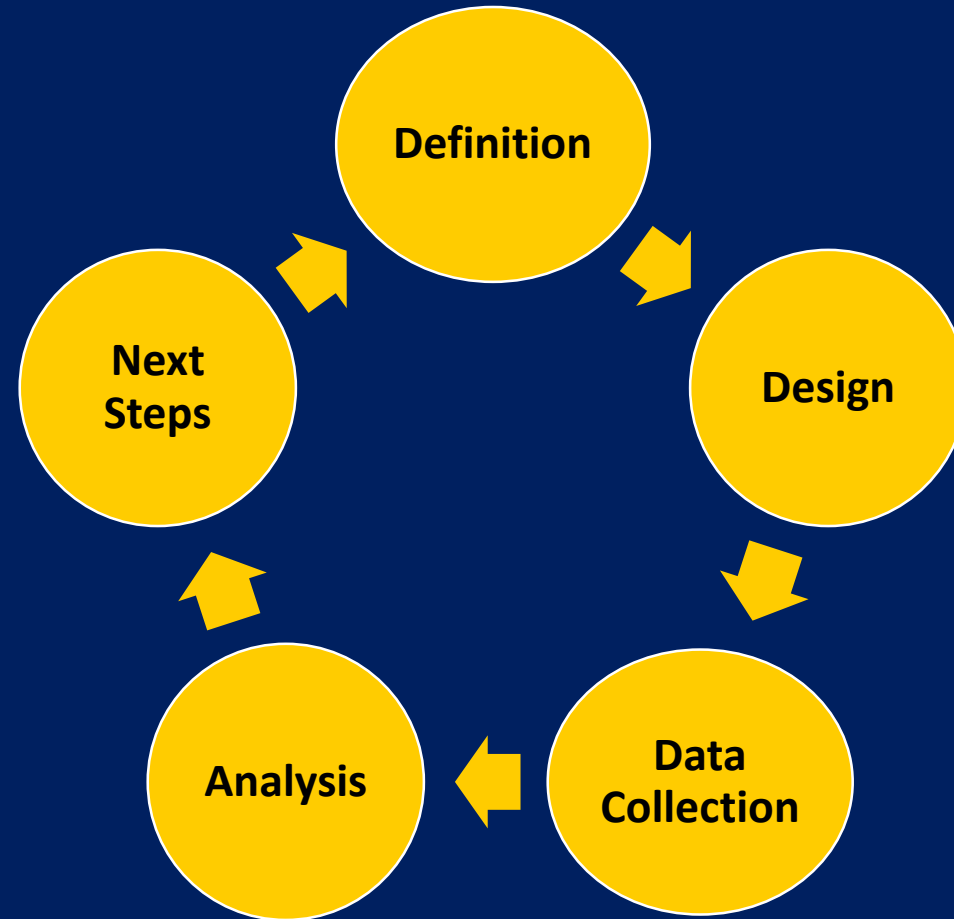# Translating REMI Outputs to Next Steps

Michael Siers

Interim Director of Research

Towson University's Regional Economic Studies Institute

July 18, 2018

TOWSON
UNIVERSITY.

