Introduce Legislation to Close Foreign Reinsurance Tax Loophole," Sept. 28, 2016. http://www.warner.senate.gov/public/index.cfm/pressreleases?ContentRecord_id=03D45963-9516-48EE-841A-142049D8FA4A

9. Richard Rubin, "GOP Lawmaker Floats 5-Year Phase-In of Border Adjustment Tax," *Wall Street Journal*, June 13, 2017. https://www.wsj.com/articles/gop-lawmaker-floats-5-year-phase-in-of-border-adjustment-tax-1497367997?mg=id-wsj

10. Ying Chen, "China Clarifies Reinsurance Status under VAT Regime," TMF Group, July 1, 2016. http://www.mondaq.com/china/x/505542/sales+taxes+VAT+GST/China+Clarifies+Reinsurance+Status+Under+VAT+Regime

11. InsuranceAsia News Staff, "China's reinsurance market to reach US$198bn by 2020," *InsuranceAsia News*, Aug. 25, 2016. http://insuranceasianews.com/topics/reinsurance/chinas-reinsurance-market-to-reach-us198bn-by-2020/

12. Marco Arena, "Does Insurance market Activity Promote Economic Growth? A Cross-Country Study for Industrialized and Developing Countries," *Journal of Risk and Insurance*, 75(4):921-946, December 2008.

Life insurers also provide substantial funding to national, state and local economies via taxes, investments and benefits. In 2016, life insurers paid $10.8 billion in taxes and fees to state and local governments. In addition, life insurance and annuity contracts provided $180 billion in benefits to policyholders, beneficiaries and annuitants.

Finally, life insurance and annuities prevent financial devastation for a large number of people each year. By keeping family incomes above the poverty threshold following a premature death, disability or retirement, government outlays for means-tested safety net benefits are reduced. Such benefit programs provide health care (Medicaid); nutrition assistance (SNAP); public housing; and family support (TANF). In 2014, the federal government spent about $470 billion on such programs.[13]

A 2016 report from the Brattle Group provided a rough estimate of government savings from life insurance benefits. Using data on the number of people near poverty, expected mortality, life insurance ownership and benefit levels, the authors estimate that life insurance alone reduces federal welfare expenses by about $900 million annually.[14] It stands to reason that benefits from annuities and disability insurance policies further reduce taxpayer expenses for these programs.

CAPITALIZATION IN THE U.S. LIFE INSURANCE INDUSTRY

Consumers are probably most familiar with the life insurers whose names are emblazoned on iconic skyscrapers, sports stadiums and even on the sides of blimps: MetLife, Prudential and John Hancock, to name a few. But in addition to these "primary" insurers, a crucial role in all insurance markets is played by lesser-known firms who offer reinsurance, often characterized as "insurance for insurance companies."

When a consumer buys a life insurance policy, they exchange a fixed premium payment for an uncertain loss. Because the outcome is uncertain, the insurance company must hold additional funds—above the amount of expected losses—to demonstrate financial strength. These additional funds are capital and surplus, generally referred to collectively as "surplus."

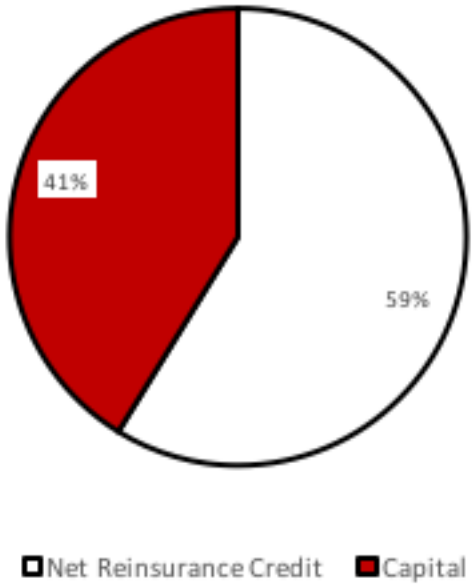
An insurer's surplus is equal to the difference between its assets and liabilities. All else being equal, an insurer's surplus will increase when its assets grow or its liabilities shrink.

