



# **The Regressivity of a Tax on Consumer Interest Exceeding Fifteen Percent**

**John A. Spry**

Working Paper # 2010-OCBFINCWP-01

Copyright © 2010 by John A. Spry. All rights reserved.  
Do not quote or cite without permission from the author.

Working papers are in draft form. This working paper is distributed for purposes of comment and discussion only. Its contents should be considered to be preliminary and may not be reproduced without permission of the copyright holder.

## **The Regressivity of a Tax on Consumer Interest Exceeding Fifteen Percent**

John A. Spry  
Department of Finance  
Opus College of Business  
University of St. Thomas  
Mail #TMH 343  
1000 LaSalle Avenue  
Minneapolis, MN 55403-2005  
[jaspry@stthomas.edu](mailto:jaspry@stthomas.edu)

October 13, 2010

### **Abstract**

This note estimates the tax incidence of a proposed thirty percent surtax on consumer interest in excess of fifteen percent annually using data from the 2007 Survey of Consumer Finance. The burden of this tax falls on the 11.8% of households with unpaid balances on credit cards with interest rates over fifteen percent. The tax is highly regressive with a Suits Index of -0.40.

JEL codes: G21, G28, H22

Keywords: Consumer credit, credit cards, tax incidence

## 1. Introduction

The Minnesota Legislature twice passed legislation in 2009 that would create a permanent thirty percent surtax on consumer interest in excess of fifteen percent annually. “Any person or organization who conducts a trade or business subject to Federal Regulation Z, and who charges interest on the credit is subject to the surtax.”<sup>1</sup> This surtax did not become law because it was vetoed.

The vast majority of the revenue from this provision is expected to be collected on outstanding credit card balances. This tax would also apply to all other forms of consumer loans with interest rates about the fifteen percent threshold, including payday loans and loans at pawnshops. The Minnesota Department of Revenue estimates that this tax would raise \$103.2 million in FY 2012 and \$109.5 million in FY 2013, while noting “It is possible that some [of] the revenue may not be collected because some creditors may lack the necessary connections required by Minnesota nexus rules. Without nexus, taxpayers are not subject to the tax.”<sup>2</sup>

Historically, policy changes about credit card regulation in Minnesota have had important national implications. The 1978 *Marquette National Bank of Minneapolis* Supreme Court decision prohibited states from applying their interest rate ceilings to nationally chartered banks in other states. In the aftermath of *Marquette* credit card issuers located in states, like South Dakota and Delaware, without interest rate ceilings and credit card usage increased. This type of surtax on interest paid from consumer loans may be considered in other states dealing with their own budget challenges.

The tax incidence of this surtax has not been studied because it is a new proposal. Both legislators and the Governor considering this tax were uncertain about its effects. The Governor expressed concern about the unknown effects of this novel tax. The sponsor of the tax stated, “I don’t know what the consequences are going to be.”<sup>3</sup> A member of the Minnesota House Tax Committee, Rep. Diana Loffler, asked during the hearing on this proposal, “Has this been implemented anywhere else? Is this poor people who are dependent on those 15 percent loans, who are now going to pay 25 percent because we passed this?”<sup>4</sup>

---

<sup>1</sup> House File 2323 and House File 885 of the 2009-2010 Minnesota Legislative session as reported from the House-Senate Conference Committee on Taxes. The quote is from H.F. 2323’s Bill Summary. Regulation Z governs regulation of consumer credit by the Federal Reserve.

<sup>2</sup> Minnesota Department of Revenue. *Analysis of S.F. 508, As Proposed to be Amended*. [http://taxes.state.mn.us/legal\\_policy/Documents/revenue\\_analysis\\_2009\\_2010\\_senate\\_files\\_sf0507\\_hf0716\\_2.pdf](http://taxes.state.mn.us/legal_policy/Documents/revenue_analysis_2009_2010_senate_files_sf0507_hf0716_2.pdf)

<sup>3</sup> Audio recording of March 9, 2009 Minnesota House Tax Committee. At minute 17. <http://www.house.leg.state.mn.us/comm/minutes11s86.asp?comm=86103&id=1803>

<sup>4</sup> Audio recording of March 9, 2009 Minnesota House Tax Committee. At minute 16.

This surtax is a serious policy proposal since it twice won majority support in the Minnesota legislature. A better understanding of the tax incidence of this surtax on consumer interest would help policymakers and the public make more informed decisions about the merits of the proposed surtax. This note uses data from the 2007 Survey of Consumer Finance to estimate the tax incidence of the proposed surtax.

## 2. Tax Incidence

The burden of a tax is not the same as the statutory requirement to remit tax payments to the government. This principle of taxation is taught in every public finance book. The long-run risk-adjusted after-tax rate of return on loans in a small open economy is fixed by the larger national or even world capital markets. Loans outside of Minnesota, to business or government in Minnesota, and below the interest rate threshold are not subject to this surtax on consumer loans over fifteen percent. This results in a perfectly elastic supply of loanable funds to Minnesota consumers adjusting for risk in the long run. Creditors do not have to accept lower interest rates on loans to Minnesota consumers because the gross interest rate to the consumer can increase.

