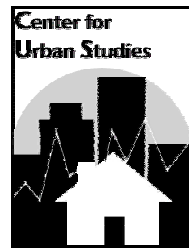


The Competitiveness and Premium Excessiveness of the Home and Auto Insurance Industries in the State of Michigan

Prepared by the Center for Urban Studies, Wayne State University for the Michigan Office of Financial and Insurance Services

**WAYNE STATE
UNIVERSITY**
COLLEGE OF URBAN, LABOR
AND METROPOLITAN AFFAIRS



Professor George Galster, PhD, Principal Investigator
With Jason C. Booza, Kurt Metzger, Ruth Waite
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Part 1: Introduction

The performance of the home and automobile insurance industry has been of longstanding interest to consumers, industry analysts, and public officials alike. On the one hand, consumer advocates wish a wide variety of insurance products to be equitably available to all at affordable premiums. On the other hand, industry representatives wish to undertake business practices and set premiums in a way that insurance companies earn an appropriate return on capital and maintain sufficient reserves against unexpected claims for loss reimbursements. State regulators wish to balance consumer affordability interests and the adequate insurance of property owned in the state with the long-term financial viability of the industry.

The State of Michigan is no exception in struggling over an extended period to balance these diverse goals, with debates continuing at this writing.¹ Indeed, the last three decades have witnessed several major state policy initiatives in this regard. In response to widespread consumer complaints (Carlson, 1982), a compulsory no-fault auto insurance law was passed in 1973. Under this law, Michigan drivers must carry three basic coverages: personal injury protection, property protection, and residual liability. These mandatory coverages are intended to protect the driver and others in the event of injury or lawsuit and pay for damage to others' property. It does not, however, pay for damages to the driver's or other vehicles involved in an accident or act of nature, or for theft; such coverages require the purchase of additional collision and comprehensive insurance. The no-fault insurance law requires companies to explain the various forms of collision insurance available and to offer at least limited and broad form collision options (Carlson, 1982).

The no-fault insurance law was not without controversy regarding rates and availability, however. The Michigan Supreme Court ruled in 1978 in the case of *Shavers v Attorney General*² that the law was constitutional but the ratemaking mechanisms would only be constitutionally adequate if there were legislative and regulatory actions to ensure that auto insurance was available at fair and equitable rates (Carlson, 1982; Bartlett, Klein and Russell, 1999).

Public Act 145 of 1979, The Essential Insurance Act (EIA), was the result.³ It established specific insurance underwriting and territory rating provisions that were designed to improve the affordability and availability of insurance across Michigan, but especially in urban areas. Insurers were limited in the number of rating territories they could specify across the state and the differences in base rates that could be charged, comparing both the highest- and lowest-rated territories and adjacent territories.⁴ A study conducted after the first full year of EIA implementation concluded that there was a wide range of insurance company responses to the law, few companies left the market, and several indicators suggested a reasonable degree of competition (Carlson, 1982). Some subsequent studies evaluating the EIA concluded, however, that it distorted the market and produced the unintended effect of reducing the availability of insurance in urban areas (Bartlett, Klein and Russell, 1999; Fitzgerald, 1999).

¹ See, for example, Wisely (2003) and Christoff (2004).

² 402 Mich 554 267 NW2d (1978).

³ It was later amended by Public Acts 147 of 1979 and 461 of 1980, and took effect in January, 1981. For details of the Acts's provisions, see Carlson (1982)

⁴ Details of all these regulations are summarized in Fitzgerald (1999:4-5).

In response, Public Act 10 (PA10) of 1986 suspended the territorial rating constraints and substituted an alternative scheme that limited premium rate increases in Detroit alone. Additional provisions were intended to reduce claims due to theft. A study of PA10 (Shah, 1989) concluded that it did not improve the availability or affordability of auto insurance throughout Michigan, yet removed objective benchmarks for judging the fairness of territorial rates. Among the report's findings were three of special importance here. First, auto insurance rates rose across the state from 1986 to 1989, but especially rapidly in Detroit. Second, the removal on the limits of numbers of rating territories and on maximum premium differences between territories had the greatest impacts on metropolitan areas statewide. Third, non-urban companies did not write more policies in Detroit; instead, the residual insurance market (Facility) grew to become the second-largest auto insurer in Detroit.

PA10 only held force for five years, so the EIA's territorial rating constraints returned in 1991. Public Act 98 (PA98) of 1996 removed these constraints and mandated that a study be produced analyzing the impacts of this change (Harrington, 1991). Insurance Commissioner Frank Fitzgerald produced this report at the end of 1999. In the course of this research, the largest 20 auto and home insurance companies in 1999 were asked to provide base premium quotes for an archetypical Michigan "family" having particular characteristics, with two specified cars, living in a single-family, frame home with \$87,000 of coverage through a HO-3 policy. These quotes were provided for hypothetical residences located at 16 addresses scattered across Michigan. Quotes for 1999 were compared to those established by regulations in 1995 prior to PA98.

Among the study's main conclusions related to auto insurance were (Fitzgerald, 1999):

- 6 companies raised their premiums in all territories from 1995 to 1999; the rest raised their premiums in some (mainly urban territories) and lowered them in others
- Premiums quoted by different companies varied widely within each territory
- 8 new companies entered the market statewide since 1995
- 18 companies had base rate differences widen between lowest- and highest-priced territories; all had differences widen between adjacent territories
- By 1999 Michigan ranked 38th in the U.S. in cost of mandatory no-fault insurance
- Companies increasingly used direct mail, toll-free phones and a variety of premium discounts as parts of their marketing strategies

Among the study's main conclusions related to home insurance were (Fitzgerald, 1999):

- All companies substantially increased the number of rating territories from the maximum of 3 previously set by the EIA; 7 created more than 20 territories and 5 subdivided the five largest cities in Michigan into separate territories
- 10 companies raised their premiums in all territories from 1995 to 1999; the rest raised their premiums in some (mainly urban territories) and lowered them in others

- All companies had base rate differences widen between lowest- and highest-priced territories
- There were no changes in the largest 20 home insurance companies 1996-1999
- The largest average premium increases across companies from 1996-1999 occurred in Detroit (31%), Flint (31%), and Warren (39%); the state-wide average increase was 23%

The issues surrounding the affordability and fairness of property and casualty insurance continue to have currency in Michigan. On December 2, 2003, Governor Jennifer Granholm's Office issued a press release announcing that the State Office of Financial and Insurance Service (OFIS) will investigate home and auto insurance rates in Michigan to determine if consumers are being subjected to excessive rate increases in their insurance premiums. OFIS subsequently contracted with the Center for Urban Studies of the College of Urban, Labor and Metropolitan Affairs of Wayne State University to conduct analyses of the competitiveness and premium excessiveness of Michigan's home and auto insurance industry in support of their effort. This document reports on these analyses.

The goal of our research is to answer two fundamental questions about both home and auto insurance industries in Michigan. Based on a variety of economic indicators measured for 2001 and 2002, we ask for the state as a whole as well as for smaller geographic territories (25 in the case of home, 42 in the case of auto):

- *Can the auto and home insurance industries in this area be considered competitive?*
- *Can the premiums charged by the auto and home insurance industries in this area be considered excessive?*

Our report is structured as follows. It begins with a descriptive portrait of recent trends in the auto and home insurance industry in Michigan, as a background for the current study. Second, it describes in detail the goal of our study and the methods we undertook in our analyses of insurance industry competitiveness and excessiveness. Third, it reports on results of our analyses for the auto insurance industry and, following, for the home insurance industry. Finally, it draws conclusions regarding insurance industry competitiveness and excessiveness. Technical appendices providing details of data and analysis complete the report.

Part 2: Recent Trends in the Home and Auto Insurance Industries in Michigan

Home Insurance

As with the homeowners' insurance industry nationwide, during the last decade the industry in Michigan has become somewhat more concentrated, with the larger companies holding an increasing share of the market statewide. Exhibit 1 shows how the share of all premiums earned in Michigan by the largest firms has changed since 1991.

**Exhibit 1:
Shares of Premiums Earned by the Largest Home Insurers in Michigan, 1991-2001**

By all measures, the share earned by the largest companies in the State has risen between 1991 and 2001, though the rate of increase was much larger in the first half of the decade and has since tapered off considerably. The combined share of the eight largest companies rose from 62.2% to 65.2% of all premiums in the State. This increase was the 17th largest across all fifty states during the 1991-2001 period (Grace and Klein, 2003a). The result was that Michigan began the 1990s at the national average on these measures, but became above-average by 2001 (cf. Klein, 1995).

Though the concentration of the Michigan home insurance industry clearly has increased during the last decade it does not appear that its profits have. One commonly used measure of industry performance is the loss ratio: the percentage of earned premiums represented by losses incurred through the payment of claims to policy holders. Higher loss ratios indicate that a higher percentage of each premium dollar is being returned to the consumer in the form of reimbursements for insured losses and, thus, lower net revenue to the insurer from premiums. Trends in loss ratios for home insurance companies are shown in Exhibit 2.

**Exhibit 2:
Loss Ratios for Home Insurance Companies in Michigan and U.S., 1993-2002**

As Exhibit 2 demonstrates, loss ratios for Michigan home insurers grew steadily through the 1990s, peaking at 109% during the severe winter storm year of 2001. They then fell dramatically in 2002 to 68% as companies adjusted premiums upward.⁵ Yet, this adjustment in 2002 merely served to bring Michigan in line with the national average more closely than it had been for many years. Indeed, consistently since 1994, the home insurance industry in Michigan has had higher loss ratios than in the nation as a whole. The average loss ratio during the 1993-2002 period for the home insurance industry in Michigan was 81.1%; countrywide it was 67.7. Not surprisingly with these high loss ratios, the return on net worth of home insurers averaged a *negative* 5.8% during this period in Michigan, compared to 2.1% for the nation on average (NAIC, 2003).

Auto Insurance

Unlike the home insurance industry in Michigan, which only recently became more concentrated than the national average, the State's auto insurance companies have demonstrated above-average concentration measures since at least the early 1990s. Exhibit 3 shows the market shares of the largest companies in Michigan and the average across all fifty states for 1993.

**Exhibit 3:
Shares of Premiums Earned by the Largest Auto Insurers in Michigan and U.S., 1993**

⁵ The 2002 loss ratio is in line with the longer-run ratio for the State during the 1985-1992 period: 64.6% (Klein, 1995).

Historically in Michigan, loss ratios for auto insurance have been higher than for homeowners insurance. For the 1985-1992 period, the average homeowners insurance loss ratio was 64.6%; for auto liability it was 89.3%, for auto physical damage it was 67.0% and for total auto it was 77.3% (Klein, 1995). Unfortunately, comparisons for all types of auto coverage in Michigan during the 1990s are impossible due to statistical agency data reporting problems.⁶ Thus, we are constrained here in Exhibit 4 to report trends only in auto physical damage loss ratios.

Exhibit 4:
Loss Ratios for Auto Insurance Companies in Michigan and U.S., 1993-2002

As Exhibit 4 shows, loss ratios for auto physical damage insurance have demonstrated a cyclical pattern in Michigan, peaking in 1996 at 83% and again in 2000 at 73%. Throughout the last decade, these loss ratios have outstripped the countrywide average, often by considerable margins. Not surprisingly, the return on net worth of auto insurers' physical damage coverage policies averaged only 5.5% during this period in Michigan, compared to 11.3% for the nation on average (NAIC, 2003).

Summary

Both the home and auto insurance industries in Michigan have grown more concentrated over the last decade, to the point where now large companies have a more significant share of the market than is typical across the U.S. Yet, this apparent reduction in competitiveness has not been associated with an increase in profitability of these industries. On the contrary, the last decade has been an unusually unprofitable period for insurance companies in Michigan, with loss ratios above historical averages for the State and contemporaneous averages for the nation. Returns on net worth similarly have performed below national norms over the period. We are thus left with a decidedly ambiguous statewide context leading up to our study of the competitiveness and premium excessiveness in different territories across the State.