Regional Economic
Studies Insitute

Project Lifecycle

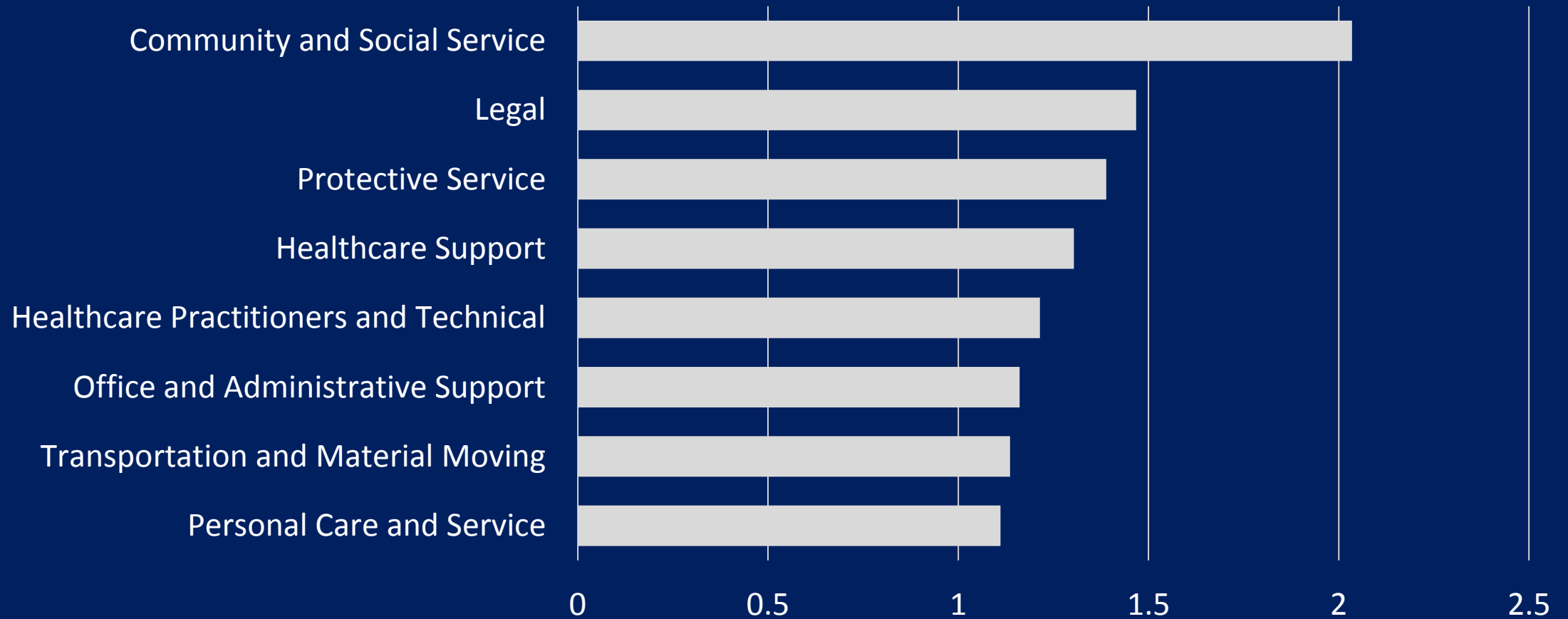# Agenda/Ways to Extend REMI Analysis

- Racial Equity Analysis

- Education and Training

- Certifications

- Mapping/Interactive Dashboards

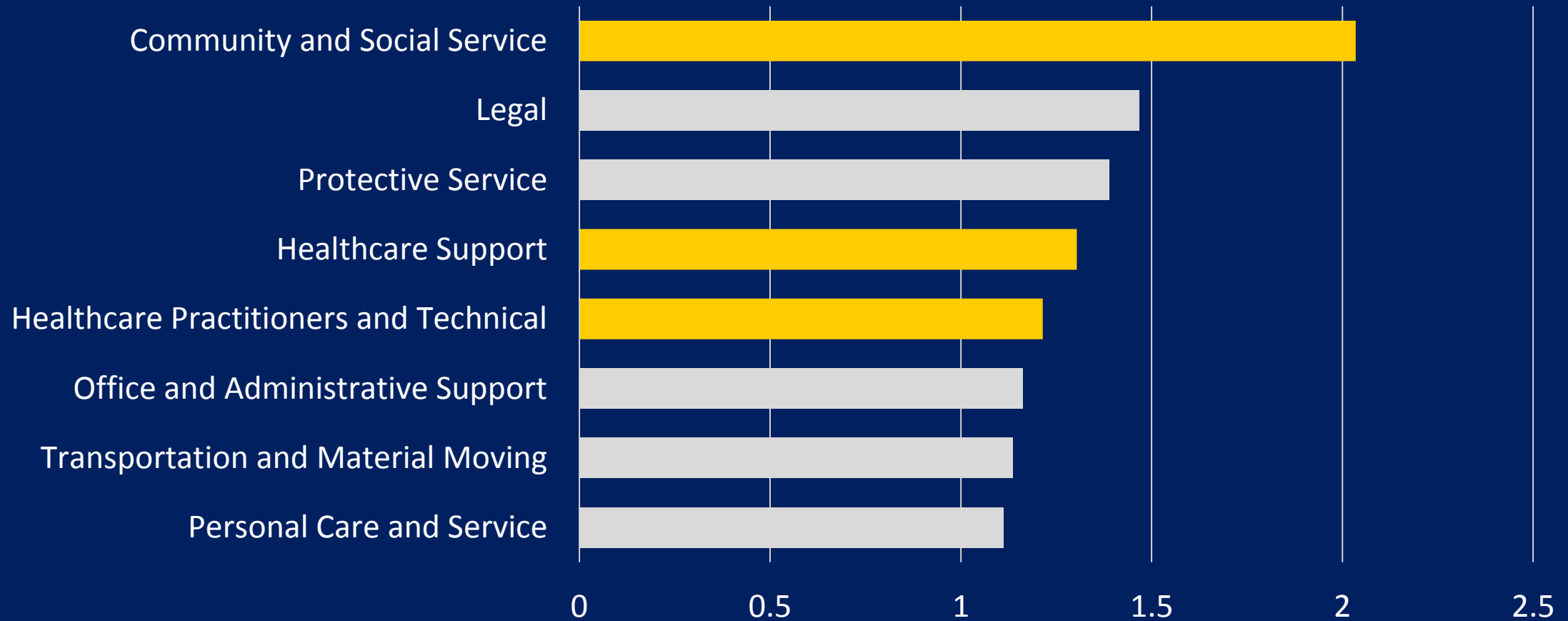# Equity Analysis in REMI PI+

- How do we balance economic gains with ensuring a more equitable economy?

- Begin by recognizing that economic outcomes vary greatly by race and ethnicity

Of 22 Major Occupation Categories, African Americans in Baltimore are "Crowded" Into 8

Community and Social Service
Legal
Protective Service
Healthcare Support
Healthcare Practitioners and Technical
Office and Administrative Support
Transportation and Material Moving
Personal Care and Service

0   0.5   1   1.5   2   2.5

African-American Workers in Baltimore are More Likely to Work in Healthcare

Occupation	Value
Community and Social Service	2.0
Legal	1.45
Protective Service	1.4
Healthcare Support	1.3
Healthcare Practitioners and Technical	1.2
Office and Administrative Support	1.15
Transportation and Material Moving	1.1
Personal Care and Service	1.1

Axis: 0   0.5   1   1.5   2   2.5

African-American Workers in Baltimore are More Likely to be in Low-Paying Jobs

Community and Social Service
Legal
Protective Service
Healthcare Support
Healthcare Practitioners and Technical
Office and Administrative Support
Transportation and Material Moving
Personal Care and Service

