87-62

COMMENTS OF FEDERAL TRADE COMMISSION STAFF
ON SENATE BILL 103

Mr. Chairman and members of the Senate Committee on Highways, Transportation and Local Government, the Federal Trade Commission staff appreciates the opportunity to comment on Senate Bill 103.

The opinions and views expressed herein are those of the staff of the Cleveland Regional Office and the Bureaus of Competition, Consumer Protection, and Economics of the Federal Trade Commission, and do not necessarily represent the views of the Commission itself. The Commission has, however, voted to authorize us to submit these comments to you. Our comments are limited to those portions of SB 103 that would amend current Ohio statutes governing the franchises of motor vehicle dealers. They do not address other provisions of the bill that relate to warranty performance by manufacturers and distributors.

The current statutes give motor vehicle dealers procedures for challenging (1) the establishment or relocation of other dealerships within their relevant market areas (RMA), and (2) the termination or non-renewal of their franchise agreements by the manufacturer or distributor. As we discuss below, we believe the existing franchise statutes inhibit competition and, in so doing, raise costs for consumers. SB 103 appears likely to compound the anti-competitive effects of the current laws. Therefore, we urge that the amendments contained in SB 103 not be adopted, and we recommend that you instead consider legislation that would repeal the existing statutes.

The FTC is charged with maintaining competition and protecting consumers from restraints of trade.[1] In accordance with this role, the FTC and its staff submit comments upon request to federal, state and local governments to help assess the competitive and consumer welfare implications of pending regulatory initiatives.

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[1] *See* 15 U.S.C. § 41 *et seq.*

Section 5 of the FTC Act prohibits unfair methods of competition and unfair or deceptive acts or practices. By enforcing this statute, the FTC staff has gained substantial experience in analyzing the impact of various restraints on competition and the costs and benefits of such restraints to consumers. In recent years, the FTC staff has been involved in a number of issues specifically dealing with retail motor vehicle dealerships. In January 1986, for example, the FTC's Bureau of Economics published the results of a study of the *"Effect of State Entry Regulation on Retail Automobile Markets."*[2] The FTC staff has also gained experience relating to the automobile industry through many investigations and litigated cases.

The Existing RMA Laws and The Senate Bill 103 Amendments Harm Consumers

Under current Ohio law, automobile manufacturers seeking to establish or relocate dealerships must give written notice to all existing dealers selling vehicles of the same make within the relevant market area. [Ohio Rev. Code §§ 4517.01(X), 4517.50(A).][3] A "relevant market area" is defined as the area within a radius of ten miles from the site of the proposed new dealer. [ORC

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[2] We are providing the Committee with a copy of this Staff Report (Attachment 1) for your information.

[3] The term "motor vehicle" is defined at Ohio Rev. Code § 4501.01(B) and includes other self-propelled vehicles, such as motorcycles, manufactured homes and recreational vehicles, in addition to automobiles and trucks. Our comments concerning the anti-competitive nature and effects of market restraints are applicable to these motor vehicles as well.

§ 4517.01(DD).] [4] The dealers entitled to notification may, within fifteen days, file a protest with the Motor Vehicle Dealers Board. [ORC § 4517.50(A).] Upon receipt of a protest, the Board must schedule a hearing to begin within sixty days. The Board appoints a hearing officer, who issues findings of fact and recommendations to the Board. (ORC § 4517.54.) The Board then determines whether the dealer has shown good cause for not permitting the establishment of a new dealership or the relocation of an existing one. (ORC § 4517.51).[5]

SB 103 contains substantive amendments to some of these existing provisions. The radius of a relevant market area would be extended from ten to fifteen miles, thus increasing the area of an RMA from 314 square miles to over 700 square miles. The evidentiary burden would be shifted to the manufacturer. The manufacturer or distributer would be required to set forth specific grounds for the establishment or relocation of a dealership in its notification to existing dealers, and to carry the burden of proof by demonstrating to the Board why good cause exists for these actions. The time in which a hearing must be commenced would be increased from 60 to 180 days.

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[4] The relevant market area for dealers of manufactured homes or recreational vehicles is defined by a radius of twenty-five miles.

[5] Section 4517.51 provides a list of factors to be considered, among others, in determining if "good cause" exists. These include: (1) the effect on the retail motor vehicle business and the consuming public in the relevant market area; (2) whether the establishment or relocation of a dealer is injurious or beneficial to the public interest; (3) whether the existing dealers of the same make in the relevant market area are providing adequate competition and convenient consumer care for vehicles; and (4) whether they are providing adequate market penetration and representation.

We believe the existing provisions harm consumers by hindering competition in retail motor vehicle markets in Ohio. The SB 103 amendments would intensify the anti-competitive aspects of these laws. These conclusions are based in large part on the FTC's Bureau of Economics Staff Report which found that RMA laws raise automobile prices, on average, by 6 percent.[6]

Such price increases result from the restraint the RMA laws place on the freedom to open new dealerships. By limiting manufacturers' freedom to enter and relocate in areas where automobiles are most in demand, the RMA laws increase the cost of distributing automobiles and thereby facilitate rises in automobile prices. Moreover, RMA laws tend to increase the inconvenience to consumers of searching for a new car. Consumers may find themselves with fewer dealers among whom to shop for better prices, and may find they have to travel farther and expend more time in the course of their shopping.

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[6] These price increases are most likely to occur in counties or metropolitan areas experiencing a growth in population. The results of this FTC study are consistent with other studies which show increased prices resulting from RMA laws. See Eckard, E. W., Jr., *"The Effects of State Automobile Dealer Entry Regulations on New Car Prices,"* Economic Inquiry, Vol. XXIV, No. 2 (April 1985), pp. 223-42; and Smith, R. L., *"Franchise Regulation: An Economic Analysis of State Restrictions on Automobile Distribution,"* Journal of Law and Economics, Vol. XXV (April 1982), pp. 125-27. Ohio experienced virtually zero population growth between 1975 and 1984. Within Ohio, however, there are many areas that have experienced population increases. It is within these areas that RMA laws are more likely to increase the price of automobiles. In addition, future population growth will tend to increase the effect of RMA laws.