Part 3: Methodology for Assessing the Michigan Home and Auto Insurance Industries' Competitiveness and Premium Excessiveness in 2001-2002

This section describing our methods is organized as follows. We begin with an overview of the State of Michigan regulatory context, which provides guidance for how our analyses should proceed. Second, we specify the type of information that was collected about insurance companies' policies and the geographic areas over which they are tabulated. Third, we delineate our method for ascertaining the competitiveness of the home and auto insurance industries in each geographic area. Fourth, we present our method for determining the extent to which home or auto insurance premiums for insurance companies may be excessive in various geographic areas. Throughout, our approach will be guided by standards specified in State of Michigan statutes and

⁶ NAIC databases specify that 1993-2002 Michigan data on auto liability and auto total are "meaningless" because of data reporting anomalies associated with reporting of Michigan Catastrophic Claims Association (NAIC, 2003).

administrative regulations and by common practice in economic analyses of market structure and performance.

The Legal and Regulatory Context for Home and Auto Insurance in Michigan

Economists believe that the structure of an industry will affect its conduct, which, in turn, will affect its performance (Cummins and Weiss, 1991; Klein, 1995). It is a foundational premise that (with some rare exceptions) the more competitive any market, the greater will be its efficiency in making its good or service available and the degree to which consumer prices are driven down to their lowest sustainable levels. Thus, it is appropriate that OFIS wishes to ascertain the degree to which the amount of competition in the personal home insurance and auto insurance markets is sufficient to generate these desirable outcomes for Michigan's consumers.

The State of Michigan's Insurance Code of 1956 (The Essential Insurance Act 218)⁷ provides guidance for ascertaining how competitive the home and auto insurance industries are and the degree to which the premiums they charge are excessive. Our analysis plan builds upon this guidance.

Section 2109 of Michigan's Insurance Code of 1956 delineates what is meant by "competitive" and "excessive premiums." Excerpting *verbatim* from the Code:

Sec. 2109 (1)(a): Rates shall not be excessive... A rate shall not be deemed excessive unless the rate is unreasonably high for the insurance coverage provided and a reasonable degree of competition does not exist for the insurance for which the rate is applicable.

Sec. 2109 (2): A determination concerning the existence of a reasonable degree of competition with respect to subsection (1)(a) shall take into account a reasonable spectrum of relevant economic tests, including the number of insurers actively engaged in writing the insurance in question, the present availability of such insurance compared to its availability in comparable past periods, the underwriting return of that insurance over a period of time sufficient to assure reliability in relation to the risk associated with that insurance, and the difficulty encountered by new insurers in entering the market in order to compete for the writing of that insurance.

The code makes it clear that the excessiveness test rests on meeting two criteria: premiums unreasonably high in relation to coverage and lack of a reasonable degree of competition. Given that the excessiveness test presumes a competitiveness test, we conduct the latter first. Neither the code nor subsequent regulations define precisely what "unreasonable" or "reasonable" means in describing competition or premiums. However, the Insurance Bureau of the Michigan Department of Consumer and Industry

⁷ Act no. 218 of the Public Acts of 1956, as amended, being S500.210 of the Michigan Compiled Laws. See www.MichiganLegislature.org.

Services (now OFIS) earlier has provided amplifications of the two sections above that will guide the methodology of our analyses.⁸ Again quoting *verbatim*:

R 500.1503 Excessive Rates

Rule 3. For the purposes of section 2109(1)(a) of the code, both of the following provisions shall apply:

(a) A rate is unreasonably high for the insurance coverage provided if it is unreasonably high in relation to anticipated losses or expenses, or both, or to the uncertainty of loss for the insurance coverage provided.

(b) A determination regarding the existence of a reasonable degree of competition shall give due consideration to, at a minimum, all of the following:

(i) The relevant market for the coverage or the type of insurance to which the rate applies

(ii) The number of insurers and the number of self-insurers actively engaged in writing or providing the coverage or type of insurance in the relevant market.

(iii) The distribution of rates and market shares for such insurers in the relevant market. Market shares may be measured either by premium or exposures.

(iv) Past and prospective trends in the availability of coverage and coverage options for insurance of that type in the relevant market.

(v) Profits attributable to insurance of that type in relation to the profitability of other types of insurance, to the uncertainty of loss for that and other types of insurance, and to the amount of capital and surplus funds available to support premium writings for that and other types of insurance.

(vi) The availability and potential for firms to enter and exit the relevant market and for financial capital and surplus funds to be allocated to, and be removed from the relevant market.

The above clauses often use the term “relevant market,” which we will define for the purposes of this analysis in both geographic and product-type terms. In geographic terms, we will employ the same “insurance statistical reporting territories” as the major agencies that assemble and report insurance statistics. There are 25 such territories for home insurance and 42 for auto insurance in Michigan.⁹ These statistical reporting territories are an appropriate geographic concept to employ as “relevant market” because they delineate distinct areas where performance of insurance policies is known or expected to be different.¹⁰

⁸ See:

http://www.state.mi.us/orr/emi/admincode.asp?AdminCode=Number&Admin_Num=49000001&RngHigh=79110001

⁹ Three statistical agencies collect information from insurance companies in Michigan: ISO, NAII NISS. Though they typically specify identical home insurance statistical reporting territories, NISS defines the most limited set of 25; data provided by the other two will be aggregated as necessary into NISS-defined territories to ensure comparability. In the case of auto insurance, 42 territories will be analyzed. These variously consist of groups of counties, counties, parts of counties, cities, and parts of cities.

¹⁰ These statistical reporting territories often correspond to zones across which an insurance company charges different premiums.

In terms of product type, we will group insurance policies in ways that we believe distinguish features delineating distinctive markets. In the case of homeowners insurance, Michigan recognizes the policy form types as shown in Exhibit 5.

Exhibit 5: Homeowners Insurance Policy Types in Michigan

Based on the above, we will analyze three groups of homeowners' policies according to the comprehensiveness of perils covered and the nature and level of compensation provided in case of loss:

- "Low-Quality" Policy Market: HO-1 and HO-8
- "Moderate-Quality" Policy Market: HO-2
- "High-Quality" Policy Market: HO-3 and HO-5

We will also analyze as a basis for comparison all homeowners' policies above in aggregate.¹¹ We will not consider forms HO-4 and HO-6 since they do not involve coverage of the structure, only contents.

In the case of auto insurance, we will separate the relevant markets into three groupings of policy types:

- Mandatory Coverage Market
- Collision Coverage Market
- Comprehensive Coverage Market

We will also analyze as a basis for comparison all mandatory, collision and comprehensive policies as packages of coverage.¹²

In sum, the regulations governing the insurance industry in the State of Michigan fundamentally are based on an *economic analysis* of market structure and performance. We believe that this is a correct perspective and pursue it consistently in what follows in this report.

Nature of the Home and Auto Insurance Data Acquired

Our analyses require that information on every home and auto insurance company¹³ ("company," hereafter) is collected consistently for common geographic territories across the State. Moreover, State regulations require that in both competitiveness and excessiveness analyses the "relevant markets and type of

¹¹ This also includes any forms reported as "98": not otherwise designated types.

¹² Mandatory no-fault coverage with some optional coverages will be defined by the coverage codes: 001, 003, 004, 006, 007, 017, 018, 019, 024, 025, 026, 027. Collision coverage will be defined by the coverage codes: 042, 043, 044, 045, 046, 047, 048, 049, 050, 051. Comprehensive coverage will be defined by coverage codes: 037, 038, 039, 040, and 041. These coverage codes will be reported by insurance companies in response to the OFIS data call.

¹³ We consider only companies that are collecting premiums or paying claims during either year 2001 or 2002.

insurance” be specified. This implies that data must be collected for individual companies that delineate for each statistical territory the number and performance of various types of home and auto insurance policies issued. Therefore, the State of Michigan’s Office of Financial and Insurance Services issued calls to companies to provide (either directly or through their statistical reporting agency) data for both 2001 and 2002 calendar years, tabulated separately by each of the 25 home and 42 auto insurance territories encompassing the State. The requisite data included:

- Company and the statistical agency reporting its data (if any)
- Statistical reporting territory code
- For each of the three following groupings of home insurance policies: (1) forms HO-1 and HO-8 combined; (2) form HO-2; (3) forms HO-3 and HO-5 (4) all prior forms combined:
 - Number of exposure units covered
 - Total dollar amount of premiums written¹⁴
 - Total dollar amount of losses incurred
- For each of the four following groupings of auto insurance policy types: (1) mandatory coverage; (2) collision coverage; (3) comprehensive coverage; (4) mandatory, collision and comprehensive as packages of coverage:¹⁵
 - Number of exposure units covered¹⁶
 - Total dollar amount of premiums written
 - Total dollar amount of losses incurred¹⁷

¹⁴ Preliminary quality checks on all data submitted were performed by both OFIS and our CUS project team. Any unusual values were brought to the attention of the relevant companies and corrections made.

¹⁵ Mandatory no-fault coverage with some optional coverages is defined by the coverage codes: 001, 003, 004, 006, 007, 017, 018, 019, 024, 025, 026, 027. Collision coverage is defined by the coverage codes: 042, 043, 044, 045, 046, 047, 048, 049, 050, 051. Comprehensive coverage is defined by coverage codes: 037, 038, 039, 040, and 041.

¹⁶ In some cases there may be a duplication of exposure units and claim counts due to the way that coverage codes that are not mutually exclusive will be reported. For example, for the indivisible premium coverages, if there was a BI loss with a claim count of 1 and a PD loss with a claim count of 1 for a claim reported under the combined BI and PD coverage (006 in the data call) we would add the BI and PD claim counts together and report the total as 2 claims. The losses would likewise be added together to give the total losses for that coverage.

¹⁷ Companies are asked to report in response to the OFIS data call PIP premiums including assessments by MCCA, but PIP losses excluding reimbursements by MCCA. OFIS stipulated this because other coverage premiums include the cost for reinsurance and the insurers do not reduce losses for these coverages (BI, PD, UM, Collision, etc.) by the amount of reimbursement they received from reinsurers. Similarly, PIP losses should not be reduced by reinsurance provided by the MCCA because this maintains the congruent nature of reporting losses from coverage to coverage. In addition, the vast majority of PIP losses will not be subject to MCCA reimbursement because it takes reaching a very high and ever increasing threshold in order for the MCCA to reimburse losses for an injured insured. The insurance statistical reporting agencies recommended this procedure to OFIS for the PIP data call only because: (1) they were not sure that all insurers reported their premium in this manner; (2) a Michigan Insurance Commissioner never ordered them to do so previously; and (3) some insurers might mistakenly consider MCCA reimbursements to be something other than reinsurance.

The insurance companies complied with these requests for data. All home insurance companies and all but (a minor) one of the auto insurance companies doing business in Michigan during the period complied. We can thus be confident that our portrait of these industries is a comprehensive one. We recognize, however, that we rely upon the accurate reporting of data by the companies.

Principles of Competitiveness Analysis

It is conventional in industrial organization studies to measure the competitiveness of an industry in several dimensions: concentration, entry and exit, and information advantage (Klein, 1995; Grace, Klein and Phillips, 2002). Industries that are more concentrated have fewer companies that dominate the market, thus giving them the potential to artificially restrict competition and raise prices well beyond production costs.

Industry concentration can be measured in a straightforward way by a series of concentration ratios (CR_{__}): the percentage of the industry's business (however measured) held by the largest __ companies. The maximum value for CR_{__} is 100%, indicating that the top __ companies control 100% of the market; the minimum value is close to zero, indicating that even the "biggest" firms in the industry are minor players compared to the group. So, for example, if the four largest-selling companies W, X, Y, and Z in an industry had sales representing 20%, 11%, 10%, and 8%, respectively, of the industry's total sales, the four-firm concentration ratio (CR₄) would equal 49%. We will compute CR₁, CR₄, and CR₈, following convention (Klein, 1995; Grace and Klein, 2003).

