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Auto Insurance Market Quality Index 2006:
Annual Comparison of International Auto Insurance Markets Including 61 Jurisdictions in Canada, the United States and the United Kingdom

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Executive Summary

This study is the first effort by The Fraser Institute to measure and compare the performance of auto insurance markets across international jurisdictions. Previous Institute studies have only compared Canadian provinces with each other. However, this paper assesses the performance of automobile insurance markets in 10 Canadian provinces, 50 American states, and the United Kingdom in 2002—the most recent year for which complete data were available across all jurisdictions.

Data were collected on 15 variables describing the regulatory policy environments and outcomes in each jurisdiction using comparable measurement units. From these 15 variables, five indices were constructed that comparatively measure market quality and regulatory severity across international jurisdictions. Two indices measure market quality outcomes from the perspective of consumers regarding cost and choice; one index gauges market quality outcomes from the perspective of insurers regarding the business climate for auto insurance; a fourth index measures the regulatory severity of auto insurance policy in each market; and the fifth index measures overall market quality combining the scores for each jurisdiction across all 15 variables. This study also examines statistical correlations between variables that can be conceptually separated into distinctly dependent and independent categories.

In summary, the main findings of this study are:

Market Quality and Direct Regulation

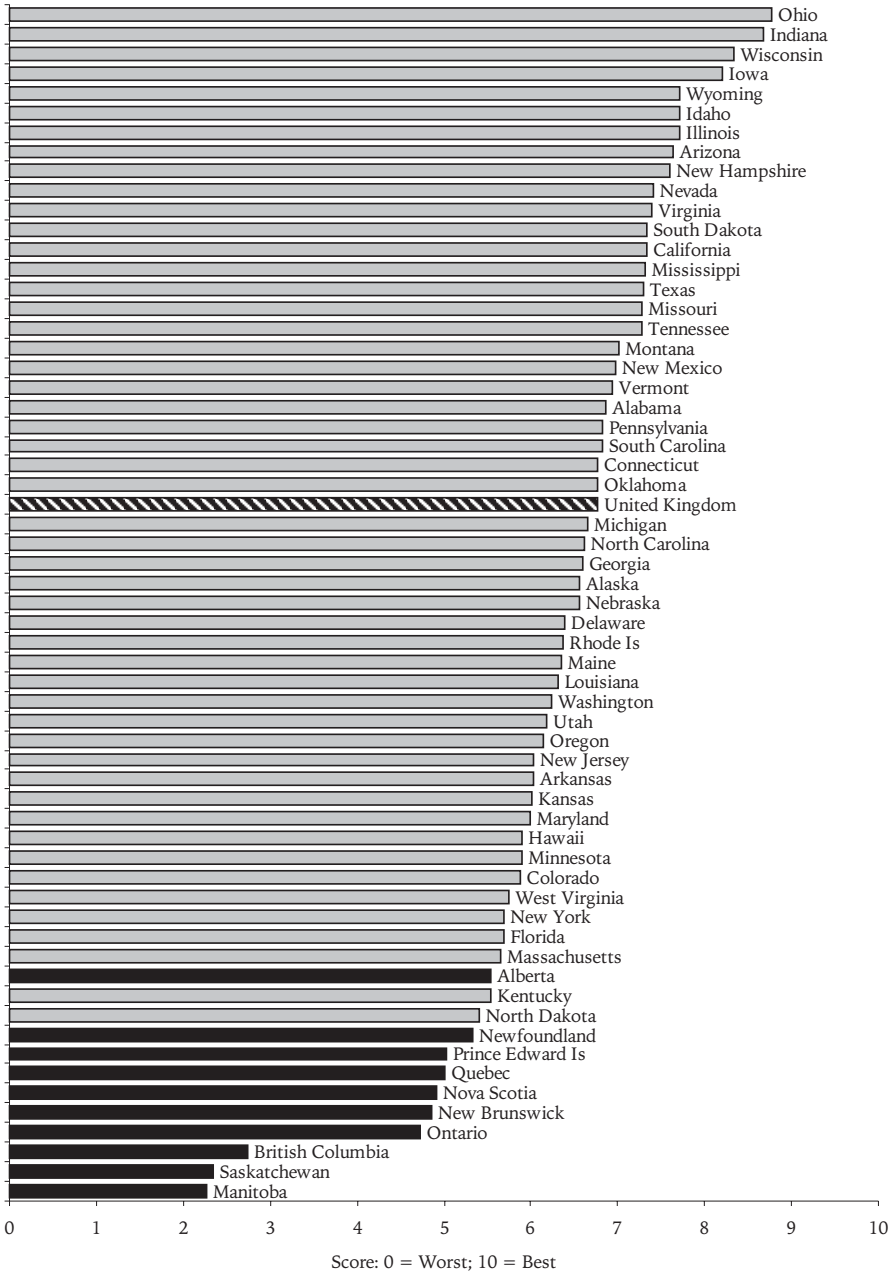
- Compared to the 61 jurisdictions studied, the Canadian provinces as a group tend to have a higher burden of regulation or government control over auto insurance and rank relatively poorly on market quality.
- Across the 61 international jurisdictions studied, a lower burden of auto insurance regulation is statistically linked with:
    - Lower and more affordable premium costs
    - More sustainable premium pricing
    - More consumer choice

Public Monopoly/Government-run Auto Insurance

- Of the 61 jurisdictions studied, only four have public monopoly or government-run auto insurance systems; these four are the Canadian provinces of British Columbia, Saskatchewan, Manitoba, and Quebec.
- The data show that public monopoly or government-run auto insurance systems consistently produce the worst outcomes for consumers.

This study is the first in an annual series of international comparative analyses of auto insurance systems. Future editions will expand to include additional jurisdictions. The Institute will use this study to focus the public's attention on this important policy area and to generate discussion and input from experts for future analyses. The goals of the study are to provide insights into the link between the regulation of auto insurance markets and its outcomes for consumers, and to help identify public policies that are most likely to produce superior results overall.

Overall Market Quality Index



Score: 0 = Worst; 10 = Best

Introduction

Insurance was initially created as a cooperative free market response to provide financial protection against the risk of suffering large and unexpected economic losses. The difficulty is that understanding the economics of insurance is complicated and thus, misunderstandings and misguided criticisms of market failure often arise. Governments in many countries including Canada have also attached social goals to insurance that have been used to justify either heavy regulation or the government takeover of this industry.

The purpose of this study is to measure differences in auto insurance regulations across international jurisdictions and the implications for consumers. The analysis provided in this paper also examines statistical links between the degree of regulatory severity in each auto insurance market and the cost, affordability, and pricing sustainability of auto insurance premiums. The goal of this study is to identify public policies that minimize the costs of auto insurance regulation and maximize consumer benefits.

Data

Auto insurance is regulated at the sub-national level in both Canada and the United States. Therefore, comparisons are made at the provincial and state level in these countries. In the UK, on the other hand, auto regulation is maintained at the national level. The data for this study cover 10 Canadian provinces, 50 American states, and the United Kingdom.

Unless otherwise stated in the text all data used in this study are for the calendar year 2002 and are unadjusted. The data cover personal passenger automobile insurance only, excluding commercial, recreational or other vehicle insurance. All insurers (public and private) are included for each jurisdiction. Following an accrual accounting principle, all premium data are defined as earned within the year 2002 and claims data are defined as incurred within 2002 and counts all coverages including the regular and residual markets where applicable. In order to control for the effects of purchasing power variation between national currencies and local price differences for the factors determining automobile insurance costs, all monetary data are in current (2002) figures, local currency (US and Canadian dollars or British pounds sterling) and is stated either as a percentage of local gross domestic product (GDP, or GSP in the US) or aggregate personal disposable income (PDI) for each individual market, or stated as a ratio of two variables such as claims to premiums.

Canadian data for the four public sector automobile insurers were taken directly from the annual reports of the Insurance Corporation of British Columbia (ICBC 2002), Saskatchewan Government Insurance (SGI 2003), Manitoba Public Insurance (MPI 2002), and Société de l'assurance automobile du Québec (SAAQ 2002). Canadian data for all private sector insurers were obtained from the Insurance Bureau of Canada (IBC). IBC is the industry association representing nearly 90 percent of private sector property and casualty insurers operating in Canada. It is also the official statistical agency for federal and provincial insurance regulators. IBC data include the entire market for automobile insurance in the six totally private sector insurance provinces (Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, and Alberta). In British Columbia, Saskatchewan, Manitoba, and Quebec, the provincial governments operate a public monopoly over a basic auto insurance product in which the scope is defined by provincial law. Private sector insurers are permitted to offer coverage for automobile insurance only in the optional markets in these provinces. IBC data also include all private sector insurers operating in the optional markets in the four public sector insurance provinces. General economic data were obtained from Statistics Canada.

American data were found primarily from the US National Association of Insurance Commissioners' (NAIC) 2002–2003 Auto Insurance Database Report (NAIC 2005), which provides detailed standardized data on auto insurance separately for all 50 American states included in this study. The District of Columbia (D.C.) is excluded even though the NAIC does make separate data available. The NAIC also supplied additional data on the number of insurers by state under a special request for this study. The NAIC is the association that represents American state insurance regulators. Additional sources of US data include the Insurance Information Institute (III) and the Property and Casualty Insurance Association of America (PCIAA); the latter of which is the industry association representing automobile insurers. General economic data were obtained from the US Bureau of Economic Analysis (BEA).

United Kingdom data were obtained primarily from the Association of British Insurers (ABI) 2003 background report on the UK motor insurance market. This was supplemented with other data also obtained from ABI's web site. UK information was also found from the British insurance regulator, the Financial Services Authority (FSA), from the Motor Insurers' Information Centre (MIIC), and Lloyd's UK. General economic data were taken from the UK government's Office of National Statistics.

Methodology

Excel software was used to build the core dataset for this study and to generate the graphs displaying the descriptive data. SPSS software was used for the statistical analysis of bi-variate correlations presented in the paper.

Description of Variable Measures

The description and rationale for each of the 15 variables used to construct the indices in this study is explained below. Each variable appears in alphabetical order.

Affordability: an interval measure of aggregate earned premiums in each market stated as a percentage of aggregate Personal Disposable Income (PDI) or the income after taxes available to consumers as a whole. This takes into account the relative affordability of premium costs relative to the actual income that consumers have available to them in each market after taxes. For instance, auto insurance premium prices might be roughly equivalent across some jurisdictions, but consumers in a high tax jurisdiction might have fewer available dollars with which to pay those premiums, and therefore, the price is in effect much higher for consumers in the high tax jurisdiction. A measure of affordability is one way to compare the costs of auto insurance between jurisdictions in a way that is very meaningful from a consumer perspective.

Comparative Cost: an interval measure of aggregate earned premiums in each market stated as a percentage of the size of the jurisdictional economy or local Gross Domestic Product (GDP). The cost measure is distinct from the measure of affordability described above. Looking at premiums as a percentage of the jurisdictional economy allows for comparisons across jurisdictions despite differences in prices that are related to local income conditions and differences in the purchasing power of currencies between jurisdictions, or to changes in the purchasing power of currencies across time.

Competition Barriers: an interval measure of the percentage of the market subject to a regulatory prohibition on competition or artificial barriers to competition in the provision of auto insurance. In order to appropriately gauge the level of competition between auto insurers in a market, a measure of contestability is required.[1] Four Canadian provinces: Quebec, Saskatchewan, British Columbia, and Manitoba maintain public auto insurance monopolies that prohibit competition for basic automobile insurance (such as liability and injury insurance), but allow competition for the optional market (such as auto property damage). This study uses the percentage of the market that is affected by prohibitions on competition or artificial barriers to competition as a measure of actual contestability.

Compulsory Accident Benefits: binary variable indicating the presence (=1) or absence (=0) of regulations requiring insurers to provide pre-defined personal injury, medical, death, disability, and income replacement benefits.

Compulsory Insurance Coverage for Uninsured or Underinsured Motorists: binary variable indicating the presence (=1) or absence (=0) of regulations requiring drivers to have insurance coverage in the event of an accident with an uninsured or underinsured driver.

Compulsory Liability Insurance: binary variable indicating the presence (=1) or absence (=0) of regulations requiring drivers to have insurance coverage for general liability related to a motor vehicle accident.

Legal Regulation: ordinal variable indicating the kind of legal system prescribed by regulation to specifically govern the assignment of liability or fault related to a motor vehicle accident. For this variable an ordinal value was assigned depending on the severity of the restriction on normal tort rights in each jurisdiction (see table 1). The value scale goes from 1 as the least restrictive to 6 as the most restrictive.

Minimum Coverage for Accident Benefits: an interval variable of the dollar amount of the minimum insurance coverage drivers are required to purchase for accident benefits unrelated to property damage or liability.[2] In tort jurisdictions this variable alternatively represents a regulatory restriction on tort rights because it limits the maximum compen-

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1 Competition in a market is sometimes measured using concentration ratios (CR). Concentration ratios measure the percentage of the auto insurance industry's business held by its largest insurers. The maximum value for CR is 100 percent; the minimum is close to zero. Another method used to measure competition is the Herfindahl-Hirschman Index (HHI). HHI is calculated by squaring the values of market share for each company in an industry\emdash then summing the resulting numbers. The maximum value of the index is 10,000 when one company controls 100 percent of the market (HHI = 1002). Under the Horizontal Merger Guidelines, the US Department of Justice and the Federal Trade Commission have used the HHI as a basis of assessing concentration of national industries when considering the anti-trust implications of merger applications (US Department of Justice 1992). Under the guidelines, markets in which the HHI is in excess of 1,800 are considered to be "high concentration"; HHI in the range of 1,000\endash 1,800 is characterized as "moderate concentration," and HHI under 1,000 means "low concentration." There are serious criticisms in the economics literature that the use of CR and HHI measures of competition do not truly measure competition. Theoretically, even a monopoly may behave competitively if threatened by potential new entrants. As Baumol (1983) suggests, such monopolies would give less cause for government intervention than those in less contestable markets. Ideally therefore, a measurement of contestability in each market is the best way to accurately gauge the actual level of competition.

