



# An Examination of Relative Risk in the ACA Individual Market



August 2016



# An Examination of Relative Risk in the ACA Individual Market

What can we learn from two years of data?

## AUTHOR

Rebecca Owen, FSA, MAAA  
Health Research Actuary  
Society of Actuaries

## Caveat and Disclaimer

This study is published by the Society of Actuaries (SOA) and contains information from a variety of sources. It may or may not reflect the experience of any individual company. The study is for informational purposes only and should not be construed as professional or financial advice. The SOA does not recommend or endorse any particular use of the information provided in this study. The SOA makes no warranty, express or implied, or representation whatsoever and assumes no liability in connection with the use or misuse of this study.

Copyright ©2016 All rights reserved by the Society of Actuaries

## TABLE OF CONTENTS

<b>Section 1: Summary .....</b>	<b>4</b>
<b>Section 2: Acknowledgments .....</b>	<b>4</b>
<b>Section 3: Data and Information Sources .....</b>	<b>5</b>
<b>Section 4: The National Perspective on the 2015 Numbers.....</b>	<b>6</b>
<b>Section 5: Comparing the Results: 2015 vs. 2014.....</b>	<b>14</b>
<b>Section 6: How Risk Payments to Issuers Varied Year to Year.....</b>	<b>24</b>
<b>Section 7: Discussion and Observations .....</b>	<b>25</b>
<b>Appendix A—Multiple Regression Modeling .....</b>	<b>28</b>
<b>Appendix B—Distributions of Issuer Risk Payments Year over Year by State .....</b>	<b>29</b>
<b>About The Society of Actuaries .....</b>	<b>30</b>

# An Examination of Relative Risk in the ACA Individual Market

What can we learn from two years of data?

## Section 1: Summary

On June 30, 2016, the Center for Consumer Information and Insurance Oversight (CCIIO) released information detailing the reinsurance payments and risk adjustment transfers for the issuers that participated in the individual and small group Affordable Care Act (ACA) markets in 2015. This publication examines this document, and the data it presents, in an effort to glean information about the relative risk of the individual markets. This is an observational study, not intended to hazard opinion on the future characteristics of the risk pool.

This analysis of the report presents four main conclusions:

Risk measures published in the CCIIO release show that the average measure of risk increased from 2014 to 2015. Increased risk scores may be a combination of identification through better coding as well as a measure of the actual population health.

Some states and issuers had significant swings in average risk measures, in both direction and magnitude.

State variability due to underlying market characteristics means that national summary risk measures do not adequately represent the experience.

The program is still too immature to draw conclusive inferences about the future of the pool or marketplaces.

This paper is being produced in conjunction with eight companion pieces written by experts who reflect a variety of stakeholder experiences with the development of the risk pool. The SOA has also produced a research paper that looks at the small group results.

As the US Department of Health and Human Services (HHS) releases further data this study will be released with updated analysis.

## Section 2: Acknowledgments

Many people helped craft this paper, and their input has been invaluable:

Susan Pantely, FSA, MAAA, Milliman  
Hans Leida, PhD, FSA, MAAA, Milliman  
Kurt Wrobel, FSA, MAAA, Geisinger Health Plan

Karan Rustagi, ASA, MAAA, Wakely Consulting Group  
 Geof Hileman, FSA, MAAA, Kennel and Associates  
 Elaine Corrough, FSA, MAAA, Axene Health Partners

And of course my coworkers, Joe Wurzburger FSA, MAAA, who kept me on track, and Wangxinyi Chen, who cheerfully ran all the scenarios in record time.

### Section 3: Data and Information Sources

The reader may wish to evaluate the data further to understand the nuances that a brief paper cannot include. All of the source material is publicly available, much of it in electronic formats and with guidance and insight about its use.

This paper relies primarily on the CCIIO Premium Stabilization Publications:

- Summary Report on Transitional Reinsurance Payments and Permanent Risk Adjustment Transfers for the 2015 Benefit Year
  - Appendix A to June 30, 2016 Summary Report—HHS Risk Adjustment Program State-Specific Data
  - Appendix B to June 30, 2016 Summary Report—HHS Risk Adjustment Geographic Cost Factor (GCF)
- Updated Report “Summary Report on Transitional Reinsurance Payments and Permanent Risk Adjustment Transfers for the 2014 Benefit Year”
  - 2014 Geographic Cost Factors—Addendum to Summary Report on Transitional Reinsurance Payments and Permanent Risk Adjustment Transfers for the 2014 Benefit Year

This paper also uses information from the CCIIO Medical Loss Ratio Data and System Resources for more details about specific plan membership and characteristics.

Information about membership changes and estimates of plan switching are found in the Office of the Assistant Secretary for Planning and Evaluation (ASPE): [Health Insurance Marketplaces 2016 Open Enrollment Period: Final Enrollment Report](#).

This paper also uses Kaiser Family Foundation reports on Medicaid expansion and other enrollment questions, which can be found at [www.kff.org](http://www.kff.org).

States are divided into three categories according to the enrollment in transition plans in 2014. The source for this information was a Milliman report: [A Financial Post-mortem: Transitional Policies and the Financial Implications for the 2014 ACA Individual Market](#) by Erik Huth and Jason Karcher.

The graphs and analysis were created using JMP software, and the source tables are available in electronic format upon request.

## Section 4: The National Perspective on the 2015 Numbers

Appendix A of the June 30 publication reported the 2015 state average plan liability risk scores (PLRSs) as well as average allowable rating factors and average actuarial values (AVs) for each state and market (excluding Massachusetts, which administered its own risk adjustment program in 2015).

The average risk score (PLRS) for the individual market, by population weight, was 1.615, but this varied from a low of 1.344 in California to a high of 2.075 in Arkansas. Arkansas should be considered as an outlier because it includes private option Medicaid expansion members in the risk score calculation. West Virginia had the next highest score at 1.737, narrowing the range of scores from top to bottom.

The PLRS measures more than the risk due to the medical conditions of the population. It also includes an estimate of the relative costs due to plan design as well as the variation in relative costs by age and sex. In order to compare population risk, it may be necessary to try to normalize their risk scores to try to remove differences in AV or age. The market average AV and age rating factors published by CMS can be used to accomplish this. However, the age rating factors have a number of restrictions that limit their usefulness: they are unisex and restricted by regulation, and they are also not normalized consistently across all states because some states do not use the standard federal age curve. For this paper the comparisons and analysis will be based on a statistic, PLRS/AV, that will more closely approximate the population risk calculation (normalized for plan richness, but including variations in age and sex as part of the morbidity measure). The paper will refer to this as the risk score for brevity.

After the adjustment the risk scores ranged from a low of 1.84 in the District of Columbia to a high of 2.96 in Arkansas, with the next highest risk score being 2.80 in Tennessee. The national population weighted average was 2.31.

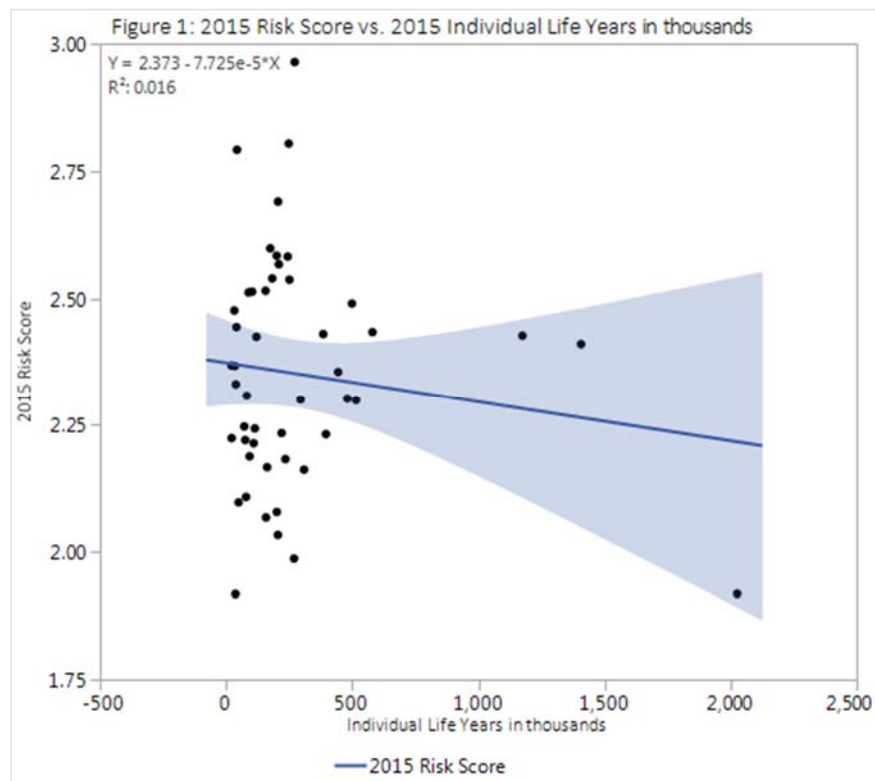
The base population used to develop the Hierarchical Condition Category (HCC) weights for 2015 is still based on large group experience. The severity of the score discussed in this report helps us to understand numerically how different the individual population is from the small group population, with an average score of 1.84, or for that matter, from the large group base, which for a representative national sample, would be expected to be even lower.

