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TWO-STAGE RISK ADJUSTMENT

Potential impact on the individual ACA marketplace

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CONTENTS

1

EXECUTIVE SUMMARY

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Our findings include the following

- The two-stage methodology CMS used to develop the coefficients for the proposed 2023 risk adjustment model **improves predictive ratios** for enrollees with low-risk scores
- Ideally, risk-adjustment should make plans indifferent to selection, but the current risk-adjustment model significantly **underpays for high-claim enrollees and overpays for low-claim enrollees**
  - **Two-stage model coefficients result in** increasing risk scores for the low-claim enrollees and decreasing them for high-claim enrollees. This provides additional incentive for plans to target low-claim enrollees and avoid high-claim enrollees
  - We find the two-stage model will produce **lower risk scores for Black individuals, and higher risk scores for Asian individuals**
  - We believe the existing model's underpayment/overpayment has manifested itself in the market in at least the following ways:
    - The **absence of platinum** plans and generally lean plan designs at each metal level
    - The **prevalence of narrow networks**
    - New **issuers avoiding rural areas**
  - We believe the adoption of the two-stage model will provide additional incentives for market participants to continue to move the market in these ways

2

SCOPE OF ANALYSIS

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Background

- Until the 2023 benefit year, CMS developed risk-adjustment model coefficients using simple least squares regression
- Responding to a perception that the unweighted linear regression model resulted in a poor fit for low-risk enrollees, HHS is proposing a two-stage weighting to develop risk-adjustment model coefficients
  - Stage 1: coefficients are estimated using member month-weighted least squares regression, where each enrollee receives a fractional weight equal to the number of months enrolled
  - Stage 2: weight each member using the reciprocal of their stage 1 risk score so that members with lower risk scores receive more weight in the new estimation, and members with higher risk scores receive less weight, again weighted with member months
    - As examples, a healthy young person enrolled for a full year with a stage 1 risk score of 0.40 would receive a weight of 2.50 (=1.00/0.40), and a person with a risk score of 20.00 enrolled for the full year would receive a weight of 0.05 (1.00/20.00).

Analyses

- Blue Shield of California asked us to conduct the following analyses related to the two-stage proposal:
  - Use the 2021 DIY risk adjustment model and the **2019 LDS EDGE data** to solve for one-stage model coefficients, and then two-stage model coefficients using the reciprocal of the one-stage model results as weights in the regression
  - Use the 2021 DIY risk adjustment model and **BSC 2019 EDGE data** applying the methodology as described above
    - **Impute race onto BSC enrollees** and determine the effect on risk scores by race

3

DATA

NATIONWIDE LIMITED DATA SET EDGE DATA FILES FOR THE 2019 BENEFIT YEAR

Our analysis makes use of the nationwide LDS EDGE data and BSC's EDGE data

- Our starting point for developing coefficients was a **15%-member sample** from the 2019 benefit year external data gathering environment (EDGE) limited data set (LDS) files that CMS makes available for enrollees covered under the ACA small group, individual, and merged markets.
- The EDGE data consists of four files: an enrollment file, a medical claims file, a pharmacy claims file, and a supplemental claims file
- **Claims that included an ICD-10 code indicating substance abuse disorder have been redacted** from the claims files we received, even if the service being billed was not related to substance abuse
  - This resulted in roughly a 10% reduction in medical claims, a 0.2% reduction in unique individuals with medical claims and a 2% reduction in the number of claims in the medical file. No change was made to the pharmacy file for the redaction
- The data includes information on roughly 28.7 million individuals
  - 21.3 million had unredacted medical claims
  - 18.3 million had pharmacy claims
  - 1.2 million had unredacted supplemental claims
- Our 15%-member sample, stratified by modeling cohort (adult, child, infant) and gender, **includes information on 4.3 million individuals, which is a fully credible population**

