THE DANE DIFFERENCE

Why Does Wisconsin's Health Insurance Exchange for State Employees in Dane County Get Much Lower Premiums Than Its Exchanges in the State's 71 Other Counties? What Lessons Can Policymakers Learn?

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EXECUTIVE SUMMARY

During the next few years, states and the federal government will likely seek solutions to control costs and improve quality in the Affordable Care Act (ACA) health insurance marketplaces. State and federal policymakers should look carefully at the decades-long success of the Wisconsin State Employee Health Plan (WSEHP) in controlling the rapid rise of health insurance costs in Dane County—where Madison, Wisconsin's state capital, and the University of Wisconsin, are located—as they seek to improve the effectiveness of the ACA's marketplaces and health insurance costs in general.

The WSEHP consistently obtains substantially lower health insurance premiums in Dane County than in Wisconsin's 71 other counties. In 2013, an individual plan in the WSEHP was about $1,400 cheaper annually in Dane County, or 16% less than the average in the rest of the state; and a family plan was about $3,500 cheaper, also a 16% difference. This Dane difference has existed for at least a decade, with the gap slowly widening over that time.

Why does WSEHP get much lower premiums in Dane County than in the state's 71 other counties, and what lessons can policymakers learn from this difference?

The WSEHP is one of the longest-running health insurance exchanges programs in the United States, predating the Massachusetts Connector by over 25 years. Since 1983, the WSEHP has provided health insurance for over 72 health insurance exchanges—one exchange for each county in Wisconsin. While it could be argued that the WSEHP operates a single exchange that uses 72 bidding areas, plans are free to choose the individual counties or clusters of counties in which they want to bid. Participating HMOs have historically selected and modified their bidding regions in ways that frequently overlap. These facts make it reasonable to describe Wisconsin's structure as consisting of 72 separate exchanges. Whether the WSEHP is defined as operating a single exchange with 72 bidding areas, or as overseeing 72 separate exchanges, the analysis that follows is the same.

Since 2003, the operational structure of the WSEHP has remained essentially unchanged. Over 70,000 state employees (which amounts to more than 210,000 covered lives) make an annual choice of a health insurance plan via the "It's Your Choice" decision guide. The guide presents the standard benefits package, the health insurance options available in each county, information on cost, plan descriptions, and a quality report card.

The HMOs available in each county are organized into three cost tiers. Employees pay the least to enroll in the lowest-cost Tier 1 plans. They must pay significantly more if they select a higher-cost Tier 2 plan, and even more if they choose to enroll in a highest-cost Tier 3 plan. Therefore, most state employees select lower-cost Tier 1 plans; very few select a more expensive (to them) and more costly (in terms of total premium) Tier 2 plan (if available) or tier 3 plan.

In the few counties where no private HMO has submitted a bid that qualifies for Tier 1, state employees may enroll in a State Maintenance Plan HMO administered by an insurance company that is placed in Tier 1. There is also a statewide PPO that, because of its cost, is placed in Tier 3. Thus, as state employees in any Wisconsin county shop among the available plans and make their selections, their choices are driven by the cost to them of picking a particular plan, the competing plans' network of providers, and the plans' reputation for quality.

After carefully studying the WSEHP's structure, assessing the premiums bid in all 72 counties, and conducting detailed bivariate and multivariate statistical analyses, we identified and tested seven variables that may explain why the Dane exchange produces such dramatically lower HMO premiums than in the rest of the state: (1) the relative size of the insurance pool, (2) the risk profile of the insurance pool, (3) provider characteristics, (4) the quality of the plans, (5) integrated delivery systems, (6) the intensity of the competition, and (7) program management.

1) THE RELATIVE SIZE OF THE INSURANCE POOL

The Dane County exchange has a much larger pool of purchasers as a share of the county's population, which may explain why the Dane exchange commands lower premiums. The number of state employees, their spouses, partners, and dependent children who buy health insurance through the WSEHP's exchange in Dane County constitutes 26.5% of the county's total potential market for individual and group health insurance (private insurance market), far higher than in any other county's exchange. Only seven other counties even achieve double-digit percentage shares, while enrollees in the WSEHP account for less than 10% of the private insurance market in the other 64 counties.

In short, the WSEHP exchange in Dane County results in a very big volume of buying power while each of the WSEHP's other 71 exchanges results in only small-scale buying power. Since a big buy typically commands lower prices, the Dane exchange's big buy may contribute to its lower premiums. Our analysis shows the high level of the WSEHP's market share in Dane County was one of the variables that may help explain the Dane difference.

2) THE RISK PROFILE OF THE INSURANCE POOL

It is often hypothesized that the population of Dane County is younger, wealthier, and healthier, and that Dane residents have better health behaviors than the rest of Wisconsin. Thus, it is suggested, the risk profile of the WSEHP exchange in Dane County is better than the rest of the state, and therefore cheaper to insure.

In our multivariate analysis, median income of the county's entire population emerged as a potential explanatory factor for the Dane difference. It is possible that median income acts as a proxy for education level, health knowledge, and health behaviors. However, other factors, including the county's average age, differences in gender, overall health ranking, diabetes rate, cancer rate, and low birth weight rate, had no statistically significant explanatory value for the Dane difference.

These conclusions are limited to the counties' entire populations. We did not specifically analyze the risk profile of the pool of WSEHP enrollees, though this is an area for future research.

3) PROVIDER CHARACTERISTICS

As with most states, Wisconsin's counties vary when it comes to physician-to-population ratios, the number of hospitals per county, and hospital reimbursement rates. Did the Dane exchange achieve better premiums because it differed significantly from the other 71 counties on these measures? For example, the Dane exchange's premiums might be lower if, for exogenous reasons, Dane hospitals simply charged lower rates.

Our analysis indicates that differences among providers are not explanatory factors. Neither the ratio of physicians to population, nor the number of hospitals in a county, nor hospital reimbursement rates, explain why the Dane exchange got lower premiums than the state's other 71 exchanges.

4) THE QUALITY OF THE PLANS

The Dane County exchange has four "homegrown" health care plans: Dean Health Plan, Group Health Cooperative of South Central Wisconsin, Physicians Plus, and Unity. Each achieves high quality ratings from the members of the WSEHP and from outside evaluators. The WSEHP presents consumers with an "overall quality score" for each plan that is based on composite quality measures gathered by Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys and the Healthcare Effectiveness Data and Information Set (HEDIS) in the areas of wellness and prevention, mental health, disease management, and consumer satisfaction and experiences.

The Dane County plans scored a non-weighted average of 3.25 out of 4.00 (higher being more satisfactory). This was the highest average quality rating of any county in the state. Twelve counties achieved the next highest score of 3.00. Of the twelve 3.00 scores, six counties offered a Dane County plan. Our research indicates that the relatively higher quality of the Dane exchange's HMOs may help explain its lower premiums.

5) INTEGRATED DELIVERY SYSTEMS

Only integrated delivery systems compete in the Dane County exchange, and the HMO plans in Dane County are four of only seven integrated health delivery systems that compete in the entire WSEHP. Integrated delivery systems coordinate providers and insurers—that share a bottom line—to achieve lower premiums. The plans competing in Dane County may thus be inherently more cost-effective in delivering health care services. While some of the other 71 exchanges offer some (but not all) of the Dane County HMOs, our analysis suggests that the Dane exchange's unique structure of competition among integrated delivery systems only—as well as its greater number of competing integrated delivery systems compared to the other 71 exchanges—may explain why the Dane exchange gets lower premiums.

6) THE INTENSITY OF THE COMPETITION

Dane County's exchange may achieve lower premiums because of more health plan competition, *period*. This increased competition is evident in both the absolute number of plans the Dane exchange offers (four), and the ratio of HMOs to the number of state employees or covered lives in the county in general. A simple difference in the number of competing plans, *regardless* of the quality of the plans or the integrated structure of the plans, might trigger competitive forces that have a positive impact on holding down the Dane exchange's premiums.

Our research indeed suggested that the greater level of competition found in Dane County may contribute to its lower premiums.

7) PROGRAM MANAGEMENT

It is possible that the Dane exchange benefits from the WSEHP administrators' putting more effort into controlling costs in Dane County than in the other 71 counties. Approximately half of state employees live in Dane County. Cost control efforts there could produce bigger paybacks. It is conceivable that the WSEHP staff, while on the surface treating all exchanges alike, nonetheless applied more "elbow grease" or "arm twisting" in the Dane exchange.

We saw little evidence that the management of the exchange by Wisconsin's Department of Employee Trust Funds was an explanatory factor. The one potential exception is the managers' risk adjustment methodology, which has a regional component that may impact premium pricing. The data underlying this and other adjustments were not available to us; thus, this is an issue for further research.

POLICY IMPLICATIONS

In short, Dane County's lower premiums appear to stem largely from the Dane exchange's very high share of the private health insurance market; the relatively higher median income of the Dane County population (and

thus, presumably, Dane County members of the WSEHP); and the Dane County exchange's use of a large number of integrated delivery systems of high quality.

Wisconsin's experience in creating and operating 72 health insurance exchanges over the last several decades provides several important—indeed, compelling—lessons for policymakers. Our research into the Dane difference is particularly useful for state and federal policymakers who are looking for ways to refine the ACA's marketplaces to better control costs and improve quality.

Interestingly, all four integrated delivery systems that compete in the WSEHP in Dane County have also competed for two years in Wisconsin's federally facilitated ACA Marketplace in Dane County (which itself comprises one of the Marketplace's bidding regions in Wisconsin). Our analysis of silver plan premiums for 2014 for a 27 year-old individual shows that the ACA exchange in Dane County also achieves significantly lower premiums than the ACA's exchanges in Wisconsin's other counties. The same pattern holds regardless of age.

Based on the strength of our evidence, it would be reasonable for policymakers to conclude that an exchange is far more likely to hold down premiums and costs, without sacrificing quality, if the exchange also has at least one, and optimally more than one, of the following features:

1) The exchange's pool comprises a very large percentage of the privately insured lives in the exchange's bidding region;
2) The exchanges offers a large number of high-quality plans; and
3) Those plans are integrated delivery systems.

These conclusions assume that the exchange provides pooled members with a standard benefit package, and that it offers them a clear economic incentive to choose a low-premium health care plan by requiring them to pay a portion, if not the full extra cost, of a plan that offers a higher premium.

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This project's academic partner was University of Wisconsin Professor of Population Health Sciences John Mullahy, PhD (http://www.pophealth.wisc.edu/faculty/jmullahy.html), and Erik Bakken, MPAff., a graduate research assistant at the University of Wisconsin's Robert M. La Follette School of Public Affairs (http://www.lafollette.wisc.edu).

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- **Lisa Ellinger**, Administrator, Division of Insurance Services, Wisconsin Department of Employee Trust Funds; and
- **Kima Taylor, MD**, Program Director, National Drug Addiction Treatment and Harm Reduction Program, Open Society Foundations.

This report will be disseminated to interested audiences in Wisconsin and across the country. The authors would be pleased to discuss this report with anyone interested in its findings or attempting to replicate the results. We have also developed several areas for further inquiry, and would be pleased to partner with any organization interested in further research into controlling health insurance costs using managed competition within the framework of a health insurance exchange.