The impact of the 30% tax inclusive surtax on interest in excess of 15% is illustrated in Figure 1. If in the absence of the surtax, the annual interest rate would be 22%, the surtax would raise it to 25%. The 30% surtax would then apply to those ten percentage points, leaving the lender with an after-surtax return of 22 percent – the same as in the absence of the surtax. With a perfectly elastic supply of loanable funds to Minnesota adjusting for risk, the interest rate on loans currently charging more than fifteen percent would increase by  $\frac{3}{7}$  (or 42.86%) of the current interest in excess of fifteen percent.<sup>5</sup>

## 3. Data and Results

The 2007 Survey of Consumer Finance (SCF) data is ideally suited to analyze the tax incidence of this proposed 30% tax on interest earned in excess of 15% annually because this dataset contains information on household income, household credit card balances, and household credit card interest rates. The 2007 survey is the most recent available data containing the variables necessary to estimate the tax incidence of this surtax. The income measure used is self-reported household 2007 income from all sources.<sup>6</sup> Annual household tax payments

---

<sup>5</sup> The tax inclusive rate is  $t_i$ , so the tax-exclusive rate is  $t_e = \frac{t_i}{1-t_i} = \frac{3}{7} = 42.86\%$ .

<sup>6</sup> All values are in 2007 dollars.

are calculated as the tax exclusive rate multiplied by the interest rate on the credit card with the largest balance less the fifteen percent threshold then multiplied by total self-reported credit card balances.<sup>7</sup>

The results presented are based on the 2007 survey and could be different if the low interest rate and low inflation environment prevailing when the survey was conducted was replaced by higher rates and inflation, such as the interest rate environment of the early 1980s. In 1980 the prime interest rate for banks' most credit worthy customers exceeded 18%. In that high interest rate environment the fixed nominal fifteen percent threshold for the surtax in the Minnesota legislation would result in the surtax further increasing interest rates for all consumer loans including home mortgages, auto loans, and fixed term loans. The combination of this surtax and a high national interest rate environment would have significant negative effects on consumers' ability to finance the purchase of durable goods that could negatively affect general economic activity.

This analysis does not estimate the tax incidence of surtax applied to other consumer loans, such as payday and pawnshop loans. The Minnesota Department of Revenue estimated that these other loans would raise to only ten percent as much revenue as the surtax on credit card debt.

The analysis of the tax incidence of thirty percent surtax on consumer interest payments exceeding fifteen percent annually compares the distribution of household income with the distribution of surtax payments borne by households. These results are presented by both income decile and population decile. Analysis by income decile split households into ten groups with an equal amount of household income in each group. Results by population decile split households into ten groups with an equal number of households in each group. In both cases households are ordered by income.

Figures 2-4 and Table 1 present results by income decile. The regressivity of the surtax is show in Figure 2, which compares household income to tax payments as a percentage of income. Tax payments as a percent of income are highest for households in the lower income deciles. Tax payments as a percent of income generally decline with income. The tax payments of the three highest income deciles are minuscule compared to their income. On average tax payments are 0.0291% of income, but tax payments are 0.0597% of income in the first income decile.

---

<sup>7</sup> The SCF reports only the interest rate on the credit card with the largest balance. That rate is applied to all credit card balances. The SCF is a national survey that does provide state identification in its public use dataset. Therefore the national sample is used.

Figure 3 shows that a minority of households carry balances on credit cards with interest rates over fifteen percent annually. Only 11.8% of all households have balances on credit cards with interest rates exceeding 15%. About 17.5% of households in the 2<sup>nd</sup> through 4<sup>th</sup> income deciles have credit card balances at interest rates that are subject to the surtax. Under five percent of households in the three highest income deciles are subject to the surtax. Figure 4 shows tax payments as a percent of income for those households subject to the surtax. Since a small percentage of households would be subject to the surtax, the tax burden of those households subject to the surtax as a percent of their income is much higher than in Figure 1. Figure 4 shows that in the first income decile households subject to the surtax would pay 0.47% of their income in this tax payment. Tax payments conditional on positive tax liability are generally decreasing with income, with the notable exception of the seventh income decile. The average annual tax payment conditional on being subject to the surtax is \$164.07. The annual revenue potential of this surtax is \$19.36 per household, which is the product of the conditional annual tax payment and the 11.8% of households would bear the burden of the proposed surtax.<sup>8</sup>

The presentation of results by population decile is another way to display the same underlying data that provides more detail on the tax burden at the lower end of the income distribution. While income deciles have an equal amount of income in each group, population deciles have an equal number of households in each group. For example, the first income decile includes households from the first four population deciles in the 2007 SCF.

Figures 4-7 and Table 2 present results by population decile. These results generally look like the results presented by income decile, with higher tax burden as a share of income for low and middle income households compared to high income households. Figure 5 shows that tax payments as a percent of income are highest in the second population decile, where they are 0.10% of income. This is the highest surtax burden as a percent of income for any income classification. Figure 6 shows that a higher percentage of households in the middle population deciles would be directly affected by the surtax. Between 16.0% and 18.2% of households in the third through eighth population decile would be credit card balances at interest rates that would make them subject to the surtax. Figure 7 shows that conditional on being subject to the surtax, lower income households would have higher tax payments relative to their income. Households in the second population decile subject to the surtax would pay 1.00% of their income in surtax payments.

---

<sup>8</sup> This assumes that there is sufficient nexus that the taxing state is able to collect all of the tax.

The Lorenz Curve is yet another way to display tax incidence results. A Lorenz Curve graphs the relationship between cumulative proportion of income on the horizontal axis versus the cumulative proportion of tax payments on the vertical axis. Households are ordered by income on the horizontal axis of the Lorenz Curve. The Suits Index is a summary statistic of tax incidence based on the Lorenz Curve. Let  $L$  be the area under the Lorenz Curve and  $K$  be the area under the 45 degree line. The Suits Index,  $S$ , is  $S = 1 - \frac{L}{K}$ . A tax is regressive if the Suits Index is negative, with lower Suits Indices indicating greater tax regressivity. This occurs when the Lorenz Curve lies above and to the left of the 45 degree line. When the Lorenz Curve is below and to the right of the 45 degree line, the tax is progressive and the Suits Index is positive.