BLUE SHIELD OF CALIFORNIA EDGE DATA FOR THE 2019 BENEFIT YEAR

Our analysis makes use of the nationwide LDS EDGE data and BSC's EDGE data

- Oliver Wyman received the **EDGE server submission file from BSC for benefit year 2019**
- These files include:
  - The final EDGE server enrollment submission file
  - All 101 EDGE server medical claim submission files
  - All 55 EDGE server pharmacy claim submission files
  - All 20 EDGE server supplemental diagnosis code files
  - The final 2019 Risk Adjustment Transfer Elements Extract (RATEE) file

- The EDGE server data includes information **on roughly 900k Blue Shield IFP enrollees**

- Oliver Wyman **independently calculated benefit year 2019 risk scores** using the EDGE server data provided and **verified data/risk score accuracy against BSC's final RATEE file**. Recognizing differences in the way CMS processes EDGE data and calculates risk scores, we are comfortable with the validity of the BSC EDGE data and our processing of that data, despite some differences in IFP calculated risk scores

LOB	OW 2019 Score	RATEE 2019 Score
Catastrophic	0.455	0.478
Individual	1.523	1.573

4

METHODS

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- To understand the impact of CMS's proposed two-stage weighting approach to risk score development, we isolated the impact of this model update from other proposed changes, similar to the 2021 CMS technical paper[1]
- We **replicated CMS's 2021 methodology** for predicting risk on **both the 2019 EDGE LDS** and **2019 BSC EDGE data** to create two models for each data set
  - Model 1: A baseline model independently solving for risk coefficients that mirror the CMS 2021 coefficients
  - Model 2: A two-stage model that incorporates **only the proposed two-stage weighting approach**
- Replicated CMS methodology includes the following steps:
  - Apply 2021 demographic and HCC/RXC indicators to the data
  - Utilize CMS public use data (PUFs) on benefit designs to **create standard plan designs by metal tier**[2]
  - **Remove capitated claimants** to eliminate uncertainty related to allowed amounts (LDS EDGE data only)
  - **Synthesize plan liability amounts** for each metal tier based on standard plan designs and allowed cost amounts
  - Convert member-level plan liability amounts to relativities using weighted market-average plan liability[3]
  - **Build member-month weighted least squares regression models to estimate plan liability relativities (risk scores)** for each metal tier and demographic population (adult & child)
  - **Incorporate the multiplicative, two-stage weighting approach** as outlined in the CMS technical paper
- Examined the **impact of two-stage model on high- and low-claims individuals**
- Analyzed the impact of two-stage weighting on race by using the BSC data and imputed race using the **'wru' R package to predict**[4]