Another useful way to measure concentration is through the Herfindahl-Hirschman Index (HHI). HHI is calculated by summing the squared values of the market percentages held by each company in an industry. The value of this index takes a maximum value of 10,000 when one firm controls 100% of the market ($HHI = 100^2$). If one firm were to control 80% of the market and another the remaining 20%, the index would register 6,800 ($HHI = 80^2 + 20^2$). By contrast, if ten thousand firms each controlled 0.01% of the market, the index would take the value of one ($HHI = 10,000 \times [0.01^2]$). Of interest, the U.S. Department of Justice (n.d.) has used the HHI as a basis of assessing the concentration of national industries when considering the anti-trust implications of merger applications. It has ruled that industries with HHI: (1) in excess of 1,800 have "high concentration;" (2) in the range 1,000-1,800 have "moderate concentration;" and (3) under 1,000 have "low concentration." Grace and Klein (2003: 12) argue that the smaller size of state or regional markets and the greater ease of entry into them than entry into the U.S. as a whole imply that the value of HHI denoting "high concentration" should be somewhat lower. We agree, and employ for this analysis a value of 1,500 or more for HHI to denote "high concentration."

Even if an industry is highly concentrated, however, competition still may be maintained if new firms can easily enter the industry and compete away any excess profits that may be occurring. Analogously, industries that are more competitive likely will have more firms failing and leaving the industry as aggressive newcomers unseat them. The numbers of entrants and exiters can be measured in absolute terms, or as percentages of the companies originally in the industry at the beginning of the period under investigation.

Finally, even if some new firms can readily enter an industry they may not be able to compete as effectively as some veteran firms if the latter can claim some “informational advantages.” Firms with more experience and scale of operation in an industry may have better information about the historical and expected performance of certain market niches, because they have a deeper base of data and experience upon which to draw. One way to approximate this advantage is by the degree to which the dominant firms in the industry change from year to year; industries with greater turnover at the top should be more competitive. We will measure this by the percentage of firms comprising the top eight-market share (CR8) index in 2002 that were not in the group in 2001.¹⁸

Our insurance market competitiveness analyses are conducted separately for home and auto insurance. Our analysis procedures directly follow from the economics discussion and the framework found in Michigan law as described above:

- (i) The relevant market is defined as each of the aforementioned policy type groupings within each statistical reporting territory for home and auto insurance; this combined geographic/policy type designation constitutes the unit of analysis for all procedures described below
- (ii) The number of insurers writing policies in each market will be tallied separately for 2001 and 2002; greater numbers indicate greater competition
- (iii) Distribution of market shares will be measured by:¹⁹
 - Share of total market [separately by \$ of premiums written and number of exposures] held by: the company with the largest share (CR1),²⁰ the largest four companies combined (CR4), and the largest eight companies combined (CR8), computed separately for 2001 and 2002; smaller shares on all the above measures indicate greater competition
 - Herfindahl-Hirschman Index based on shares of market held by all companies [separately by \$ of premiums written and number of exposures] computed separately for 2001 and 2002; smaller HHI indicates greater competition
- (iv) Trends in availability will be measured by:
 - The number of exposures of the given policy type covered by all companies in total in 2001 compared to 2002; an increase in exposures covered from 2001 to 2002 indicates greater competition

¹⁸ We recognize that many other factors can influence the turnover of dominant firms in the industry and variations in loss ratios besides information advantages, so our indicators here are only suggestive.

¹⁹ We will use individual companies for this analysis, not affiliated groups of companies. Grace and Klein (2003) find that changes in home insurance industry concentration in Michigan during the 1991-2001 period are comparable regardless of whether individual or grouped companies are used. Moreover, Michigan law does not permit affiliates to segment the market among affiliates and apply different underwriting standards in each segment.

²⁰ Michigan sets a standard for competitiveness in the workers' compensation insurance market that CR1 should not exceed 15%.

- Changes in the composition of companies representing the top eight companies; we will measure the percentage of companies comprising the top eight [defined separately by \$ of premiums written and number of exposures] in 2002 that were not present in the top eight in 2001; greater percentages indicate greater competition
- (v) Company entry and exit will be measured by comparing the number of companies writing the given type of policy in the given territory between 2001 and 2002; numbers of companies present in 2002 but absent in 2001 (entrants) and vice versa (exiters) will be tallied and expressed both as absolute numbers and as proportion of beginning-of-period total
- (vi) Profits will be measured by the 2001-2002 combined loss ratio;²¹ we will measure the mean, standard deviation, minimum, and maximum loss ratio across companies issuing each policy group in the territory; higher mean loss ratios with less dispersion indicate greater competition for that policy type in that territory

Based on all the above criteria, we provide an easily understood classification scheme for designating the summary degree of competitiveness for each territory/policy group, based on 2001 and 2002 figures combined. Central to this process is the computation of a “z score.” A z score is computed as the difference between the value of an indicator in a particular territory and the mean value of that indicator across all territories statewide, divided by the standard deviation of that indicator across the territories. Z-scores can be interpreted as the number of standard deviations a particular territory is from the mean; positive values signify above average, negative values signify below average, and zero signifies average. Z-scores thus have the advantage of converting to a common scale a variety of indicators that originally may have been measured in different units. Based on z-scores and other information, we classify territories into one of three categories, labeled “most competitive,” “less competitive,” and “least competitive,” and provide a map delineating all territories in the State by their competitiveness classification.

Principles of Excessiveness Analysis

There are many reasons why insurance premiums might vary across territories in a state, based on sound business practices (Grace and Klein, 2003b). In the case of homeowners' insurance, this variation may be due to geographical differences in historical loss patterns, characteristics of homes, or the degree of public fire protection, for instance. In the case of auto insurance, this variation may be due to geographical differences in historical loss patterns, characteristics of cars, and the age and driving records of drivers. The point is that higher premiums in one territory compared to another do not necessarily signal that rates are “excessive” there.

Far superior measures of “excessiveness” are based on the loss ratios of a company, as per standard practice (Cummins and Weiss, 1991; Grace and Klein, 2003a,

²¹ We employ a two-year weighted average in this computation to reduce the chance that atypical circumstances in one year drive the results.

b). An extremely low loss ratio that persists is consistent with the hypothesis that the company is over-pricing the product in relation to actual incurred losses.

We delineate what constitutes an “extremely low loss ratio” by employing an absolute standard. We define premiums as “potentially excessive” for any company evincing for a given insurance policy group/territory (with 116 or more exposures) a loss ratio below 60%, and “excessive” if the ratio is below 50%.²² We select these figures as reasonable thresholds based on the following. First, the 50% benchmark has been employed before.²³ Second, the most recent nationwide data (2002) indicate the following average loss ratios: private passenger auto liability: 71.4%; private passenger auto physical: 62.0%; private passenger auto total: 67.5%; homeowners multiple peril: 68.5% (National Association of Insurance Commissioners, 2003). We believe that Michigan insurance companies doing a large volume of business in a given policy type/territory can fairly be flagged if their loss ratio record over a two-year period outperforms the nation by more than a few percentage points. This is especially reasonable since, as noted in Exhibits 2 and 4, the average home or auto insurance company suffered considerably higher loss ratios than the nation for 2001-2002.

We employ an analogous characterization of premium excessiveness for each market segment specified by a particular policy group/territory. We denote as “potentially excessive” any territory having major companies evincing, on average, a loss ratio less than the 60%. We denote as “excessive” any territory having major companies evincing, on average, a loss ratio less than the 50% *and* that is statistically significantly less than 60%, as per a conventional statistical t-test.

Our excessiveness of premiums analysis is conducted separately for home and auto insurance. Its methods directly follow from the regulatory guidelines above. The lack of “a reasonable degree of competition” criterion will have already been analyzed based on the competitiveness analysis above. Any territory that evinces loss ratios below .50 *and* is not classified “most competitive” by our system will be identified as having excessive premiums.

Comparison of Urban, Suburban, and Other Territories

For many it will be of interest to ascertain the degree to which the competitiveness and premium excessiveness of the home and auto insurance industries in Michigan differ systematically across territories according to their urban, suburban, and rural character. In this regard we will present information categorized by these three groupings of geographic areas in the State, and conduct statistical tests for differences.²⁴ For home insurance territories, the categorizations are shown in Exhibit 6A²⁵; the same

²² The threshold requirement of 116 exposures was chosen to ensure that idiosyncratic losses associated with small sample sizes were not driving the results. The figure 116 represents the median of the number of exposures in territories for the smallest segment of the home insurance market: the low-quality group. This figure also is large enough that the analyst can be confident that a random sample of exposures from a company in this territory will yield a normal distribution.

²³ See Klein (1995).

²⁴ These are Scheffe tests for differences in mean values across pair-wise combinations of the three geographic groupings of territories.

²⁵ We denote the City of Warren as a suburban territory.

is done for auto insurance territories in Exhibit 6B. Maps 1 and 2 show the locations of these territories in Michigan.

**Exhibit 6A:
Designations of Home Insurance Territories as Urban, Rural, or Other**

**Exhibit 6B:
Designations of Auto Insurance Territories as Urban, Rural, or Other**

**Map 1:
Home Insurance Territories in Michigan**

**Map 2:
Auto Insurance Territories in Michigan**

Part 4: The Michigan Home Insurance Industry's Competitiveness and Premium Excessiveness in 2001-2002

Results of the Competitiveness Analysis

Number of Exposures and Home Insurance Companies

There are dramatic differences in the sizes of the low-, medium- and high-quality home insurance markets in the State. As shown in Exhibit 7, the dominant segment of the industry is the market for high-quality (primarily HO-3) policies, with over 2.4 million exposures in 2002, comprising 78 percent of all exposures for residential property policies. This segment grew by 83 thousand exposures between 2001 and 2002, with the most significant increase coming for HO-5 policies, nearly doubling in number.

By contrast, the roughly 82 thousand medium-quality (HO-2) policies constituted less than three percent of all residential policy exposures in the State in 2002. The smallest segment was low quality policies, with only 0.5 percent of all residential exposures. However, the HO-8 segment nearly quadrupled its exposures from 2001 to 2002, easily becoming the fastest-growing segment of the residential insurance market. Details of these various market segments for each territory are presented in Appendix A.

**Exhibit 7:
Number of Home Insurance Exposures in Michigan, by Residential Policy Form, 2001 and 2002**

The comparative numbers of insurance companies operating in each of the three segments of the home insurance market reflects their aforementioned shares. As Exhibit 8 demonstrates, many more companies compete in the high-quality segment than either the low- or medium-quality segments, regardless of territory. In 2002 the average territory had 87 companies with exposures in the high-quality segment, 28 companies with exposures in the medium-quality segment, and eight companies with exposures in the low-quality segment. Even the territory with the fewest companies operating in the high-quality segment had 27 more companies than the territory with the

largest number of companies operating in the medium-quality segment, and 59 more than the territory with the largest number of companies operating in the low-quality segment. Details regarding the particular companies that operate in each territory/policy group can be found in Appendix B.

There are some substantial differences among territories within the high-quality segment, however. The territory with the greatest number of companies in the high-quality segment had 64-67 percent more companies (depending on the year) than the territory with the least.

Few companies operate in the low-quality segment in any territory. Only four of 25 territories have even 10 companies with exposures, and none has more than 13.

There are some statistically significant geographic differences in these patterns. For both years across all three-policy groups, urban territories have fewer companies competing than (primarily rural) territories categorized as "other." For both years for both low- and medium-quality policy groups, suburban territories have fewer companies competing than territories categorized as "other." In no cases do we find statistically significant differences in the number of companies between urban and suburban territories.

**Exhibit 8:
Number of Home Insurance Companies with One or More Exposures,
by Homeowners Policy Group, 2001 and 2002**

Market Shares

Exhibit 9 shows the share of each policy group/territory market held by the largest company in that market (CR1). Exhibit 9A calculates market share on the basis of exposures, whereas 9B does so on the basis of premiums written. With either formulation the results are virtually identical. On average in Michigan, the respective top company in the territory controls a majority of the market for low- and medium-quality policy groups, but one-quarter of the market for the high-quality group. Information on the particular companies comprising this set of largest firms in the territory/policy group is provided in Appendix C.

In 2001 the low-quality market segment had by far the highest average share held by the largest company: roughly 70 percent. This fell substantially in 2002, however, such that the mean CR1 values for low- and medium-quality segments are virtually the same. Both remain about twice as large as that for the high-quality segment. In the low-quality market, urban territories had significantly lower CR1, on average, than suburban territories in 2001, but this difference disappeared in 2002.