[1] See: http://www.dhs.wisconsin.gov/hw2020/

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INTRODUCTION

Health care reform has been a recurrent topic in Wisconsin and national politics for decades, but it has been particularly newsworthy in the last five years due to the passage of the Affordable Care Act (ACA). During the next few years, states and the federal government will likely seek solutions to control costs and improve quality in the ACA's marketplaces. State and federal policymakers should look carefully at the decades-long experience of the Wisconsin State Employee Health Plan (WSEHP) with controlling the rapid rise in health insurance costs Dane County, Wisconsin, as they seek to improve the effectiveness of the ACA's marketplaces and health insurance costs in general.

The lessons drawn from Dane County will become particularly pertinent for the future implementation and success of the ACA. The ACA marketplaces have already concluded their first round of open enrollment in health insurance exchanges—now known officially as marketplaces. States and the federal government are now wrapping up the second round of review, bidding, plan selection, and open enrollment. The lessons from Dane County may be able to help states and the federal government to establish marketplaces that better control costs and improve quality.

This report identifies the differences between the health insurance exchanges operated for state employees in Dane County and those operated in Wisconsin's other 71 counties, analyzes the potential causes of those differences and impacts on premiums, and makes recommendations for ACA marketplaces, i.e., how the structure, rules, competition, participant pool, etc., might be organized to better control costs and improve quality.

WSEHP OVERVIEW

The WSEHP, managed by the Group Insurance Board (GIB) and staffed within Wisconsin's Department of Employee Trust Funds (ETF), uses a managed competition model to provide health insurance to over 70,000 state employees, which amounts to more than 210,000 covered lives in the plan, within the framework of health insurance exchanges. In a managed competition model, the health insurance marketplace is constructed to incentivize low-cost and high-quality performance.[2] Both insurers and healthcare providers are subjected to a classical/rational economics model in order to prevent price-fixing and collusion within the marketplace. Competing entities are rewarded or penalized based on performance in pricing, quality, and outcomes.[3]

Since 1983, the WSEHP has operated health insurance exchanges for state employees, on a county-by-county basis, in all of Wisconsin's 72 counties. Since 2003, the rules that the WSEHP follows in operating these exchanges have remained essentially unchanged. The WSEHP is one of the longest-running managed competition programs in the United States. It preceded by over 25 years the Massachusetts Connector, which was the model for the exchanges that the ACA required each state or the federal government to establish for each state in 2014.[4]

According to the Wisconsin Legislative Fiscal Bureau (LFB), the GIB must offer state employees "at least two insured or self-insured health care coverage plans providing substantially equivalent hospital and medical benefits, including a

[2] Scanlon D, Chernew M, Swaminathan S, Lee W. Competition in Health Insurance Markets: Limitations of Current Measures for Policy Analysis. Med Care Res Rev. 2006; 63 (6): p. 37s-55s.
[3] Enthoven AC. The History and Principals of Managed Competition. Health Aff. 1993; 12: suppl 1: p. 24-48.
[4] Wisconsin chose not to create its own exchanges.

health maintenance organization or a preferred provider plan, if those health care plans are determined by GIB to be available in the area of the employee's place of employment and are approved by the Board."[5] The LFB report continues:

> GIB is required to place each of the plans into one of three premium payment tiers established in accordance with standards adopted by the Board. The tiers must be separated according to the employee's share of premium costs. Tier 1 plans (the most cost efficient plans) require the lowest monthly contribution on the part of employees. Tier 2 plans (less efficient) require a higher employee contribution, and tier 3 plans (least efficient) require the highest employee contributions. In 2013, 23 HMO plans and the [State Maintenance Plan (SMP)][6] are classified in tier 1 plans, no plans are in tier 2, and two HMO plans and the standard plan[7] are classified as tier 3 plans.
>
> The three-tier approach utilized by GIB is a managed competition approach that requires the HMOs to manage costs and the health status of members to meet certain target levels each year. If targets are not met, the plans will be classified as tier 2 or 3 plans that require higher employee contributions; therefore, fewer employees will utilize the less efficient plans.

Employees make an annual choice of a health insurance plan via the "It's Your Choice" decision guide.[8] The guide presents the health insurer options available in each county along with cost, health plan descriptions, and a quality report card comparing each plan on several quality metrics.

While it could be argued that the WSEHP operates a single exchange that uses 72 bidding areas, plans are free to choose the individual counties or clusters of counties in which they want to bid. Participating HMOs have historically selected and modified their bidding regions in ways that frequently overlap. These facts make it reasonable to describe Wisconsin's structure as consisting of 72 separate exchanges. Whether the WSEHP is defined as operating a single exchange with 72 bidding areas, or as overseeing 72 separate exchanges, the analysis that follows is the same.

The managed competition approach has achieved positive overall results. According to a Deloitte study of cost containment strategies utilized by selected states, the GIB's health insurance actuary concluded that the "[e]xperience-based average annual trend on allowed charges from 2008 - 2013 was 5.2%, a level 4.1% less than normative national

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[5] Legislative Fiscal Bureau. Paper #257. May 21, 2013. http://legis.wisconsin.gov/lfb/publications/budget/2013-15%20Budget/Documents/Budget%20Papers/257.pdf

[6] The State Maintenance Plan, administered by WPS insurance company, is a tier 1 plan with the Uniform Benefits package, and is made available by ETF in counties where no other tier 1 plan exists. Source: http://legis.wisconsin.gov/lfb/publications/budget/2013-15%20Budget/Documents/Budget%20Papers/257.pdf and http://etf.wi.gov/publications/iyc14/et2107d.pdf

[7] The standard plan, administered by WPS insurance company, is a tier 3 statewide PPO plan available in each county. According to the Wisconsin Legislative Fiscal Bureau: the standard plan is "a self-insured, preferred provider plan (members have comprehensive freedom of choice among hospitals and physicians) with a somewhat different, but substantially equivalent, schedule of benefits. The standard plan has a higher premium cost and a higher employee premium contribution amount than required of those choosing the HMO plans. The standard plan also requires a deductible to be paid before the plan provides cost coverage; the HMO plans do not require a deductible." Finally, the standard plan has higher annual out-of-pocket limits than the HMO plans." Source: http://legis.wisconsin.gov/lfb/publications/budget/2013-15%20Budget/Documents/Budget%20Papers/257.pdf ETF provides a tool to compare the benefits offered by the Uniform Benefits package and the standard plan. The standard plan's premiums are nearly twice the state average. See: http://etf.wi.gov/publications/iyc14/et2107d.pdf for more details.

[8] See: http://etf.wi.gov/publications/iyc14/et2107d.pdf

average trend surveys of 9.3%. As such, there is strong evidence that the approach … being used [in the WSEHP] is having an impact on lowering … and containing costs."[9]

What the Deloitte study does not emphasize is that the WSEHP has achieved dramatically lower costs in Dane County than in Wisconsin's other 71 counties. This project specifically researched the nature and potential causes of this "Dane Difference." This project also sought to draw lessons from the WSEHP's experience in operating health insurance exchanges and, in particular, its greater success in Dane County in controlling premiums without sacrificing quality.

MAIN RESEARCH ISSUE: WHY IS THE COST OF HEALTH INSURANCE IN DANE COUNTY SO MUCH CHEAPER THAN IN THE REST OF WISCONSIN?

The primary focus of this research is to explain the underlying reasons for the difference in premiums between Dane County and Wisconsin's other 71 counties. This difference has consistently occurred between WSEHP's exchange in Dane County and the WSEHP's exchanges in the rest of the state.

In 2013, an individual plan in the WSEHP was about $1,400 (16%) cheaper in Dane County than the WSEHP average premium in Wisconsin's other 71 counties. A family plan was about $3,500 (16%) cheaper.

Figure 1. Comparison of the WSEHP Average Premiums

	Average Annual Individual Premium	Standard Deviation of Individual Premium	Average Annual Family Premium	Standard Deviation of Family Premium
Dane County	$7,396.50	$54.19	$18,434.40	$136.70
Other Counties	$8,780.25	$25.64	$21,909.55	$122.47
Difference	**$1,383.75**	**$28.55**	**$3,475.15**	**$14.23**

In the last couple of years, the difference has grown smaller, but the 10-year trend points towards a widening of the gap. This trend is shown in Figures 2 and 3 below.

[9] "Medical Cost Containment Strategies for Key States." Deloitte. April 22, 2013. http://etf.wi.gov/boards/agenda-items-2013/gib20130225/item6a.pdf

Figure 2. Cost Trend of Individual Monthly Premiums in the WSEHP

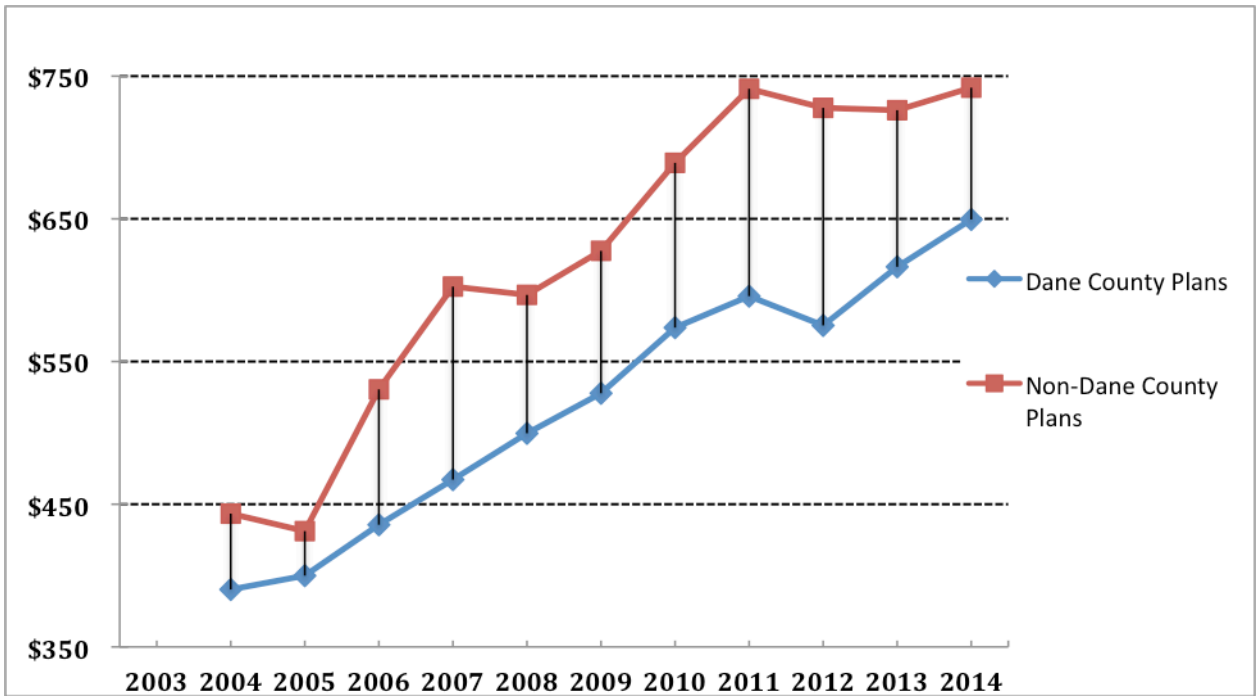
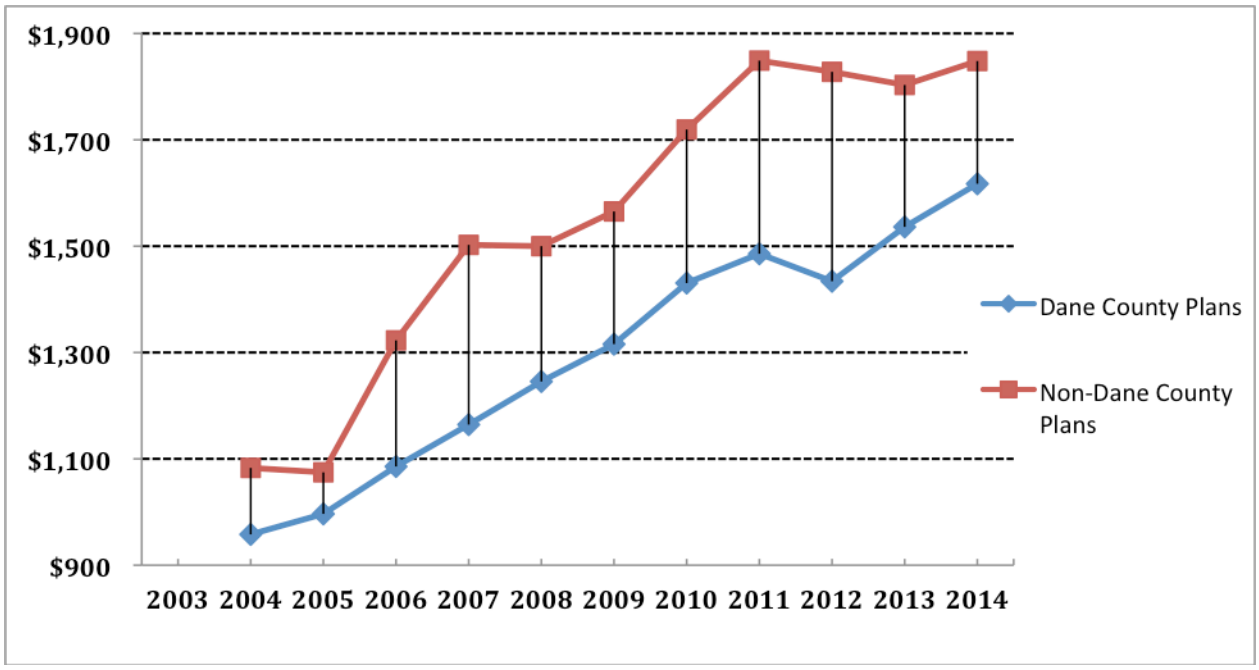


