

VOTING ON TAX ISSUES IN MONTANA

(1986-1994)

by

Jiaping Zhu

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Science

in

Applied Economics

MONTANA STATE UNIVERSITY
Bozeman, Montana

May, 1995

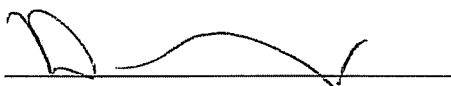
APPROVAL

of a thesis submitted by

Jiaping Zhu

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

Douglas J. Young


(Signature)

5-23-95
Date

Approved for the Economics Department

Clyde Greer


(Signature)

5-23-95
Date

Approved for the College of Graduate Studies

Robert Brown


(Signature)

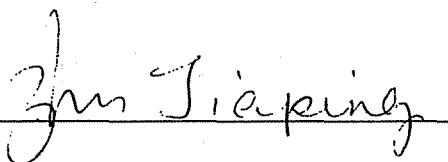
6/5/95
Date

STATEMENT OF PERMISSION TO USE

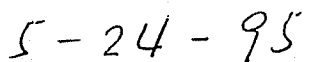
In presenting this thesis in partial fulfillment of the requirements for a master's degree at Montana State University-Bozeman, I agree that the Library shall make it available to borrowers under rules of the Library.

If I have indicated my intention to copyright this thesis by including a copyright notice page, copying is allowable only for scholarly purposes, consistent with "fair use" as prescribed in the U.S. Copyright Law. Requests for permission for extended quotation from or reproduction of this thesis in whole or in parts may be granted only by the copyright holder.

Signature

A handwritten signature in cursive script, appearing to read "Jim Tiapking", written over a horizontal line.

Date

A handwritten date "5-24-95" in a simple, blocky font, written over a horizontal line.

ACKNOWLEDGMENTS

The author gratefully acknowledges the help and guidance of Dr. Douglas Young. His abundant patience, understanding and encouragement added tremendous help to the completion of this thesis. I'd also like to express my thankfulness to my fellow graduate students for their friendship and the many hours of laughter they provided, making a most tough time more bright and colorful.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABSTRACT	ix
1. INTRODUCTION	1
2. THEORETICAL FOUNDATION	8
Tax Incidence and Burden Shifting	8
Property Tax Incidence	10
Income Tax Incidence	19
Sales Tax Incidence	26
Government Expenditure	31
Voting and the Median Voter Model	33
3. ECONOMETRIC SPECIFICATION AND DATA	35
Econometric Specification	35
Regression Model	35
Heteroskedasticity and Weighting	36
Cross Equation Correlation	37
Data and Specific Hypotheses	38
Dependent Variables	38
Independent Variables and Specific Hypotheses	40
4. EMPIRICAL RESULTS	51
Preliminary Results	51
Coefficient Transformations	51
Test for Weights	52

TABLE OF CONTENTS - Continued

	Page
Test for Equivalence for Mill Changes and Reappraisals	53
Disturbance Correlation	53
A Simple Model	54
A Complex Model	57
5. SUMMARY AND CONCLUSIONS	61
BIBLIOGRAPHY	64
APPENDICES	67

LIST OF TABLES

Table	Page
1. Standard Deductions for Different Groups under Old Law and HB671	6
2. Difference in Percentage Yes Vote to Proposition 13 between Public Employees and Others	33
3. Counties with Per Capita Tax Base Greater than \$10,000 in 1986 and 1990	44
4. Correlation between Education and Income	49
5. Coefficients and T-ratio Regressing Squared Residuals on Maddala Variance	53
6. Correlation of Disturbances	54
7. Regression Results on CI-27 and I-105	57
8. Low Income Coefficients	59

LIST OF FIGURES

Figure	Page
1. Effects of a Tax on Prices and Quantities	9
2. Inelastic Demand - Tax Borne by Consumer	11
3. Perfectly Elastic Supply - Tax Borne by Consumer	12
4. Inelastic Supply - Tax Borne by Producers	13
5. Perfectly Elastic Demand - Tax Borne by Producers	14
6. Short-run and Long-run Elasticity of Demand and Supply	16
7. Supply and Demand for Local Rental Housing	20
8. Demand and Supply of Labor in a State	21
9. Average Effective Tax Rate	24
10. Percent of No Liability	25

ABSTRACT

Montana citizens have used the initiative process to bring six taxation issues to the voters in the last nine years. Only two of these (I-105 and HB671) were confirmed by the electorate, all but one commanded substantial support. This study has focused on property taxes as potentially a root cause of voter dissatisfaction, even if it may sometimes be expressed as disapproval for other taxes, fees or spending.

The dominant relationship found here is between voting and reappraisals of residential property. Voters in counties where property values rose more quickly were significantly more likely to support all but one of the citizen initiatives, in comparison with voters in counties with lower rates of property appreciation.

In sharp contrast and somewhat unexpectedly, there is relatively little evidence that high property tax rates (mill levies) or rapidly increasing mill rates are significantly related to voting on tax issues. One explanation for these findings is that reappraisals are largely outside the control of both citizens and local officials, in contrast to mill levies. Thus, rapid property appreciation results in tax increases which have not been approved through the normal workings of the political process, resulting in citizen frustration and anger.

CHAPTER 1

INTRODUCTION

Beginning in the first half of the 1980's, Montana's economy suffered a dramatic reversal as agricultural and energy productions were curtailed by drought and low prices. In 1983, tax revenue from Montana's natural resources, notably coal, oil and gas, timber and hard rock mining, comprised 24% of the state's total tax revenue. But natural resources revenues declined from a high of \$346 million in 1982 to \$116 million in 1994 (in 1994 dollars). At the same time, state general fund expenditures were gradually increasing from the \$300 million level at the end of the seventies to the \$500 million level by the end of the eighties. It was clear that Montana was headed towards an expenditure-revenue crunch. It was against this backdrop that Montana's tax limitation proposals emerged.¹

The property tax has been the most important tax form in Montana. In 1984 it provided 47 percent of state tax revenues, compared to an average of 33 percent for the 50 states and 30 percent for the 11 western states. U.S. Department of Commerce ranked Montana 2nd in the 50 states in the property tax per \$1,000 personal income (USDC, 1985). Property tax was the main burden for Montana's public. Like California's Proposition 13, Montana's tax reform began with property tax limitation in November 1986.

¹ See Young, Weaver, and Mathre (1994) for a discussion.

This paper analyzes the voting results of Montana's 56 counties on eight tax proposals from 1986 to 1994 and the 1992 Presidential vote. I try to probe the reasons why citizens vote for or against different tax limitation proposals. Who will gain and who will lose? Understanding the causes of the "tax revolt" will provide clues as to where and how outreach educational efforts should be directed, as well as areas that should be addressed by government officials.

The rest of this chapter describes the issues on which citizens voted. In chapter 2, I analyze theoretical foundation. In chapter 3, I analyze econometric specifications and data. In chapter 4, I present empirical results. In chapter 5, I discuss the conclusion and briefly describe problems and future research.

Constitutional Initiative 27 (CI-27) This 1986 effort proposed to abolish all taxes on real and personal property. It also would have amended the constitution to require that a sales tax could not be imposed without voters' approval. Although California's Proposition 13 rolled back local property tax assessments and placed a ceiling on the tax rates to bind the behavior of local government, CI-27 would have gone further by eliminating the property tax altogether.

Property taxes have been the main sources of local government revenues. In Montana around 97 percent of property tax goes to local governments and school districts with the remaining 3 percent going to the state government. Elimination of the property tax undoubtedly would have limited the authority/autonomy of local governments, and would have exerted adverse influence on the quality of education and service provided by local governments.

Initiative 105 (I-105) One of only two successful tax reform initiatives to date, I-105 passed with 55 percent of the total vote in 1986. I-105 froze property taxes at the June 30, 1986 level. Additional amendments by the legislature made it more flexible: Government jurisdictions can increase property taxes which result from new construction and improvements to existing property, and local governments which had suffered a decline of 5 percent or more in tax bases can raise property tax rates for compensation. Because of the shut down of mining operations located mainly in Eastern Montana, nearly half of Montana's counties suffered a reduction of more than 15 percent in tax bases.

Since passage of I-105, 112 local ballot issues proposing to increase property taxes were presented to voters in various jurisdictions in Montana. Of these 112 issues, 93 were adopted by the voters. There is a seeming paradox here: The same people who voted for I-105 later approved tax increasing proposals to finance local government. Perhaps when people know where their tax dollars are spent, they are willing to pay the tax. To some extent local governments gain more trust from Montana's public than does state government.

Although I-105 passed in 1986, property taxes were not actually frozen. By 1990, many Montanans paid increased taxes because of upward reappraisals of their property, and because a new school equalization program increased mill levies.

Constitutional Initiative 55 (CI-55) Proponents of CI-55 advocated elimination of all income taxes, property taxes, sales taxes, registration and license fees. All government services in Montana would be paid by a "trade charge" levied on the gross value of every business and financial transaction.

According to proponents, a 1 percent "trade charge" would suffice to pay all government expenditures, and this meant a dramatic reduction in peoples' tax burden. There is an obvious dilemma here: If everyone's tax burden was to be reduced, how could total revenues suffice to pay all government expenditures? CI-55 was defeated with a margin of 28 to 72 percent.

Senate Bill 235 (SB235) In 1993, Montanans experienced the largest property tax increase in the state's history. Property taxes increased \$65 million, or 11 percent, over the 1992 levels. Rapid increases in property taxes and perceived shortages of revenue at the state level finally brought SB235. The main points of SB235 were to reduce income and property taxes, establish a sales tax, and increase total revenues.

1) Sales Tax:

- A 4% retail sales tax would be imposed on a broad base, excluding only a few items ranging from food, medical services, prescription drugs, utility bills, and real estate.

2) Property Tax Reduction:

- There would be a residential homestead exemption of \$20,000, which meant that the taxable value of a house would be reduced by \$20,000 for all households.
- Personal property taxes in business and agricultural machinery and equipment would be cut in half by reducing the taxable rate from 9 percent to 4.5 percent.

- Property tax mill levies for public schools would be reduced and state tax revenue would be used to eliminate property tax mill levies for teacher's retirement, public school transportation, and public school debt.

3) Income Tax Reduction

- SB235 would have eliminated the graduated income tax rate that ranged from 2 percent to 11 percent and replace it with a flat tax rate of 6 percent at all income levels.
- For poor people, sales tax credits would provide a compensation for the regressive nature of the sales tax.
- Renters would receive a \$150 credit per person in lieu of property tax relief.
- An itemized deduction would be eliminated and replaced with an increased standard deduction (\$5,000 for single and \$10,000 for a couple) and larger personal exemptions (from \$1,450 to \$3,500).

SB235 was defeated, 75 to 25 percent in June 1993.

House Bill 671 (HB671) In 1993, a number of changes to Montana's income taxes were passed by the legislature. These changes were subsequently suspended by a citizen petition (IR-112). The public vote on HB671 in November 1994 determined whether the tax changes would be permanently suspended or approved.

HB671 would have increased total revenues about 10 percent, or \$71 million, over the 1994-1995 biennium. Following are the main specific provisions of HB671:

- Under HB671, a single tax rate of 6.7 percent would replace graduated tax rates ranging from 2 percent to 11 percent.

- Personal exemptions would increase from \$1,400 to \$2,710.
- Standard deductions would be increased as follows

Table 1. Standard Deductions for Different Groups under Old Law and HB671

	Old Law	HB671
Single Filers	\$2,630	\$5,000
Head of Household	\$5,260	\$7,500
Married Couple	\$5,260	\$10,000

- Itemized deductions would be eliminated.
- Exemptions, standard deductions and two-earner deductions would be phased out between \$100,000 and \$180,000 of federal adjusted gross income.

HB671 was turned down by 76% of voters. Its defeat was the second victory for citizens using the initiative process.

Constitutional Initiatives 66 and 67 (CI-66 and CI-67) CI-66 would have required a public vote on any new or increased taxes imposed by state or local governments or school districts. Almost all state, county, municipal, and school taxes, and some fees would have been affected. CI-66 defined a property tax increase to be any increase in revenues beyond that resulting from new construction and improvement. Where property values were rising, either mill rates would have to be reduced or a vote of the people would be required.

CI-67 would have amended the Constitution to require that a two-thirds majority of the state legislature and similar super majorities of any local governing body be required to increase a state or local government budget, tax, or fee. It would have made it more difficult

for government to raise revenue since a minority of voters could block any proposal to increase revenues.

CI-66 and CI-67 tried to “ensure the reasonable restraint of growth of government.”

At the same time, reduced government spending would inevitably lead to reductions in public services. Both proposals were defeated, but almost half the voters voted for them.

Constitutional Amendment 28 (C-28) C-28 would have amended the Montana Constitution to allow property to be assessed for tax purposes at acquisition value rather than market value. Also, C-28 would have allowed the legislature to limit annual increases in the assessed value of property. The measure was passed by the state legislature and referred to the voters, but it was turned down by a 41 to 59 percent margin.

CHAPTER 2

THEORETICAL FOUNDATION

The person who writes the check may not be the person who really bears the burden of the tax. Taxes can be shifted forward or backward. Tax incidence studies the "ultimate" burden of the tax which occurs whenever a particular piece of tax comes to rest on the final payee.

To understand voters' behavior, we should distinguish who is the initial payee and who is the final victim. Does the tax burden shift? To whom will it shift? In this chapter, the incidence of major taxes will be explored. My purpose is to develop hypotheses about who would benefit or lose from the various measures on which citizens voted. I also consider who stood to gain or lose from changes on the expenditure side of the budget.

Tax Incidence and Burden Shifting

I begin my analysis by considering a competitive market. The basic principles of tax incidence may be illustrated by the demand-and-supply diagram (Figure 1).

Before tax, the equilibrium is at E_0 . A tax imposed on sellers shifts the supply curve up by the amount of tax. This lowers the quantity consumed and the net price suppliers receive, and raises the price consumers pay.

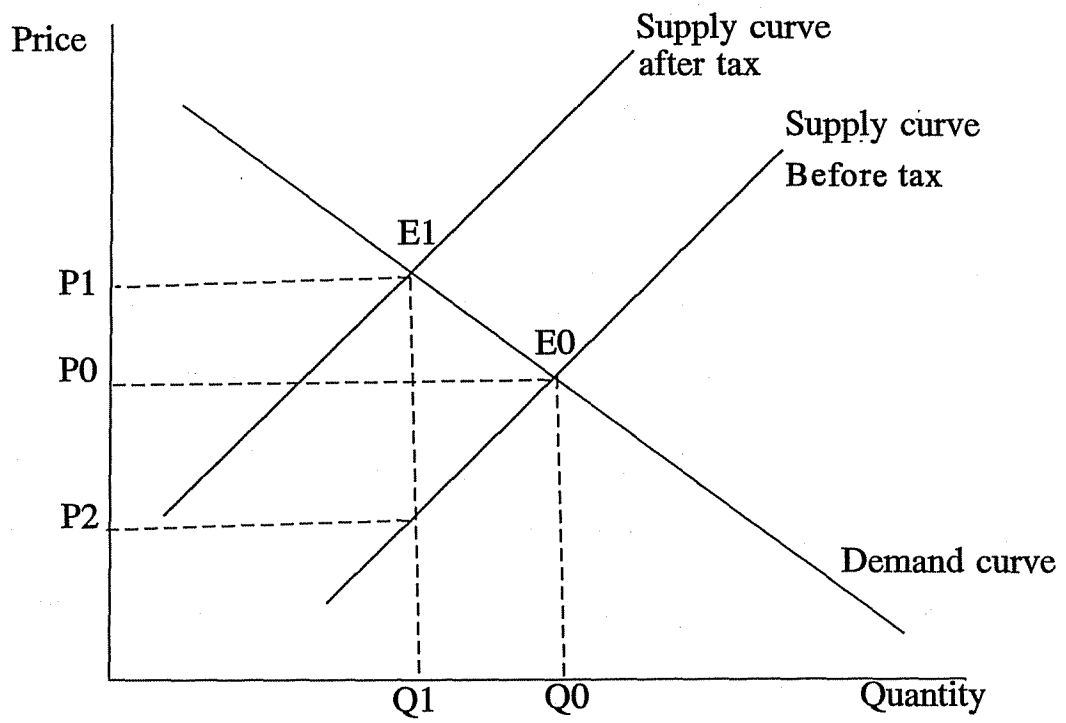


Figure 1 Effects of a Tax on Prices and Quantities

The extent to which consumers and producers bear the tax depends on the shapes of the demand and supply curves. Suppose the demand is completely inelastic, or the supply is completely elastic (Figures 2 and 3), then the entire burden is borne by consumers. On the other hand, when the supply is completely inelastic or demand is completely elastic (Figures 4 and 5), the tax burden will be borne by the producers.

In general, the side of a market which is relatively inelastic will bear the larger share of the burden. Those results also hold if a tax is imposed on buyers rather than sellers. That is, the incidence or burden of a tax is independent of the legal liability between buyers and sellers.

Property Tax Incidence

The incidence of property tax is a matter of some controversy. Although the debate is by no means settled, empirical and theoretical research suggest quite strongly that property tax differentials are capitalized into local property values (Aaron, 1975).

It is generally agreed that taxes on the value of bare land-the sites themselves exclusive of application of reproducible capital in the form of grazing, fertilizer, and the like - rest on the owners of the site at the time the tax is initially levied or increased. The tax cannot be shifted since the supply of land is perfectly inelastic (Figure 4). The land tax will be capitalized into a lower price. Conversely, a reduction in property taxes, such as that proposed in CI-27, I-105 and C-28, would be capitalized into higher land prices. Thus land owners would be beneficiaries.

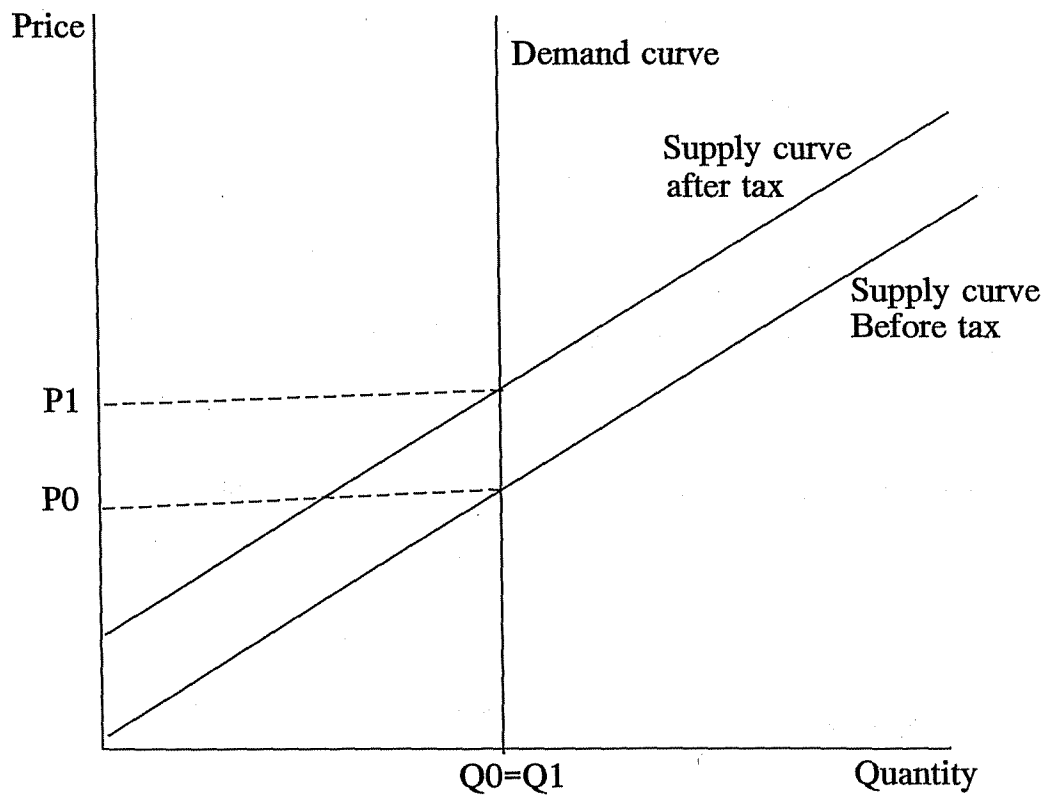
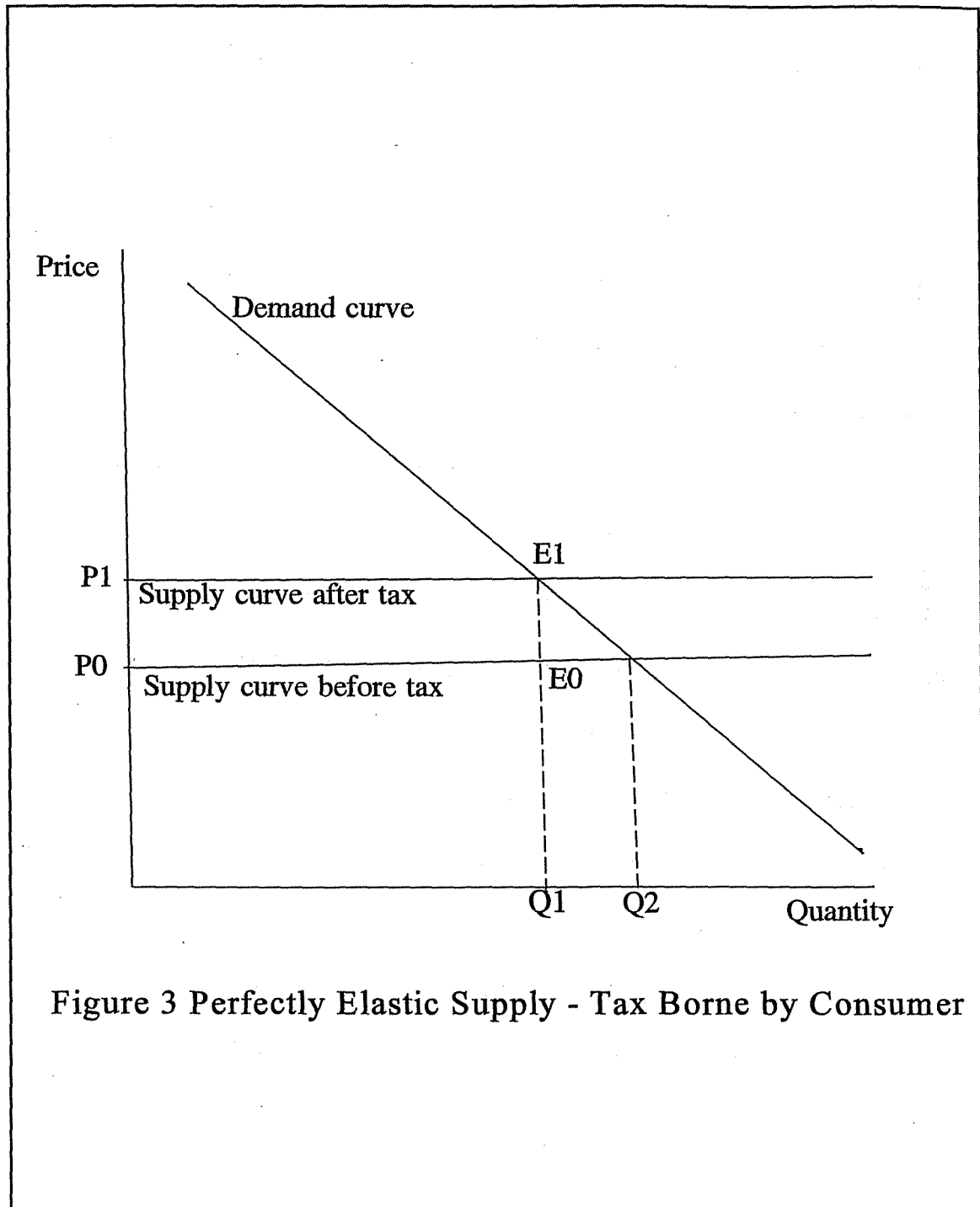