The Lorenz Curve for the 30% surtax on consumer interest payments over 15% annually is shown in Figure 8. The Lorenz Curve for the surtax lies well above the 45 degree line, showing the regressivity of the surtax. The lowest income decile pays just over twenty percent of total surtax payments. The two lowest income deciles pay 37.2% of total surtax payments. The five lowest income deciles have 50% of total income yet pay 81.7% of total surtax payments. The two highest income deciles account for 20% of total income and pay only 0.2% of total surtax payments.

The Suits Index for the thirty percent surtax on consumer interest payments is -0.40. This negative Suits Index shows that the proposed surtax would be highly regressive. Table 3 compares this proposed surtax to some other revenue sources in Minnesota. The proposed surtax would be one of the most regressive taxes in Minnesota. The proposed surtax on consumer interest above a 15% threshold would be more regressive than the state sales tax, state corporate income tax, and all Minnesota lottery games. It would be less regressive than the state cigarette and tobacco excise tax.

The surtax threshold of fifteen percent in the Minnesota legislation is somewhat arbitrary. There could be other thresholds considered for future tax legislation. Therefore, using the same methodology the Suits Index is computed for annual interest thresholds of 12%, 15%, 18%, 21%, 24%, 27%, and 30%. Changing the 15% annual interest rate threshold for the surtax on consumer interest payments changes the tax incidence of the surtax. Table 4 reports the Suits Indices as a function of the interest rate threshold between 12% and 30% annually. Increasing the interest rate threshold makes the surtax more regressive as shown by the more negative Suits Indices. A surtax on consumer interest above a 30% threshold would have a Suits Index of -0.62. This is a rather remarkably negative

value for the Suits Index. A surtax on consumer interest above thirty percent could be the most regressive tax in Minnesota.

#### **4. Conclusion**

Minnesota's proposed thirty percent surtax on consumer interest in excess of fifteen percent would create a highly regressive tax. Since the surtax is imposed only when consumers carry balances over fifteen percent, only the 11.8% of households with these loans would directly feel the burden of this surtax. Hopefully, this detailed information about the regressive tax incidence of this proposed Minnesota tax will be useful to policymakers considering the merits of such legislation in the future.



### References

Combs, Kathryn. L., Kim, Jaebom and Spry, John A. (2008) The Relative Regressivity of Seven Lottery Games, *Applied Economics*, 40 (1), 35 - 39.

Minnesota Department of Revenue. (2009) *2009 Minnesota Tax Incidence Study*.

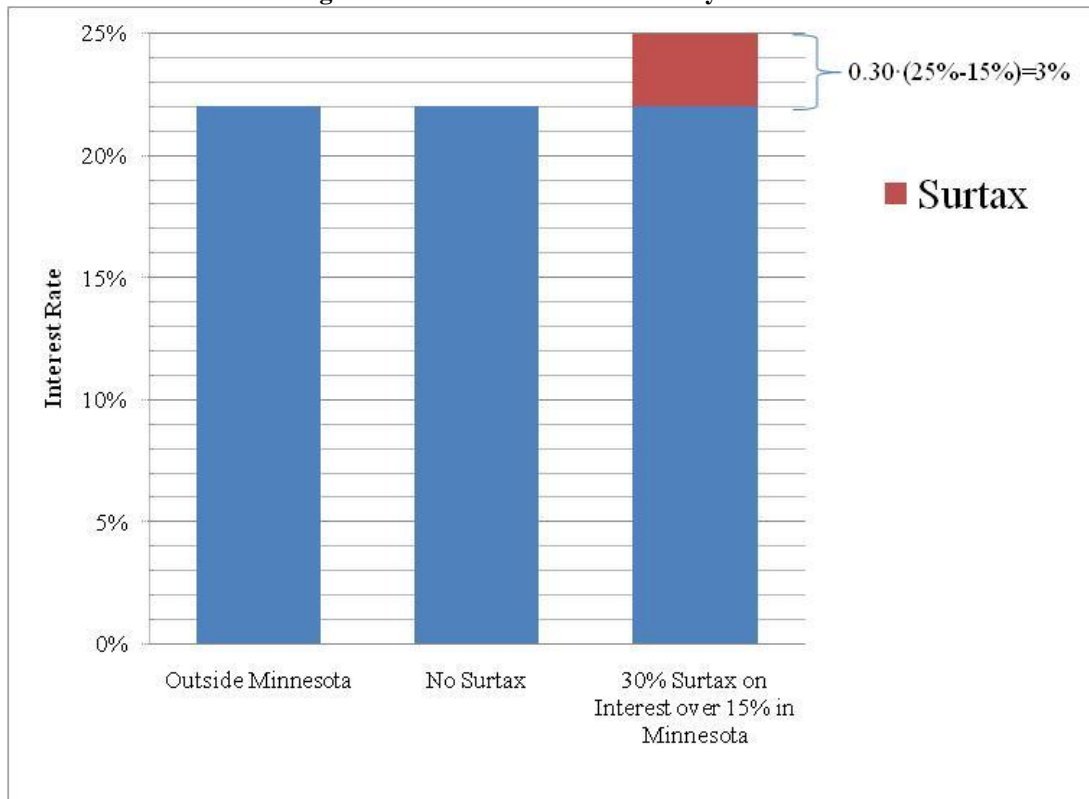
Minnesota Department of Revenue. (2009) *Analysis of S.F. 508, As Proposed to be Amended*.  
[http://taxes.state.mn.us/legal\\_policy/Documents/revenue\\_analysis\\_2009\\_2010\\_senate\\_files\\_sf0507\\_hf0716\\_2.pdf](http://taxes.state.mn.us/legal_policy/Documents/revenue_analysis_2009_2010_senate_files_sf0507_hf0716_2.pdf)