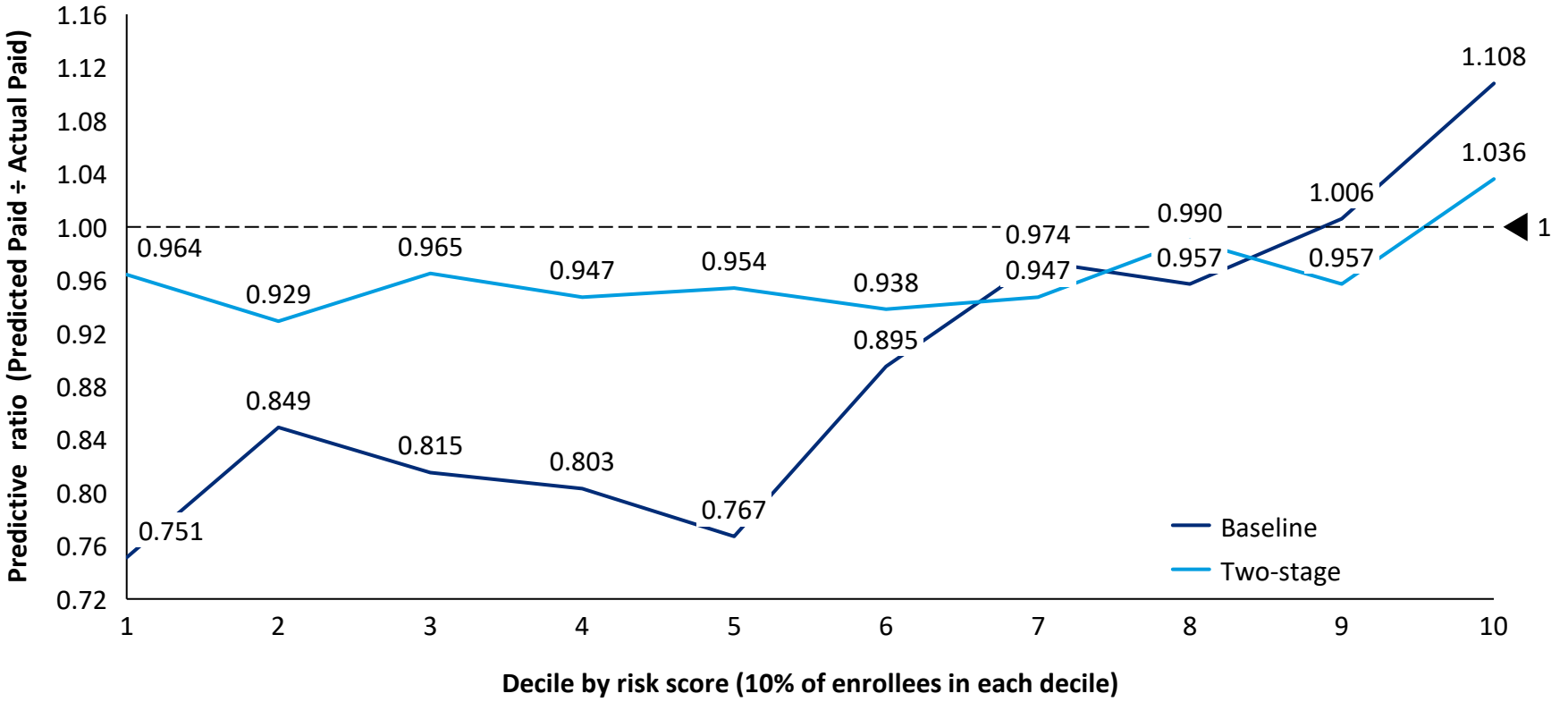
1. https://www.cms.gov/files/document/2021-ra-technical-paper.pdf
2. https://www.cms.gov/CCIIO/Resources/Data-Resources/marketplace-puf
3. We utilized national ACA open enrollment public use data to estimate the proper metal mix
4. .https://cran.r-project.org/web/packages/wru/wru.pdf

