

**Demographic shifts present challenges for the
public finance sector**

Rachel Cortez

Diana Lee

Frank Mamo

Nick Samuels



Schedule & Materials

<https://live.moodys.io/us-public-finance-in-focus-channel>



Sign-up Once

Get regular updates on the US Public Finance in Focus program



Live Q&A

Engage with the analysts and get your questions answered

Diana Lee

Vice President – Senior Credit Officer
Not-For-Profit Health Care Ratings
US Public Finance Group
New York

Frank Mamo

Vice President – Senior Analyst
Local Government Ratings
US Public Finance Group
New York

Nick Samuels

Senior Vice President
State Government Ratings
US Public Finance Group
New York

National demographic shifts

Working-age population

- **77%** of the nation's counties are forecast to see a decline in their working-age population in the next decade
- **-5.5%** is the median change in working-age population for all counties nationwide over the next decade
- **~68%** of cities and counties that Moody's currently rates are forecast to see working-age population declines in the next decade

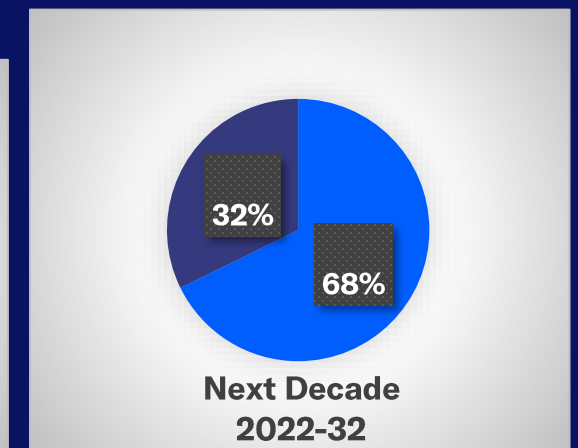
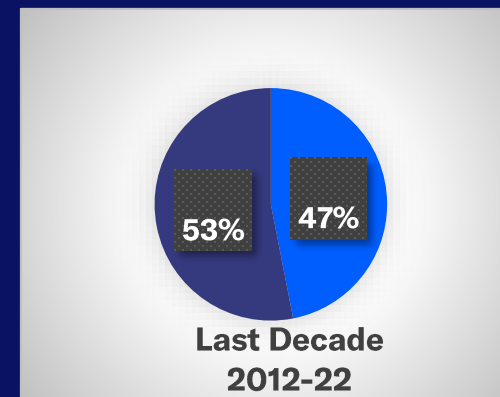
US Overview

	Last Decade 2012-22	Next Decade 2022-32
Share of US Counties with Shrinking Working Age Population	71%	77%
Share of US Counties with Growing Working Age Population	29%	23%
Median % Change in Working Age Population	-4.6%	-5.5%