Since the release of the Bureau of Economics Staff Report, Wharton Econometric Forecasting Associates (WEFA), at the request of the National Automobile Dealers Association, has prepared a report that reviews the Staff Report and challenges its conclusion that prices of automobiles would rise as a result of RMA laws in areas of growing population. We are providing the Committee with the staff's response to these challenges (Attachment 2). Many of the WEFA criticisms are shown to be inappropriate and misleading. WEFA's speculation that the Staff Report has demonstrated only that rapidly growing areas have higher automobile prices is shown to be unfounded.

RMA laws may also provide opportunities for existing dealers to deter or delay the entry of new competition by filing spurious protests. Any protest can delay the establishment of a new dealership by as much as six months under the current provisions. Because SB 103 would extend the time within which a hearing must be commenced from 60 to 180 days, significantly longer delays could be anticipated if this bill passes. In addition, by interposing delay, an existing dealer has an opportunity to negotiate concessions from the manufacturer in settlement of the protest. The costs of such delays and manufacturers' concessions are ultimately passed on to consumers.[7] And, while only a small percentage of protests may succeed, they may impose significant costs on entrants and reduce the expected profits from entry. As a result, unsuccessful as well as successful challenges are likely to reduce the level of entry.

Rather than passing SB 103, we recommend that the legislature consider repealing the current RMA laws. Existing dealers are not likely to be injured by the repeal of these laws, except where the laws have permitted supra-competitive profits. There is little basis for present dealers' fears of being flooded with more dealerships than potential sales in a market can support. It is not in the interest of either prospective dealers or manufacturers to invest in such a market. Prospective dealers have sufficiently high investment costs in real estate, inventory and personnel to require careful consideration of what the market can bear. Manufacturers will likewise avoid over-saturating in a market. They have an interest in strong, stable dealers, well-established in the community, whose goodwill will help sell the product. Further, if a manufacturer gains a reputation for treating existing dealers badly, it will be

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[7] We note that the SB 103 amendments to the "good cause" factors enumerated in Section 451.51 and n.5 above include deleting the effect on "*the retail motor vehicle business and the consuming public in the relevant market area*" and adding the effect on "*the existing new motor vehicle dealer of the same line-make in the relevant market area.*" Although § 4517.51(B) lists "whether (the action) is injurious or beneficial to the public interest" as a "good cause" factor, omitting reference to the effect on the consuming public may imply that consumer welfare issues, which we believe should be of major concern, are not important.

difficult to find persons who are willing to make significant capital investments in sales and service facilities when the need for new dealers arises.

Without the restraint that the RMA laws place on their ability to meet competition, manufacturers can be more responsive to consumer demands. The fear that removing RMA laws will harm consumers by lowering the quality of dealer service is unfounded. Competition from dealers of other manufacturers will insure that consumers receive the mix of service, quality, quantity and price they want.

The Existing Termination Procedures And The Senate Bill 103 Amendments Hinder The Development Of Efficient Distribution Systems

Under the current statutory provisions, a manufacturer must renew a franchise unless it has "good cause" for termination, and the manufacturer must provide dealers with a 90-day notice of its intent to terminate under most circumstances. [ORC § 4517.54(B).][5] A dealer who has received notice may seek preliminary and permanent injunctive relief in state court. [ORC § 4517.54(C).] Under SB 103, dealer termination disputes would be heard by the Motor Vehicle Dealers Board, which would be required to commence a hearing within 180 days of the dealer's protest.

Like the RMA laws, the termination provisions of the existing statute and SB 103 may decrease the ability of manufacturers to establish and maintain efficient distribution systems. Terminations may be based on the dealer's failure to satisfy consumer demands, resulting in poor sales, poor service, and consumer complaints, or market conditions may indicate that fewer dealers would make the distribution system more efficient. The notice and hearing provisions in the current law and the SB 103 amendments remove the flexibility

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[5] Section 4517.54(B) provides for a 15-day notice prior to termination where the dealer is insolvent, has ceased business operations, or has engaged in an unlawful business practice after a written warning thereof.

necessary to change the system in response to a change in market conditions.[9] As a result, consumers are denied the pro-competitive benefit of an efficient distribution system, and manufacturers are forced to pay the higher costs associated with an inefficient system. These increased costs are likely to result in higher prices for consumers.

Conclusion

By imposing additional restrictions on the establishment, relocation and termination of dealers, the SB 103 amendments would increase the present laws' costly and unnecessary restraints on competition in retail motor vehicle markets in Ohio. We therefore recommend that SB 103 not be passed. Further, we believe that eliminating the current statutory provisions would benefit consumers, and we urge you to consider their repeal.

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[9] The eleven-member Motor Vehicle Dealers Board, which would hear dealer termination disputes as well as entry protests under SB 103, consists of the Registrar of Motor Vehicles and ten members appointed by the governor. Of these ten members, seven must have been engaged in the motor vehicle business - five in selling vehicles at retail and two in vehicle leasing. Only three of the ten appointed members are to specifically represent the public, and they may not have been engaged in selling motor vehicles at retail. (ORC § 4517.30) Manufacturers and distributors are not represented on the Board.

Ohio Senate
Statehouse
Columbus, Ohio 43266-0604
614/466-6082

Committees:
Education
Economic Development
Financial Institutions
Highways, Transportation and Local Government
Rules

Cooper Snyder
14th District

April 1, 1987

Mr. Michael King
Federal Trade Commission
118 St. Claire Avenue
Suite 500
Cleveland, Ohio 44114

Dear Mr. King:

I request testimony from your Department dealing with Senate Bill 100 (motor vehicle manufacturers repair or replacement), copy attached.

Recognizing it may take a couple of weeks for you to prepare and schedule a visit to the Statehouse, I am asking that you communicate directly with Chairman Ted Gray's office to establish your appearance. Normally, committee hearings are held mid-afternoon on Tuesdays.