5

NATIONWIDE LDS EDGE DATA RESULTS

CONSISTENT WITH FINDINGS IN CMS TECHNICAL PAPER,[1] TWO-STAGE WEIGHTING IMPROVES MODEL FIT MEASURED USING RISK SCORES

Predictive Ratios[2,3] based on 2019 nationwide EDGE data

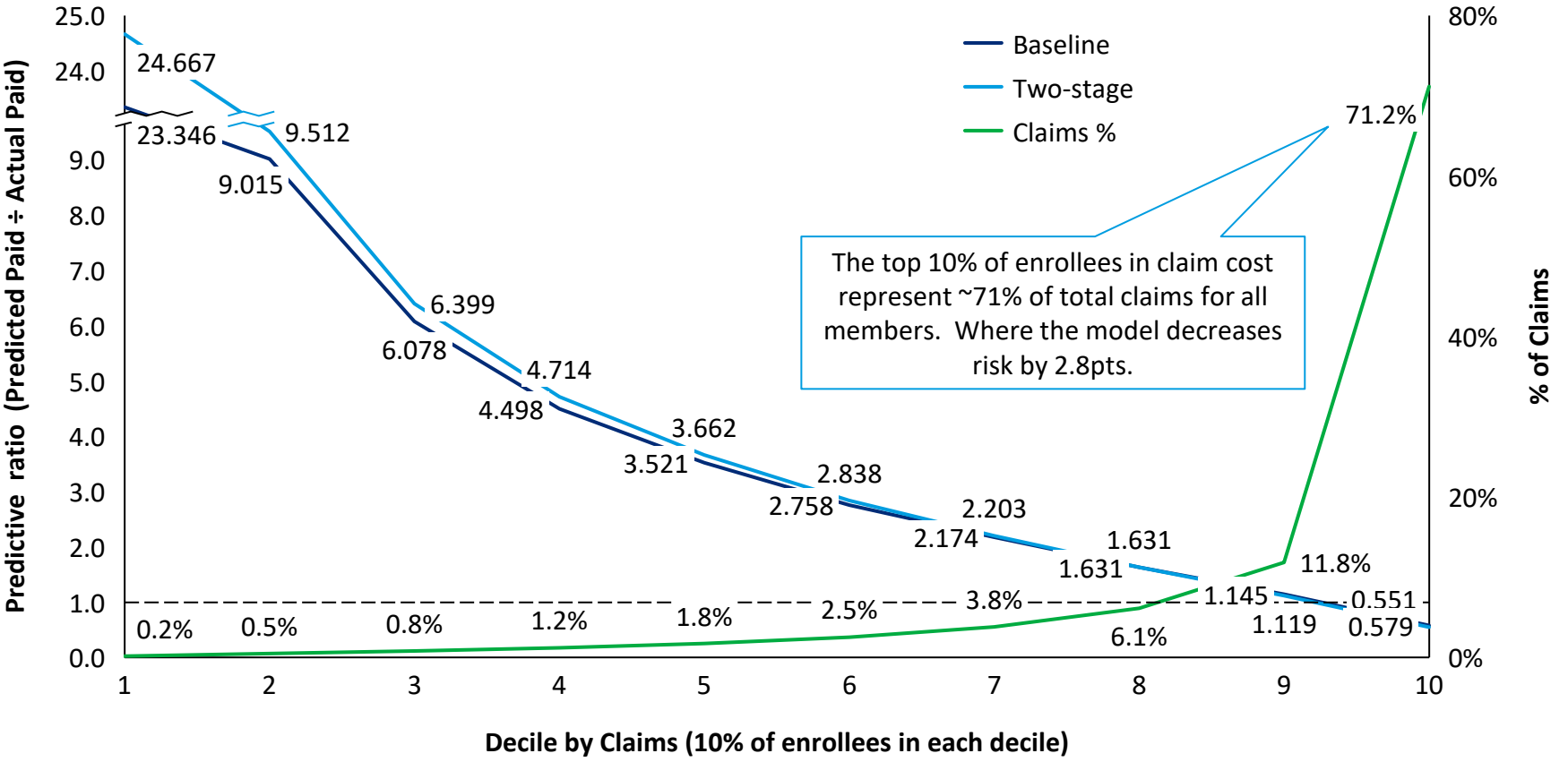


1. See Figure 2.2 in CMS technical paper: https://www.cms.gov/files/document/2021-ra-technical-paper.pdf
2. Predictive ratios throughout are calculated using a 30% validation sample
3. Two-stage risk scores throughout are normalized to a 1.0 to account for the net zero-sum market impact of the risk transfer program

THE MODEL PRODUCES A POORER FIT FOR THE MAJORITY OF CLAIMS EXPENSE

The two-stage model provides increased incentives for plans to avoid those with higher expected claims. This occurs today and may accelerate with less rich benefits, constrained networks, and increasing focus on urban areas