At this point it is useful to consider the role played by the Michigan Basic Property Association (MBPA), the State of Michigan's "home insurer of last resort." This so-called "residual market" is intended to provide basic (HO-2 policy) protection for those who, because of personal and/or property characteristics, cannot find home insurance in the private market. It may be considered another measure of the market's competitiveness, inasmuch as high shares of the residual market indicate that a significant segment of the population is not being served by any sort of private insurer.

What is noteworthy is that MBPA is completely absent from the low- and high-quality market segments, inasmuch as it only offers the HO-2 policy. By contrast, in the medium-quality home insurance market segment the dominant insurer is MBPA. Measured either by exposures or premiums aggregated over both 2001 and 2002, MBPA represents between 56% and 61% of this market, respectively, statewide. In urban areas the percentages are even higher: 65% and 70%, respectively; Detroit City has the highest figure: 92%-94%. Even in non-metro territories the mean share of MBPA is between 41% and 51%, depending on whether exposures or premiums are used for the calculation; the lowest share in any territory (remainder of Kent County) is between 25% and 33%. All this suggests that the medium-quality market segment has a unique indicator of lack of competition: a dominant share of the market held by a governmental entity.

Exhibit 9**Market Shares of the Largest Home Insurer in Each Territory (CR1) by Policy Group, 2001 and 2002****Exhibit 9A****Market Shares of Largest (by Exposures) Home Insurance Company in Territory By Homeowners Policy Group, 2001 and 2002****Exhibit 9B****Market Shares of Largest (by Premiums) Home Insurance Company in Territory By Homeowners Policy Group, 2001 and 2002**

The dominance of a few companies in the low-and medium-quality segments of the home insurance industry in Michigan is reinforced by examination of Exhibits 10 and 11, which show the market shares held by the top four (CR4) and top eight (CR8) firms, respectively. As before, we provide shares calculated both by exposures and by premiums written, but conclusions are not sensitive to this choice. Details of the companies holding large shares can be found in Appendix C.

The largest four companies control 97-98 percent of the (admittedly small-scale) low-quality market segment, on average statewide. Not surprisingly, given the paucity of companies operating in this segment, the top eight firms hold essentially the entire low-quality market segment in every territory.

The market concentration is only slightly less in the medium-quality market segment. Here, 86-87 percent was held by the largest four companies and 93-94 percent by the largest eight companies, on average statewide in 2002.

The high-quality segment again has the lowest market concentration regardless of which measure is used. On average across the 25 territories in 2002, the largest four companies held 60-61 percent share and the largest eight held a 76 percent share of this market segment. In this market segment, as with the others, there were no statistically significant differences in mean CR4 or CR8 values among urban, suburban, or other territory categories.

**Exhibit 10A:
Market Shares of Largest Four (by Exposures) Home Insurance Company in
Territory, by Homeowners Policy Group, 2001 and 2002**

**Exhibit 10B:
Market Shares of Largest Four (by Premiums) Home Insurance Company in
Territory, by Homeowners Policy Group, 2001 and 2002**

**Exhibit 11A:
Market Shares of Largest Eight (by Exposures) Home Insurance Company in
Territory, by Homeowners Policy Group, 2001 and 2002**

**Exhibit 11B:
Market Shares of Largest Eight (by Premiums) Home Insurance Company in
Territory, by Homeowners Policy Group, 2001 and 2002**

As the final, summary measure of market share we consider the Herfindahl-Hirshman Index (HHI). HHI calculations for individual territories and statewide, using both exposures and premiums, are presented in Exhibits 12A and 12B. Once again, results do not depend on whether exposures or premiums are employed in calculating shares.

In the low-quality segment we observe the highest values of HHI by far, averaging above 4,500 (depending on year and basis for defining share), well above the threshold of 1,500 denoting “highly concentrated.” No territory in either 2001 or 2002 fell below 2,500 for HHI for this market segment; see Exhibit 13 for the tally. The suburban territories registered a statistically significantly higher mean HHI in 2001 (though not 2002) than urban territories.

High concentration is also the norm for the medium-quality market segment in Michigan, averaging 3,668 or more (depending on year and basis for defining share). Only Kent County (outside Grand Rapids) ever falls below the 1,500 threshold, registering values in 2001 that then categorized its medium-quality market as “moderately concentrated.” As summarized in Exhibit 13, by 2002 all 25 territories could be categorized as “highly concentrated” middle-quality home insurance markets.

By contrast, the high-quality market segment typically registers HHI values in the “moderate concentration” range (see Exhibit 13). Only Kalamazoo City ever registers in the “highly concentrated” range (using both premiums and exposures). On the other hand, Flint City and the non-urban remainders of Genesee, Kent and Saginaw Counties evinced HHI values for both years that placed them in the “low concentration” range (using both premiums and exposures). No statistically significant differences among urban, suburban, and other territory groups are observed in the high-quality segment (see Exhibits 12A and 12B).

**Exhibit 12A:
Herfindahl-Hirshman Index (HHI) of Home Insurance Company Concentration,
By Territory and Homeowners Policy Group, 2001 and 2002 (based on exposures)**

**Exhibit 12B:
Herfindahl-Hirshman Index (HHI) of Home Insurance Company Concentration,
By Territory and Homeowners Policy Group, 2001 and 2002 (based on premiums)**

**Exhibit 13:
Degree of Home Insurance Industry Concentration across Territories, Using HHI
2001 and 2002**

Trends in Availability

There are distinct differences among the three market segments regarding trends in availability of policies, as shown in Exhibit 14. Availability in the low-quality (particularly HO-8) market segment expanded rapidly from 2001 to 2002 in every territory. The average territory saw this segment increase its exposures by 250 percent, compared to mean increases of only two percent in the medium-quality and three percent in the high-quality segments. The growth in the low-quality segment was greatest, on average, in the urban territories, but not to a statistically significant degree. The size of this growth was large, however, suggesting that it would be prudent to monitor this market segment in the future. Details on changes in availability for individual companies are provided in Appendix B.

Trends in availability were generally upward in both medium- and high-quality segments of the home insurance market between 2001 and 2002. However, the number of exposures declined in ten territories in the medium-quality segment (the largest being seven percent) and in ten territories in the high-quality segment (the largest being eight percent). On average, exposures in the high-quality segment declined by two percent in urban territories. Details on changes in availability for individual companies are provided in Appendix B.

**Exhibit 14:
Percentage Change in Exposures of All Home Insurance Companies in Territory
By Policy Group, comparing 2001 to 2002**

Turnover rates among the companies comprising the largest eight firms in the territory/policy group indicate substantial differences across market segments (see Exhibit 15). To see which companies comprising the top eight in 2001 dropped out of that ranking in 2002, refer to Appendix D.

The low-quality segment is clearly the most volatile, with between 37 and 45 percent (depending on whether premiums or exposures are used to compute shares) of dominant firms changing between 2001 and 2002. All 25 territories saw at least two of the top eight firms in 2001 drop out of that category by 2002. Rural areas had the lowest turnover rates, but not by a statistically significant amount.

In the medium-quality market segment the turnover rates also were high. On average, 23 percent of the top eight companies were no longer in the top eight a year later. There was at least one company turning over in each territory. Urban territories in this segment evinced statistically significantly higher turnover rates than rural ones (when defined by premiums).

The high-quality segment had the least turnover. On average, 16-18 percent of the top eight companies were no longer in the top eight a year later. There were at least three territories in which there was no turnover when measured by premiums, five when measured by exposures.

**Exhibit 15:
Turnover Rates 2001-2002 of Largest Eight Home Insurance Companies,
By Policy Group and Method of Calculating Share**

Entry and Exit Rates of Companies

Analysis of the rate at which companies enter and exit particular territory/policy group market reinforces the portrait painted above by considering turnover rates among the largest firms (see Exhibits 16 and 17).

Once again, the flux in the low-quality segment is obvious. On average, 37 percent of the companies with low-quality policy exposures in 2002 were not present in this segment a year earlier (Exhibit 16). Similarly, 22 percent of the companies in this segment in 2001 will have left it by 2002, on average across the State (see Exhibit 17). We reiterate that these large percentage changes are produced by the relatively low numbers of exposures in this market segment that serve as the base for this calculation. There are no statistically significant differences in entry or exit rates in the low-quality segment among urban, suburban, and other territories.

Entry and exit rates are much lower, but quite comparable, in medium- and high-quality segments. In the former, on average eight percent of the companies enter and 14 percent exit annually. In the latter, on average ten percent of the companies enter and 13 percent exit annually. There were no territories in which there was an absence of either entrants or exiters in either medium- or high-quality segments. There are no statistically significant differences in entry or exit rates in these two segments among urban, suburban, and other territories.

**Exhibit 16:
Entry of Companies into the Home Insurance Market Between 2001 and 2002
By Territory and Policy Group**

**Exhibit 17:
Exit of Companies into the Home Insurance Market Between 2001 and 2002
By Territory and Policy Group**

Loss Ratios

The cross-company average ratios of losses incurred to premiums written (aggregated for 2001-2002) for all companies with at least one exposure in the given territory/policy group in *both years* is presented in Exhibit 18.²⁶ The first thing to note is that the average loss ratio in some territories/policy groups is greater than one. This does not necessarily mean that all or even the “average” company in a segment is losing money. Inasmuch as many small firms evince exceptionally high loss ratios (due to idiosyncratic losses) and are averaged (unweighted) with larger firms to produce the figures in Exhibit 18, the overall high mean values should not be unduly emphasized.²⁷

What is useful, however, is an examination of how these mean territory loss ratios vary across territories, because such gives one indication of their relative competitiveness. In this vein, we considered for each territory/policy group whether the mean loss ratio differed in a statistically significant way from the statewide mean for that policy group. Such observations are denoted in Exhibit 18 with one asterisk.

Results indicate that the low-quality policy segment has generally experienced the lowest loss ratios during the 2001-2002 period. Moreover, seven of the 25 territories have statistically significantly lower loss ratios than the statewide average loss ratio for this low-quality segment. There is a tendency for these low-loss ratio territories to be urban, but the urban loss ratio is not less than that of other territories by a statistically significant amount. Three territories in the middle-quality policy segment and ten territories in the high-quality segment evince loss ratios that fall below the statewide average of their respective policy group by a statistically significant amount, with no statistically significant differences among urban, suburban and other territories.

Exhibit 18 Loss Ratios for Home Insurance Companies with at Least One Exposure By Territory and Policy Group, 2001 and 2002 combined

Of course, caution must be used in interpreting these “low” ratios because they are produced by averaging ratios over very few companies (see the N noted in Exhibit 18) and/or may be influenced by small company outliers that skew unweighted mean values. The latter caveat is likely the case with the exceptionally high loss ratios for high-quality policies in Flint, Muskegon County, and Northern Michigan, which unduly inflated the statewide mean. To obtain a more reliable estimate of loss ratios, we replicated Exhibit 18, but only taking into consideration those companies with at least 116 exposures in the particular territory/policy group during the combined 2001-2002 period. The figure of 116 was arrived at because it represents the lowest 5 percent bound of the trimmed median for the policy form with the least number of exposures (low-quality, in this case).

²⁶ A few companies with insignificant numbers of exposures showed negative loss ratios; these were eliminated from the statistics shown here. The averages shown do not weight companies differently based on number of exposures.

²⁷ Loss ratios for the individual companies in each territory/policy group segment may be found in Appendix E.

The results are reported in Exhibit 19. As anticipated, comparison of Exhibits 18 and 19 shows that the restriction to companies with substantial numbers of exposures eliminates anomalous situations and increases the reliability of the average loss ratios.

Exhibit 19 shows that only two territories—Ottawa County and Ann Arbor City—evince loss ratios that are statistically significantly lower than the statewide mean across territories, and this only for the high-quality policy segment (see the results with two asterisks). For no policy quality segment are differences between urban, suburban and other territories statistically significant. Indeed, for both medium- and high-quality home insurance segments urban territories have (insignificantly) *higher* loss ratios than suburban territories.