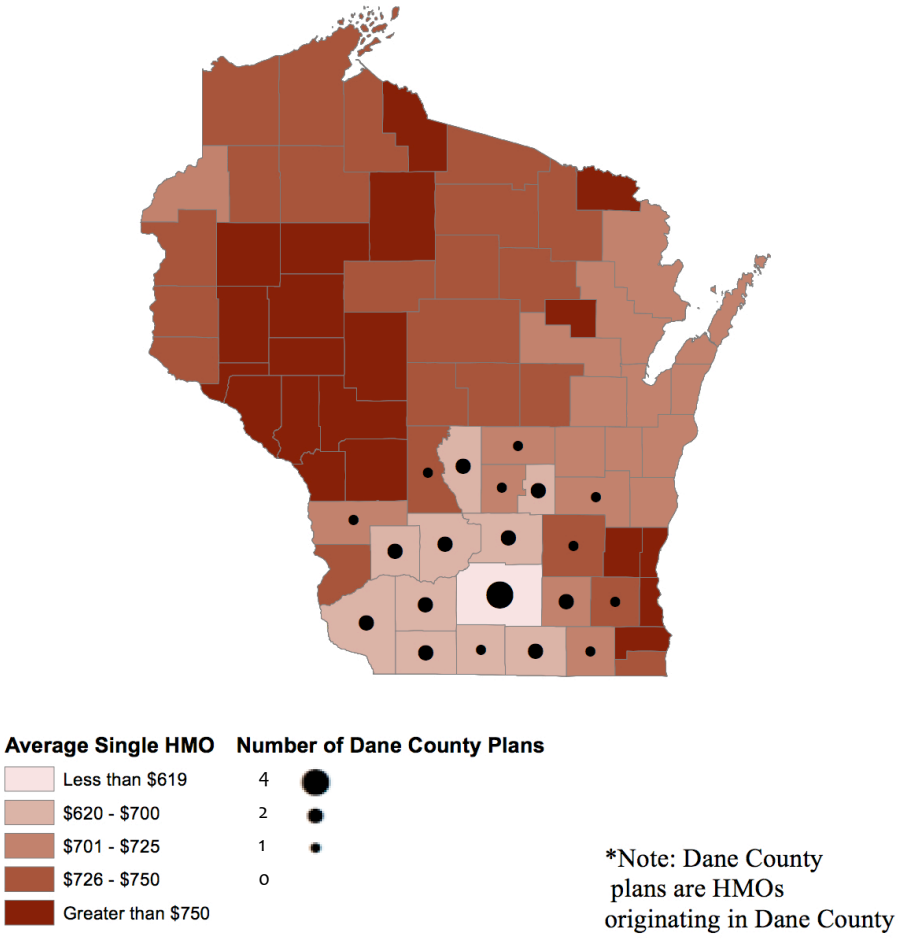
Figure 3. Cost Trend of Family Monthly Premiums in the WSEHP



The following county maps (Figures 4 and 5) illustrate the geographic variation in HMO premiums for individuals and families, respectively. The maps do not compare *average* plan premiums, but rather compare the difference between the *lowest-bidding* plan in Dane County vs. the *lowest-bidding* plan in each of the state's other 71 counties.

It is also noteworthy that the average monthly individual premiums in counties surrounding Dane that also offer the Dane plans ("Dane satellite counties") was $694 versus the statewide average of $730. Only two of the Dane satellite counties had a higher average monthly cost than the state average. See Figure 6.

Figure 6. Average Individual Monthly Premium and Dane Satellite Counties

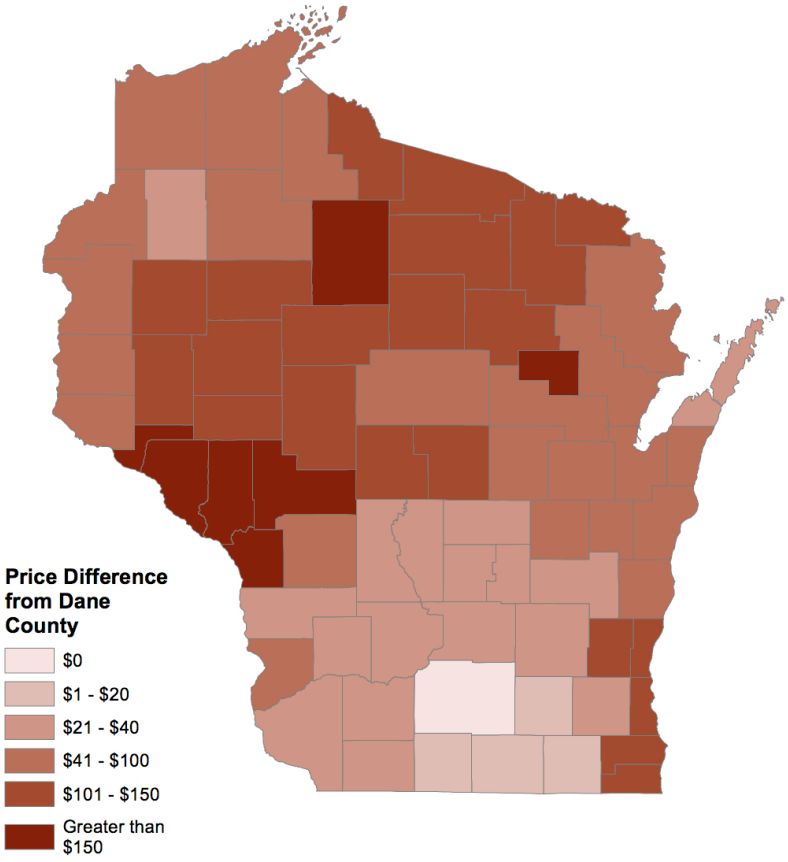


The enduring question remains; why is Dane so much cheaper?

AREAS OF INVESTIGATION

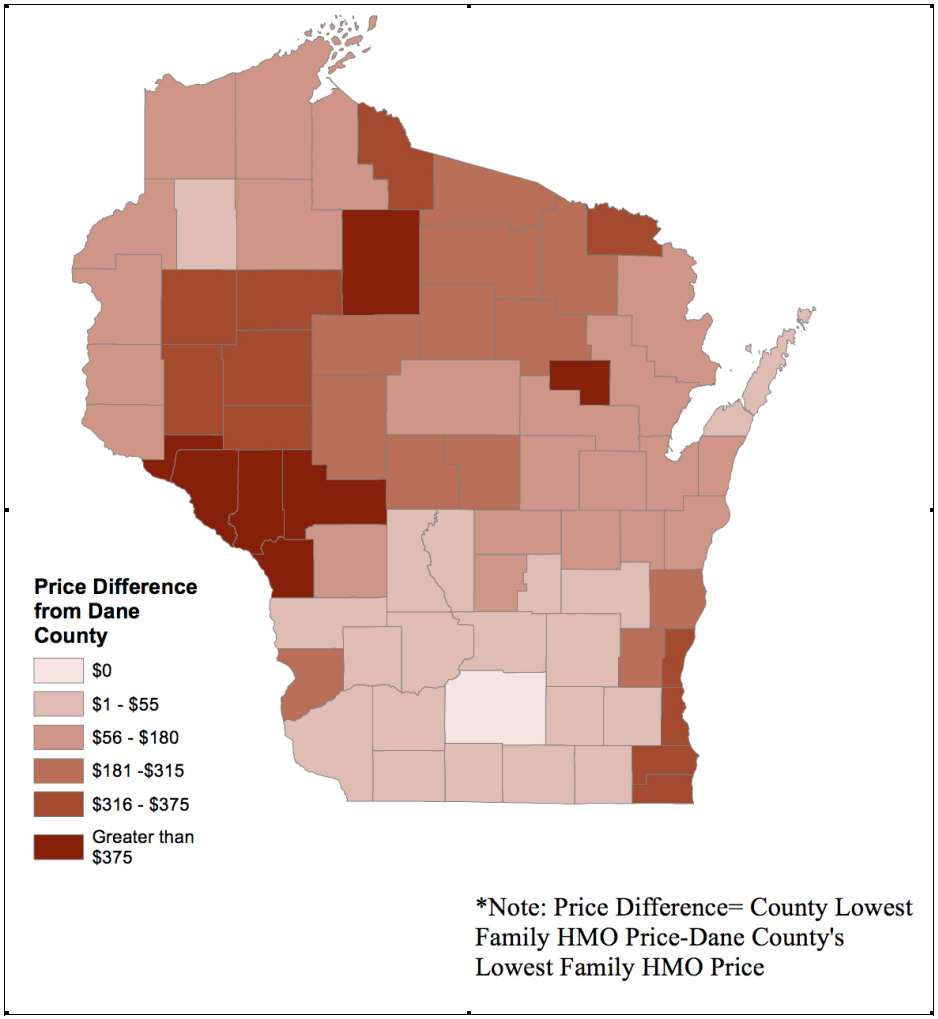
With assistance from our panel of expert advisors, we identified several potential explanatory factors for the difference in premium costs between Dane and other counties. We focused on areas related to the WSEHP enrollee pool, providers within the insurance plans, the insurance plans themselves, and ETF's management of competition.