Sincerely,

Cooper Snyder

Cooper Snyder
State Senator

CS/ja

cc: The Honorable Ted Gray, Chairman, Highways, Transportation and Local Government
The Honorable Eugene Watts

A Response to Wharton Econometric Forecasting Associates' Comments On the Bureau of Economics Study of Relevant Market Area Laws

This paper[1] responds to comments by Wharton Econometric Forecasting Associates ("WEFA")[2] concerning a 1986 Bureau of Economics Staff Report entitled "The Effects of State Entry Regulation on Retail Automobile Markets" ("Staff Report"). The Staff Report concluded on the basis of an econometric study that state relevant market area laws ("RMA laws") increase the retail prices of automobiles.[3] The WEFA comments suggest that the Staff Report's conclusions are not valid because of errors in specifications of the price model.[4] Below, we respond to WEFA's comments and affirm our earlier conclusion that RMA laws have a positive effect on retail automobile prices in areas of positive population growth.

WEFA's comments can be divided into three types: 1) criticisms that apply to any econometric analysis, 2) comments that can be empirically investigated to see if they cause changes in the conclusion of the Staff

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[1] Prepared by Alan Mathios, staff economist at the Bureau of Economics, Federal Trade Commission.

[2] WEFA, "An Evaluation of the FTC's Analysis of the Effects of RMA Laws on Auto Markets" (January 1987). The WEFA report was prepared at the request of the National Automobile Dealers Association.

[3] State relevant market area laws in general give existing franchised automobile dealers a right to challenge establishment or relocation by their franchisor of other dealerships within a certain distance of their relevant market area.

[4] In addition to criticizing the Staff Report, WEFA addresses policy reasons why RMA laws may be desirable and discounts arguments that suggest that these laws will impose costs on society. The issue of whether RMA laws raise price, however, is an empirical one. Therefore, we do not evaluate WEFA's comments regarding the policy issues but rather focus on the criticisms of the econometric model. We note, however, that the WEFA report provides no empirical validation of its view that RMA laws benefit consumers by leading to higher quality service.

Report, and 3) comments that cannot be addressed without additional data, some of which can be obtained only from the auto dealers themselves. Before discussing each of the three types of criticisms (Sections II, III, and IV respectively), Section I briefly outlines the model used in the Staff Report. Section V concludes.

I. The Staff Report Model

To examine the effects of RMA laws on the retail price of automobiles, the Staff Report developed a model of supply and demand for new automobiles, using 1978 cross section data.[5] Unlike models developed by others, the Staff Report model takes account of the possibility that variations across areas of the country in the laws regulating auto dealers may be in part due to different conditions in local auto retail markets. Previous authors have assumed that the laws are established independently of any influence by auto dealers.

In addition, the Staff Report model allows for different effects of RMA laws depending on whether or not the region is experiencing an increase in population. This latter consideration is extremely important. Laws that restrict entry of dealers into areas where there is zero or negative population growth are likely to have no effect, because in those areas it is unlikely that manufacturers would find it in their interest to start a new dealership anyway. Therefore, an econometric analysis that does not

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[5] This model is similar to the models of Smith and Eckard. See Eckard, E.W., Jr. "The Effects of State Automobile Dealer Entry Regulation on New Car Prices", *Economic Inquiry*, Vol XXIV, No. 2, (April 1985), pp. 223-42, and Smith, R.L., "Franchise Regulation: An Economic Analysis of State Restrictions on Automobile Distribution", *Journal of Law and Economics*, Vol XXV, (April 1982), pp. 125-57.

distinguish between areas with negative and positive growth is likely to mask some of the effect of RMA laws.

The effect of RMA laws on the price of automobiles is estimated from the price (supply) equation, within a multivariate framework that accounts for the effects of various factors on price. While taking account of population growth, the prices of automobiles in areas with RMA laws, are compared to those in areas where there is no law. The Staff Report concludes that in areas experiencing population growth, RMA laws have a large and statistically significant positive effect on the price of automobiles. This is the conclusion that WEFA claims is invalid, because according to WEFA, the conclusion results from a misspecification of the supply model.

II. WEFA Comments on the Econometric Analysis

We address first WEFA's assertion that the Staff Report's econometric analysis has specification errors. This is a relatively easy claim to make with respect to any econometric analysis. It is more difficult to evaluate the effect of any asserted specification error on the results of the analysis. After carefully considering the misspecifications asserted by WEFA we are unable to find any indication that the Staff Report omitted any variables that would be expected to be correlated with RMA laws. Absent a relationship with RMA laws, the omission of such variables clearly does not affect the validity of the analysis. In addition, WEFA asserts that relationships among included variables can lead to misleading or biased results. We explain below why this is untrue. Finally, WEFA mistakenly equates the total explanatory power of an econometric model with the significance of an individual variable.

WEFA asserts (p. 4) that "Viewed from the perspective of its ability to explain regional variations in the dealer margin, the FTC model is a failure. The model introduces 108 factors of which 75% have an incorrect (using FTC criterion) directional or a statistically insignificant effect on the margin". We believe this statement is misleading because it fails to consider that if the factors in the model were not explaining variation in dealer margins, using common statistical tests, 95% of the factors would be insignificant. In fact, a very simple statistic exists to determine whether the entire set of factors in a model, taken together, are statistically meaningful.[6] Each of the 9 equations in the Staff Report passes this test at more than the conventional level of significance.

WEFA also claims (p. 14) that the Staff Report demand model "leads to clearly incorrect estimated relationships" because "it introduces all the separate relevant explanatory factors individually, [where] the various explanatory factors are interrelated". This is not true.[7] Interrelated explanatory variables do not cause incorrect estimation (bias). In fact, if the estimation yields significant coefficients they are perfectly valid and

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[6] This statistic is called an F-statistic. The F-statistic is based on how much variation in the variable of interest is explained by the factors in the model.