Exhibit 19

Loss Ratios for Home Insurance Companies with at Least 116 Exposures By Territory and Policy Group, 2001 and 2002 combined

Summary Ratings of Competitiveness

The foregoing has presented numerous indicators of how competitive the home insurance industry is in various territory/policy group segments. Here we integrate these indicators and introduce a summary scheme for assessing competitiveness. Central to this integration is the use of z-scores, previously described. Specifically, we have converted the following indicators presented above to z-scores so they can be directly compared and aggregated: (1) number of insurance companies in 2002, (2) percent change in exposures (2001 to 2002), (3) turnover rate of the largest eight companies (2001-2002), (4) entry rate (2001-2002), and (5) exit rate (2001-2002). These z-scores are presented in the first five columns of Exhibits 20-22. They show the degree to which a particular territory is above (positive), below (negative) or at (zero) the statewide mean for that indicator in the given policy group segment. Higher (positive) values for any indicator signifies a greater degree of competitiveness, as per State regulations.

To provide one summary measure, we have added the foregoing five z-scores to create a total z-score, and then ranked each territory accordingly; see Exhibits 20-22 for low-, medium- and high-quality segments, respectively. The resulting figures provide a useful indicator of the degree to which each territory generally is *relatively* competitive (higher positive total z-scores, thus ranked near the top) across all five indicators above. We also consider the HHI rating as another key summary measure; as explained above, we use HHI scores above 1,500 to designate “highly concentrated” market segments. Finally, we consider whether the mean loss ratio for companies in the territory is significantly less than the statewide average (using either all companies or only larger companies); if so, there is reason to suspect inadequate competition.

How these various measures are combined into a final assessment of competitiveness is necessarily subjective. We know of no widely accepted, scientific manner for doing so. We apply the following criteria for assessing competitiveness for all market segments:

- To be rated “A”, most competitive: total Z must be greater than 1.0; HHI must be less than 1,500, and loss ratio cannot be statistically significantly less than the mean across territories for that policy group
- To be rated “C”, least competitive: total Z must be less than -0.9; HHI must be greater than 1,500 and the loss ratio must be statistically significantly less than the mean across territories for that policy group
- To be rated “B”, less competitive: neither criteria for A or C apply

Below we will provide our rationale for why our summary assessments are reasonable based on the above criteria.

In the case of the low-quality homeowners policy segment, the various measures reveal a message of relatively limited competition. No territory met our criteria for “most competitive; 22 were classified “less competitive;” three (Grand Rapids, Bay County, and Monroe County) were classified as “least competitive;” see Exhibit 20. Several indicators provide a powerful message about the lack of competition across all territories. No territory has: (1) more than 13 companies operating, (2) less than 92 percent of the market controlled by the largest four companies, (3) an HHI value considered below the “highly concentrated” range. With only three exceptions, the mean territorial loss ratios for companies with substantial numbers of exposures are substantially less than one, with the overall mean of .76 (see Exhibit 19).

**Exhibit 20:
Summary Measures of Home Insurance Industry Competitiveness for Low-Quality Policies, By Territory**

A similar lack of highly competitive territories is revealed in the case of the middle-quality policy group. Again, no territory is classified as “most competitive,” primarily because only one (remainder of Kent County) has an HHI value below 1,500; indeed only eight are below 3,000. Twenty-one territories are classified as “less competitive,” and four (Flint, remainder of Genesee County, remainder of Lansing area, and Upper Peninsula) are classified as “least competitive.” Of course, we again note that these ratings are made without consideration of the role of MBPA. As noted earlier, if this factor were included in a scheme to define competitiveness, more of the State’s territories would be downgraded to the “least competitive” ranking (though we have not done so here).

**Exhibit 21:
Summary Measures of Home Insurance Industry Competitiveness for Medium-Quality Policies, By Territory**

Many indicators suggest that, in general, the high-quality homeowners policy group is the most competitive of the three. Between 72 and 120 companies compete in this market segment across the territories, and there typically is a substantial entry and exit rate between 2001 and 2002 in these territories. HHI values show that four territories have low concentration, 20 have moderate, and only one (Kalamazoo City) has high. Applying our criteria above, we find that five territories (Kalamazoo County, Oakland County, Muskegon County, Northern Michigan, and the remainder of Southern Michigan) are “most competitive.” By contrast, four territories are “least competitive” in

the high-quality policy group: Warren, Ann Arbor, Bay County, Ottawa County. We classify 16 territories in the “less competitive” group.

Exhibit 22:

Summary Measures of Home Insurance Industry Competitiveness for High-Quality Policies, By Territory

Results of the Premium Excessiveness Analysis

Recall that State regulations specify that the assessment of premiums must include both consideration of the competitiveness of the market segment (which we have discussed above) and profitability of the companies. We measure profitability through the loss ratio: the dollar value of losses incurred from policyholders’ claims divided by the dollar value of premiums written, both measured for the same period and territory in question. Earlier we had presented information about loss ratios for home insurance companies over the 2001-2002 period in the context of our competitiveness analysis; territorial loss ratios substantially below statewide averages served as indicators of less competition. Here we employ the same information for a different, if closely related, purpose. Given historical norms both statewide and nationally, we will consider premiums (for either individual insurance companies or averages in a territory) “potentially excessive” if loss ratios are below .60, and “excessive” if they are below .50.

Consider the loss ratio information previously presented in Exhibits 18 and 19. Recall that these Exhibits differ only in the sample of companies upon which they are based: Exhibit 18 uses all companies having at least one exposure in both 2001 and 2002; Exhibit 19 adds the stipulation that these exposures must total 116 or more. Individual companies with more than 116 exposures that demonstrate an aggregate loss ratio below .60 are listed in Exhibit 23. Details for loss ratios of all companies, regardless of size, are provided in Appendix F. Focus on results shown in bold, for they show loss ratios that are less than .60 by a statistically significant amount.

Low-Quality Home Insurance Segment

In the case of the low-quality market segment, Exhibit 18 shows that three territories—Flint, the remainder of the Lansing area, and Bay County—have average loss ratios (counting all companies) less than .60 to a statistically significant degree. Indeed, their ratios are all in the range of .22 to .24. When only the larger companies are considered (Exhibit 19), the sample sizes become so small that tests of statistical significance are possible in only a few territories and, even when possible, none proves significantly less than .60. However, for the above three territories the mean values for the dominant firms are all extremely low. Finally, recall that above we classified Bay County as “least competitive” and Flint and the remainder of the Lansing area as “less competitive.” Thus we conclude that in these three territories the rates charged for low-quality homeowners policies meet the State-defined standard of excessiveness: they have low loss ratios and they are not “most competitive.”

Several other territories with only one, two, or three large firms operating in the low-quality segment also demonstrate low loss ratios and are not rated “most competitive.” They therefore may warrant further scrutiny on the grounds of possibly

excessive premiums. Territory means are listed in Exhibit 19 and individual companies are listed in Exhibit 23. Whether urban territories as a whole evince the lowest or the highest mean loss ratios depends on whether all companies or only larger companies are considered, though their mean is never less than 1.09, nor significantly different than other territory groups' means.

Medium-Quality Home Insurance Segment

Average loss ratios for the medium-quality market segment rarely fell below .60 for the 2001-2002 period in any territory, and in no territory was the ratio statistically significantly less than .60 (for either all or only large companies). Nevertheless, there are several territories that both evince low mean loss ratios and are not classified as "most competitive," thereby raising the specter of premium excessiveness. When only large companies are included, these territories are: Kent County (.40), remainder of Saginaw County (.55), Upper Peninsula (.41), and Northern Michigan (.49) (see Exhibit 19). When all companies are included, the only territory in the medium-quality segment with mean loss ratio less than .60 is Ottawa County (.43) (see Exhibit 18).

Regardless of whether all companies or only larger companies are considered, other territories have the lowest mean loss ratios in the middle-quality segment, though these ratios are never less than .60 or statistically significantly below the other two territorial groups' ratios. Individual companies providing medium-quality home insurance products with substantial numbers of exposures often evinced loss ratios less than .60, however. These companies are listed in Exhibit 23.

High-Quality Home Insurance Segment

In the high-quality market segment, two territories—Ann Arbor City and Ottawa County—demonstrated excessive premiums. When all companies with exposures in both 2001 and 2002 are considered, no territory registers an average loss ratio below .73 (see Exhibit 18). When only the larger companies are considered, Ann Arbor and Ottawa County evince average loss ratios of .48 and .49, respectively, both statistically significantly less than .60 (see Exhibit 19). No other territory measures below .64 in mean loss ratio for large companies.²⁸

Suburban territories evinced the lowest mean loss ratios for high-quality products, regardless of whether all companies or only large companies are considered. These ratios are not lower than .78 and are not statistically significantly less than that of other territories, however.

Recall from our earlier analysis that both Ann Arbor and Ottawa County ranked in the "least competitive" category, based on a variety of indicators. Thus, we are confident in concluding, based on State regulatory standards, that homeowners in both of these territories are being charged excessive premiums for high-quality home insurance products by companies with at least 116 exposures. The companies with loss ratios below .60 operating in these territories are listed in Exhibit 23 - high-quality, under territories 34 and 48.

²⁸ Individual companies providing high-quality home insurance products with substantial numbers of exposures often evinced loss ratios less than .60, however. These companies are listed in Exhibit 23.

Part 5: The Michigan Auto Insurance Industry's Competitiveness and Premium Excessiveness in 2001-2002

Results of the Competitiveness Analysis

Number of Exposures and Auto Insurance Companies

By far the most common form of auto insurance in Michigan in the 2001-2002 period is mandatory coverage: 37.6 million such exposures, representing 79 percent of all exposures in the State (see Exhibit 24).²⁹ Auto collision coverage constitutes 4.9 million (10 percent of total) exposures and comprehensive constitutes 5.3 million (11 percent of total) exposures in Michigan, in both years. Between 2001 and 2002 there was a slight increase in mandatory policy form exposures, and slight decreases in collision and comprehensive exposures. Information on the number of auto insurance exposures in each territory is provided in Appendices G and H.

Exhibit 24: Number of Auto Insurance Exposures in Michigan, by Auto Policy Form, 2001 and 2002

On average across the 42 auto insurance territories in Michigan, between 77 (in 2001) and 81 (in 2002) different companies offer auto insurance (see Exhibit 25). Inasmuch as most companies offer all three kinds of policy forms, these numbers are virtually identical across all three types. The number of companies providing auto insurance varies dramatically among territories, however, with the minimum, ranging from 46 to 50 companies, being only half as much as the maximum, which ranges from 95 to 105. Details regarding the particular companies that operate in each territory/policy group can be found in Appendix I (for 2001, 2002 and combined).

There typically was a slight increase in the number of companies with auto exposures of some sort, with the average rising by four companies in a territory. However, three territories (the outer areas of Ann Arbor, Benton Harbor, and Muskegon) evinced a decrease (usually of one) in the number of companies with collision and comprehensive form exposures from 2001 to 2002 (see Exhibit 25).

On average, there are statistically significantly more auto insurance companies with exposures in urban areas (83-87, depending on policy form) than in suburban areas (71-75). Similarly, on average, there are statistically significantly more auto insurance companies with exposures in other (non-metro) areas (89-96, depending on policy form) than in suburban areas (see Exhibit 25)..

Exhibit 25: Number of Auto Insurance Companies with One or More Exposures, by Auto Policy Group, 2001 and 2002

²⁹ Exposures as measured here represent a vehicle-month. Thus, one auto insured for 12 months during the data collection period is counted as 12 exposures.

Market Shares

Unlike the case of home insurance, where market share indicators varied considerably depending on whether low-, medium-, or high-quality insurance policies were considered, in auto insurance there are few differences in these indicators across mandatory, collision and comprehensive policy group categories. Exhibit 26 shows the share of each policy group/territory market held by the largest auto insurance company in that market (CR1). Exhibit 26A calculates market share on the basis of exposures, whereas 26B does so on the basis of premiums written. With either formulation the results are virtually identical. The respective top auto insurance company in the territory controls, on average in Michigan, roughly one-quarter of the market for all three-policy groups, for both 2001 and 2002. Information on the particular companies comprising this set of largest auto insurance companies in the territory/policy group is provided in Appendix J. The share held by the largest company varies considerably across territories, with the minimum ranging from .10 to .12 and the maximum ranging from .65 to .73, depending on year, policy form, and whether exposures or premiums are used to calculate share.