Minnesota House Research Department. (2009) *Bill Summary HF 2323 Conference Committee Report*.  
<http://www.house.leg.state.mn.us/hrd/bs/86/HF2323.html>

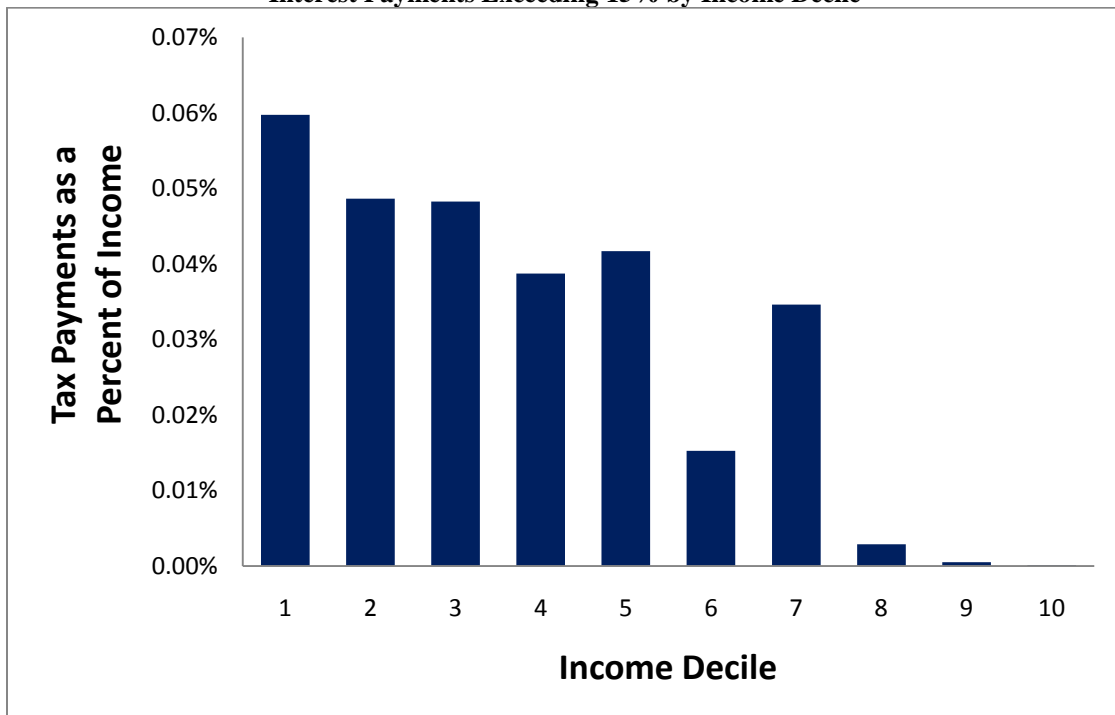
Minnesota House Tax Committee. (2009) Audio recording of March 9, 2009 Tax Committee Meeting.  
<http://www.house.leg.state.mn.us/comm/minutes11s86.asp?comm=86103&id=1803>

Suits, Daniel B. (1977) Measurement of tax progressivity, *American Economic Review*, 67(4), 747–752.

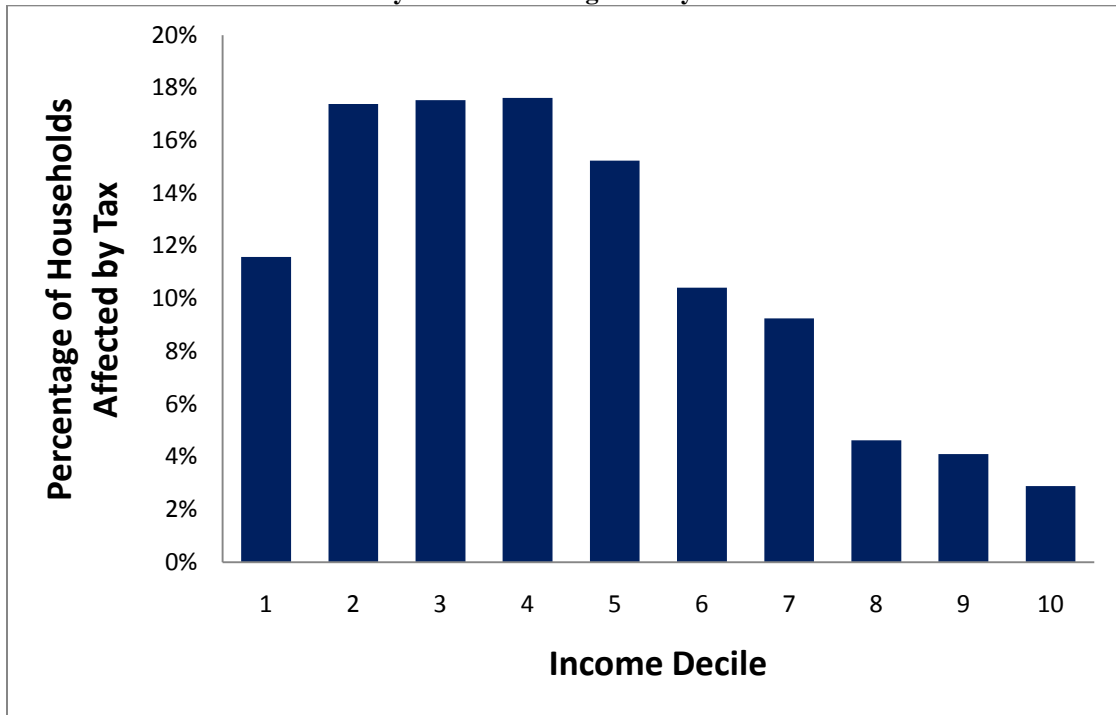
**Figure 1: Example of the Effects of a 30% Surtax on Consumer Interest Exceeding 15% on the Interest Rate Paid by the Consumer**