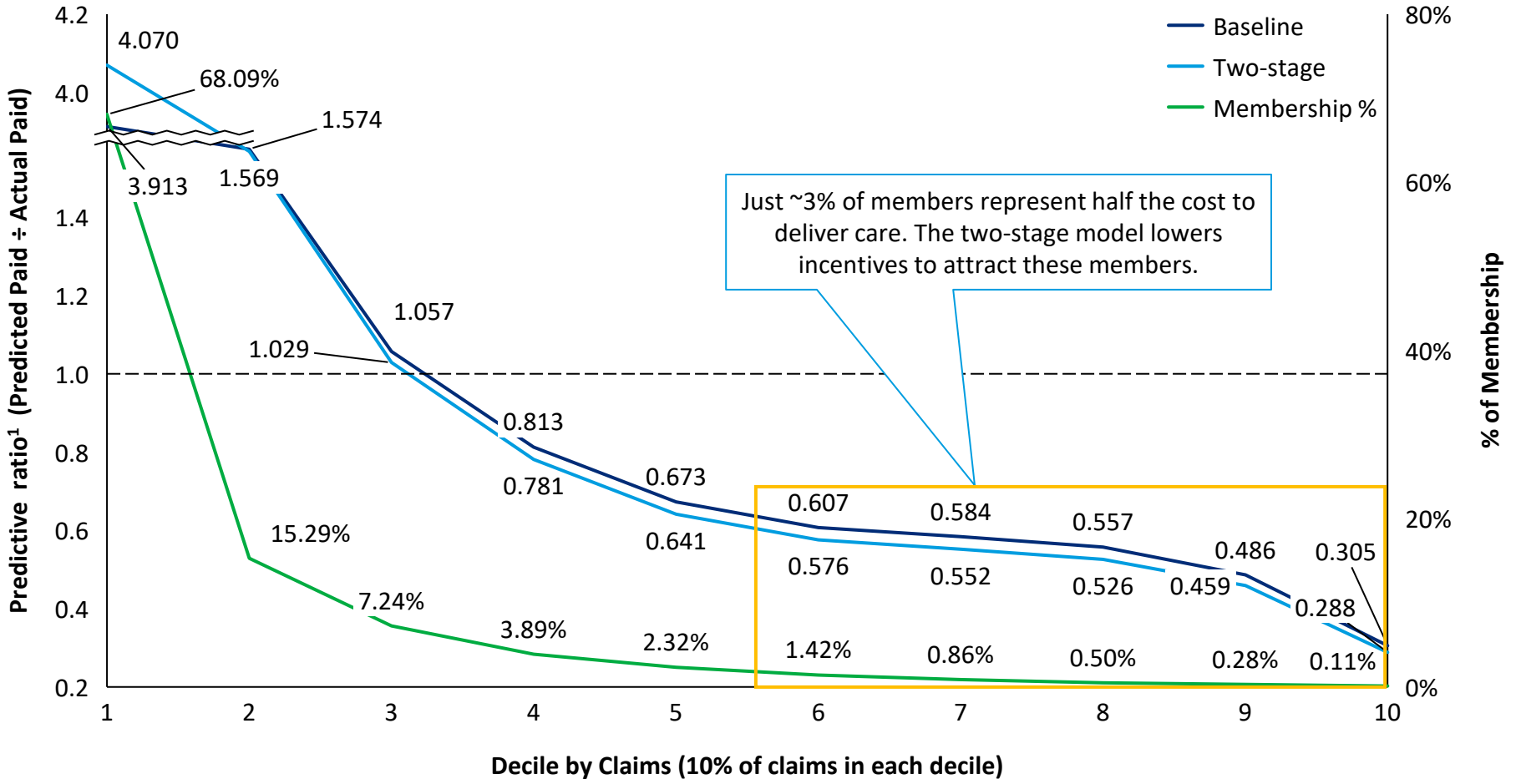
Predictive Ratios based on 2019 nationwide EDGE data



TWO-STAGE REDUCES PAYERS' INCENTIVES TO COVER THOSE MOST IN NEED

The pattern of underpayment for higher claim members becomes problematic if plans can select lower claim members. This payer selection of membership may reduce access and options for consumers with high claims