Suburban territories had statistically significantly higher CR1 (.29 to .32, on average) than non-metro territories (.18, on average) both in 2001 and 2002. Similarly, suburbs typically evinced higher CR1 than urban territories (.18 to .20, on average), but the differences were only sporadically statistically significant, depending on the particulars of policy form, year, and basis for calculating share.

At this point it is useful to consider the role played by the Michigan Automobile Insurance Placement Facility (MAIPF), the State of Michigan's "auto insurer of last resort." This so-called "residual market" is intended to provide basic protection in all three-policy groups for those who, because of personal and/or property characteristics, cannot find auto insurance in the private market. It may be considered another measure of the market's competitiveness, inasmuch as high shares of the residual market indicate that a significant segment of the population is not being served by any sort of private insurer.

What is noteworthy is that MAIPF is virtually absent from all auto policy type market segments. Combining statistics for 2001 and 2002, MAIPF holds no more than 0.30 percent share, on average, regardless of policy type or whether premiums or exposures are used. In no territory does this share constitute even one percent of the market across all policy types. Thus, unlike the case of the middle-quality home insurance market segment, the residual market does not influence our assessment of the competitiveness of the auto insurance industry in Michigan.

Exhibit 26A Market Shares of Largest (by Exposures) Auto Insurance Company in Territory By Auto Policy Group, 2001 and 2002

Exhibit 26B Market Shares of Largest (by Premiums) Auto Insurance Company in Territory By Auto Policy Group, 2001 and 2002

Comparable portraits of concentration patterns in the auto insurance industry in Michigan are reinforced by examination of Exhibits 27 and 28, which show the market

shares held by the top four (CR4) and top eight (CR8) companies, respectively. As before, we provide shares calculated both by exposures and by premiums written, but conclusions are not sensitive to this choice. Details of the companies holding large shares can be found in Appendixes J through K.

The largest four companies control 55 to 59 percent of the auto insurance market, on average statewide, regardless of policy form group, year, or method of calculating share. The smallest shares observed in any territory range from 36 to 42 percent, and the highest shares range from 82 to 87 percent.

Suburban territories consistently evinced statistically significantly higher market shares for the top four auto insurance companies (averaging 60 to 63 percent) than non-metro territories (averaging 45 to 50 percent). Values for CR4 in urban territories averaged 51 to 55 percent, but were not statistically significantly different from other territories' means (see Exhibits 27A and 27B).

**Exhibit 27A:
Market Shares of Largest Four (by Exposures) Auto Insurance Company in Territory, by Auto Policy Group, 2001 and 2002**

**Exhibit 27B:
Market Shares of Largest Four (by Premiums) Auto Insurance Company in Territory, by Auto Policy Group, 2001 and 2002**

The largest eight companies control 74 to 76 percent of the auto insurance market, regardless of policy form group, year, or method of calculating share, on average statewide. The smallest shares observed in any territory range from 58 to 63 percent, and the highest shares range from 92 to 94 percent.

Suburban territories consistently evinced statistically significantly higher market shares for the top eight auto insurance companies (averaging 78 to 80 percent) than non-metro territories (averaging 63 to 69 percent). Values for CR8 in urban territories averaged 71 to 74 percent, which were also statistically significantly less than suburban territories' mean in nine of 12 cases (see Exhibits 28A and 28B).

**Exhibit 28A:
Market Shares of Largest Eight (by Exposures) Auto Insurance Company in Territory, by Auto Policy Group, 2001 and 2002**

**Exhibit 28B:
Market Shares of Largest Eight (by Premiums) Auto Insurance Company in Territory, by Auto Policy Group, 2001 and 2002**

As the final, summary measure of market share for auto insurance companies we consider the Herfindahl-Hirshman Index (HHI). HHI calculations for individual territories and statewide, using both exposures and premiums, are presented in Exhibits 29A and 29B. Results depend only slightly on whether exposures or premiums are employed in calculating shares, and there are only minor variations across policy groups.

Roughly one-sixth to one fifth (depending whether HHI is measured by exposures or premiums) of the territories register "highly concentrated" measures for the

auto insurance industry. In the mandatory policy group in 2001 and 2002 there were eight territories in which the HHI (measured by exposures) registered above the threshold of 1,500 denoting “highly concentrated;” if HHI is measured by premiums, the number falls to six territories in 2001 and seven in 2002 (see Exhibits 30A and 30B). In the collision and comprehensive policy groups in 2001 and 2002 there were nine territories in which the HHI (measured by exposures) registered above the threshold of 1,500. If HHI is measured by premiums, the number for collision falls to eight territories in 2001 and the number for comprehensive falls to six in both years.

There were six territories that registered as “highly concentrated” for all three-auto policy groups and for both 2001 and 2002. These included four “outer” territories (Battle Creek, Jackson, Lansing, Monroe), and two “inner” territories (Benton Harbor and Port Huron). Suburban territories always evinced the highest average HHI values, regardless of policy group and year, but they were only sporadically statistically significantly different from the others (see Exhibits 29A and 29B).

Exhibit 29A:
Herfindahl-Hirshman Index (HHI) of Auto Insurance Company Concentration, By Territory and Auto Policy Group, 2001 and 2002 (based on exposures)

Exhibit 29B:
Herfindahl-Hirshman Index (HHI) of Auto Insurance Company Concentration, By Territory and Auto Policy Group, 2001 and 2002 (based on premiums)

Exhibit 30A:
Degree of Auto Insurance Industry Concentration across Territories, Using HHI based on Exposures, 2001 and 2002

Exhibit 30B:
Degree of Auto Insurance Industry Concentration across Territories, Using HHI based on Premiums, 2001 and 2002

Trends in Availability

There are distinct differences among the three auto policy group market segments regarding trends in availability of policies, as shown in Exhibit 31. Availability in the mandatory market segment expanded 0.53 percent, on average, from 2001 to 2002, whereas in the other two segments it declined in the range of 0.75 to 0.87 percent. The largest declines by far in all three-policy groups (from 12 to 16 percent) occurred in the Detroit Metropolitan Inner territory. Declines in exposures of five percent or more for all three policy groups were evinced in Dearborn, Pontiac and Detroit West-Northern, and for two of three policy groups in Detroit Metropolitan Outer and Flint Inner. On average, all types of auto exposures in urban territories declined from three to five percent from 2001 to 2002, and all were statistically significantly less than the average increase in suburban territories (ranging from 0.4 to 1.7 percent). The largest increase (over 10 percent) occurred in the Lansing Middle territory in the case of collision and comprehensive. Details on changes in availability for individual companies are provided in Appendixes L and M.

Exhibit 31:

Percentage Change in Exposures of All Auto Insurance Companies in Territory By Auto Policy Group, comparing 2001 to 2002

Turnover rates among the companies comprising the largest eight firms in the territory/auto policy group indicate only minor differences across the three market segments, regardless of whether exposures or premiums are used to compute CR8; see Exhibit 32. To see which companies comprising the top eight in 2001 dropped out of that ranking in 2002, refer to Appendixes J through K.

Overall, there is, compared to homeowners insurance, lower turnover rate in the auto insurance industry's top eight companies: eight to twelve percent, on average statewide, depending on policy group. Indeed, many territories evinced no turnover of the top eight firms. When CR8 is measured by exposures, 20 territories in the mandatory policy group, 14 territories in the collision policy group, and 17 territories in the comprehensive policy group had no turnover. When CR8 is measured by premiums, the corresponding figures are 9, 13 and 10 (see Exhibit 32). The greatest turnover evinced in any territory/policy group was three of eight companies. Suburban territories tended to have the lowest turnover rates, but these typically were not statistically significantly different from the means of the others. The one exception is in comprehensive, where suburban territories were significantly lower than non-metro territories.

**Exhibit 32:
Turnover Rates 2001-2002 of Largest Eight Auto Insurance Companies,
By Auto Policy Group and Method of Calculating Share***Entry and Exit Rates of Companies*

Analysis of the rate at which auto insurance companies enter and exit particular territory/policy group market is summarized Exhibits 33 and 34. They show that, on average, between 12 and 13 percent of the companies present in a given market segment in 2002 entered during the prior year, regardless of auto policy group being considered. The lowest mean entry rate for any territory/policy group was five percent and the highest was 20 percent (see Exhibit 33). There were no statistically significant differences among urban, suburban, or other territories.

**Exhibit 33:
Entry of Companies into the Auto Insurance Market Between 2001 and 2002
By Territory and Policy Group**

As for the exit of auto insurance companies from the industry between 2001 and 2002 in various territories, Exhibit 34 shows that, on average, across all territories, six companies (eight percent) exited, regardless of policy group. The exit rates ranged across territory/policy groups from one to 14 percent; no territory evinced an absence of exits. In the cases of collision and comprehensive policies, suburban territories registered statistically significantly higher exits rates (eight to nine percent) than non-metro territories (five percent).

**Exhibit 34:
Exit of Companies into the Auto Insurance Market Between 2001 and 2002
By Territory and Policy Group**

Loss Ratios

The cross-company average ratios of losses incurred to premiums written (aggregated for 2001-2002) for all auto insurance companies with at least one exposure in the given territory/policy group in *both years* is presented in Exhibit 35.³⁰ The first thing to note is that the average loss ratio in some territories/policy groups is greater than one. This does not necessarily mean that all or even the “average” auto insurance company in a segment is losing money. Inasmuch as many small firms evince exceptionally high loss ratios (due to idiosyncratic losses) and are averaged (unweighted) with larger firms to produce the figures in Exhibit 35, the examples of high mean values should not be unduly emphasized.³¹

What is useful, however, is an examination of how these mean territory loss ratios vary across territories, because this information gives one indication of their relative competitiveness: lower loss ratios generally are a signal of less intense competition. In this vein, we considered for each territory/policy group whether the mean loss ratio differed in a statistically significant way from the statewide mean for that policy group. Such observations are denoted in Exhibit 35 with a single asterisk.³²

Results indicate that the mandatory, collision, and comprehensive policy segments experienced identical mean loss ratios during the 2001-2002 period of 1.10. Eighteen (18) of the 42 territories have statistically significantly lower loss ratios than the statewide average loss ratio for the mandatory segment; the corresponding figures for the collision and comprehensive segments are 16 and 22, respectively. There is a tendency across all policy types for urban territories to have lower loss ratios than both other areas, but the urban loss ratio is not less than that of other territories by a statistically significant amount.

Exhibit 35

Loss Ratios for Auto Insurance Companies with at Least One Exposure By Territory and Policy Group, 2001 and 2002 combined

Of course, caution must be used in interpreting these ratios in Exhibit 35 because they may be influenced by small company outliers that skew unweighted mean values. To obtain a more reliable estimate of loss ratios, we replicated Exhibit 35, but only taking into consideration those companies with at least 2,865 auto exposures in the particular territory/policy group during the combined 2001-2002 period. The figure of 2,865 was arrived at because it represents the lowest 5 percent bound of the trimmed median for the policy form with the least number of exposures (collision, in this case).

³⁰ A few companies with insignificant numbers of exposures showed negative loss ratios; these were eliminated from the statistics shown here. The averages shown do not weight companies differently based on number of exposures.

³¹ Loss ratios for the individual companies in each territory/policy group segment may be found in Appendix E.

³² We excluded one company, SAFECO, from the tallies in the North West Central mandatory policies because its figures, \$39 in premiums yielding \$417,689 in losses, yielded a loss ration of 10,710 that badly distorted the territory and statewide means. We are also suspicious of the accuracy of this company's figures.

The results are reported in Exhibit 36. As anticipated, comparison of Exhibits 35 and 36 shows that the restriction to companies with substantial numbers of exposures eliminates anomalous situations and increases the reliability and interpretability of the average loss ratios.