Figure 4. Lowest Individual Monthly Premium Difference from Dane



*Note: Price Difference= County Lowest Single HMO Price-Dane County's Lowest Single HMO Price

Figure 5. Lowest Family Monthly Premium Difference from Dane



*Note: Price Difference= County Lowest Family HMO Price-Dane County's Lowest Family HMO Price

MEMBERS OF THE WSEHP ENROLLEE POOL

We investigated several characteristics of the pool of members enrolled in the WSEHP insurance plans. These characteristics included: the number of WSEHP enrollees as a percent of the private insurance market, and the percent of the WSEHP covered lives in each county as a percent of total number of the WSEHP enrollees across the state. We also investigated some of the pool's risk factors, including age, income, and health factors.

PROVIDERS WITHIN THE PLANS

We investigated factors related to the providers participating in the WSEHP's insurance plans, including practice patterns, physician ratios, hospital ratios, hospital reimbursement rates, and the quality of care being provided.

INSURERS

A key factor for investigation was the insurers' relationships with providers. This included whether insurers were integrated delivery systems—where the provider and insurer coordinate delivery of care for increased efficiency—and whether providers have an exclusive relationship with insurers. We identified seven integrated delivery systems that compete in the WSEHP.[10] We also investigated HMO penetration levels for each county.[11]

NATURE AND MANAGEMENT OF COMPETITION

Finally, we investigated whether the nature of the managed competition was an explanatory factor. We tested the magnitude of the competition (number of plans) within the WSEHP, and briefly looked at whether the WSEHP's managers treat Dane County differently than the other 71 counties.

RESEARCH METHODS

To answer why Dane County is so different, we examined relevant literature on managed competition models that bear some resemblance to the WSEHP. We also ran statistical analyses on data collected about the enrollees, providers, insurers, and competition within the WSEHP.

LITERATURE REVIEW

There are few, if any, examples of managed competition models that have had a dramatic impact on lowering costs *when compared to* a managed competition model with a formal structure that is organized in an identical way (i.e. standard information, uniform benefits, same incentives, etc.). The WSEHP exchange in Dane County is unique in its success in reducing premiums compared to the WSEHP's other similarly structured exchanges in Wisconsin.

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[10] Dean Health, Group Health Cooperative of South Central Wisconsin, Gundersen Health System, Marshfield Clinic, Mercy Health System, Unity/UW Health, and Physicians Plus.

[11] This is distinct from the above-mentioned WSEHP enrollees as a percent of the county's private insurance market, since it refers to *all* enrollees in HMOs in a county (regardless of who their employer is) as a percent of the county's non-Medicare and non-Medicaid population.

Several other managed competition health insurance exchanges are currently in place in the United States and around the world. The four most-studied models are the California Small Business Insurance Exchange, the Massachusetts Connector, and the Dutch and Swiss national health insurance systems.

Although these models are all generally based on the managed competition model, their structures vary considerably. Variations include the presence or absence of a standardized benefit package, the amount of government subsidization of premiums, and the use of economic regulations to control costs and quality. Massachusetts, and both the Dutch and Swiss national systems, have yet to demonstrate substantial improvements in cost control or quality improvement.[12] The emphasis in these systems has been on expanding access to coverage.[13] The California exchange—the only truly comparable structure to the WSEHP—experienced ten reductions in premium costs in its first few years.[14] Recent data has shown individual HMO premiums to be hundreds of dollars cheaper than the general market, with 60 percent more of premiums going toward health care.[15]

However, none of the managed competition health insurance exchanges has shown differences between an exchange in one region versus another region that correlates to or causally explains differences in premiums or cost. Thus, the literature is not directly relevant to understanding the Dane Difference.

STATISTICAL ANALYSIS

WSEHP cost, quality, enrollment, and market information is courtesy of the Wisconsin Department of Employee Trust Funds, including its annual "It's Your Choice" consumer report and decision guide.[16] The Wisconsin Department of Heath Services provided county population estimates. Medicaid and Medicare data were found via the Centers for Medicare and Medicaid Services' (CMS) navigator tool, at the CMS website (http://www.cms.gov). County level health information, risk factors, and demographic data were taken from the University of Wisconsin Population Health Institute's County Health Rankings website (http://www.countyhealthrankings.org). HMO penetration data were taken from the Wisconsin Office of the Commissioner of Insurance (http://oci.wi.gov). Hospital market and pricing data were taken from the Dartmouth Health Atlas (http://www.dartmouthatlas.org). WSEHP data used were for the 2013 plan year. All other data used were for 2011, the most recent year the data could be collected.

The data were collected and assembled for bivariate analysis using Microsoft Excel. We used the statistical software STATA to conduct further multivariate analysis consisting of Ordinary Least Squares Regression (OLS). The authors then analyzed the results for both correlations and possible causal relationships.

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[12] The Swiss and Dutch systems are comparable systems. Both are tightly regulated, offer a standardized benefit package, and control for adverse selection with an individual mandate in a competitive private market. See: Leu & Et Al. The Swiss and Dutch Health Insurance Systems: Universal Coverage and Regulated Competitive Insurance Markets. http://www.scha.org/tools/files/theswi1.pdf

[13] The California state employee health insurance system is a comparable structure of marketplace, tiering, and incentives. See Buchmueller, T. Managed Competition in California's Small-Group Insurance Market. Health Affairs. 1997. 16 (2). P.218-228.

[14] The Massachusetts Connector was established in 1988 to extend coverage to all Massachusetts residents. This has been partially achieved through expansion of the state's Medicaid program, creation of a marketplace for small businesses (50 or fewer employees), and access to insurance for those with pre-existing conditions. For more information see: McDonough J, Rosman B, Phelps F, and Shannon M. The Third Wave of Massachusetts Health Care Access Reform. Health Affairs, 25 (6). 2006:w420-w431.

[15] See: http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/C/PDF%20CaIndividualSmallGroupEveReform.pdf

[16] See: http://etf.wi.gov/publications/iyc14/et2107d.pdf for an example for 2014.

FINDINGS

BIVARIATE ANALYSIS

The following table (Figure 7) shows the R^2 results (strength of the relationship) and correlation (direction of the relationship) for the independent variables we tested. The closer the R^2 gets to 1.00, the more the independent variable explains the dependent variable (low premium of the plans offered in the county). An independent variable with an R^2 approaching 0.00 has no explanatory value according to the analysis. The correlations for the independent variables we tested are also displayed in Figure 7. A correlation of -1 represents a perfect negative linear relationship, a correlation of 1 represents a perfect positive relationship, and a correlation of 0 represents no relationship.

Figure 7. Bivariate Correlation Results

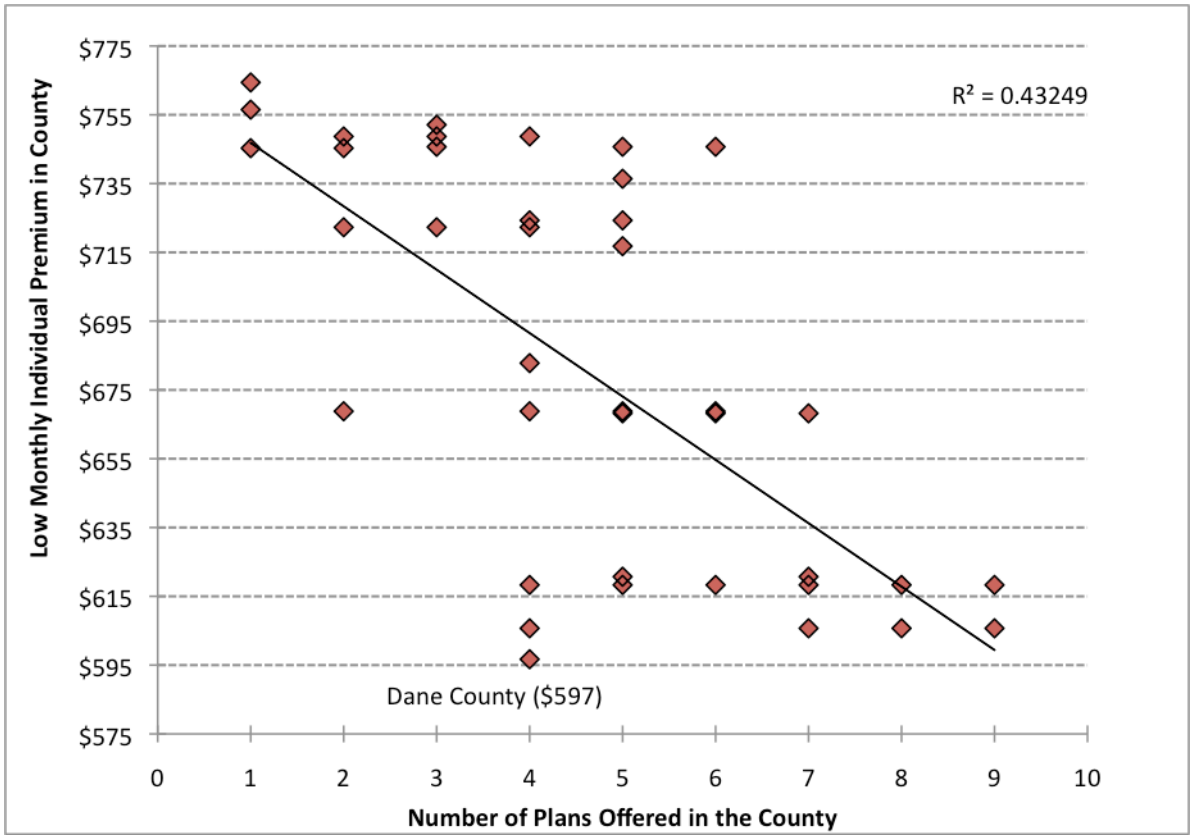
Independent Variable By County	R^2	Correlation
Number of plans	.43	-0.66
WSEHP covered lives as % of the county's private health insurance market	.21	-0.46
Overall HMO penetration[17]	.19	-0.43
Number of integrated plans	.12	-0.35
Plans' average quality ranking	.06	-0.25
Hospital reimbursement rate	.05	0.21
County population's median income	.04	-0.21
Diabetes rate	.03	0.16
Physician to patient ratio	.01	0.15
Average age	.01	0.10
Cancer rate	.01	0.08
Health factor ranking	.00	0.04
Low birth weight	.00	0.04
Number of hospitals	.00	-0.02

Number of Plans Offered

The independent variable with the highest explanatory value for the dependent variable (low premium of the plans offered in the county) was the total number of plans offered in the county, which showed an R^2 of .43. It should be noted that even this correlation is moderate at best. See Figure 8.