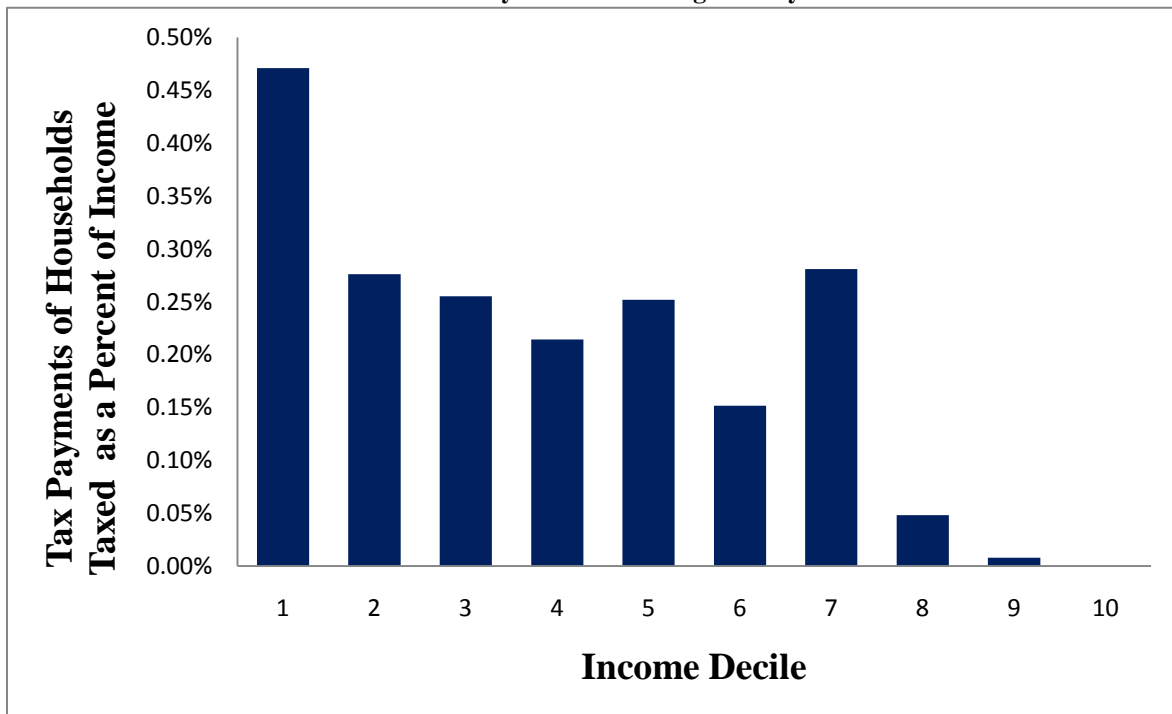
**Figure 2: Tax Payments as a Percent of Income for a 30% Surtax on Consumer Interest Payments Exceeding 15% by Income Decile**



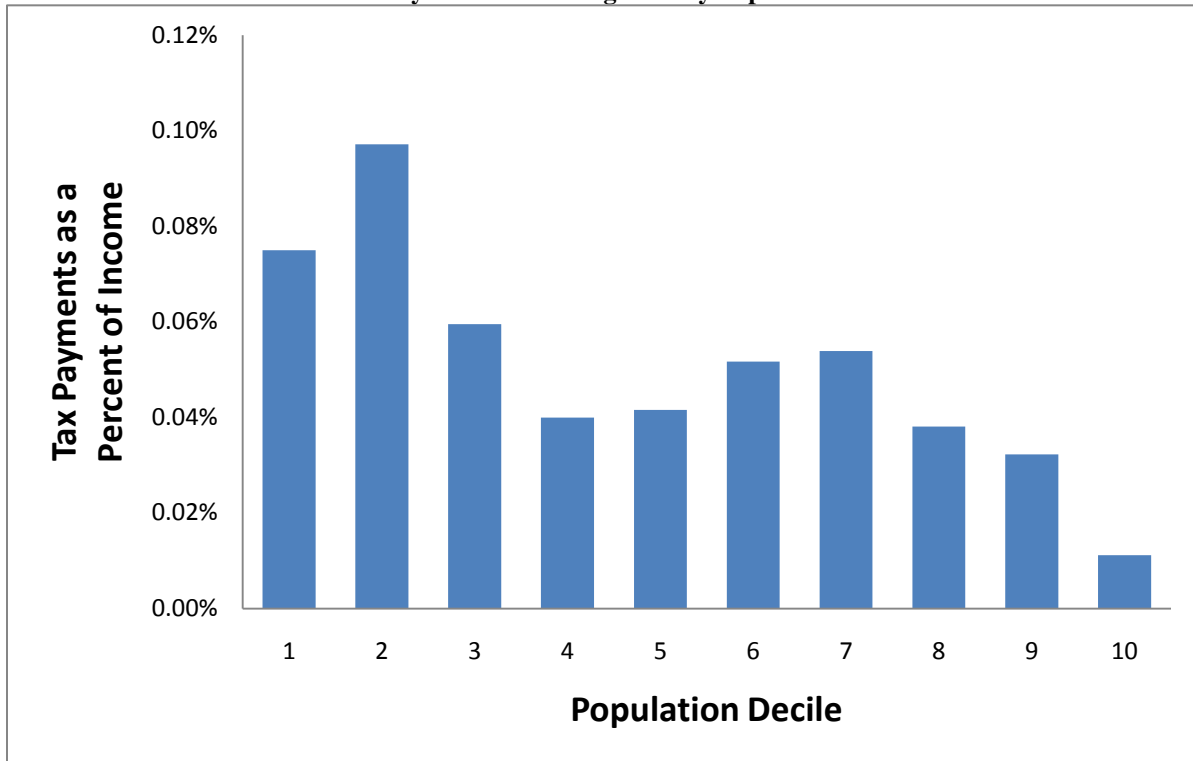
**Figure 3: Percentage of Households Subject to a 30% Surtax on Consumer Interest Payments Exceeding 15% by Income Decile**