Exhibit 36 shows that the mean loss ratios for the larger companies remain quite similar across the three policy groups: .63 for mandatory, .68 for collision, and .64 for comprehensive. In each policy group there are several territories that evince loss ratios that are statistically significantly lower than the statewide mean across territories. In the case of mandatory coverage these eleven territories are: Detroit Suburban, Flint Inner, Battle Creek Inner and Outer, Jackson Inner, Lansing Inner, North, Ann Arbor Outer, Port Huron Outer, Monroe City, and Benton Harbor Outer. In the case of collision coverage these two territories are: Detroit Metropolitan Inner and East Central. In the case of comprehensive coverage these ten territories are: Bay & Saginaw Cities, Detroit North, Detroit Semi-Suburban, Detroit Suburban, Pontiac City, Grand Rapids Inner, Jackson Inner, Muskegon Outer, Ann Arbor Inner, and Port Huron Outer. For only the comprehensive policy group are there any statistically significant differences among suburban, urban and other territories. In this group, the mean suburban loss ratio of .58 and the mean urban loss ratio of .65 are both less than the mean loss ratio of .81 in other, non-metro areas.

Exhibit 36

Loss Ratios for Auto Insurance Companies with at Least 2,865 Exposures By Territory and Policy Group, 2001 and 2002 combined

Summary Ratings of Competitiveness

The foregoing has presented numerous indicators of how competitive the auto insurance industry is in various territory/policy group segments. Here we integrate these indicators and introduce a summary scheme for assessing auto insurance industry competitiveness in a way analogous to that we employed above in the case of home insurance. Once again we use of z-scores, previously described. We have converted the following indicators presented above to z-scores so they can be directly compared and aggregated: (1) number of insurance companies in 2002, (2) percent change in exposures (2001 to 2002), (3) turnover rate of the largest eight companies (2001-2002), (4) entry rate (2001-2002), and (5) exit rate (2001-2002). These z-scores are presented in the first five columns of Exhibits 37-39. They show the degree to which a particular territory is above (positive), below (negative) or at (zero) the statewide mean for that indicator in the given policy group segment. Higher (positive) values for any indicator signifies a greater degree of competitiveness.

As we have done in the case of home insurance, we have added the foregoing five z-scores to create a total z-score, and then ranked each territory accordingly (see Exhibits 37-39 for mandatory, collision, and comprehensive segments, respectively). The resulting figures provide a useful indicator of the degree to which each territory generally is *relatively* competitive (higher positive total z-scores, thus ranked near the top) across all five indicators above. We also consider the HHI rating above 1,500 as another key summary measure indicating a highly concentrated market segment. Finally, we consider whether the mean loss ratio for companies in the territory is

significantly less than the statewide average (using either all companies or only larger companies); if so, there is reason to suspect inadequate competition.

Consistent with the scheme we devised for home insurance industry analysis, we apply the following criteria for assessing competitiveness for all market segments of the auto insurance industry:

- To be rated “A”, most competitive: total Z must be greater than 1.0; HHI must be less than 1,500, and loss ratio cannot be statistically significantly less than the mean across territories for that policy group
- To be rated “C”, least competitive: total Z must be less than -0.9; HHI must be greater than 1,500 and the loss ratio must be statistically significantly less than the mean across territories for that policy group
- To be rated “B”, less competitive: neither criteria for A or C apply

In the case of the mandatory auto policy segment, the various measures reveal a message of relatively robust competition. Seven territories met our criteria for “most competitive:” Upper Peninsula, Detroit Semi-Suburban, Flint Outer, Kalamazoo Outer, North East Central, West Central, and East Central. Thirty-four (34) were classified “less competitive.” Only one territory (Jackson Outer) was classified as “least competitive” (see Exhibit 37).

**Exhibit 37:
Summary Measures of Auto Insurance Industry Competitiveness for Mandatory Policies, By Territory**

In the case of the collision policy group, five of 42 territories (two urban, two suburban, one non-metro) are classified as “most competitive:” Grand Rapids Inner, Lansing Inner Flint Outer, Detroit Metropolitan Outer, and North East Central. Many territories with HHI below 1,000 and high total z scores were not considered “most competitive” because they evinced a loss ratio significantly lower than the statewide mean. The vast majority (35) of auto insurance territories are classified as “less competitive.” Only two territories (Battle Creek Outer, Lansing Outer) are classified as “least competitive” (see Exhibit 38).

**Exhibit 38:
Summary Measures of Auto Insurance Industry Competitiveness for Collision Policies, By Territory**

Applying our criteria above to the comprehensive policy group, we find that six territories--one urban, two suburban, and three other--are “most competitive:” Battle Creek Inner, Detroit Metro Outer, Flint Outer, North East Central, North West Central, and West Central. By contrast, three territories are “least competitive” in the comprehensive policy group: Battle Creek Outer, Port Huron City, and Monroe Outer. We classify the remaining 33 territories in the “less competitive” group (see Exhibit 39).

**Exhibit 39:
Summary Measures of Auto Insurance Industry Competitiveness for Comprehensive Policies, By Territory**

Results of the Premium Excessiveness Analysis

Recall that State regulations specify that the assessment of premium excessiveness must include both consideration of the competitiveness of the auto insurance market segment (which we have discussed above) and profitability of the companies. As with home insurance, we measure profitability through the loss ratio. Earlier we had presented information about loss ratios for auto insurance companies over the 2001-2002 period in the context of our competitiveness analysis; territorial loss ratios substantially below statewide averages served as indicators of less competition. Here we employ the same information for a different, if closely related, purpose. Given historical norms both statewide and nationally, we will consider premiums (for either individual insurance companies or averages in a territory) “potentially excessive” if loss ratios are below .60, and “excessive” if they are below .50.

Consider the loss ratio information previously presented in Exhibits 35 and 36. Recall that these Exhibits differ only in the sample of companies upon which they are based: 35 uses all companies having at least one exposure in both 2001 and 2002; 36 adds the stipulation that these exposures must total 2,865 or more. Individual companies with more than 2,865 exposures demonstrating an aggregate loss ratio below .60 are listed in Exhibit 40. Details for loss ratios of all companies, regardless of size, are provided in Appendixes L and M. Focus on results shown in Exhibits 35 and 36 with a double asterisk, for they show loss ratios that are less than .60 by a statistically significant amount.

Mandatory Auto Insurance Segment

In the case of the mandatory market segment,³³ Exhibit 36 (larger companies) shows that seven territories’ mean loss ratios prove less than .50 and statistically significantly less than .60. These territories and their associated loss ratios are: Flint Inner (.44), Lansing Inner (.46), Monroe (.42), Jackson Inner (.37), Detroit Suburban (.48), Ann Arbor Outer (.34), and Benton Harbor Outer (.25). Recall that above we did not classify any of these territories as “most competitive.” Thus we conclude that in these seven territories the rates charged for mandatory auto policies meet the State-defined standard of excessiveness.

Collision Auto Insurance Segment

Average loss ratios for the collision market segment rarely fell below .60 for the 2001-2002 period in any territory, and in no territory was the ratio statistically significantly less than .60 (for either all or only large companies). Indeed, the smallest territorial mean loss ratio for the full sample of companies offering collision coverage was .67, and for the larger-company sample it was .58 (see Exhibits 35 and 36). What is more, there are never any statistically significant differences in the loss ratios among urban, suburban, and other classes of territories. Therefore, we conclude that no territories can be identified that meet the excessive premium criteria in the collision

³³ Exhibit 35 shows that only two territories—Lansing Outer and Monroe—have average loss ratios (counting all companies) less than .60 to a statistically significant degree. Their ratios are in the range of .41 to .42. However, since above we noted the tendency for some smaller, outlier firms to affect the mean loss ratios, we view the data from the larger-company subsample as more reliable.

policy segment. Individual companies providing collision insurance products with substantial numbers of exposures at times evinced loss ratios less than .60, however. These companies are listed in Exhibit 23.

Comprehensive Auto Insurance Segment

Finally, in the case of comprehensive auto coverage, there are several territories that have questionably low loss ratios.³⁴ When only larger companies are considered (Exhibit 36), six territories have loss ratios falling below .60 by a statistically significant amount, and four are lower than .50. These territories and their mean loss ratios are: Bay City & Saginaw City (.49), Grand Rapids Inner (.54), Detroit Semi-Suburban (.42), Detroit Suburban (.48), Pontiac (.49), and Muskegon Outer (.52). As we had not previously identified any of the above in the “most competitive” category, we conclude that they meet the criteria for premium excessiveness in the comprehensive policy segment.

Part 6: Conclusion

The goal of our research was to answer two fundamental questions, posed by the Michigan Office of Financial and Insurance Services (OFIS), about both home and auto insurance industries in Michigan in general and specified sub-state geographic territories (25 in the case of home, 42 in the case of auto):

- *Can the auto and home insurance industries in this area be considered competitive?*
- *Can the premiums charged by the auto and home insurance industries in this area be considered excessive?*

Economists believe that the structure of an industry will affect its conduct, which will affect its performance in turn. It is a foundational premise that (with some rare exceptions) the more competitive any market, the greater will be its efficiency in making its good or service available and the degree to which consumer prices are driven down to their lowest sustainable levels. Thus, it is appropriate to ascertain the degree to which the amount of competition in the personal home insurance and auto insurance markets is sufficient to generate these desirable outcomes for Michigan’s consumers.

The State of Michigan’s Insurance Code of 1956 makes it clear that the excessiveness test rests on meeting two criteria: premiums unreasonably high in relation to coverage and lack of a reasonable degree of competition. Given that the excessiveness test presumes a competitiveness test, we conducted the latter first. The code also refers to these criteria in relation to “relevant markets.” We defined, for the purposes of this analysis, “relevant markets” in both geographic and product-type terms. In geographic terms, we employed the same “insurance statistical reporting territories” as the major agencies that assemble and report insurance statistics. There are 25 such territories for home insurance and 42 for auto insurance in Michigan. These statistical reporting territories are an appropriate geographic concept to employ as “relevant market”

³⁴ When viewed from the perspective of the all-company sample (Exhibit 35), no territories evinced mean loss ratios less than .60 by a statistically significant amount.

because they delineate distinct areas where the performance of insurance policies is known or expected to be different, and often correspond to zones across which an insurance company charges different premiums. We also determined that there would be interest in ascertaining the degree to which the competitiveness and premium excessiveness of the home and auto insurance industries in Michigan differ systematically across territories according to their urban, suburban, and rural character. We therefore assigned the two sets of territories accordingly, calculated the appropriate statistics and conducted statistical tests for differences.

In terms of product type, we grouped insurance policies in ways that we believed distinguish features delineating distinctive markets. We analyzed three groups of homeowners' policies, termed Low-, Medium- and High-quality, according to the comprehensiveness of perils covered and the nature and level of compensation provided in case of loss. In the case of auto insurance, we separated the relevant markets into three groupings of policy types – Mandatory, Collision and Comprehensive Coverage.

In sum, the regulations governing the insurance industry in the State of Michigan fundamentally are based on an *economic analysis* of market structure and performance. We believe that this is a correct perspective and pursued it consistently in this report.

It is conventional in industrial organization studies to measure the *competitiveness* of an industry in several dimensions: concentration, entry and exit, and information advantage. We conducted separate competitiveness analyses, by quantifying these dimensions, for the home and auto insurance markets. The analyses allowed us to classify territories into one of three categories, labeled "most competitive," "less competitive," and "least competitive."

There are many reasons why insurance premiums might vary across territories in a state, based on sound business practices. In the case of homeowners' insurance, this variation may be due to geographical differences in historical loss patterns, characteristics of homes, or the degree of public fire protection, for instance. In the case of auto insurance, this variation may be due to geographical differences in historical loss patterns, characteristics of cars, and the age and driving records of drivers. The point is that higher premiums in one territory compared to another do not necessarily signal that rates are "excessive" there. Far superior measures of *excessiveness* are based on the loss ratios of a company, as per standard practice. An extremely low loss ratio that persists is consistent with the hypothesis that the company is over-pricing the product in relation to actual incurred losses. We delineated what constitutes an "extremely low loss ratio" by employing an absolute standard. We define premiums as "potentially excessive" for any company evincing for a given insurance policy group/territory a loss ratio below 60%, and "excessive" if the ratio is below 50%. We employed an analogous characterization of premium excessiveness for each market segment specified by a particular policy group/territory, and conducted our analyses separately for home and auto insurance.