[7] In fact, if a model has interrelated explanatory variables, the omission of any of these variables from the analysis will bias the results. To avoid misspecification, it is essential that all variables that affect the dependent variable and are interrelated with other explanatory variables be included. See Pindyck, R., and Rubinfeld, D., *Econometric Models & Economic Forecasts*, McGraw-Hill, 1981 (pp. 128-130).

correct.[8] An interrelationship among variables is an explanation only for why individual coefficients may appear to be insignificant.

According to WEFA if a relevant variable[9] is excluded from the analysis, the results concerning the included factors are not valid. This is not always true. The exclusion of relevant variables biases the estimates of the included factors only if the included factors are correlated with the excluded relevant factor.[10] WEFA's criticism of the Staff Report is unfounded because they provide no evidence of correlation between the excluded and included factors. For example, WEFA suggests that specific regional costs of owning and operating an automobile dealership should be included in the analysis. The issue is not whether these regional costs affect price (they probably do), but rather whether they differ for dealers that operate under RMA laws and those that do not. If regional costs do not differ in this way, then the estimates obtained without including the regional cost variables are unbiased.

WEFA suggests that if a model does not explain most of the variation in the variable being studied, *i.e.*, have a high R^2, then the model has not performed well.[11] For example, WEFA states (p. 21) "the objective of the

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[8] See Kmenta, J., *Elements of Econometrics*, Macmillan Publishing Co., New York, New York, 1971. Kmenta states (p. 388) "Let us now examine the connection between the degree of multicollinearity and the properties of the least squares estimators of the regression coefficients. Under the basic assumptions of the classical normal linear regression model, the least squares estimators of the regression coefficients have all the desirable properties."

[9] By relevant, we mean that the variable is important in explaining the dealer price or margin.

[10] See Pindyck, R., and Rubinfeld, D., pp. 128-130.

[11] R^2 indicates the percentage of variation in the dependent variable explained by the model.

FTC supply model was to explain regional variations in the dealer margin and to determine whether introducing RMA laws increased this margin. If essentially all the explanatory power in the average unit retail price equation comes from the unit dealer cost variable, the FTC model is not doing a good job at explaining variation in the dealer margin". If the question is whether RMA laws increase the retail price of automobiles, a statistically significant positive relationship between retail price and RMA laws is entirely sufficient to conclude that they do.[12] The percentage of the variation in retail price explained by the Staff Report model (R^2), is not a relevant consideration.

The WEFA analysis next turns to more substantial matters of misspecification. The major misspecification cited by WEFA can be analyzed by simple respecifications of the model. This is discussed below.

III. Empirical Investigation of WEFA Comments

The WEFA report claims that, rather than finding that RMA laws result in higher prices in areas that are experiencing large percentage increases in population, the Staff Report has really found that either: 1) market areas with large absolute population increases have higher retail motor vehicle prices, or 2) market areas with old RMA laws and large absolute population increases have higher retail motor vehicle prices. In particular WEFA notes (p. 4) that "since only large rapidly growing cities have large absolute population increases, the FTC may merely have documented that wage and

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[12] This conclusion assumes that there are no omitted factors that are correlated with the laws. There are many examples of empirical models where there is a low R^2 and very reliable effects on a specific factor. For example, in examining earnings across individuals, those who have more experience earn more than those with less experience. The typical R^2 in such models is approximately .2 yet the factor "experience" is statistically significant.

other dealer costs are higher in major metropolitan areas than in smaller urban areas and rural areas."

The Staff Report included the *percentage* change in population (whether positive or negative) as a factor to explain retail prices. WEFA asserts that the *absolute* change in population for areas with growing population should have been used as a factor, since a large growing city can have a small percentage increase in population but a large absolute increase. To account for this we have re-estimated the identical price (supply) equation, except that this time we have included a variable that captures whether an area has positive absolute population growth and, if so, how large an absolute growth. Our results confirm the conclusion drawn from the original equation, namely that RMA laws in areas with growing populations (whether absolute or percentage) have a positive effect on motor vehicle prices.[13]

We have also re-estimated the identical specification, except that this time we use the percentage increase in population only if positive, and zero otherwise. This will allow us to compare prices in areas with population growth and RMA laws to prices in areas with population growth but without RMA laws. The results using this variable confirm the conclusion that in growing areas, RMA laws have a positive and significant effect on the price of automobiles.[14]

The WEFA study suggests that it is more appropriate to explain dealer margins than to explain retail prices. WEFA claims that by including dealer

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[13] The new and original regression results are presented in Appendix A, along with a brief summary of the findings regarding the law variables.

[14] The regression results for the original and new specifications are given in Appendix B along with a brief summary of findings regarding the law variables.

cost as an explanatory variable, the R^2 of the equation is higher and offers a misleading indicator of performance of the model. While we do not agree with WEFA's claim[15], in the interest of completeness we have re-estimated the equation with dealer margin as the dependent variable to be explained. The results confirm our conclusion that in growing areas RMA laws have a positive effect on automobile prices.[16]

IV. WEFA Comments that Require Additional Data

We agree with WEFA that it is preferable to include dealer cost variables that are associated with the specific market area (SMSA or county level) than to use statewide averages. For example, WEFA suggests that wages should be collected for each market area, but, as WEFA notes, such data may not exist. In lieu of specific wage data, WEFA suggests using wholesale-retail trade and service-sector wage rates, which can be calculated for all the market areas. It is not clear whether these variables would be superior to statewide averages of wages specific to the auto dealer sector. This would depend on how similar auto-dealer wages are to the entire retail-wholesale trade wages versus how similar local auto dealer wages are to statewide auto dealer wages.

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[15] We have already dismissed the role of R^2 in evaluating the impact of RMA laws on the price of motor vehicles. In addition, the econometric model was originally specified as a demand and supply equation for automobiles. Consumers do not care about margins, they care about price. It is appropriate to estimate the model with price as the dependent variable and include determinants of price as explanatory variables. In fact, by including the cost of the automobile to the dealer as an explanatory variable, the Staff Report is being less restrictive since is not restricting the coefficient on this factor to be equal to 1, as is the case if dealer margin is used as the dependent variable.