In the remainder of this section, we analyze potential correlations between risk scores and several different characteristics:

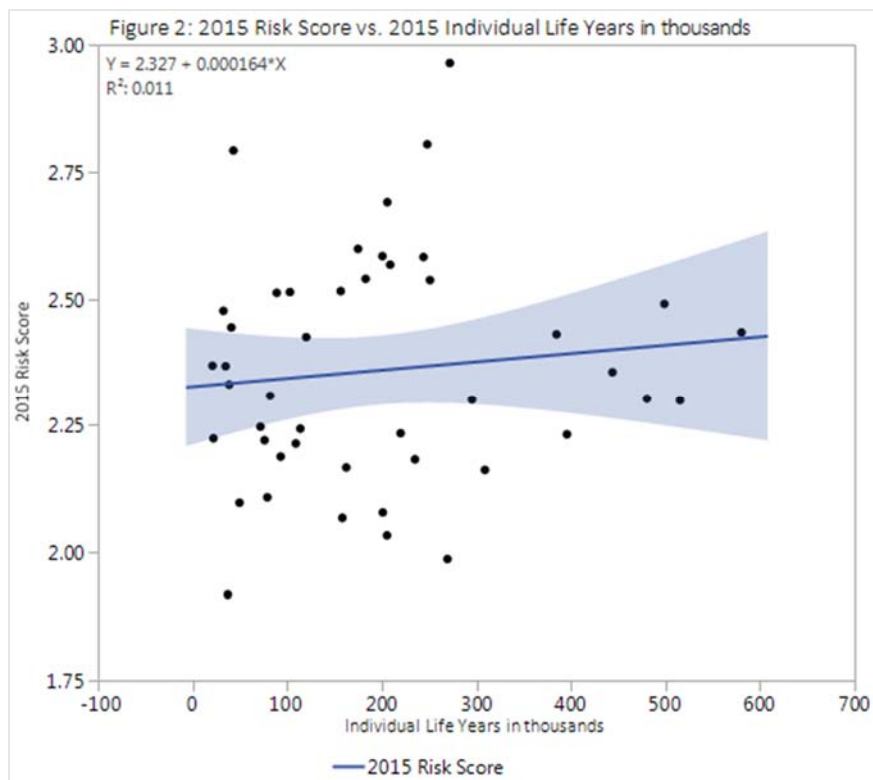
- Geography
- Pool size (i.e., number of individual members covered in the state risk pool)
- Premium levels
- Prevalence of transitional policies
- Medicaid expansion status
- Reinsurance payments

Our first question is the extent to which state and pool size affect risk scores. Figure 1 shows the variation in risk scores by the individual ACA population of the state expressed in thousands of life

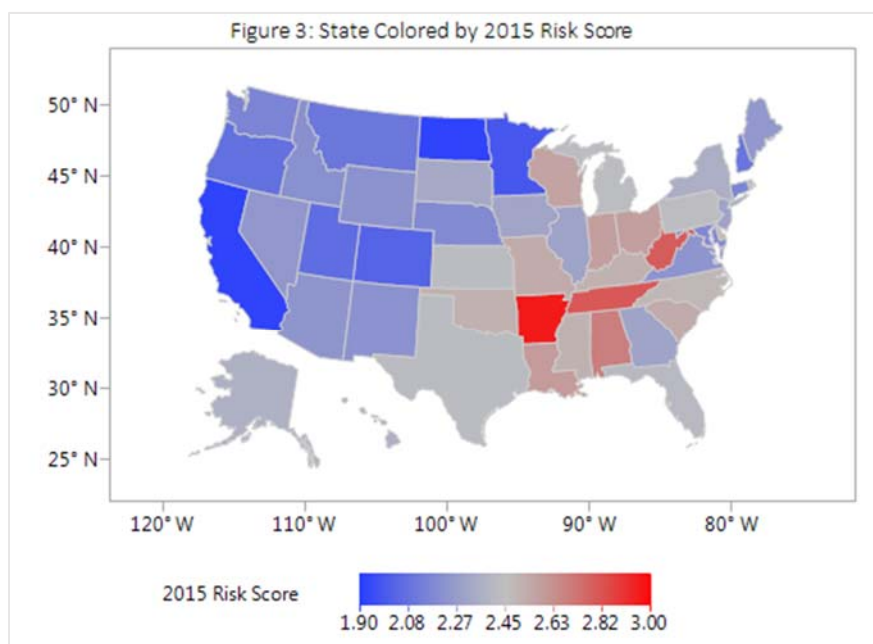
years. This shows how widely dispersed the reported risk is from state to state, and how it is not dependent on the size of the pool.



Even if we remove the outliers, FL, CA and TX, states with very large individual ACA populations, there is only a very slight correlation (see Figure 2).

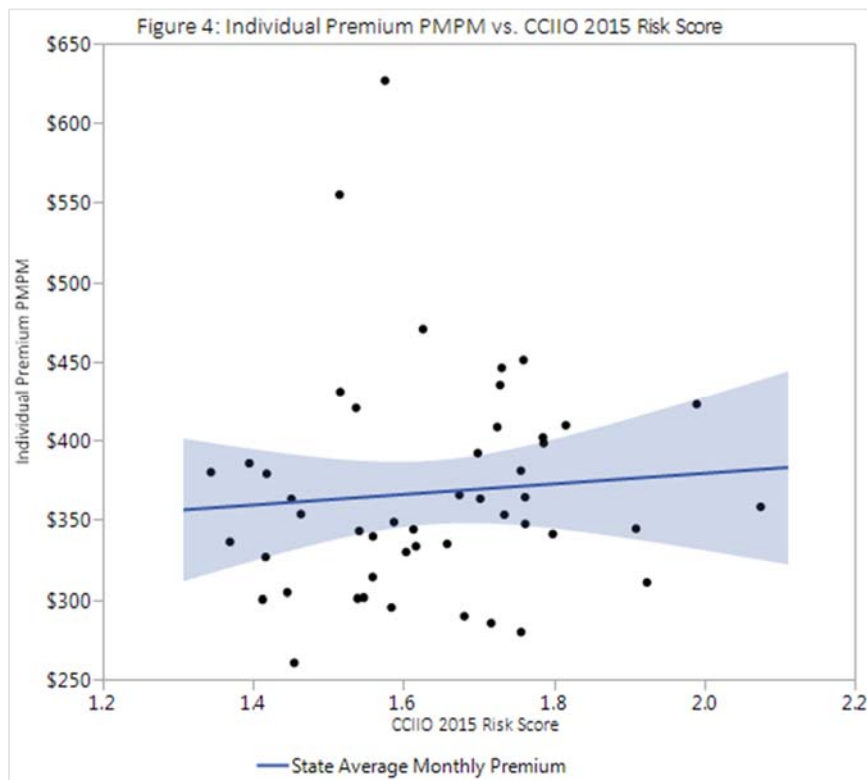


The map in Figure 3 shows issuer scores by state. The western states and New England have lower scores in general than the central and southern states. The individual and small group risk scores are merged for Vermont, and the scores for Massachusetts are not included in the June report. These states are blanked out on the map.



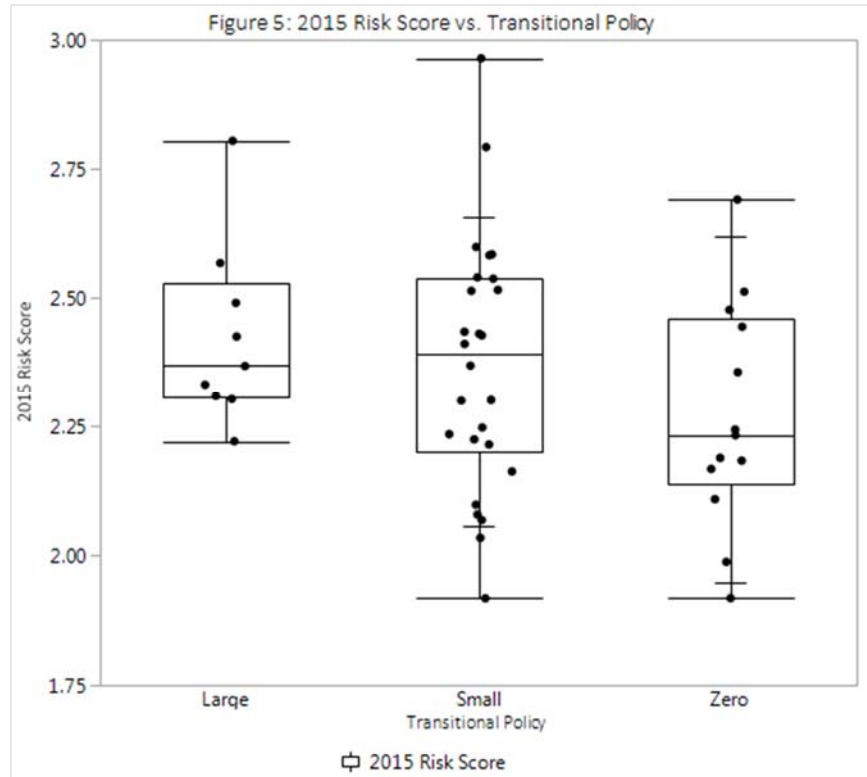


Another question might be: Do higher premiums correlate with higher PLRS risk scores? The graph in Figure 4 suggests the answer is no, which is not an unexpected result since premiums reflect more than relative illness burden. For example, premium levels also reflect the cost of services and physician practice patterns within the state. There are several premium outliers for states with nearly average PLRS risk scores, a pattern worth further investigation.