Figure 2 Inelastic Demand - Tax Borne by Consumer



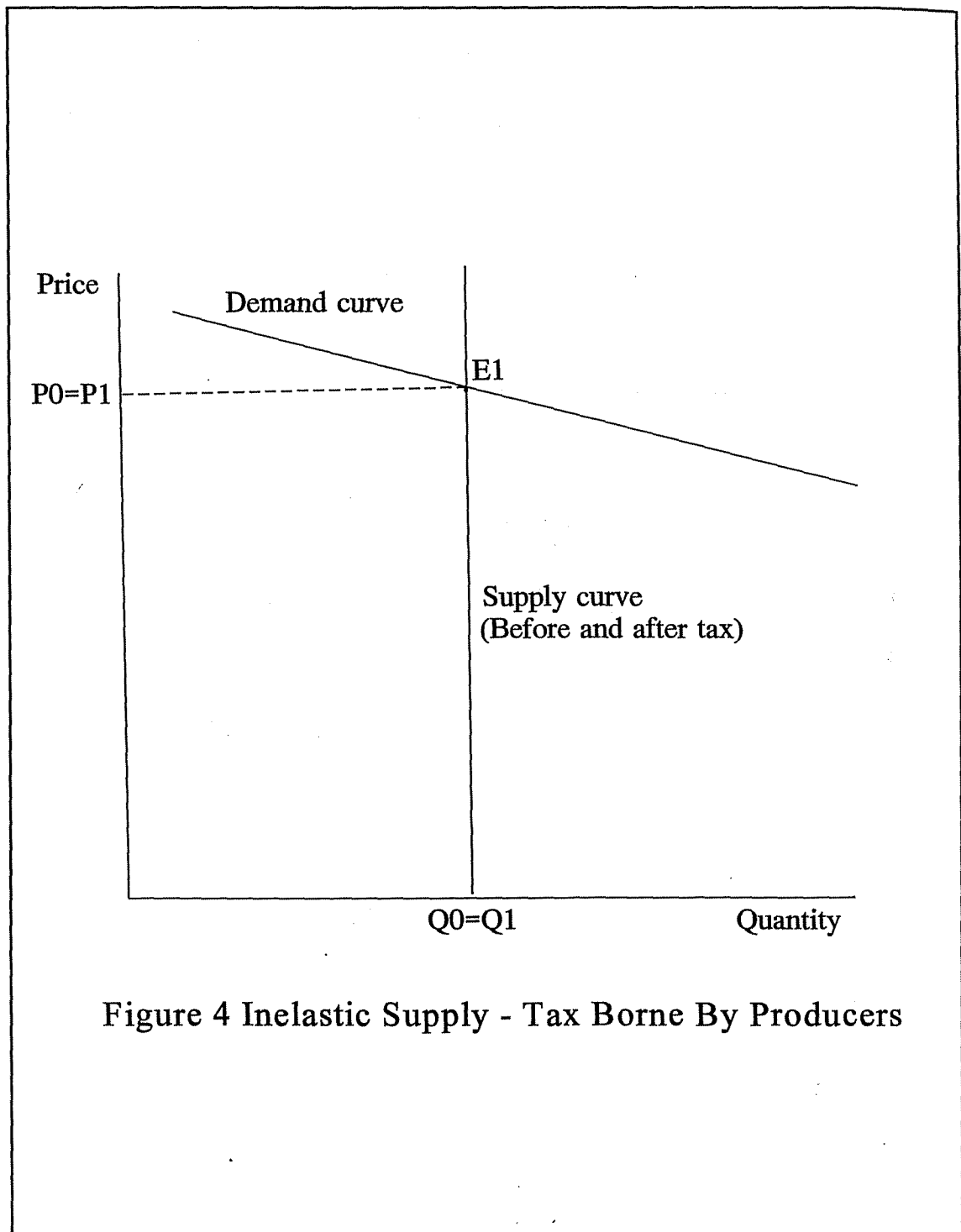
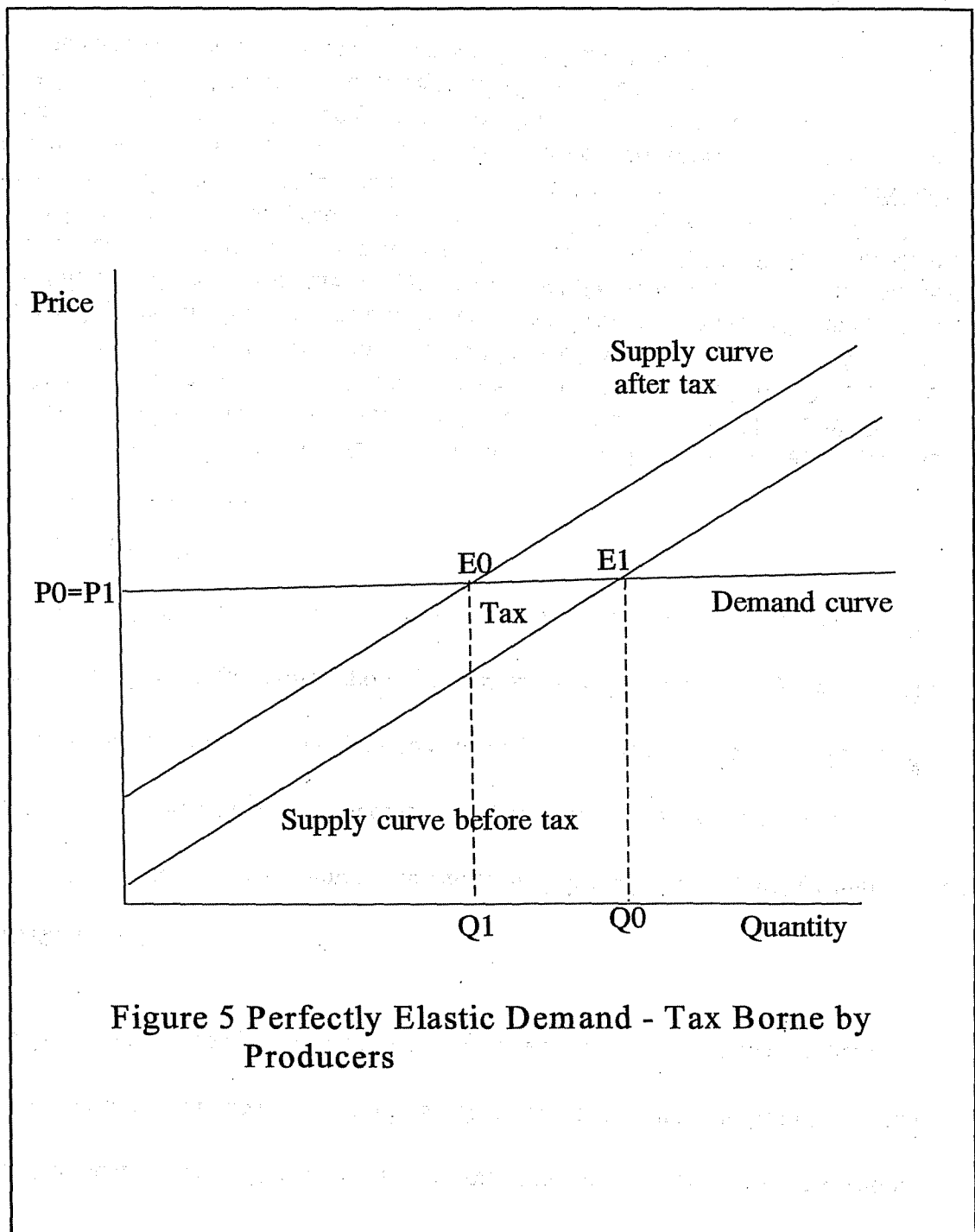


Figure 4 Inelastic Supply - Tax Borne By Producers



Analysis of the incidence of property taxes on structures differ from that on land primarily because the supply of structures is not regarded as fixed. According to the traditional view, any amount of capital for improvement in real property is available in the long-run at constant marginal cost determined by the productivity of capital in other uses. Although variability in the supply of structures is only partial in the short-run, users of real property eventually must pay property taxes on structures through higher sale prices or rents (imputed rents, in the case of owner-occupants). After sufficient time, an increase in property taxes will shrink the stock of structures, and force up their rental prices (Figure 6). This theory of tax incidence suggests that families bear property taxes in proportion to their purchase of goods and services produced by taxed structures. The tax on residential property will be borne by occupants (tenants, if it is a rental house).

In contrast, the new view suggests that a nationwide, uniform tax on the value of capital goods would be borne in full by owners of capital goods since they would be unable to avoid it either by shifting assets to untaxed sectors or by raising prices (above Figure 4). If property owners maximize their return, the price at which each producer of goods does so is unaffected by a universal tax on the value of the capital asset, based on the assumption that aggregate supplies of land and capital are fixed. As a result, the tax simply reduces the yield to each owner. The burden of such a tax would be distributed in proportion to the ownership of assets. Just as for land, then, the expected beneficiaries of reduced property would be owners of capital.

However, in reality, localities have vastly different levels of effective property tax rates. Differences in property tax rates give rise to so-called excise tax effects. Excise effects

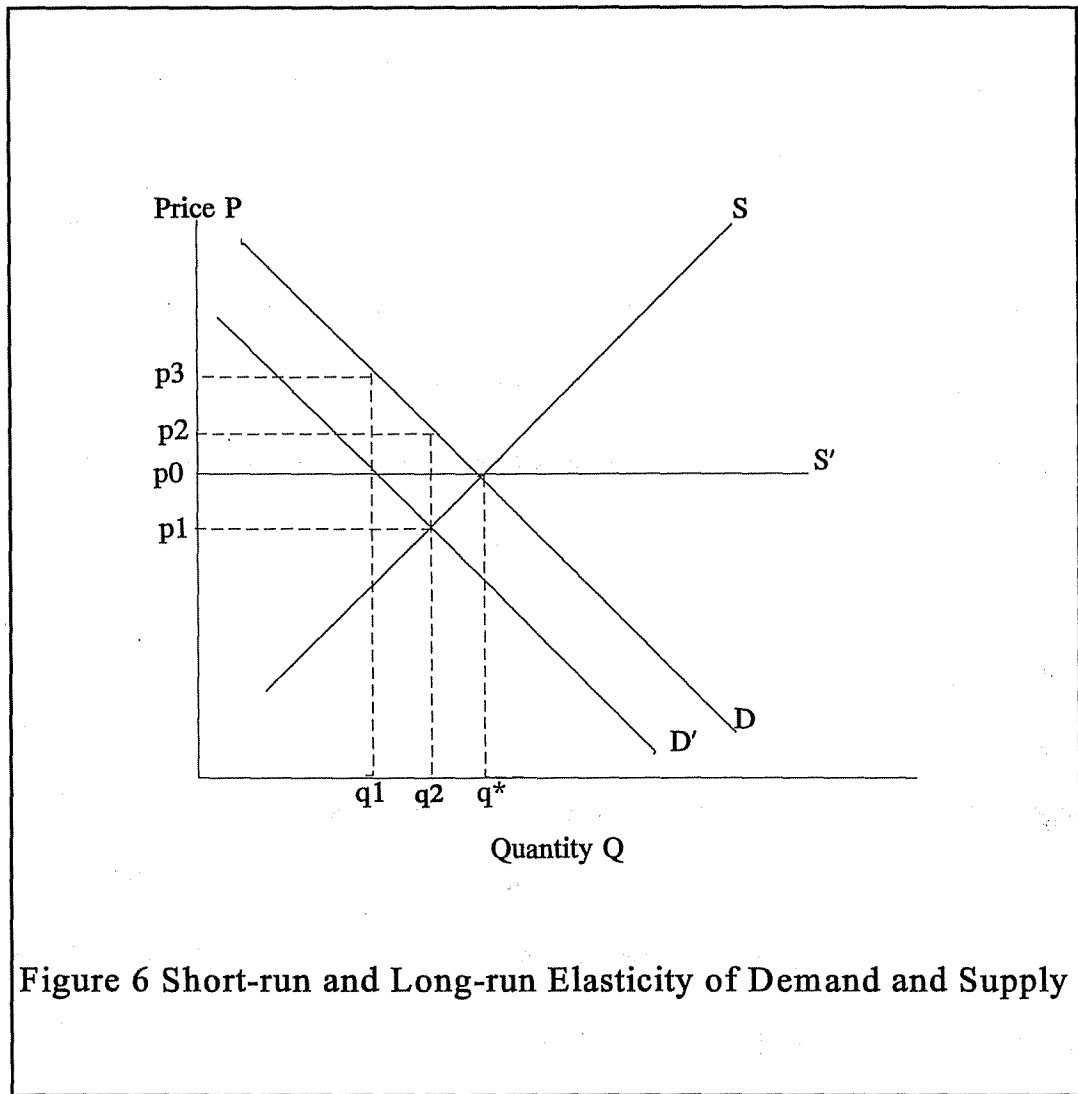


Figure 6 Short-run and Long-run Elasticity of Demand and Supply

The supply of the product varies with price along S in the short-run. The tax reduces demand from D to D' and causes prices received by suppliers to fall by p_0 to p_1 and that paid by demanders to rise by $p_2 - p_0$. The quantity demanded falls to q_2 in short-run. If, with the passage of time, the supply of the service or commodity is completely elastic - that is, none of the services or commodity will be supplied at a price permanently below p_0 and any amount demanded will be supplied at that price - demanders pay the tax in full through an increase in the price by the amount $p_3 - p_0$, and the quantity demanded declines to q_1 .

arise because variations in local tax rates produce variations in the cost of doing business among localities. The final resting place of property taxes that deviate from national average tax levels depend on the type of the market in which businesses operate. For a national market, relatively high or low property taxes cannot be passed onto consumers because local producers must take selling prices as given. For capital used in goods and services that compete mainly in local markets, immobile factors of production will bear the brunt of property tax deviations.

At the heart of all incidence analysis lies the assumption that taxes are borne by those who cannot avoid them. In the case of properties, this means that inter-jurisdiction deviations from national level will be borne by the various factors in the system in proportion to their relative immobility. Tray and Fernandez (1979) assume that: 1) except land, all other factors of production (capitals and labors/consumers) are sufficiently mobile to avoid property taxes; and 2) there are usually good substitutes for any given locality. From this they conclude that deviations in property taxes fall on land owners.

Benjamin and Kochin (1982) get the same result in a slightly different model. They assume that there are only two factors supplied—one is completely elastic (labor) and one is completely inelastic (land). Then maximization of the rents of the immobile factor requires that the taxes levied on the immobile factor exceed the cost of government services to provide it. The efficient government response to receipt of a windfall is to leave the taxes on mobile resources unchanged and the level and mixture of government expenditure unchanged.

Statistics readily support the notion that there is a great deal of movement into and out of localities among families in all income groups. Migration is the result of weighing the costs and benefits associated with alternative locations. Part of the cost of alternative locations is the tax rate and the prices of locally-produced goods and services. In a sense, localities compete for citizens. The competition affects the incidence of taxes on capital use in producing local goods and services.

If capital is mobile but people are not, the cost of local goods and services will be higher in higher property tax areas than in lower property tax areas. This is so because capitalists will demand a national net rate of return on their invested funds, and property taxes will be shifted to consumers and laborers in the form of higher prices. If, however, both capital and people are mobile, then migration flows will respond to the prices of goods and services. If competition for localities exists, conventional incidence theory tells us that the more elastic residential demand is for a particular community, or the less elastic the supply curve is for the community, the greater is the proportion of property tax deviations that will be born by factors used in production of that community. If demand is perfectly elastic, or supply is perfectly inelastic, then all property tax deviations will be borne by local factors of production in proportion to their relative immobility.

Referring to the capital gains resulting from business property tax reduction (based on Tray and Fernandez's assumption that within jurisdictions the price of the product and the wage rate of labor is fixed by the national market) no tax burden/benefit will be shifted forward to consumers or backward to laborers. Local owners of capital will bear all the results for the time being since capital is quite specialized and cannot readily move to other

industries immediately. In the long-run, economic profits attract more and more capital to enter, which will drive up the rent price and diminish economic rents to zero. Consistent with our previous analysis, all benefits will finally flow to the land owners.

As compared with other commodities, housing is a local good not subject to national competition. Within a jurisdiction, the supply of rental housing is quite inelastic in the short run. The majority of benefits from a reduction in residential property tax will fall on the house owner, while tenants only receive a small portion of the benefit (Figure 7). Homeowners would be expected to favor property tax reductions more than tenants, *ceteris paribus*.

Income Tax Incidence

Federal income taxes are believed to be borne by earners because they are universal and because the national supply of labor is assumed to be perfectly inelastic (Bogart, Bradford, and Williams, 1992) (see Figure 4 above). Neither of these conditions is likely to hold for state income taxes since some states have them and some do not, and the rates of taxation vary greatly among states. Further, the supply of labor to any single state is probably quite elastic.

How can state income taxes be allocated among income classes on an empirical basis? The answer lies in the supply and demand discussion. The more inelastic the demand of labor in a state, and the more elastic the supply of labor to that state, the greater will be the proportion of state income taxes borne by local residents (see Figure 8). In the limit, if demand is perfectly inelastic or supply is perfectly elastic, the inter-jurisdictional deviations

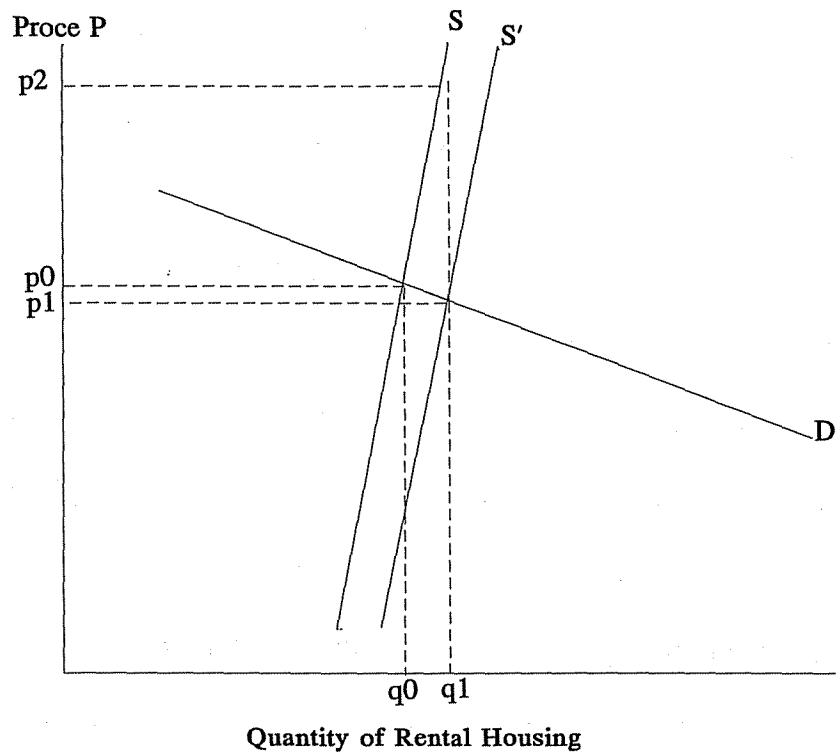
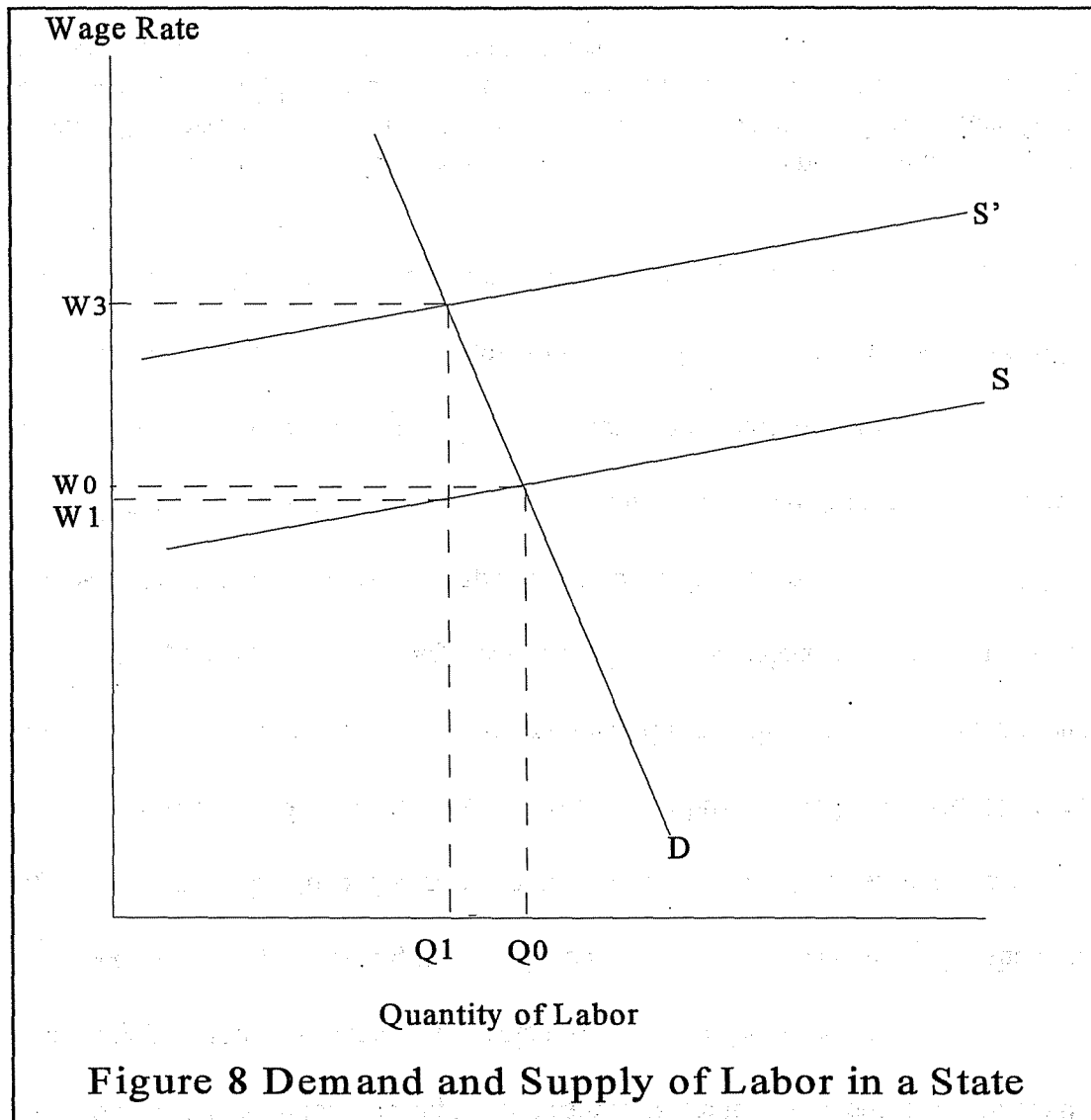


Figure 7 Supply and Demand for Local Rental Housing

Original equilibrium is at p_0 & q_0 . The reduction in residential property tax shifts out the supply curve to S' . p_1 is the price paid by tenants and p_2 is the price received by the house owner. $p_2 - p_1$ is the tax reduction amount.



of income tax from the national level will finally translate into changes in the rental value of sites, just as in the case of property tax differentials.

The above analysis implies that, in an open economy, taxes will be borne by relatively immobile factors. Which factors are mobile will depend to a large degree on the size of the unit in question: town, county, or state. The clearest case of an immobile factor is real estate (site). Here we treat sites as the immobile factor, and develop the distributional implications of the assumption that all gains and losses due to fiscal policy shifts are translated into changes in the rental value of sites. Therefore, an increase in the state income tax will not in the long-run affect the post-tax earnings from labor or capital of the people who live there. Rather, it will affect what they (or their employers) will pay for the right to occupy sites in the state and, therefore, what they will pay for real estate. Since we treat state land as a small economy open to a much larger economy with a well-functioning capital market, capital and labor-particularly high-skilled labor-are mobile at least at a significant margin, and will migrate on the basis of their compensation. Reduced income taxes will attract new investment and increased income taxes will drive away the high income group. Here labor and capital are supposed to be perfectly elastic (see Figure 3). The net productivity of Montana as a location will be capitalized into the rental value of its sites. Consistent with my previous analysis, the landowner will finally bear all the benefits or losses from income change. But it takes time for people to migrate in response to the income change. People may tend to vote based on their annual situation rather than their

permanent situation or long-run situation.² Regarding income taxes, the effective income tax rate would be a good criterion. For those whose tax rate is increasing, they would regard themselves being worse off. On the contrary, people with decreased income tax rate would be winners. Rational citizens' voting decisions can be predicted through immediate income tax change before and after tax.

Only two of Montana proposals were concerned with the income tax - HB671 and SB235. Both of them would have enlarged personal exemptions and standard deductions and replaced the graduated rate structure by a flat tax rate (see Appendix 1 for the comparison of HB671 and SB235). One significant difference between the two bills is that the total income tax collected would be reduced by \$50 million a year in SB235, while HB671 would increase total income tax collected by \$30 million a year.

Income taxes would have been reduced for all income groups under SB235 (see Appendix 2). Redistribution under HB671 is quite complicated. According to the data provided by Department of Revenue, I analyze effective tax rate changes of different income scales for the following five groups: Entire household, head of household, married couples filing jointly, married couples filing separately, and single filers (Appendix 3-1, 3-2, 3-3, 3-4, and 3-5 and Figures 9 and 10).

Before HB671, Montana had 313,000 households filing income returns in 1991. Forty-three thousand households owed no tax. Under the provisions of HB671, those who owed no tax would have increased to 106,000 households, or 1/3 of those filing tax returns

2.Fiorina Morris (1974) holds that "... in deciding what is the self-interested choice, people weigh heavily is the economic results of the recent past, presumably on the assumption that this at least is known whereas promises about the future are stains in the wind."