Source: U.S. Census Bureau, Moody's

Moody's Rated Cities & Counties

- Shrinking working age population
- Growing working age population

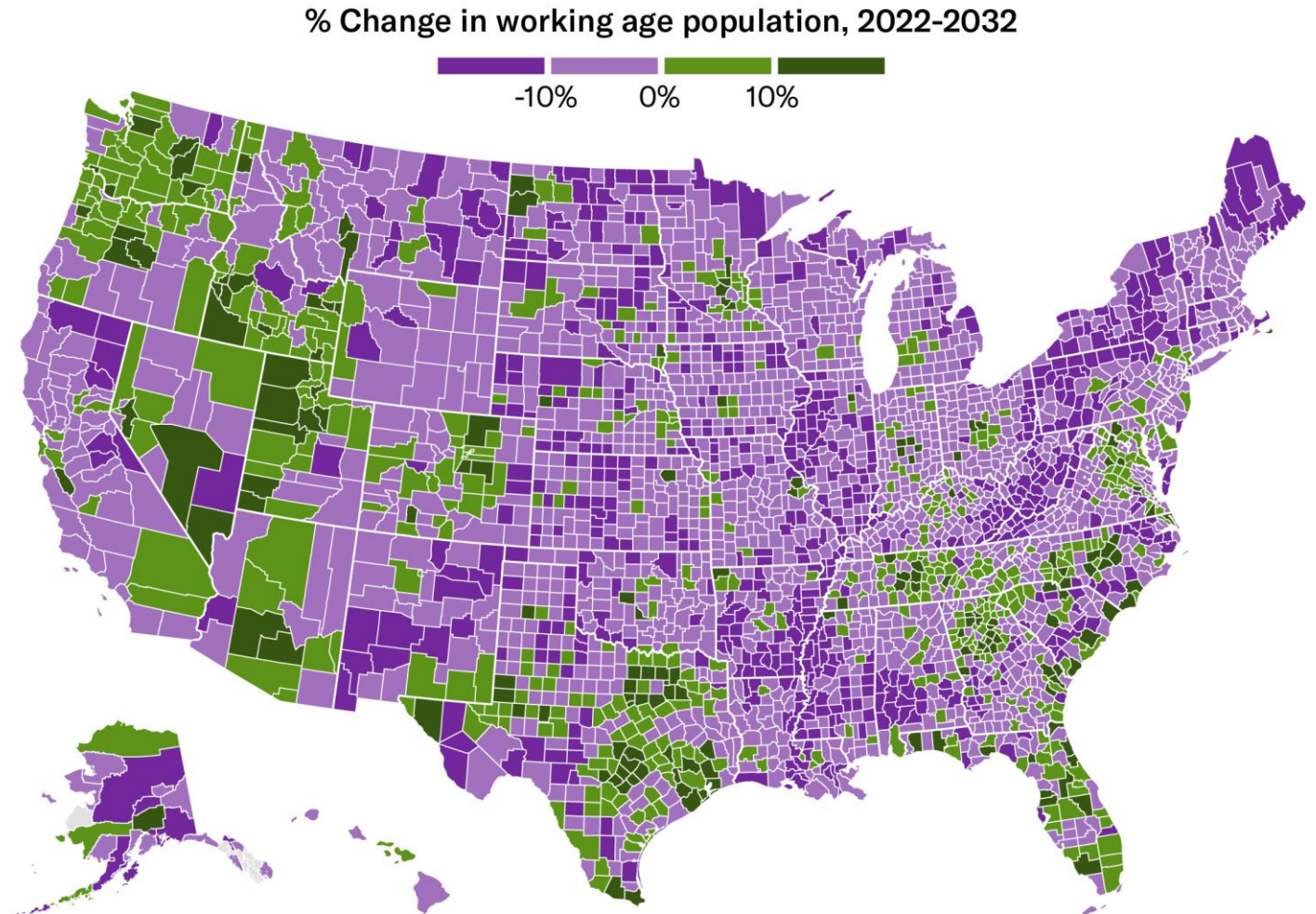


Source: US Census Bureau, Moody's

Moody's baseline forecast

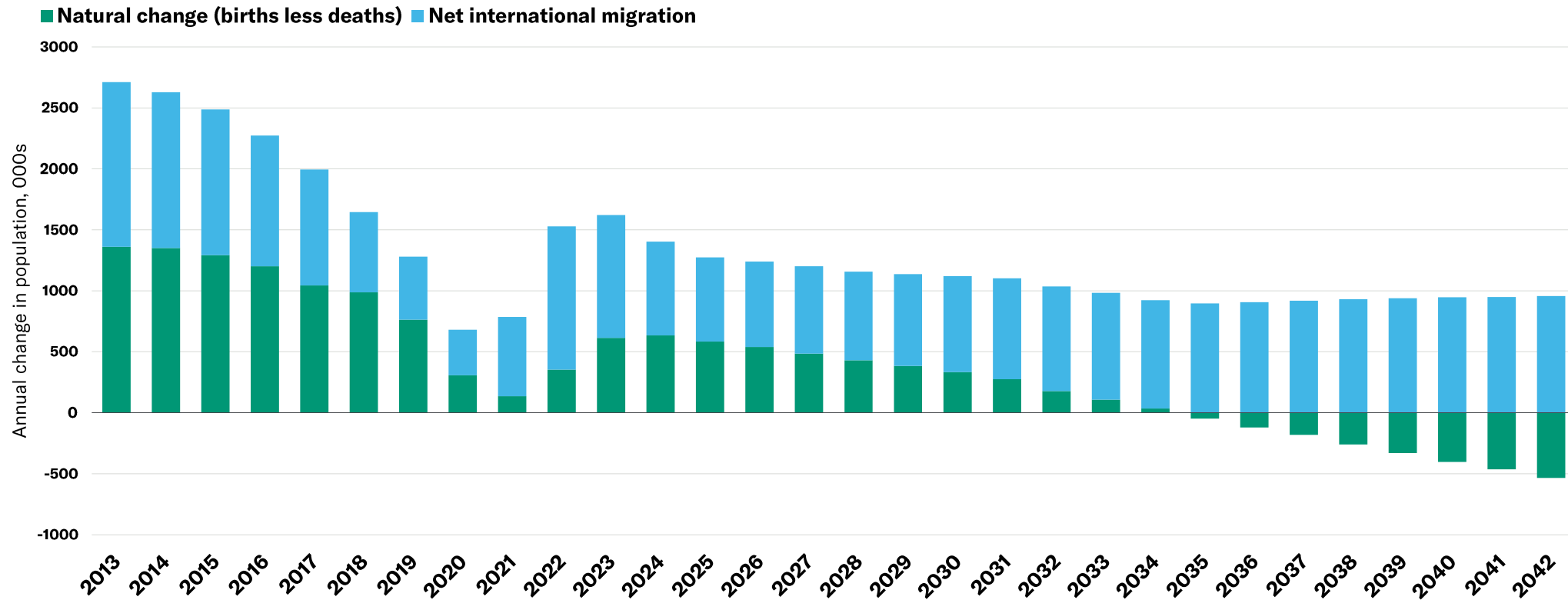
Working-age population

- Declines are not specific to one region but widespread across the country
- Rural parts of the country and legacy urban areas are forecast to see the sharpest declines
- Shrinking areas hit by a confluence of factors:
 - i) Domestic outmigration
 - ii) Falling birth rates
 - iii) Aging population leading to higher mortality rates