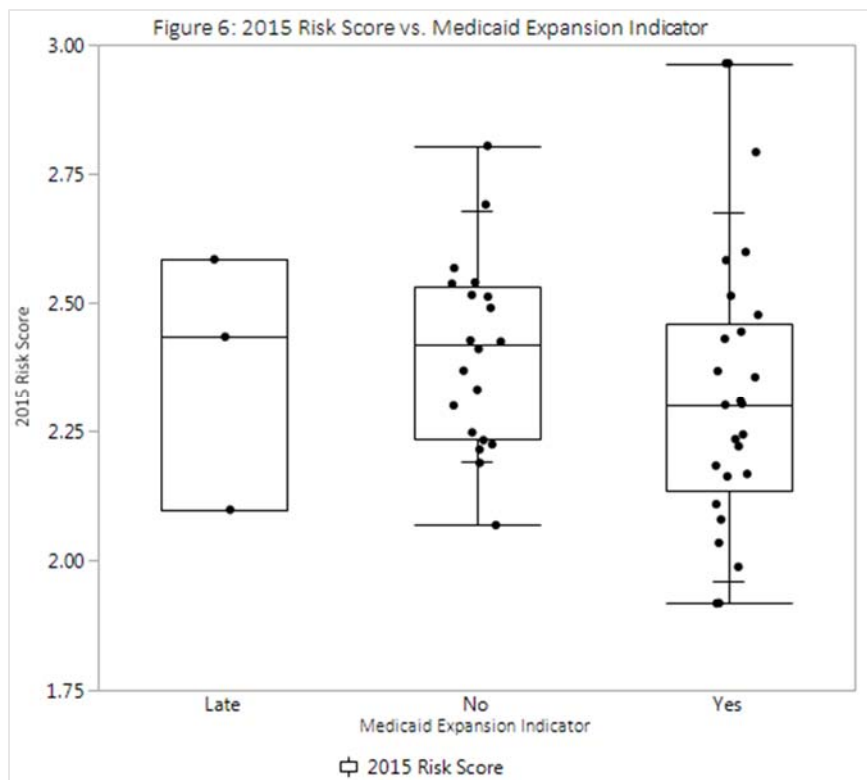


Some studies have suggested that transitional plans may have lower risk profiles than the ACA individual pool, so that incorporating them could result in lower overall risk for the pool.<sup>1</sup> If this is true we would hazard a conjecture that states with no transitional enrollment have a lower risk score, all other things being equal, than states with more enrollment in transitional plans. Figure 5 compares the states categorized by the number of members enrolled in transitional plans to show that there may be a small correlation when there is significant enrollment in transitional plans, defined as more than 20% of individual members in a transitional plan (Large), as compared to those with a no enrollment (Zero). However, with so few states having large transitional pools, this pattern may be a result of other state characteristics.

<sup>1</sup> Aaron Wright, Hans K. Leida, and Lindsey Kotecki, *Ten Potential Drivers of ACA Premium Rates in 2017* (Milliman, December 2015), <http://www.milliman.com/insight/2015/Ten-potential-drivers-of-ACA-premium-rates-in-2017/>.

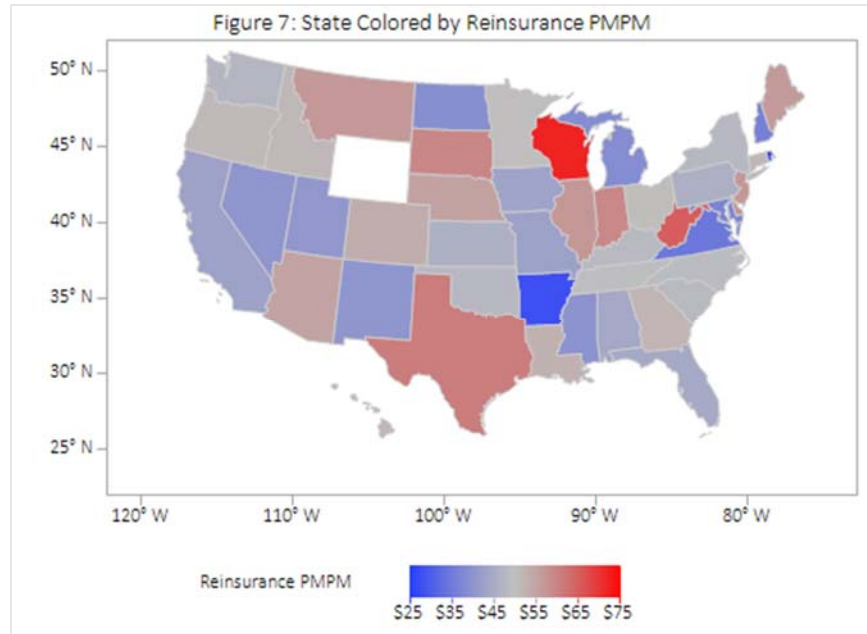


Medicaid expansion is another state decision that changes the composition of the potential Exchange enrollee pool. In Figure 6, states are divided into those that expanded Medicaid at the onset and those that did not or did not until the end of 2015; the few that expanded in mid-2015 are defined as Late Transition. The median score for expansion states (2.3) is lower than the median for either Late or non-expansion states (2.4).

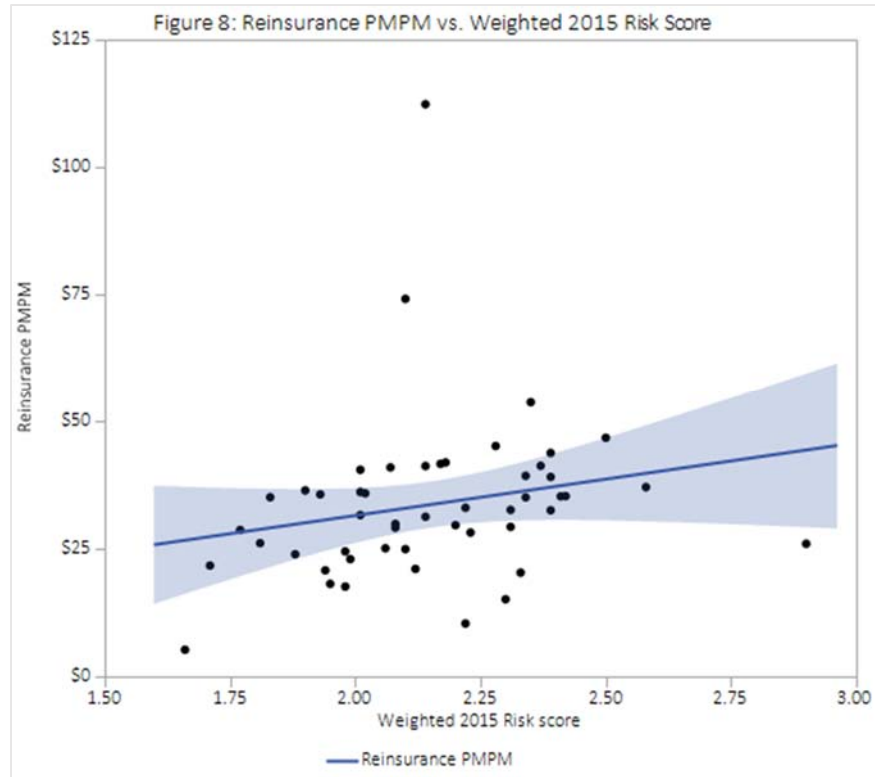


The CCIIO report also included the reinsurance payments to issuers. Figure 7 shows the 2015 Individual Reinsurance PMPM calculated using the total reinsurance payment amounts divided by the total billable member months.<sup>2</sup> Unlike risk scores, there is no particular geographic pattern. The graph excludes the two outlier states of Wyoming (\$89) and Alaska (\$164), in order to highlight the differences in the other states.