Figure 9 Average Effective Tax Rate

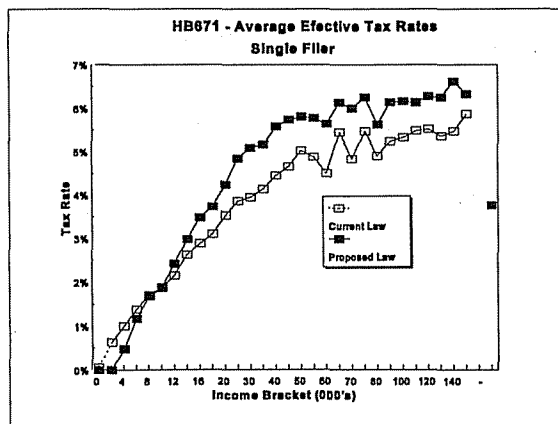
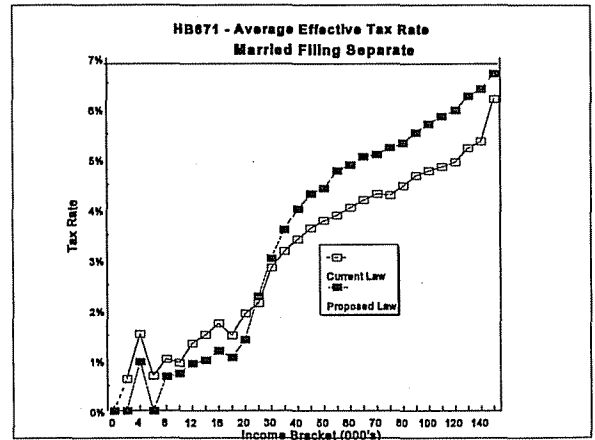
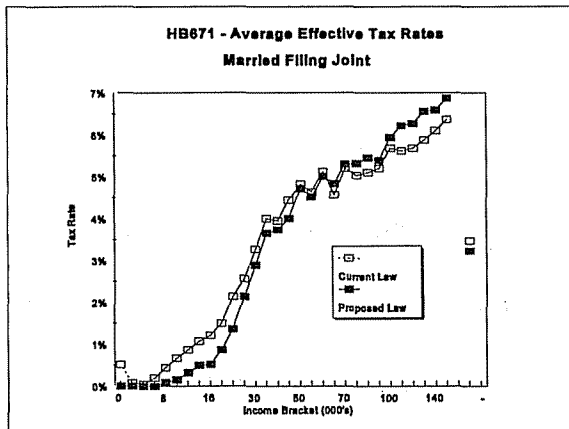
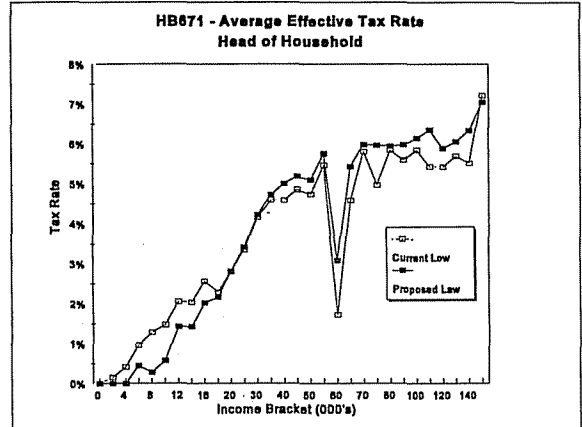
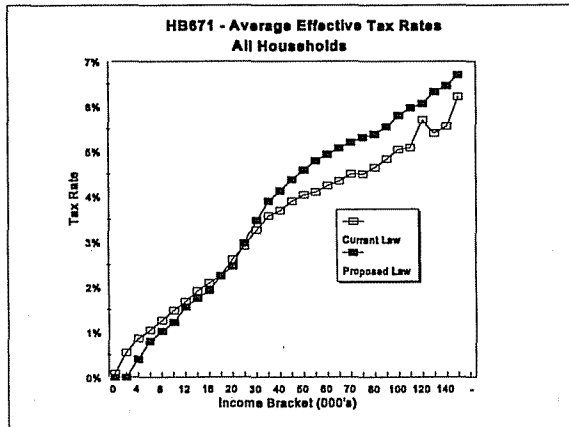
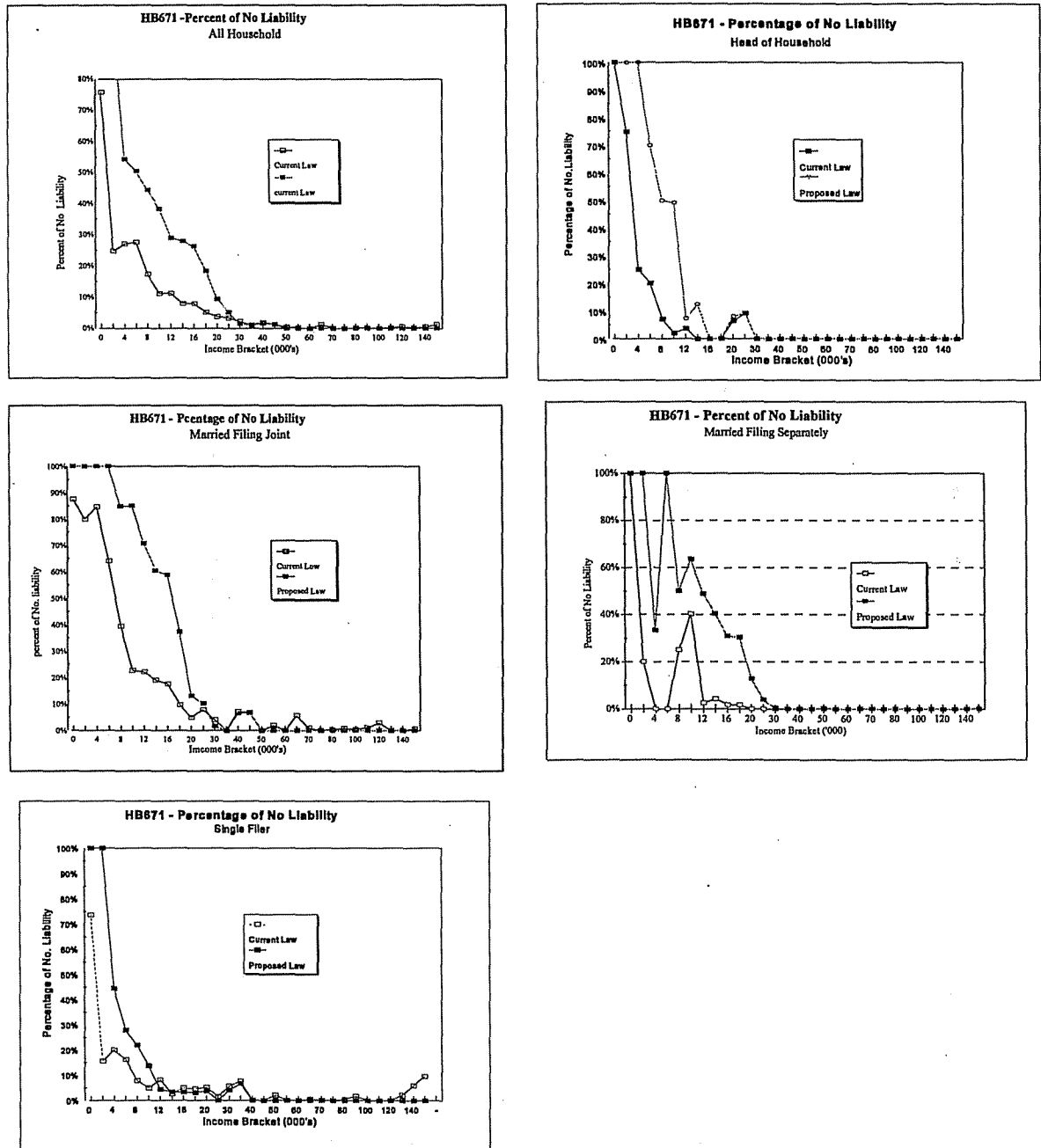


Figure 10 Percent of No Liability



(Montana Taxpayers Association, 1993). Thus an additional \$30 million in income tax would be collected from 63,000 fewer tax payers. In general, single taxpayers and families with two income earners would experience the largest tax increases. Under current law, 106,000 single filers pay \$55 million in taxes, for an average tax per return of \$519. HB671 would require 71,000 single taxpayers to contribute \$65 million, or an average tax per return of \$908. Overall, the average tax paid by Montanans who pay income taxes would increase from \$1,114 to \$1,656 per household (see Appendix 4).

In general, a larger percentage reduction in income tax liabilities of the lowest income decile would take place as many of those families would be removed from the income tax rolls completely. Indeed, the lowest income decile would have a net income tax refund instead of a net liability. The effective income tax rates on middle- and upper-income classes would be raised. Because income tax proposals treat the four groups differently (see Appendix 4), the switch point occurs differently in each group. Except single filers, whose switch point occurs at \$10,000 per person, income tax begins to increase with an annual income of around \$30,000 (see Figure 9). Low income households (those with incomes less than \$30,000) would be expected to vote for HB671, while higher income households would be expected to vote against it.

Sales Tax Incidence

Forty-five states currently levy a general sales tax, the exceptions being Alaska, Delaware, Montana, New Hampshire, and Oregon. Proponents argue that a sales tax is a stable revenue source in both inflationary and deflationary periods. Furthermore, it is easy

to collect and manage. The opponents hold that it is a regressive tax and heavy dependence on it will break the fairness of fiscal policy.

A general sales tax refers to a tax on commodities sold to consumers for final personal consumption, which is equal to a consumption tax. It can also be extended to tax intermediate commodities purchased by various business companies for further production.

The distributional effects of sales taxes are commonly determined by comparing the relative effects of a tax increase on families of different income levels (Rosen, 1995). Sometimes family consumption expenditures or a variant thereof is used as the basis of comparison, but income is the most commonly used measure of "ability to pay." If the tax increase causes a greater percentage increase in total expenditure relative to income for a low-income family than for a high-income family, the tax increase is regressive. If, on the other hand, the tax increase causes a greater percentage increase in total expenditure relative to income for a high-income family than for a low-income family, the tax increase is progressive.

Generally speaking, a general sales tax on consumer goods would be similar to a tax on all income with consumer expenditure = sales receipts = factor payment = income. It makes no difference at which point the tax is levied, but the existence of saving and capital formation breaks the equivalent. The tax on income equals a tax on the sales of consumer goods plus a tax on the sale of capital goods. Thus the burden experienced by a household will depend on how its income is divided between consumption and saving. Since the ratio of consumption to income falls when moving up the income scale, so does the ratio of tax burden to income. This is the basis on which the tax is said to be regressive.

In the empirical study, I analyze data concerning tax burden changes before and after imposition of a 4 percent retail sales tax in Montana for various income groups (provided by Department of Revenue). The tax burden is calculated based on the statutory sales tax rate (4%). According to the Department of Revenue, \$252.77 million in sales tax revenue would be obtained. But if the sales tax burdens of all income groups are added, the retail sales tax only generates \$124 million. Where would another \$128 million of revenue come from? The Department of Revenue's calculation entirely overlooks the part falling on intermediate commodities purchased for further production. The actual distributional effect will be different. Calculation is difficult. It will depend not only on the income and expenditure pattern of those consumers who purchase the commodity for final personal consumption, but also on the pattern of intermediate use to which the commodity is put and the income and expenditure pattern of the consumer who ultimately purchases the value of the intermediate products (and the sales tax thereon) embedded in other final consumption goods and services.

Early attempts to account for the distributional impact of the sales tax burden imposed through coverage of business transactions included in crude efforts of Schaefer (1969) and Daicoff (1980). Schaefer concluded that estimates of the burden of sales taxes would not be affected much by the incorporation of business transactions in the analysis. Daicoff relied on the assumption that the ultimate burden of a tax on a business transaction is divided between consumers of the businesses' products and other sources of income. The result of this assumption is that sales and use taxes were regressive throughout the income scale and members of the lowest income group actually faced a sales and use tax rate in

excess of the statutory rate, partly because of the burden shifted to them from business.

More recently, Raymond Ring (1989) noted that the burdens of a sales tax depend on the degree to which it falls on intermediate goods or service. "If stockholders or employees bear the business share of a 'consumption tax', the incidence is much different from that of a true consumption tax. Even if the business share is shifted onto consumers its incidence pattern differs from that of the share levied directly onto consumers (Ring, 1989)." Ring estimated that about 40 percent of state sales and use taxes fall on intermediate goods and services. He claims that "the usual approaches of treating the sales tax as exclusively a tax on consumers when allocating the tax burden among income classes will overstate regressivity for states with relatively low consumers' share (Ring, 1989)." In contrast to what he said here, in our calculation the effective tax rate is underestimated because it did not include the business tax falling on consumers.

The above analysis is based on a cross-section for a single year rather than a continuous record over time. Among economists, the current year's income may not be a good indicator of the long-term economic status of a family. The consumption in the lowest income class includes those whose income is temporarily depressed and retired persons whose previous income was greater. The consumption-income ratio may be biased upward for these groups. On the other hand, in high income classes, the ratio of aggregate consumption to aggregate income may be held down by the presence of families whose incomes are higher than usual. Statistics for any one year probably make consumption taxes appear more regressive with respect to income than would statistics in which the cumulative or average income and consumption for a period of several years or for a life time were

compared. Thus the cross-section statistics make a flat-rate sales tax appear more regressive in lower income classes and less progressive in high income classes than would a long-term comparison for identical families. A hypothesis that has received attention from specialists in recent years is that average ratio of consumption to a family's normal or permanent income is the same at all income levels. If this is true, a flat-rate tax on all consumption will be proportional with respect to normal or permanent income. Until better statistics are compiled, tax regressivity can justifiably be measured on the basis of available single-year data, but with the qualification that the estimates for the lowest and highest incomes are probably less representative than those for middle incomes.

Though regressivity has been doubted among economists, for the public and politicians it still is an issue of great concern. Because of this, in SB235 a sales tax refund credit was allowed for low income households (\$90 per person for those whose income is less than \$13,000). The bill's proponents argued that it would offset the regressivity of the sales tax. But a refund credit would only make the sales tax progressive up to the point where the maximum credit is paid and would place the largest tax burden at the point where the credit phases out. In Table 4 under "A. Sales Tax", the estimated sales taxes are \$193 and \$191 for incomes less than \$5,000 and \$5,000-10,000, respectively. Refundable credits would provide \$153 and \$171 which subsequently makes a net sales tax burden of \$40 and \$20, respectively. In contrast to the conventional view that sales taxes make the lowest income group worse off, a sales tax with refundable credits as in SB235 would put the maximum burden on the large middle income group.

Government Expenditure

Until now, our analysis has been limited to the pure tax, unrelated to the level of public goods or services provided by the governmental unit that levies the tax. But the utility-maximizing individual's voting decision is based on the calculation of his marginal benefit and marginal cost, which means he will compare the additional services he receives to the additional tax incurred. If benefits gained from government services are believed to be greater than the taxes paid, a rational individual would be willing to pay taxes. So, before making any predictions of people's voting behavior, it is important to analyze government expenditures. The three primary uses of state and local government expenditures are education, health and welfare, and highways. Consequently, members of the following groups might, on average, consider themselves to be beneficiaries of government spending: voters with school age children, voters from low income families, and government employees. Two groups believed to be recipients of negative benefits from the system are voters from upper income families and homeowners.

Nearly 50 percent of property taxes are used to finance local elementary and secondary education, and states enforce compulsory education for all children regardless of individual benefit. It follows that taxes for the support of public education may not be appropriately levied on the individuals who directly consume them. The education of the children of low-income families is one of the most important devices for raising the economic status of families. As educational opportunities are made more widely available,

it is reasonable to expect that the major beneficiaries will be families at the low end of the income scale.

Referring to welfare expenditure, low income groups receive direct financial benefits from state or local governments in the form of unemployment compensation, pensions, public assistance, or medical aid. Such welfare programs are often criticized by the general public, so they might be expected to be among the most vulnerable government programs if state and local taxes are to be radically cut. Local property taxes are sources for funding education, while state revenues cover most welfare expenditures. Thus parents of school age children would be expected to be more likely to oppose CI-27, I-105, and C-28, while welfare recipients will strongly support HB671 and SB235.

Affluent Montanans would benefit the most from a tax reduction and would be the least affected by cuts in public services.

Now consider public employees. Public employees would be expected to be strong opponents of the tax revolt if they perceive it as likely to put public employees out of work or to lower their salaries. In California's Proposition 13, public employees strongly opposed tax revolt and displayed an unusually high voting turnout (see Table 2).

Table 2. Difference in Percentage Yes Vote to Proposition 13 between Public Employees and Others

Support for Prop. 13	Public Employees	Others	Difference
May, 1978	40%	56%	-16%
August, 1978	44%	68%	-24%
Recall Vote	45%	77%	-32%
November, 1979	55%	71%	-16%
February, 1980	47%	69%	-22%

Source: Sears and Citrin (1985), p. 153

Voting and the Median Voter Model

Citizens routinely vote directly on levels of property taxes in many communities. Citizens also elect local representatives to county commissions, school boards, and municipal offices. When examing data across counties, as is done in this thesis, the following points are noteworthy.

- Counties differ in the tax base and in the education and income level of their citizens. They may, therefore, choose different levels of taxes and spending, and relatively high tax rates may reflect these choices. In other words, high tax rates may not be correlated with voter dissatisfaction.
- The median vote model implies that (almost) 50 percent of the voters think taxes are too high and another 50 percent think taxes are too low (Rosen, 1995). Thus we should expect that measures to reduce taxes and spending would receive at least a substantial fraction of the voters.

- Reappraisals of property may disturb the local political-economic “equilibrium” level of taxes, if not offset by changes in mill rates. In particular, if mill rates are simply “slow” to respond to changes in property valuation, taxes will be “too high” in counties where values are rising, and citizens may be inclined to vote for tax limitation measures. Also, the state levies about one-quarter of the total mill rate, and these mills do not respond to changes in local valuations. Thus taxes increase in communities where values are rising, even if local mill levies are adjusted downward.

CHAPTER 3

ECONOMETRIC SPECIFICATION AND DATA

Econometric SpecificationRegression Model

The primary data used in this study are the actual votes cast in each of the 56 counties of Montana on eight ballot issues and the 1992 Presidential election. The basic question can be stated explicitly: Can the revealed preferences of citizens, formulated as percent yes vote by counties, be explained by observable characteristics of counties, i.e., by differences between counties in mill levy, the growth rate of assessed value, population growth, ownership, income level, state/local government employees, and so forth?

Symbolically, the basic hypothesis can be written as a multiple regression. The outcome on issue i in county k , y_k^i is assumed to be linearly related to a set of various social and economic characteristics in county k , x_{jk}^i ,

$$y_k^i = b_0^i + \sum_j b_j^i x_{jk}^i + u_k^i$$

or simply,

$$y^i = X^i \beta^i + u^i$$

where y_k^i is the logistic transformation of the proportion p_k^i , which voted for the measure.

$$y_k^i = \log(p_k^i / (1 - p_k^i))$$

Note that p_k^i is the proportion of yes votes of the county k on issue i , b_0^i is the constant term; b_j^i is the regression coefficient of the independent variable j ; x_{jk}^i is the value of independent variable j for county k on the issue i ; and u_k^i is the value of the random term; $i = 1, \dots, 9$, signifying issues; $k = 1, \dots, 56$, signifying counties; $j = 1, \dots, n$, signifying independent variables.

Heteroskedasticity and Weighting

According to standard sources, the disturbances are heteroskedastic across counties within each equation:

$$Var(u_k^i) = \frac{1}{n_k^i p_k^i (1 - p_k^i)}$$

where n_k^i is the total number of people voting on issue i in county k . (See, e.g., Maddala, p.29). Counties with larger number of voters and/or percentages voting "for" close to 50 percent receive larger weights.

However, heteroskedasticity may not exist if the disturbances mainly reflect county level phenomena, rather than variations across individual voters. For example, the disturbances may reflect unobserved factors at the county level, such as the (perceived) quality of the public services and the efficiency with which they are delivered, opinions expressed in local newspapers, etc.

To test for heteroskedasticity, the following procedure is performed:

- 1) Estimate each equation by ordinary least squares and obtain the residuals, $\hat{e}_k^i$.
- 2) Regress the squared residuals on the "Maddala variance" and a constant term,

$$\hat{e}_k^{i2} = \alpha_0^i + \alpha_1^i \frac{1}{n_k^i p_k^i (1 - p_k^i)}$$

According to the Maddala model, $\alpha_0^i = 0$, and $\alpha_1^i = 1$. On the other hand, the disturbances are homoskedastic with $\text{Var}(\hat{e}_k^i) = \alpha_0^i$ if $\alpha_1^i = 0$.

Cross Equation Correlation

The equations may also be related through nonzero covariances of the error terms across different issues for a given county. Below, a seemingly unrelated model is created by writing the system of 9 equations as follows:

$$\begin{bmatrix} y^1 \\ y^2 \\ \dots \\ y^9 \end{bmatrix} = \begin{bmatrix} x^1 & 0 & \dots & 0 \\ 0 & x^2 & \dots & 0 \\ \dots & \dots & \dots & \dots \\ 0 & 0 & \dots & x^9 \end{bmatrix} \begin{bmatrix} \beta^1 \\ \beta^2 \\ \dots \\ \beta^9 \end{bmatrix} + \begin{bmatrix} u^1 \\ u^2 \\ \dots \\ u^9 \end{bmatrix}$$

where

$$E(u^i u^{j'}) = \begin{bmatrix} \sigma_{ij} & 0 & \dots & 0 \\ 0 & \sigma_{ij} & \dots & 0 \\ 0 & 0 & \dots & \sigma_{ij} \end{bmatrix} = \sigma_{ij} I$$

$$\Omega = E(UU') = \begin{bmatrix} E(u_1 u_1') & E(u_1 u_2') & \dots & E(u_1 u_9') \\ E(u_2 u_1') & E(u_2 u_2') & \dots & E(u_2 u_9') \\ \dots & \dots & \dots & \dots \\ E(u_9 u_1') & E(u_9 u_2') & \dots & E(u_9 u_9') \end{bmatrix} = \begin{bmatrix} \sigma_{11} I & \sigma_{12} I & \dots & \sigma_{19} I \\ \sigma_{21} I & \sigma_{22} I & \dots & \sigma_{29} I \\ \dots & \dots & \dots & \dots \\ \sigma_{91} I & \sigma_{92} I & \dots & \sigma_{99} I \end{bmatrix}$$

The most efficient estimation method is to apply generalized least-squares to obtain $\beta^* = (x' \Omega^{-1} x)^{-1} (x' \Omega^{-1} y)$ (Greene, 1993, Chapter 17).

Data and Specific Hypotheses

Dependent Variables

Appendix 5 presents descriptive statistics for each of the issues across counties. An "unweighted mean value" for tax issues is the simple average proportion yes vote. A "weighted mean value" is computed by using total votes of each county as a weight. Basically trivial differences exist among "unweighted" and "weighted" means.

Tax revolts have often been associated with property tax changes. According to an oft-cited ACIR study, the property tax has been perceived as the least fair tax form. Like California's Proposition 13 and Massachusetts' Proposition 2 ½, several of Montana's tax referendums have focused on property tax. CI-27 (1986), I-105 (1986), and C-28 (1994) solely deal with property tax reforms. Even though CI-27 and C-28 were defeated by 56

percent and 59 percent of the total voters, more than 40 percent of the voters were in favor of them.

CI-66 and CI-67 are not exclusively concerned with property taxes. But the correlation between CI-66, CI-67 and C-28 undoubtedly hints that antagonism toward high property tax leads voters to vote on CI-66 and CI-67 as well ($r = 0.59$ between C-28 and CI-66; $r = 0.63$ between C-28 and CI-67).

In the following section, I briefly discuss the correlations between nine issues (see Appendix 6).

- i. The first three tax proposals are highly correlated ($r = 0.52$ between CI-27 and I-105; $r = 0.62$ between CI-27 and CI-55).
- ii. The extremely highly correlated issues are CI-66 and CI-67 ($r = 0.93$).
- iii. All tax limitation proposals (CI-27, I-105, CI-66, CI-67, and C-28) are consistently positively related.
- iv. SB235 displays negative weak correlation to other proposals, indicating people who favor comprehensive tax reform solely oppose all other single reforms. People who vote for tax cut proposals were inclined to oppose SB235.
- v. A vote for Perot is positively correlated with almost all property tax and revenue limitation issues.

- vi. One unexpected phenomenon is that HB671 is positively correlated with CI-66, CI-67, and C-28 ($r = 0.36$, $r = 0.39$ and $r = 0.55$). HB671 would have increased total government revenue and CI-66, CI-67, and C-28 are proposed to cut government revenues.

Independent Variables and Specific Hypotheses

Descriptive statistics on the independent variables are presented in Appendix 7.

PVAL_{xyy} These variables measure the percentage change in the assessed value of residential properties over three years. For example, PVAL8386 measures the average change in the assessed value from 1983 to 1986.

In Montana the first reappraisal was completed in 1978. The average assessed value increased by 40 percent. This large increase in market value occurred because property in Montana had not been valued since the late 1950s and early 1960s. Still the 1978 reappraisal only brought property up to market values as they existed in 1972. The second reappraisal cycle was completed in 1986 and raised market values to those that existed in 1982. In 1993, Montana finished its third reappraisal cycle bringing property up to market values in 1992. This partly explains why property tax revolts happened in 1986 and 1994.

The weighted average appraised value increased by about 4.3 percent, ranging from -17.6 percent to 45.4 percent, from 1983 to 1986. For years 1987-1990, 1989-1992, and 1991-1994, the weighted average of the percentage change in appraised values (PVAL) are 0 percent, 6.6 percent, and 7.8 percent respectively. Obviously, the statewide assessed value of residential property has been progressively increasing year by year. The following

table lists counties which experienced the greatest increases and decreases in assessed values in the various periods.

Counties with the Greatest Increases in Assessed Value

<u>1983-1986</u>	<u>1987-1990</u>	<u>1989-1992</u>	<u>1991-1994</u>
Ravalli 45%	Cascade 18%	Cascade 26%	Lake 25%
Rosebud 35%	Jefferson 13%	Gallatin 26%	Mineral 22%
Powder River 34%	Silver Bow 11%	Silver Bow 13%	Flathead 17%

Counties with the Greatest Decreases in Assessed Value

<u>1983-1986</u>	<u>1987-1990</u>	<u>1989-1992</u>	<u>1991-1994</u>
Roosevelt -18%	Dawson -23%	Dawson -12%	Liberty -22%
Madison -16%	Fallon -23%	Fallon -12%	Sweet Grass -18%
Missoula -15%	Powder River -23%	Powder River -12%	Daniel -16%
	Richland -23%	Richland -12%	Prairie -16%
	Wibaux -23%	Wibaux -12%	

In 1989-1992 and 1991-1994, the unweighted average increases are 0.2 percent and 0.9 percent, while the weighted averages are 6.6 percent and 7.8 percent respectively. The differences indicate that a lot of sparsely populated eastern and northern counties experienced decreases in assessed values, while most of the increases occurred in the more highly populated counties.

Hypothesis:

- **Tax revolts are more likely to occur in counties with more rapidly rising appraised values.**

The assessed value is associated with inflation or deflation in a certain district which can't be controlled by voters. About one-fourth of the mill levy is raised by state government for school equalization funding and state expenditure while the rest is decided by the local public or their representatives. If higher appraised values are offset by lower

mill levies, then the property tax bills are kept at a stable level. In this case, there should be no revolt at all, since the mill levy (thus property tax as well) reflects the majority's choice for local government's spending. The trick is that the counties experiencing appreciation in the assessed value may not adjust mill levies immediately. Thus the windfall will fall to county governments. On the other side, counties which have decreases in the assessed value, are more likely to raise mill levies to maintain certain levels of government services. In 1993, the legislature increased county mandatory property taxes from 40 mills to 55 mills and imposed a new 40 mills state levy to help equalize school funding. All these mills cannot be reduced to reflect increased taxable values. This indicates that counties with the higher assessed value are forced to finance counties with the lower assessed value.

MILLSxx These variables measure the average mill levy for each year. The weighted mean value is consistently higher than the unweighted one, indicating that counties with higher populations have higher mill levies. The disparity is tremendous, ranging from 91.5 in a resource-rich county in 1986 (Fallon) to 545 in an urban county in 1993 (Silver Bow).

The mill levy has historically been determined largely by voters or their representatives (school trustees, county commissioners, etc.) at the local level, and thus may more or less reflect the preferences and constraints of individuals in the various communities. In other words, higher mill levies may reflect choices made by citizens. Nonetheless, high mill levies do result in high property taxes, and thus may be a cause of the tax revolt.

Hypothesis:

- **The tax revolts are more likely to happen in counties with higher mill levies.**

In 1993, Montana legislature passed a new law to force school districts in Montana to spend about the same amount of money per student in each county. To accomplish this goal, the legislature established minimum and maximum budgets of all schools based primarily on the number of students attending each school. Schools spending below the minimum are required to increase their budgets so that they are spending at least the minimum amount. More than 400 school districts experienced substantial property tax increases. Most counties with lower assessed values were forced to raise high mill levies to reach the minimum school budget.

PMILL_{xyy} These variables measure percentage changes in mill levies over three years. For example PMILL8386 measures the percentage change in mill levies from 1983 to 1986. The weighted means are around 10 percent in each three year period. Sparsely populated counties experienced huge changes in mill levies. This is easy to understand: With shutdown of mines and excluding the mining proceeds from the tax base, total county taxable value dropped dramatically after 1986. This gave rise to an increase in mill levies. In 1983-1986 Blaine county experienced the greatest reduction in mill levies while in 1987-1990 Big Horn county had 100 percent increase in mill levy.

Hypothesis:

- **The tax revolts are more likely to happen in counties with rapidly rising mill levies (PMILL).**

Additional hypothesis is that:

- **Property tax payers care only about the total tax bill - not its composition between mill rates and the appraised value.**

If this hypothesis is true, then the coefficients on PVAL_{xy} and PMILL_{xy} should be equal. But the hypothesis may not be true for reasons given earlier: Local citizens have substantial influence over mill levies, but not over reappraisals.

TAXBASE_{xx} These variables measure per capita tax base in each year. For example TAXBASE86 measures the total county taxable value divided by the population in 1986. The weighted average per capita tax base dropped by about 1/3 between 1986 and 1990. This was mainly due to the decline of natural resources. Table 3 lists six counties with per capita tax base greater than \$10,000 in 1986.