2 Uninsured/underinsured motorist coverage is included but represents a small proportion of the total cost of this coverage.

Table 1: Assignment of Auto Insurance Legal Regulation Severity Values

Types of Legal Regulations for Auto Insurance	Description	Assigned Regulatory Severity Value
Tort	An accident victim can sue the at-fault driver for all kinds of damages with no restrictions.	1
Add-On	Tort rights extended to non-economic damages only after a threshold is reached.	2
Modified Tort and No-Fault	No fault with a verbal descriptive threshold or the insured has a choice over whether to retain tort rights.	3
No Fault (a)	$0 - $2,500 tort threshold.	4
No Fault (b)	$2,500 - $5,000 tort threshold.	5
No Fault (c)	No tort rights.	6

Source: NAIC (2005a).

sation insurers are obliged to pay, thereby determining the scope of coverage consumers are required to buy. In this study, the variable is conceived of as a minimum requirement restriction on consumer rights to choose the coverage level they wish to buy and not as a restriction on consumer tort rights. This is because higher minimum accident benefits levels require higher premiums to cover the expected costs. Therefore, this regulation limits the freedom of consumers to choose lower coverage levels that might reduce their overall premium costs. Higher minimum benefit levels under this regulation are therefore defined as a negative value from a consumer choice perspective. Also, while minimum coverage regulations for accident benefits exist, in some jurisdictions drivers have a choice over whether to opt-in or opt-out of no-fault schemes further complicating the application of the alternative conceptualization of this variable. Therefore, it is preferable to conceive of this variable as a measure of the severity of the restriction on consumer product choice because it is the only definition applicable to all jurisdictions.

Minimum Coverage for Bodily Injury Liability: an interval variable of the dollar amount of minimum insurance coverage required by law.

Minimum Coverage for Property Damage Liability: an interval variable of the dollar amount of minimum insurance coverage required by law.

Pricing Sustainability/Profitability: an interval measure of aggregate incurred claims as a percentage of aggregate earned premiums within each jurisdiction. The core value statistic is stated as a decimal. When the value exceeds 1 (or 100 percent) it means that claims costs exceed premium revenue thus representing an insolvent financial position that is not sustainable. From the perspective of consumers, this statistic indicates the

probability that a market can sustain its observed premium rates over time without relying on non-premium income. This measure is also known as a "loss ratio" and is used by the insurance industry to measure the balance of claims versus premiums before returns on invested earnings, or in other words, the financial adequacy of a company's insurance underwriting. However, insurance works by collecting enough premium revenue to cover the insured population's expected losses from insured events. Insurers are supposed to be building up surpluses to create pools of earned capital that will be sufficient to cover those losses. Therefore, it is important to note that the actual net profits earned by insurers are less than indicated by the "loss ratio."

Furthermore, economic theory suggests that in highly competitive markets, profits should be smaller per firm than they are in less competitive markets because prices are reduced in order to attract customers. Highly competitive markets should therefore be characterized by narrower "loss ratios." However, this does not necessarily imply a lack of sustainability. This variable should be interpreted with caution as a measure of the relative degree to which each market has the capacity to sustain current premiums, but not of absolute sustainability. Absolute sustainability would be threatened only when "loss ratios" (including competitive profits) exceed 1 (or 100 percent).

Rate Filing Regulation: ordinal measure of the type of rate filing regulations employed in the jurisdiction. Rate filing laws are a form of rate regulation or price control utilized by regulators. The various kinds of rate filing laws are outlined below (see table 2). For this variable, an ordinal value was assigned depending on the regulatory severity of the rate-filing regime in each jurisdiction. The value scale goes from 1 as the least restrictive to 6 as the most restrictive.[3]

Risk Pricing Restrictions: an interval measure of the number of actuarial risk rating categories prohibited by regulation. Insurance relies on an accurate estimation of the risk associated with the insured population in order to price premiums adequately to cover claims. Failure to adequately price risk can lead to the bankruptcy of an insurance pool. Moreover, it can mean that some drivers are not treated fairly. Ideally, drivers should pay premiums based on the risk they represent. Insurers can assign drivers to pricing categories on the basis of the observed risk of motor vehicle accident associated with certain characteristics like age, years of driving experience, gender, geographic location, type of vehicle, etc. Restrictions on risk pricing have the effect of equalizing premium prices across the driving population. However, this means that while risky drivers might pay less when risk pricing is restricted, safer drivers will pay more. The result is that good risks subsidize bad risks when risk pricing is restricted. This is of course unfair

3 For a review of the impact of rate regulation on auto insurance markets see Bouzouita, 1997 and Harrington, 2002.

Table 2: Assignment of Auto Insurance Rate Filing Regulation Severity Values

Types of Rate Filing Regulations	Description	Assigned Regulatory Severity Value
No File	Rates are not required to be filed with or approved by the jurisdiction's regulator. However, the company must maintain records of rating experience and information used in developing the rates. The company must make these available to the jurisdiction's regulator upon request.	1
Use and File	Rates must be filed with the regulator within a specified period after use.	2
File and Use	Rates must be filed with the jurisdiction's regulator prior to their use. Specific approval is not required, but the regulator retains the right of subsequent disapproval.	3
Flex Rating	Prior approval of rates required only if exceeding a percentage above the previously filed rates.	4
Modified Prior Approval	Rate revisions involving changes in expense ratios or rate relativity require prior approval. Rate revisions based only on rating experience are subject to "file and use" laws.	5
Prior Approval*	Rates must be filed with and approved by the jurisdiction's regulator before use. A deemer provision can be used to indicate approval, i.e., rates are not denied within specified days.	6

*In some jurisdictions rates are determined by the Commissioner of Insurance. However, this is conceptually not that different from "Prior Approval" regulations and so any jurisdiction characterized as having a "Determined by Commissioner" rate-filing regulatory model is included under "Prior Approval."
Source: Description based on NAIC (2005a).

by definition. The absence of risk pricing is also associated with hazardous driver behaviour and higher mortality rates for young drivers (Mullins 2003). However, the negative social impact of restrictions on risk pricing will not be measured or addressed in this study.

Solvency Regulation: an interval variable of the percentage of premiums prescribed by regulation that must be held in reserve by insurers to guarantee a capital adequacy to pay unexpected insurance claims. Capital reserving requirements vary by jurisdiction. Many jurisdictions have legally set out mandatory reserve requirements for auto insurers. These laws force companies to save a fixed percentage of premiums collected as a reserve against unexpected large and widespread claims expenses, like those that might accrue due to a natural disaster, for example. Klein *et al.* (2000) have studied the effect of capital reserve requirements on the investment decisions of insurance companies. Their model tells us that stronger capital adequacy regulation will cause insurers to invest less capital from profits. When insurers invest less capital, they earn smaller returns from investing, and must rely on higher premiums to make up the difference.

Special Tax Burden: an interval variable of the percentage tax rate applied specifically to auto insurance premiums. The auto insurance market is a heavily taxed industry. In the average private market Canadian jurisdiction, the burden is almost three times that of other financial services industries (Chen and Mintz 2001). Consumers ultimately pay this disproportionate tax through higher premiums and therefore, the special tax burden adds to the cost of auto insurance.

Scoring System

For each variable measure, the raw data for each market is displayed in the appendix tables. In order to create a combined score within each of the four indices, a standardized score was calculated on a scale of 0 to 10 for each jurisdiction for each of the variables. Standardized scores make comparisons of performance across dissimilar variables comparable by proportionally converting the values to the same scale of measurement. The scores are also displayed in the tables in the Appendix. An average of the standardized scores was calculated to produce an overall score in each of the four indices.

Depending on whether higher raw values are indicative of better or worse performance, alternative formulas are used to calculate a standardized score on a 0 to 10 scale.

When higher raw values are indicative of better performance, the formula is:

Formula A $10 [(V_i - V_{min}) / (V_{max} - V_{min})]$

When higher values denote worse performance, the formula is:

Formula B $10 [(V_{max} - V_i) / (V_{max} - V_{min})]$

Whereby, V_i is the jurisdiction's raw value for the indicator; V_{max} is the maximum value among all of the jurisdictions; and V_{min} is the minimum value among all jurisdictions.[4] Formula (B) was used to convert the raw values to standardized scores for all variables in this study. This means that for the variables used to create the indices, higher raw values denote worse market quality, and therefore, Formula B is used to convert these high raw values to low standardized scores. Thus, higher scores denote better market quality outcomes. For the final standardized scores used in this study zero equals "worst" and ten equals "best."

4 This method is used by both the World Bank, in *World Development Indicators* and by the International Monetary Fund, in *International Financial Statistics*.

Study Design

Indices

This paper assesses the performance of automobile insurance markets in 10 Canadian provinces, 50 American states, and the United Kingdom for 2002—the most recent year for which complete data were available. Data were collected on 15 variables describing the regulatory policy environments and outcomes in each jurisdiction using comparable units of measure. From these 15 variables, five indices were constructed that comparatively measure market quality and regulatory severity across international jurisdictions. Two indices measure market quality outcomes from the perspective of consumers regarding cost and choice; one index gauges market quality outcomes from the perspective of insurers regarding the business climate for auto insurance; a fourth index measures the regulatory severity of auto insurance policy in each market; and the fifth index measures overall market quality combining the scores for each jurisdiction across all 15 variables (see tables 3 to 7). Some of the 15 variables appear in more than one index because it is conceptually impossible to assign some of them exclusively to only one index. For example, variables measuring the presence of regulatory prohibitions on competition are simultaneously measures of both choice and regulatory severity. Similarly, the product regulation variables used in this study serve equally well as measures of consumer choice over the scope and type of insurance coverage. Therefore, in generating the Overall Market Quality Index (MQI) (table 7), the scores are not combined across each of the sub-indices (tables 3 through 6) because this would count some variables multiple times and thus, skew the results. Instead, the MQI is constructed as a combined score of the 15 variable measures used to construct each of the indices.

Table 3: Auto Insurance Cost and Pricing Fairness Index (CPFI) Variables

Variable Labels	Unit of Measure
Comparative Cost	1. Premiums as a Percentage of Local Gross Domestic Product (GDP)
Affordability	2. Premiums as a Percentage of Personal Disposable Income (PDI)
Sustainability	3. Claims as a Percentage of Premiums
Fairness	4. Regulatory Restrictions on Risk Pricing
	5. Regulatory Restrictions on Legal Rights to Assign Fault in a Motor Vehicle Collision
Extra Tax Burden	6. Special Taxes Applied to Premiums
Volatility	7. No Current Measure—In Future Editions of this Annual Report

Table 4: Auto Insurance Choice Index (CI) Variables

Variable Labels	Unit Of Measure
Choice to Purchase	1. Compulsory Liability Insurance Laws
	2. Compulsory Accident Benefits Laws
	3. Compulsory Uninsured Motorist Coverage Laws
Choice of Coverage	4. Minimum Property Damage Liability Coverage Regulations
	5. Minimum Bodily Injury Liability Coverage Regulations
	6. Minimum Accident Benefits Coverage Regulations
Choice of Insurer	7. Regulatory Prohibitions or Restrictions on Competition Between Insurers

Table 5: Auto Insurance Business Climate Index (BCI) Variables

Variable Labels	Unit of Measure
Profitability	1. Claims as a Percentage of Premiums
Competition Barriers	2. Regulatory Prohibitions or Restrictions on Competition between Insurers
Product Regulation	3. Minimum Property Damage Liability Coverage Regulations
	4. Minimum Bodily Injury Liability Coverage Regulations
	5. Minimum Accident Benefits Coverage Regulations
Pricing Restrictions	6. Risk Pricing Restrictions
	7. Rate Filing Restrictions
Capital Regulation	8. Solvency Requirements

Table 6: Regulatory Severity Index (RSI) Variables

Variable Labels	Unit of Measure
Competition Barriers	1. Regulatory Prohibitions or Restrictions on Competition between Insurers
Pricing Regulation	2. Risk Pricing Restrictions
	3. Rate Filing Restrictions
Coverage Mandates	4. Compulsory Liability Insurance Laws
	5. Compulsory Accident Benefits Laws
	6. Compulsory Uninsured Motorist Coverage Laws
Product Regulation	7. Minimum Property Damage Liability Coverage Regulations
	8. Minimum Bodily Injury Liability Coverage Regulations
	9. Minimum Accident Benefits Coverage Regulations
Capital Regulation	10. Solvency Regulations
Legal Restrictions	11. Regulatory Restrictions on Legal Rights to Assign Fault in a Motor Vehicle Collision

Table 7: Overall Market Quality Index (MQI) Variables

Sub-Variables
1. Regulatory Prohibitions or Restrictions on Competition between Insurers
2. Risk Pricing Restrictions
3. Rate Filing Restrictions
4. Compulsory Liability Insurance Laws
5. Compulsory Accident Benefits Laws
6. Compulsory Uninsured Motorist Coverage Laws
7. Minimum Property Damage Liability Coverage Regulations
8. Minimum Bodily Injury Liability Coverage Regulations
9. Minimum Accident Benefits Coverage Regulations
10. Solvency Regulations
11. Regulatory Restrictions on Legal Rights to Assign Fault in a Motor Vehicle Collision
12. Premiums as a Percentage of Local Gross Domestic Product (GDP)
13. Premiums as a Percentage of Personal Disposable Income (PDI)
14. Claims as a Percentage of Premiums
15. Special Taxes Applied to Premiums

Variable Correlations

In order to measure and compare variations in the level of regulatory severity between jurisdictions with variations in market quality outcomes, this study also tests for statistical correlations between those individual variables that can be conceptually separated into distinctly dependent and independent categories. Only the three outcome measures of comparative cost, affordability, and sustainability could be conceptualized as exclusively dependent in nature and are therefore the only assigned dependent variables. The independent variables in this analysis include all 11 of the Regulatory Severity Index variables plus a twelfth variable measuring the magnitude of special premium taxes.