[17] Wood County was excluded as an outlier due to data irregularity.

Figure 8. Bivariate Relationship of Low Monthly Premium for an Individual Plan in a County and Number of Plans Offered in the County

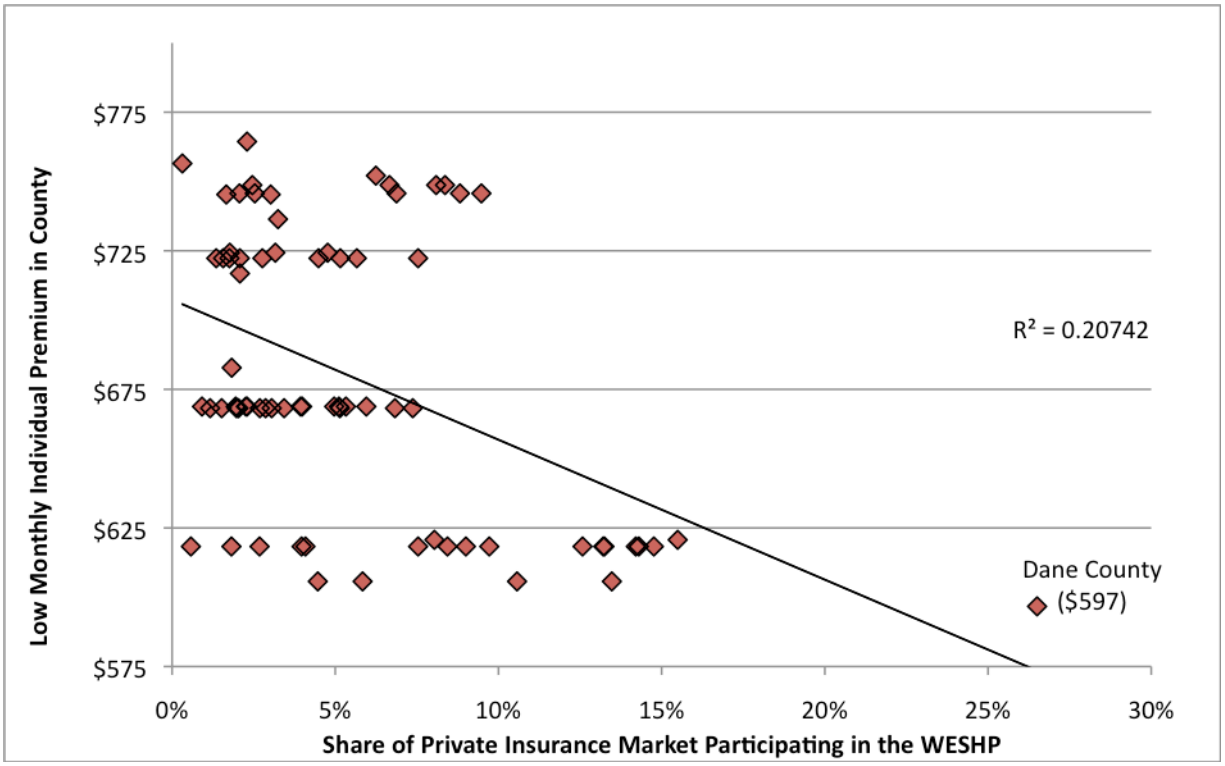


WSEHP Covered Lives As a Percent of the County's Private Insurance Market

The bivariate analysis also showed that the number WSEHP covered lives as a percentage of the private insurance market in a county had an R^2 of .10. In Dane County, 402,482 people had private health insurance.[18] Of those, 23.58% (94,899) were covered through the WSEHP.[19] Only seven other counties had even double-digit percentages. All seven either border Dane County or are one county away from Dane County. The high concentration of WSEHP covered lives in Dane County as a share of the County's private insurance market is due to the location there of the state capital and the University of Wisconsin. This concentration is a significant difference between Dane and Wisconsin's other 71 counties. See Figure 9.

[18] See American Fact Finder. US Census. http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
[19] Data obtained from the Wisconsin Department of Employee Trust Funds.

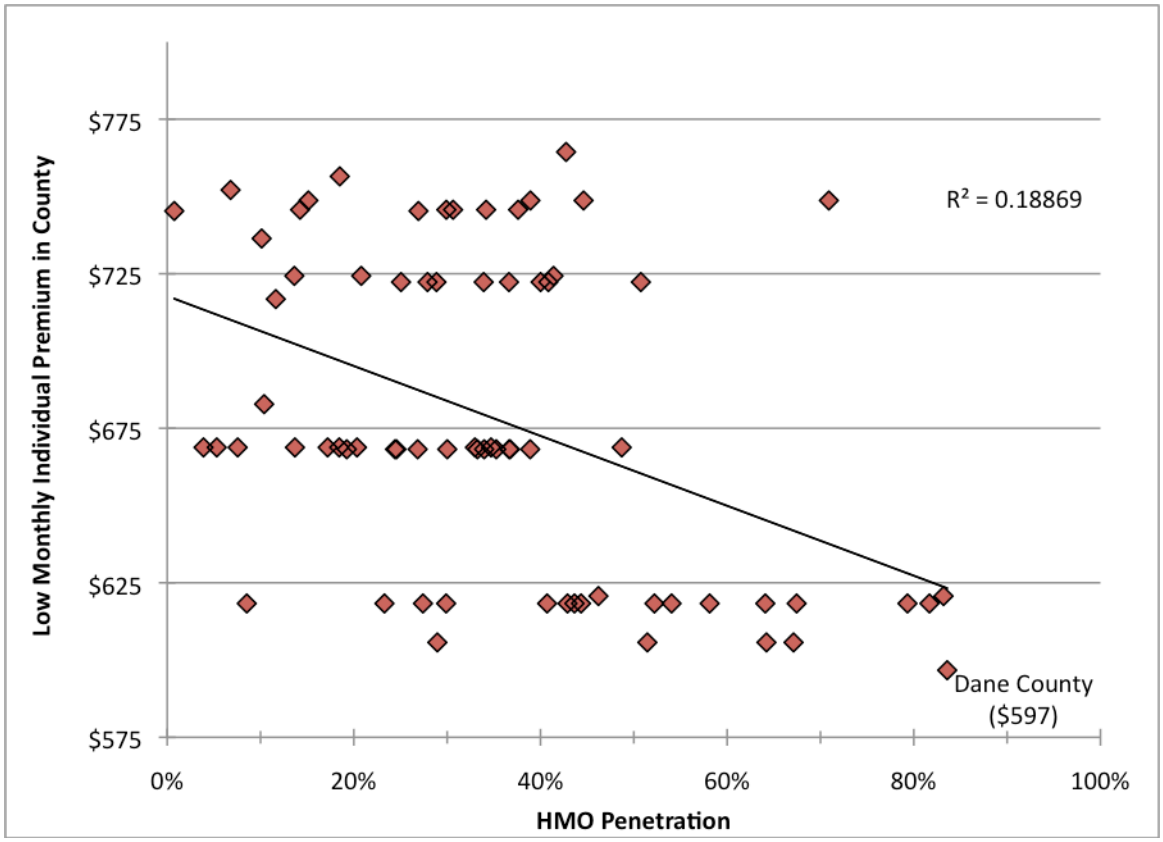
Figure 9. Bivariate Relationship of Low Monthly Premium for an Individual Plan in a County and WSEHP's Share of the Private Insurance Market



Overall HMO Penetration

The percent of the county's population with private insurance (not via Medicaid, Medicare, or military/veteran health system) that is enrolled in an HMO was found to be associated with Dane County's lower HMO premiums (R^2=.19). See Figure 10.

Figure 10. Bivariate Relationship of Low Monthly Premium for an Individual Plan in a County and HMO Penetration



Number of Integrated Plans Offered in the County

The Dane County exchange has four "homegrown" health care plans—Dean Health Plan,[20] Group Health Cooperative of South Central Wisconsin, Physicians Plus,[21] and Unity.

These health care plans are also integrated health delivery systems (where the insurer and provider share the same bottom line). The number of integrated plans offered in the county appears to be associated with lower monthly premiums in the bivariate results (R^2=.12). See figure 11.

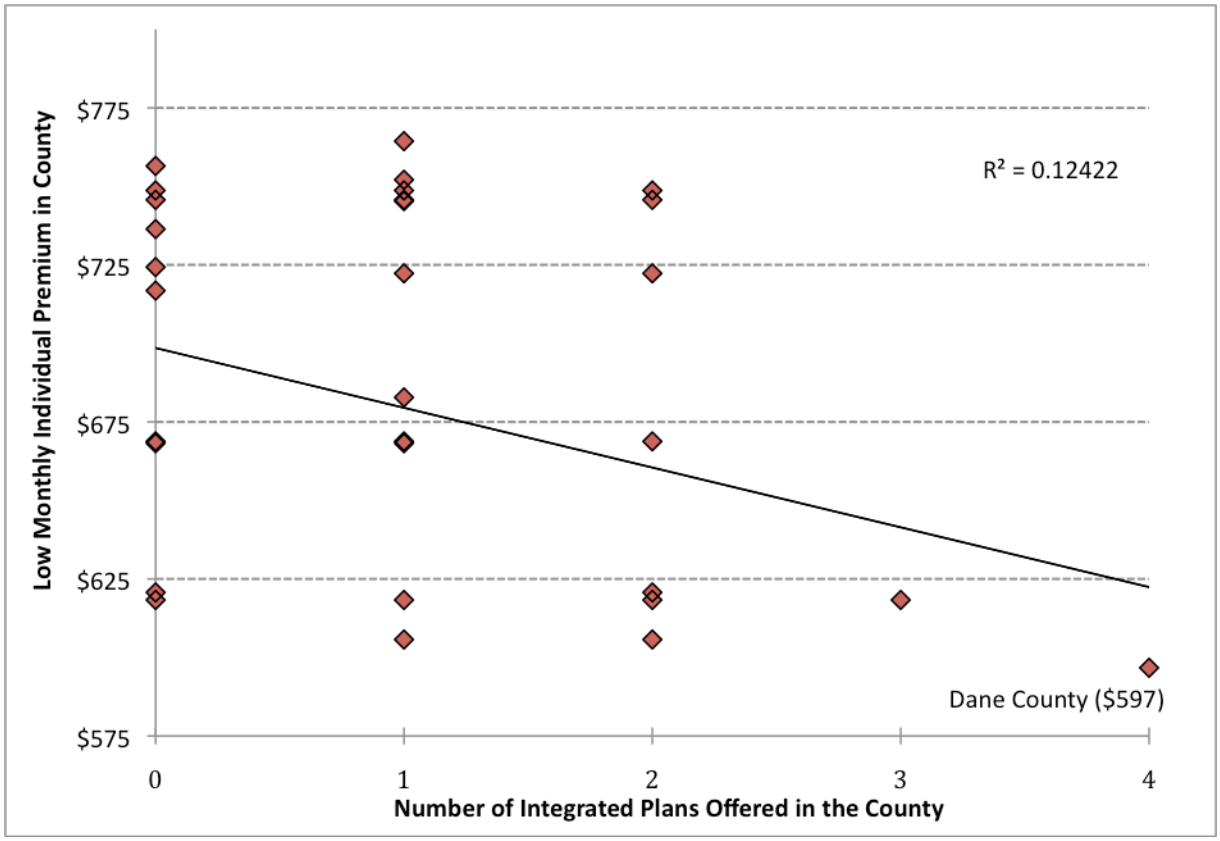
[20] In September of 2013, Dean Health Plan announced it will merge with SSM Health Care, which is "a Catholic, not-for-profit health system located in four Midwest states. Dean's merger with the Wisconsin-based Dean Health Systems transforms SSM from a hospital-based system to a large integrated delivery system with networks in each of its regions." This merger created one of the largest integrated delivery systems in the country. See: http://www.deancare.com/about-dean/news/2013/ssm-health-care-and-dean-finalize-merger/

[21] In October of 2013, Physicians Plus announced it will merge with UnityPoint Health, "the nation's 13th largest nonprofit health system and the fourth largest nondenominational health system," which now operates in nine metro regions. Meriter Hospital in Madison will be named Unity Point Health-Meriter Hospital, and Physicians Plus will expand its HMO to be integrated with the UnityPoint Health providers in the three states. See: http://host.madison.com/news/local/health_med_fit/meriter-to-join-iowa-based-unitypoint-health/article_d28d451e-2164-5a1e-80af-7502c56f05ec.html and http://www.unitypoint.org/overview.aspx

This association may be limited by the fact that there is only slight variation in the number of integrated plans offered in counties. With four integrated plans, Dane county had the greatest number of any county.