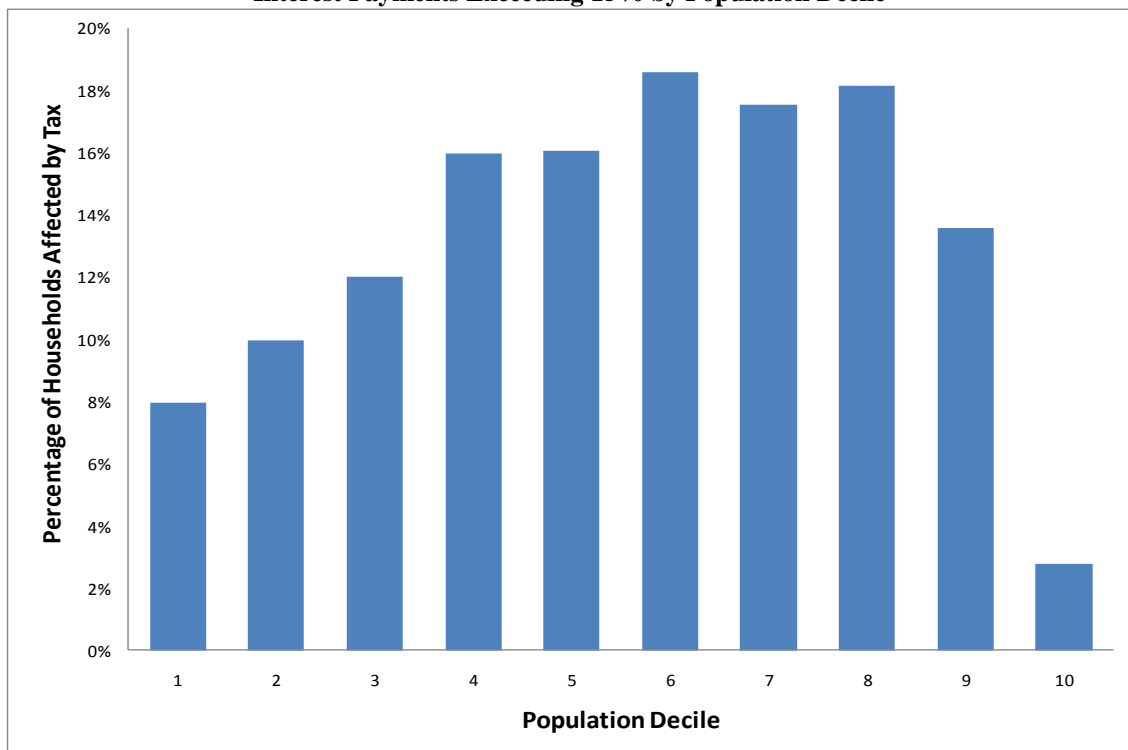
**Figure 4: Tax Payments of Households as a Percent of Income Conditional on being Taxed for a 30% Surtax on Consumer Interest Payments Exceeding 15% by Income Decile**