Table 3. Counties with Per Capita Tax Base Greater than \$10,000 in 1986 and 1990

N O	COUNTY	TAXBASE 1986	TRATIO 1986	TAXBASE 1990	TRATIO 1990	%Δ IN TAXBASE 1986-1990
1	Fallon	35,943.00	7.4%	4,446.00	50.3%	-87.6%
2	Rosebud	17,795.00	19.4%	16,993.00	17.4%	-4.5%
3	Wibaux	17,615.00	18.5%	3,510.00	74.6%	-80.1%
4	Powder River	15,631.00	19.6%	2,888.00	91.5%	-81.5%
5	Sheridan	15,344.00	17.3%	2,630.00	90.1%	-82.9%
6	Big Horn	10,671.00	23.4%	2,368.00	81.3%	-77.8%

Besides per capita tax base, I calculate the resident-borne tax base which is equal to the total tax base - (utilities + mining proceeds + railroad + airline). It represents the part of total taxes falling directly on residents. $TRATIO = \text{resident-borne tax base} / \text{total tax base}$, which can be perceived as the relative price for public goods.

Table 3 also lists TRATIO for each county. In 1986, most resource-rich counties had a TRATIO less than 20 percent, with the lowest being 7.4 percent in Fallon county. In 1990, almost all counties had increased TRATIO, except for Rosebud, which kept its tax base almost at the same level.

Hypotheses:

- **Tax revolts are more likely to happen in a county with a lower per capita tax base.**
- **Tax revolts are more like to happen in a county with a higher TRATIO.**

MARLENEE This variable is the proportion of yes votes on the Republican congressional candidate in 1992. The unweighted mean is 54.0 and the weighted one is 45.3, which hints that Republicans are more likely to be elected in sparsely populated counties, while Democrats get support mainly from areas with a high density of population.

A fundamental difference between the Democratic and Republic parties is in their stands on the government's role in economic and social affairs. Democrats typically advocate an expansive role for the public sector, while Republicans are typically characterized as favoring smaller government and lower taxes.

Hypothesis:

- **People who vote for Republicans are more likely to support tax reductions and oppose tax increases.**

PSTEMPxx These variables calculate the numbers of state government employees as a percentage of registered voters in each county. The unweighted mean is around 2.5 and

the weighted one is around 3.0 which is consistently higher than the unweighted one in each year. It indicates that state employees are more concentrated in urban counties.

Hypothesis:

- **Changes in tax revenue can affect employment opportunity and the salary levels of state employees. They are more like to favor government expenditures and higher taxes.**

PLOEMPxx These variables calculate the ratio of local government employees to the registered voters in each county. The unweighted mean is around 9 percent for each year and the weighted one is a little bit lower, indicating the percentage of local employees is higher in sparse areas.

Hypothesis:

- **Local government employees are more likely to vote against tax reductions and support increases.**

PPOPxyy These variables measure five-year growth rates of population. The unweighted mean is nearly negative for each period, but the weighted mean is positive except in the period from 1985-1990. This implies that urban areas are growing fast relative to rural areas.

The biggest decrease in population happened in 1985-1990. The unweighted mean is -7.6% while the weighted mean is -2.8%. It is easy to understand: Dramatic reductions of mining activities brought about outward migration. In the 1990s, Montana is experiencing large population growth. The weighted average is 5.2 percent for 1988-1993 while the unweighted average is 0.9 percent.

Growth and decline affect demands for public services. Tax burdens will rise with growth if new infrastructure costs are borne in part by existing tax payers. The prosperity of the economy in a district is usually linked with the migration trend. This drives up the value of regional property as well. Population growth is positively correlated with the percentage change in the assessed value.

Hypothesis:

- **Property tax revolts are more likely to happen in areas experiencing population growth.**

TURNOUT_{xx} These variables calculate total votes cast as a percentage of the number of registered voters in every county. There are no big differences between weighted and unweighted turnout ratios, which are above 70 percent in all areas. Usually, if people care about the contents of proposals, or alternatively, if they are interested in proposals, the turnout ratio should be higher. Looking at the whole voting history, the turnout ratio is higher in Presidential elections than in other issues.

Hypothesis:

- **The higher the voter turnout ratio is in one county, the more likely people are to vote against the tax revolt issues.**

INCOME These variables measure the proportions of low, middle and high income groups. Based on annual income, I divide households into five groups:

		<u>% of Households</u>
Low Income Groups: (32%)	Less than \$5,000	7%
	Between \$5,000 and \$15,000	25%
Middle Income Groups: (55%)	Between \$15,000 to \$35,000	40%
	Between \$35,000 to \$50,000	15%
High Income Groups: (13%)	More than \$50,000	13%

Except for the high income group, weighted means are lower than unweighted ones for other income groups. The households' annual income in urban areas is a little lower than that in sparsely populated areas.

Generally, property wealth is positively correlated with income. Now we can't draw such a simple statement since, among property owners, there are a certain number of retired people who have property of high value, but live on fixed pension. Even incorporating this type of people, a higher property tax is largely borne by the middle and high income groups, while the sales tax hurts the poorest people. But the sales tax bill (SB235) included a refund credit granted to the poorest people, so that the sales tax burden actually would fall mainly on the middle class. Income tax (HB671) would make the effective tax rate higher for households with an annual incomes of more than \$30,000.

Hypotheses:

- **The higher income group is more likely to vote against HB671.**
- **The low income group is inclined to vote for SB235 and HB671, while voting against property tax reforms.**
- **Middle and higher classes favor property tax limitation proposals.**

PEDL12 This variable measures the percentage of persons over age 25 with less than 12 years of education.

Lower educated people are highly associated with lower income (see Table 4).

Table 4. Correlation between Education and Income

	PINCL5	PINC5-15
PEDL12	0.43	0.39

Hypothesis:

- **A county with a high percentage of less educated people is more likely to vote against property tax reductions.**

PEDCOLL This variable measures the percentage of persons over age 25 with a bachelor or higher degree. The urban citizen seems to have more education than those in the rural areas. The unweighted PEDCOLL is 15.9 while the weighted one is 20.0.

A common view holds that higher education leads to a taste for relatively more government spending. But Courant, Gramlich, and Rubinfeld (1980) show that education is nearly unrelated to the government spending.

Until now nearly no research shows a strong correlation between education and government spending. On the one hand, a highly educated person might have a strong sense of social responsibility. On the other hand, he or she is positively correlated with a high income class ($r = 0.58$ between PINCM50 and PEDCOLL) which indicates that he or she is most likely to oppose revenue increases.

Hypothesis:

- **Highly educated people show no obvious relation to the tax revolts.**

OWNER This variable measures the percentage of housing units which are owner occupied. The weighted mean is 67.4.

In the theoretical section, I draw the following conclusion: All property and other taxes finally fall on local land owners as they are capitalized into lower land values.

Hypothesis:

- **Property tax revolts are more likely to happen in a county with a higher percentage of land owners.**

WKIDS This variable measures the percentage of families with children under 18. Half of the families belong to this group.

Hypothesis:

- **Families with children under 18 are more likely to vote against tax cut proposals, because they consume local government services (schools).**

OVER 65 This variable compares the number of citizens over 65 to the total of registered voters. Elderly people are inclined to be net taxpayers and receive few government services.

Hypothesis:

- **Elderly people are more likely to favor property tax cuts.**

CHAPTER 4

EMPIRICAL RESULTS

Preliminary ResultsCoefficient Transformations

Since I use the logit model, the coefficients in the regression are difficult to interpret.

They can be transformed as follows:

Let

$$\log \frac{p}{(1-p)} = \beta x + e$$

then

$$y = \log \frac{p}{(1-p)}$$

$$\frac{\partial y}{\partial p} = \frac{1}{p(1-p)}$$

$$\frac{\partial p}{\partial x} = \frac{\partial p}{\partial y} \times \frac{\partial y}{\partial x}$$

$$\frac{\partial y}{\partial x} = \beta$$

$$\frac{\partial p}{\partial x} = p(1-p)\beta$$

where p = the proportion voting yes on each measure. Thus the transformed coefficients, $p(1-p)\beta$, measure the change in the proportion voting yes for a unit increase in an x variable.

Appendices 9 and 10 list parameters, t -ratios, and goodness of fit measures for a simple model and a complex model. Both regression coefficients, β , and transformed coefficients are presented.

Test for Weights

As indicated previously, the equations are first estimated by OLS and then the

$$\hat{e}_k^{i2} = \alpha'_0 + \alpha'_1 \frac{1}{n_k p_k (1 - p_k)}$$

squared residuals, $\hat{e}_k^{i2}$, are regressed on the weight proposed by Maddala. Table 5 indicates that, except for CI-66, the coefficients of the weight variables are never significantly different from zero, indicating that the residuals are homoskedastic. Instead of running the weighted system equation, I use the results from unweighted equations.

Table 5. Coefficients and T-ratios Regressing Squared Residuals on Maddala Variance

	CI-27	I-105	CI-55	PEROT	SB235	HB671	CI-66	CI-67	C-28
α_1	.05	-.05	-2.0	-2.0	-.3	1.1	7.2	2.4	.1
T-ratio	.01	-.02	-1.2	-1.1	-.4	.4	2.1	0.11	.1

Test for Equivalence for Mill Changes and Reappraisals

If H_0 is accepted, it implies that property tax payers care only about the total tax bill - not its composition between mill rates and the assessed value. I make a joint test, and get the F value: $F = 3.88$ where $DF_1 = 9$, $DF_2 = 342$ and $\alpha = 0.05$

The critical F-value, $F^* = 1.9$, indicating that if $F < 1.9$, we accept the null hypothesis. Since the calculated F is 3.88, the null hypothesis is rejected. Apparently it does make a difference whether a tax increase results from reassessment versus a mill levy increase. One explanation is that taxpayers may vote on mill levies but not on reassessments.

Disturbance Correlation

Table 6 displays the estimated correlation matrix of the equation disturbances. There appear to be positive relationships among all the tax limitation proposals and the vote for Perot. The proposals which would have increased total taxes -SB235 and HB671- are negatively correlated with earlier votes - CI-27, I-105, CI-55, and Perot. However, the SB235 residual is positively correlated with the C-28 residual, perhaps because both measures would have lowered property taxes. Somewhat unexpectedly, the HB671 residual is positively correlated with the residuals from CI-66, CI-67 and C-28.

Table 6. Correlations of Disturbances

	CI-27	I-105	CI-55	PEROT	SB235	HB671	CI-66	CI-67	C-28
CI-27	1								
I-105	.44	1							
CI-55	.70	.15	1						
PEROT	.44	.43	.48	1					
SB235	-.07	-.55	.07	-.43	1				
HB671	-.01	-.04	-.15	-.08	0	1			
CI-66	.29	.04	.11	.24	-.08	.32	1		
CI-67	.37	.12	.24	.33	-.15	.43	.86	1	
C-28	.15	.10	-.07	.13	-.13	.47	.55	.59	1

A Simple Model

In order to focus on the effects of property taxes, I have constructed a simple model which is composed only of three property tax variables: PVAL, MILL, and PMILLS. In Appendix 9 the regression results are presented.

R^2 is nearly zero for the following proposals: I-105 ($R^2 = 0.03$), PEROT ($R^2 = 0.07$), and SB235 ($R^2 = 0.06$). In order to see if the coefficients of MILL, PMILL, and PVAL are significantly different from zero, I have made the following test: $H_0: \beta_1 = \beta_2 = \beta_3 = 0$. Given $DF_1 = 3$, $DF_2 = 52$ and $\alpha = 0.05$, the critical value, $F^* = 2.8$, meaning if $F < 2.8$, we accept the null hypothesis. Using the formula

$$F = \frac{R^2}{(1 - R^2)} \times \frac{DF_2}{DF_1}$$

I get $F_{I-105}=0.016$, $F_{PEROT}=0.085$, and $F_{SB235}=0.063$. Indeed, three F-tests indicate that MILL, PMILL, and PVAL don't play any role in explaining these three issues. This may be reasonable for PEROT and SB235, since they aren't exclusively property tax reforms. But the result is unexpected for I-105. The R^2 statistics for the other issues ranges from 0.14 to 0.32.

Percentage Change in Assessed Value (PVAL) This variable works very well to explain voting on most of the tax issues. T-ratios are consistently strong for the following issues: CI-27 ($t = 2.2$), CI-55 ($t = 5.0$), HB671 ($t = 1.8$), CI-66 ($t = 5.0$), CI-67 ($t = 4.0$), and C-28 ($t = 3.9$). If we look at the transformed coefficients, for example on CI-27, a value of 0.15 means that if assessed values are increased by one percentage point, 0.15 percent more people will vote for CI-27. Then if we look at issues in 1994, say CI-66, a one percentage increase in assessed values will cause 0.3 percent more people to vote for it. Reappraisals explain more about the issues in 1994 than issues in previous years. This may conform with our previous analysis: PVAL has increased year by year and culminated in a 7 percent increase in the period from 1990 to 1993. The regression results strongly demonstrate tax revolts are more likely to happen in counties with more rapidly increasing assessed values.

Mill Levy (MILLS) The mill levy is statistically significant in the equations for CI-27 ($t = 4.6$), CI-55 ($t = 3.2$), and surprisingly, HB671 ($t = 1.8$). It has the biggest absolute value in CI-27, where the coefficient implies that if mill levies increase by 100 mills, 5 percent more people would vote for CI-27. In HB671, t-ratios are 1.8 for both MILLS and PVAL. This may indicate that higher mill levies and rapidly increasing

assessed values lead property owners to try to shift the tax burden to other taxes. But compared with reappraisals, mill levies explain very little in voting on CI-66, CI-67 and C-28. These results suggest that in 1994 people's antagonism toward taxes comes mainly from rapidly increasing assessed values.

Percentage Change in Mill Levy (PMILLS) Among all the issues, only three coefficients are significantly different from zero : CI-27 ($t = -1.9$); CI-55 ($t = 1.9$) and C-28 ($t = -1.8$). Surprisingly, there are two negative signs for CI-27 and C-28. These indicate that people were more likely to vote against CI-27 and C-28 in counties where mill levies were increasing relatively fast. This finding is in opposition to my previous hypothesis: Property tax revolts are more likely to happen in a county with a rapidly increasing mill levy. One explanation may be that, except for the state collected mill levy (101 mills), total mill levy is decided at the county level either through direct voting or through representatives. In order to maintain a certain amount of government service, local citizens sometimes are willing to raise the mill levy. For example, even though I-105 tried to "free" property taxes, still a lot of local governments succeed in raising them. So changing the mill levy may partially reflect the preference of local citizens.

Per Capita Tax Base (TAXBASE) Recall that the property tax variables failed to explain voting on I-105. In an effort to understand this finding, I reran the regression using the reappraisal variable (PVAL) and a variable measuring the per capita tax base (TAXBASE). The results are presented in Table 7:

Table 7. Regression Results on CI-27 and I-105

	TAXBASE	T-RATIO	PVAL	T-RATIO	CONSTANT	T-RATIO	R ²
CI-27	-.001	-8.1	.01	4.0	-.15	3.5	.58
C-105	-.001	-4.5	.038	2.1	2.34	8.1	.29

Notice that the R² improves dramatically for both CI-27 and I-105, and that both the tax base and reappraisal variables are significant in both equations. These results suggest that property tax revolts are more likely to happen in counties with lower per capita tax bases, and as well as counties where values are rising.

Beginning in 1990, mining proceeds were excluded from property taxes, and variables measuring the tax base no longer have much explanatory power.

A Complex Model

Results from a more complicated model (including all of the independent variables) are presented in Appendix 10. There are some changes in t-ratios and coefficients, but my previous finding on the property tax variables are actually strengthened.

Property Tax Variables (PVAL, MILLS, and PMILLS)

- i. Controlling for the other variables, reappraisals now display a significantly (10%) positive relationship with voting on I-105. Also, the unexpectedly positive relationship between reappraisals and HB671 disappears. Thus reappraisals are positively and significantly related to voting on all tax limitation issues.
- ii. As in the simple model, mill levies are positively related to voting on just two of the earlier issues CI-27 and CI-55.

iii. The rate of growth of mill levies (PMILLS) continues to display a somewhat unexpected negative relationship with voting on CI-27 and C-28. The relationship with CI-55 loses its statistical significance, and a positive relationship with voting for Perot is significant at the 10 percent level.

Marlenee (MARLENEE) Republicans often argue for small government. People who vote for MARLENE should favor revenue cuts as well. The regression results are only partially consistent with this hypothesis, however, while voting for Marlene was positively associated with voting for I-105, against HB671, and for Ross Perot. It was also positively associated with the tax reform bill (SB235).

State Employees (PSTEMP) Among the nine issues, state employment is only significant in SB235, and then only at the 10 percent level. While SB235 was perhaps more important to state employees than some other issues, one significant coefficient out of ten would be expected to occur just by chance.

Local Employees (PLOEMP) Local government employees perhaps had more at stake in the property tax issues, but only two significant relationships appear: Opposition to Ross Perot and support for C-28, which is unexpected.

Growth of Population (PPOP) Counties with relatively rapid population growth tended to vote for several tax limitation measures: I-105, CI-66, CI-67 and C-28. The latter three issues were voted on in 1994 after a period of especially rapid growth in some counties.

Turnout (TURNOUT) As expected, turnout is negatively related to voting on several of the initiative proposals: I-105, CI-55, CI-66, and CI-67. However, turnout is also positively related to voting for Ross Perot.

Income (PINCL5K, PINC5-15K, PINCL15-35 and PINCM50K) Nearly all income groups are indifferent to the tax proposals except PINC5-15K who shows some desire for revenue cuts (t-ratio is significantly different from zero in CI-27, CI-55 and CI-67). Since the correlation between various income groups is high, in order to reduce the multicollinearity, I condensed income into three groups (less than \$15,000, \$15,000-\$50,000, and more than \$50,000) and use PINCL15 and PINCM50 to rerun the regression. The higher income group undoubtedly opposes income tax reform (HB671) ($t = -1.8$) which is in conformity with my expectation. The paradoxical situation is that the lower income group is also strongly in favor of many of the limitation issues.

Table 8. Low Income Coefficients

	CI-27	CI-55	CI-66	CI-67
Coefficient	.73	.30	.35	.31
T-ratio	2.7	1.6	2.3	2.1

Education (PEDL12, PEDCOLL) Voters in counties with larger fractions of people who did not complete high school were more likely to support tax reform (SB235), but to oppose the broad limitation measures (CI-66 and CI-67). Somewhat surprisingly, counties with relatively more college educated people tended to vote the same way. Thus the 61 percent of adults with education levels between these two extremes tended to vote against reforms and for the limitation measures.

Ownership (OWNER) As expected, home ownership is significantly related to voting for CI-27, CI-55, and CI-66. For unknown reasons, it does not explain anything in C-28 ($t = 0$) and I-105 ($t = 0.3$).

Families with Children (WKIDS) I hypothesized that families with children would tend to vote against tax limitation - especially property tax limitation - because 60 percent of property taxes go to schools (Young, 1994a). But the results indicate that they strongly vote for CI-27 and CI-55, and against SB235.

Elderly People (OVER65) Elderly people were expected to vote for tax limitation. But in my data, there are only two significant coefficients - one positive (I-105) and one negative (CI-66). Thus there is no consistent evidence that the proportion of elderly has had an effect on voting on these issues.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Montana citizens have used the initiative process to bring six taxation issues to voters in the last nine years. Only two of these (I-105 and HB671) were confirmed by the electorate; however, but all but one commanded substantial support. Initially, citizens seemed to be objecting primarily to high property taxes. More recently, however, voters turned down a reform that would have reduced property taxes, stayed an increase in income taxes, and nearly passed two measures which would make it more difficult for governments to increase *any* tax or fee. Thus citizen concerns seem to go well beyond a narrow preoccupation with property taxes.

Due in part to data limitations, this study has nonetheless focused on property taxes as a potential root cause of voter dissatisfaction, even if it may sometimes be expressed as disapproval for other taxes, fees or spending.

The dominant relationship found here is between voting and reappraisals of residential property. Voters in counties where property values rose more quickly were significantly more likely to support all but one of the citizen initiatives, in comparison with voters in counties with lower rates of property appreciation.

In sharp contrast and somewhat unexpectedly, there is relatively little evidence that high property tax rates (mill levies) or rapidly increasing mill rates are significantly related

to voting on tax issues. One explanation for these findings is that reappraisals are largely outside the control of both citizens and local officials, in contrast to mill levies. Thus rapid property appreciation results in tax increases which have not been approved through the normal workings of the political process, resulting in citizen frustration and anger.

Evidence presented in this study also indicates that rapid population growth, low voter turnouts, and high home ownership rates are positively related to voting on at least some tax limitation measures. Other variables, however, were found to display little in the way of consistent, statistically significant relationships with voting on these measures. Variables in this group included income, education, families with children, and the elderly population.

Voting has also sometimes been associated with traditional political affiliation, but the relationship has not been as simple as "Republicans vote for tax limitation." Rather, Republican affiliation was found to be associated with voting for a property tax freeze and against an income tax increase, but also with voting for the tax reform package which would have increased taxes. For the remaining issues, there is no statistically significant relationship between political affiliation and voting. This may reflect the fact that much of the "tax revolt" movement has occurred outside of established political channels, separately from both the Democratic and Republican parties.

Our finding that voting is significantly related to property taxes, and reappraisals of residential property in particular, is consistent with the experiences in California and Massachusetts. In both of these states, "tax revolts" followed periods of rapid appreciation of residential property values.

These findings suggest that if property values continue to rise in the more populous counties of Montana, tax limitation issues are likely to resurface, and the state legislature would perhaps do well to revisit the reappraisal issue.

BIBLIOGRAPHY

Aaron, Henry J., *Who Pays The Property Tax?* The Brookings Institution Washington, D.C., 1975.

Attiyeh, Richard and Engle, Robert, "An Economic Analysis Of The Vote On Proposition 13," *National Tax Journal*, Vol. XXXII, No. 2, 1979.

Benjamin, Daniel K., And Kochin, Levis A., "A Proposition on Windfalls and Taxes When Some But Not All Resources Are Mobile," *Economic Inquiry*, Vol. XX, 1982.

Bloom, Harward S., "Public Choice And Private Interest: Explaining The Vote For Property Tax Classification In Massachusetts," *National Tax Journal*, Vol. XXXII, No. 41, 1979.

Bogart, William T., Bradford, David F., and Williams, Michael G., " Incidence Effects Of A State Fiscal Policy Shift: The Florio Initiatives In New Jersey," *National Tax Journal*, Vol. XLV, No. 4, 1992, pp. 371-386.

Courant, P.N., Gramlich, E. M., and Rubinfeld, D.L., "Why Voters Support Tax Limitation Amendments: The Michigan Case," *National Tax Journal*, 33:1-20, 1980.

Daicoff, D.W., *Who Pays State And Local Taxes*, Johns Hopkins University Press, 1980.

Fiorina, Morris P., *Retrospective Voting In American National Elections*, D.C. Health and Company Lexington, 1974.

Greene, William H., *Econometric Analysis*, Second Edition, Macmillan Publishing Company, New York, 1993.

Joulfaian, David, and Machie, James, "Sales Taxes, Investment, And The Tax Reform Act Of 1986," *National Tax Journal* Vol. XLV, No. 1, 1992, pp. 89-103.

Maddala, G.S., *Limited-dependent And Qualitative Variables In Econometrics*, Cambridge University Press, 1983.

Magleby, David B., *Direct Legislation*, The Johns Hopkins University Press, 1984.

Montana Taxpayers Association, *Montana Taxpayer*, Vol. XXVII, No. 3 March, 1993.

- Musgrave, Richard A., *The Theory Of Public Finance*, Mcgraw-Hill Book Company, Inc., 1959.
- Paul, Diane B., *The Politics Of the Property Tax*, Lexington Books, 1975.
- Pechman, Joseph A., *Who Paid The Taxes, 1966-1985?* The Brookings Institution Washington, D.C., 1985.
- Ring, Raymod J., "The Proportion Of Consumers' And Producers' Goods In The General Sales Tax," *National Tax Journal* 42, 1971.
- Rosen, Harvey S., *Public Finance*, 4th Edition, Irwin, Chicago, 1995.
- Schaefer, Jeffrey M., "Sales Tax Regressivity Under Alternative Tax Base And Income Concepts," *National Tax Journal* 22, 1969.
- Sears, David O. and Citrin, Jacek, *Tax Revolt*, Harvard University Press Cambridge, 1985.
- Tray, Dennis D. And Fernandez, Judith, "Distributional Impacts Of The Property Tax Revolt," *National Tax Journal*, Vol. XXXIX, No. 4, 1986, pp. 435-449.
- Young, Douglas J., Weaver, Kenneth L. and Mathre, Judith A., "Montana Fiscal And Policy Crisis; 1986-1994", Mimeo, Montana State University, May 1994.
- Young, Douglas J., "Understanding The Montana Ballot Initiatives," Montana State University, 1994a.
- Young, Douglas J., "Montana Property Taxes Since I-105," Montana State University, 1994b.