Predictive Ratios based on 2019 nationwide EDGE data

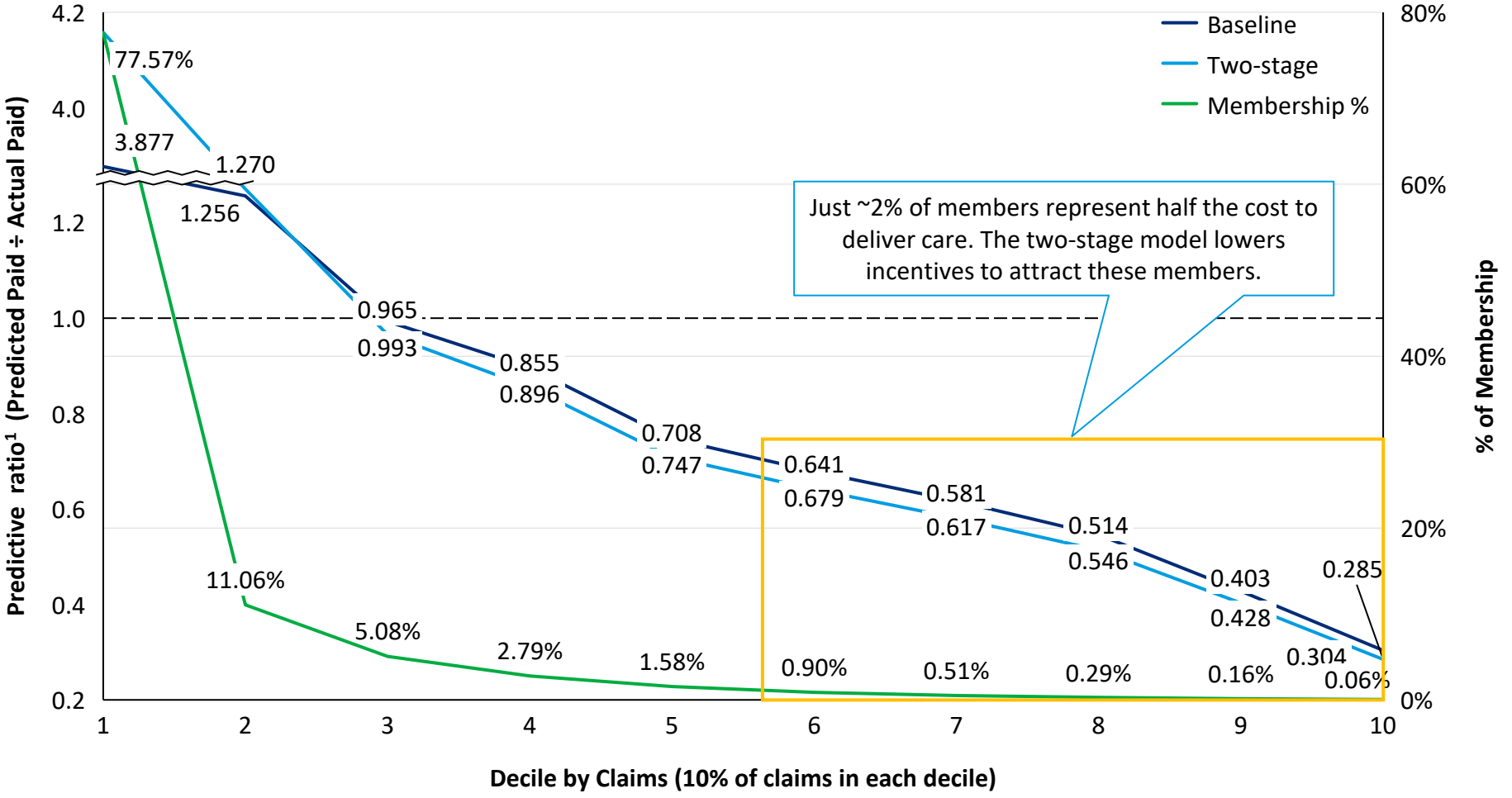


6

BSC DATA RESULTS

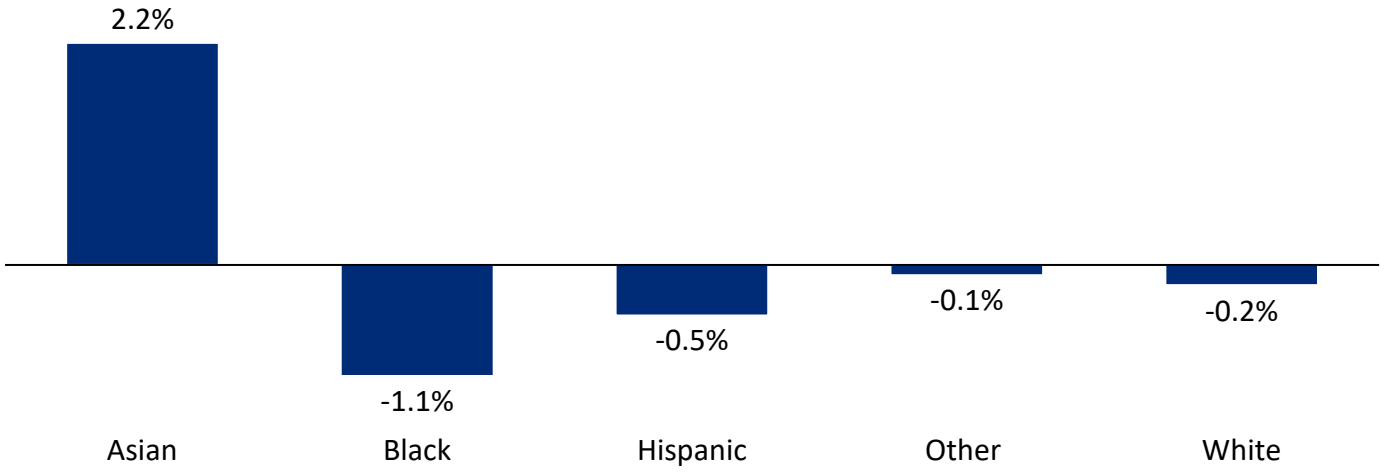
BSC RESULTS ARE CONSISTENT WITH NATIONAL RESULTS

Reinforces that plans will have reduced incentives to cover members with higher claims. Plans may intentionally try to attract members with lower claims by offering reduced access and focusing on less rich benefits



TWO-STAGE RESULTS IN HIGHER RISK WEIGHTS FOR ASIAN ENROLLEES AND LOWER RISK WEIGHTS FOR BLACK AND OTHER RACES

Impact of two-stage coefficients on risk score by race



Race[2]	Estimated IFP Distribution	One-Stage Predictive Ratio	% Risk Impact Two-Stage	95% Confidence Interval
Asian	18.2%	1.176	2.2%	(2.0%, 2.3%)
Black	4.9%	0.974	-1.1%	(-1.2%, -0.9%)
Hispanic	15.4%	1.048	-0.5%	(-0.7%, -0.4%)
Other	1.8%	0.995	-0.1%	(-0.3%, 0.0%)
White	59.6%	0.958	-0.2%	(-0.3%, -0.1%)

1. Race cohorts are not exclusive by member, but are a weighting d based on their imputed racial percentage with the sum of imputed percentages equal to 1.00 for each person

7

POTENTIAL IMPACT OF THE TWO-STAGE MODEL ON THE MARKET

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- As we have shown here, two-stage model coefficients **worsen the overpayment for enrollees with the lowest claims and the underpayment for those with the highest claims**.
- Several significant features of the non-group market are consistent with the underpayment for high-claim enrollees and issuers' economic incentives to avoid such enrollees:
  - The **narrow networks** that characterize coverage available in the ACA individual market
  - The **absence of platinum plans** from the markets. If the risk-adjustment system were adequately weighting high-claim enrollees, we would expect all issuers to be offering platinum plans which would attract high-claim individuals
- Based on both nationwide and BSC EDGE data, a two-stage approach to developing model coefficients **lowers the risk score, and thus the incentives health plans have to cover the highest-claim individuals**
  - We expect the **move to narrower networks** that are most attractive to the healthiest individuals to continue
  - We expect **product offerings continue to be lean** – with AVs at the bottom end of the de minimis ranges and issuers rarely offering platinum plans
  - We expect the trend of **new market entrants avoiding rural areas** to continue as in rural areas it is difficult to build narrow networks and therefor to differentially attract the most profitable, lowest-claim individuals
  - We expect **differences among issuer's premiums to widen** as issuers with a higher proportion of high-claim individuals see the underpayment for these individuals made worse and increase their premiums to compensate
  - A**ccessibility to care may be further reduced** as plans react to incentives and further target low-claim enrollees

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