Findings

This section first describes and explains the rankings within each of the four sub-indices introduced by this study. The combined jurisdictional scores across all variables and the rankings within the Overall Market Quality Index (MQI) follow. The raw jurisdictional data values and standardized scores for each of the 15 variables used to construct these

indices are displayed in table 10 in the Appendix. Table 11 in the Appendix shows the average scores and variance of scores within the 15 variable measures.

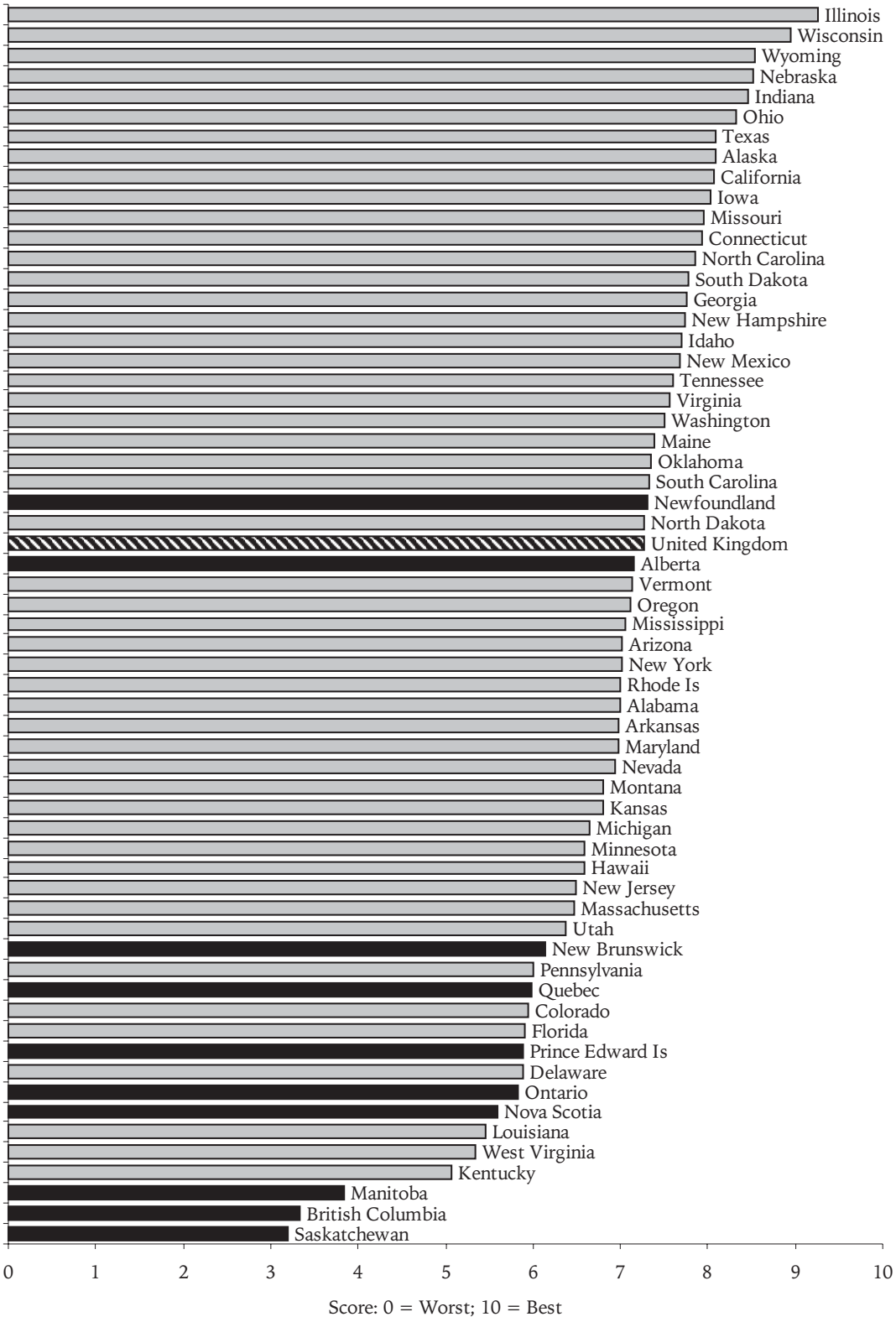
Cost and Pricing Fairness Index (CPFI)

The Cost and Pricing Fairness Index (CPFI) developed for this study is made up of five variables. The first variable in the index measures the comparative costs of auto insurance premiums across jurisdictions controlling for variation in incomes and prices. The second variable makes this comparison more directly meaningful to consumers by measuring the affordability of auto insurance premiums, further controlling for differences in disposable income. The third variable measures the sustainability of premium prices in order to give consumers an idea of future prices. The fourth variable making up this index measures the level of premium tax that is applied to auto insurance. These taxes also contribute to the cost of auto insurance. The fifth and final variable measures the degree of fairness in the pricing of auto insurance premiums. For instance, are drivers paying prices appropriately matched to the degree of risk they represent. This variable is comprised of two sub-variables measuring restrictions on the legal rights of drivers to assign fault in an accident and regulatory restrictions on risk pricing. When drivers are not allowed to legally assign fault in an accident they end up paying higher premium costs to cover the risk represented by other drivers who might cause an accident with them. Similarly, when insurers are prevented from using risk pricing, safer drivers end up paying higher premiums to compensate for more hazardous drivers.

Figure 1 displays the relative ranks of each of the 61 jurisdictions studied in terms of their combined scores across the Cost and Pricing Fairness Index. The individual variable scores are displayed in table 10 in the Appendix.

Notably, the top 10 best performing jurisdictions in the Cost and Pricing Fairness Index are all American states including: Illinois, Wisconsin, Wyoming, Nebraska, Indiana, Ohio, Texas, Alaska, California, and Iowa. Beginning with the lowest ranked scores, the 10 worst performers in this index were: Saskatchewan, British Columbia, Manitoba, Kentucky, West Virginia, Louisiana, Nova Scotia, Ontario, Delaware, and Prince Edward Island. The poor performance of the Canadian provinces as a group is striking given their small representation in the overall sample. Six out of the 10 provinces rank amongst the 10 worst performing jurisdictions regarding the Cost and Pricing Fairness of auto insurance premiums. In total, eight out of 10 Canadian provinces rank below the average score of 6.93 for the index. The best performer among the Canadian provinces was Newfoundland, followed closely by Alberta, which both scored above the average for the Cost and Pricing Fairness Index. Notably, the three worst ranks in the Cost and Pricing Fairness Index are occupied by Saskatchewan, British Columbia, and Manitoba—three of the only four jurisdictions among the 61 studied that have public auto insurance monopo-

Figure 1: Cost and Pricing Fairness Index



Score: 0 = Worst; 10 = Best

lies. This result is in stark contrast to the claims of public auto insurers in these provinces, which regularly publish anecdotal cases or hypothetical examples as evidence that public auto insurance premiums are less expensive relative to other jurisdictions.

Scores within the Variables Used to Construct the Index

It is interesting to also look at the performance of each jurisdiction within the variables that make up the combined index score for the Cost and Pricing Fairness of auto insurance premiums. The top 10 markets had consistently good scores in each of the variables that make up the Cost and Pricing Fairness Index. Importantly, the top 10 also all performed well enough on Pricing Sustainability (table 10 in the Appendix) to suspect that their favourable scores on Comparative Cost and Affordability can be maintained over time. By contrast, the United Kingdom was ranked as the best jurisdiction in terms of the Comparative Cost (table 10 in the Appendix) of auto insurance, but scored near average for Affordability (table 10 in the Appendix) and below average in terms of Pricing Sustainability and the Extra Tax Burden (table 10 in the Appendix) applied to auto insurance premiums. In particular, the UK's low ranking for Pricing Sustainability (table 10 in the Appendix) shows its core value near to 1 (or 100 percent), thus indicating that the UK's high ranking on Comparative Cost could be expected to fall in future analyses as premiums rise to improve the sustainability ratio.

Notably, while eight Canadian jurisdictions ranked below average in the overall Cost and Pricing Fairness Index, Quebec and Ontario ranked above the average score within the Comparative Cost variable. Within the Affordability variable, all 10 Canadian provinces finish well below the average score across all 61 jurisdictions, with the publicly run auto insurance provinces of British Columbia, Saskatchewan, and Manitoba joined at the bottom for the worst scores with New Brunswick, a private sector province. Quebec also has a public auto insurer and stands out as the best Canadian performer for the Affordability of auto insurance premiums—even though it finishes well below the average score and therefore among the worst of the 61 jurisdictions overall. It is interesting to note the market share of Quebec's public auto insurer, SAAQ, is significantly lower than the market share of the government insurers in the other public auto insurance provinces. Research commissioned by the Quebec government has also shown that the SAAQ has accumulated serious long-term annual deficits that are not sustainable. SAAQ premiums have been unrealistically low for a long time, as they have not been adjusted for nearly 20 years and instead have relied on general provincial revenues to subsidize excess claims. An expert panel recommended that the government begin to close the gap between claims costs and premiums by steadily raising rates over the next few years. This means that Quebec's Affordability ranking is likely to move significantly downward in the future. (SAAQ 2006) In this study, Quebec's Affordability ranking reflects its overall market performance—meaning that SAAQ's poor performance is disguised by

the good performance of private sector insurers operating in Quebec's optional market when using a combined statistic for the province in this category.

There are other findings to note within the Pricing Sustainability variable. For instance, Michigan, Saskatchewan, and Oregon all have raw Pricing Sustainability values exceeding one. This means aggregate premium prices are not sustainable by definition and that premium rates in these jurisdictions must rise in future years. While Michigan and Oregon score well on Comparative Cost and Affordability in 2002, they should be expected to score somewhat lower in future analyses. However, it is especially interesting that Saskatchewan showed equally unsustainable premium prices even though prices for auto insurance in the province were already among the worst, as measured either in terms of Comparative Cost or Affordability. Saskatchewan's poor sustainability score means that the province's already high 2002 premium costs will likely rise as future annual data are analyzed and the province will continue to rank low compared to other jurisdictions.

Within the variable categories measuring pricing fairness, the most striking finding is that eight out of 10 Canadian provinces including: Alberta, Ontario, Quebec, Manitoba, Nova Scotia, Prince Edward Island, British Columbia, and Saskatchewan were the only jurisdictions out of the 61 studied that restricted risk pricing. The only Canadian exceptions were New Brunswick and Newfoundland. Thus, overall the Canadian provinces as a group again ranked among the worst in terms of Risk Pricing Restrictions. In contrast, the Canadian jurisdictions were evenly dispersed among the ranks for Legal Rights Restrictions, the other variable that determines pricing fairness. The most interesting case was British Columbia, which scored worst overall (tied with Saskatchewan) in terms of Risk Pricing Restrictions but tied for first overall (with 36 other jurisdictions) for permitting full Legal Rights to assign fault in an accident.

Choice Index (CI)

The Choice Index (CI) is comprised of three variables: Choice to Purchase, Choice of Coverage, and Choice of Insurer. The Choice to Purchase variable is made up of three sub-variables measuring the presence or absence of legal mandates to purchase liability insurance, accident benefits, and coverage for collisions with uninsured or underinsured motorists. The Choice of Coverage variable is also made up of three sub-variables measuring, in monetary terms, regulatory requirements governing the minimum scope or extent of coverage for property damage and liability as well as the minimum coverage requirements for accident benefits. The Choice of Insurer variable is a measure of the percentage of the market subject to regulatory prohibitions on competition or in other words, monopoly auto insurance.

Figure 2 displays the relative ranks of each of the 61 jurisdictions studied in terms of their combined scores across the Choice Index. The individual variable scores are displayed in table 10 in the Appendix.