Source: Moody's

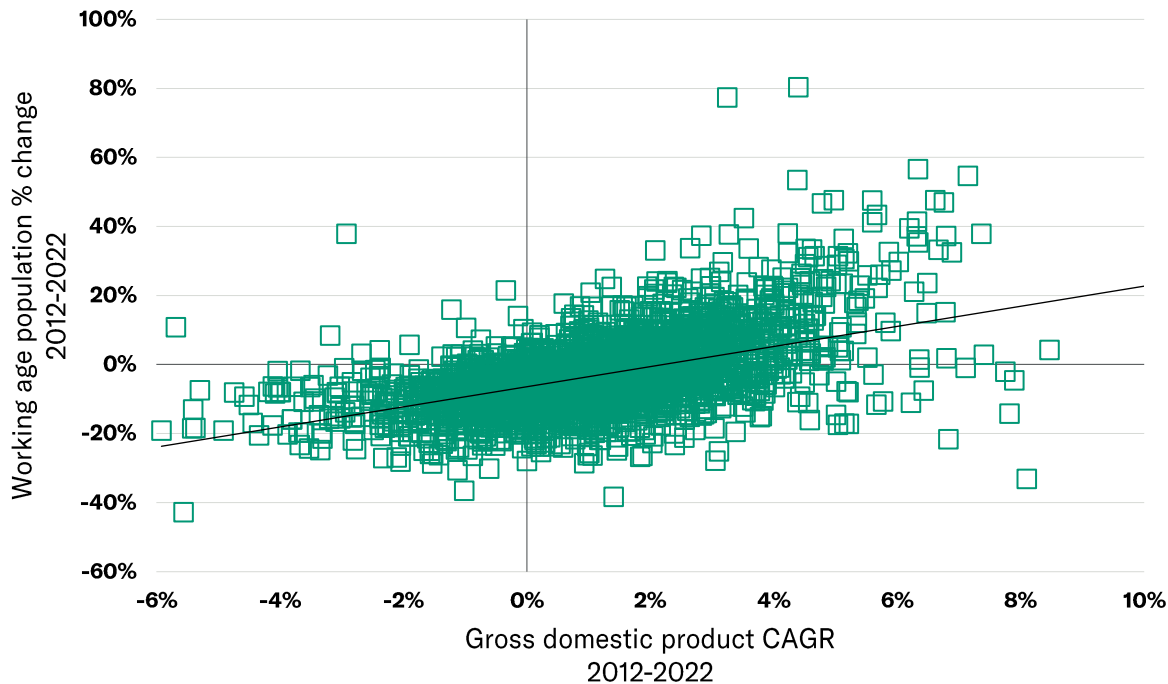
International immigration will become increasingly important driver of the US population



Source: US Census Bureau, Moody's

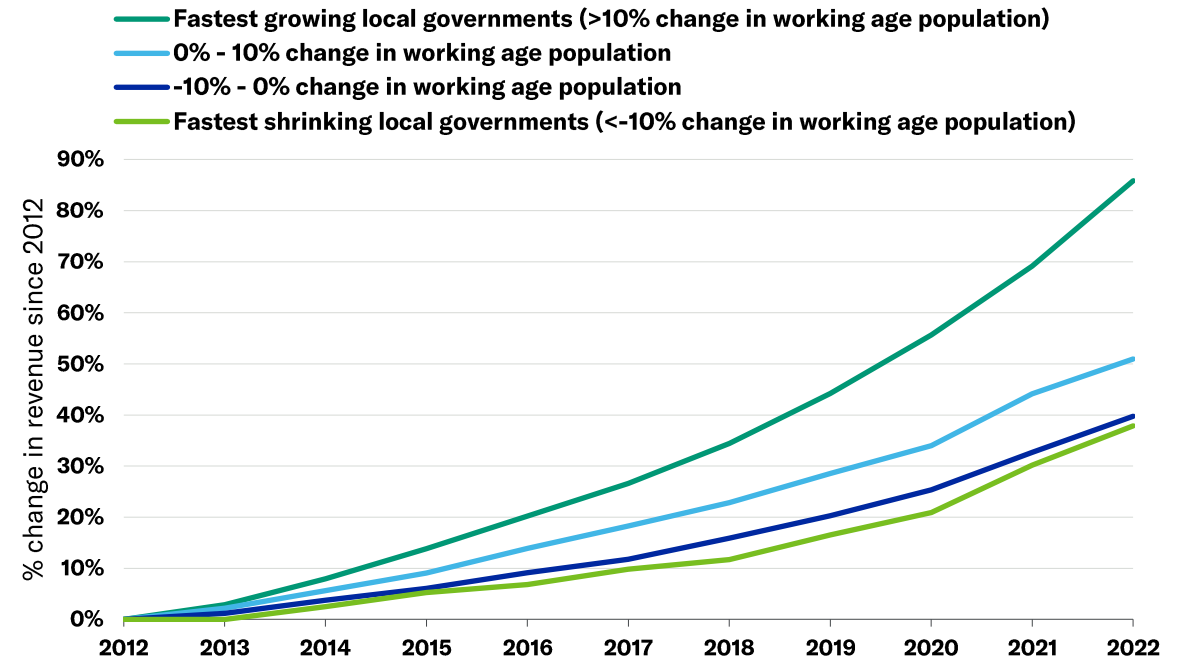
For local governments, working-age population declines:

Are tied to slower GDP growth



Source: US Bureau of Economic Analysis, Moody's

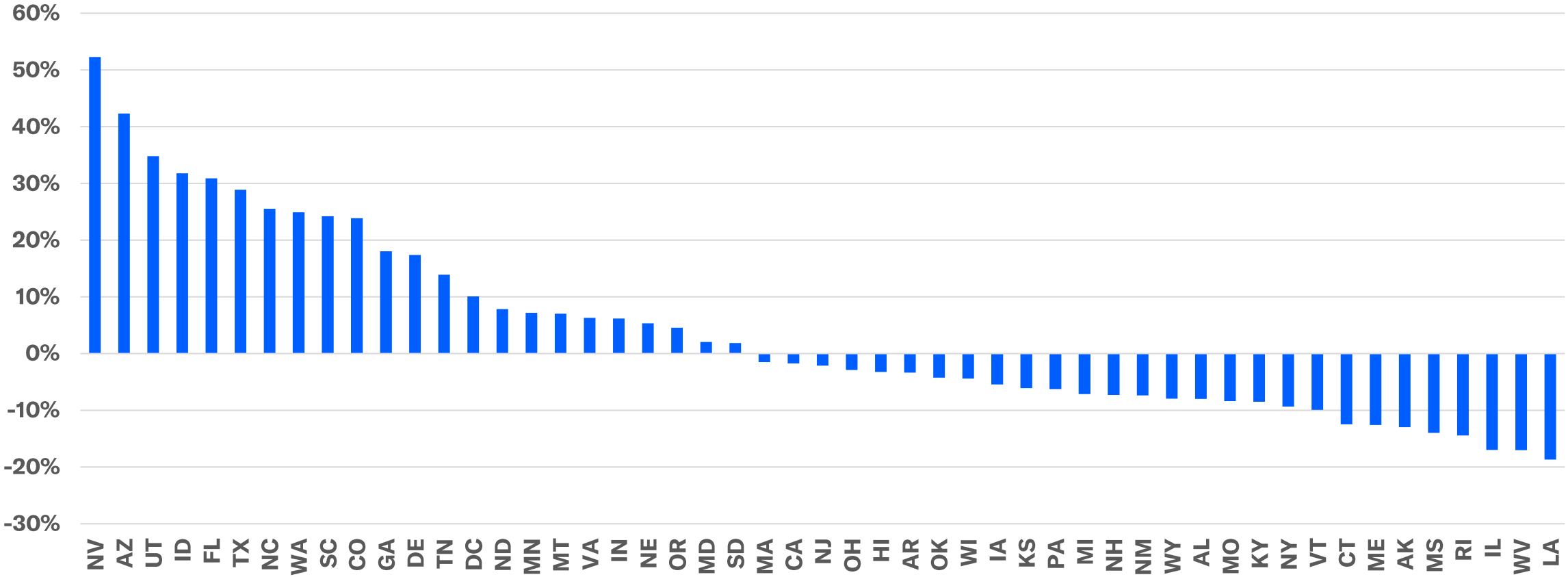
Can constrain city and county revenues



Source: US Census Bureau, Moody's

Most states will lose population...

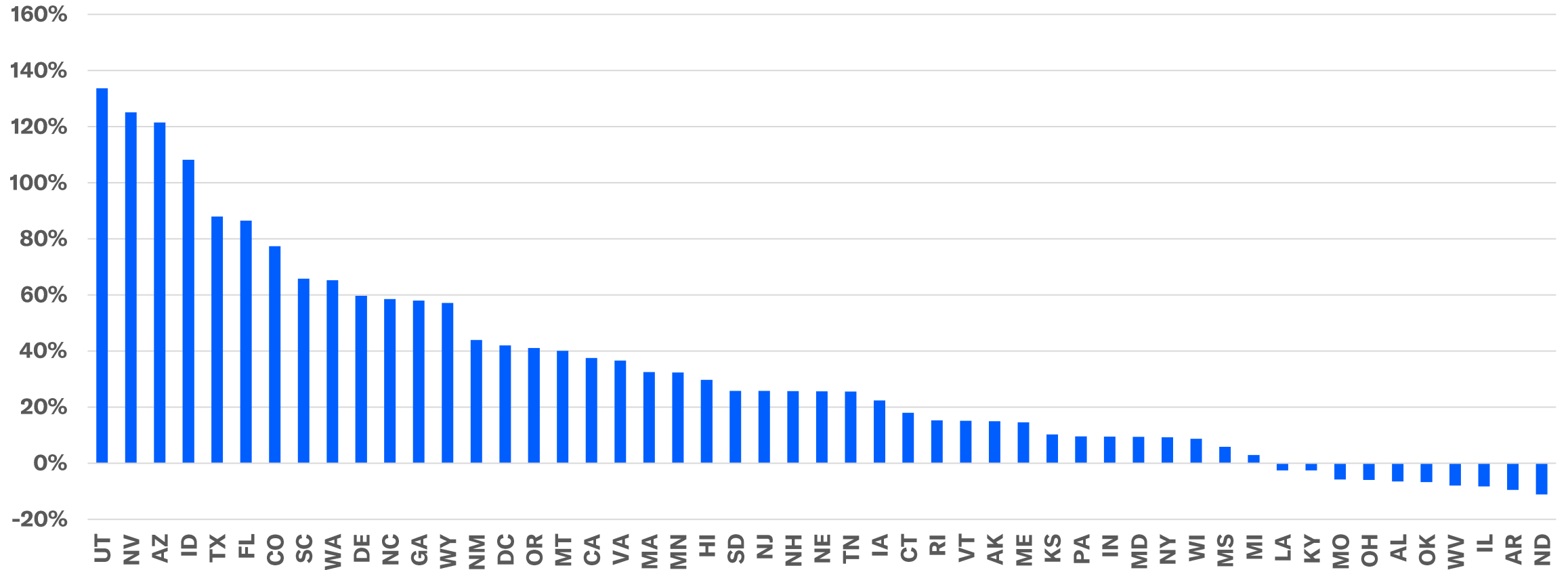
Forecast change in total population, 2024-2054