An insurer can increase its assets by retaining earnings or issuing equity. It can decrease its liabilities by purchasing, or "ceding" reinsurance, which is why reinsurance is thought of "insurance for insurance companies."

In a reinsurance transaction, the primary insurance company pays a portion of its premiums to a reinsurer. In exchange, the reinsurer pays a portion of the primary insurer's losses. The amount of losses reinsurers expect to pay appear in a primary insurer's financial statements as credits for reinsurance. Reinsurance credits net of reinsurance premiums is a measure of capitalization provided by reinsurers.

Figure 1 compares capitalization provided by reinsurers to that of capital held by primary insurers. Aggregate data from the most recent decade reported show that 59 percent of U.S. life insurer capitalization is attributable to reinsurance, with the remaining 41 percent held by primary insurers. Simply put, the figure shows that, without reinsurance, the U.S. life insurance market would not function.

FIGURE I: CAPITALIZATION OF U.S. LIFE INSURANCE INDUSTRY, 2007 – 2016



SOURCE: NAIC Life Annual Statement Schedule F Part 7 via S&P Global Market Intelligence. Reserves ceded at the top-tier U.S. entity level. NAIC data are used with permission. NAIC does not endorse any analysis or conclusions based on use of its data.

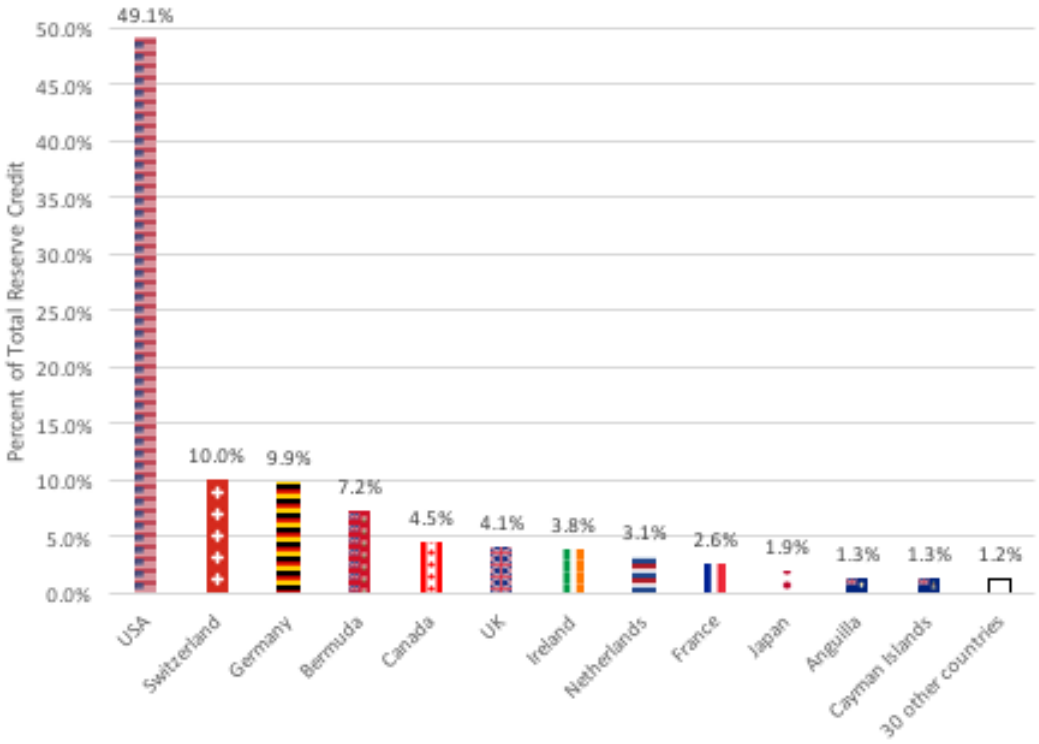
Role of international reinsurance

Insurers avail themselves of reinsurance to avoid the concentration of risk, to diversify their liabilities and to support their growth. To achieve these objectives, it is necessary for life insurers to have access to a large, competitive and well-capitalized global reinsurance market. Fortunately, the size