While some of the other 71 exchanges offer some (but not all) of the integrated "Dane plans," and many of the non-Dane health plans that are offered across WSEHP's 71 exchanges are also integrated, the Dane exchange uniquely features competition among a relatively greater number of integrated delivery systems than occurs in the other 71 exchanges.

Figure 11. Bivariate Relationship of Low Monthly Premium for an Individual Plan in a County and Number of Integrated Plans

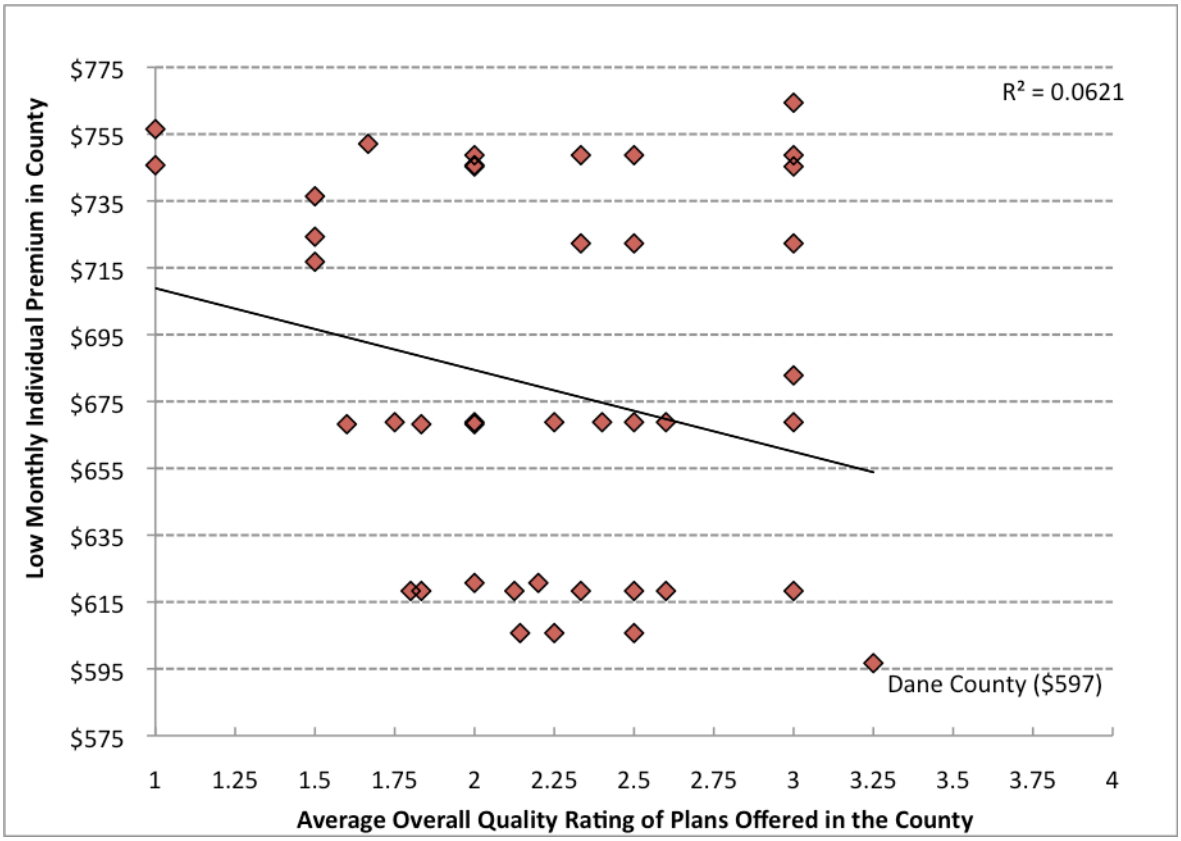


Plan's Average Quality Ranking

The average quality of the plans offered in each county demonstrated an R^2 of .06.

According to ETF's overall quality score, the Dane County plans scored a non-weighted average of 3.25 out of 4.00 (higher being more satisfactory). The overall quality score is based on composite quality measure gathered by Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys and The Healthcare Effectiveness Data and Information Set (HEDIS) in the areas of wellness and prevention, behavioral and mental health, disease management, and consumer satisfaction and experience. This was the highest average quality rating in the state. Twelve counties achieved the next highest score of 3.00. Of the twelve 3.00 scores, six counties offered a Dane County plan. See Figure 12.

Figure 12. Bivariate Relationship of Low Monthly Premium for an Individual Plan in a County and Average Overall Quality Rating of Plans offered in the County



Other Variables

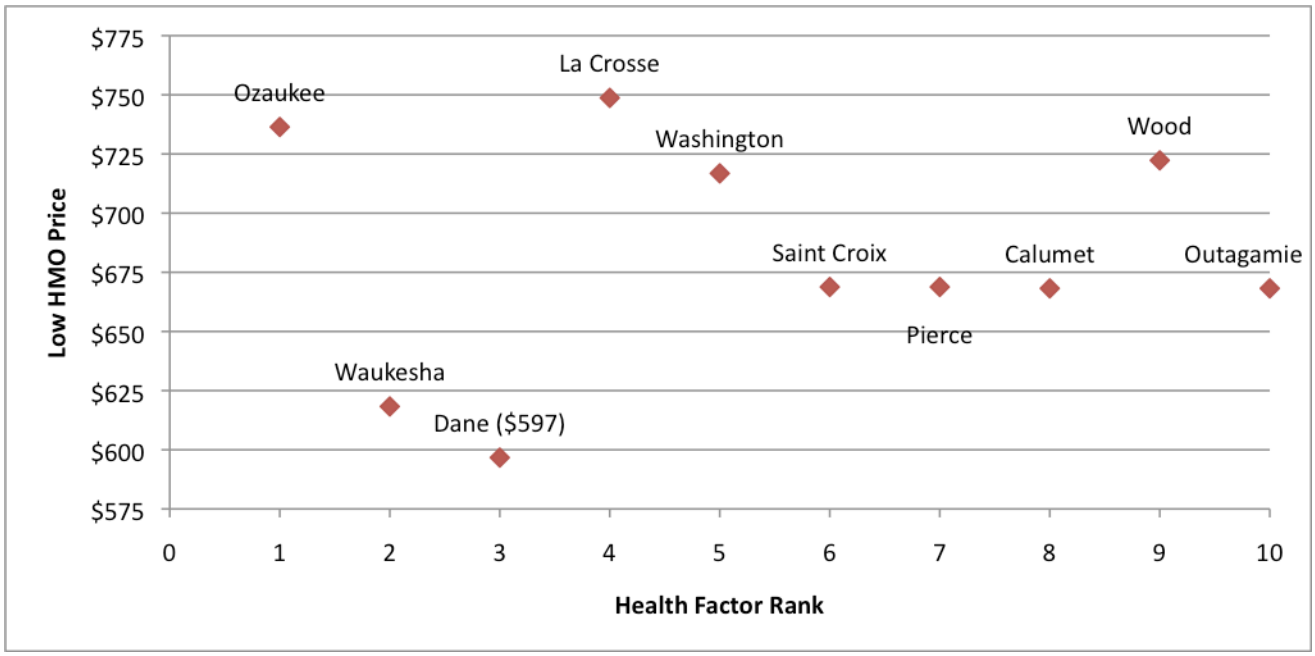
Other independent variables we tested showed a relatively low level or no level of explanatory value. These included the following health delivery system factors: the number of hospitals in the county (R^2=.00), hospitals' reimbursement rate (R^2=.05), and the physician to patient ratio in the county (R^2=.01). These particular characteristics of health delivery systems are not explanatory factors for the difference in premiums between Dane County and the other counties.

Health factors also had a relatively low level or no level of explanatory value. These included commonly tested health factors that are proxies for overall population health: the county's diabetes rate (R^2=.03), cancer rate (R^2=.01), low birth weight (R^2=.00), and the county's health factor ranking (R^2=.00).

Dane County ranks third in the state in the County Health Rankings for healthy behavior.[22] The bivariate analysis showed no association, however, between healthy behavior and lower premiums. Among the ten healthiest Wisconsin counties whose populations had comparable or even healthier behavior, premiums were all substantially higher than the Dane premiums. See Figure 13.

[22] See: http://www.countyhealthrankings.org/ for 2013.

Figure 13. Average HMO Monthly Premium in Wisconsin's Ten Healthiest Counties



In short, the Dane County population does not appear to have unique health risk characteristics that would explain its low premiums. The Dane risk pool does not appear to explain the premium difference.

Rather, the bivariate analysis indicates that the single most important explanatory factor for a lower premium in a county within the WSEHP is the number of plans offered in the county. The bivariate analysis also revealed significant differences between Dane and the other 71 counties that appear to be associated with Dane's lower premiums: 1) the WSEHP's share of the private insurance market in the county, 2) the number of integrated delivery systems in the county, and 3) the high quality of the county's plans.

MULTIVARIATE ANALYSIS

We also analyzed these independent variables using multivariate regression. Several combinations of independent variables were tested to investigate their relationship to premium (the dependent variable). Given the relatively small sample size, only a small number of independent variables are reasonable to test in each analysis.

Five factors were consistently found to have statistically strong associations with the WSEHP exchange in Dane County achieving lower premiums than the WSEHP exchanges operating in Wisconsin's other 71 counties:

- ***Number of Plans:*** The multivariate models indicate that the number of plans offered was strongly associated with the Dane premium difference.
- ***WSEHP Private Market Share:*** The percent of the county's private insurance market (insured, non-Medicaid, non-Medicare, non-military/veteran health) that is enrolled in the WSEHP was consistently found to be associated with the lower Dane County premium difference.