APPENDICES

Appendix 1. Income Tax Comparison for FY 1995 - HB671 and SB235

	Old Law	HB671	SB235
Tax Rate	2% - 11%	6.7%	6%
Standard Deduction			
Single	2,720	5,000	6,000
Head of Household	5,440	7,500	8,000
Married Filing Separate	2,720	5,000	5,000
Married Filing Joint	5,440	10,000	10,000
Personal Exemption	1,450	2,710	3,500
Total Revenue	339,696,000	375,441,000	309,106,000

**Source: "The Tax Reform Proposals" Montana Taxpayer Volume XXVII Number2
February 1993**

**Appendix 2. Impact of SB235, Final Version, on Average Tax Burden
HB671 as Current Law Income Tax, Statewide Average, All Households**

	Less Than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$29,999	\$30,000 to \$39,999	\$40,000 to \$49,999	\$50,000 and Over
Average Income Before Taxes	2,420	7,502	12,331	17,357	24,555	34,474	44,550	79,151
Total Expenditures	11,552	12,416	16,630	19,859	25,025	32,367	37,251	55,299
Average Number in Household	1.7	1.9	2.1	2.4	2.6	2.8	3.1	3.1
Total Number of Households	22,480	38,514	37,551	34,306	60,206	45,073	28,560	40,226
-Number of homeowners	10,566	21,568	23,282	25,043	49,369	39,664	25,704	36,203
-Number of Renter Households	11,914	16,946	14,269	9,263	10,837	5,409	2,856	4,023
-Proportion of Homeowner Households	47%	56%	62%	73%	82%	88%	90%	90%
-Proportion of Renter Households	53%	44%	38%	27%	18%	12%	10%	10%
A. Sales Tax								
-Average Sales Tax, CL	0	0	0	0	0	0	0	0
-Average Sales Tax, PL	193	191	270	326	429	576	645	985
Sales Tax Credit PL	(153)	(171)	(113)	0	0	0	0	0
-Net Sales Tax, PL	40	20	157	326	429	576	645	985
-Change in Tax	40	20	157	326	429	576	645	985
B. Income Tax								
-Average Tax, CL	3	69	202	381	743	1,382	2,020	4,964
-Average Tax, PL	0	6	99	238	544	1,111	1,691	4,199
-Change in Tax	(3)	(63)	(103)	(143)	(199)	(271)	(329)	(765)
-% Change in Tax	-100%	-91%	-51%	-38%	-27%	-20%	-16%	-15%
C. Property Tax								
-Average Property Tax, CL	90	139	178	257	352	474	640	1,197
-Average Property Tax, PL	0	0	4	46	110	205	351	857
-Change in Tax	(90)	(139)	(174)	(211)	(242)	(269)	(289)	(340)
-Average Renter's Credit, PL	(80)	(66)	(57)	(41)	(27)	(18)	(15)	(15)
-Net Change in Property Tax/Rent	(170)	(205)	(231)	(251)	(269)	(287)	(304)	(355)
D. Total Tax								
-Average Tax, CL	93	208	380	638	1,095	1,856	2,660	6,161
-Average Tax, PL	(40)	(40)	203	570	1,056	1,874	2,672	6,026
-Change in Tax	(133)	(248)	(177)	(68)	(39)	18	12	(135)
-Average Tax Rate, CL	3.84%	2.77%	3.08%	3.68%	4.46%	5.38%	5.97%	7.78%
-Average Tax Rate, PL	-1.63%	-0.53%	1.65%	3.28%	4.30%	5.44%	6.00%	7.61%
Income Group	1	2	3	4	5	6	7	8
Market Value of Home	16,800	18,697	20,561	24,964	30,447	38,173	50,399	94,307
Individual Income Tax								
-Percent Reduction in Tax Burden	-100%	-91%	-51%	-38%	-27%	-20%	-16%	-15%
Property Tax								
-Reduction Due To Homestead Exemption	(90)	(139)	(174)	(21)	(242)	(269)	(289)	(340)
-Reduction Due to Renters' Credit	(80)	(66)	(57)	(41)	(27)	(18)	(15)	(15)
-Total Reduction	(170)	(205)	(231)	(251)	(269)	(287)	(304)	(355)
-Property Tax Relief								
-as a % of CL Tax:	-7.0%	-2.7%	-1.9%	-1.4%	-1.1%	-0.8%	-0.7%	-0.4%
-as a % of CL Tax:	-188.3%	-147.5%	-129.5%	-97.7%	-76.5%	-60.5%	-47.5%	-29.7%
Sales Tax								
-Sales Tax Burden	8.0%	2.5%	2.2%	1.9%	1.7%	1.7%	1.4%	1.2%
-Low-Income Sales Tax Credit	153	171	113	0	0	0	0	0
-Sales Tax Burden - After Sales Tax Credit.	1.7%	0.3%	1.3%	1.9%	1.7%	1.7%	1.4%	1.2%
OVERALL BURDEN								
Current Law	3.84%	2.77%	3.08%	3.68%	4.46%	5.38%	5.97%	7.78%
CL, Plus Sales Tax	11.82%	5.32%	5.27%	5.55%	6.21%	7.05%	7.42%	9.03%
CL, Plus Sales Tax, Plus Inc. Tax	11.70%	4.48%	4.44%	4.73%	5.40%	6.27%	6.68%	8.06%
CL, + ST, + IT, +Low-income Credit	5.37%	2.20%	3.52%	4.73%	5.40%	6.27%	6.68%	8.06%
CL, + ST, + IT, + LICR+Prop Credit	-1.63%	-0.53%	1.65%	3.28%	4.30%	5.44%	6.00%	7.61%

Appendix 3-1. House Bill 671 Final Version - All Households - Calendar Year 1993

Income Bracket	Number of Household	Total Income	Current Law			Proposed Law			Current to Proposed Law			No Tax Liability		Percentage of		Tax Rates		% of State Liab.		\$ Change in Avg. Liability
			Tax		Difference	Tax		Difference	No. of Gainers	No. of Losers	No. Change	CL	PL	Gainers	Losers	CL	PL	CL	PL	
0 - 2,000	20,088	23,447,880	19,232	0	(19,232)	19,232	0	(19,232)	648	0	19,440	15,228	20,088	3.23%	0.00%	0.08%	0.00%	0.01%	0.00%	(1)
2,000 - 4,000	21,546	64,597,176	354,476	0	(354,476)	354,476	0	(354,476)	15,228	0	6,318	5,346	21,546	70.68%	0.00%	0.55%	0.00%	0.12%	0.00%	(16)
4,000 - 6,000	18,468	91,868,580	790,733	367,772	(422,960)	790,733	367,772	(422,960)	13,284	162	5,022	5,022	10,044	71.93%	0.88%	0.86%	0.40%	0.26%	0.11%	(23)
6,000 - 8,000	17,010	118,638,918	1,243,131	950,288	(292,843)	1,243,131	950,288	(292,843)	11,016	162	5,832	4,698	8,586	64.76%	0.95%	1.05%	0.80%	0.41%	0.29%	(17)
8,000 - 10,000	18,630	168,044,544	2,114,651	1,705,687	(408,964)	2,114,651	1,705,687	(408,964)	7,938	4,698	5,994	3,240	8,262	42.61%	25.22%	1.26%	1.02%	0.70%	0.52%	(22)
10,000 - 12,000	16,080	177,124,148	2,620,894	2,163,160	(457,734)	2,620,894	2,163,160	(457,734)	7,726	6,616	1,738	1,818	6,166	48.05%	41.14%	1.48%	1.22%	0.87%	0.66%	(28)
12,000 - 14,000	14,286	185,140,662	3,106,182	2,881,806	(224,376)	3,106,182	2,881,806	(224,376)	6,220	6,572	1,494	1,616	4,148	43.54%	46.00%	1.68%	1.56%	1.03%	0.88%	(16)
14,000 - 16,000	14,056	210,896,380	4,018,768	3,687,027	(331,741)	4,018,768	3,687,027	(331,741)	7,088	6,042	926	1,126	3,930	50.43%	42.99%	1.91%	1.75%	1.33%	1.13%	(24)
16,000 - 18,000	13,088	222,094,204	4,634,040	4,267,923	(366,117)	4,634,040	4,267,923	(366,117)	6,762	5,200	1,126	1,046	3,448	51.67%	39.73%	2.09%	1.92%	1.54%	1.30%	(28)
18,000 - 20,000	12,170	229,927,114	5,173,542	5,143,440	(30,101)	5,173,542	5,143,440	(30,101)	5,884	5,600	686	644	2,244	48.35%	46.01%	2.25%	2.24%	1.72%	1.57%	(2)
20,000 - 25,000	26,368	593,473,538	15,470,682	14,613,399	(857,283)	15,470,682	14,613,399	(857,283)	14,922	10,440	1,006	1,006	2,488	56.59%	39.59%	2.61%	2.46%	5.14%	4.46%	(33)
25,000 - 30,000	22,800	624,388,966	18,125,786	18,571,859	446,073	18,125,786	18,571,859	446,073	11,744	9,944	1,112	792	1,196	51.51%	43.61%	2.90%	2.97%	6.02%	5.67%	20
30,000 - 35,000	18,468	598,717,404	19,507,246	20,848,561	1,341,315	19,507,246	20,848,561	1,341,315	7,770	10,382	316	434	282	42.07%	56.22%	3.26%	3.48%	6.48%	6.37%	73
35,000 - 40,000	15,890	594,872,990	21,311,526	23,175,486	1,863,960	21,311,526	23,175,486	1,863,960	6,086	9,422	382	184	162	38.30%	59.30%	3.58%	3.90%	7.08%	7.08%	117
40,000 - 45,000	14,368	609,335,472	22,467,884	25,125,764	2,660,880	22,467,884	25,125,764	2,660,880	4,780	9,184	404	294	242	33.27%	63.92%	3.69%	4.12%	7.46%	7.67%	185
45,000 - 50,000	11,559	548,067,225	21,385,542	23,924,767	2,539,225	21,385,542	23,924,767	2,539,225	3,211	8,116	232	162	162	27.78%	70.21%	3.90%	4.37%	7.10%	7.31%	220
50,000 - 55,000	9,300	487,935,610	19,726,673	22,344,303	2,617,630	19,726,673	22,344,303	2,617,630	2,251	6,959	90	37	0	24.20%	74.83%	4.04%	4.58%	6.55%	6.82%	281
55,000 - 60,000	6,146	352,685,907	14,444,387	16,876,742	2,432,355	14,444,387	16,876,742	2,432,355	1,232	4,899	15	22	0	20.05%	79.71%	4.10%	4.79%	4.80%	5.15%	396
60,000 - 65,000	5,178	322,605,008	13,681,746	15,904,685	2,219,939	13,681,746	15,904,685	2,219,939	960	4,023	15	0	0	18.54%	81.17%	4.24%	4.93%	4.54%	4.86%	429
65,000 - 70,000	3,508	236,497,873	10,265,345	11,993,585	1,728,240	10,265,345	11,993,585	1,728,240	578	2,923	7	44	0	16.48%	83.32%	4.34%	5.07%	3.41%	3.66%	493
70,000 - 75,000	2,516	182,095,246	8,192,697	9,457,666	1,264,969	8,192,697	9,457,666	1,264,969	464	2,045	7	4	0	18.44%	81.28%	4.50%	5.19%	2.72%	2.89%	503
75,000 - 80,000	1,862	143,952,442	6,471,111	7,638,583	1,167,472	6,471,111	7,638,583	1,167,472	312	1,542	8	0	0	16.76%	82.81%	4.50%	5.31%	2.15%	2.33%	627
80,000 - 90,000	2,496	210,822,610	9,788,614	11,346,723	1,558,109	9,788,614	11,346,723	1,558,109	484	2,001	11	5	0	19.39%	80.17%	4.64%	5.38%	3.25%	3.47%	624
90,000 - 100,000	1,579	149,339,708	7,216,387	8,287,929	1,071,542	7,216,387	8,287,929	1,071,542	308	1,267	4	5	0	19.51%	80.24%	4.83%	5.55%	2.40%	2.53%	679
100,000 - 110,000	1,045	109,524,438	5,516,416	6,356,443	840,027	5,516,416	6,356,443	840,027	200	840	5	1	0	19.14%	80.38%	5.04%	5.80%	1.83%	1.94%	804
110,000 - 120,000	765	87,782,390	4,462,671	5,237,583	774,911	4,462,671	5,237,583	774,911	129	636	0	2	0	16.86%	83.14%	5.08%	5.97%	1.48%	1.60%	1,013
120,000 - 130,000	613	76,534,589	3,954,002	4,641,724	687,722	3,954,002	4,641,724	687,722	96	515	2	4	0	15.66%	84.01%	5.70%	6.06%	1.31%	1.42%	1,122
130,000 - 140,000	449	60,543,348	3,274,359	3,825,006	550,647	3,274,359	3,825,006	550,647	74	373	2	1	0	16.48%	83.07%	5.41%	6.32%	1.09%	1.17%	1,226
140,000 - 150,000	366	52,931,376	2,943,886	3,421,008	477,122	2,943,886	3,421,008	477,122	56	310	0	2	0	15.30%	84.70%	5.56%	6.46%	0.98%	1.04%	1,304
150,000 - & above	2,526	785,647,268	48,882,946	52,658,193	3,775,247	48,882,946	52,658,193	3,775,247	626	1,893	7	31	0	24.78%	74.94%	6.22%	6.70%	16.23%	16.08%	1,495
TOTAL	313,224	8,319,533,014	301,165,555	327,417,112	26,251,558	301,165,555	327,417,112	26,251,558	138,077	122,946	52,201	42,814	92,994	44.08%	39.25%	3.62%	3.94%	100.00%	100.00%	84

Decile Group	Number of Household	Total Income	Current Law			Proposed Law			Current to Proposed Law			No Tax Liability		Percentage of		Tax Rates		% of State Liab.		\$ Change in Avg. Liability
			Tax		Difference	Tax		Difference	No. of Gainers	No. of Losers	No. Change	CL	PL	Gainers	Losers	CL	PL	CL	PL	
1	31,590	52,974,162	164,224	0	(164,224)	164,224	0	(164,224)	9,072	0	22,518	17,820	31,590	28.72%	0.00%	0.31%	0.00%	0.05%	0.00%	(5)
2	30,942	142,008,876	1,173,220	487,292	(685,928)	1,173,220	487,292	(685,928)	22,194	162	8,586	8,100	21,060	71.73%	0.52%	0.83%	0.34%	0.39%	0.15%	(22)
3	31,428	253,979,388	2,952,750	2,377,698	(575,053)	2,952,750	2,377,698	(575,053)	15,714	4,698	11,016	7,452	15,228	50.00%	14.95%	1.16%	0.94%	0.98%	0.73%	(18)
4	31,386	369,274,730	5,857,429	5,092,790	(764,639)	5,857,429	5,092,790	(764,639)	14,840	13,070	3,476	3,314	10,600	47.28%	41.64%	1.59%	1.38%	1.94%	1.56%	(24)
5	31,308	505,573,432	10,175,881	9,511,711	(664,171)	10,175,881	9,511,711	(664,171)	15,732	13,202	2,374	2,494	8,300	50.25%	42.17%	2.01%	1.88%	3.38%	2.91%	(21)
6	31,376	668,710,916	16,669,766	15,810,139	(859,627)	16,669,766	15,810,139	(859,627)	16,804	13,000	1,572	1,570	4,132	53.56%	41.43%	2.49%	2.36%	5.54%	4.83%	(27)
7	31,444	866,668,314	25,576,234	26,362,629	786,394	25,576,234	26,362,629	786,394	16,314	13,956	1,174	854	1,236	51.88%	44.38%	2.95%	3.04%	8.49%	8.05%	25
8	31,256	1,115,832,074	38,512,249	41,692,285	3,180,036	38,512,249	41,692,285	3,180,036	12,218	18,340	698	596	444	39.09%	56.68%	3.45%	3.74%	12.79%	12.73%	102
9	31,348	1,459,458,992	56,260,101	63,022,426	6,762,325	56,260,101	63,022,426	6,762,325	9,229	21,430	689	493	404	29.44%	68.36%	3.85%	4.32%	18.68%	19.25%	216
10	31,146	2,885,052,130	143,823,703	163,060,142	19,236,440	143,823,703	163,060,142	19,236,440	5,960	25,088	98	121	0	19.14%	80.55%	4.99%	5.65%	47.76%	49.80%	618
10A	10,603	610,569,511	25,190,709	29,279,026	4,088,318	25,190,709	29,279,026	4,088,318	2,168	8,405	30	22	0	20.45%	79.27%	4.13%	4.80%	8.36%	8.94%	386
10B	10,216	702,702,414	30,827,143	35,946,396	5,119,253	30,827,143	35,946,396	5,119,253	1,732	8,449	35	48	0	16.95%	82.70%	4.39%	5.12%	10.24%	10.98%	501
10C	10,327	1,571,780,205	87,805,851	97,834,720	10,028,869	87,805,851	97,834,720	10,028,869	2,060	8,234	33	51	0	19.95%	79.73%	5.59%	6.22%	29.16%	29.88%	971
TOTAL	313,224	8,319,533,014	301,165,557	327,417,112	26,251,553	301,165,557	327,417,112	26,251,553	138,077	122,946	52,201	42,814	92,994	44.08%	39.25%	3.62%	3.94%	100.00%	100.00%	84

Source: Department of Revenue in Montana

Appendix 3-2. House Bill 671 Final Version - Head of Household - Calendar Year 1993

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers	No. of Losers	No Change	No Tax Liability CL	PL	Percentage of Gainers	Losers	Tax Rates CL	PL	% of State Liab. CL	PL	\$ Change in Avg. Liability
0 - 2,000	810	1,142,262	0	0	0	0	0	810	810	810	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0
2,000 - 4,000	648	1,863,000	2,824	0	(2,824)	162	0	486	486	648	25.00%	0.00%	0.15%	0.00%	0.00%	0.00%	(4)
4,000 - 6,000	1,296	6,445,656	26,323	0	(26,323)	972	0	324	324	1,296	75.00%	0.00%	0.41%	0.00%	0.01%	0.00%	(20)
6,000 - 8,000	1,620	10,967,724	105,603	49,182	(56,421)	1,296	0	324	324	1,134	80.00%	0.00%	0.96%	0.45%	0.04%	0.02%	(35)
8,000 - 10,000	2,268	20,604,132	263,259	57,023	(206,236)	2,106	0	162	162	1,134	92.86%	0.00%	1.28%	0.28%	0.09%	0.02%	(91)
10,000 - 12,000	1,968	21,936,924	323,164	124,077	(199,087)	1,848	80	40	40	966	93.90%	4.07%	1.47%	0.57%	0.11%	0.04%	(101)
12,000 - 14,000	1,080	14,259,800	293,015	202,837	(90,178)	840	200	40	40	80	77.78%	18.52%	2.05%	1.42%	0.10%	0.06%	(83)
14,000 - 16,000	1,280	18,885,280	386,026	269,826	(116,200)	920	360	0	0	160	71.88%	28.13%	2.04%	1.43%	0.13%	0.08%	(91)
16,000 - 18,000	1,440	24,544,320	625,251	495,756	(132,495)	1,160	240	40	0	0	80.56%	16.67%	2.56%	2.02%	0.21%	0.15%	(92)
18,000 - 20,000	920	17,549,520	401,048	378,608	(22,440)	640	280	0	0	0	69.57%	30.43%	2.29%	2.16%	0.13%	0.12%	(24)
20,000 - 25,000	2,442	54,447,344	1,526,784	1,525,688	(1,096)	1,560	680	202	162	202	63.88%	27.85%	2.80%	2.80%	0.51%	0.47%	0
25,000 - 30,000	1,766	47,950,898	1,605,144	1,634,015	28,871	978	604	184	162	162	55.38%	34.20%	3.35%	3.41%	0.53%	0.50%	16
30,000 - 35,000	836	26,523,750	1,104,291	1,118,026	13,734	462	374	0	0	0	55.26%	44.74%	4.16%	4.22%	0.37%	0.34%	16
35,000 - 40,000	638	23,833,678	1,094,399	1,124,466	30,067	330	308	0	0	0	51.72%	48.28%	4.59%	4.72%	0.36%	0.34%	47
40,000 - 45,000	330	13,850,892	634,774	691,878	57,104	88	242	0	0	0	26.67%	73.33%	4.58%	5.00%	0.21%	0.21%	173
45,000 - 50,000	284	13,372,342	648,797	692,598	43,801	105	179	0	0	0	36.97%	63.03%	4.85%	5.18%	0.22%	0.21%	154
50,000 - 55,000	97	5,121,065	242,041	260,898	18,857	15	82	0	0	0	15.46%	84.54%	4.73%	5.09%	0.08%	0.08%	194
55,000 - 60,000	45	2,553,240	139,510	146,899	7,389	15	30	0	0	0	33.33%	66.67%	5.46%	5.75%	0.05%	0.04%	164
60,000 - 65,000	37	2,324,380	39,787	71,577	31,699	0	37	0	0	0	0.00%	100.00%	1.72%	3.08%	0.01%	0.02%	857
65,000 - 70,000	35	2,343,941	107,300	126,946	19,647	4	31	0	0	0	11.43%	88.57%	4.58%	5.42%	0.04%	0.04%	561
70,000 - 75,000	22	1,590,275	92,176	95,081	2,905	10	12	0	0	0	45.45%	54.55%	5.80%	5.98%	0.03%	0.03%	132
75,000 - 80,000	12	929,519	46,166	55,443	9,277	2	10	0	0	0	16.67%	83.33%	4.97%	5.96%	0.02%	0.02%	773
80,000 - 90,000	38	3,208,712	187,408	190,586	3,178	17	20	0	0	0	44.47%	52.63%	5.84%	5.94%	0.06%	0.06%	84
90,000 - 100,000	21	1,963,182	109,681	117,204	7,523	6	15	0	0	0	28.57%	71.43%	5.59%	5.97%	0.04%	0.04%	358
100,000 - 110,000	18	1,876,762	109,570	115,235	5,665	8	10	0	0	0	44.44%	55.56%	5.84%	6.14%	0.04%	0.04%	315
110,000 - 120,000	16	1,822,921	98,895	115,636	16,776	3	13	0	0	0	18.75%	81.25%	5.42%	6.34%	0.03%	0.04%	1,049
120,000 - 130,000	12	1,495,032	80,912	87,915	7,003	4	8	0	0	0	33.33%	66.67%	5.41%	5.88%	0.03%	0.03%	584
130,000 - 140,000	10	1,335,747	76,011	80,769	4,758	2	8	0	0	0	20.00%	80.00%	5.69%	6.05%	0.03%	0.02%	476
140,000 - 150,000	8	1,155,294	63,713	73,186	9,473	2	6	0	0	0	25.00%	75.00%	5.51%	6.33%	0.02%	0.02%	1,184
150,000 - & above	52	19,676,499	1,419,446	1,386,775	(32,671)	22	30	0	0	0	42.31%	57.69%	7.21%	7.05%	0.47%	0.42%	(628)
TOTAL	20,049	365,574,091	11,853,318	11,288,130	(568,244)	13,577	3,859	2,613	2,511	6,529	67.72%	19.25%	3.24%	3.09%	3.94%	3.45%	(28)

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers	No. of Losers	No Change	No Tax Liability CL	PL	Percentage of Gainers	Losers	Tax Rates CL	PL	% of State Liab. CL	PL	\$ Change in Avg. Liability
1	1,296	2,389,824	2,824	0	(2,824)	162	0	1,134	1,134	1,296	12.50%	0.00%	0.12%	0.00%	0.00%	0.00%	(2)
2	1,782	9,074,430	52,329	12,561	(39,768)	1,296	0	486	486	1,620	72.73%	0.00%	0.58%	0.14%	0.02%	0.00%	(22)
3	3,078	24,744,204	261,453	68,311	(193,142)	2,592	0	486	486	1,944	84.21%	0.00%	1.06%	0.28%	0.09%	0.02%	(63)
4	3,374	38,776,600	657,560	313,947	(343,613)	3,094	240	40	40	1,208	91.70%	7.11%	1.70%	0.81%	0.22%	0.10%	(102)
5	3,120	50,048,880	1,152,506	883,865	(268,641)	2,320	720	80	40	160	74.36%	23.08%	2.30%	1.77%	0.38%	0.27%	(86)
6	2,642	55,766,824	1,462,892	1,458,205	(4,688)	1,680	760	202	162	202	63.57%	28.77%	2.62%	2.61%	0.49%	0.45%	(2)
7	2,708	73,967,816	2,529,998	2,574,602	44,604	1,602	922	184	162	162	59.16%	34.05%	3.42%	3.48%	0.84%	0.79%	16
8	1,078	38,846,610	1,768,859	1,801,346	32,486	572	506	0	0	0	53.06%	46.94%	4.55%	4.64%	0.59%	0.55%	330
9	600	27,232,174	1,275,703	1,382,369	106,666	149	451	0	0	0	24.83%	75.17%	4.68%	5.08%	0.42%	0.42%	178
10A	371	44,726,729	2,692,251	2,792,926	100,673	110	260	1	1	0	29.65%	70.08%	6.02%	6.24%	0.89%	0.85%	271
10B	90	5,004,465	261,130	276,572	15,441	30	60	0	0	0	33.33%	66.67%	5.22%	5.53%	0.09%	0.08%	172
10C	102	6,870,550	268,699	329,440	60,740	16	86	0	0	0	15.69%	84.31%	3.91%	4.79%	0.09%	0.10%	596
Total	20,049	365,574,091	11,856,375	11,288,132	(568,247)	13,577	3,859	2,613	2,511	6,592	67.72%	19.25%	3.24%	3.09%	3.94%	3.45%	(28)

Source: Department of Revenue in Montana

Appendix 3-3. House Bill 671 Final Version - Married Filing Joint - Calendar Year 1993