13. Office of Management and Budget

14. David Cummins, Michael Cragg, Bin Zhou and Jehan deFonseka, "The Social and Economic Contributions of the Life Insurance Industry," The Brattle Group, October 2016. http://www.brattle.com/system/publications/pdfs/000/005/361/original/The_Social_and_Economic_Contributions_of_the_Life_Insurance_Industry.pdf?1476193459

FIGURE 2: U.S. RESERVES CEDED BY COUNTRY OF REINSURER, 2007 – 2016



SOURCE: NAIC Life Annual Statement, Schedule S Part 3 Section 1 via S&P Global Market Intelligence. Reserves ceded at the top-tier U.S. entity level. Numbers adjusted for inflation before aggregating across years. NAIC data are used with permission. NAIC does not endorse any analysis or conclusions based on use of its data.

of that market is enormous and growing. In 2013, global reinsurance capital totaled $570 billion.[15]

The United States is particularly reliant on a competitive global reinsurance marketplace because of its disproportionately large demand for reinsurance (half of all global demand for reinsurance comes from the United States),[16] as well as the sheer size of the nation's life insurance market. As of 2015, roughly 60 percent of all Americans held some kind of life insurance.[17] In terms of capital, $635.6 billion of net premiums were written by the life and health insurance sector in 2015, composed primarily of life insurance and annuity products.[18]

As Figure 1 demonstrates, to enable the continued growth of that already large market, reinsurance is necessary. When a primary insurer buys reinsurance, it reports a reserve credit in its financial statements that represents the liabilities transferred to reinsurers. Regulators who monitor the life insurer's solvency can thus be satisfied that it is able to meet its claims-paying obligations when that risk is transferred to a reinsurer – be it domestic or international.

Figure 2 breaks out reserve credit for reinsurance by country of reinsurer from 2007 through 2016. Just under half (49.1 percent) is ceded to U.S. reinsurers, with the remaining 50.9 percent of reserve credits representing reinsurance ceded beyond U.S. borders. In the last decade, 335 U.S. primary life insurance entities ceded reinsurance to 2,403 distinct reinsurance entities domiciled in 43 countries.[19]

Given the global nature of reinsurance markets, a BAT would have significant effects on life insurance markets, primarily by shrinking the supply of capital available to U.S. life insurers. This is particularly significant, because life reinsurance contracts remain in effect as long as the life insurance policies they support. Therefore, existing life reinsurance contracts would create significant new costs to support policies

15. Federal Insurance Office, "The Breadth and Scope of the Global Reinsurance Market and the Critical Role Such Market Plays in Supporting Insurance in the United States," December 2014. https://www.treasury.gov/initiatives/fio/reports-and-notices/Documents/FIO%20-Reinsurance%20Report.pdf

16. Cummins, et al, 2016.

17. LIMRA, "2016 Insurance Barometer Study," April 5, 2016. http://www.limra.com/Posts/PR/News_Releases/2016_Insurance_Barometer_Study_Shows_an_Improving_Climate_for_Life_Insurance.aspx

18. Pulled from S&P via http://www.iii.org/fact-statistic/industry-overview

19. NAIC data reported by S&P *Global Market Intelligence*. NAIC data are used with permission. NAIC does not endorse any analysis or conclusions based on use of its data.

already in force. Some of this cost would be passed on to consumers, while the rest would result in reduced capital to support new policies.

Because life insurance is important to families, businesses and taxpayers, disrupting the flow of capital to support the life insurance industry would have far-reaching effects on the U.S. economy, and society as a whole. The following sections explain these effects and estimate some of the costs borne by each group.

EFFECTS OF A BAT ON LIFE INSURANCE CONSUMERS

A BAT would affect consumers directly by increasing the price of life insurance. There are two mechanisms by which a BAT would increase price. First, because life reinsurance contracts are long-term agreements, once a contract becomes effective, it cannot be canceled and replaced with a less expensive alternative without an economic loss. Therefore, premiums on existing contracts would incur increased taxes under a BAT. This increase in cost would increase the price of life insurance.

Second, a combination of increased tax costs for U.S. insurers and reduced expected earnings for non-U.S. reinsurers would reduce the amount of capital available to U.S. life insurers. Because capital is the primary measure of supply in insurance markets, the standard economic model suggests a decrease in capital would cause prices to increase. We discuss and estimate cost increases from both sources in turn.