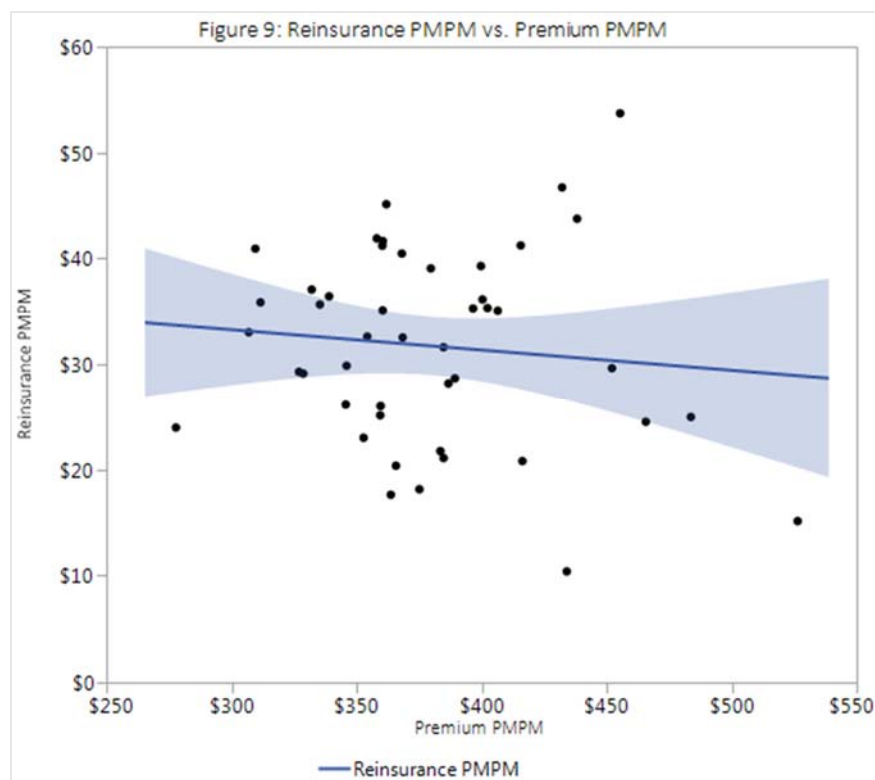
<sup>2</sup> Billable member months excluding children beyond the first three in a family.



If we consider that only a small portion of the population receives HCC scores due to the acuity of their conditions (the remainder receive a score based on their age and sex), and reinsurance is triggered when claimants have sufficiently elevated medical expenses, there may be some expectation that there would be a close relationship between reinsurance PMPM and concurrent population risk measures. However, Figure 8 reminds us that these relationships have other cost-driven components. Some states have reinsurance costs that are far outside the clusters, most notably Alaska and Wyoming.



Reinsurance PMPM is not as well correlated with premium PMPM as would be expected either, even after excluding the two highest outliers. It might be expected that for pools as large as the ACA individual pool, the presence of very large claimants would not differ as much as is evident in Figure 9.



## Section 5: Comparing the Results: 2015 vs. 2014

Inevitably when a column of numbers from one year is reported and the prior year numbers are available, there will be comparisons. Using these comparisons to bolster a perspective may be particularly tempting, but the statistics show that caution should be exercised when drawing conclusions. The ACA Exchanges are only two years old, and the first year began unevenly with enrollment and system challenges. The second year reflects a program and a pool that are not nearly mature enough to describe as stable.

### A cautionary note on year-to-year comparisons

The first and second year of the ACA Exchanges had differences that will cause calculated risk scores to be different due to a host of factors including:

- Input data
- Start-up issues
- Health care use by the previously uninsured
- Member plan or issuer changes
- Marketplace entries and exits
- Claims spanning both years
- Data challenges for newer issuers

A brief discussion of these factors follows.

While the risk adjustment model was the same in terms of the conditions eligible for scores and their scoring, the input data were not. The last quarter of 2015 saw the conversion to ICD 10, and this may have contributed to some differences.

Being the first year, 2014 had start-up issues that 2015 did not—or at least not to the same extent. Some had to do with enrollment, with a large proportion of enrollees entering the pool after the first few months of the year, rather than being present at the beginning of the year. The shorter the time a person is enrolled, the more likely it is that their risk score will be understated due to an incomplete list of their diagnoses.

For the many members who had been uninsured prior to the ACA, there was a need to learn to navigate the health system—that is, to find a practitioner, make an appointment and have screening or diagnostic tests performed. It takes a longer time for them to accumulate risk-scoring diagnoses as compared with a member who had prior coverage from a different insurer but retained established provider relationships.

Members changed plans or even issuers between 2014 and 2015. According to the ASPE enrollment report for October through December of 2015, 61% of active enrollees switched plans and 64 % of the switchers changed issuers. Changing membership would tend to cause a drop in average scores compared to a steady-state environment, especially where members needed to reestablish their scores. However, if the members maintained providers who were able, and willing, to submit the entire diagnosis profile of a patient, the information would be included in the member scoring.

Issuers entered and exited the marketplace, causing members to seek new coverage. These members would also have to reestablish their risk profile with the new issuer, with the added distraction that members that experienced an unplanned switch to a new issuer would also need to learn to navigate a different system.

Claims that spanned a year end, cross-year claims, are not included in 2014 but are included in 2015. This would not be a significant source of change but could be likely to increase risk adjustment scores in 2015 because these claims tend to be for more complex care and as such would tend to increase risk scores.

Some issuers had to learn to manage data, and in the first year there were issuers that had not mastered the process of making sure all the diagnoses for a given claim were submitted and subsequently scored. In general, more diagnoses are associated with higher scores. As time has gone on, issuers became more sophisticated, leading to more diagnosis codes submitted per claim, which would tend to increase scores. They had more time to audit and examine the submitted claims for any given member in order to make sure that there were no missing diagnoses. In the first years of Medicare Advantage/Medicare Plus Choice risk adjustment modeling this made a significant contribution to the increase in scores; a popular estimate was

that scores increased about 5%.<sup>3</sup> While many of the issuers in the Exchange were familiar with making sure that all the correct diagnoses were associated with a member, not all issuers were, and indeed many issuers are still learning to operate in this new paradigm in the third year of the program.

**Comparing 2015 to 2014**

The population-weighted average risk score in 2015 was about 5% higher than in 2014.<sup>4</sup> However, many individual states had larger changes, and the range from high to low was substantial, as can be seen in Table 1. The state with the largest change was 17.3% in Alabama, while the average score in Nevada declined by 8.4%.

*Table 1*

	2015	2014	% change
Average Risk Score	2.31	2.20	5.2%
Maximum	2.96	2.78	6.3%
Minimum	1.84	1.72	6.9%

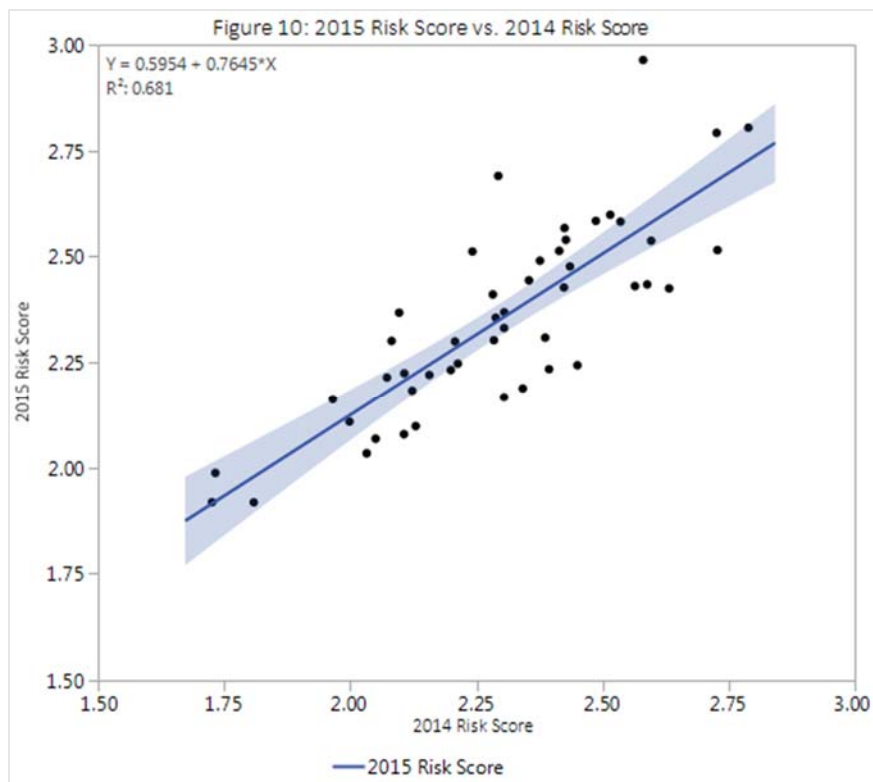
There would be an expectation that if the individual ACA population was stable and the model was very good at representing the risk of the population, the scores from year to year would be related to each other. There was a fairly strong correlation between the 2014 risk score and the 2015 risk score as shown in Figure 10. The correlation appears to be tighter for the lower scoring states, but the dispersion grows above 2.25.