[16] The results of these regressions are given in Appendix C along with a brief summary of the findings regarding the law variables.

WEFA also suggests that it would be useful to obtain data for dealerships over time and compare the prices of automobiles before the RMA laws were passed to the prices afterwards. They claim that because many of the potential omitted variables would not change over time, by comparing pre- and post-law prices we would avoid many problems. While we agree that this would be a useful additional exercise, the lack of such a comparison does not imply that the cross-sectional analysis in the Staff Report is invalid. In fact, in the time-series, cross-sectional analysis suggested by WEFA, the number of cross section observations (different dealers) will far exceed the number of time periods (the number of years of data for each dealer). Consequently, the bulk of the econometric analysis would still compare prices across dealers, rather than prices across time.

In summary, WEFA suggests that to "fix" the Staff Report model, regional differences in dealer ownership and operating cost must be properly and completely incorporated into the model. Additionally, WEFA suggests that regional differences in dealership size, sales mix within makes, dealer supplied options, and regional differences in legislation must be included. As discussed above, because WEFA provides no evidence that these variables are systematically related to the existence of RMA laws, it cannot be concluded that their omission from the Staff Report model will affect the validity of the conclusions about the effects of RMA laws.

V. Conclusion

Although WEFA has claimed that the Staff Report may be subject to specification error, WEFA provided no examples of misspecification that are likely to affect the report's conclusion. WEFA cited a few variables that

are not included in the analysis but WEFA provides no evidence that these variables differ systematically between regions that are subject to RMA laws and regions that are not, a necessary condition for obtaining biased results.

WEFA's speculation that the Staff Report has demonstrated only that rapidly growing areas have higher automobile prices has been shown to be unfounded. When controlling for the absolute growth of an area, we still find that RMA laws in areas with growing populations have a positive effect on motor vehicle prices. Other specifications of the growth variable also confirm the effects of RMA laws. Finally, examination of dealer margins instead of prices does not change the report's conclusion.

Appendix A

In this appendix we report the original and new estimates of the supply equation. The following change was made in the specification. The growth rate variable (GR) was originally defined as the ratio of the observation year population to that in 1970 (percentage change in population since 1970). The new growth variable is defined as the absolute change in population between 1970 and 1978, if positive, and zero otherwise.[17] All of the other variables are defined as they were in the original report. Obviously, this change will affect the coefficient on the growth variable. The results below reveal that while the coefficients on the RMA law variables have changed slightly, a positive impact on price in growing areas is still obtained. For example, for every model the coefficient on the interaction of the law variable and absolute population growth, IAGR1, is positive and significant. In fact, the magnitude and the level of significance of this coefficient is larger for every model type. Recall, that this is while the absolute population growth variable is being controlled for. In the following tables, coefficients with t-values greater than or equal (in absolute value) to 1.96 are significant at the 95% level. The t-values are reported under the coefficients and appear in parentheses.

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[17] To be consistent with the original specification we have transformed the absolute growth variable. The transformation is identical to the transformation of the AGR variable in the Staff Report (p. 62).

Appendix A

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978 (Dependent Variable = Log of Retail Price)

Variable	Body Type					
	Regular		Malibu		Camaro	
	Old	New	Old	New	Old	New
C	.7875	.6810	.5426	.4512	.2226	.1447
RNEW	-.0028 (-.94)	-.0027 (-0.83)	-.0032 (-1.16)	-.0028 (-0.90)	.0032 (1.10)	.0037 (1.07)
ROLD	-.1013 (-1.68)	-.1253 (-2.10)	-.0941 (-1.70)	-.1317 (-2.32)	.0395 (.66)	-.0218 (-0.34)
IAGR0	.0103 (1.49)	.0124 (1.79)	.0095 (1.52)	.0130 (1.97)	-.0067 (-.97)	-.0004 (-0.57)
IAGR1	2.0869 (4.72)	3.1406 (5.70)	1.6992 (4.17)	2.7910 (5.46)	2.8630 (6.65)	4.0269 (7.08)
IAGR1SQ	-5.348 (-1.91)	-9.5244 (-5.14)	-4.530 (-1.75)	-7.5770 (-4.36)	-9.169 (-3.42)	-13.401 (-7.10)
PW	.9077 (69.83)	.9162 (67.25)	.9306 (77.80)	.9381 (70.06)	.9926 (99.74)	.9949 (88.82)
WAGE	.0121 (1.32)	.0158 (1.76)	.0208 (2.43)	.0235 (2.73)	-.0118 (-1.28)	-.0048 (-0.51)
ADV	-.0043 (-3.61)	-.0055 (-5.00)	-.0038 (-3.43)	-.0054 (-5.04)	-.0014 (-1.14)	-.0035 (-3.01)
DENS	-.0039 (-5.46)	-.0028 (-4.18)	-.0022 (-3.38)	-.0015 (-2.26)	.0014 (1.95)	.0022 (3.05)
GR	-.0031 (-.40)	-.1755 (-2.02)	.0053 (.73)	-.1993 (-2.41)	.0150 (1.96)	-.1741 (-1.97)
FORCE	-.0135 (-2.53)	-.0162 (-2.70)	-.0121 (-2.39)	-.0170 (-2.90)	-.0071 (-1.41)	-.0106 (-1.77)
CANCEL	.0174 (3.34)	.0226 (3.81)	.0172 (3.52)	.0241 (4.19)	.0074 (1.48)	.0137 (2.29)
LD	-.0131 (-2.47)	-.0107 (-1.90)	-.0160 (-3.14)	-.0146 (-2.65)	-.0116 (-2.22)	-.0090 (-1.54)

Appendix A

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978
(Dependent Variable = Log of Retail Price)