Increased tax costs

In 2016, U.S. life insurers ceded premium to non-U.S. reinsurers on contracts with effective dates as early as 1950. Once a contract is entered into, it cannot be discharged without a failure of performance or consent by both parties to the agreement. Generally, these contracts are in force until the insurance company stops selling the underlying policies, and all policies supported by the reinsurance contract have matured, paid death benefits or been canceled or surrendered by the policyholder.

Based on the "Better Way" proposal, and under our assumed parameters of a BAT, premiums paid for existing non-U.S. reinsurance contracts would incur the equivalent of a 20 percent tax annually, because the cost of ceded premiums no longer could be deducted from the life insurer's corporate income. We estimate this cost by calculating the amount of recurring premium ceded to non-U.S. reinsurers in 2016.

Some policies are purchased with a single premium in the first year; therefore, reinsurance premiums supporting those contracts do not recur annually. Because it is not possible to identify all nonrecurring revenue in the most recent data year (2016), we substitute the average of the previous 10 years for amounts reported in 2016. This yields $53.6 billion in premium ceded to non-U.S. reinsurers, which is expected to repeat in future years. The product of premium ceded times the 20 percent tax rate equals an annual tax cost increase of $10.7 billion.

We expect this cost to be divided between insurers and policyholders. In many cases, insurers can change the effective price of an insurance policy. For example, they can reduce policyholder dividends for participating policies, or they can increase renewal premiums for policies as they reach the end of guaranteed pricing periods. To the extent that additional tax costs cannot be transferred directly to policyholders, they will reduce the supply of capital available to life insurers, thereby increasing price.

Decreased capitalization

In the insurance industry, supply is a function of capitalization. When an insurance company sells additional policies, it must also increase its surplus, cede more reinsurance or increase the probability of default.[20] Thus, the standard economic model suggests a decrease in capital (supply) will cause prices to increase.

In this section, we estimate a statistical model of the relation between capital and price.[21] Specifically, we want to predict how much price will change in response to a given change in capitalization. Following the work of David Cummins and Mary Weiss,[22] we measure the price of life insurance as premiums and interest income, less policy benefits, divided by policy benefits:

$$Price = \frac{Premium + Investment\ Return - Benefits - Policyholder\ Dividends}{Benefits + Policyholder\ Dividends}$$

We measure capitalization as the ratio of capital to total liabilities. We estimate the model separately for individual life insurance and group life insurance; therefore, we also control for the percentage of premium each company writes in each line of business.

20. Lawrence S. Powell, David W. Sommer and David L. Eckles, "The Role of Internal Capital Markets in Financial Intermediaries: Evidence from Insurer Groups," Journal of Risk and Insurance, v75n2:439-461, May 5, 2008. http://onlinelibrary.wiley.com/doi/10.1111/j.1539-6975.2008.00267.x/abstract

21. Please see the appendix for additional details of the statistical analysis. http://www.rstreet.org/wp-content/uploads/2017/06/life-insurance-appendix.pdf

22. David Cummins, Mary A. Weiss, Xiaoying Xie and Hongmin Zi, "Economies of Scope in Financial Services: A DEA Efficiency Analysis of the US Insurance Industry," *Journal of Banking and Finance*, April 2, 2010. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1583459

We fit the model to firm-level observations in the NAIC annual statement database from 2006 through 2015. Analysis yields the following relations:

$$\Delta Individual\ Price = -0.31 \times \Delta Capital$$

$$\Delta Group\ Price = -0.32 \times \Delta Capital$$

In other words, a 10 percent decrease in the capital ratio would coincide with a 3.1 percent increase in the price of individual life insurance, or a 3.2 percent increase in the price of group life insurance

For perspective, assume that the life insurance industry capital ratio decreased by 1 percent ($3.8 billion) from 2016 to 2017. We would expect consumers to pay approximately $162 million more each year for the same coverage.[23] Moreover, all things staying the same, this effect would persist until $3.8 billion of capital is returned to the industry.