---

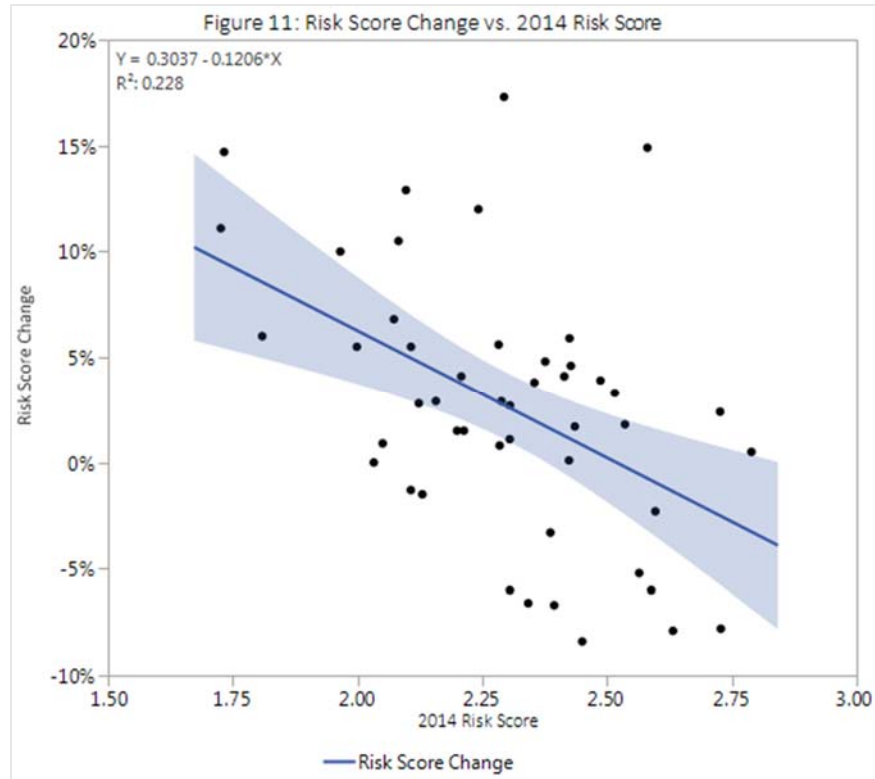
<sup>3</sup> <https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2017.pdf>.

<sup>4</sup> The CCIIO report showed an increase in PLRS of 4%, a difference due in part to members choosing less expensive, leaner coverage.

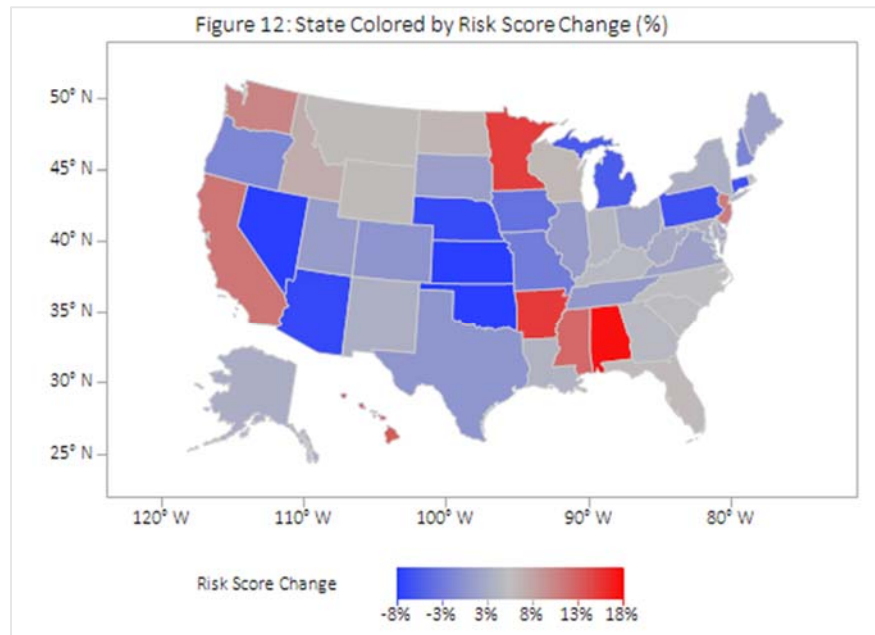




If the numbers are examined from a different angle, percentage change in the risk score versus 2014 risk, the results look much more scattered, so much so that creating a regression line reminds us that changes in scores probably have a number of drivers (Figure 11).

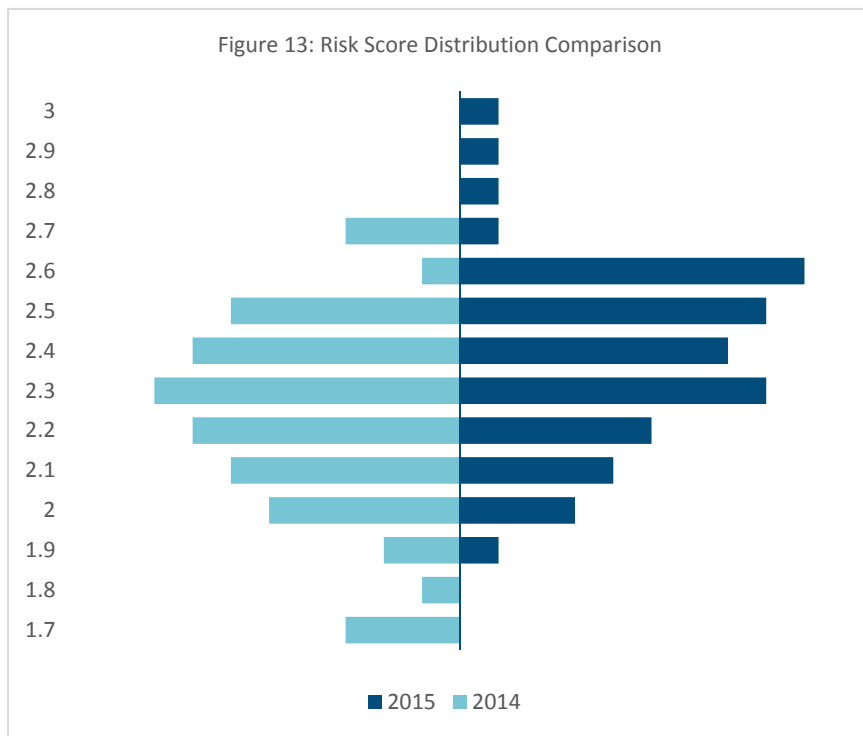


Changes in risk scores were not as geographically correlated as were the base 2015 scores. Lower scored areas from 2014 were not necessarily the states that had the highest increase in average score (see Figure 12).

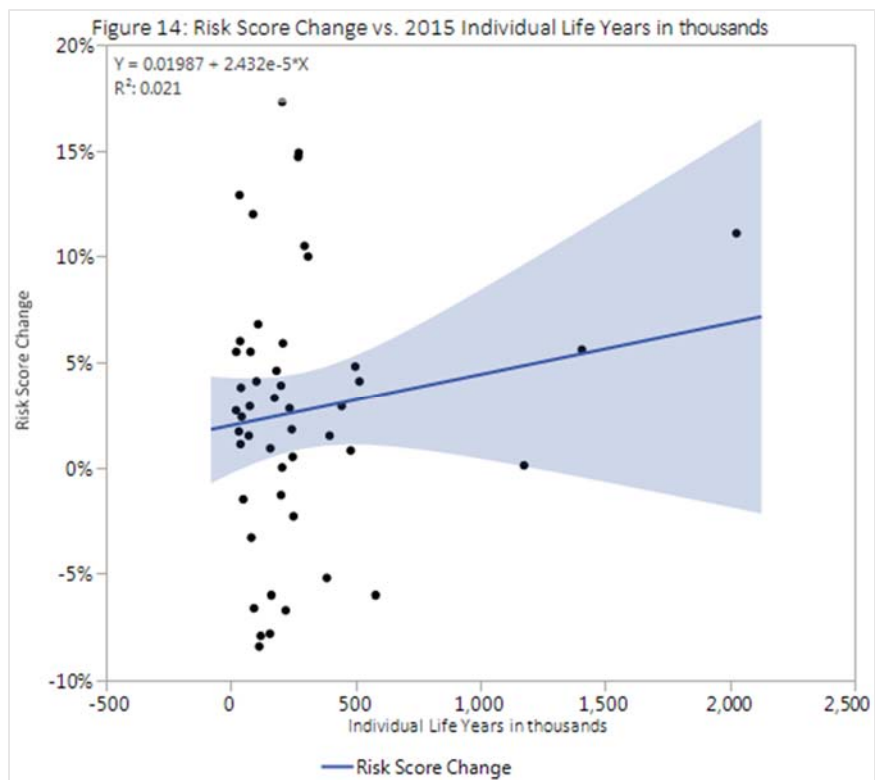


Another way of looking at how scores changed is to look at the way the distribution of scores changed.