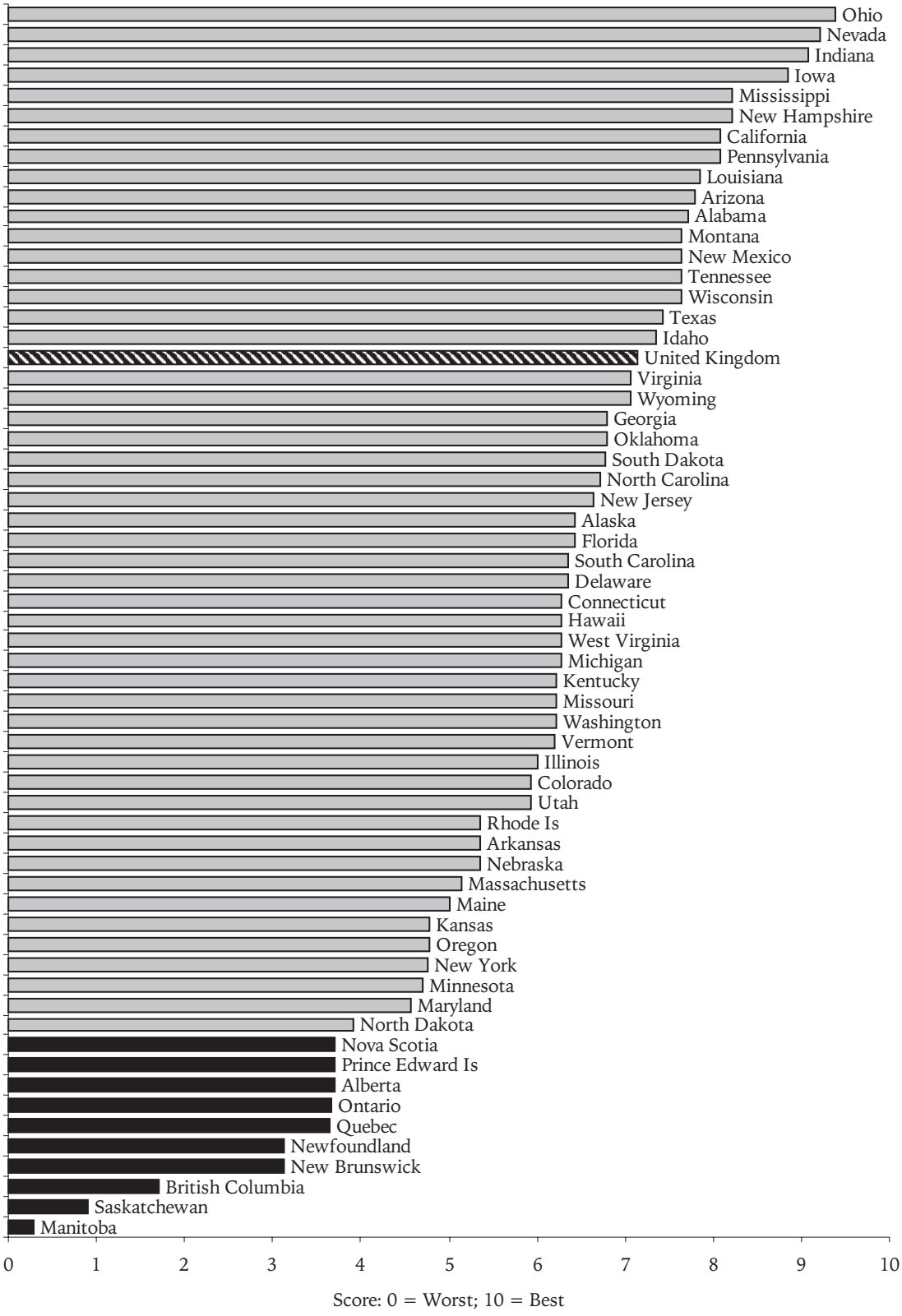
Beginning with the first ranked jurisdiction, the top 10 best markets for providing consumer choice in auto insurance product, coverage, and provider are: Ohio, Indiana, Nevada, Iowa, Mississippi, New Hampshire, California, Pennsylvania, Louisiana, and Arizona. The average score for the index was 6.02. Ohio ranked number one and scored 9.39, while Arizona ranked number 10 and scored 7.79. Beginning with the sixty-first ranked jurisdiction, the 10 worst markets for providing consumer choice in auto insurance product, coverage, and provider are all Canadian provinces. They include: Manitoba, Saskatchewan, British Columbia, New Brunswick, Newfoundland, Quebec, Ontario, Alberta, Prince Edward Island, and Nova Scotia. Manitoba, ranked sixty-first, was far below the average score of 6.02 for the index, with a standardized score of only 0.29, while tenth ranked Nova Scotia scored 3.70.

Scores within the Variables Used to Construct the Index

Scores within the compulsory Liability Insurance, Accident Benefits and Uninsured/Underinsured variables indicate the presence or absence of laws mandating purchase. Surprisingly, 12 of the 61 jurisdictions studied do not make the purchase of liability insurance compulsory for drivers. These jurisdictions are all American states including: Idaho, Indiana, Iowa, Mississippi, Nevada, New Hampshire, Ohio, South Dakota, Tennessee, Texas, Virginia, and Wisconsin. Instead of making the purchase of auto insurance mandatory, these jurisdictions only require that drivers demonstrate proof that they have adequate means to cover their financial responsibility up to certain defined limits. A larger number of jurisdictions—32 American states plus the United Kingdom—do not make the purchase of accident benefits coverage mandatory. Finally, 29 jurisdictions—all US states—do not mandate the purchase of insurance to cover a collision with an uninsured or underinsured motorist.

Scores within the Choice of Coverage variable are reflective of the minimum dollar coverage requirements applied to property damage, liability, and accident benefits insurance by regulation. Quebec and the United Kingdom are the only jurisdictions that do not have defined coverage minimums for property damage liability insurance, and the UK is alone in not defining such limits for bodily injury liability insurance. The Canadian provinces are fairly evenly distributed in terms of legal requirements for minimum coverage of property damage liability, but disproportionately fill the bottom ranks for the severity of minimum coverage regulations regarding bodily injury liability, occupying nine out of 10 of the worst score positions. Similarly, seven Canadian provinces are among the 10 worst jurisdictions in terms of restricting consumer choice over the

Figure 2: Choice Index



scope of coverage by regulating relatively high minimum coverage levels under accident benefits.

Finally, the Choice of Insurer variable ranks show that only four of the 61 jurisdictions prohibit competition for the provision of auto insurance to some degree. These four are the Canadian provinces of British Columbia, Saskatchewan, Manitoba, and Quebec. In each of these provinces, regulation prohibits any firm from offering auto insurance over a legally defined basic package of benefits and coverage. Any auto insurance coverages that exceed this minimum are theoretically open to competition from private sector providers. The degree of restriction on Choice of Insurer is proportionate to the percentage of market share occupied by the government insurer in these jurisdictions. Because the defined minimum coverage is different in each province, the percentage of market share in each also varies. The impact of the government insurer in this respect is especially limited in Quebec. In the other public auto insurance provinces, the government insurer has the advantage of being able to inflate the price of the mandatory product over which it has a monopoly, as a way of subsidizing the rates for coverages it offers in the optional market, thereby giving it both an artificial and unfair competitive advantage obtained from a monopoly position guaranteed by public policy.

Business Climate Index (BCI)

The Business Climate Index (BCI) is made up of five variables: Profitability, Competition Barriers, Product Regulation, Pricing Restrictions, and Capital Regulation. As mentioned earlier, the Profitability variable is empirically the same as the Pricing Sustainability variable used in the Cost and Pricing Fairness Index, but it is conceived differently for use in this index. Here the statistic is normally called a "loss ratio." The variable measuring Competition Barriers is the same used in the Choice Index to measure the degree of consumer Choice of Insurer and describes the percentage of the market affected by the legal imposition of rules prohibiting or limiting competition. The Product Regulation variable is the same as the Choice of Coverage variable and consists of three sub-variables. The variable that measures differences in Pricing Restrictions is constructed from the same sub-variable used in the Cost and Pricing Fairness Index to measure restrictions on risk pricing categories, and a sub-variable measuring the severity of Rate Filing Regulations in each jurisdiction. The final variable comprising the Business Climate Index measures the severity of restrictions over insurers' freedom to allocate business capital. Such restrictions come in the form of solvency regulations.

Figure 3 displays the relative ranks of each of the 61 jurisdictions studied in terms of their combined scores across the Business Climate Index. The individual variable scores are displayed in table 10 in the Appendix.

Beginning with the first ranked jurisdiction, the top 10 best markets from a business climate perspective are: Arizona, Vermont, Ohio, Missouri, Wisconsin, Iowa, Idaho, Delaware, Utah, and Kansas. The average score for the index was 7.47. Arizona ranked number one and scored 8.73, while Kansas ranked number 10 and scored 8.43. Again, the most obvious finding in this index is that the Canadian provinces perform poorly as a group. Notably, the Canadian provinces occupy 10 of the worst 11 ranks and the three very lowest scores were the public auto insurance provinces of Saskatchewan, Manitoba, and British Columbia. Alaska is the only non-Canadian jurisdiction to finish among the 10 worst business climates for auto insurers based on the variables used in this index.

Scores within the Variables Used to Construct the Index

Because many of the variables used to construct the Business Climate Index also appear in other indices in this study, the performance of the jurisdictions within these variables has already been described. The exceptions are the variables measuring the severity of regulation over rate filing and capital allocation. Within these variables, the scores of the Canadian provinces once again stand out as the most interesting finding. The public auto insurance provinces of British Columbia, Manitoba, and Saskatchewan once again appear towards the bottom of the results, meaning that they are very severe regulators of premium rate changes. The rest of the provinces, on the other hand, are fairly evenly distributed, although all of Canadian provinces are among the most severe regulators of the capital allocation choices of insurers. In fact, the United Kingdom is the only jurisdiction with more severe solvency requirements than the Canadian provinces.

Regulatory Severity Index (RSI)

The Regulatory Severity Index (RSI) contains 11 variables in total. Seven of the eight variables that comprise the Business Climate Index are also part of the Regulatory Severity Index. Additional variables include three measures of the presence or absence of coverage mandates and one measure of restrictions on legal rights to assign fault in an auto accident. Jurisdictional performance within the RSI should somewhat match performance within the BCI. However, the four extra variables included in the RSI create a conceptually distinct measure of auto insurance market quality.

Figure 4 displays the relative ranks of each of the 61 jurisdictions studied in terms of their combined scores across the Regulatory Severity Index. The individual variable scores are displayed in table 10 in the Appendix.

Beginning with the first ranked jurisdiction, the top 10 best markets defined as being least severe in terms of auto insurance regulation are all US states including: Ohio, Indi-

Figure 3: Business Climate Index

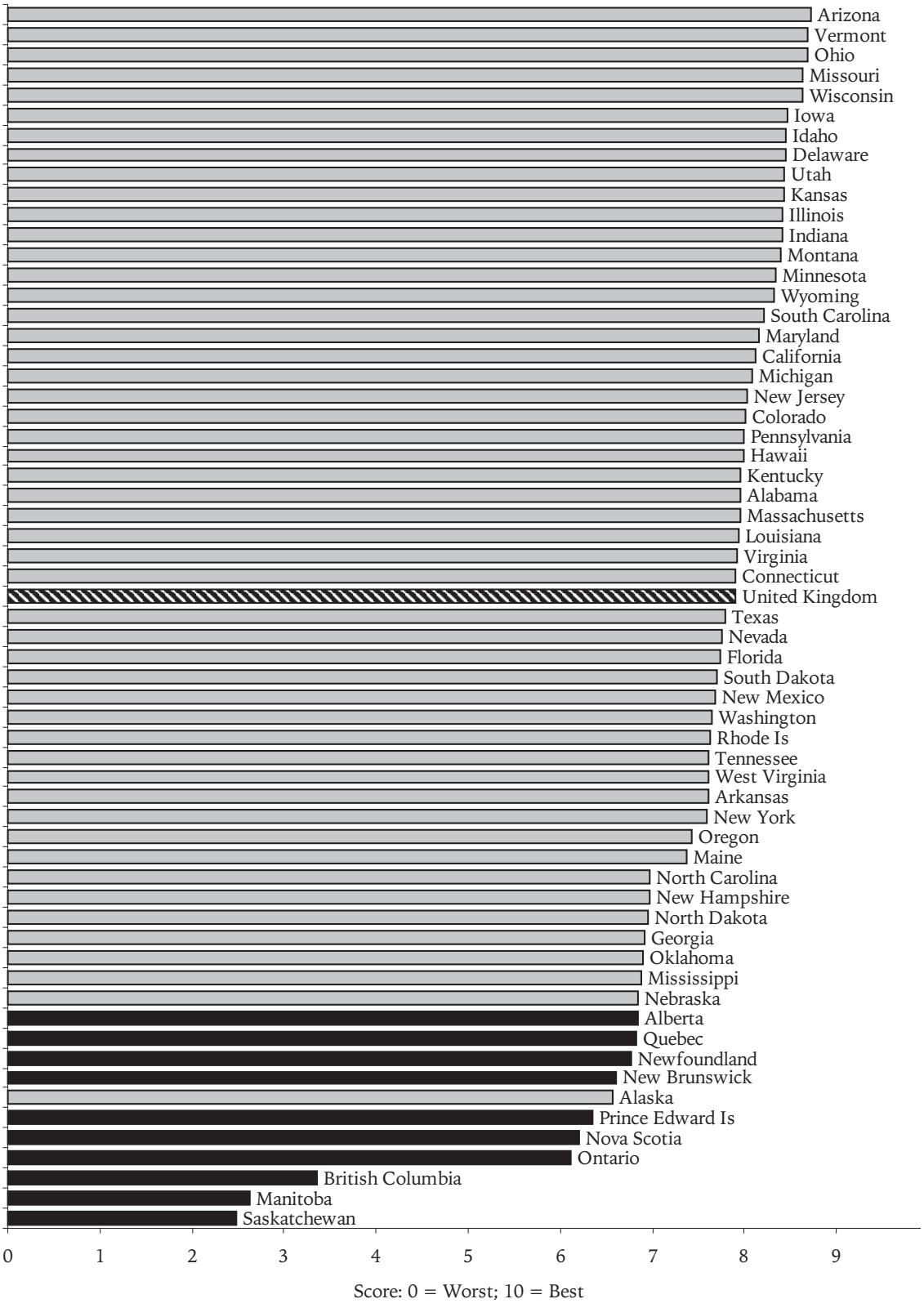
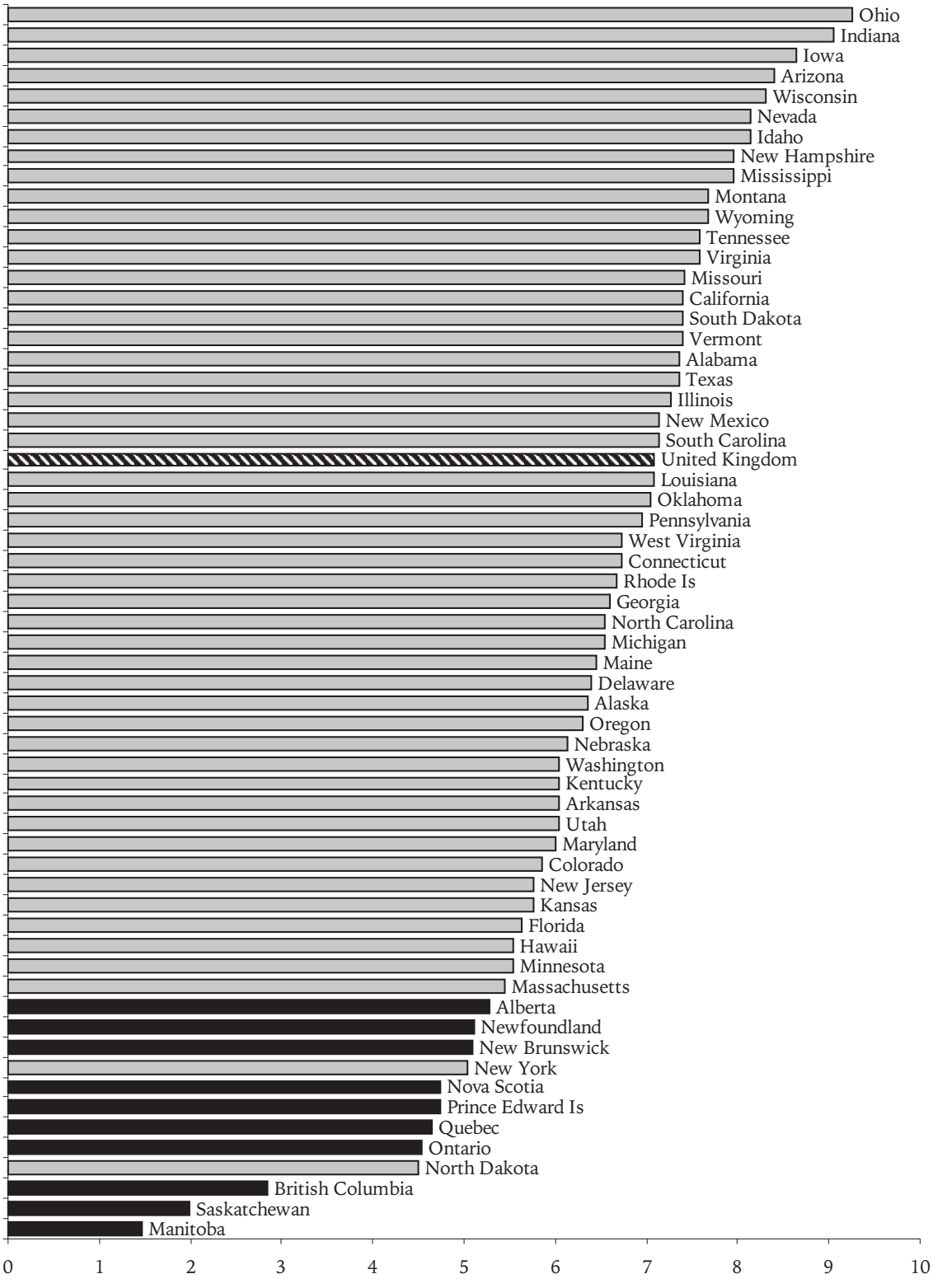