- ***HMO Penetration****:* The percent of the county's population enrolled in private insurance (insured, non-Medicaid, non-Medicare, non-military/veteran health) that is an HMO was also consistently found to be associated with Dane County's lower HMO premiums.[23]
- ***Quality of Plans:*** The multivariate analysis also indicated that the plans' average overall quality rankings were also consistently statistically significant as a factor in the Dane difference.
- ***Median Income:*** Median income was consistently found to be associated with Dane County's lower HMO premiums. It is possible that median income acts as a proxy for education level, health knowledge, and health behaviors.

Conversely, two variables related to providers were found to be associated with increased pricing within a county:

- ***Hospital Reimbursement Rate*****:** Higher CMS reimbursement rates were associated with higher HMO premiums.
- ***Physician Ratio*****:** A higher number of physicians per capita was associated with higher HMO premiums.

Relevant analysis of variance (ANOVA) output tables can be found in Appendices B and C.

We attempted to analyze the market with five or fewer independent variables. While the factors listed above were consistently strong in predicting premiums, their interactions did not always produce statistically significant results in every combination. We base our results on repeated trials and consistency in statistical significance over multiple regressions.

In conclusion, our analysis suggests that several key factors identified here are associated with and could well explain why the WSEHP exchange in Dane County is able to produce such dramatically lower premiums—whether comparing average to average or low bid to low bid—than the other 71 exchanges that the WSEHP operates in the rest of Wisconsin. All other previously listed market, risk pool, and health factors showed no statistical significance or signs of influence.

DISCUSSION

It is clear from our analysis that the WSEHP managed competition model in Dane County achieves lower premiums than the WSEHP exchanges in Wisconsin's other 71 counties.

[23] Because the WSEHP strongly encourages state employees to enroll in HMOs by requiring them to pay substantially more each month to choose the Tier 3 fee-for-service plan, the WSEHP's private market penetration in each Wisconsin county (WSEHP's share of the private insurance market in the county) is likely to drive the HMO penetration rate in that county (the overall percent of the county's population enrolled in HMOs after factoring out residents who are uninsured and enrolled in Medicaid, Medicare, and military/veterans health). It is theoretically possible that a Wisconsin county in which WSEHP covered lives constitute only a *small* share of the private insurance market may nonetheless have a *high* HMO penetration rate. This would happen where other governments or private firms, accounting for a large proportion of the county's total population, require or aggressively promote enrollment in HMOs. Until this question is researched further, however, it is reasonable to assume that the WSEHP's share of the private market is likely to closely correspond with—indeed, be the primary cause of—the HMO penetration rate. In other words, it seems likely that the HMO penetration rate is primarily a shadow of the WSEHP's share of the private market.

The comparatively lower premiums can also be seen in the Dane satellite counties, but the premiums are not as low as Dane's. Not all of the same factors exist in those Dane satellite counties: WSEHP has a smaller share of the private insurance market; there is less HMO penetration; and there are fewer high-quality competitors.

Based on our research, four of the variables that we investigated *may* explain the largest part of the difference in premiums between the WSEHP exchange in Dane County and the WSEHP exchanges in Wisconsin's other 71 counties:

1. The number of health care plans offered in the county's exchange;
2. The size of the county exchange pool's membership as a percent of the county's private insurance market (23.58%);
3. The number of health care plans in the county's exchange that are integrated delivery systems; and
4. The quality of the health care plans offered in the county's exchange.

Evidence for these four variables is suggestive and points in the direction of an explanation.

We also found, with respect to the following list of *potentially* explanatory variables for the Dane-vs.-71 difference in premiums, that there was little or no statistically significant linkage with the premium gap: age, health factors (diabetes, cancer, low birth weight, health factor rankings), hospital reimbursement rates, physician to patient ratios, and number of hospitals in a county.

It is important to emphasize that the results presented herein cannot claim to pinpoint causal relationships. The nature of our data and evidence is suggestive that the substantially lower premiums and high quality of care that the WSEHP model achieved in Dane County resulted from the county-level measures we investigated, but we stress that 1) there may be other unmeasured factors that are also driving the premium differentials we observe, and 2) that at least some of the associations we observe may run in part in a reverse direction in some of the counties, i.e. *from* premium rather than *to* premium.

LESSONS LEARNED FOR ACA MARKETPLACES AND HEALTH INSURANCE REFORM

The ACA requires each state to have a health insurance exchange (a managed competition model designed and operated by either the state, or by the federal government if the state chooses not to design and operate it) for the individual market and for the small group market.

This analysis reinforces previous findings on the overall effects of managed competition on premiums, but highlights the wide variation on premiums that can occur within the implementation of managed competition between exchanges (or, as some would say, exchange bidding regions).[24, 25, 26] Our findings suggest that a health insurance exchange may be able to consistently hold down premiums by replicating conditions found in the WSEHP's exchange in Dane County. While it may be difficult to entirely replicate some of the macro level effects found in Dane County in other exchanges operating in other markets, Dane's experience can potentially be used as a guide for structuring the design and management of exchanges.

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[24] See Private Health Insurance: Research on Competition in the Insurance Industry. Government Accountability Office. 2009.
[25] See Buchmueller T. Consumer-Oriented Health Care Reform Strategies: A Review of the Evidence on Managed Competition and Consumer-Directed Health Insurance. Milbank Quarterly. 2009; 87 (4): p.820-841.
[26] See Scanlon D, Chernew M, Swaminathan S, Lee W. Competition in Health Insurance Markets: Limitations of Current Measures for Policy Analysis. Med Care Res Rev. 2006; 63 (6): p. 37s-55s.

Our results suggest that an exchange is more likely to hold down premiums without sacrificing quality *if* the exchange also has at least one, and optimally more than one, of the following features:

1. The exchange's pool comprises a very large percentage of the covered lives in the exchange's bidding region who will be insured in the private insurance market;
2. There are a large number of high-quality plans; and
3. The plans are integrated delivery systems.

These conclusions assume that the exchange provides pooled members with a standard benefit package, and that it offers them a clear economic incentive to choose a low-premium health care plan by requiring them to pay a portion, if not the full extra cost, of a plan that offers a higher premium.

Attempting to replicate the factors found in Dane County in an ACA marketplace would require states and a marketplace's operators to implement policies that vastly expand the share of their residents who obtain coverage from private insurers though the marketplace.

There are a number of ways states could expand the size of the exchange pool as a percent of the population, including:

- Expanding the Small Business Health Options Program (SHOP marketplace) to include employers of any size after 2017;[27]
- Requiring or incentivizing all government entities within the state (i.e. state government, counties, cities, villages, towns, school districts, etc.) to provide insurance to employees via the marketplace;[28]
- Requiring or incentivizing government contractors and/or grantees to provide insurance to employees via the marketplace;[29] and
- Using Medicaid dollars to purchase qualified health plans in the marketplace.[30]

Implementing all of these policies would likely result in a very large portion of the under-65 (i.e., pre-Medicare) population of a state becoming eligible to be enrolled in a qualified health plan via one or more exchanges in the state. Implementing these policies would also take a significant amount of political will given the political atmosphere that has surrounded the ACA and health reform in general.

State and federal policymakers could also structure exchanges so as to provide incentives to achieve a high level of quality plans. Replicating the Dane County example of a relatively large number of high-quality integrated delivery

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[27] Beginning in 2016, the size of firms that can utilize the ACA's SHOP exchange for small employers will automatically increase from 1 to 50 full-time-equivalent employees (FTEs) to 1 to 100 FTEs. States may also choose, effective in 2017, to allow employers of any size to use the SHOP exchange.

[28] The Federal Employee Retirement Income Security Act (ERISA) prohibits states from requiring *private* employers to use an exchange to pay for their workers' health insurance. However, ERISA does not appear to prevent state governments from requiring *public* employers from using an exchange as the vehicle for providing government employees with health insurance. If ERISA or the ACA is interpreted to prohibit states from requiring public employers to use the ACA marketplace or even non-ACA exchanges for the purpose of providing their employees with health insurance, states have a number of non-mandatory tools at their disposal (e.g., incentives in the form of higher state aid payments) to induce local governments to voluntarily join the ACA marketplace or non-ACA exchanges.

[29] Such a requirement would have to be imposed as a condition of the contract. That is, private contractors would be free under ERISA to decide whether to utilize an exchange to provide their workers with health insurance, but *if* they wanted to enter into a contract with a government agency *then* they would have to agree to utilize the exchange.

[30] This model is being tested or proposed in various forms in Arkansas, Iowa, and Pennsylvania.

systems may, however, take a significant amount of time and political will. Each market has its own unique insurers and providers that may not be easily moved from their business models and insurer-provider relationships.

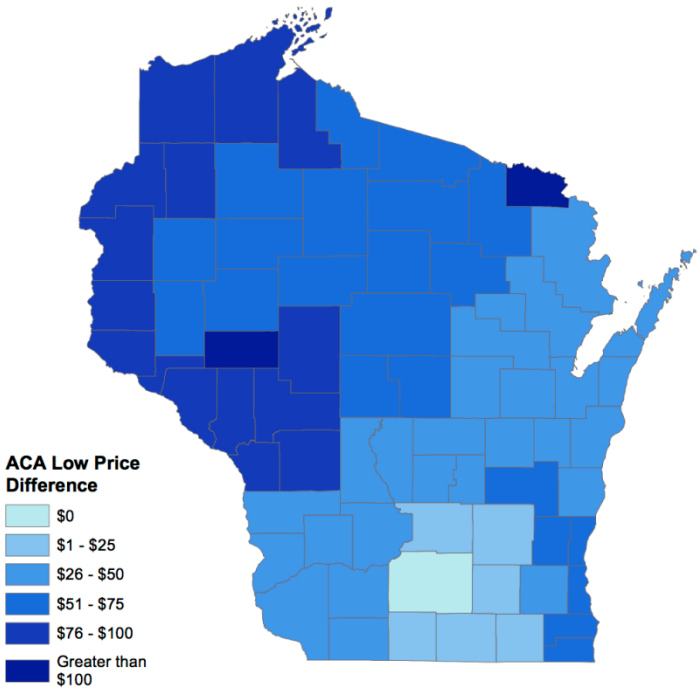
EARLY SIGNS OF MIRRORED SUCCESS

Interestingly, all four integrated delivery systems that compete in the WSEHP in Dane County also compete in Wisconsin's federally facilitated ACA marketplace in Dane County (which itself comprises one of the ACA marketplace's bidding regions in Wisconsin). Our analyses of premiums show that the ACA exchange in Dane County also achieves significantly lower premiums than the ACA's exchanges in Wisconsin's other counties. See Figure 14.

For 2014, the average ACA marketplace benchmark plan (lowest-cost silver plan) for a 27 year-old individual was $464.19 (or 18%) cheaper in Dane County than in the other 71 counties. The same pattern holds for older individuals. The average benchmark (lowest-cost silver plan) family plan was $1,694.31 (or 18%) cheaper.

Our analysis also shows the Dane Difference in ACA marketplace premiums increased by 28% from 2014 to 2015. This resulted in the average benchmark plan (lowest-cost silver plan) for a 27 year-old individual being $569.05 (or 23%) cheaper in Dane County than in the other 71 counties. The average benchmark (lowest-cost silver plan) family plan is $2,080.72 (or 23%) cheaper.