Variable	Body Type					
	Nova		Monte Carlo		Monza	
	Old	New	Old	New	Old	New
C	.7723	.6915	.4099	.3389	.6682	.5303
RNEW	-.0006 (-.20)	-.0006 (-.21)	-.0023 (-.82)	-.0022 (-.72)	-.0045 (1.28)	-.0041 (-1.12)
ROLD	.0155 (0.30)	-.0260 (-0.51)	-.0990 (-1.79)	-.1184 (-2.21)	-.0231 (-.32)	-.0951 (-1.42)
IAGR0	-.0024 (-.40)	.0021 0.35)	.0100 (1.58)	.0120 (1.91)	.0008 .09	.0086 (1.10)
IAGR1	1.5946 (4.06)	2.1550 (4.60)	1.7007 (4.02)	2.3502 (4.59)	1.3734 (2.79)	2.6807 (4.64)
IAGR1SQ	-5.024 (-2.03)	-7.4424 (-4.67)	-4.621 (-1.73)	-7.7015 (-4.52)	-.9754 (-.31)	-8.0685 (-4.14)
PW	.9067 (90.34)	.9112 (87.77)	.9495 (81.92)	.9540 (79.95)	.9235 (104.7)	.9275 (104.34)
WAGE	.0151 (1.72)	.0207 (2.57)	.0172 (1.96)	.0213 (2.57)	.0163 (.95)	.0243 2.50)
ADV	-.0021 (-1.96)	-.0035 (-3.47)	-.0027 (-2.44)	-.0037 (-3.63)	-.0015 (-1.04)	-.0044 (-3.58)
DENS	-.0007 (-1.10)	-.0003 (-0.56)	-.0021 (-3.05)	-.0014 (-2.25)	-.0016 (-1.84)	-.0003 (-0.41)
GR	.0108 (1.54)	-.0768 (-1.02)	.0017 (.23)	-.0908 (-1.13)	.0201 (2.22)	-.1485 (-1.64)
FORCE	.0031 (0.63)	.0013 (0.24)	-.0162 (-3.22)	-.0172 (-3.14)	-.0062 (-1.00)	-.0075 (-1.17)
CANCEL	.0036 (.76)	.0071 (1.35)	.0179 (3.68)	.0206 (3.83)	.0128 (2.09)	.0183 (2.88)
LD	-.0087 (-1.82)	-.0076 (-1.54)	-.0121 (-2.37)	-.0103 (-1.96)	-.0168 (-2.77)	-.0118 (-2.02)

Appendix A

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978 (Dependent Variable=Log of Retail Price)

Variable	Body Type					
	Chevette		Sportvan		Corvette	
	Old	New	Old	New	Old	New
C	.5561	.4336	.2245	.1123	.4131	.2340
RNEW	-.0025 (-.81)	-.0027 (-0.77)	-.0077 (-1.61)	-.0080 (-1.58)	.0033 (.36)	.0053 (0.57)
ROLD	-.0672 (-1.03)	-.1037 (-1.61)	-.0280 (-.24)	-.0831 (-0.79)	.3033 (1.69)	.3303 (1.97)
IAGR0	.0053 (.70)	.0089 (1.18)	.0012 (.09)	.0077 (0.62)	-.0402 (-1.95)	-.0447 (-2.32)
IAGR1	1.9861 (4.33)	3.2553 (5.65)	1.7323 (3.45)	2.1992 (3.59)	3.1587 (2.36)	6.4510 (4.24)
IAGR1SQ	-4.4453 (-1.54)	-9.9334 (-5.21)	-3.6972 (-1.31)	-7.4675 (-3.69)	-1.7200 (-.21)	-15.84 (-3.08)
PW	.9289 (95.60)	.9368 (88.95)	.9649 (89.67)	.9688 (89.24)	.9743 (39.72)	.9806 (38.62)
WAGE	.0198 (1.99)	.0268 (2.81)	.0222 (1.39)	.0336 (2.33)	.0044 (.15)	.0186 (0.73)
ADV	-.0038 (-2.99)	-.0057 (-4.81)	-.0056 (-2.76)	-.0070 (-3.96)	.0002 (0.06)	-.0035 (-1.07)
DENS	-.0005 (-.66)	.0008 (1.09)	-.0018 (-1.72)	-.0006 (-0.61)	-.0087 (-3.82)	-.0046 (-2.33)
GR	-.0022 (-.27)	-.1941 (-2.13)	-.0060 (-.46)	-.0602 (-0.68)	-.0169 (-.70)	-.5242 (-2.21)
FORCE	-.0096 (-1.71)	-.0121 (-1.93)	-.0120 (-1.60)	-.0097 (-1.28)	-.0031 (-.19)	-.0041 (-0.25)
CANCEL	.0186 (3.38)	.0246 (3.92)	.0222 (3.25)	.0234 (3.34)	.0124 (.79)	.0217 (1.32)
LD	-.0212 (-3.93)	-.0174 (-3.10)	-.0050 (-.67)	-.0030 (-0.40)	.0222 (1.37)	.0344 (2.18)

Appendix B

In this appendix we report the original and new estimates of another specification of the supply equation. The following change was made in the specification. The growth rate variable, GR, was changed from the actual percentage growth rate to the growth rate if positive, otherwise zero. All of the other variables are defined as they were in the original report. It is clear from the results below that the specification is not sensitive to this change in the growth rate variable. Like the original specification, the interaction of the law variable and areas with population growth is positive and significant in all 9 equations. In the following tables, coefficients with t-values of greater than or equal (in absolute value) to 1.96 are significant at the 95% level. The t-values are reported under the coefficients and appear in parentheses.