Source: Census Bureau, Moody's

... but even the gainers will become older

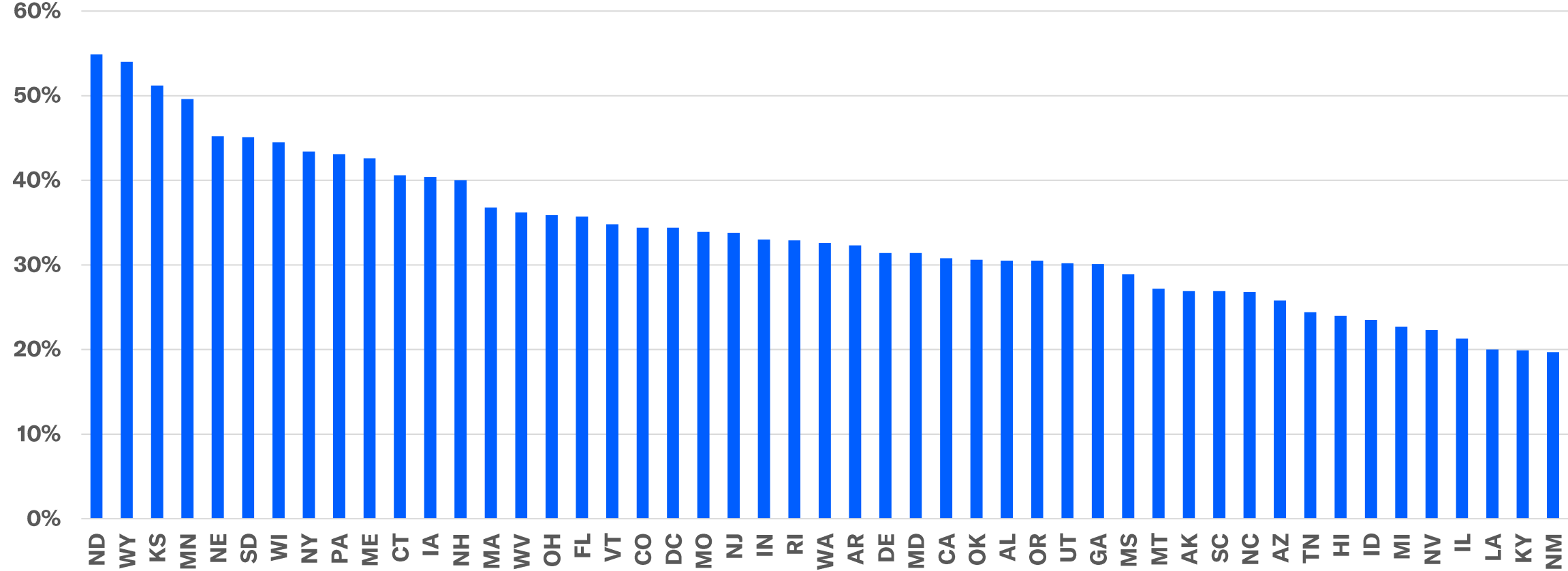
Forecast change in 65+ population, 2024-2054



Source: Census Bureau, Moody's

One-third of Medicaid is already spent on long-term care

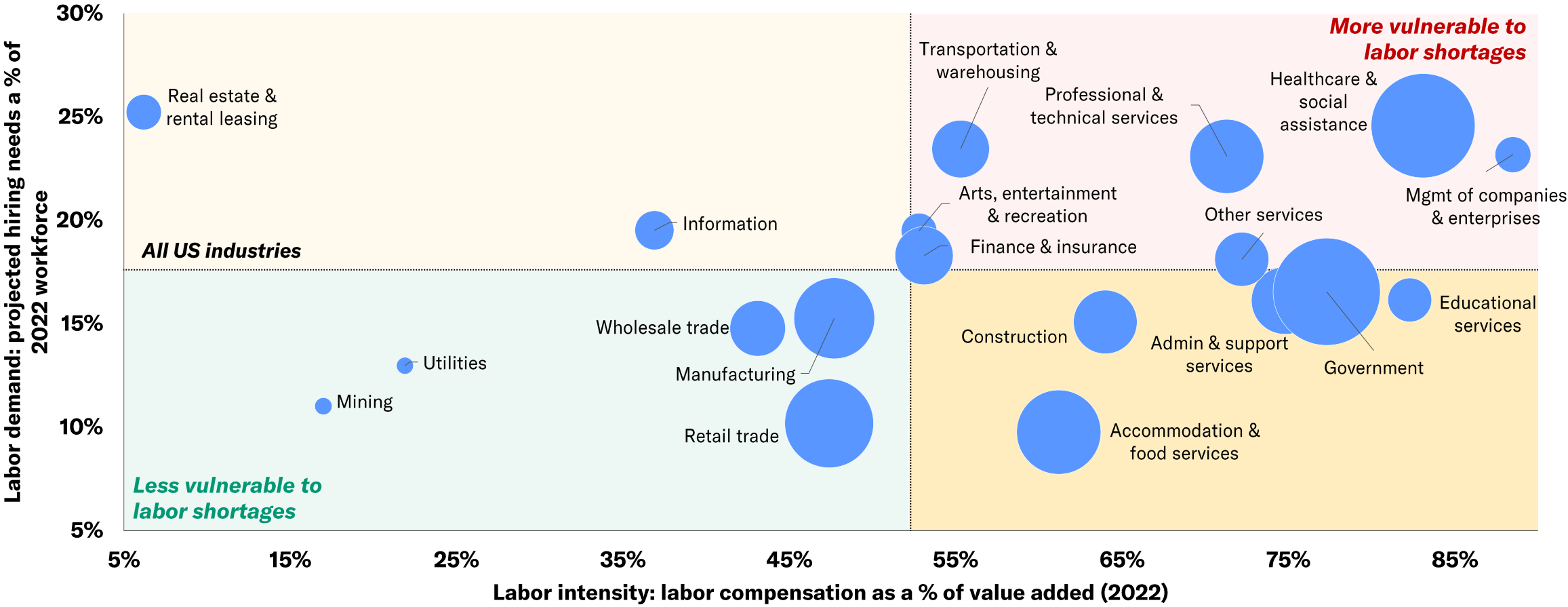
Percent of Medicaid spent on long-term services and supports