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers	No. of Losers	No Change	No Tax Liability CL	PL	Percentage of Gainers	Losers	Tax Rates CL	PL	% of State Liab. CL	PL	\$ Change in Avg. Liability
0 - 2,000	1,296	1,120,554	5,797	0	(5,797)	162	0	1,134	1,134	1,296	12.50%	0.00%	0.52%	0.00%	0.00%	0.00%	(4)
2,000 - 4,000	2,430	8,143,092	6,006	0	(6,006)	324	0	2,106	1,944	2,430	13.33%	0.00%	0.07%	0.00%	0.00%	0.00%	(2)
4,000 - 6,000	2,106	10,836,504	4,139	0	(4,139)	324	0	1,782	1,782	2,106	15.38%	0.00%	0.04%	0.00%	0.00%	0.00%	(2)
6,000 - 8,000	4,050	28,115,586	55,778	0	(55,778)	1,296	0	2,754	2,592	4,050	32.00%	0.00%	0.20%	0.00%	0.02%	0.00%	(14)
8,000 - 10,000	5,346	48,723,768	212,277	42,509	(169,768)	3,240	162	1,944	2,106	4,536	60.61%	3.03%	0.44%	0.09%	0.07%	0.01%	(32)
10,000 - 12,000	3,742	41,247,504	275,699	63,497	(212,202)	2,692	80	970	848	3,180	71.49%	2.14%	0.67%	0.15%	0.09%	0.02%	(57)
12,000 - 14,000	4,218	54,774,940	478,191	175,638	(302,553)	3,048	200	970	930	2,978	72.26%	4.74%	0.87%	0.32%	0.16%	0.05%	(72)
14,000 - 16,000	4,650	70,218,954	748,092	344,740	(403,353)	3,364	480	806	886	2,810	72.34%	10.32%	1.07%	0.49%	0.25%	0.11%	(87)
16,000 - 18,000	4,366	74,162,968	899,166	382,042	(517,123)	3,202	360	804	764	2,566	73.34%	8.25%	1.21%	0.52%	0.30%	0.12%	(118)
18,000 - 20,000	3,764	71,050,094	1,066,295	620,991	(445,304)	2,882	560	322	362	1,402	76.57%	14.88%	1.50%	0.87%	0.35%	0.19%	(118)
20,000 - 25,000	8,002	180,188,854	3,849,464	2,455,350	(1,394,114)	6,682	1,040	280	400	1,042	83.50%	13.00%	2.14%	1.36%	1.28%	0.75%	(174)
25,000 - 30,000	6,978	190,040,060	4,883,913	4,061,692	(822,221)	4,674	1,694	610	546	712	66.98%	24.28%	2.57%	2.14%	1.62%	1.24%	(118)
30,000 - 35,000	5,156	166,941,352	5,458,615	4,823,621	(634,994)	3,474	1,616	66	206	80	67.38%	31.34%	3.27%	2.89%	1.81%	1.47%	(123)
35,000 - 40,000	4,062	151,787,576	6,071,257	5,538,468	(532,789)	2,724	1,228	110	0	0	67.06%	30.23%	4.00%	3.65%	2.02%	1.69%	(131)
40,000 - 45,000	3,772	160,011,478	6,320,551	5,972,144	(348,407)	2,360	1,162	250	272	242	62.57%	30.81%	3.95%	3.73%	2.10%	1.82%	(92)
45,000 - 50,000	2,418	114,576,618	5,090,411	4,586,826	(503,585)	1,644	557	217	162	162	67.99%	23.04%	4.44%	4.00%	1.69%	1.40%	(208)
50,000 - 55,000	1,362	71,450,209	3,445,752	3,366,846	(78,907)	846	516	0	0	0	62.11%	37.89%	4.82%	4.71%	1.14%	1.03%	(58)
55,000 - 60,000	1,133	65,027,491	3,014,626	2,936,848	(77,779)	625	493	15	22	0	55.16%	43.51%	4.64%	4.52%	1.00%	0.90%	(69)
60,000 - 65,000	922	57,482,777	2,941,557	2,877,658	(63,899)	615	307	0	0	0	66.70%	33.30%	5.12%	5.01%	0.98%	0.88%	(69)
65,000 - 70,000	724	48,712,101	2,224,128	2,352,032	127,904	330	393	1	41	0	45.58%	54.28%	4.57%	4.83%	0.74%	0.72%	177
70,000 - 75,000	401	28,981,403	1,506,776	1,537,113	30,337	206	193	2	4	0	51.37%	48.13%	5.20%	5.30%	0.50%	0.47%	76
75,000 - 80,000	344	26,539,823	1,335,991	1,412,645	76,654	168	172	4	0	0	48.84%	50.00%	5.03%	5.32%	0.44%	0.43%	223
80,000 - 90,000	458	38,660,560	1,973,180	2,107,806	134,626	108	248	2	2	0	45.41%	54.15%	5.10%	5.45%	0.66%	0.64%	294
90,000 - 100,000	329	31,049,157	1,613,944	1,674,180	60,237	140	188	1	3	0	42.55%	57.14%	5.20%	5.39%	0.54%	0.51%	183
100,000 - 110,000	227	23,773,286	1,350,073	1,412,859	62,786	94	133	0	1	0	41.41%	58.59%	5.68%	5.94%	0.45%	0.43%	277
110,000 - 120,000	180	20,687,042	1,163,117	1,286,754	123,638	57	123	0	2	0	31.67%	68.33%	5.62%	6.22%	0.39%	0.39%	687
120,000 - 130,000	136	16,917,649	960,928	1,061,242	100,314	45	90	1	4	0	33.09%	66.18%	5.68%	6.27%	0.32%	0.32%	738
130,000 - 140,000	109	14,705,403	864,880	964,478	99,598	32	77	0	0	0	29.36%	70.64%	5.88%	6.56%	0.29%	0.29%	914
140,000 - 150,000	96	13,894,934	847,701	915,259	67,558	23	73	0	0	0	23.96%	76.04%	6.10%	6.59%	0.28%	0.28%	704
150,000 - & above	601	166,573,104	10,617,410	11,448,473	831,063	205	396	0	4	0	34.11%	65.89%	6.37%	6.87%	3.53%	3.50%	1,383
TOTAL	73,378	1,996,394,841	69,285,714	64,421,711	(4,864,003)	45,686	12,541	15,151	15,017	29,592	62.26%	17.09%	3.47%	3.23%	23.01%	19.68%	(66)

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers	No. of Losers	No Change	No Tax Liability CL	PL	Percentage of Gainers	Losers	Tax Rates CL	PL	% of State Liab. CL	PL	\$ Change in Avg. Liability
1	1,944	2,858,328	5,797	0	(5,797)	162	0	1,782	1,782	1,944	8.33%	0.00%	0.20%	0.00%	0.00%	0.00%	(3)
2	4,374	20,244,330	14,436	0	(14,436)	972	0	3,402	3,240	4,374	22.22%	0.00%	0.07%	0.00%	0.00%	0.00%	(3)
3	8,262	67,407,552	234,904	32,371	(202,533)	3,726	162	4,374	4,374	7,614	45.10%	1.96%	0.35%	0.05%	0.08%	0.10%	(25)
4	8,206	96,853,986	767,919	241,040	(526,879)	6,066	240	1,900	1,738	6,282	73.92%	2.92%	0.79%	0.25%	0.25%	0.70%	(64)
5	10,418	168,180,954	1,900,707	881,210	(1,019,497)	7,566	1,000	1,852	1,892	6,178	72.62%	9.60%	1.13%	0.52%	0.63%	0.27%	(98)
6	9,846	210,348,708	4,118,130	2,568,745	(1,549,385)	7,884	1,440	522	722	1,964	80.07%	14.63%	1.96%	1.22%	1.37%	0.78%	(157)
7	9,304	255,753,306	6,771,010	5,658,147	(1,112,864)	6,364	2,290	650	546	752	68.40%	24.61%	2.65%	2.21%	2.25%	1.73%	(120)
8	8,186	290,772,926	10,816,572	9,693,477	(1,123,095)	5,568	2,420	198	206	80	68.02%	29.56%	3.72%	3.30%	3.59%	2.96%	(137)
9	6,819	311,444,611	13,324,197	12,412,676	(911,521)	4,436	1,938	445	434	404	65.05%	28.42%	4.28%	3.99%	4.42%	3.79%	(134)
10	6,019	572,530,140	31,332,039	32,934,044	1,602,004	2,942	3,051	26	83	0	48.88%	50.69%	5.47%	5.75%	10.40%	10.06%	266
10A	1,904	109,610,733	5,243,208	5,135,096	(108,112)	1,149	740	15	22	0	60.35%	38.87%	4.78%	4.68%	1.74%	1.57%	(57)
10B	1,906	130,875,541	6,377,706	6,608,862	231,155	945	955	6	45	0	49.58%	50.10%	4.87%	5.05%	2.12%	2.02%	121
10C	2,209	332,043,866	19,711,125	21,190,086	1,478,961	848	1,356	5	16	0	38.39%	61.39%	5.94%	6.38%	6.54%	6.47%	670
Total	73,378	1,996,394,841	69,285,711	64,421,710	(4,864,003)	45,686	12,541	15,151	15,017	29,592	62.26%	17.09%	3.47%	3.23%	23.01%	19.68%	(66)

Source: Department of Revenue in Montana

Appendix 3-4. House Bill 671 Final Versioni - Married Filing Separate - Calendar Year 1993

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers No. of Losers No Change	No Tax Liability CL PL	Percentage of Gainers Losers	Tax Rates CL PL	% of State Liab. CL PL	\$ Change in Avg. Liability
0 - 2,000	162	153,738	0	0	0	0 0 162	162 162	0.00% 0.00%	0.00% 0.00%	0.00% 0.00%	0
2,000 - 4,000	810	2,538,054	16,033	0	(16,033)	486 0 324	162 810	60.00% 0.00%	0.63% 0.00%	0.01% 0.00%	(20)
4,000 - 6,000	486	2,533,032	38,607	24,587	(14,020)	486 0 0	0 162	100.00% 0.00%	1.52% 0.97%	0.01% 0.01%	(29)
6,000 - 8,000	324	2,252,772	15,518	0	(15,518)	324 0 0	0 324	100.00% 0.00%	0.69% 0.00%	0.01% 0.00%	(48)
8,000 - 10,000	648	5,448,060	56,257	37,238	(19,019)	162 162 324	162 324	25.00% 25.00%	1.03% 0.68%	0.02% 0.01%	(29)
10,000 - 12,000	1,206	13,324,990	126,094	96,623	(29,471)	400 280 526	486 766	33.17% 23.22%	0.95% 0.73%	0.04% 0.03%	(24)
12,000 - 14,000	1,568	20,425,490	274,342	191,867	(82,475)	1,126 322 120	40 766	71.81% 20.54%	1.34% 0.94%	0.09% 0.06%	(53)
14,000 - 16,000	1,882	28,338,904	428,914	284,043	(144,872)	1,642 200 40	80 760	87.25% 10.63%	1.51% 1.00%	0.14% 0.09%	(77)
16,000 - 18,000	2,320	39,491,600	686,223	469,332	(216,891)	1,880 320 120	40 720	81.03% 13.79%	1.74% 1.19%	0.23% 0.14%	(93)
18,000 - 20,000	2,242	42,340,536	633,735	450,241	(183,494)	1,922 280 40	40 680	85.73% 12.49%	1.50% 1.06%	0.21% 0.14%	(82)
20,000 - 25,000	7,160	162,109,960	3,144,271	2,286,422	(857,849)	5,880 1,240 40	0 920	82.12% 17.32%	1.94% 1.41%	1.04% 0.70%	(120)
25,000 - 30,000	8,210	226,461,594	5,466,384	5,129,783	(336,601)	5,066 2,866 278	0 322	61.71% 34.91%	2.14% 2.27%	1.82% 1.57%	(41)
30,000 - 35,000	8,494	276,978,352	7,871,380	8,380,757	509,376	3,372 5,034 88	0 40	39.70% 59.27%	2.84% 3.03%	2.61% 2.56%	60
35,000 - 40,000	8,766	329,531,744	10,435,278	11,871,768	1,436,490	2,790 5,888 88	0 0	31.83% 67.17%	3.17% 3.60%	3.46% 3.63%	164
40,000 - 45,000	8,792	372,882,750	12,725,089	14,969,638	2,244,549	2,134 6,504 154	22 0	24.27% 73.98%	3.41% 4.01%	4.23% 4.57%	255
45,000 - 50,000	8,082	383,461,821	13,936,313	16,539,859	2,603,546	1,410 6,657 15	0 0	17.45% 82.37%	3.63% 4.31%	4.63% 5.05%	322
50,000 - 55,000	7,115	373,344,077	14,125,964	16,507,619	2,381,655	1,248 5,792 75	22 0	17.54% 81.41%	3.78% 4.42%	4.69% 5.04%	335
55,000 - 60,000	4,616	264,879,659	10,302,586	12,621,588	2,319,002	562 4,054 0	0 0	12.18% 87.82%	3.89% 4.77%	3.42% 3.85%	502
60,000 - 65,000	3,964	246,882,446	9,984,486	12,059,443	2,075,157	345 3,604 15	0 0	8.70% 90.92%	4.04% 4.88%	3.32% 3.68%	524
65,000 - 70,000	2,547	171,813,921	7,190,928	8,679,344	1,488,415	213 2,329 5	2 0	8.36% 91.44%	4.19% 5.05%	2.39% 2.65%	584
70,000 - 75,000	1,926	139,338,535	6,005,049	7,093,771	1,088,722	232 1,690 4	0 0	12.05% 87.75%	4.31% 5.09%	1.99% 2.17%	565
75,000 - 80,000	1,402	108,445,027	4,649,060	5,668,180	1,019,119	122 1,276 4	0 0	8.70% 91.01%	4.29% 5.23%	1.54% 1.73%	727
80,000 - 90,000	1,790	151,078,816	6,752,169	8,042,270	1,290,101	202 1,582 6	1 0	11.28% 88.38%	4.47% 5.32%	2.24% 2.46%	721
90,000 - 100,000	1,110	105,014,413	4,900,449	5,801,383	900,934	130 978 2	0 0	11.71% 88.11%	4.67% 5.52%	1.63% 1.77%	812
100,000 - 110,000	709	74,399,579	3,551,860	4,244,235	692,375	76 629 4	0 0	10.72% 88.72%	4.77% 5.70%	1.18% 1.30%	977
110,000 - 120,000	522	59,898,606	2,905,675	3,504,839	599,164	58 464 0	0 0	11.11% 88.89%	4.85% 5.85%	0.96% 1.07%	1,148
120,000 - 130,000	411	51,377,755	2,538,844	3,068,107	529,263	40 370 1	0 0	9.73% 90.02%	4.94% 5.97%	0.84% 0.94%	1,288
130,000 - 140,000	282	38,016,619	1,985,764	2,374,181	388,416	26 255 1	0 0	9.22% 90.43%	5.22% 6.25%	0.66% 0.73%	1,377
140,000 - 150,000	228	32,960,793	1,763,487	2,107,430	343,944	24 204 0	0 0	10.53% 89.47%	5.35% 6.39%	0.59% 0.64%	1,509
150,000 - & above	1,614	522,144,164	32,314,026	34,936,858	2,622,832	302 1,307 5	2 0	18.71% 80.98%	6.19% 6.69%	10.73% 10.67%	1,625
TOTAL	89,388	4,247,867,807	164,824,585	187,441,406	22,616,817	32,660 54,287 2,441	1,221 6,756	36.54% 60.73%	3.88% 4.41%	54.73% 57.25%	253

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers No. of Losers No Change	No Tax Liability CL PL	Percentage of Gainers Losers	Tax Rates CL PL	% of State Liab. CL PL	\$ Change in Avg. Liability
1	648	1,445,688	2,722	0	(2,722)	162 0 486	324 648	25.00% 0.00%	0.19% 0.00%	0.00% 0.00%	(4)
2	810	3,779,136	51,919	24,587	(27,332)	810 0 0	0 486	100.00% 0.00%	1.37% 0.65%	0.02% 0.01%	(34)
3	972	7,700,832	71,775	37,238	(34,537)	486 162 324	162 648	50.00% 16.67%	0.93% 0.48%	0.02% 0.01%	(36)
4	2,774	33,750,480	400,436	288,490	(111,946)	1,526 602 646	526 1,532	55.01% 21.70%	1.19% 0.85%	0.13% 0.09%	(40)
5	4,804	78,736,080	1,233,406	816,761	(416,645)	4,044 560 200	120 1,600	84.18% 11.65%	1.57% 1.04%	0.41% 0.25%	(87)
6	7,640	164,960,280	3,175,748	2,279,892	(895,856)	6,400 1,200 40	40 1,480	83.77% 15.71%	1.93% 1.38%	1.05% 0.70%	(117)
7	11,224	311,845,306	7,567,312	7,170,604	(396,707)	6,954 3,970 300	0 322	61.96% 35.37%	2.43% 2.30%	2.51% 2.19%	(35)
8	16,572	596,657,484	18,230,791	20,463,340	2,232,549	5,440 10,978 154	0 40	32.83% 66.24%	3.06% 3.43%	6.05% 6.25%	135
9	21,287	999,152,868	35,941,817	42,280,018	6,338,201	4,311 16,732 244	44 0	20.25% 78.60%	3.60% 4.23%	11.93% 12.91%	298
10	22,657	2,049,839,653	98,148,661	114,080,475	15,931,815	2,527 20,083 47	5 0	11.15% 88.64%	4.79% 5.57%	32.59% 34.84%	703
10A	7,995	460,821,889	18,050,507	21,879,268	3,828,762	922 7,073 0	0 0	11.53% 88.47%	3.92% 4.75%	5.99% 6.68%	479
10B	7,608	523,395,568	22,058,553	26,514,048	4,455,495	709 6,872 27	2 0	9.32% 90.33%	4.21% 5.07%	7.32% 8.10%	586
10C	7,054	1,065,622,196	58,039,601	65,687,159	7,647,558	896 6,138 20	3 0	12.70% 87.01%	5.45% 6.16%	19.27% 20.06%	1,084
Total	89,388	4,247,867,807	164,824,587	187,441,405	22,616,820	32,660 54,287 2,441	1,221 6,756	36.54% 60.73%	3.88% 4.41%	54.73% 57.25%	253

Source: Department of Revenue in Montana

Appendix 3-5. House Bill 671 Final Version - Single Filers - Calendar Year 1993

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers	No. of Losers	No Change	No Tax Liability CL	PL	Percentage of Gainers	Losers	Tax Rates CL	PL	% of State Liab. CL	PL	\$ Change in Avg. Liability
0 - 2,000	17,820	21,031,326	13,435	0	(13,435)	486	0	17,334	13,122	17,820	2.73%	0.00%	0.06%	0.00%	0.00%	0.00%	(1)
2,000 - 4,000	17,658	52,053,030	329,613	0	(329,613)	14,256	0	3,402	2,754	17,658	80.73%	0.00%	0.63%	0.00%	0.11%	0.00%	(19)
4,000 - 6,000	14,580	72,053,388	721,663	343,185	(378,478)	11,502	162	2,916	2,916	6,480	78.89%	1.11%	1.00%	0.48%	0.24%	0.10%	(26)
6,000 - 8,000	11,016	77,302,836	1,066,233	901,106	(165,127)	8,100	162	2,754	1,782	3,078	73.53%	1.47%	1.38%	1.17%	0.35%	0.28%	(15)
8,000 - 10,000	10,368	93,268,584	1,582,857	1,568,916	(13,941)	2,430	4,374	3,564	810	2,268	23.44%	42.19%	1.70%	1.68%	0.53%	0.48%	(1)
10,000 - 12,000	9,164	100,614,730	1,895,937	1,878,964	(16,974)	2,786	6,176	202	444	1,254	30.40%	67.39%	1.88%	1.87%	0.63%	0.57%	(2)
12,000 - 14,000	7,420	95,680,432	2,060,635	2,311,465	250,831	1,206	5,850	364	606	324	16.25%	78.84%	2.15%	2.42%	0.68%	0.71%	34
14,000 - 16,000	6,244	93,453,242	2,455,735	2,788,418	332,683	1,162	5,002	80	160	200	18.61%	80.11%	2.63%	2.98%	0.82%	0.85%	53
16,000 - 18,000	4,962	83,895,316	2,420,400	2,920,792	500,392	520	4,280	162	242	162	10.48%	86.26%	2.89%	3.48%	0.80%	0.89%	101
18,000 - 20,000	5,244	96,986,964	3,072,463	3,693,600	621,137	440	4,480	324	242	162	8.39%	85.43%	3.10%	3.73%	1.02%	1.13%	118
20,000 - 25,000	8,764	196,727,380	6,950,163	8,345,939	1,395,775	800	7,480	484	444	324	9.13%	85.35%	3.53%	4.24%	2.33%	2.55%	159
25,000 - 30,000	5,846	159,936,414	6,170,345	7,746,368	1,576,023	1,026	4,780	40	84	0	17.55%	81.77%	3.86%	4.84%	2.05%	2.37%	270
30,000 - 35,000	3,982	128,273,950	5,072,959	6,526,157	1,453,198	462	3,358	162	228	162	11.60%	84.33%	3.95%	5.09%	1.68%	1.99%	365
35,000 - 40,000	2,424	89,719,992	3,710,592	4,640,783	930,192	242	1,998	184	184	162	9.98%	82.43%	4.14%	5.17%	1.23%	1.42%	384
40,000 - 45,000	1,474	62,590,352	2,787,470	3,495,104	707,634	198	1,276	0	0	0	13.43%	86.57%	4.45%	5.58%	0.93%	1.07%	480
45,000 - 50,000	775	36,656,444	1,710,021	2,105,484	395,463	52	723	0	0	0	6.71%	93.29%	4.66%	5.74%	0.57%	0.64%	510
50,000 - 55,000	726	38,020,259	1,912,916	2,208,941	296,025	142	569	15	15	0	19.56%	78.37%	5.03%	5.81%	0.64%	0.67%	408
55,000 - 60,000	352	20,225,517	987,665	1,171,408	183,742	30	332	0	0	0	8.52%	91.48%	4.88%	5.79%	0.33%	0.36%	522
60,000 - 65,000	255	15,915,405	716,024	893,007	176,982	0	255	0	0	0	0.00%	100.00%	4.50%	5.66%	0.24%	0.27%	694
65,000 - 70,000	202	13,627,910	742,990	835,263	92,273	31	170	1	1	0	15.33%	84.16%	5.45%	6.13%	0.25%	0.26%	457
70,000 - 75,000	167	12,185,033	588,696	731,702	143,006	16	150	1	0	0	9.58%	89.82%	4.83%	6.00%	0.20%	0.22%	856
75,000 - 80,000	104	8,038,073	439,894	502,316	62,422	20	84	0	0	0	19.23%	80.77%	5.47%	6.25%	0.15%	0.15%	600
80,000 - 90,000	210	17,874,522	875,857	1,006,061	130,204	57	151	2	1	0	27.14%	71.90%	4.90%	5.63%	0.29%	0.31%	620
90,000 - 100,000	119	11,312,956	592,312	695,161	102,849	32	86	1	2	0	26.89%	72.27%	5.24%	6.14%	0.20%	0.21%	864
100,000 - 110,000	91	9,474,811	504,913	584,114	79,201	22	68	1	0	0	24.18%	74.73%	5.33%	6.16%	0.17%	0.18%	870
110,000 - 120,000	47	5,373,821	295,021	330,354	35,333	11	36	0	0	0	23.40%	76.60%	5.49%	6.15%	0.10%	0.10%	752
120,000 - 130,000	54	6,744,153	373,318	424,460	51,142	7	47	0	0	0	12.96%	87.04%	5.54%	6.29%	0.12%	0.13%	947
130,000 - 140,000	48	6,485,579	347,704	405,578	57,874	14	33	1	1	0	29.17%	68.75%	5.36%	6.25%	0.12%	0.12%	1206
140,000 - 150,000	34	4,920,355	268,986	325,133	56,147	7	27	0	2	0	20.59%	79.41%	5.47%	6.61%	0.09%	0.10%	1651
150,000 - & above	259	77,253,501	4,532,064	4,886,086	354,022	97	160	2	25	0	37.45%	61.78%	5.87%	6.32%	1.50%	1.49%	1367
TOTAL	130,409	1,707,696,275	55,198,881	64,265,865	9,066,982	46,154	52,259	31,996	24,065	50,054	35.39%	40.07%	3.23%	3.76%	18.33%	19.63%	70

Income Bracket	Number of Household	Total Income	Current Law Tax	Proposed Law Tax	Difference	Current to Proposed Law No. of Gainers	No. of Losers	No Change	No Tax Liability CL	PL	Percentage of Gainers	Losers	Tax Rates CL	PL	% of State Liab. CL	PL	\$ Change in Avg. Liability
1	27,702	46,280,322	152,881	0	(152,881)	8,586	0	19,116	14,580	27,702	30.99%	0.00%	0.33%	0.00%	0.05%	0.00%	(6)
2	23,976	106,910,980	1,054,536	450,144	(604,392)	19,116	162	4,698	4,374	14,580	79.73%	0.68%	0.97%	0.41%	0.35%	0.14%	(25)
3	19,116	154,126,800	2,384,619	2,239,777	(144,842)	8,910	4,374	5,832	2,430	5,022	46.61%	22.88%	1.55%	1.45%	0.79%	0.68%	(8)
4	17,032	199,893,664	4,031,514	4,249,313	217,799	4,154	11,988	890	1,010	1,578	24.39%	70.39%	2.02%	2.13%	1.34%	1.30%	13
5	12,966	208,607,518	5,889,262	6,929,875	1,040,613	1,802	10,922	242	442	362	13.90%	84.24%	2.82%	3.32%	1.96%	2.12%	80
6	11,248	237,635,104	7,912,995	9,503,298	1,590,303	840	9,600	808	646	486	7.47%	85.35%	3.33%	4.00%	2.63%	2.90%	141
7	8,208	225,101,886	8,707,915	10,959,271	2,251,360	1,394	6,774	40	146	0	16.98%	82.53%	3.87%	4.87%	2.89%	3.35%	274
8	5,420	189,555,064	7,696,026	9,734,121	2,038,095	638	4,436	346	390	324	11.77%	81.85%	4.06%	5.14%	2.56%	2.97%	376
9	2,642	121,629,339	5,718,384	6,947,362	1,228,979	333	2,309	0	15	0	12.60%	87.40%	4.70%	5.71%	1.90%	2.12%	465
10	2,099	217,955,608	11,650,749	13,252,699	1,601,949	381	1,694	24	32	0	18.15%	80.71%	5.35%	6.08%	3.87%	4.05%	763
10A	614	35,132,424	1,635,863	1,988,091	352,227	67	532	15	0	0	10.91%	86.64%	4.66%	5.66%	0.54%	0.61%	574
10B	600	41,580,755	2,122,184	2,494,047	371,863	62	536	2	1	0	10.33%	89.33%	5.11%	6.00%	0.70%	0.76%	620
10C	885	141,282,429	7,892,702	8,770,561	877,859	252	626	7	31	0	28.47%	70.73%	5.59%	6.21%	2.62%	2.68%	992
Total	130,409	1,707,696,285	55,198,881	64,265,860	9,066,983	46,154	52,259	31,996	24,065	50,054	35.39%	40.07%	3.23%	3.76%	18.33%	19.63%	70

Source: Department of Revenue in Montana

Appendix 4. Tax Liability Changes for Various Groups

Type of Filer	Number of Return Owning Tax		Total Tax		Average Tax Per Return		Average % Increase Per Return
	Current Law	HB671	Current Law	HB671	Current Law	HB671	HB671
Single	106,344	71,291	55,198,881	64,776,784	519	909	75%
Head of Household	17,538	10,717	11,856,373	10,694,645	676	998	48%
Married Filing Joint	58,361	37,108	69,285,714	62,277,499	1,187	1,678	41%
Married Filing Separate	88,167	78,256	164,824,585	189,078,751	1,869	2,416	29%
TOTAL	270,410	197,372	301,165,553	326,827,679	1,114	1,656	49%

Resources: "House Bill 671 Raises Income Taxes" Montana Taxpayer Volume XXVII Number 3 March 1993

Appendix 5. Dependent Variables for SURE Regression: Means, Standard Deviations, Maximum and Minimum for Fifty-Six Counties

Variable Name	Meaning	Mean Value (%)		Standard Deviation	Minimum	Maximum
		Unweighted	Weighted			
PFOR27	Abolish Property Tax - 1986	42.8	44.2	7.9	17.3	59.1
PFOR105	"Freeze" Property Tax - 1986	54.4	54.9	4.5	37.0	64.1
PFOR55	Abolish All Taxes, Substitute "Trade Charge" - 1990	23.0	25.2	5.0	9.9	34.2
PEROT	Ross Perot Vote - 1992	27.7	25.7	3.5	18.6	35.8
PFOR235	Establish Sales Tax, Cut Income & Property Taxes - 1993	24.0	25.5	6.9	10.7	38.6
PFOR671	Increase Income Tax - 1994	23.8	25.5	5.3	11.0	36.0
PFOR66	Require Voter Approval of New or Increased Taxes & Fees - 1994	45.3	46.8	6.2	34.0	64.0
PFOR67	Require Super Majority Approval for Increases in Taxes - 1994	47.9	48.9	5.2	34.0	64.0
PFOR28	Acquisition Value, Limit Annual Increases in Assessed Value - 1994	38.6	41.1	6.5	23.0	53.0

Note: Weighted means are computed using total votes as the weight variable.