Figure 4: Regulatory Severity Index



ana, Iowa, Arizona, Wisconsin, Nevada, Idaho, New Hampshire, Mississippi, and Montana. Again, the most notable finding in this index is that the Canadian provinces perform poorly as a group. The Canadian provinces occupy 10 of the 12 most severely regulated ranks and the three very worst scores were again the public auto insurance provinces of Manitoba, Saskatchewan, and British Columbia. North Dakota and New York are the only non-Canadian jurisdictions to finish among the 10 most severely regulated markets for auto insurance.

Scores within the Variables Used to Construct the Index

Jurisdictional performance within each of the variables used to construct this index was explained earlier and is therefore not elaborated upon further here.

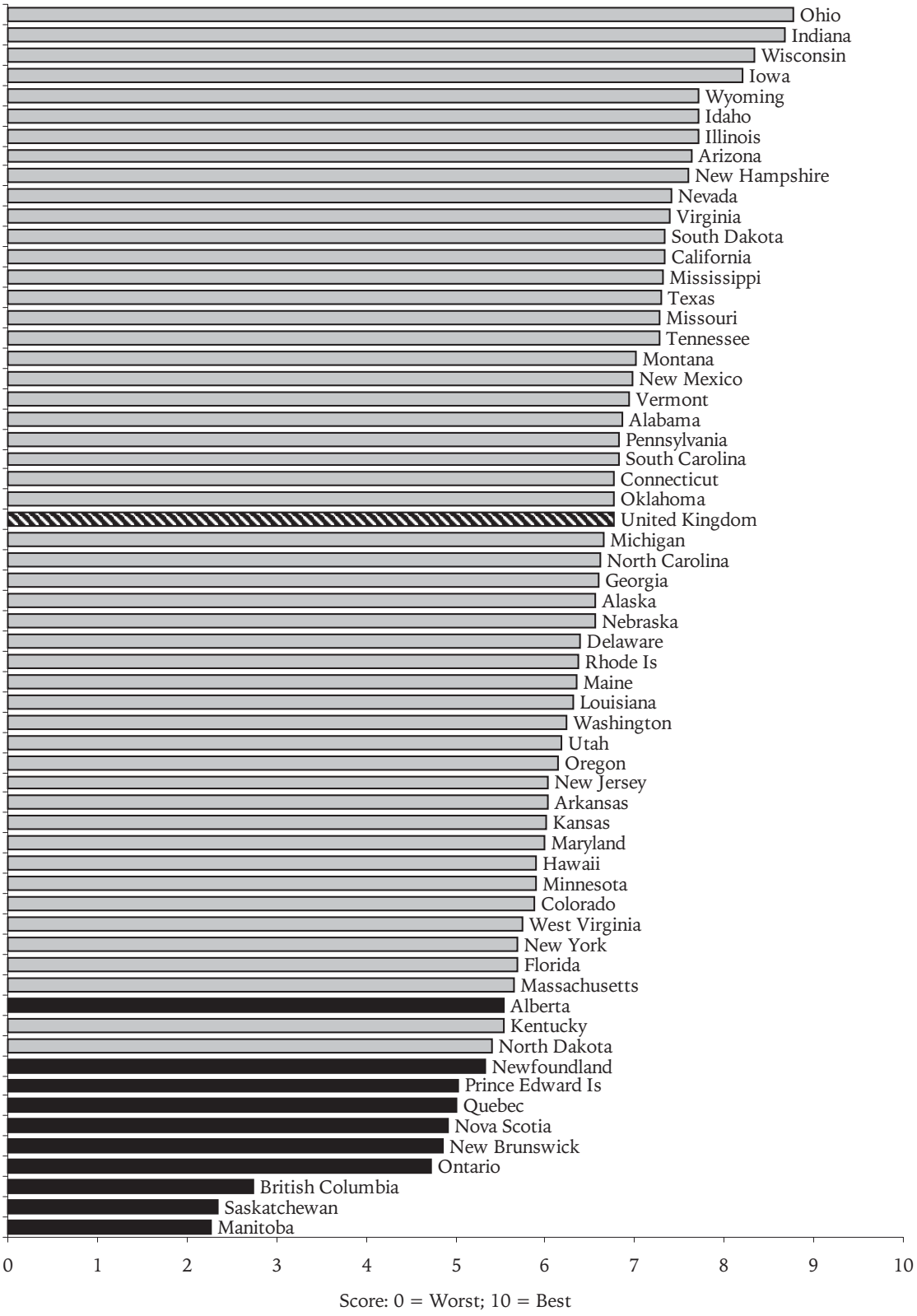
Overall Market Quality Index (MQI)

The Overall Market Quality Index (MQI) developed for this study is made up of the 15 variable and sub-variable measures described throughout this paper. Following this section of the paper, a statistical analysis is presented that confirms the link between more severe auto insurance regulation and worse outcomes either from the perspective of consumers or insurers, which were represented by the three sub-indices explained in the previous section. The statistical analysis following this section lays out the rationale justifying the conceptualization of regulatory severity as a negative value in the measurement of overall market quality. Therefore, combining the standardized jurisdictional scores across all 15 of the variable measures constructed for this study gives an overall ranking of market quality among the 61 jurisdictions examined in the year 2002.

Beginning with the first ranked jurisdiction, the top ten best auto insurance markets in 2002 were all US states including: Ohio, Indiana, Wisconsin, Iowa, Wyoming, Idaho, Illinois, Arizona, New Hampshire, and Nevada (see figure 5). Ohio finished with a score of 8.78 as the best overall market for auto insurance among the 61 jurisdictions studied. Tenth-placed Nevada scored 7.41. The average combined scored for the MQI was 6.36. The only non-North American market, the United Kingdom, scored 6.77 overall finishing just above the average MQI score and only one position above Michigan and North Carolina, tied as the two median ranked jurisdictions among the 61 included in the study.

Beginning with the sixty-first or last placed jurisdiction among the 61 studied, the bottom 10 worst auto insurance markets in 2002 were: Manitoba, Saskatchewan, British Columbia, Ontario, New Brunswick, Nova Scotia, Quebec, Prince Edward Island, Newfoundland, and North Dakota. The most striking finding is once again the fact that the

Figure 5: Overall Market Quality Index



Canadian jurisdictions ranked so low as a group. Only one of the 10 worst markets (North Dakota) was not Canadian. In fact, within the Overall Market Quality Index the Canadian provinces occupied 10 of the worst 12 ranks in the index—only Alberta, which placed twelfth worst, with 5.53, was not among the worst 10 overall. Of the entire 61 jurisdictions, the worst ranking belonged to Manitoba, which scored only 2.27.

In particular, the public auto insurance provinces of British Columbia, Saskatchewan, and Manitoba were consistently among the worst performers in the sub-indices measuring the cost and pricing fairness of auto insurance premiums, the degree of consumer choice available in each market, the attractiveness of the business climate for auto insurance providers, and finally, the severity of auto insurance regulation. This is reflected by the fact that they finished as the three worst markets for auto insurance of the 61 studied in 2002.

It is worth noting that while Alberta, Ontario, and New Brunswick scored badly overall, these jurisdictions have since undergone significant policy changes to their auto insurance regulatory environments. Future editions of this study will capture the impact of these changes and gauge whether new policy approaches are associated with improvements in the relative performance of these jurisdictions over time.

Statistical Analysis

The US NAIC (NAIC 2005a) lists many factors not directly related to public policy, which affect cross-jurisdictional differences in the cost of auto insurance premiums including:

- Driving locations
- Accident rates
- Traffic density
- Vehicle theft rates
- Auto repair prices
- Population density
- Medical and legal prices
- Per capita disposable income

According to an analysis of 50 US states and the District of Columbia conducted by the NAIC (2005a), three non-public-policy variables are highly correlated with the cost of auto insurance premiums across jurisdictions. These variables are Urban Population, Miles Driven per Number of Highway Miles, and Disposable Income per Capita.

Table 8: Higher Jurisdictional Scores Within the Auto Insurance Regulatory Severity Index (Meaning Jurisdictions that are Less Severely Regulated Overall) are Positively Correlated to Higher Jurisdictional Scores within Consumer Outcome Variables (Meaning Premium Prices are Less Costly, More Affordable and More Sustainable within the Jurisdiction)

Dependent Variables	Independent Variable / Regulatory Severity Index (RSI)
Cost	R^2 = .268 / Sig. = .04
Affordability	R^2 = .628 / Sig. = .00
Sustainability	R^2= .325 / Sig. = .01

Notes: R^2 = Pearson's Correlation statistic which measures the strength of the relationship between variables (range = 0 [no relationship] to 1 [perfect relationship]) and the +/– value indicates the direction of the relationship; Sig. <= .05 means results are statistically significant at or above the 95 percent confidence level; Sig. <= .01 means results are statistically significant at or above the 99 percent confidence level. N = 61.

One of the main purposes of this study is to understand the particular impact that public policies governing auto insurance can have on the cost of auto insurance premiums. Indeed, the data for this study suggest that the severity of auto insurance regulation is positively correlated with worse outcomes on the cost, affordability, and the pricing sustainability of auto insurance premiums. Table 8 shows the results of a statistical test of a simple bi-variate correlation (using Pearson's Correlation method embedded in the SPSS software used for this study) between a jurisdiction's score in the Regulatory Severity Index (RSI) and its score on the Cost, Affordability, and Pricing Sustainability of auto insurance premiums. The table is organized as a cross-tabulation matrix comparing correlations between dependent variables along the left side (row) with independent or explanatory variables across the top (columns). The statistical values presented in table 8 show that scores on Regulatory Severity are positively associated with scores on Cost, Affordability, and Pricing Sustainability. This means that jurisdictions scoring high in the Regulatory Severity index (meaning less severe auto insurance regulation) tend to also have high scores in the Cost, Affordability, and Pricing Sustainability indices (meaning lower aggregate comparative premium costs, more affordable premium costs, and more sustainable premium prices). The relationship between a jurisdiction's score on Regulatory Severity and its score on Affordability is particularly strong as indicated by the high value of the R^2 statistic (Range = 0 to 1).

It should be noted that the main determinant of premium prices is the cost of expected claims. In turn, claims costs are a factor of the number and frequency of claims, as well as the scope of the benefits that are payable under insurance. Therefore, regulations that affect insurance product definition can be expected to impact the price of auto insurance premiums. The results in table 8 are consistent with this observation.