Centers for Medicare & Medicaid Services

Some sectors more vulnerable to labor imbalances than others

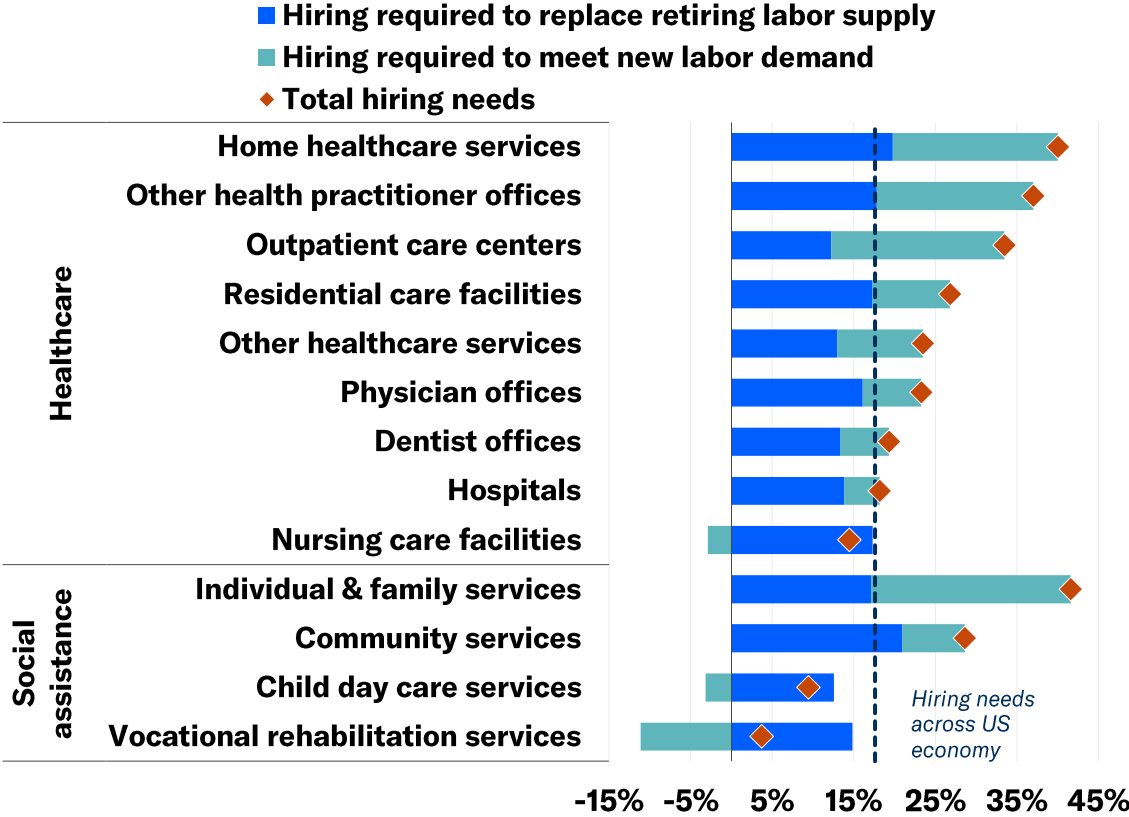
Labor demand and labor intensity, by sector