Appendix 6. Correlation between Votes on the Tax Issues

	PFOR27	PFOR105	PFOR55	PPEROT	PFOR235	PFOR671	PFOR66	PFOR67	PFOR28
PFOR27	1.00								
PFOR105	0.52	1.00							
PFOR55	0.62	0.29	1.00						
PPEROT	0.28	0.36	0.14	1.00					
PFOR235	-0.08	-0.28	-0.01	-0.28	1.00				
PFOR671	-0.13	-0.07	0.13	-0.26	-0.16	1.00			
PFOR66	0.41	0.28	0.43	0.12	-0.30	0.36	1.00		
PFOR67	0.43	0.32	0.45	0.20	-0.28	0.39	0.93	1.00	
PFOR28	0.28	0.25	0.40	-0.06	-0.28	0.55	0.59	0.63	1.00

**Appendix 7. Independent Variables for SURE Regression: Means, Standard Deviations,
Maximum and Minimum for Fifty-Six Counties**

Variable Name	Meaning	Mean Value		Standard Deviation	Minimum	Maximum
		Unweighted	Weighted			
PVAL8386	Change in Appraised Value of Residential Property (%) 1983-1986	6.3	4.3	11.6	-17.6	45.4
PVAL8790	Change in Appraised Value of Residential Property (%) 1987-1990	-5.0	0.0	9.8	-23.0	18.0
PVAL8992	Change in Appraised Value of Residential Property (%) 1989-1992	0.2	6.6	7.8	-11.9	26.3
PVAL9194	Change in Appraised Value of Residential Property (%) 1991-1994	0.9	7.8	11.2	-21.7	25.0
MILLS86	Mill Levy - 1986	264.7	320.3	90.4	91.5	475.7
MILLS90	Mill Levy - 1990	317.0	359.1	62.7	139.0	458.0
MILLS92	Mill Levy - 1992	330.6	382.2	69.4	149.4	550.1
MILLS94	Mill Levy - 1994	371.6	409.6	66.7	173.0	545.0
PMILLS8386	Change in Mill Levy (%) 1983-1986	10.6	10.9	11.9	-13.5	42.3
PMILLS8790	Change in Mill Levy (%) 1987-1990	20.1	11.9	22.0	-12.5	100.0
PMILLS8992	Change in Mill Levy (%) 1989-1992	21.5	12.4	20.7	-9.7	96.1
PMILLS9194	Change in Mill Levy (%) 1991-1994	15.5	10.1	14.7	-9.5	66.3
TAXBASE86	Per Capita Tax Base - 1986	5049	2883	5828	872	35943
TAXBASE90	Per Capita Tax Base - 1990	2890	1967	2228	839	16993
TAXBASE92	Per Capita Tax Base - 1992	2957	1953	2272	868	17327
TAXBASE93	Per Capita Tax Base - 1993	2953	2028	2186	935	16873
TAXBASE94	Per Capita Tax Base - 1994	2991	2085	2192	987	16905
TRATIO86	Resident-Borne Taxable Value / Total County Tax Base (%) - 1986	56.8	71.0	24.0	7.4	88.8
TRATIO90	Resident-Borne Taxable Value / Total County Tax Base (%) - 1990	71.3	77.0	18.0	17.4	99.9
TRATIO92	Resident-Borne Taxable Value / Total County Tax Base (%) - 1992	71.9	78.0	17.6	16.8	98.5
TRATIO93	Resident-Borne Taxable Value / Total County Tax Base (%) - 1993	72.4	79.0	17.0	16.6	100.0
TRATIO94	Resident-Borne Taxable Value / Total County Tax Base (%) - 1994	73.0	79.0	16.8	18.4	100.0
MARLENE	Republican Congressional Candidate (%) - 1992	54.0	45.3	13.0	18.0	83.0
PSTEMP86	State Employees/Registered Voters (%) - 1986	2.3	3.5	3.6	0.3	17.0
PSTEMP90	State Employees/Registered Voters (%) - 1990	2.7	4.1	4.2	0.4	21.1
PSTEMP93	State Employees/Registered Voters (%) - 1993	2.4	3.9	3.7	0.4	17.7
PLOEMP86	Local Employees/Registered Voters (%) - 1986	9.1	7.5	2.5	5.2	16.0
PLOEMP90	Local Employees/Registered Voters (%) - 1990	9.9	8.3	2.8	5.9	16.6
PLOEMP93	Local Employees/Registered Voters (%) - 1993	10.5	7.9	3.2	5.8	18.2
PPOP8186	Rate of Population Growth 1981-1986 (%)	0.1	2.4	6.6	-18.8	12.8
PPOP8590	Rate of Population Growth 1985-1990 (%)	-7.6	-2.8	8.2	-25.9	8.9
PPOP8792	Rate of Population Growth 1987-1992 (%)	-3.4	2.0	8.6	-17.6	19.8
PPOP8893	Rate of Population Growth 1988-1993 (%)	-0.9	5.2	9.2	-17.9	24.8
TURNOUT86	Votes As Percentage Of Number Registered - 1986	78.1	73.5	6.5	62.1	89.9
TURNOUT90	Votes As Percentage Of Number Registered - 1990	77.3	76.1	6.7	45.0	88.0
TURNOUT92	Votes As Percentage Of Number Registered - 1992	79.6	79.1	3.9	67.9	85.6
TURNOUT93	Votes As Percentage Of Number Registered - 1993	71.7	69.2	6.2	50.2	86.1
TURNOUT94	Votes As Percentage Of Number Registered - 1994	75.4	70.0	6.1	62.9	88.7
PINCL5K	Percentage Of Households With Income Less Than \$5,000 - 1990	7.9	7.4	2.0	4.3	13.9
PINC5-15K	Percentage Of Households With Income \$5,000-\$15,000, - 1990	27.0	24.9	4.4	18.5	36.0
PINC15-35K	Percentage Of Households With Income \$15,000-\$35,000, - 1990	40.0	38.7	3.9	31.8	52.2
PINC50K	Percentage Of Households With Income More Than \$50,000 - 1990	10.6	13.0	3.7	4.1	22.3
PEDL12	Percentage of Persons Over 25 with Less Than 12 Years Education - 1990	22.6	18.7	4.9	9.6	31.7
PEDCOLL	Percentage of Persons Over 25 With Bachelor or Higher Degrees - 1990	15.9	20.0	4.6	8.8	33.8
OWNER	Percentage of Housing Occupied by Owners - 1990	71.0	67.4	5.4	58.5	80.7
WKIDS	Percentage Of Families With Children Under 18 - 1990	48.9	50.6	4.8	39.5	63.7
OVER 65	Number Of Residents Over 65/Total Registered Voters (%) - 1990	27.9	26.1	5.0	16.9	40.7

Note: Weighted means are computed using total votes as the weight variable.

Appendix 8-1. Correlation - 1986

	PFOR2	PFOR105	PVAL	MILL	PMILL	TAXBASE	TRATIO	PMARLENE	PSTEMP	PLOEMP	PPOP	TURMOUT	PINC5K	PINC5-15	PINC15-35	PINCM50	PEDL12	PEDCOL	POWNER	WKID	OVER65
PFOR27	1.00																				
PFOR105	0.52	1.00																			
PVAL8386	0.26	0.16	1.00																		
MILLS86	0.39	0.10	-0.25	1.00																	
PMILL8386	0.04	-0.05	-0.01	0.17	1.00																
TAXBASE86	-0.63	-0.48	0.16	-0.72	-0.13	1.00															
TRATIO86	0.49	0.23	-0.13	0.84	0.24	-0.70	1.00														
PMARLENE	-0.00	0.09	0.02	-0.40	0.26	0.21	-0.07	1.00													
PSTEMP86	0.04	-0.11	-0.12	0.45	-0.10	-0.25	0.24	-0.43	1.00												
PLOEMP86	-0.36	-0.17	-0.03	-0.58	-0.10	0.48	-0.53	0.40	-0.36	1.00											
PPOP8186	0.22	0.37	0.20	-0.03	-0.17	-0.16	0.08	-0.21	0.11	-0.28	1.00										
TURMOUT86	-0.03	-0.20	0.07	-0.21	0.27	0.27	-0.03	0.68	-0.20	0.21	-0.33	1.00									
PINC5K	0.05	0.09	-0.14	-0.06	0.11	-0.07	-0.15	0.02	-0.10	-0.04	-0.27	-0.12	1.00								
PINC5-15	0.22	0.14	-0.11	-0.10	-0.08	-0.18	-0.13	0.16	-0.27	0.14	-0.10	-0.03	0.34	1.00							
PINC15-35	-0.19	-0.13	0.02	-0.19	-0.00	0.36	-0.13	0.29	-0.17	0.18	-0.41	0.42	-0.04	-0.24	1.00						
PINCM50	-0.06	-0.03	0.12	0.16	0.04	-0.07	0.20	-0.24	0.25	-0.13	0.38	-0.20	-0.50	-0.61	-0.43	1.00					
PEDL12	-0.14	-0.12	0.03	-0.42	-0.01	0.30	-0.56	0.13	-0.31	0.33	-0.25	0.16	0.43	0.39	0.11	-0.58	1.00				
PEDCOLL	0.08	0.06	-0.03	0.44	0.00	-0.36	0.49	-0.29	0.44	-0.38	0.29	-0.32	-0.27	-0.38	-0.23	0.58	-0.75	1.00			
POWNER	0.18	-0.07	0.18	-0.10	0.21	0.16	-0.08	0.41	-0.13	0.15	-0.21	0.60	0.05	0.04	0.30	-0.29	0.29	-0.41	1.00		
WKID	-0.18	-0.04	0.06	-0.20	-0.24	0.18	-0.25	-0.40	0.14	0.08	0.45	-0.53	-0.22	-0.23	-0.38	0.45	-0.01	0.08	-0.59	1.00	
OVER65	0.19	0.08	-0.11	0.21	0.24	-0.18	0.14	0.14	-0.12	-0.08	-0.34	0.39	0.30	0.26	0.26	-0.57	0.40	-0.40	0.43	-0.59	1.00

Appendix 8-2. Correlation - 1990

	FFOR5	PVAL	MILL	PMILL	TAXBASE	TRATIO	PMARLEN	PSTEMP	PLOEMP	PPOP	TURNOUT	PINC5K	PINC5-15	PINC15-35	PINCM50	PEDL12	PEDCOL	POWNER	WKID	OVER65
FFOR5	1.00																			
PVAL8790	0.43	1.00																		
MILLS90	0.32	0.26	1.00																	
PMILL8790	-0.19	-0.51	-0.37	1.00																
TAXBASE90	-0.30	-0.20	-0.65	0.13	1.00															
TRATIO90	0.14	0.02	0.42	0.01	-0.53	1.00														
PMARLENE	-0.31	-0.42	-0.40	0.10	0.21	0.20	1.00													
PSTEMP90	0.25	0.28	0.37	-0.30	-0.23	-0.01	-0.44	1.00												
PLOEMP90	-0.37	-0.42	-0.53	0.44	0.42	-0.17	0.32	-0.35	1.00											
PPOP8590	0.46	0.65	0.31	-0.36	-0.45	0.12	-0.45	0.28	-0.50	1.00										
TURNOUT90	-0.05	0.15	-0.05	-0.22	0.09	-0.03	0.20	0.02	-0.15	-0.11	1.00									
PINC5K	-0.08	-0.21	0.10	0.17	-0.20	0.07	0.02	-0.07	-0.06	-0.12	-0.18	1.00								
PINC5-15	-0.02	-0.07	-0.11	0.04	-0.09	-0.14	0.16	-0.26	0.14	-0.03	0.01	0.34	1.00							
PINC15-35	-0.26	-0.30	-0.09	0.17	-0.02	-0.02	0.29	-0.15	0.12	-0.31	0.29	-0.04	-0.24	1.00						
PINCM50	0.25	0.34	0.07	-0.15	0.13	0.18	-0.24	0.22	-0.09	0.26	-0.16	-0.50	-0.61	-0.43	1.00					
PEDL12	-0.23	-0.44	-0.30	0.45	0.07	-0.23	0.13	-0.28	0.38	-0.34	-0.06	0.43	0.39	0.11	-0.58	1.00				
PEDCOLL	0.29	0.55	0.39	-0.37	-0.24	0.25	-0.29	0.40	-0.40	0.49	-0.16	-0.27	-0.38	-0.23	0.58	-0.75	1.00			
POWNER	-0.07	-0.28	-0.11	0.00	0.13	-0.04	0.41	-0.13	0.04	-0.42	0.37	0.05	0.04	0.30	-0.29	0.29	-0.41	1.00		
WKID	0.11	0.05	-0.27	0.26	0.25	-0.20	-0.40	0.12	0.22	0.27	-0.32	-0.22	-0.23	-0.38	0.45	-0.01	0.08	-0.59	1.00	
OVER65	0.04	-0.06	0.31	-0.12	-0.31	0.12	0.14	-0.09	-0.14	-0.08	0.31	0.30	0.26	0.26	-0.57	0.40	-0.40	0.43	-0.59	1.00

Appendix 8-3. Correlation - 1992

	PPEROT	PVAL	MILL	PMILL	TAXBASE	TRATIO	PMARLEN	PSTEMP	PLOEMP	PPOP	TURNOUT	PINC5K	PINC5-15	PINC15-35	PINCM50	PEDL12	PEDCOLL	POWNER	WKID	OVER65
PPEROT	1.00																			
PVAL8992	-0.14	1.00																		
MILLS92	-0.25	0.25	1.00																	
PMILLS992	0.20	-0.32	-0.31	1.00																
TAXBASE92	0.17	-0.11	-0.58	0.32	1.00															
TRATIO92	-0.03	0.01	0.45	0.09	-0.52	1.00														
PMARLENE	0.49	-0.45	-0.34	0.34	0.24	0.19	1.00													
PSTEMP92	-0.28	0.20	0.30	-0.37	-0.25	0.01	-0.42	1.00												
PLOEMP92	0.08	-0.44	-0.49	0.49	0.42	-0.13	0.44	-0.41	1.00											
PPOP8792	-0.28	0.50	0.29	-0.36	-0.42	0.15	-0.50	0.24	-0.50	1.00										
TURNOUT92	0.26	-0.07	0.30	-0.14	-0.05	0.35	0.38	0.02	-0.07	-0.20	1.00									
PINC5K	-0.24	-0.15	0.08	0.17	-0.16	-0.01	0.02	-0.07	0.06	-0.12	-0.29	1.00								
PINC5-15	0.10	-0.10	-0.12	0.12	-0.06	-0.17	0.16	-0.26	0.26	-0.10	-0.22	0.34	1.00							
PINC15-35	0.26	-0.31	-0.07	-0.02	-0.06	0.05	0.29	-0.16	0.07	-0.20	0.33	-0.04	-0.24	1.00						
PINCM50	-0.14	0.41	0.12	-0.03	0.13	0.17	-0.24	0.22	-0.19	0.25	0.07	-0.50	-0.61	-0.43	1.00					
PEDL12	-0.05	-0.51	-0.34	0.33	0.07	-0.23	0.13	-0.29	0.48	-0.30	-0.26	0.43	0.39	0.11	-0.58	1.00				
PEDCOLL	-0.21	0.61	0.39	-0.29	-0.24	0.24	-0.29	0.43	-0.46	0.48	0.05	-0.27	-0.38	-0.23	0.58	-0.75	1.00			
POWNER	0.31	-0.42	-0.15	0.05	0.14	-0.04	0.41	-0.17	0.15	-0.40	0.45	0.05	0.04	0.30	-0.29	0.29	-0.41	1.00		
WKID	-0.29	0.21	-0.29	0.09	0.22	-0.17	-0.40	0.13	0.10	0.26	-0.57	-0.22	-0.23	-0.38	0.45	-0.01	0.08	-0.59	1.00	
OVER65	0.08	-0.25	0.28	-0.14	-0.30	0.10	0.14	-0.11	-0.07	-0.11	0.42	0.30	0.26	0.26	-0.57	0.40	-0.40	0.43	-0.59	1.00

Appendix 8-4. Correlation - 1993

	PSB235	PVAL	MILL	PMILL	TAXBASE	TRATIO	PMARLEN	PSTEMP	FLOEMP	PPOP	TURNOUT	PINC5K	PINC5-15	PINC15-35	PINCM5	PEDL12	PEDCOL	POWNER	WKID	OVER65
PSB235	1.00																			
PVAL8992	-0.07	1.00																		
MILLS92	0.20	0.25	1.00																	
PMILL8992	0.13	-0.32	-0.31	1.00																
TAXBASE93	-0.06	-0.10	-0.57	0.33	1.00															
TRATIO93	0.12	0.02	0.47	0.08	-0.52	1.00														
PMARLENE	0.23	-0.45	-0.34	0.34	0.23	0.19	1.00													
PSTEMP92	0.21	0.20	0.30	-0.37	-0.24	0.03	-0.42	1.00												
FLOEMP92	0.02	-0.44	-0.49	0.49	0.42	-0.16	0.44	-0.41	1.00											
PPOP8792	-0.06	0.50	0.29	-0.36	-0.42	0.17	-0.50	0.24	-0.50	1.00										
TURNOUT93	-0.06	-0.09	0.17	-0.21	0.02	0.04	0.27	0.11	-0.07	-0.26	1.00									
PINC5K	-0.00	-0.15	0.08	0.17	-0.17	-0.00	0.02	-0.07	0.06	-0.12	-0.24	1.00								
PINC5-15	-0.13	-0.10	-0.12	0.12	-0.06	-0.18	0.16	-0.26	0.26	-0.10	-0.05	0.34	1.00							
PINC15-35	-0.13	-0.31	-0.07	-0.02	-0.07	0.06	0.29	-0.16	0.07	-0.20	0.33	-0.04	-0.24	1.00						
PINCM50	0.24	0.41	0.12	-0.03	0.14	0.17	-0.24	0.22	-0.19	0.25	-0.12	-0.50	-0.61	-0.43	1.00					
PEDL12	-0.17	-0.51	-0.34	0.33	0.05	-0.24	0.13	-0.29	0.48	-0.30	-0.11	0.43	0.39	0.11	-0.58	1.00				
PEDCOLL	0.35	0.61	0.39	-0.29	-0.22	0.24	-0.29	0.43	-0.46	0.48	-0.08	-0.27	-0.38	-0.23	0.58	-0.75	1.00			
POWNER	-0.09	-0.42	-0.15	0.05	0.12	-0.04	0.41	-0.17	0.15	-0.40	0.55	0.05	0.04	0.30	-0.29	0.29	-0.41	1.00		
WKID	-0.10	0.21	-0.29	0.09	0.23	-0.17	-0.40	0.13	0.10	0.26	-0.65	-0.22	-0.23	-0.38	0.45	-0.01	0.08	-0.59	1.00	
OVER65	-0.11	-0.25	0.28	-0.14	-0.31	0.10	0.14	-0.11	-0.07	-0.11	0.48	0.30	0.26	0.26	-0.57	0.40	-0.40	0.43	-0.59	1.00

Appendix 8-5. Correlation -1994

	PFOR671	PFOR66	PFOR67	PFOR28	FVAL	MILL	PMILL	TAXBASE	TRATIO	PMARLEN	PSTEMP	PLOEMP	PPOP	TURNOUT	PINC5K	PINC5-15	PINC15-3	PINCM5	PEDL12	PEDCOL	POWNER	WKID	OVER65
PFOR671	1.00																						
PFOR66	0.36	1.00																					
PFOR67	0.39	0.93	1.00																				
PFOR28	0.55	0.59	0.63	1.00																			
PMARLENE	0.31	0.56	0.49	0.53	1.00																		
MILLS94	0.30	0.02	-0.02	0.16	0.10	1.00																	
PMILL9194	-0.08	-0.03	-0.06	-0.32	-0.23	-0.01	1.00																
FVAL9194	-0.18	-0.12	-0.10	-0.18	-0.24	-0.60	0.10	1.00															
TAXBASE94	-0.24	-0.17	-0.14	-0.10	-0.10	0.36	-0.15	-0.52	1.00														
TRATIO94	-0.59	-0.32	-0.22	-0.46	-0.54	-0.34	0.16	0.23	0.22	1.00													
PSTEMP93	0.27	-0.10	-0.17	0.05	0.27	0.30	-0.28	-0.24	0.03	-0.42	1.00												
PLOEMP93	-0.24	-0.24	-0.17	-0.32	-0.53	-0.32	0.23	0.36	-0.03	0.41	-0.35	1.00											
PPOP8893	0.39	0.44	0.43	0.63	0.56	0.20	-0.25	-0.39	-0.04	-0.53	0.21	-0.59	1.00										
TURNOUT94	-0.49	-0.46	-0.40	-0.42	-0.56	-0.22	0.17	0.18	0.05	0.63	-0.24	0.44	-0.52	1.00									
PINC5K	-0.09	0.01	-0.07	-0.11	-0.04	0.06	0.05	-0.17	0.01	0.02	-0.07	0.03	-0.08	-0.03	1.00								
PINC5-15	-0.08	0.18	0.23	0.04	-0.06	-0.13	-0.09	-0.06	-0.17	0.16	-0.26	0.22	-0.03	0.15	0.34	1.00							
PINC15-35	-0.10	-0.15	-0.17	-0.10	-0.11	-0.05	0.18	-0.06	0.06	0.29	-0.16	0.16	-0.27	0.33	-0.04	-0.24	1.00						
PINCM50	0.12	-0.05	0.02	0.09	0.13	0.07	-0.11	0.14	0.16	-0.24	0.22	-0.21	0.25	-0.22	-0.50	-0.61	-0.43	1.00					
PEDL12	-0.14	-0.04	-0.08	-0.27	-0.24	-0.21	0.34	0.06	-0.24	0.13	-0.29	0.41	-0.38	0.18	0.43	0.39	0.11	-0.58	1.00				
PEDCOLL	0.22	-0.07	-0.02	0.29	0.32	0.32	-0.27	-0.23	0.23	-0.29	0.43	-0.43	0.51	-0.38	-0.27	-0.38	-0.23	0.58	-0.75	1.00			
POWNER	-0.45	-0.01	-0.07	-0.29	-0.31	-0.13	0.06	0.12	-0.03	0.41	-0.17	0.24	-0.42	0.54	0.05	0.04	0.30	-0.29	0.29	-0.41	1.00		
WKID	0.38	0.24	0.24	0.17	0.24	-0.26	0.05	0.23	-0.19	-0.40	0.13	0.08	0.20	-0.52	-0.22	-0.23	-0.38	0.45	-0.01	0.08	-0.59	1.00	
OVER65	-0.22	-0.11	-0.15	0.00	-0.21	0.29	0.00	-0.30	0.11	0.14	-0.11	-0.11	-0.11	0.28	0.30	0.26	0.26	-0.57	0.40	-0.40	0.43	-0.59	1.00

Appendix 9. Regression Coefficients (The Simple Model)

INDEPENDENT VARIABLE	PFOR27		PFOR105		PFOR55		PEROT		PFOR235		PFOR671		PFOR66		PFOR67		PFOR28	
PVAL	0.0057**	0.15	0.0014	0.04	0.016**	0.3	-0.002	-0.04	0.0004	0.01	0.006*	0.1	0.011**	0.3	0.008**	0.2	0.011**	0.3
	(2.2)		(0.7)		(5.0)		(-0.7)		(0)		(1.8)		(5.0)		(4.0)		(3.9)	
MILLS	0.0019**	0.05	0.0003	0.01	0.0017**	0.03	-0.0004	-0.01	0.001	0.02	0.001*	0.02	0.0002	0.01	0	0	0.0006	0.02
	(4.6)		(1.2)		(3.2)		(-1.2)		(1.3)		(1.8)		(0.37)		(0.2)		(1.2)	
PMILLS	-0.0047*	-0.01	-0.002	-0.05	0.0029*	0.06	0.0004	0.01	0.003	0.06	-0.0004	-0.01	0.002	0.05	0.0013	0.03	-0.0038*	-0.1
	(-1.9)		(-1.0)		(1.9)		(0.3)		(1.1)		(-0.1)		(1.3)		(0.85)		(-1.8)	
MARLENE																		
PSTEMP																		
PLOEMP																		
PPOP																		
TURNOUT86																		
PINCL5K																		
PINCS-15K																		
PINC15-35K																		
PINCM50K																		
PEDL12																		
PEDCOLL																		
OWNER																		
WKIDS																		
OVER 65																		
CONSTANT																		
R2	0.24		0.03		0.22		0.07		0.06		0.14		0.30		0.23		0.32	

Note: Significance levels are indicated as follows (two tailed tests): * 10% ** 5%
T statistics are in parentheses
Dependent Variable = Log (proportion (yes) / (1-proportion (yes)))

Appendix 10. Regression Coefficients (The Complex Model)