Table 9: Higher Jurisdictional Scores Within the Auto Insurance Regulation Variables (Meaning Jurisdictions that are Less Severely Regulated) are Positively Correlated to Higher Jurisdictional Scores Within Consumer Outcome Variables (Meaning Premium Prices are Less Costly, More Affordable and More Sustainable Within the Jurisdiction)

Dependent Variables	Independent Variables						
	Competition	Compulsory Liability Insurance	Compulsory Accident Benefits	Minimum BI Liability Coverage	Minimum Accident Benefits Coverage*	Risk Pricing Restrictions	Rate Filing Regulations
Cost	R^2 = .274	R^2 = .275				R^2 = .255	R^2 = .251
	Sig. = .03	Sig. = .03				Sig. = .05	Sig. = .05
Affordability	R^2 = .588	R^2 = .405	R^2 = .383	R^2 = .613	R^2 = .370	R^2 = .597	
	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .00	
Pricing Sustain-ability	R^2 = .390		R^2 =.321		R^2 = .306	R^2 = .274	
	Sig. = .00		Sig. = .01		Sig. = .02	Sig. = .03	

Notes: R^2 = Pearson's Correlation statistic which measures the strength of the relationship between variables (range = 0 [no relationship] to 1 [perfect relationship]) and the +/– value indicates the direction of the relationship; Sig. <= .05 means results are statistically significant at or above the 95 percent confidence level; Sig. <= .01 means results are statistically significant at or above the 99 percent confidence level. N = 61.
*See footnote number 5.

Table 9 shows the results of a statistical test of the bi-variate correlations between the standardized jurisdictional scores for the Comparative Cost, Affordability, and Pricing Sustainability variables and the comparable set of scores for all of the 11 individual variables that make up the Regulatory Severity Index. The table is similarly organized as a cross-tabulation matrix comparing correlations between dependent variables along the left side (row) with independent or explanatory variables across the top (columns). The table does not display the results for all 11 of the variables, but only the results that were statistically significant above a confidence level of 95 percent.

Only seven of the 11 variables that make up the Regulatory Severity Index (RSI) have a statistically significant relationship with one or more of the outcomes on cost, affordability, and pricing sustainability.[5] The three strongest statistical correlations (as

5 Note that alternative conceptual definitions of the Minimum Accident Benefits Coverage variable would produce opposite scoring results and meanings in this analysis of correlations between regulatory severity and consumer outcomes. Specifically, if this variable is conceived of as a regulatory restriction on the freedom of consumers to choose lower insurance coverage levels for accident benefits, then "higher" raw values (i.e., higher minimum coverage levels) translate (using Formula B described in the Methodology section) into "lower" jurisdictional scores (i.e., meaning more

indicated by higher R^2 values, Range = 0 to 1) are between higher scores on Competition, Minimum Bodily Injury Liability Coverage, and Risk Pricing Restrictions, and higher scores on Affordability. The relationship between these variables is also positive. This means that jurisdictions that allow full private sector competition for the provision of auto insurance, have less severe regulatory requirements (namely, lower ones or none at all) for minimum coverage of bodily injury liability; and have less severe restrictions on risk pricing, which are all factors that are strongly associated with more affordable auto insurance premiums. The results in table 9 confirm analyses conducted by the NAIC that show variation in rate-filing regulations and liability insurance requirements are important determining factors explaining the cost of auto insurance premiums across jurisdictions (NAIC, 2005).

Conclusions

Based on the data available to this study covering 61 markets in three international jurisdictions for the year 2002, we have observed the following main findings:

1. Canadian provinces as a group tend to rank among the most highly regulated markets for auto insurance.

2. Canadian provinces also tend to score very poorly on measures of market quality, dominating the very lowest comparative ranks within the sub-indices for Cost and Pricing Fairness, Choice, and Business Climate.

3. Within the Overall Market Quality Index, the Canadian provinces also scored badly, occupying 10 of the worst 12 ranks in the index—only Alberta, which placed twelfth worst, was not among the worst 10 overall.

4. The public auto insurance provinces of British Columbia, Saskatchewan, and Manitoba were consistently among the worst performers overall.

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restrictive of consumer choice to buy less coverage) within the variable, and the results imply (as they do here) that "more" severe regulation is associated with "worse" consumer outcomes on Affordability and Pricing Sustainability. Alternatively, if the variable is conceived of as a restriction on consumers' tort rights to sue for more, by capping the amount that insurers are obliged to pay, then "higher" raw values (i.e., higher maximum claim levels) should (using Formula A described in the Methodology section) translate into "higher" jurisdictional scores (i.e., meaning less restrictions over the right to sue) and the results would imply that "more" severe regulation is associated with "better" outcomes on Affordability and Pricing Sustainability.

5. A statistical analysis conducted by this study confirms that in general, more severely regulated auto insurance markets are linked to worse outcomes for auto insurance consumers and less attractive business climates for insurance providers.

Finally, during the data collection process for this study, it was observed that there is a need for standardization in the data collected and reported by public sector insurers and regulators. This study recommends the US NAIC *Auto Insurance Database Report* as an appropriate model for structuring a useful, publicly accessible database for comparative research between international auto insurance markets and suggests that both public and private sector insurers work to adopt it as a national standard in their respective jurisdictions.

Appendices

Table 10: Data Values and Standardized Scores Within Variables

Market	Earned Premiums / GDP 2002	Score	Market	Earned Premiums/ PDI 2002	Score	Market	Incurred Losses / Earned Premiums (2002)	Score
United Kingdom	0.0080	10.00	Illinois	0.0121	10.00	Hawaii	0.52	10.00
Illinois	0.0092	8.96	Texas	0.0136	9.10	Connecticut	0.60	9.19
Delaware	0.0097	8.51	Wisconsin	0.0137	9.07	North Carolina	0.64	8.76
Alaska	0.0098	8.40	North Dakota	0.0139	8.95	Prince Edward Is	0.65	8.58
Texas	0.0098	8.38	Idaho	0.0143	8.69	California	0.66	8.54
Wyoming	0.0099	8.36	South Dakota	0.0145	8.60	New Hampshire	0.68	8.31
Wisconsin	0.0103	7.96	Washington	0.0147	8.45	South Dakota	0.68	8.24
South Dakota	0.0104	7.87	Iowa	0.0148	8.42	Vermont	0.69	8.17
Alberta	0.0107	7.63	Wyoming	0.0150	8.29	Idaho	0.69	8.15
North Dakota	0.0108	7.57	Tennessee	0.0150	8.25	North Dakota	0.69	8.15
Washington	0.0110	7.40	New Hampshire	0.0153	8.13	Maine	0.70	8.09
North Carolina	0.0110	7.39	California	0.0153	8.09	Utah	0.70	8.03
Iowa	0.0112	7.22	Ohio	0.0154	8.03	New Mexico	0.71	7.99
California	0.0112	7.20	Indiana	0.0157	7.87	Kansas	0.71	7.99
Idaho	0.0112	7.19	Virginia	0.0157	7.86	Virginia	0.71	7.94
Newfoundland	0.0113	7.08	Alaska	0.0158	7.81	Newfoundland	0.71	7.93
Virginia	0.0113	7.08	Missouri	0.0158	7.80	Minnesota	0.72	7.85
Tennessee	0.0115	6.96	Hawaii	0.0158	7.79	Georgia	0.72	7.83
Utah	0.0116	6.82	New York	0.0159	7.74	Indiana	0.73	7.76
New York	0.0117	6.78	Michigan	0.0160	7.67	New Jersey	0.73	7.74
Ohio	0.0117	6.74	Nebraska	0.0160	7.66	Iowa	0.73	7.73
Indiana	0.0119	6.62	Maine	0.0161	7.64	Ohio	0.73	7.72
Hawaii	0.0120	6.51	Vermont	0.0163	7.51	Massachusetts	0.73	7.71
Nebraska	0.0121	6.44	North Carolina	0.0163	7.50	Oklahoma	0.73	7.69
Missouri	0.0123	6.25	Pennsylvania	0.0164	7.44	Montana	0.74	7.65
Connecticut	0.0123	6.25	Connecticut	0.0166	7.34	Alaska	0.74	7.64
Michigan	0.0123	6.21	United Kingdom	0.0167	7.25	Washington	0.74	7.64
Quebec	0.0124	6.19	Kansas	0.0168	7.21	Alabama	0.74	7.63
Nevada	0.0124	6.19	Minnesota	0.0169	7.12	Rhode Island	0.74	7.60
Minnesota	0.0126	6.01	Oregon	0.0170	7.09	Mississippi	0.74	7.58
Ontario	0.0127	5.85	Oklahoma	0.0170	7.05	Nevada	0.74	7.58

Market	Earned Premiums / GDP 2002	Score	Market	Earned Premiums/ PDI 2002	Score	Market	Incurred Losses / Earned Premiums (2002)	Score
Georgia	0.0128	5.83	Utah	0.0173	6.92	Missouri	0.75	7.56
New Hampshire	0.0128	5.80	Maryland	0.0175	6.77	Nova Scotia	0.75	7.54
Oregon	0.0130	5.65	Nevada	0.0176	6.73	Wisconsin	0.75	7.53
Maine	0.0130	5.62	New Jersey	0.0176	6.71	Pennsylvania	0.75	7.48
Kansas	0.0130	5.61	Mississippi	0.0177	6.67	Tennessee	0.76	7.44
Pennsylvania	0.0133	5.39	Alabama	0.0177	6.64	Arkansas	0.76	7.38
Massachusetts	0.0133	5.35	Massachusetts	0.0178	6.58	Illinois	0.76	7.36
Saskatchewan	0.0133	5.34	Georgia	0.0181	6.41	Quebec	0.76	7.36
Vermont	0.0135	5.18	Montana	0.0181	6.40	New York	0.77	7.35
New Jersey	0.0136	5.10	New Mexico	0.0186	6.12	Arizona	0.77	7.30
Nova Scotia	0.0136	5.09	South Carolina	0.0190	5.90	Nebraska	0.77	7.30
New Mexico	0.0139	4.89	Arkansas	0.0190	5.88	Maryland	0.77	7.26
Prince Edward Is	0.0140	4.80	Kentucky	0.0190	5.86	South Carolina	0.78	7.23
Oklahoma	0.0142	4.55	Quebec	0.0197	5.44	Delaware	0.78	7.21
Colorado	0.0143	4.48	Nova Scotia	0.0197	5.43	Wyoming	0.79	7.09
Kentucky	0.0144	4.37	Arizona	0.0198	5.41	Florida	0.81	6.89
South Carolina	0.0145	4.36	Delaware	0.0198	5.41	West Virginia	0.81	6.84
Alabama	0.0145	4.34	Newfoundland	0.0199	5.33	New Brunswick	0.81	6.83
Arizona	0.0145	4.32	Florida	0.0199	5.31	Louisiana	0.83	6.69
Maryland	0.0147	4.16	Colorado	0.0200	5.30	Colorado	0.83	6.58
Manitoba	0.0150	3.92	Prince Edward Is	0.0200	5.27	Alberta	0.84	6.57
Mississippi	0.0151	3.79	Rhode Island	0.0201	5.22	Texas	0.86	6.31
Arkansas	0.0152	3.70	Alberta	0.0207	4.86	Kentucky	0.87	6.23
Montana	0.0154	3.53	Louisiana	0.0207	4.83	British Columbia	0.93	5.55
Louisiana	0.0159	3.13	Ontario	0.0214	4.43	United Kingdom	0.96	5.16
Rhode Island	0.0160	3.02	West Virginia	0.0230	3.47	Manitoba	0.98	5.04
Florida	0.0167	2.38	Manitoba	0.0233	3.28	Ontario	0.99	4.90
New Brunswick	0.0172	2.00	Saskatchewan	0.0241	2.78	Michigan	1.01	4.70
British Columbia	0.0184	0.92	New Brunswick	0.0252	2.16	Saskatchewan	1.08	3.86
West Virginia	0.0195	0.00	British Columbia	0.0288	0.00	Oregon	1.43	0.00

Market	Compulsory Liability Insurance? (2002) [No=0; Yes=1]	Score	Market	Compulsory Accident Benefits? (2002) [No=0; Yes=1]	Score	Market	Compulsory UM/UIM? (2002) [No=0; Option=.5; Yes=1]	Score
Idaho	0.0	10.00	Alabama	0.0	10.00	Arizona	0.0	10.00
Indiana	0.0	10.00	Alaska	0.0	10.00	Delaware	0.0	10.00
Iowa	0.0	10.00	Arizona	0.0	10.00	Indiana	0.0	10.00
Mississippi	0.0	10.00	California	0.0	10.00	Michigan	0.0	10.00
Nevada	0.0	10.00	Connecticut	0.0	10.00	Mississippi	0.0	10.00
New Hampshire	0.0	10.00	Georgia	0.0	10.00	New Hampshire	0.0	10.00
Ohio	0.0	10.00	Idaho	0.0	10.00	Ohio	0.0	10.00
South Dakota	0.0	10.00	Illinois	0.0	10.00	Oklahoma	0.0	10.00
Tennessee	0.0	10.00	Indiana	0.0	10.00	Pennsylvania	0.0	10.00
Texas	0.0	10.00	Iowa	0.0	10.00	Alabama	0.5	5.00
Virginia	0.0	10.00	Louisiana	0.0	10.00	Alaska	0.5	5.00
Wisconsin	0.0	10.00	Maine	0.0	10.00	Arkansas	0.5	5.00
Alabama	1.0	0.00	Mississippi	0.0	10.00	California	0.5	5.00
Alaska	1.0	0.00	Missouri	0.0	10.00	Colorado	0.5	5.00
Alberta	1.0	0.00	Montana	0.0	10.00	Florida	0.5	5.00
Arizona	1.0	0.00	Nebraska	0.0	10.00	Georgia	0.5	5.00
Arkansas	1.0	0.00	Nevada	0.0	10.00	Hawaii	0.5	5.00
British Columbia	1.0	0.00	New Hampshire	0.0	10.00	Iowa	0.5	5.00
California	1.0	0.00	New Mexico	0.0	10.00	Kentucky	0.5	5.00
Colorado	1.0	0.00	North Carolina	0.0	10.00	Louisiana	0.5	5.00
Connecticut	1.0	0.00	Ohio	0.0	10.00	Montana	0.5	5.00
Delaware	1.0	0.00	Oklahoma	0.0	10.00	Nevada	0.5	5.00
Florida	1.0	0.00	Pennsylvania	0.0	10.00	New Jersey	0.5	5.00
Georgia	1.0	0.00	Rhode Island	0.0	10.00	New Mexico	0.5	5.00
Hawaii	1.0	0.00	South Carolina	0.0	10.00	North Carolina	0.5	5.00
Illinois	1.0	0.00	South Dakota	0.0	10.00	Texas	0.5	5.00
Kansas	1.0	0.00	Tennessee	0.0	10.00	Utah	0.5	5.00
Kentucky	1.0	0.00	United Kingdom	0.0	10.00	Washington	0.5	5.00
Louisiana	1.0	0.00	Vermont	0.0	10.00	Wyoming	0.5	5.00
Maine	1.0	0.00	Virginia	0.0	10.00	Alberta	1.0	0.00
Manitoba	1.0	0.00	West Virginia	0.0	10.00	British Columbia	1.0	0.00