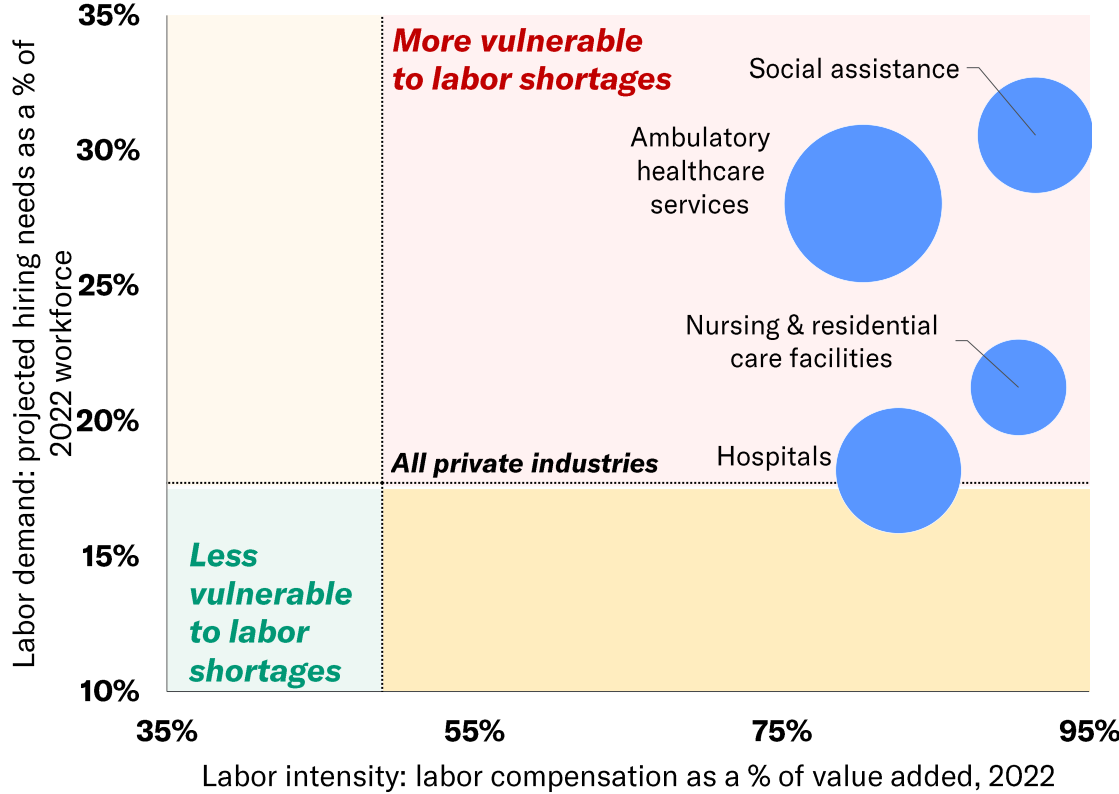
Bubble size represents industry employment level in 2023.
 Sources: Bureau of Labor Statistics, Bureau of Economic Analysis and Moody's Ratings

Healthcare's labor demand and dependence exceptionally high

Projected hiring needs as a share of 2022 employment



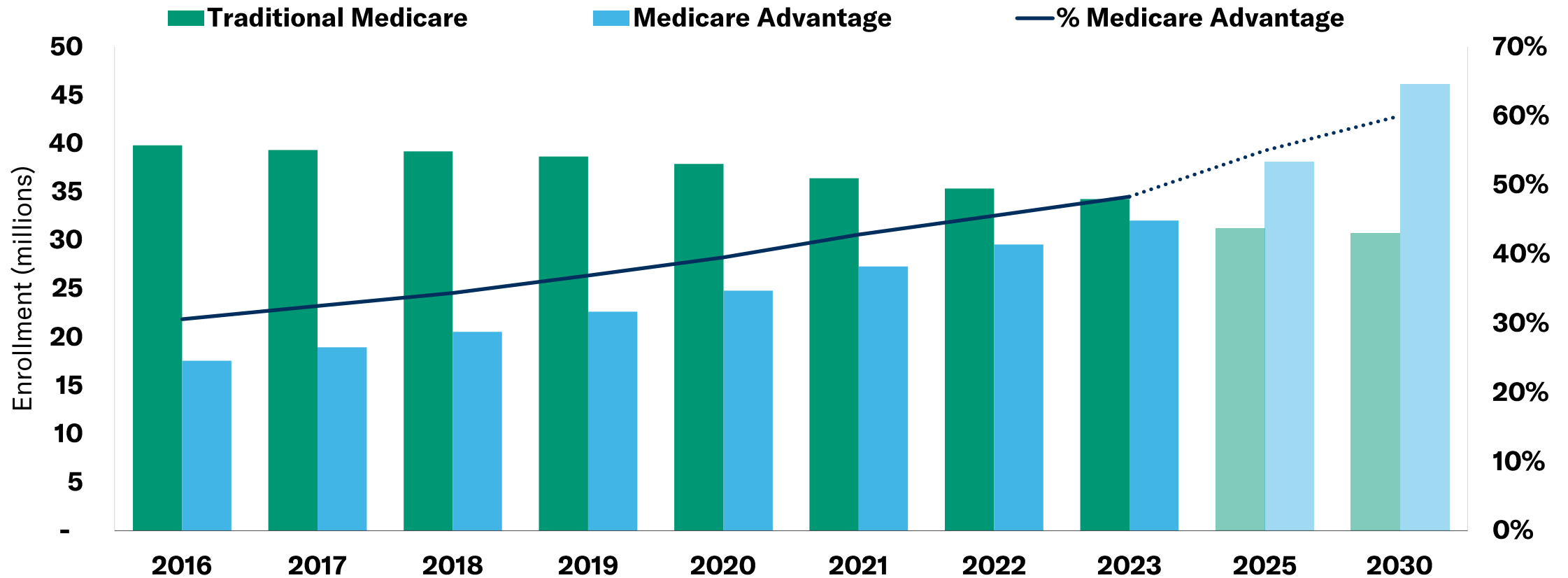
Healthcare labor demand and intensity by industry



Projected hiring needs are for 2022-32. Bubble size represents industry employment level in 2023.