Expected cost increase

We estimate the total expected cost of a BAT on life insurance consumers by combining the analyses in the two prior sections, while maintaining a conservative assumption that the increase in tax costs borne by life insurers is the only mechanism by which capital would leave the industry. We make this conservative assumption because, as mentioned above, though it is very likely that a considerable amount of capital would abandon the industry in search of stronger returns, it is not obvious how to predict the volume of such behavior. Additionally, we assume the increased tax cost from a BAT would be divided evenly between insurers and consumers.

Based on those conservative assumptions, our results suggest the initial direct price increase for consumers, as well as the amount of capital leaving the industry, would each be just under $5.4 billion per year. As policies lapse and/or pay out over time, this amount should decrease. For the sake of simplicity, we assume that the rate of decrease is a constant 5 percent of the initial cost each year. Because the average life insurance policy is in force for approximately 20 years, we believe this is an appropriate period for estimating economic impact. The combined effect, over a 20-year period, would be approximately $59 billion in additional cost.

Table 1 demonstrates this result by presenting the expected annual and total cost increase for consumers.

TABLE I: EFFECT OF BAT ON LIFE INSURANCE CONSUMERS

Year	Direct tax cost ($M)	Capital effect ($M)	Combined effect ($M)
2018	5,364.3	228.1	5,592.5
2019	5,096.1	216.7	5,312.8
2020	4,827.9	205.3	5,033.2
2021	4,559.7	193.9	4,753.6
2022	4,291.5	182.5	4,474.0
2023	4,023.2	171.1	4,194.3
2024	3,755.0	159.7	3,914.7
2025	3,486.8	148.3	3,635.1
2026	3,218.6	136.9	3,355.5
2027	2,950.4	125.5	3,075.9
2028	2,682.2	114.1	2,796.2
2029	2,413.9	102.7	2,516.6
2030	2,145.7	91.2	2,237.0
2031	1,877.5	79.8	1,957.4
2032	1,609.3	68.4	1,677.7
2033	1,341.1	57.0	1,398.1
2034	1,072.9	45.6	1,118.5
2035	804.6	34.2	838.9
2036	536.4	22.8	559.2
2037	268.2	11.4	279.6
TOTAL	56,325.5	2,395.4	58,720.9

SOURCE: Authors' calculations from NAIC data, as described above and in the appendix.

EFFECTS OF BAT ON PRODUCTION, BOND PURCHASE AND CAPITALIZATION

Given the benefits of life insurance and annuity products to consumers, taxpayers, and the economy described earlier, it is necessary to consider how a BAT would affect life insurance and annuity production. To discover that effect, we estimate the relation between capital and volume of life insurance and annuities deployed.

We follow a process similar to that employed for the expected cost increase, with the main difference being the dependent variable. In this case, we want to predict the effect of a change in capitalization on premium growth. We define growth as the change in total life insurance premiums and annuity considerations written. The primary independent variable is once again the change in the capitalization ratio. In addition, we control for the percentage of premium written in each line of business.[24]

23. See appendix for details.

24. Lines of business include individual life insurance, group life insurance, individual annuities and group annuities.

The distinction between this model of capital and output and our previous model of capital and price is important to note. While we expected, and found, a negative relation between capitalization and price (which coincides with an increase in premium charged for the same insurance protection), we also expected a positive relation between capitalization and total premium because, if capitalization decreases, total premium written will also decrease. These two expected results are consistent and logical. The former (price) is a measure of premium per-unit of exposure while the latter (output) is a measure of overall volume. Thus, the well-known supply-and-demand relationship holds in both cases.

Again, we fit the model to firm-level observations in the NAIC annual statement database from 2006 through 2015.[25] Analysis yields the following relation:

$$\Delta Premium\ Written = 0.33 \times \Delta Capital$$

If the ratio of capital to liabilities decreases by 10 percent, we expect a coinciding 3.3 percent decrease in overall production. Table 2 presents the expected effects of capital reduction caused by a BAT on overall output of life insurance and annuities. Over a 20-year period, we expect total life insurance premiums and annuity considerations to decrease by $24.6 billion.