Market	Compulsory Liability Insurance? (2002) [No=0; Yes=1]	Score	Market	Compulsory Accident Benefits? (2002) [No=0; Yes=1]	Score	Market	Compulsory UM/UIM? (2002) [No=0; Option=.5; Yes=1]	Score
Maryland	1.0	0.00	Wisconsin	0.0	10.00	Connecticut	1.0	0.00
Massachusetts	1.0	0.00	Wyoming	0.0	10.00	Idaho	1.0	0.00
Michigan	1.00	0.00	Alberta	1.00	0.00	Illinois	1.00	0.00
Minnesota	1.00	0.00	Arkansas	1.00	0.00	Kansas	1.00	0.00
Missouri	1.00	0.00	British Columbia	1.00	0.00	Maine	1.00	0.00
Montana	1.00	0.00	Colorado	1.00	0.00	Manitoba	1.00	0.00
Nebraska	1.00	0.00	Delaware	1.00	0.00	Maryland	1.00	0.00
New Brunswick	1.00	0.00	Florida	1.00	0.00	Massachusetts	1.00	0.00
New Jersey	1.00	0.00	Hawaii	1.00	0.00	Minnesota	1.00	0.00
New Mexico	1.00	0.00	Kansas	1.00	0.00	Missouri	1.00	0.00
New York	1.00	0.00	Kentucky	1.00	0.00	Nebraska	1.00	0.00
Newfoundland	1.00	0.00	Manitoba	1.00	0.00	New Brunswick	1.00	0.00
North Carolina	1.00	0.00	Maryland	1.00	0.00	New York	1.00	0.00
North Dakota	1.00	0.00	Massachusetts	1.00	0.00	Newfoundland	1.00	0.00
Nova Scotia	1.00	0.00	Michigan	1.00	0.00	North Dakota	1.00	0.00
Oklahoma	1.00	0.00	Minnesota	1.00	0.00	Nova Scotia	1.00	0.00
Ontario	1.00	0.00	New Brunswick	1.00	0.00	Ontario	1.00	0.00
Oregon	1.00	0.00	New Jersey	1.00	0.00	Oregon	1.00	0.00
Pennsylvania	1.00	0.00	New York	1.00	0.00	Prince Edward Is	1.00	0.00
Prince Edward Is	1.00	0.00	Newfoundland	1.00	0.00	Quebec	1.00	0.00
Quebec	1.00	0.00	North Dakota	1.00	0.00	Rhode Island	1.00	0.00
Rhode Island	1.00	0.00	Nova Scotia	1.00	0.00	Saskatchewan	1.00	0.00
Saskatchewan	1.00	0.00	Ontario	1.00	0.00	South Carolina	1.00	0.00
South Carolina	1.00	0.00	Oregon	1.00	0.00	South Dakota	1.00	0.00
United Kingdom	1.00	0.00	Prince Edward Is	1.00	0.00	Tennessee	1.00	0.00
Utah	1.00	0.00	Quebec	1.00	0.00	United Kingdom	1.00	0.00
Vermont	1.00	0.00	Saskatchewan	1.00	0.00	Vermont	1.00	0.00
Washington	1.00	0.00	Texas	1.00	0.00	Virginia	1.00	0.00
West Virginia	1.00	0.00	Utah	1.00	0.00	West Virginia	1.00	0.00
Wyoming	1.00	0.00	Washington	1.00	0.00	Wisconsin	1.00	0.00

Market	Miniumum Property Damage Liability Coverage (2002)	Score	Market	Minimum Bodily Injury Liability Coverage (2002)	Score	Market	Minimum Accident Benefits Coverage (2002)	Score
Quebec	$0	10.00	United Kingdom	$0	10.00	Alabama	$0	10.00
United Kingdom	$0	10.00	Florida	$20,000	9.00	Alaska	$0	10.00
California	$5,000	8.00	Louisiana	$20,000	9.00	Arizona	$0	10.00
Massachusetts	$5,000	8.00	Ohio	$25,000	8.75	California	$0	10.00
New Jersey	$5,000	8.00	Arizona	$30,000	8.50	Colorado	$0	10.00
Pennsylvania	$5,000	8.00	California	$30,000	8.50	Connecticut	$0	10.00
Ohio	$7,500	7.00	Delaware	$30,000	8.50	Georgia	$0	10.00
Alabama	$10,000	6.00	Nevada	$30,000	8.50	Hawaii	$0	10.00
Alberta	$10,000	6.00	New Jersey	$30,000	8.50	Idaho	$0	10.00
Arizona	$10,000	6.00	Pennsylvania	$30,000	8.50	Illinois	$0	10.00
Connecticut	$10,000	6.00	South Carolina	$30,000	8.50	Indiana	$0	10.00
Delaware	$10,000	6.00	Alabama	$40,000	8.00	Iowa	$0	10.00
Florida	$10,000	6.00	Connecticut	$40,000	8.00	Kentucky	$0	10.00
Hawaii	$10,000	6.00	Hawaii	$40,000	8.00	Louisiana	$0	10.00
Indiana	$10,000	6.00	Illinois	$40,000	8.00	Maine	$0	10.00
Kansas	$10,000	6.00	Iowa	$40,000	8.00	Maryland	$0	10.00
Kentucky	$10,000	6.00	Maryland	$40,000	8.00	Mississippi	$0	10.00
Louisiana	$10,000	6.00	Massachusetts	$40,000	8.00	Missouri	$0	10.00
Michigan	$10,000	6.00	Michigan	$40,000	8.00	Montana	$0	10.00
Minnesota	$10,000	6.00	Texas	$40,000	8.00	Nevada	$0	10.00
Missouri	$10,000	6.00	West Virginia	$40,000	8.00	New Hampshire	$0	10.00
Montana	$10,000	6.00	Arkansas	$50,000	7.50	New Mexico	$0	10.00
Nevada	$10,000	6.00	Colorado	$50,000	7.50	North Carolina	$0	10.00
New Mexico	$10,000	6.00	Georgia	$50,000	7.50	Ohio	$0	10.00
New York	$10,000	6.00	Idaho	$50,000	7.50	Oklahoma	$0	10.00
Nova Scotia	$10,000	6.00	Indiana	$50,000	7.50	Pennsylvania	$0	10.00
Ontario	$10,000	6.00	Kansas	$50,000	7.50	Rhode Island	$0	10.00
Oregon	$10,000	6.00	Kentucky	$50,000	7.50	Tennessee	$0	10.00
Prince Edward Is	$10,000	6.00	Mississippi	$50,000	7.50	Texas	$0	10.00
Saskatchewan	$10,000	6.00	Missouri	$50,000	7.50	United Kingdom	$0	10.00
South Carolina	$10,000	6.00	Montana	$50,000	7.50	Virginia	$0	10.00
Tennessee	$10,000	6.00	Nebraska	$50,000	7.50	Washington	$0	10.00
Vermont	$10,000	6.00	New Hampshire	$50,000	7.50	West Virginia	$0	10.00
Washington	$10,000	6.00	New Mexico	$50,000	7.50	Wyoming	$0	10.00
West Virginia	$10,000	6.00	New York	$50,000	7.50	Florida	$10,000	9.98

Market	Miniumum Property Damage Liability Coverage (2002)	Score	Market	Minimum Bodily Injury Liability Coverage (2002)	Score	Market	Minimum Accident Benefits Coverage (2002)	Score
Wisconsin	$10,000	6.00	North Dakota	$50,000	7.50	Arkansas	$12,280	9.98
Colorado	$15,000	4.00	Oklahoma	$50,000	7.50	Kansas	$15,300	9.97
Idaho	$15,000	4.00	Oregon	$50,000	7.50	New Jersey	$20,000	9.96
Illinois	$15,000	4.00	Quebec	$50,000	7.50	Utah	$23,300	9.95
Iowa	$15,000	4.00	Rhode Island	$50,000	7.50	Nebraska	$25,000	9.95
Maryland	$15,000	4.00	South Dakota	$50,000	7.50	South Carolina	$25,000	9.95
Texas	$15,000	4.00	Tennessee	$50,000	7.50	South Dakota	$25,000	9.95
Utah	$15,000	4.00	Utah	$50,000	7.50	Wisconsin	$25,000	9.95
British Columbia	$20,000	2.00	Vermont	$50,000	7.50	Massachusetts	$28,000	9.95
Manitoba	$20,000	2.00	Virginia	$50,000	7.50	Delaware	$30,000	9.94
New Brunswick	$20,000	2.00	Washington	$50,000	7.50	North Dakota	$30,000	9.94
Newfoundland	$20,000	2.00	Wisconsin	$50,000	7.50	Oregon	$40,000	9.92
Virginia	$20,000	2.00	Wyoming	$50,000	7.50	Newfoundland	$40,400	9.92
Wyoming	$20,000	2.00	Minnesota	$60,000	7.00	Nova Scotia	$40,400	9.92
Alaska	$25,000	0.00	North Carolina	$60,000	7.00	Prince Edward Is	$40,400	9.92
Arkansas	$25,000	0.00	Alaska	$100,000	5.00	Michigan	$41,000	9.92
Georgia	$25,000	0.00	Maine	$100,000	5.00	Alberta	$43,800	9.91
Maine	$25,000	0.00	Alberta	$200,000	0.00	Vermont	$50,000	9.90
Mississippi	$25,000	0.00	British Columbia	$200,000	0.00	Minnesota	$65,000	9.87
Nebraska	$25,000	0.00	Manitoba	$200,000	0.00	New York	$75,000	9.85
New Hampshire	$25,000	0.00	New Brunswick	$200,000	0.00	New Brunswick	$81,200	9.84
North Carolina	$25,000	0.00	Newfoundland	$200,000	0.00	Ontario	$141,600	9.72
North Dakota	$25,000	0.00	Nova Scotia	$200,000	0.00	British Columbia	$196,280	9.62
Oklahoma	$25,000	0.00	Ontario	$200,000	0.00	Manitoba*	$5,115,000	0.00
Rhode Island	$25,000	0.00	Prince Edward Is	$200,000	0.00	Quebec*	$5,115,000	0.00
South Dakota	$25,000	0.00	Saskatchewan	$200,000	0.00	Saskatchewan*	$5,115,000	0.00

*In Saskatchewan the minimum insurance coverage required for medical payments under accident benefits is $5,115,000. This figure is high enough above other jurisdictions to produce a zero score in the variable so additional accident benefits costs have not been estimated. Manitoba and Quebec have no upper limit on the obligation to pay medical payments and therefore minimum insurance coverage requirements are not defined in regulation, but in theory they are at least as high as Saskatchewan's which are substituted as a proxy here. Data was not available to estimated the number of cases where medical payments exceed Saskatchewan's limit in Manitoba and Quebec, but it is assumed that it is probably close to nil.

Market	Percentage of the Market Affected by Prohibitions on Competition or Barriers to Competition that Result from Public Policy	Score	Market	Tort Laws	Tort Threshold (in local $)	Tort Regulation Severity Value (6=most severe; 1=least severe)	Score
Alabama	0.0%	10.00	Alabama	Tort	N/A	1	10.00
Alaska	0.0%	10.00	Alaska	Tort	N/A	1	10.00
Alberta	0.0%	10.00	Alberta	Tort	N/A	1	10.00
Arizona	0.0%	10.00	Arizona	Tort	N/A	1	10.00
Arkansas	0.0%	10.00	British Columbia	Tort	N/A	1	10.00
California	0.0%	10.00	California	Tort	N/A	1	10.00
Colorado	0.0%	10.00	Connecticut	Tort	N/A	1	10.00
Connecticut	0.0%	10.00	Georgia	Tort	N/A	1	10.00
Delaware	0.0%	10.00	Idaho	Tort	N/A	1	10.00
Florida	0.0%	10.00	Illinois	Tort	N/A	1	10.00
Georgia	0.0%	10.00	Indiana	Tort	N/A	1	10.00
Hawaii	0.0%	10.00	Iowa	Tort	N/A	1	10.00
Idaho	0.0%	10.00	Maine	Tort	N/A	1	10.00
Illinois	0.0%	10.00	Mississippi	Tort	N/A	1	10.00
Indiana	0.0%	10.00	Missouri	Tort	N/A	1	10.00
Iowa	0.0%	10.00	Montana	Tort	N/A	1	10.00
Kansas	0.0%	10.00	Nebraska	Tort	N/A	1	10.00
Kentucky	0.0%	10.00	Nevada	Tort	N/A	1	10.00
Louisiana	0.0%	10.00	New Brunswick	Tort	N/A	1	10.00
Maine	0.0%	10.00	New Hampshire	Tort	N/A	1	10.00
Maryland	0.0%	10.00	New Mexico	Tort	N/A	1	10.00
Massachusetts	0.0%	10.00	Newfoundland	Tort	N/A	1	10.00
Michigan	0.0%	10.00	North Carolina	Tort	N/A	1	10.00
Minnesota	0.0%	10.00	Nova Scotia	Tort	N/A	1	10.00
Mississippi	0.0%	10.00	Ohio	Tort	N/A	1	10.00
Missouri	0.0%	10.00	Oklahoma	Tort	N/A	1	10.00
Montana	0.0%	10.00	Oregon	Tort	N/A	1	10.00
Nebraska	0.0%	10.00	Prince Edward Is	Tort	N/A	1	10.00
Nevada	0.0%	10.00	Rhode Island	Tort	N/A	1	10.00
New Brunswick	0.0%	10.00	South Carolina	Tort	N/A	1	10.00
New Hampshire	0.0%	10.00	Tennessee	Tort	N/A	1	10.00
New Jersey	0.0%	10.00	Texas	Tort	N/A	1	10.00
New Mexico	0.0%	10.00	United Kingdom	Tort	N/A	1	10.00