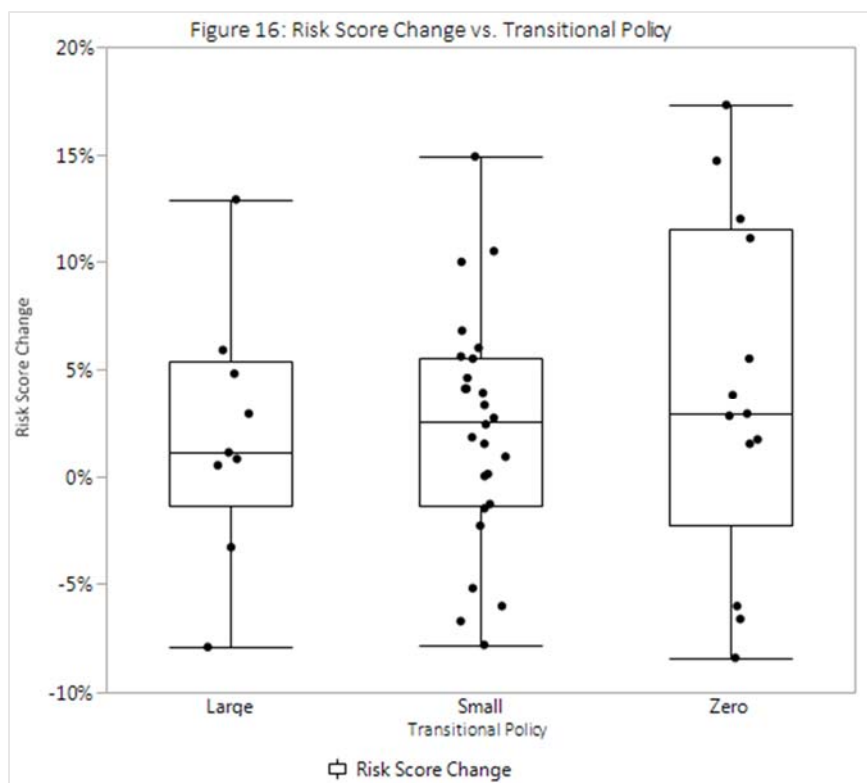
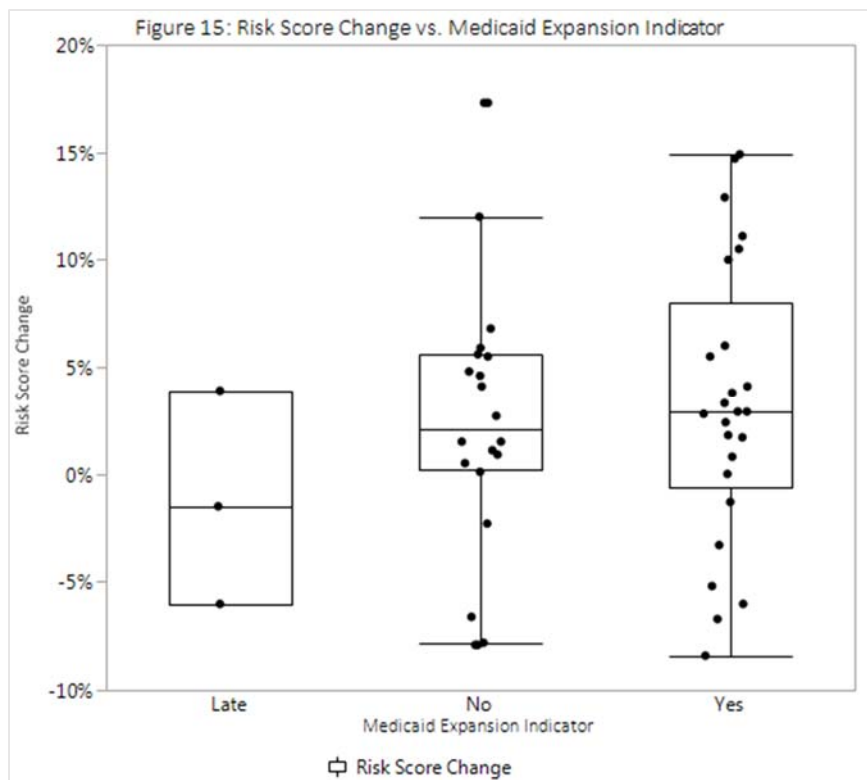
As can be seen in Figure 13, the increase in average risk scores by state was not even, and there is a non-uniform shift in the shape of the distribution from something nearly normal to one that is somewhat skewed to the higher end.



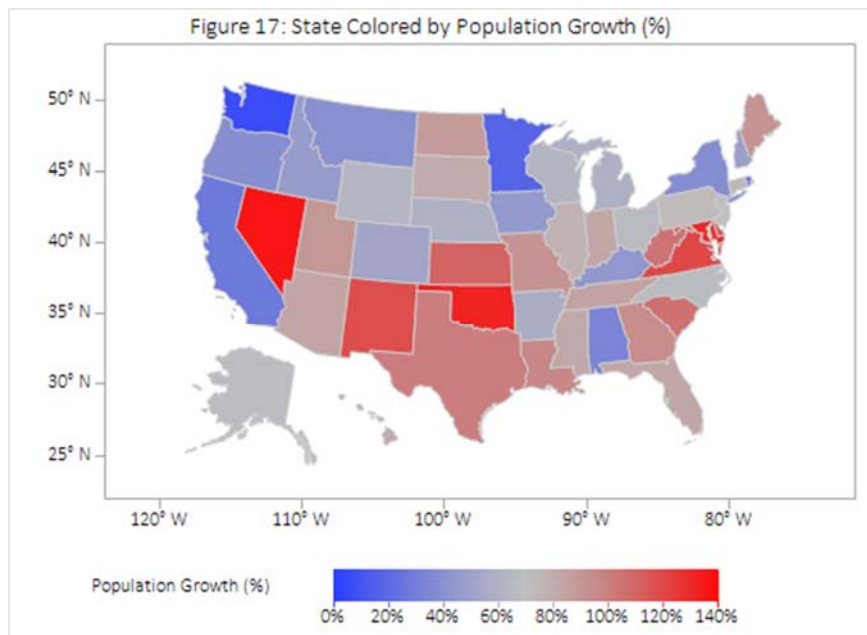
Risk score changes were not particularly dependent on the size of the base population, and many states had very large changes. Figure 14 shows the relation between the population size and the risk score change. A shift of plus or minus 10% in statewide risk scores, or more, would have been a challenge to predict at the time that rates were being filed or financial statements were being prepared.

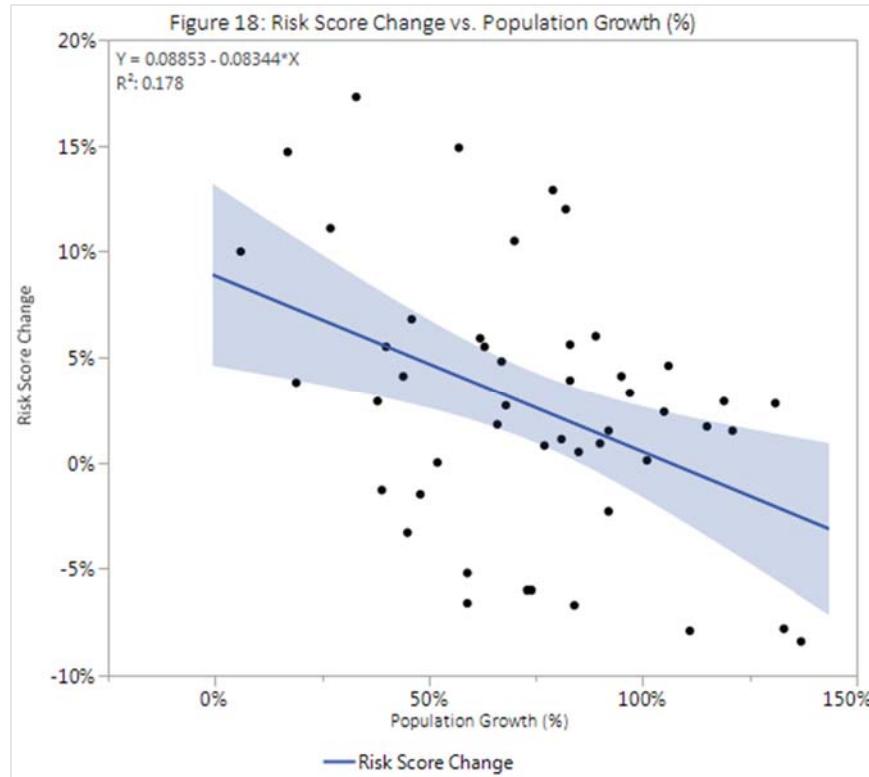


Changes in risk scores were not particularly damped or heightened by the state decisions on Medicaid or Transition Policies (Figures 15 and 16).