INDEPENDENT VARIABLE	PFOR27		PFOR105		PFOR55		PEROT		PFOR235		PFOR671		PFOR66		PFOR67		PFOR28	
PVAL	0.007** (2.8)	0.2	0.003* (1.6)	0.1	0.015** (3.2)	0.3	0.001 (0.3)	0.02	-0.011 (-1.5)	-0.2	-0.005 (-1.0)	-0.1	0.008** (2.8)	0.2	0.006** (2.5)	0.2	0.008** (2.0)	0.2
MILLS	0.002** (3.7)	0.1	0.0006 (1.4)	0.02	0.001* (1.9)	0.02	0 (-0.3)	0	0.0008 (0.9)	0.02	0.001 (1.3)	0.02	0.001 (1.3)	0.03	0.001 (1.3)	0.03	0 (0.2)	0
PMILLS	-0.005* (-1.8)	-0.1	-0.001 (-0.5)	-0.03	0.002 (0.9)	0.04	0.002* (1.7)	0.04	0.001 (0.4)	0.02	-0.001 (-0.3)	-0.02	0.002 (1.3)	0.05	0.001 (0.8)	0.03	-0.004* (-1.6)	-0.1
MARLENE	0.005 (1.1)	0.1	0.007** (2.6)	0.2	0.001 (0.3)	0.02	0.004* (1.8)	0.1	0.016** (2.9)	0.3	-0.009** (-2.0)	-0.2	0 (0.1)	0	0.001 (0.5)	0.03	-0.006 (-1.5)	0.15
PSTEMP	-0.018 (-1.3)	-0.5	-0.004 (-0.5)	-0.1	0.004 (0.3)	0.1	-0.009 (-1.1)	-0.2	0.03* (1.8)	0.6	0.009 (0.7)	0.2	-0.006 (-0.8)	-0.2	-0.008 (-1.1)	-0.2	-0.015 (-1.4)	-0.4
PLOEMP	-0.02 (-1.0)	-0.5	0 (0)	0	-0.012 (-0.7)	-0.3	-0.018* (-1.8)	-0.3	-0.008 (-0.4)	-0.2	0.012 (0.6)	0.2	0.006 (0.5)	0.2	0.012 (1.2)	0.3	0.029* (1.9)	0.7
PPOP	0.003 (0.5)	0.1	0.013** (3.2)	0.3	0.002 (0.5)	0.04	-0.001 (-0.5)	-0.02	-0.003 (-0.5)	-0.1	0.008 (1.3)	0.2	0.01** (2.8)	0.3	0.009** (2.6)	0.2	0.012** (2.4)	0.3
TURNOUT86	0.003 (0.3)	0.1	-0.012** (-2.1)	-0.3	-0.009* (-1.8)	-0.2	0.01** (2.1)	0.2	-0.006 (-0.5)	-0.1	-0.009 (-0.9)	-0.2	-0.02** (-3.2)	-0.5	-0.015** (-2.5)	-0.4	-0.002 (-0.2)	-0.1
PINCLSK	0.033 (1.3)	0.8	0.02 (1.3)	0.5	0.012 (0.5)	0.2	-0.02 (-1.4)	-0.4	0.003 (0)	0.1	-0.02 (-0.8)	-0.4	0.001 (0)	0.03	-0.003 (-0.2)	-0.08	-0.009 (-0.5)	-0.2
PINC5-15K	0.032* (1.8)	0.8	0.008 (0.8)	0.2	0.032* (1.8)	0.6	0.001 (0.1)	0.02	0.009 (0.4)	0.2	-0.002 (-0.1)	-0.04	0.017 (1.4)	0.4	0.022** (2.0)	0.6	0.001 (0)	0.03
PINC15-35K	0.002 (0.1)	0.1	0.011 (0.9)	0.3	0.02 (1.1)	0.4	0 (0)	0	0.0001 (0)	0.02	0.009 (0.5)	0.2	0.003 (0.3)	0.08	0.008 (0.7)	0.2	0.005 (0.3)	0.1
PINCM50K	0.014 (0.5)	0.4	0.01 (0.6)	0.3	0.045* (1.6)	0.9	-0.013 (-0.8)	-0.2	0.048 (1.3)	0.9	-0.015 (-0.5)	-0.3	0.005 (0.3)	0.1	0.015 (0.9)	0.4	-0.005 (-0.2)	-0.1
PEDL12	-0.005 (-0.36)	-0.1	-0.006 (-0.8)	-0.2	0.002 (0.12)	0.04	-0.006 (0.7)	-0.1	0.029* (1.5)	0.6	0 (0)	0	-0.02** (-2.0)	-0.5	-0.015* (-1.7)	-0.4	-0.013 (-1.1)	-0.3
PEDCOLL	0.015 (1.0)	0.4	-0.002 (-0.2)	-0.1	0 (0)	0	-0.006 (-0.6)	-0.1	0.037* (1.8)	0.7	-0.014 (-0.8)	-0.3	-0.032** (-3.2)	-0.8	-0.02** (-2.3)	-0.5	0.003 (0.3)	0.1
OWNER	0.018* (1.9)	0.5	-0.002 (-0.3)	-0.1	0.014* (1.6)	0.3	0 (0)	0	-0.014 (-1.1)	-0.2	-0.009 (-1.0)	-0.2	0.02** (3.8)	0.5	0.015** (2.8)	0.4	0 (0)	0
WKIDS	0.047** (2.9)	1.2	0.01 (1.0)	0.3	0.04** (2.6)	0.8	0.006 (0.7)	0.1	-0.03 (-1.4)	-0.6	-0.001 (0)	-0.02	0.002 (0.2)	0.1	0.005 (0.5)	0.1	0.007 (0.5)	0.2
OVER 65	0.005 (0.4)	0.1	0.013* (1.9)	0.3	0.007 (0.6)	0.1	-0.007 (-0.9)	-0.1	0.004 (0.3)	0.1	-0.014 (-1.1)	0	-0.013* (-1.6)	-0.3	-0.008 (-1.1)	-0.2	0.01 (1.3)	0.3
CONSTANT	-5.3** (-2.6)		-0.72 (-0.6)		-5.5** (-2.8)		-1.25 (-1.1)		-2.4 (-0.9)		0.85 (0.4)		0.036 (0)		-0.72 (-0.62)		-0.67 (-0.4)	
R2	0.56		0.45		0.44		0.50		0.48		0.47		0.70		0.63		0.57	

Note: Significance levels are indicated as follows (two tailed tests): * 10% ** 5%
T statistics are in parentheses
Dependent Variable = Log (proportion (yes) / (1-proportion (yes)))

Appendix 11. Data for Dependent and Independent Variables

COUNTY	NINE MEASURES										INDEPENDENT VARIABLES FOR C1-37 & 1-103										INDEPENDENT VARIABLES FOR C1-33																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	PFOR17	PFOR18	PFOR33	PFOR33S	PFOR47	PFOR46	PFOR47	PFOR48	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49	PFOR49

Appendix 11. Data for Dependent and Independent Variables

COUNTY	INDEPENDENT VARIABLE FOR PEROT & BRIS										INDEPENDENT VARIABLES FOR C164, C167, C18 & H6471										INDEPENDENT VARIABLES FOR ALL MEASURES									
	PVAL	MILLS94	PMILL	TAXBASE9	TRATIO9	PSTEMP9	FLOEMP9	PPOP	TURNOUT	TURNOUT	PVAL	MILLS94	PMILL	TAXBASE9	TRATIO9	PSTEMP9	FLOEMP9	PPOP89	TURNOUT	PINC3K	PINC15	PINC15-3	PINC33-3	PINC40	PED11	PEDCOLL	POWNER	WKID	OVER65	
BEAVERHEAD	0.0	360.3	7.29	1847	83.4	5.60	7.92	2.65	79.64	69.98	13.0	419	15.7	1934	85.9	5.60	7.92	4.69	74.67	10.45	26.66	37.08	16.05	9.76	16.1	20.6	61.5	49.61	24.80	
BIG HORN	4.0	221.8	69.65	2297	80.8	1.00	13.09	5.77	72.05	50.21	12.0	209	-9.5	2287	81.4	1.00	13.09	8.29	68.96	9.90	33.40	34.58	11.08	11.05	30.8	12.8	62.6	61.38	18.97	
BLAINE	0.0	319.0	43.67	2039	71.9	1.42	13.42	-1.51	71.52	63.20	-1.0	333	3.7	2042	71.5	1.42	13.42	-1.27	74.03	11.36	29.82	38.91	12.20	7.67	29.6	14.4	62.2	54.59	25.92	
BROADWATER	0.0	245.9	1.20	4021	43.1	1.07	7.21	-4.38	78.64	75.37	12.0	358	31.1	3084	55.4	1.07	7.21	2.31	76.19	8.94	24.45	45.00	12.07	9.55	26.1	13.5	74.9	46.84	28.00	
CARBON	2.0	341.4	43.94	2153	75.1	0.41	7.64	0.36	80.44	72.90	6.0	354	-2.2	2179	73.7	0.41	7.64	4.14	77.32	9.19	30.64	35.90	13.24	11.03	21.9	19.2	73.1	44.99	33.89	
CARTER	-7.9	295.0	28.81	4908	55.6	0.44	12.43	-11.53	79.22	68.27	-11.0	336	13.9	4571	64.2	0.44	12.43	-4.94	83.78	12.78	31.86	34.41	11.07	9.88	24.0	10.8	77.4	45.23	27.46	
CASCADE	26.3	435.6	-3.02	1210	82	1.77	6.69	1.45	83.82	71.27	10.0	414	-0.5	1318	82.7	1.77	6.69	2.72	68.33	7.16	22.37	40.52	16.54	13.41	17.1	18.4	63.7	52.31	28.48	
CHOUTEAU	0.3	333.1	13.95	4631	89	0.71	12.56	-5.72	85.68	77.89	-13.7	375	13.3	4540	88.3	0.71	12.56	-8.26	82.50	5.10	23.62	44.56	12.02	14.69	16.6	16.8	69.3	47.98	27.54	
CUSTER	-7.9	471.5	9.37	1234	76.6	4.78	8.79	-7.06	80.33	70.48	9.0	466	0.2	1293	79.3	4.78	8.79	-5.61	69.59	8.35	26.38	39.97	15.59	9.72	22.9	16.0	66.9	50.29	33.23	
DANIELS	-7.9	375.5	3.47	2936	88	0.55	11.23	-17.62	85.39	76.29	-16.0	432	10.8	2852	92.7	0.55	11.23	-17.85	76.95	9.98	23.10	44.25	17.14	5.53	25.6	11.5	79.4	43.38	32.60	
DAWSON	-11.9	410.1	15.01	2017	68.4	4.48	10.43	-13.64	78.38	66.85	-13.0	475	13.6	1980	67.8	4.48	10.43	-10.68	73.14	6.78	24.93	38.67	18.23	11.40	25.5	13.2	72.7	46.51	26.44	
DEER LODGE	0.0	445.9	-4.92	868	76.2	11.66	6.18	-1.12	82.25	86.10	2.0	483	-4.9	987	78.8	11.66	6.18	2.03	73.33	10.91	25.47	42.65	15.46	5.51	25.5	11.5	72.9	45.28	40.70	
FALLON	-11.9	244.6	28.29	3434	66.7	0.93	12.40	-14.34	82.3	74.04	2.0	288	44.7	3392	65.4	0.93	12.40	-9.45	85.62	5.13	20.60	52.22	14.02	8.03	24.7	10.6	77.0	49.94	25.85	
FERGUS	0.0	371.6	10.28	1763	87	3.34	8.90	1.10	81.45	76.13	-2.0	390	6.8	1840	87.2	3.34	8.90	2.71	78.77	7.98	24.71	42.81	14.93	9.56	22.6	14.5	71.5	45.24	35.10	
FLATHEAD	16.6	387.5	2.19	1640	88.4	1.42	7.65	7.95	80.31	66.95	16.9	411	3.8	1926	89.4	1.42	7.65	11.34	67.79	6.71	24.05	38.49	16.88	13.88	17.9	17.2	70.6	51.54	27.09	
GALLATIN	25.7	375.5	8.41	1500	84.9	8.71	6.00	10.84	77.21	61.99	15.9	403	4.9	1644	85.9	8.71	6.00	15.37	62.94	6.90	25.04	39.03	14.75	14.28	9.6	33.8	58.5	50.24	17.07	
GARFIELD	-7.9	293.5	36.30	3753	97.9	1.61	12.54	-9.94	78.36	72.73	-6.0	299	5.3	4088	100	1.61	12.54	-9.94	78.81	7.06	35.97	36.32	12.74	7.92	27.4	8.8	70.9	50.79	27.93	
GLACIER	0.0	268.3	-0.92	1611	60.6	0.88	14.86	8.76	67.97	56.02	-3.0	439	66.3	1611	59.2	0.88	14.86	10.17	69.52	9.48	33.25	34.68	13.42	9.17	28.0	14.5	60.9	57.64	24.31	
GOLDEN VALLEY	0.0	269.8	31.49	5682	48.7	0.75	13.18	-17.64	79.71	78.34	-9.0	302	18.9	5466	49.6	0.75	13.18	-13.64	81.15	7.84	35.42	37.62	14.42	4.70	27.6	14.7	79.1	45.09	27.81	
GRANITE	0.0	272.9	-9.74	3025	52.5	1.16	13.24	-6.22	78.16	74.40	17.0	366	8.9	3361	53.5	1.16	13.24	-0.44	78.00	7.41	35.23	37.51	12.44	7.41	24.1	16.9	75.4	46.37	30.42	
HILL	0.3	328.7	6.72	1684	80.2	3.71	9.04	-0.03	77.69	67.84	2.3	392	24.4	1788	80.4	3.71	9.04	0.27	69.56	7.22	22.18	37.87	16.57	16.16	21.6	18.1	63.1	56.34	24.57	
JEFFERSON	7.4	257.1	-1.49	2819	65.4	8.62	7.44	-0.47	78.53	75.60	9.0	326	12	2877	66.5	8.62	7.44	3.61	75.81	4.59	18.46	31.77	22.84	22.34	18.7	20.8	80.7	52.78	19.60	
JUDITH BASIN	0.0	294.6	10.25	3954	74	0.50	9.56	-9.52	81.14	74.63	-11.0	338	15	4109	74.3	0.50	9.56	-9.84	83.08	8.40	20.61	45.04	13.96	12.00	19.6	19.8	72.9	42.94	24.22	
LAKE	4.0	400.0	15.05	1424	87.1	0.96	7.92	5.26	81.12	69.29	25.0	411	5.7	1773	88.3	0.96	7.92	9.42	72.83	8.31	30.67	38.93	12.90	9.19	22.7	15.7	70.2	49.38	32.95	
LEWIS & CLAR	4.0	425.8	3.34	1392	77.8	16.81	6.35	5.88	80.38	75.35	7.0	441	7.8	1514	78.9	16.81	6.35	8.07	71.13	5.84	20.60	35.13	21.03	16.45	12.6	27.8	68.5	54.2	21.33	
LIBERTY	0.3	275.9	27.57	4241	82.4	0.39	18.16	-2.00	85.2	78.43	-21.7	324	6.9	4274	82.7	0.39	18.16	-2.96	82.20	5.12	20.72	44.69	15.73	13.73	22.8	16.9	71.7	52.68	26.98	
LINCOLN	0.0	317.4	18.59	1564	79.7	0.86	8.36	-7.01	74.96	69.03	3.0	352	9	1487	82.5	0.86	8.36	-1.76	71.50	6.80	30.17	39.12	15.34	8.57	14.8	12.5	73.3	51.26	25.12	
MADISON	8.9	315.5	22.04	3426	73.8	0.47	9.91	-15.92	81.01	73.95	4.7	332	13.7	3710	73	0.47	9.91	10.27	72.27	7.31	26.83	39.29	13.56	13.01	15.0	19.7	68.8	47.32	30.17	
MCCONE	-7.9	317.5	-2.60	3708	95.8	1.01	9.47	6.40	84.34	72.29	-12.0	351	7.7	3776	95.4	1.01	9.47	-14.80	82.06	7.13	27.37	45.03	11.35	9.12	20.5	14.3	78.2	47.8	25.20	
MEAGHER	0.0	279.7	30.69	4523	50.8	1.32	9.13	-14.29	79.33	76.11	6.0	318	22.8	4724	55.2	1.32	9.13	-9.20	72.81	7.58	30.34	40.87	14.89	6.32	26.1	14.4	67.4	43.31	28.38	
MINERAL	1.0	340.2	-0.98	2343	43.5	2.03	10.51	-1.49	76.6	74.93	22.0	426	13.9	2449	49.2	2.03	10.51	6.06	66.59	5.72	29.44	44.01	13.20	7.63	26.0	13.1	72.9	49.49	25.34	
MISSOULA	10.0	460.8	14.23	1533	86	5.34	6.01	4.98	75.86	63.90	9.7	491	8.4	1648	86.4	5.34	6.01	7.84	62.93	8.25	24.40	36.21	15.96	15.18	14.6	27.7	60.1	51.86	19.62	
MUSSELSHELL	0.0	318.7	41.40	1675	83.3	0.63	8.92	-8.89	78.17	73.62	-13.0	341	33.2	1620	82.4	0.63	8.92	-2.16	74.36	13.91	30.28	38.79	9.53	7.49	29.1	11.4	78.1	43.87	34.32	
PARK	0.0	359.6	18.33	1651	75.1	0.64	6.57	19.82	76.96	67.06	4.0	386	14.9	1761	75.8	0.64	6.57	24.84	71.36	7.19	25.37	41.95	15.12	10.36	18.3	19.3	66.3	46.74	27.61	
PETROLEUM	0.0	339.6	56.64	3757	98.5	0.63	16.19	-15.83	81.74	79.68	2.0	303	-1.9	3297	98.4	0.63	16.19	-13.83	84.09	8.96	29.72	44.81	6.13	10.38	18.1	17.5	76.1	40.37	21.65	
PHILLIPS	0.0	262.3	50.12	3985	62.1	0.83	12.27	-5.57	81.4	73.20	0.0	300	17.6	4062	63.1	0.83	12.27	-6.85												

**Appendix 12. Percentage Change in Mill Levy, Assessed Value, Taxable Base
and Resident-Borne Taxable Value**

COUNTY	% CHANGE IN MILL LEVY				% CHANGE IN ASSESSED VALUE				% CHANGE IN TAX BASE				% CHANGE IN RESIDENT-BORNE TAXABLE			
	PMILL 83-86	PMILL 87-90	PMILL 89-92	PMILL 91-94	PVAL 83-86	PVAL 87-90	PVAL 89-92	PVAL 91-94	TAXBASE 86-90	TAXBASE 90-92	TAXBASE 92-93	TAXBASE 93-94	TRATIO 86-90	TRATIO 90-92	TRATIO 92-93	TRATIO 93-94
BEAVERHEAD	19.4	8.78	7.29	15.7	6.4	0.0	0.0	13.0	-0.1	6.6	4.9	-0.2	0.73	0.36	0.24	2.75
BIG HORN	7.1	100	69.65	-9.5	10.7	-10.0	4.0	12.0	-77.8	-3	2	-2.4	247.44	-0.62	0.5	0.25
BLAINE	-13.5	64.14	43.67	3.7	14.8	0.0	0.0	-1.0	-67.5	1	-1.9	2.1	188.89	2.42	-1.39	0.85
BROADWATER	-4.7	15.66	1.20	31.1	3.3	0.0	0.0	12.0	12.5	9.9	-23.7	0.6	-20.6	-9.07	24.36	3.36
CARBON	29.3	32.94	43.94	-2.2	10.8	-7.0	2.0	6.0	-41.2	5.9	1.4	-0.2	65.77	1.35	-3.06	1.24
CARTER	37.9	-8.97	28.81	13.9	-6.6	-16.0	-7.9	-11.0	10.1	33.5	-4.6	-2.4	-9.11	-21.47	6.47	8.45
CASCADE	17.3	-6.73	-3.02	-0.5	-8.8	18.0	26.3	10.0	0.5	3.1	7.9	1	6.09	0.12	0.98	-0.12
CHOUTEAU	19.9	11.48	13.95	13.3	5.2	0.0	0.3	-13.7	-7.9	1.8	0	-2	4.8	-0.56	-0.45	-0.34
CUSTER	3.8	1.86	9.37	0.2	-11.2	-16.0	-7.9	9.0	-4.1	-0.6	3.7	1	-3.67	0.66	2.09	1.41
DANIELS	16.8	19.18	3.47	10.8	6.1	-16.0	-7.9	-16.0	-10	3.4	-1.6	-1.3	4.39	0.11	-1.02	6.43
DAWSON	8.3	6.85	15.01	13.6	4.5	-23.0	-11.9	-13.0	-21.8	3.1	-4.3	2.6	19.43	1.18	-2.19	1.35
DEER LODGE	19.1	7.01	-4.92	-4.9	11.1	0.0	0.0	2.0	-3.8	3.5	7.7	5.6	-1.9	-1.55	2.36	1.03
FALLON	-7.2	52.46	28.29	44.7	1.8	-23.0	-11.9	2.0	-87.6	-23.1	0.7	-1.9	579.73	32.6	-2.55	0.62
FERGUS	34.6	1.46	10.28	6.8	7.2	0.0	0.0	-2.0	0.4	2.9	1.9	2.4	0.92	-0.91	-0.11	0.35
FLATHEAD	15.6	19.1	2.19	3.8	5.7	6.0	16.6	16.9	-2.8	3.1	16.2	1	-0.34	0.57	1.47	-0.33
GALLATIN	2.4	3.72	8.41	4.9	6.4	13.0	25.7	15.9	1.9	5.6	8.3	1.2	-1.64	0.83	1.3	-0.12
GARFIELD	-8.3	18.26	36.30	5.3	8.4	-16.0	-7.9	-6.0	-40.8	13.5	1.4	7.4	60.1	-2	2.15	0
GLACIER	0.2	-11.07	-0.92	66.3	7.1	0.0	0.0	-3.0	-62.7	2.7	-1.1	1.1	109.59	-0.98	-0.33	-1.99
GOLDEN VALLEY	19.4	6.33	31.49	18.9	3.8	0.0	0.0	-9.0	14	0.4	-6	2.4	-0.41	1.04	0.41	1.43
GRANITE	6.7	4.09	-9.74	8.9	-1.3	0.0	0.0	17.0	26.9	4.9	5.5	5.4	-20.65	2.74	-1.14	3.08
HILL	2.4	8.74	6.72	24.4	-2.4	0.0	0.3	2.3	-37	0.1	3.9	2.2	42.83	0.63	0.37	-0.12
JEFFERSON	10.9	1.75	-1.49	12	7.1	13.0	7.4	9.0	28.8	0.9	1.3	0.8	8.21	3.32	0	1.68
JUDITH BASIN	4.2	-0.36	10.25	15	4.7	0.0	0.0	-11.0	5.3	2.7	-1.6	5.6	5.61	0.82	0.81	-0.4
LAKE	2.3	16.46	15.05	5.7	14.2	0.0	4.0	25.0	-10.4	4.4	22.6	1.5	6.92	-1.14	1.84	-0.45
LEWIS & CLARK	3.4	5.45	3.34	7.8	13.9	0.0	4.0	7.0	-7.1	0.1	7.7	1	-4.47	1.04	1.29	0.13
LIBERTY	14.2	32.52	27.57	6.9	0.2	0.0	0.3	-21.7	-50	3.2	-2.6	3.4	90.21	0.98	-0.12	0.49
LINCOLN	10.9	16.54	18.59	9	-0.4	-4.0	0.0	3.0	-5.8	-15.5	-1.9	-3.1	2.57	10.85	1.38	2.1
MADISON	20.8	-0.74	22.04	13.7	-16.0	6.0	8.9	4.7	8.5	7.4	7.6	0.6	-0.79	-2.51	-3.39	2.38
MCCONE	17.4	10.85	-2.60	7.7	12.6	-16.0	-7.9	-12.0	-14.7	8.2	0.9	0.9	9.29	0.52	-0.52	0.1
MEAGHER	13.3	16.51	30.69	22.8	-4.5	0.0	0.0	6.0	24	2.6	3.7	0.7	-5.95	0.4	3.54	4.94
MINERAL	14.5	16.04	-0.98	13.9	10.2	-4.0	1.0	22.0	59.3	-3	3.2	1.2	-26.65	9.02	11.72	1.23
MISSOULA	16.6	8.67	14.23	8.4	-15.3	1.0	10.0	9.7	0	4	5.1	2.3	-3.94	0.82	0.35	0.12
MUSSELSHELL	20.6	43.33	41.40	33.2	10.8	-7.0	0.0	-13.0	-68.1	1.4	-2.6	-0.7	200.36	-0.6	-0.72	-0.36
PARK	6.1	6.67	18.33	14.9	6.9	0.0	0.0	4.0	-1	7.6	1.3	5.3	2.23	-3.72	0.53	0.4
PETROLEUM	6.5	30.8	56.64	-1.9	5.8	-14.0	0.0	2.0	-64.3	11.5	4.9	-16.3	215.38	0.1	-0.51	0.41
PHILLIPS	36.4	25.77	50.12	17.6	9.2	-14.0	0.0	0.0	-7.4	-12.6	-0.6	2.6	-1.83	28.84	0.97	0.64
PONDERA	28	11	15.86	18.9	4.3	0.0	0.3	-11.7	-30.9	5.3	-0.3	2.5	35.41	0.12	-1.41	-0.24
POWDER RIVER	42.3	60.82	96.05	37.9	33.9	-23.0	-11.9	-9.0	-81.5	8.5	-1.9	3.9	362.12	1.64	1.18	-0.21
POWELL	-0.5	-1.54	-1.76	-0.3	-8.6	0.0	0.0	10.0	-4.6	-3	1.6	3.7	11.61	2.37	3.74	1.03
PRAIRIE	8	22.15	13.74	20.2	1.1	-16.0	-7.9	-16.0	-14.4	6.9	-1.5	3.7	22.46	2.72	-3.21	1.87
RAVALLI	4.7	13.27	21.35	2.9	45.4	5.0	5.0	10.0	6.4	-2.8	9.4	4.2	0.8	0.45	-0.34	0.57
RICHLAND	15.6	65.14	33.18	43.8	13.4	-23.0	-11.9	6.0	-72.9	0	2	0.2	238.87	0	-0.12	1.2
ROOSEVELT	-3.1	47.89	16.89	24.7	-17.6	-14.0	0.0	-5.0	-64.5	-2.5	2.8	1	131.96	0.89	-3.08	0.91
ROSEBUD	-4.2	28.7	52.22	16.1	34.6	-10.0	4.0	-1.0	-4.5	2	-2.6	0.2	3.57	-3.45	-1.19	10.84
SANDERS	2.5	32.74	20.63	5.8	18.3	-4.0	1.0	14.0	-20.3	1.4	-0.1	10.9	22.79	0.3	9.25	-6.28
SHERIDAN	11.7	41.46	46.74	35.6	4.1	-16.0	-7.9	-10.0	-82.9	0.6	-1.9	2.8	420.81	0	-0.44	0.45
SILVER BOW	4.7	-12.48	8.21	9.2	-3.5	11.0	13.2	14.0	27.8	5.2	8	-2	-6.91	-2.89	2.12	-0.69
STILLWATER	10.1	18.43	15.16	21.6	17.4	-7.0	0.0	9.0	2.5	3.8	0.7	4.1	8.14	-3.77	1.41	-1.08
SWEET GRASS	10.6	10.96	8.29	21.5	7.2	0.0	0.0	-18.0	8.3	7.2	-4.3	4.2	-3.01	-3.37	-0.56	-0.84
TETON	8.7	20.56	32.61	15.5	27.4	0.0	0.3	-13.7	-19.5	2.4	-5.4	1.4	19.59	1.04	-1.14	0.12
TOOLE	-2.6	50.29	38.88	24.9	8.0	0.0	0.3	-5.7	-56	1.3	0.8	-0.1	116.81	0.13	-0.27	-0.94
TREASURE	-5.5	22.57	21.31	19.6	15.1	-7.0	0.0	-12.0	5.9	-1	-5.1	3.8	-1.25	5.05	5.05	4.12
VALLEY	-3.5	28.89	28.89	10.1	1.7	-16.0	-7.9	6.0	-31.6	-1.6	1.7	0.1	32.32	2.86	3.9	1.07
WHEATLAND	11.4	11.11	22.59	10.1	-4.9	0.0	0.0	-9.0	2.3	1.7	-0.9	-0.1	-4.57	2.61	0.64	5.06
WIBAUX	16.2	60.14	55.45	59.6	4.9	-23.0	-11.9	7.0	-80.1	1.3	0.5	5.3	303.24	1.88	-0.13	1.05
YELLOWSTONE	14.3	8.31	9.88	14	8.5	-10.0	-3.9	7.1	-8.4	-1.2	6.5	2.7	-1.38	2.41	0.99	0.25