Appendix B

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978 (Dependent Variable = Log of Retail Price)

Variable	Body Type					
	Regular		Malibu		Camaro	
	Old	New	Old	New	Old	New
C	.7875	.7803	.5426	.5327	.2226	.2119
RNEW	-.0028 (-.94)	-.0029 (-.98)	-.0032 (-1.16)	-.0032 (-1.21)	.0032 (1.10)	.0032 (1.08)
ROLD	-.1013 (-1.68)	-.1091 (-1.84)	-.0941 (-1.70)	-.1060 (-1.93)	.0395 (.66)	.0196 (.33)
IAGR0	.0103 (1.49)	.0112 (1.65)	.0095 (1.50)	.0109 (1.73)	-.0067 (-.97)	-.0044 (-.64)
IAGR1	2.0869 (4.72)	2.073 (4.69)	1.6992 (4.17)	1.6939 (4.14)	2.8683 (6.65)	2.883 (6.69)
IAGR1SQ	-5.348 (-1.91)	-5.39 (-1.93)	-4.530 (-1.75)	-4.619 (-1.78)	-9.169 (-3.42)	-9.315 (-3.47)
PW	.9077 (69.83)	.908 (69.78)	.9306 (77.80)	.9314 (77.43)	.9926 (99.74)	.9924 (99.54)
WAGE	.0121 (1.32)	.012 (1.33)	.0208 (2.43)	.0213 (2.49)	-.0118 (-1.28)	-.0102 (-1.11)
ADV	-.0043 (-3.61)	-.0043 (-3.66)	-.0038 (-3.43)	-.0389 (-3.54)	-.0014 (-1.14)	-.0017 (-1.42)
DENS	-.0039 (-5.46)	.0039 (-5.41)	-.0022 (-3.38)	-.0022 (-3.34)	.0014 (1.95)	.0013 (1.86)
GR	-.0031 (-.40)	-.0024 (-.30)	.0053 (.73)	.0050 (.66)	.0150 (1.96)	.0095 (1.19)
FORCE	-.0135 (-2.53)	-.0138 (-2.58)	-.0121 (-2.39)	-.0125 (-2.45)	-.0071 (-1.41)	-.0075 (-1.49)
CANCEL	.0174 (3.34)	.0177 (3.39)	.0172 (3.52)	.0177 (3.59)	.0074 (1.48)	.0080 (1.60)
LD	-.0131 (-2.47)	-.0132 (-2.48)	-.0160 (-3.14)	-.0161 (-3.15)	-.0116 (-2.22)	-.0116 (-2.23)

Appendix B

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978 (Dependent Variable=Log of Retail Price)

Variable	Body Type					
	Nova		Monte Carlo		Monza	
	Old	New	Old	New	Old	New
C	.7723	.7672	.4099	.4073	.6682	.6641
RNEW	-.0006 (-.20)	-.0007 (-.26)	-.0023 (-.82)	-.0023 (-.84)	-.0045 (-1.28)	-.0046 (-1.30)
ROLD	.0155 (0.30)	.0095 (.19)	-.0990 (-1.79)	-.1036 (-1.91)	-.0231 (-.32)	-.0309 (-.43)
IAGR0	-.0024 (-.40)	-.0017 (-.28)	.0100 (1.58)	.0106 (1.69)	.0008 (.09)	.0017 (.20)
IAGR1	1.5946 (4.06)	1.5921 (4.05)	1.7007 (4.02)	1.6952 (4.00)	1.3734 (2.70)	1.3833 (2.73)
IAGR1SQ	-5.024 (-2.03)	-5.14 (-2.08)	-4.621 (-1.73)	-4.6641 (-1.74)	-.9754 (-.31)	-1.109 (-.35)
PW	.9067 (90.34)	.9071 (90.32)	.9495 (81.92)	.9497 (81.91)	.9235 (104.7)	.9234 (105.04)
WAGE	.0151 (1.72)	.0154 (1.76)	.0172 (1.96)	.0173 (1.99)	.0103 (.95)	.0109 (1.02)
ADV	-.0021 (-1.96)	-.0022 (-2.00)	-.0027 (-2.44)	-.0027 (-2.48)	-.0015 (-1.04)	-.0016 (-1.13)
DENS	-.0007 (-1.10)	-.0007 (-1.01)	-.0021 (-3.05)	-.0020 (-3.00)	-.0016 (-1.84)	-.0015 (-1.77)
GR	.0108 (1.54)	.0121 (1.65)	.0017 (.23)	.0021 (.27)	.0201 (2.22)	.0193 (2.05)
FORCE	.0031 (.63)	.0031 (.63)	-.0162 (-3.22)	-.0163 (-3.23)	-.0062 (-1.00)	-.0062 (-.99)
CANCEL	.0036 (.76)	.0037 (.78)	.0179 (3.68)	.0180 (3.70)	.0128 (2.09)	.0128 (2.10)
LD	-.0087 (-1.82)	-.0088 (-1.83)	-.0121 (-2.37)	-.0122 (-2.37)	-.0168 (-2.77)	-.0168 (-2.78)

Appendix B

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978 (Dependent Variable=Log of Retail Price)

Variable	Body Type					
	Chevette		Sportvan		Corvette	
	Old	New	Old	New	Old	New
C	.5561	.5474	.2245	.2191	.4131	.4097
RNEW	-.0025 (-.81)	.0026 (-.82)	-.0077 (-1.61)	-.0077 (-1.60)	.0033 (.36)	.0037 (.41)
ROLD	-.0672 (-1.03)	-.0813 (-1.26)	-.0280 (-.24)	-.0353 (-.31)	.3033 (1.69)	.3059 (1.72)
IAGR0	.0053 (.70)	.0069 (.93)	.0012 (.09)	.0020 (.16)	-.0402 (-1.95)	-.0405 (-1.99)
IAGR1	1.9861 (4.33)	1.9853 (4.31)	1.7323 (3.45)	1.7278 (3.44)	3.1587 (2.36)	3.1541 (2.35)
IAGR1SQ	-4.4453 (-1.54)	-4.4903 (-1.55)	-3.6972 (-1.31)	-3.7050 (-1.31)	-1.7200 (-.21)	-1.1508 (-.18)
PW	.9289 (95.60)	.9292 (95.16)	.9649 (89.67)	.9652 (89.68)	.9743 (39.72)	.9741 (39.51)
WAGE	.0198 (1.99)	.0207 (2.08)	.0222 (1.39)	.0226 (1.43)	.0044 (.15)	.0051 (.18)
ADV	-.0038 (-2.99)	-.0040 (-3.16)	-.0056 (-2.76)	-.0057 (-2.83)	.0002 (.06)	.00005 (.01)
DENS	-.0005 (-.66)	-.0006 (-.73)	-.0019 (-1.72)	-.0019 (-1.73)	-.0087 (-3.82)	-.0088 (-3.82)
GR	-.0022 (-.27)	-.0053 (-.62)	-.0060 (-.46)	-.0071 (-.53)	-.0169 (-.70)	-.0234 (-.93)
FORCE	-.0096 (-1.71)	-.0102 (-1.80)	-.0120 (-1.60)	-.0122 (-1.62)	-.0031 (-.19)	-.0035 (-.22)
CANCEL	.0186 (3.38)	.0192 (3.48)	.0222 (3.25)	.0224 (3.28)	.0124 (.79)	.0126 (.80)
LD	-.0212 (-3.93)	-.0212 (-3.92)	-.0050 (-.67)	-.0050 (-.68)	.0222 (1.37)	.0222 (1.37)