Market	Percentage of the Market Affected by Prohibitions on Competition or Barriers to Competition that Result from Public Policy	Score	Market	Tort Laws	Tort Threshold (in local $)	Tort Regulation Severity Value (6=most severe; 1=least severe)	Score
New York	0.0%	10.00	Vermont	Tort	N/A	1	10.00
Newfoundland	0.0%	10.00	West Virginia	Tort	N/A	1	10.00
North Carolina	0.0%	10.00	Wisconsin	Tort	N/A	1	10.00
North Dakota	0.0%	10.00	Wyoming	Tort	N/A	1	10.00
Nova Scotia	0.0%	10.00	Arkansas	Add-On	$5,000	2	8.00
Ohio	0.0%	10.00	Maryland	Add-On	N/A	2	8.00
Oklahoma	0.0%	10.00	South Dakota	Add-On	N/A	2	8.00
Ontario	0.0%	10.00	Virginia	Add-On	N/A	2	8.00
Oregon	0.0%	10.00	Washington	Add-On	N/A	2	8.00
Pennsylvania	0.0%	10.00	Louisiana	Add-On	N/A	3	6.00
Prince Edward Is	0.0%	10.00	Ontario	Modified Tort & No-Fault	Verbal	3	6.00
Rhode Island	0.0%	10.00	Saskatchewan	Modified Tort & No-Fault	Choice	3	6.00
South Carolina	0.0%	10.00	Kansas	No-Fault	$2,000	4	4.00
South Dakota	0.0%	10.00	Kentucky	No-Fault	$1,000 or Verbal	4	4.00
Tennessee	0.0%	10.00	Massachusetts	No-Fault	$2,000	4	4.00
Texas	0.0%	10.00	Quebec	No-Fault	N/A	4	4.00
United Kingdom	0.0%	10.00	Colorado	No-Fault	$2,500 or Verbal	5	2.00
Utah	0.0%	10.00	Florida	No-Fault	Verbal	5	2.00
Vermont	0.0%	10.00	Hawaii	No-Fault	$5,000 or Verbal	5	2.00
Virginia	0.0%	10.00	Michigan	No-Fault	Verbal	5	2.00
Washington	0.0%	10.00	Minnesota	No-Fault	$4,000 or Verbal	5	2.00
West Virginia	0.0%	10.00	New Jersey	No-Fault	Choice or Verbal	5	2.00
Wisconsin	0.0%	10.00	New York	No-Fault	Verbal	5	2.00
Wyoming	0.0%	10.00	North Dakota	No-Fault	$2,500 or Verbal	5	2.00
Quebec	19.5%	8.00	Utah	No-Fault	$3,000	5	2.00
Saskatchewan	94.5%	0.34	Delaware	No-Fault	N/A	6	0.00
British Columbia	94.9%	0.29	Manitoba	No-Fault	N/A	6	0.00
Manitoba	97.8%	0.00	Pennsylvania	No-Fault	Choice	6	0.00

Market	Number of Restricted Risk Pricing Categories	Score	Market	Type of Rate Filing Regulation (2002)	Rate Filing Regulation Severity Value	Score
Alabama	0	10.00	Wyoming	No File	1	10.00
Alaska	0	10.00	Arizona	Use and File	2	8.00
Arizona	0	10.00	Idaho	Use and File	2	8.00
Arkansas	0	10.00	Illinois	Use and File	2	8.00
California	0	10.00	Iowa	Use and File	2	8.00
Colorado	0	10.00	Missouri	Use and File	2	8.00
Connecticut	0	10.00	United Kingdom	Use and File	2	8.00
Delaware	0	10.00	Utah	Use and File	2	8.00
Florida	0	10.00	Vermont	Use and File	2	8.00
Georgia	0	10.00	Wisconsin	Use and File	2	8.00
Hawaii	0	10.00	Alberta	File and Use	3	6.00
Idaho	0	10.00	Arkansas	File and Use	3	6.00
Illinois	0	10.00	Colorado	File and use	3	6.00
Indiana	0	10.00	Delaware	File and Use	3	6.00
Iowa	0	10.00	Indiana	File and use	3	6.00
Kansas	0	10.00	Kansas	File and Use	3	6.00
Kentucky	0	10.00	Maine	File and use	3	6.00
Louisiana	0	10.00	Maryland	File and use	3	6.00
Maine	0	10.00	Michigan	File and use	3	6.00
Maryland	0	10.00	Minnesota	File and use	3	6.00
Massachusetts	0	10.00	Montana	File and use	3	6.00
Michigan	0	10.00	New Brunswick	File and Use	3	6.00
Minnesota	0	10.00	Newfoundland	File and Use	3	6.00
Mississippi	0	10.00	Nova Scotia	File and Use	3	6.00
Missouri	0	10.00	Ohio	File and Use	3	6.00
Montana	0	10.00	Oregon	File and use	3	6.00
Nebraska	0	10.00	Prince Edward Is	File and Use	3	6.00
Nevada	0	10.00	Quebec	File and Use	3	6.00
New Brunswick	0	10.00	Rhode Island	File and use	3	6.00
New Hampshire	0	10.00	South Dakota	File and use	3	6.00
New Jersey	0	10.00	Virginia	File and use	3	6.00
New Mexico	0	10.00	Kentucky	Flex Rating	4	4.00
New York	0	10.00	South Carolina	Flex Rating	4	4.00
Newfoundland	0	10.00	Texas	Flex Rating	4	4.00
North Carolina	0	10.00	Alabama	Mod Prior Approval	5	2.00

Market	Number of Restricted Risk Pricing Categories	Score	Market	Type of Rate Filing Regulation (2002)	Rate Filing Regulation Severity Value	Score
North Dakota	0	10.00	Louisiana	Mod Prior Approval	5	2.00
Ohio	0	10.00	Ontario	Mod Prior Approval	5	2.00
Oklahoma	0	10.00	Alaska	Prior Approval	6	0.00
Oregon	0	10.00	British Columbia	Prior Approval	6	0.00
Pennsylvania	0	10.00	California	Prior Approval	6	0.00
Rhode Island	0	10.00	Connecticut	Prior Approval	6	0.00
South Carolina	0	10.00	Florida	Prior Approval	6	0.00
South Dakota	0	10.00	Georgia	Prior Approval	6	0.00
Tennessee	0	10.00	Hawaii	Prior Approval	6	0.00
Texas	0	10.00	Manitoba	Prior Approval	6	0.00
United Kingdom	0	10.00	Massachusetts	Prior Approval	6	0.00
Utah	0	10.00	Mississippi	Prior Approval	6	0.00
Vermont	0	10.00	Nebraska	Prior Approval	6	0.00
Virginia	0	10.00	Nevada	Prior Approval	6	0.00
Washington	0	10.00	New Hampshire	Prior Approval	6	0.00
West Virginia	0	10.00	New Jersey	Prior Approval	6	0.00
Wisconsin	0	10.00	New Mexico	Prior Approval	6	0.00
Wyoming	0	10.00	New York	Prior Approval	6	0.00
Alberta	1	8.00	North Carolina	Prior Approval	6	0.00
Ontario	1	8.00	North Dakota	Prior Approval	6	0.00
Quebec	1	7.90	Oklahoma	Prior Approval	6	0.00
Manitoba	3	5.00	Pennsylvania	Prior Approval	6	0.00
Nova Scotia	4	2.00	Saskatchewan	Prior Approval	6	0.00
Prince Edward Is	4	2.00	Tennessee	Prior Approval	6	0.00
British Columbia	5	0.00	Washington	Prior Approval	6	0.00
Saskatchewan	5	0.00	West Virginia	Prior Approval	6	0.00

Market	Capital Reserve Requirements: % of Direct Written Premium	Score	Market	Compulsory premium tax rates	Score
Arizona	0.00%	10.00	Oregon	0.0119	10.00
Florida	0.00%	10.00	Nebraska	0.0134	9.66
Minnesota	0.00%	10.00	Michigan	0.0147	9.35
Montana	0.00%	10.00	Illinois	0.0151	9.26
New Jersey	0.00%	10.00	Wisconsin	0.0157	9.14
New York	0.00%	10.00	Florida	0.0169	8.84
North Dakota	0.00%	10.00	Indiana	0.0185	8.48
Ohio	0.00%	10.00	New York	0.0195	8.25
Washington	0.00%	10.00	Wyoming	0.0227	7.49
West Virginia	0.00%	10.00	Ohio	0.0229	7.46
Wisconsin	0.00%	10.00	Colorado	0.0233	7.37
Wyoming	0.00%	10.00	New Jersey	0.0234	7.34
Maryland	0.00%	10.00	New Mexico	0.0243	7.12
Indiana	0.00%	10.00	Arkansas	0.0252	6.92
Alabama	0.00%	9.99	North Dakota	0.0252	6.92
New Mexico	0.00%	9.99	Minnesota	0.0270	6.51
Texas	0.00%	9.99	Georgia	0.0271	6.49
Missouri	0.00%	9.99	South Carolina	0.0272	6.46
Nevada	0.00%	9.99	Rhode Island	0.0285	6.17
Colorado	0.00%	9.99	Missouri	0.0286	6.14
Utah	0.01%	9.99	Kansas	0.0293	5.98
South Carolina	0.01%	9.99	Alberta	0.0300	5.81
Georgia	0.01%	9.99	Manitoba	0.0300	5.81
Iowa	0.01%	9.99	New Brunswick	0.0300	5.81
Michigan	0.01%	9.99	Ontario	0.0300	5.81
Nebraska	0.01%	9.99	Pennsylvania	0.0306	5.68
Illinois	0.01%	9.99	Maryland	0.0306	5.66
Tennessee	0.01%	9.99	Massachusetts	0.0325	5.23
North Carolina	0.01%	9.98	Arizona	0.0330	5.12
South Dakota	0.01%	9.98	Quebec	0.0335	5.00
Oregon	0.01%	9.98	Connecticut	0.0341	4.86
Kentucky	0.01%	9.98	Oklahoma	0.0341	4.86
Connecticut	0.01%	9.98	Texas	0.0345	4.77
Virginia	0.01%	9.98	Iowa	0.0345	4.77
Rhode Island	0.01%	9.98	Alaska	0.0348	4.70
California	0.02%	9.97	Prince Edward Is	0.0350	4.65

Market	Capital Reserve Requirements: % of Direct Written Premium	Score	Market	Compulsory premium tax rates	Score
Kansas	0.02%	9.97	California	0.0351	4.63
Arkansas	0.02%	9.97	Virginia	0.0358	4.46
Oklahoma	0.02%	9.96	Utah	0.0360	4.43
Alaska	0.02%	9.96	Mississippi	0.0366	4.28
Massachusetts	0.02%	9.96	New Hampshire	0.0368	4.23
Vermont	0.02%	9.96	Delaware	0.0370	4.18
Maine	0.02%	9.96	South Dakota	0.0380	3.97
Idaho	0.02%	9.96	Washington	0.0397	3.57
Delaware	0.03%	9.95	North Carolina	0.0400	3.50
Pennsylvania	0.03%	9.95	British Columbia	0.0400	3.49
New Hampshire	0.04%	9.93	Newfoundland	0.0400	3.49
Mississippi	0.04%	9.93	Nova Scotia	0.0400	3.49
Hawaii	0.06%	9.89	Alabama	0.0406	3.36
Louisiana	0.09%	9.84	Montana	0.0411	3.23
Saskatchewan	0.21%	9.61	Hawaii	0.0413	3.19
British Columbia	0.34%	9.37	Tennessee	0.0424	2.95
Manitoba	0.51%	9.06	Maine	0.0424	2.93
Alberta	0.95%	8.24	Idaho	0.0458	2.14
New Brunswick	0.95%	8.24	Louisiana	0.0460	2.11
Newfoundland	0.95%	8.24	Vermont	0.0465	1.98
Nova Scotia	0.95%	8.24	West Virginia	0.0473	1.79
Ontario	0.95%	8.24	Saskatchewan	0.0500	1.17
Prince Edward Is	0.95%	8.24	United Kingdom	0.0500	1.17
Quebec	1.20%	7.78	Nevada	0.0502	1.14
United Kingdom	5.40%	0.00	Kentucky	0.0551	0.00

Table 11: Average Scores and Variance of Scores within 15 Variable Measures

Variables	Mean (Average) Score	Average (Standard) Deviation from Mean
Comparative Cost	5.7488	1.9368
Affordability	6.6383	1.8211
Pricing Sustainability	7.2451	1.416
Competition Barriers	9.4858	2.1426
Mandates to Purchase Liability	1.9672	4.0082
Mandates to Purchase Accident Benefits	5.4098	5.0245
Mandates to Purchase Uninsured/Underinsured Motorist Coverage	3.1148	3.6701
Regulated Minimum Property Damage Coverage	4.4754	2.7785
Regulated Minimum Bodily Injury Liability Coverage	6.6025	2.8633
Regulated Maximum Accident Benefits Coverage	9.4722	2.1732
Restrictions on Legal Rights	7.5738	3.4855
Restrictions on Risk Pricing	9.2279	2.3418
Rate Filing Regulation	3.7049	3.3033
Solvency Regulation	9.5759	1.3787
Premium Tax Rates	5.16	2.3226

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