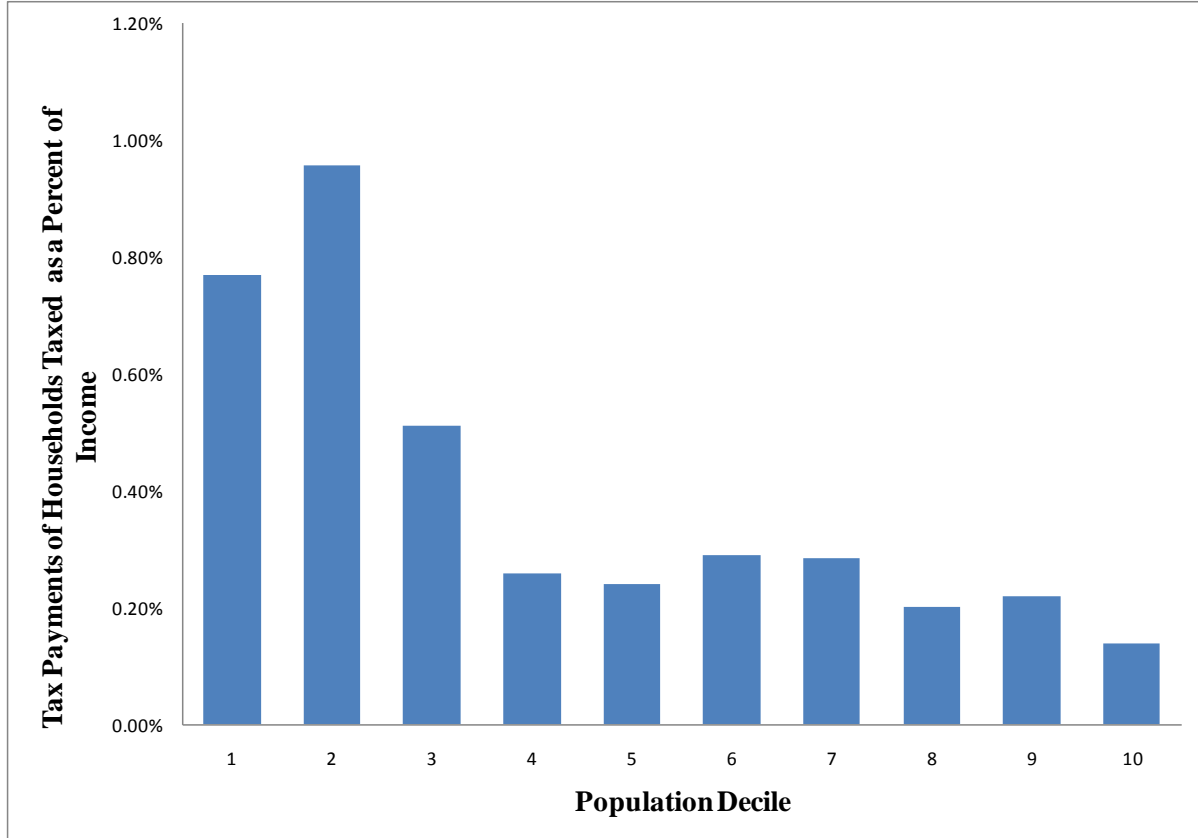
**Figure 5: Tax Payments as a Percent of Income for a 30% Surtax on Consumer Interest Payments Exceeding 15% by Population Decile**



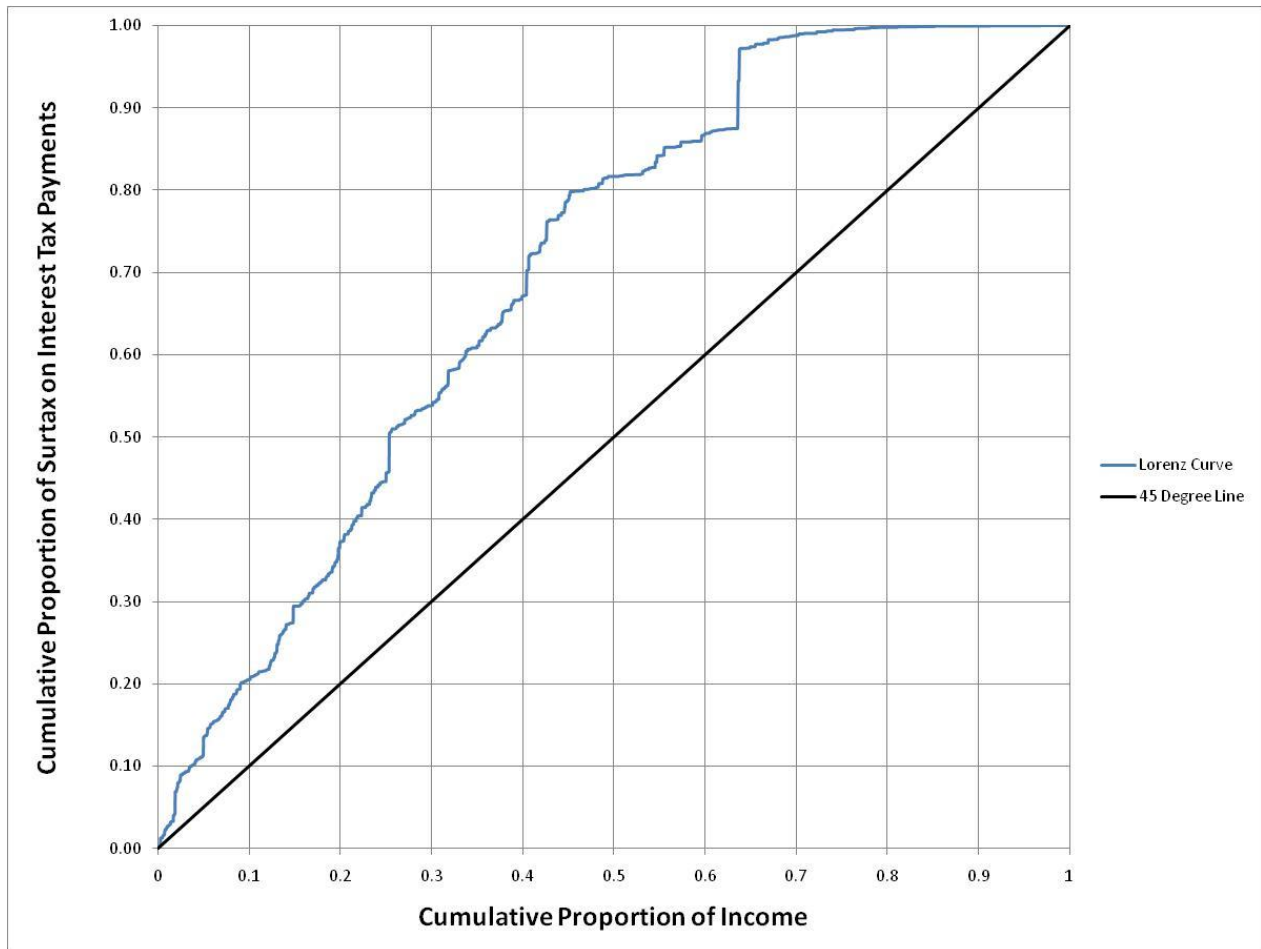
**Figure 6: Percentage of Households Subject to a 30% Surtax on Consumer Interest Payments Exceeding 15% by Population Decile**