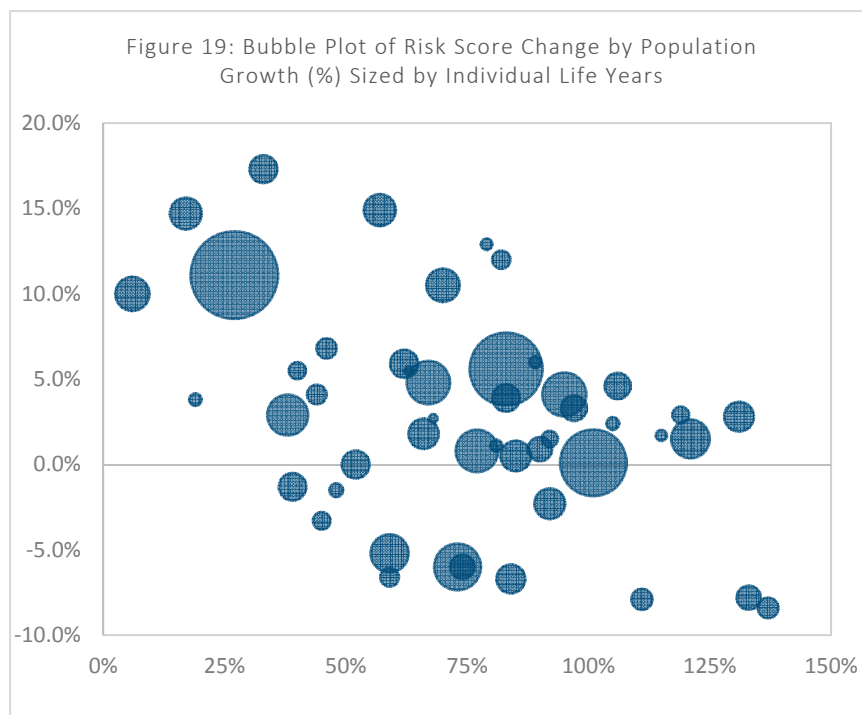


Many states had significant covered population growth, as measured by member months, from 2014 to 2015, and this might have been slightly associated with a decrease in risk scores. There is some expectation that as the pool grows, more healthy individuals will enroll in coverage and the risk scores should decrease as a result—offset by improved coding as processes become more efficient. Figure 17 shows the geographic distribution of population growth in the ACA individual market, while Figure 18 explores the relation between population growth and the change in the risk score.





Adding more detail does not clarify matters, although it does spur thought, as shown in Figure 19, which examines the change in risk score as compared to population changes, with a measure of the population. While the largest two populations did not have a large change in risk score, some sizeable states experienced very large changes in risk scores. Figure 19 reinforces the point that more states saw increases in risk than experienced decreases. There is a small correlation with population increasing and risk scores decreasing, and states of all sizes had this turbulence.



## Section 6: How Risk Payments to Issuers Varied Year to Year

The material in the CCIIO publication includes details of reinsurance amounts and risk transfer payments by issuers within each state. However, the numbers do not include the billed member months by issuer. The proximate source of this information is the collection of public use files detailing the medical loss ratio calculations for issuers, but these were not available for 2015 at the time of writing.

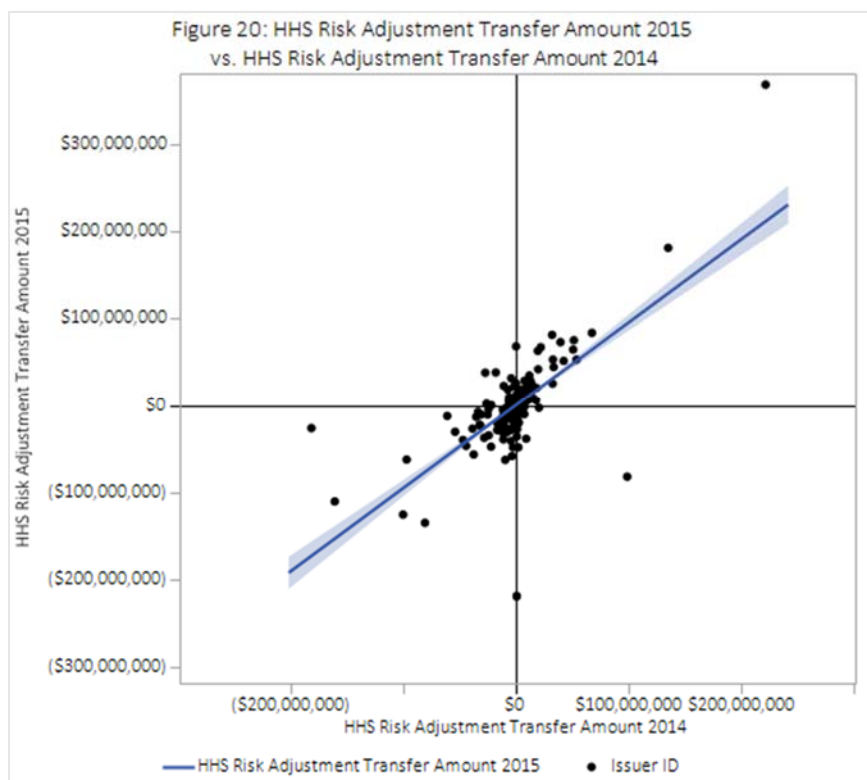
However, it is possible to look at how each issuer fared in total and by state. Most issuers that were eligible for risk transfer payments in both 2014 and 2015 had risk payments that were in the same direction both years; that is, either they paid in both years or they received funds in both years. Table 2 summarizes the extent of risk transfer payments by four categories. It is worth noting that the absolute value of the transfer payments in the individual market is 9.6% of total premiums.



Table 2

Plans That Were Eligible for Risk Transfers in Both Years						
Category	Number of Plans	Percent of Total	Transfer Total (Millions)		Average Transfer (Millions)	
			2015	2014	2015	2014
Received Both Years	195	44%	2,482	1,533	12.7	7.9
Paid Both Years	146	33%	(1,942)	(1,575)	(13.3)	(10.8)
Received in 2014; Paid in 2015	62	14%	237	(172)	3.8	(2.8)
Paid in 2014; Received in 2015	42	9%	(643)	192	(15.3)	4.6

In general, the payment amounts did not differ markedly, and yet when the numbers are reported on a state-by-state basis, it is clear that some issuers in some states had a much more fluid experience. Figure 20 shows the relation between risk transfer amounts (in dollars) for 2014 and risk transfer amounts for 2015 for each issuer by state. Appendix B shows the individual state experiences, with each issuer indicated by dots.



## Section 7: Discussion and Observations

The interpretation of results from a risk pool is always a challenge, but the sheer size, variety and complexity of the ACA individual market means that most analysis will either be nuanced enough to be only applicable to a small or even singular subset of the program or at such a high level as to give collective results that do not fit well with any single program.

Some statements can be made. For the most part, risk scores as measured by PLRS/AV did rise from 2014 to 2015. Increased risk scores may be a combination of identification through better coding as well as a measure of the actual population health. This does not mean that all issuers became winners—this process is, after all, a zero sum game. For the most part issuers that paid into the pool in 2014 paid in in 2015, and issuers that received monies from the pool in 2014 did so in 2015 as well.

In most states, risk scores in 2015 were well correlated with risk scores in 2014, but not perfectly. The correlation in subsequent years should improve even more as the pool expands, health plans remain active in markets, members become more integrated into the system, and special enrollment provisions reduce member churn.

The risk score in some states had significant swings. For example, Alabama had an increase in risk score of 17.3%, whereas Nevada had a decrease of 8.4%. The CCIIO report estimated that the absolute value of risk adjustment transfers as a percentage of premium held steady at about 10%. It is worth remembering that in the individual market, loss ratio rules mean that the issuers need to allow no more than 20% of the premium for administration, margin and profit, which makes the risk transfer amount a much more significant number than it would appear.

State policies around transitional policies and Medicaid may have had some impact on risk scores and the change in risk scores, but they are not sufficient to explain state-by-state differences in absolute risk or in the differences by state in premium. They are, however, important market characteristics that need to be considered when evaluating the consistency and stability of the pool moving forward.