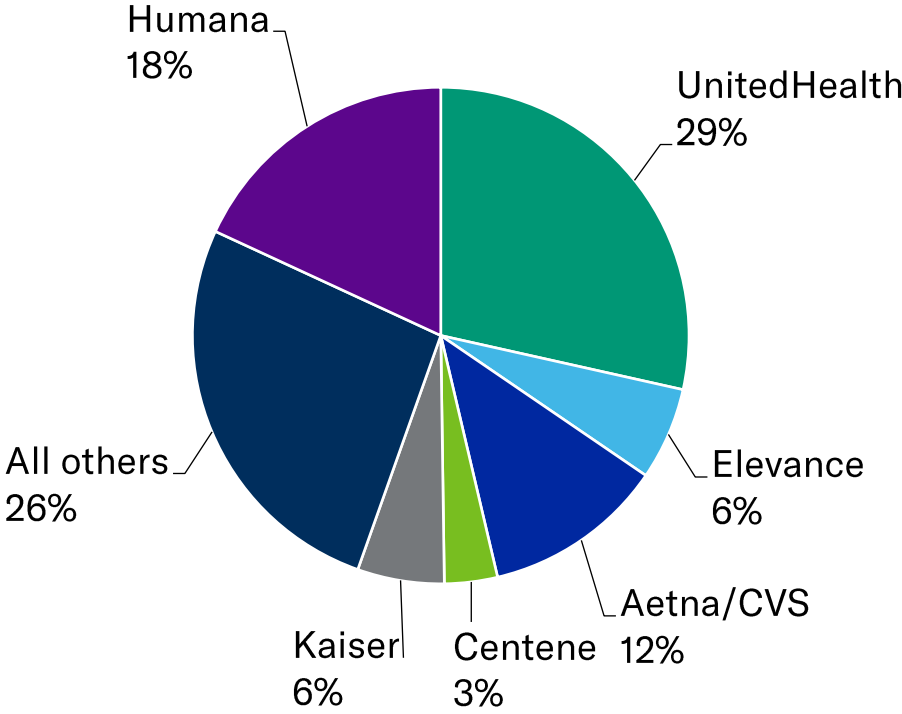
Sources: Bureau of Labor Statistics and Moody's Ratings

Medicare Advantage (MA) continues to take market share from traditional Medicare



Sources: Centers for Medicare & Medicaid Services and Moody's Ratings

MA market share is concentrated among the largest insurers, with UnitedHealth and Humana in the top spots



As of January 1, 2024
Sources: Centers for Medicare & Medicaid Services and Moody's Ratings

Lack of budget autonomy, fixed costs, long-term liabilities

In other words, weak legal or political ability to right-size operations and control costs

- **Poorly funded pension plans** that will likely require increased contributions
 - Single-employer plans carry different budget risks than multiple-employer cost sharing plans
 - Ohio, Illinois, New York, and Rhode Island have some of the sharpest population declines and highest ANPLs

- **Limited ability to control costs**
 - Public sector unions and strict collective bargaining agreements
 - High demands for certain kinds of public services that fall within a local government's service mandate

- **Large backlog of deferred capital spending**
 - High capital asset depreciation ratios (>65%) is one indicator of deferred capital investments that will need to be addressed in the near term
 - New York, Illinois, Ohio, Pennsylvania, and Rhode Island have some of the largest backlogs of capital needs and sharpest population declines

Strong governance has been key in mitigating these headwinds

Median fund balance ratio by cohort

- Median fund balance ratios have consistently improved over the last five years regardless of population trends
- Many growing areas are able to achieve this through robust revenue growth
- Whereas shrinking areas are employing a variety of measures:
 - i) Staffing reductions
 - ii) Less generous salary increases
 - iii) A more incremental approach to capital spending

Working age population cohort 2012-2022	Median fund balance as a % of revenue				
	2018	2019	2020	2021	2022
Fastest shrinking (<-10%)	38%	38%	39%	40%	43%
-10% to 0%	39%	40%	43%	45%	47%
0% to 10%	40%	41%	44%	46%	50%
Fastest growing (>10%)	50%	52%	54%	58%	60%

Note: table shows data for Moody's-rated cities and counties
Source: Moody's, US Census Bureau

Strong governance has been key in mitigating these headwinds

Median capital asset depreciation ratio, debt burden

Working age population cohort 2012-2022	Median capital asset depreciation ratio				
	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
Fastest shrinking (<-10%)	48%	49%	49%	51%	52%
-10% to 0%	49%	50%	50%	51%	51%
0% to 10%	47%	48%	48%	49%	50%
Fastest growing (>10%)	44%	45%	45%	45%	45%

Working age population cohort 2012-2022	Median debt as a % of revenue				
	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
Fastest shrinking (<-10%)	74%	66%	67%	67%	65%
-10% to 0%	67%	65%	67%	64%	65%
0% to 10%	72%	71%	74%	71%	72%
Fastest growing (>10%)	100%	95%	93%	89%	86%

Note: tables show data for Moody's-rated cities and counties
Source: Moody's, US Census Bureau

Thank you

Rachel Cortez

Associate Managing Director

rachel.cortez@moodys.com

Diana Lee

VP – Senior Credit Officer

diana.lee@moodys.com

Frank Mamo

VP – Senior Analyst

frank.mamo@moodys.com

Nick Samuels

Senior Vice President

nicholas.samuels@moodys.com

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody's.com under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Clasificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.