**Figure 7: Tax Payments of Households as a Percent of Income Conditional on being Taxed for a 30% Surtax on Consumer Interest Payments Exceeding 15% by Population Decile**



**Figure 8: Lorenz Curve for 30% Surtax on Consumer Interest Payments Exceeding 15%**  
**Suits Index = -0.40**



**Table 1: The Distribution of a 30% Surtax on Consumer Interest Over 15% by Income Decile**

Income Decile	Income Range	Percentage of All Surtax Tax Payments	Surtax Payments as a Percent of Income	Percentage of Households Subject to Tax	Tax Payments as a Percent of Income Conditional on Being Subject to Surtax	Average Tax Payments Conditional on Being Subject to Surtax
First	\$ 36,000 & under	20.53%	0.0597%	11.6%	0.47%	\$ 103.48
Second	\$ 36,000 \$ 55,000	16.72%	0.0486%	17.4%	0.28%	\$ 125.82
Third	\$ 55,000 \$ 75,000	16.59%	0.0483%	17.5%	0.26%	\$ 164.91
Fourth	\$ 75,000 \$ 97,000	13.31%	0.0387%	17.6%	0.21%	\$ 180.31
Fifth	\$ 97,000 \$ 125,000	14.53%	0.0417%	15.2%	0.25%	\$ 269.75
Sixth	\$ 125,000 \$ 178,000	5.24%	0.0152%	10.4%	0.15%	\$ 223.20
Seventh	\$ 178,000 \$ 310,000	11.88%	0.0346%	9.3%	0.28%	\$ 614.20
Eighth	\$ 310,000 \$ 753,000	0.98%	0.0029%	4.6%	0.05%	\$ 212.83
Ninth	\$ 753,000 \$ 2,110,000	0.17%	0.0005%	4.1%	0.01%	\$ 78.19
Tenth	\$ 2,110,000 & over	0.04%	0.0001%	2.9%	0.00%	\$ 101.13
Entire Sample			0.0291%	11.8%	0.23%	\$ 164.07

**Table 2: The Distribution of a 30% Surtax on Consumer Interest Over 15% by Population Decile**

Population Decile	Income Range		Percentage of All Surtax Tax Payments	Surtax Payments as a Percent of Income	Percentage of Households Subject to Tax	Tax Payments as a Percent of Income Conditional on Being Subject to Surtax	Average Tax Payments Conditional on Being Subject to Surtax
First	\$ 12,000	& under	2.68%	0.0749%	8.0%	0.77%	\$ 75.35
Second	\$ 12,000	\$ 20,000	6.52%	0.0971%	10.0%	0.96%	\$ 148.20
Third	\$ 20,000	\$ 27,000	5.90%	0.0595%	12.0%	0.51%	\$ 121.15
Fourth	\$ 27,000	\$ 35,000	5.25%	0.0399%	16.0%	0.26%	\$ 79.44
Fifth	\$ 35,000	\$ 45,000	7.02%	0.0415%	16.1%	0.24%	\$ 97.40
Sixth	\$ 45,000	\$ 57,000	11.16%	0.0517%	18.6%	0.29%	\$ 148.46
Seventh	\$ 57,000	\$ 72,000	14.71%	0.0539%	17.5%	0.28%	\$ 183.38
Eighth	\$ 72,000	\$ 95,000	13.34%	0.0381%	18.2%	0.20%	\$ 165.17
Ninth	\$ 95,000	\$ 135,000	15.28%	0.0323%	13.6%	0.22%	\$ 242.72
Tenth	\$ 135,000	& over	18.12%	0.0112%	2.8%	0.14%	\$ 413.56
Entire Sample				0.0291%	11.8%	0.23%	\$ 164.07

**Table 3: Comparison of Suits Indices for Annual Tax Incidence**

Revenue Source	Suits Index	Source
Minnesota individual income tax	0.21	2009 Minnesota Tax Incidence Study (2006 full-sample value)
Powerball - Minnesota Lottery	-0.14	Combs, Kim, and Spry (2008)
Minnesota corporate income tax	-0.20	2009 Minnesota Tax Incidence Study (2006 full-sample value)
Daily 3 - Minnesota Lottery	-0.20	Combs, Kim, and Spry (2008)
Minnesota sales tax	-0.20	2009 Minnesota Tax Incidence Study (2006 full-sample value)
Scratch Games - Minnesota Lottery	-0.28	Combs, Kim, and Spry (2008)
<b><i>Surtax on Consumer Interest over 15%</i></b>	<b><i>-0.40</i></b>	
Minnesota cigarette and tobacco excise tax	-0.59	2009 Minnesota Tax Incidence Study (2006 full-sample value)

**Table 4: Suits Index for 30% Surcharge on Consumer Interest As a Function of the Surcharge Interest Rate Threshold**

Interest Rate Threshold	Suits Index
12%	-0.39
15%	-0.40
18%	-0.41
21%	-0.42
24%	-0.51
27%	-0.58
30%	-0.62