Life insurer bond purchasing and capitalization

Among the important consequences of reduced output of the life insurance industry, the substantial decrease in long-term debt that would be purchased by life insurers stands out as problematic to prospects for economic growth. The 2016 Brattle report describes the life insurance industry's unique role as buyers of long-term debt issued both by government agencies and by private interests.[26] Indeed, a majority of commercial development projects are, via these instruments, funded by life insurance companies because of their need to match long-term liabilities with similar assets.

We estimate the relation between growth in life insurance premiums and long-term debt purchased by life insurance companies and find that, for every dollar in premium written, insurers purchase $0.75 of long-term debt. As a result, a $24.6 billion decrease in premium leads to an $18.4 billion decrease in long term debt available to fund both public and private projects.

TABLE 2: EFFECT OF BAT ON LIFE INSURANCE AND ANNUITY PRODUCTION

Year	Decrease in capital ($M)	Decrease in life insurance and annuities ($M)
2018	5,364.4	2,341.7
2019	5,096.1	2,224.7
2020	4,827.9	2,107.6
2021	4,559.7	1,990.5
2022	4,291.5	1,873.4
2023	4,023.2	1,756.3
2024	3,755.0	1,639.2
2025	3,486.8	1,522.1
2026	3,218.6	1,405.0
2027	2,950.4	1,288.0
2028	2,682.2	1,170.9
2029	2,413.9	1,053.8
2030	2,145.7	936.7
2031	1,877.5	819.6
2032	1,609.3	702.5
2033	1,341.1	585.4
2034	1,072.9	468.3
2035	804.6	351.3
2036	536.4	234.2
2037	268.2	117.1
Total	56,325.5	24,588.4

SOURCE: Authors' calculations from NAIC data as described above and in the appendix.

CONCLUSION

It is not yet clear if Congress will pursue structural changes to the U.S. tax code, or even a temporary tax cut that expires after 10 years. Both remain a political uncertainty. It also is uncertain whether the border-adjustment tax will be included in any final proposal.

Recent reporting has suggested that both White House economic adviser Gary Cohn and Treasury Secretary Steven Mnuchin oppose including the border-adjustment tax in any tax-reform plan.[27] Sen. Jon Cornyn, R-Texas, the Senate's second-highest-ranking Republican, recently was quoted as telling reporters that "with many people skeptical of how it would work, the border adjustment tax is probably dead."[28]

25. Please see the appendix for details of the statistical analysis.

26. Cummins, et al, 2016.

27. Laura Davison and Kaustuv Basu, "Cohn, Mnuchin Oppose Border Tax, Hatch Says," Bloomberg BNA, May 10, 2017. https://www.bna.com/cohn-mnuchin-oppose-n73014450723/

28. Jordain Carney, "Senate's No. 2 Republican: Border tax 'probably dead'," *The Hill*, April 27, 2017. http://thehill.com/blogs/floor-action/senate/330971-top-senate-gop-er-border-tax-probably-dead

Even so, Chairman Brady remains publicly committed to the need for a BAT.[29]

The merits and drawbacks of a border-adjustment tax more generally are beyond the scope of this analysis. But with time to ponder the consequences of what would be radical changes to the structure of the U.S. tax code, Congress should bear in mind how the border-adjustment tax proposal would affect insurance and reinsurance markets across the country and around the world.

Applying the BAT to reinsurance sourced from abroad by the U.S. life insurance industry would cause a $59 billion increase in the cost of insurance and reduce the amount of new life insurance and annuities sold by $24.6 billion over the next 20 years. As a result, financial planning products would become less widely available and people who otherwise would be capable of supporting themselves would be forced to avail themselves of public assistance.

Concretely, for consumers all across the country, the real effects of applying a BAT to insurance and reinsurance—or of imposing a reciprocal tax, territorial tax, discriminatory tax on affiliates or any other tax that would affect insurers' ability to use reinsurance to access capital globally—would be to make it harder and costlier to access the vital financial planning instruments that allow them to grow old and build their lives with confidence.

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Opinions expressed in this report are the author's and do not represent those of the University of Alabama.

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29. Colleen Murphy, "No Industry Carve-Outs in Border Adjustment Plan: Brady." Bloomberg BNA, June 9, 2017. https://www.bna.com/no-industry-carveouts-n73014453085/