Figure 14. ACA Premium Difference Between County Low Plan and Dane County Low Plan for 2014



IMPLICATIONS

Further research and data are needed to examine in greater depth why the Dane difference exists. Our research was not able to explore whether the factors that are most strongly associated with, and may be the primary cause of, the WSEHP's exchange in Dane County achieving lower premiums vis-à-vis the WSEHP's other 71 county exchanges are also applicable to the ACA's exchange in Dane County vis-à-vis the ACA's other marketplaces in the state. It will also be interesting to see if this premium difference holds up over time in Wisconsin's federally facilitated ACA marketplace, as it has for decades in the WSEHP.

LIMITS OF THIS RESEARCH

This study had several limits, including availability of relevant data. One major data limitation was that although we compared premiums for WSEHP members in different counties, the data we utilized regarding health behaviors and other factors (such as income) was not for WSEHP participants themselves but was only available at the county population level.

Reimbursement rates and care utilization information for WSEHP participants would also have increased the robustness of our analysis.

In addition, the population whose health insurance premiums we examined consisted primarily of state employees and their families and secondarily of Wisconsin residents who enrolled in the ACA's individual exchange. The premiums—and premium differences—may be different for the non-public employee population or the Wisconsin population in general.

Limited data and resources also prevented us from investigating whether, compared to the WSEHP's other 71 exchanges, the WSEHP's Dane exchange utilizes health plans that are *inherently* more cost-effective. Specifically, the Dane exchange may receive bids from and contract with health care plans that, regardless of any impact the exchanges themselves may have on cost-effectiveness, by their very nature or in response to exogenous causes that we did not investigate tend to choose and use physicians, hospitals, and other health care providers who:

- Use practice patterns that are more evidence-based, thus reducing costs and lowering premiums;
- Do a better job of implementing prevention, primary care, and "quality" strategies that reduce costs, thus lowering premiums;
- Agree to lower levels of compensation or reimbursement, thus reducing costs and lowering premiums; or
- Work more closely and cooperatively together within better-integrated delivery systems, thus reducing costs, and thus lowering premiums.

AREAS FOR FURTHER RESEARCH

What we have learned—the strong associations between the Dane difference in premium and several important and potentially explanatory variables—justifies further investigation into the issue of causality. What methods could be applied to confirm whether the Dane premium and quality outcome differences are the result of the variables we have identified, the result of entirely different (but yet unidentified) factors, or the result of a combination? In further research and analysis, we hope to explore both this methodological question, and to apply the most appropriate methodology to a wider body of evidence, in order to pin down with greater certainty the causes of the Dane difference.

We are also curious about the behavior of consumers in the WSEHP. Are individuals choosing to go to or stay in state employment because they need the high-quality health, thus impacting the risk factors of the pool? What is their level of health information consumption? What factors are most important in making their annual health plan decision? In particular, do the WSEHP's consumers in Dane County behave differently (perhaps because there are so many of them to share information) than the WSEHP's consumers in the balance of the state? A survey of state employees could perhaps uncover these answers.

We saw little evidence that the management of the exchange by Wisconsin's Department of Employee Trust Funds was an explanatory factor. The one potential exception is the managers' risk adjustment methodology, which has a regional component that may impact premium pricing. The data underlying this and other adjustments were not available to us; thus this is an issue for further research.Another line of inquiry arises from the fact that, over the last few years, the difference between premiums in the WSEHP in Dane County and other counties has been shrinking. What are the reasons for this? Will this short-term trend continue, or will the longer-term trend resume under which Dane premiums grow at a slower rate than the other counties and the gap between Dane vs. non-Dane widens further?

Our initial findings that premiums in the ACA's marketplace in Dane County were significantly lower than in the ACA's exchanges in Wisconsin's other counties is illuminating, but also suggests the need for significantly more research. Much of the data to help investigate this difference is not yet available, but will become available in the future. It will additionally be interesting to see whether the ACA's SHOP Marketplace in Dane County offers significantly cheaper options than the ACA's SHOP Marketplace offers in Wisconsin's other counties. One important question will be whether the prior existence of the WSEHP's premium gap influenced the premiums offered in the federally facilitated ACA marketplace in Wisconsin. In other words, does the WSEHP's Dane difference explain or contribute to the ACA's Dane difference?

Finally, it will be worth monitoring and researching other exchanges in other states, and even the private insurance exchanges that are beginning to emerge, to assess how they respond to and whether they adopt some of the recommendations of this report.

APPENDICES

APPENDIX A. ABOUT THE AUTHORS

Mike Bare is the Research and Program Coordinator at the Community Advocates Public Policy Institute. Mike specializes in disability, energy, housing and health care policy research, and is an expert on the intersection of policy with politics and the legislative process. Mike is also an expert on the Affordable Care Act and is the Coordinator of the Effective ACA Implementation Project. At the Institute, Mike was also a Program Evaluator of the Milwaukee Brighter Futures Initiative and has assisted with the Pathways to Ending Poverty Project, the Milwaukee Tobacco Prevention and Control Program, and the Milwaukee County Substance Abuse Prevention Coalition. Mike has an extensive grassroots politics and government background, having worked for and provided consulting to several political campaigns. He also served as a former long-time aide to U.S. Senator Russ Feingold. Mike holds an MA in political science and BA in political science and philosophy from American University, where he was President of the Graduate Student Council. Mike has been a longtime volunteer for Special Olympics and other disability organizations. He is currently the Chapter Director for the Madison chapter of the New Leaders Council and serves on the Board of Directors for the Down Syndrome Association of Wisconsin and HealthWatch Wisconsin.

Erik Bakken is a project assistant at the Department of Population Health Sciences at the University of Wisconsin. Erik's previous work has focused on public health policy, non-profit hospital policy, and alternative funding mechanisms for public health programs. He received his Master of Public Affairs (MPAff.) at the La Follette School of Public Affairs at the University of Wisconsin in 2014. He received his BA in Political Science from the University of Wisconsin in 2012.

John Mullahy is a Professor of Population Health Sciences, an affiliate professor at the La Follette School of Public Affairs and the Center for Demography and Ecology at University of Wisconsin. Professor Mullahy is also Honorary Professor of Economics at NUI-Galway, and a research associate at the National Bureau of Economic Research. At University of Wisconsin, Professor Mullahy co-directs the Robert Wood Johnson Foundation-supported Health & Society Scholars Program and the NIMH-supported pre-doctoral training program in Health and Mental Health Economics. He is a co-Editor of *Health Economics*. Professor Mullahy received his PhD in Economics from the University of Virginia and his BA in Economics magna cum laude from Georgetown University.

David Riemer is a Senior Fellow at the Community Advocates Public Policy Institute. He has spent nearly three decades designing, implementing, and assessing health insurance exchanges, with a particular focus on the WSEHP program and the Dane County exchange model. Riemer played a key role in both the 1983 reform and the 2003 revision of WSEHP. In 2009, Riemer and Stanford University Professor Alain Enthoven, co-authored an editorial in *The New York Times* on the potential for this model to control health care costs and the importance of incorporating it into what subsequently became the Affordable Care Act. Riemer was chosen in 2010 to serve as a member of the Wisconsin Legislative Council Special Committee on Health Care Reform Implementation. He served as well on the National Academy of Social Insurance Study Panel on Health Insurance Exchanges. Riemer is the author of The Prisoners of Welfare and numerous articles on poverty, health care reform and public administration. He is one of the architects of The New Hope Project, a demonstration project involving over 1,300 low-income adults in Milwaukee that tested and confirmed a work-based strategy for reducing poverty and welfare dependency. During 2003, Riemer served as Budget Director for Wisconsin Governor Jim Doyle. His primary responsibility was to help solve the state's projected $3.2 billion deficit. He worked as an Atlantic Fellow in Public Policy in London and Oxford, England, in 2002, focusing on supplementing low-income workers' earnings through the tax system. From 1988 to 2001, Riemer worked as Budget Director, Administration Director and Chief of Staff for Mayor John O. Norquist. He holds a law degree from Harvard Law School and an AB degree in history and literature from Harvard College.

APPENDIX B. LOW INDIVIDUAL PLAN: MULIVARIATE MODELS FOR ALTERNATIVE COMBINATIONS OF EXPLANATORY VARIABLES[31]

	Model 1 Coef./Prob.	Model 2 Coef./Prob.	Model 3 Coef./Prob.	Model 4 Coef./Prob.	Model 5 Coef./Prob.	Model 6 Coef./Prob.
Quality	-40.70*** (0.00)	-49.08*** (0.00)	--------	-41.62*** (0.00)	--------	-41.76*** (0.00)
Number of Plans	-20.61*** (0.00)	-19.63*** (0.00)	-14.58*** (0.00)	-19.12*** (0.00)	--------	-20.38*** (0.00)
HMO Penetration	--------	-36.00** (0.05)	--------	--------	-73.19*** (0.00)	-24.48 (0.17)
Private Market Penetration	-61.71* (0.06)	--------	-93.48*** (0.01)	-65.52** (0.04)	--------	--------
Physican Ratio	--------	21028.41* (0.02)	27083.16* (0.08)	25033.48* (0.08)	42938.88** (0.01)	--------
Median Income	--------	-0.00* (0.05)	--------	--------	-0.00*** (0.01)	-0.00 (0.11)
Hospital Reimbursement	--------	--------	0.02** (0.02)	--------	0.01 (0.11)	--------
Constant	877.65*** (0.00)	917.31*** (0.00)	609.49*** (0.00)	854.96*** (0.00)	661.03*** (0.00)	917.06*** (0.00)

Source: Authors' anaylsis.

Note: Median Income effect too small for display, value of -0.001.

[31] Significance Levels:

* .10

** .05

*** .01

APPENDIX C. AVERAGE INDIVIDUAL PLAN: MULIVARIATE MODELS FOR ALTERNATIVE COMBINATIONS OF EXPLANATORY VARIABLES[32]

	Model 1 Coef./Prob.	Model 2 Coef./Prob.	Model 3 Coef./Prob.	Model 4 Coef./Prob.	Model 5 Coef./Prob.	Model 6 Coef./Prob.
Quality	-14.70**	-31.63***	--------	-20.47***	--------	-21.07***
	(0.05)	(0.00)		(0.00)		(0.00)
HMO Penetration	-23.46*	--------	--------	--------	-65.71***	-40.93***
	(0.10)				(0.00)	(0.00)
Number of Plans	-6.67***	-6.74***	-3.56*	-5.80***	--------	-6.44***
	(0.00)	(0.00)	(0.00)	(0.00)		(0.00)
Private Market Penetration	-87.80***	--------	-111.08***	-97.64***	--------	--------
	(0.00)		(0.00)	(0.00)		
Physican Ratio	--------	12867.74	14173.82	13108.52	26258.73***	--------
		(0.13)	(0.13)	(0.14)	(0.00)	
Median Income	--------	-0.00*	--------	--------	-0.00**	-0.00
		(0.08)			(0.03)	(0.14)
Hospital Reimbursement	--------	--------	0.01*	--------	0.01*	--------
			(0.06)		(0.07)	
Constant	819.10***	856.45***	688.25***	810.77***	713.05***	848.94***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Source: Authors' anaylsis.

Note: Median Income effect too small for display, value of -0.001.

[32] Significance Levels:

* .10

** .05

*** .01