Appendix C

In this appendix we report the estimates of the dealer margin equation. As opposed to the original specifications the following table uses the dealer margin as the dependent variable. Since the dealer's unit cost (cost of the car to the dealer) is part of the dependant variable it is no longer used as either a regressor or as an instrumental variable. The growth rate variable as specified in appendix B (rather than the absolute growth variable or the original growth variable) was used in the analysis. All of the other explanatory variables are defined as they were in the original report. The dependent variable is simply defined as the difference of the log of retail price and the log of dealer's cost. This represents the percent markup to the dealer. Obviously, the estimated coefficient vector will change since we are now explaining dealer margins. The results in the tables show that in 8 of the 9 model types the interaction of the law and population growth variable is still positive and significant. In the following tables, coefficients with t-values of greater than or equal (in absolute value) to 1.96 are significant at the 95% level. The t-values are given under the coefficient and appear in parentheses.

Appendix C

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978
(Dependent Variable=Dealer Margin)

Variable	Body Type				
	Regular	Monte Carlo	Malibu	Camaro	Nova
C	-.0450	-.0401	-.0854	.1379	-.1003
RNEW	-.0053 (-1.75)	-.0025 (-0.88)	-.0050 (-1.73)	.0028 (0.96)	-.0035 (-1.25)
ROLD	-.1795 (-3.01)	-.1311 (-2.40)	-.1715 (-3.05)	.0133 (0.22)	-.0955 (-1.85)
IAGR0	.0195 (2.85)	.0139 (2.21)	.0183 (2.84)	-.0037 (-0.54)	.0106 (1.78)
IAGR1	1.7217 (3.73)	1.5557 (3.59)	1.4993 (3.43)	2.9117 (6.69)	1.1381 (2.87)
IAGR1SQ	-5.7698 (-1.98)	-4.9421 (-1.82)	-4.7864 (-1.73)	-9.6570 (-3.59)	-4.8222 (-1.85)
WAGE	.0192 (2.04)	.0204 (2.31)	.0281 (3.11)	-.0087 (-0.96)	.0317 (3.59)
ADV	-.0042 (-3.42)	-.0027 (-2.42)	-.0041 (-3.55)	-.0018 (-1.55)	-.0030 (-2.70)
DENS	-.0033 (-4.47)	-.0016 (-2.34)	-.0020 (-2.88)	.0014 (2.04)	-.0001 (-0.18)
GR	-.0041 (-0.49)	.0013 (0.17)	.0034 (0.42)	.0098 (1.22)	.0114 (1.48)
FORCE	-.0177 (-3.22)	-.0188 (-3.71)	-.0186 (-3.57)	-.0081 (-1.61)	-.0064 (-1.28)
CANCEL	.0207 (3.87)	.0188 (3.82)	.0230 (4.53)	.0090 (1.82)	.0118 (2.44)
LD	-.0197 (-3.65)	-.0161 (-3.15)	-.0238 (-4.64)	-.0127 (-2.49)	-.0184 (-3.78)

Appendix C

The Estimated Regression Coefficients for the Retail Supply Equation for the Nine Chevy Auto Body-Types for 1978 (Dependent Variable=Dealer Margin)

Variable	Body Type			
	Monza	Chevette	Sportvan	Corvette
C	-.0422	-.1281	-.1444	.1645
RNEW	-.0080 (-2.18)	-.0062 (-1.95)	-.0086 (-1.80)	.0032 (1.36)
ROLD	-.1443 (-1.95)	-.1596 (-2.44)	-.1096 (-1.02)	.2982 (1.71)
IAGR0	.01497 (1.76)	.0162 (2.16)	.0109 (0.87)	-.0395 (-1.87)
IAGR1	.8204 (1.54)	1.7638 (3.67)	1.6019 (3.20)	1.1715 (2.35)
IAGR1SQ	.7973 (0.24)	-4.1036 (-1.36)	-3.9513 (-1.40)	-1.8699 (-0.24)
WAGE	.0027 (2.05)	.0360 (3.61)	.0321 (2.05)	.0166 (0.24)
ADV	-.0027 (-1.81)	-.0054 (-4.25)	-.0067 (-3.41)	.0001 (0.03)
DENS	-.0014 (-1.50)	-.0004 (-0.54)	-.0014 (-1.28)	-.0083 (-3.71)
GR	.0181 (1.83)	-.0055 (-0.63)	-.0080 (-0.60)	-.0228 (-0.92)
FORCE	-.0145 (-2.24)	-.0145 (-2.50)	-.0146 (-1.98)	-.0029 (-0.18)
CANCEL	.0206 (3.31)	.0243 (4.33)	.0243 (3.61)	.0119 (0.76)
LD	-.0237 (-3.80)	-.0244 (-4.35)	-.0103 (-1.45)	.0224 (1.39)