Home Insurance Analysis

A. Competitiveness

- a. *Low Quality* - The various measures reveal a message of relatively limited competition. No territory met our criteria for "most competitive;" 22 are classified "less competitive;" three (Grand Rapids, Bay County, and Monroe County) are classified as "least competitive."

- b. *Medium Quality* - A similar lack of highly competitive territories is revealed in the case of the middle-quality policy group. Again, no territory is classified as “most competitive;” twenty-one territories are classified as “less competitive,” and four (Flint, remainder of Genesee County, remainder of Lansing area, and Upper Peninsula) are classified as “least competitive.” We must reiterate that these ratings are made without consideration of the role of MBPA (residual market). In 19 of the 25 areas for premiums, and 17 for exposures, MBPA accounted for 50 percent or more of the market, with Detroit City ranking highest on both at 94 and 92 percent, respectively. While Urban Territories had the highest averages (71 and 68 percent, respectively), there was no significant difference between the urban and suburban or other areas.
- c. *High Quality* - The high-quality homeowners policy group is the most competitive of the three. Five territories (Kalamazoo County, Oakland County, Muskegon County, Northern Michigan, and the remainder of Southern Michigan) are “most competitive;” 16 are classified “less competitive;” and four territories (Warren, Ann Arbor, Bay County, Ottawa County) are “least competitive.”

B. Excessiveness

- a. *Low Quality* - Three territories—Flint, the remainder of the Lansing area, Bay County—have average loss ratios (counting all companies) less than .60 to a statistically significant degree. When only the larger companies are considered however, the sample sizes become so small that tests of statistical significance are possible in only a few territories and, even when possible, none prove significantly less than .60. However, for the above three territories the mean values for the dominant firms are all extremely low. Having classified Bay County as “least competitive” and Flint and the remainder of the Lansing area as “less competitive,” we can conclude that in these three territories the rates charged for low-quality homeowners policies meet the State-defined standard of excessiveness: they have low loss ratios and they are not “most competitive.”

Several other territories with only one, two, or three large firms operating in the low-quality segment also demonstrate low loss ratios and are not rated “most competitive.” They therefore may warrant further scrutiny on the grounds of possibly excessive premiums. Whether urban territories as a whole evince the lowest or the highest mean loss ratios depends on whether all companies or only larger companies are considered, though their mean is never less than 1.09 nor significantly different than suburban or other means.

- b. *Medium Quality* - Average loss ratios for the medium-quality market segment rarely fell below .60 for the 2001-2002 period in any territory, and in no territory was the ratio statistically significantly less than .60 (for either all or only large companies). Nevertheless, there are several territories that both evince low mean loss ratios and are not classified as “most competitive,” thereby raising the specter of premium excessiveness. When only large companies are included, these

territories are: Kent County, remainder of Saginaw County, Upper Peninsula, and Northern Michigan. When all companies are included, the only territory is Ottawa County.

Regardless of whether all companies or only larger companies are considered, other territories have the lowest mean loss ratios in the middle-quality segment, though these ratios are never less than .60 or statistically significantly below the other two territorial groups' ratios.

- c. *High Quality* - Two territories—Ann Arbor City and Ottawa County—demonstrated excessive premiums. Suburban territories evinced the lowest mean loss ratios for high-quality products, regardless of whether all companies or only large companies are considered. These ratios are not lower than .78 and are not statistically significantly less than other territories', however.

Our competitiveness analysis found that both Ann Arbor and Ottawa County ranked in the “least competitive” category, based on a variety of indicators. Thus, we are confident in concluding, based on State regulatory standards, that homeowners in both of these territories are being charged excessive premiums for high-quality home insurance products.

Auto Insurance Analysis

A. Competitiveness

- a. *Mandatory* - The various measures reveal a message of relatively robust competition. Seven territories met our criteria for “most competitive:” Upper Peninsula, Detroit Semi-Suburban, Flint Outer, Kalamazoo Outer, North East Central, West Central, and East Central. Thirty-four (34) were classified “less competitive.” Only one territory (Jackson Outer) was classified as “least competitive.”
- d. *Collision* - Five of 42 territories (two urban, two suburban, one non-metro) are classified as “most competitive:” Grand Rapids Inner, Lansing Inner Flint Outer, Detroit Metropolitan Outer, and North East Central. The vast majority (35) of territories are classified as “less competitive.” Only two territories (Battle Creek Outer, Lansing Outer) are classified as “least competitive.”
- e. *Comprehensive* - Six territories “most competitive:” Battle Creek Inner, Detroit Metro Outer, Flint Outer, North East Central, North West Central, and West Central. By contrast, three territories are “least competitive:” Battle Creek Outer, Port Huron City, and Monroe Outer. The vast majority (33) of territories are classified as “less competitive.”

B. Excessiveness

- a. *Mandatory* - Seven territories' mean loss ratios came in less than .50 and statistically significantly less than .60. These territories are: Flint Inner, Lansing Inner, Monroe, Jackson Inner, Detroit Suburban, Ann Arbor Outer, and Benton Harbor Outer. As none of these territories was previously classified as “most competitive,” we conclude that in these

seven territories the rates charged for mandatory auto policies meet the State-defined standard of excessiveness.

- b. *Collision* - Average loss ratios for the collision market segment rarely fell below .60 for the 2001-2002 period in any territory, and in no territory was the ratio statistically significantly less than .60 (for either all or only large companies). What is more, there are never any statistically significant differences in the loss ratios among urban, suburban, and other classes of territories. Therefore, we conclude that no territory can be identified that meets the excessive premium criteria in the collision policy segment.
- c. *Comprehensive* – There are several territories that have questionably low loss ratios. When only larger companies are considered (Exhibit 36), six territories have loss ratios falling below .60 by a statistically significant amount. These territories are: Bay City & Saginaw City, Grand Rapids Inner, Detroit Semi-Suburban, Detroit Suburban, Pontiac, and Muskegon Outer. As none of these had been previously classified as “most competitive,” we conclude that they meet the criteria for premium excessiveness in the comprehensive policy segment.

While no consistent patterns of lack of competitiveness or premium excessiveness were found across the 3 types of both home and auto insurance coverage, the analysis does highlight individual territories, in each of the categories, where additional research needs to be done. In addition, detailed Appendix tables identify specific companies, by insurance type and geographic territory, which have loss ratios below the critical 0.60 value.

Caveats, Implications and Recommendations

As a way of summarizing the results of this study and gaining perspective on their significance, we end with a series of caveats, policy implications and recommendations.

Caveats

1. Our analysis was not able to address issues of “redlining” or identify potential cases where individuals are left out of the market because they cannot afford the available policies.
2. The competitive analysis does not, and cannot, take into account local efforts by companies, or individual agents, to advertise their services. Such a qualitative characteristic may come into play when further investigations of territories and/or companies are being made.
3. The geographic territories, as reported and used in this analysis, may not reflect the actual geographies used by companies to price their products. While they provide a consistent level for this analysis, more detailed geographic analysis may need to be used when further investigations of territories and/or companies are being made.

Recommendations and Policy Implications

1. We believe that a study designed to understand the impact of public transportation on auto insurance rates would be beneficial. The economic impacts of altering the chances for auto collisions and other damages that would

- accrue if a sizable portion of the population could be shifted onto public transportation likely would be significant.
2. Our analysis of competitiveness utilized measures identified in Michigan's regulatory guidelines. These statutes and rules do not provide clear guidelines as to appropriate weighting of the factors that go into constructing a final summary indicator. As a result, the ambiguity of the present system resulted in our having to treat most elements equally and utilize a combined score for our analysis. We identify this lack of weighting specificity as a shortcoming within Michigan law and highly recommend that a review of the law be conducted such that the weighting issue is addressed prior to a subsequent insurance analysis.
 3. While this study did not show consistency of *excessive* rates, there is still the need to reduce the premiums that Michigan residents pay for insurance. Such a reduction will serve as an important component of the State's strategy to be competitive as it strives to increase employment and population. In order to reduce the premiums that our insurance companies charge, we must strive to reduce the losses that they incur from policyholders' claims. It is our *collective and personal responsibility* to reduce such losses. While there are many courses of action to take in this area, let us list a few:
 - a. Reduce crime – We must reduce the number of burglaries and car thefts that are incurring in all areas – urban, suburban and other.
 - b. We must look to methods of making our road intersections less accident-prone, through roundabouts, lighting, signage, etc.
 - c. Driver training and licensing – Efforts at increasing the driving age and driver training requirements have been successful. More frequent testing of drivers, particularly in the accident-prone years on both ends of the age spectrum, should be considered.
 4. Our final recommendation is that the Michigan Office of Financial and Insurance Services continue to have studies such as the current one conducted on a regular basis. A baseline has now been established; OFIS will determine actions to take based on these results. Another study, conducted within a few years, will allow the State to determine its progress and the success of these actions.

References

- Bartlett, Dwight K. III, Robert W. Klein, and David T. Russell (1999). "Attempts to Socialize Insurance Costs in Voluntary Insurance Markets: The Historical Record." *Journal of Insurance Regulation* 17(4): 478-511.
- Carlson, Jean (1982). *A Year of Change: The Essential Insurance Act in 1981*. Lansing: State of Michigan Department of Licensing and Regulation, Insurance Bureau.
- Christoff, Chris (2004). "Increases for State Auto Insurance Draws Fire," *Detroit Free Press* (March 19):1A, 5A.
- Cummins, J. David and Mary A. Weiss (1991). "The Structure, Conduct, and Regulation of the Property-Liability Insurance Industry." Pp. 117-164 in Richard W. Kopcke and Richard E. Randall (eds.) *The Financial Condition and Regulation of Insurance Companies*. Boston, MA: Federal Reserve Bank of Boston.
- Fitzgerald, Frank M. (1999). *Effect of Public Act 98 of 1996 on Automobile and Home Insurance Premiums in Michigan*. Lansing: State of Michigan Department of Consumer and Industry Services, Insurance Bureau.
- Grace, Martin F. and Robert W. Klein (2003a). "Overview of Recent Developments in Residential and Commercial Property Insurance." Center for Risk Management and Insurance Research, Georgia State University. Final report to the National Association of REALTORS®. July 8, 2003.
- Grace, Martin F. and Robert W. Klein (2003b). "Homeowners Insurance: Facts and Fallacies." Center for Risk Management and Insurance Research, Georgia State University. Unpublished manuscript. October 20, 2003.
- Grace, Martin F., Robert W. Klein, and Richard D. Phillips (2002). "Auto Insurance Reform: Salvation in South Carolina." Pp. 148-194 in J. David Cummins (ed.) *Deregulating Property-Liability Insurance*. Washington, DC: The American Enterprise Institute, Brookings Institution, Joint Center for Regulatory Studies.
- Harrington, Scott. E. (1991). "Auto Insurance in Michigan: Regulation, No-Fault, and Affordability," *Journal of Insurance Regulation* 10: 144-183.
- Klein, Robert (1995). "Market Structure and Performance in Personal Auto and Homeowners Insurance." *NAIC Research Quarterly* 1(2): 13-29.
- McDowell, Banks (1989). *Deregulation and Competition in the Insurance Industry*. New York, NY: Quorum Books.
- National Association of Insurance Commissioners (2003). *NAIC Report on Profitability BY Line By State*. Author. Available at: www.naic.org
- Shah, Dhiraj N. (1989). *Auto Insurance Rating in Michigan*. Lansing: State of Michigan Department of Licensing and Regulation, Insurance Bureau.

U.S. Department of Justice (n.d.). *Horizontal Merger Guidelines*,
http://www.usdoj.gov/atr/public/guidelines/horiz_book/hmg1.html.

Wisely, John (2003). "Insurance Rates Contested," *Detroit News* (Oct. 26):1D.