It is worth noting the reinsurance coinsurance rate for 2015 is 55.1%, whereas the prior year was 100%. The total reinsurance paid to issuers on a per member basis in 2014 was \$79.90, but in 2015 it was \$48.34 (this would have been \$87.73 if the coinsurance rate had remained at 100%).<sup>5</sup> Health plans absorbed more of the risk for high-cost members during this time period, making the risk adjustment payment even more important to the stability of the market.

Another important point to consider when examining these risk scores is the impact they can have on population health management. These scores will help us to understand the health of the population, identify areas where there are clear needs for effective solutions to delivery, and highlight efficiency issues that extend beyond a single health plan. A common basis for evaluating the risk of the population has been important for designing programs to achieve the Triple Aim in the Medicare population, and this will be a benefit in the ACA Exchange as well.

The program is still too immature and this material too scant to draw conclusive inferences about the future of the pool or the marketplaces. Several large structural changes will result in more

---

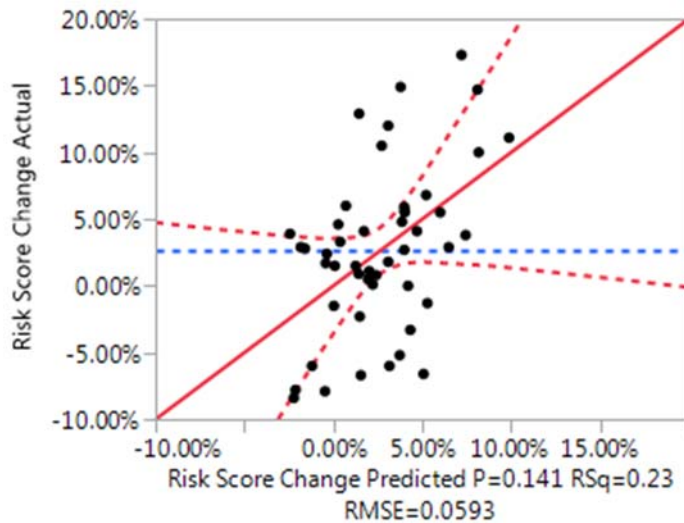
<sup>5</sup> It is worth noting that the monies for these reinsurance payments come from a reinsurance fee paid into the program by insurers and self-funded employers. This program is ending in 2016.

shifts, such as the new risk adjustment model, full incorporation of ICD10, the phasing out of transitional plans, and tighter special enrollment periods.

The results from 2015 will be analyzed by many parties with access to nearly complete results, and these analyses will be able to shed more light on the causal relationship between market conditions and risk score results. Time and more data will lend perspective, but still it is clear that effective analysis of a particular health plan offering in a state will require analysis of directly applicable data; national averages or results from other states, and even other time periods, will be challenging to translate.

## Appendix A—Multiple Regression Modeling

Using a data set composed of the adjusted PLRS score for 2014 and 2015, Reinsurance PMPM, Medicaid Expansion Indicator, Transitional Policy and Population Change gives us a model that is not as predictive as one could hope.



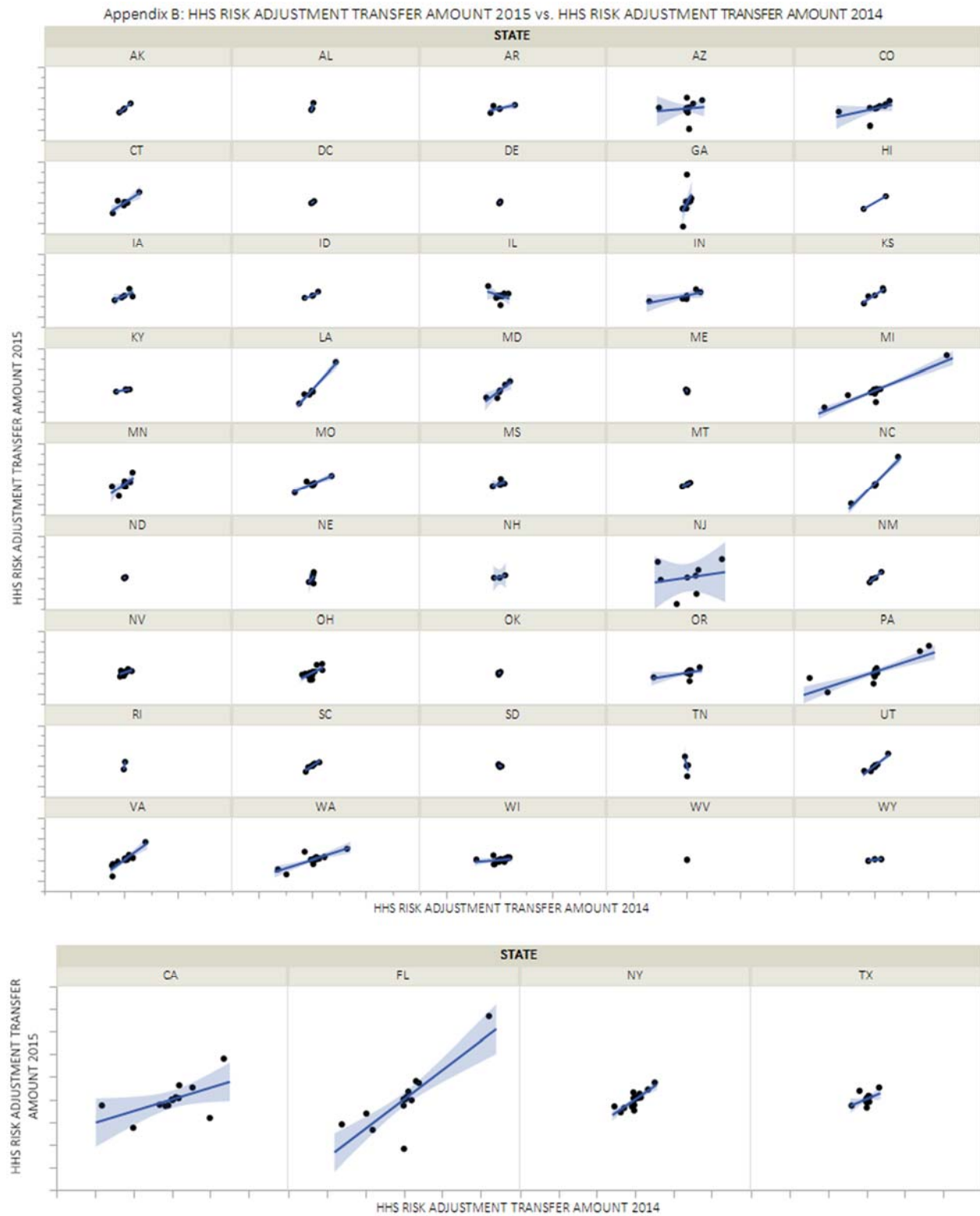
$R^2$	0.227531
$R^2$ Adj.	0.092349
Root-Mean-Square Error	0.059292
Mean of Response	0.026646
Observations (or Sum Weights)	48

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	7	0.04141999	0.005917	1.6831
Error	40	0.14062099	0.003516	<b>Prob &gt; F</b>
Corrected Total	47	0.18204098		0.1410

Term	Estimate	Std Error	t Ratio	Prob >  t	Std Beta
Intercept	0.0698684	0.03554	1.97	0.0563	0
2015 MM	1.2248e-9	1.993e-9	0.61	0.5422	0.087125
Population Change	-0.083892	0.028934	-2.90	<b>0.0060*</b>	-0.42466
Transitional Policy [Large]	-0.004383	0.015174	-0.29	0.7742	-0.04781
Transitional Policy [Small]	-0.002656	0.01234	-0.22	0.8307	-0.03708
Medicaid Expansion Indicator [Late]	-0.029474	0.024602	-1.20	0.2380	-0.2924
Medicaid Expansion Indicator [No]	0.0177181	0.016582	1.07	0.2917	0.276956
Reinsurance PMPM	0.0001048	0.000642	0.16	0.8712	0.026654

(\* shows a statistically significant result.)

## Appendix B—Distributions of Issuer Risk Payments Year over Year by State



## About The Society of Actuaries

The Society of Actuaries (SOA), formed in 1949, is one of the largest actuarial professional organizations in the world dedicated to serving 24,000 actuarial members and the public in the United States, Canada and worldwide. In line with the SOA Vision Statement, actuaries act as business leaders who develop and use mathematical models to measure and manage risk in support of financial security for individuals, organizations and the public.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

**Objectivity:** The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

**Quality:** The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and non-actuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

**Relevance:** The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

**Quantification:** The SOA leverages the diverse skill sets of actuaries to provide research and findings that are driven by the best available data and methods. Actuaries use detailed modeling to analyze financial risk and provide distinct insight and quantification. Further, actuarial standards require transparency and the disclosure of the assumptions and analytic approach underlying the work.

### **SOCIETY OF ACTUARIES**

475 N. Martingale Road, Suite 600  
Schaumburg, Illinois 60173  
[www.SOA.org](http://www.SOA.org)