0   0.5   1   1.5   2   2.5

Sources: US Census ACS Data, RESI
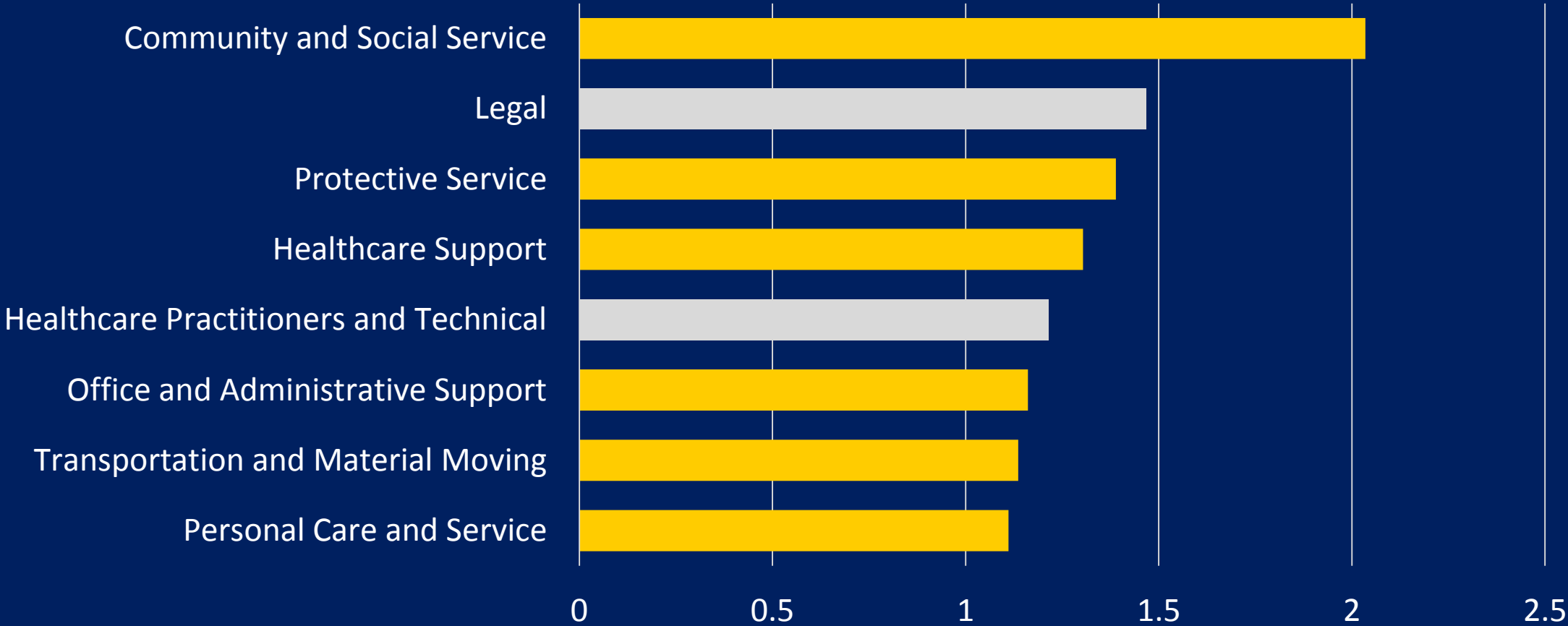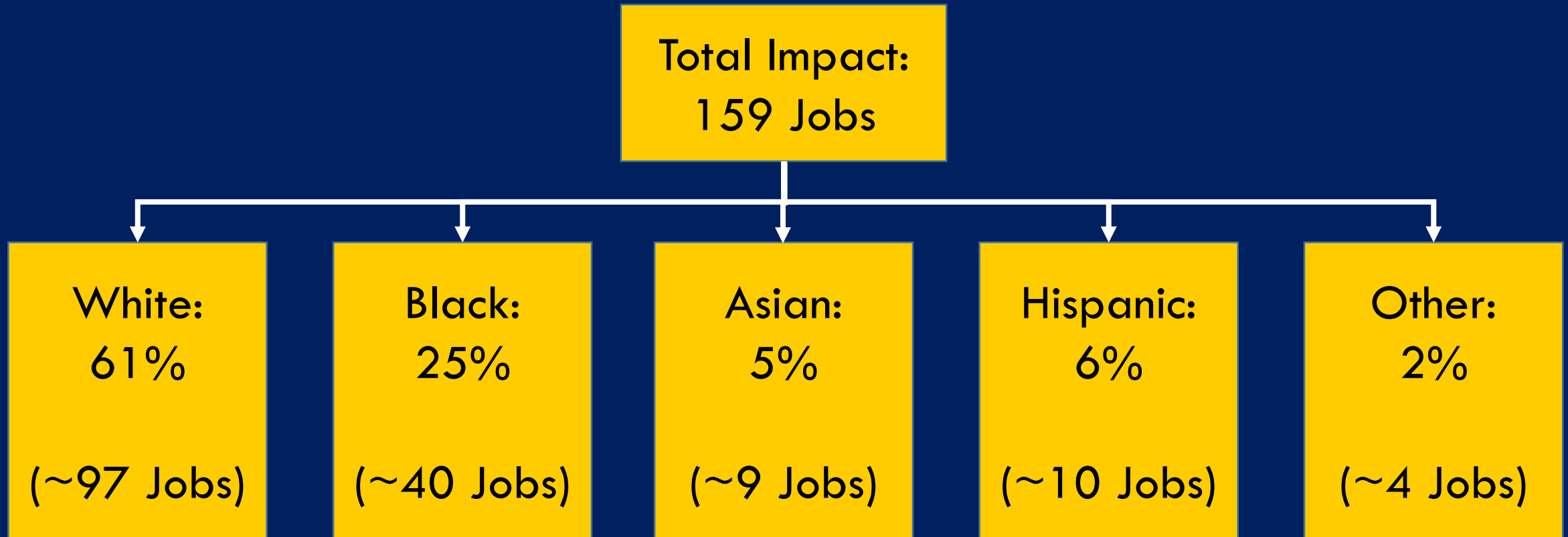
RESI's Equity Analysis Methodology

- Analyze ACS Data from IPUMS

- Identify employment by race for 94 Occupations

- Calculate expected value for five racial/ethnic groups:
  - Whites
  - Blacks/African Americans
  - Asians
  - Hispanics
  - All Other Races

- Apply expected values to REMI Output

Equity Analysis in Practice: A New Policy Scenario

- Department of Defense interested in issuing $50 million in grants over the next 4 years to Baltimore

- Three proposed uses:
  - Scientific R&D
  - Construction of Manufacturing Facility
  - Veteran Healthcare

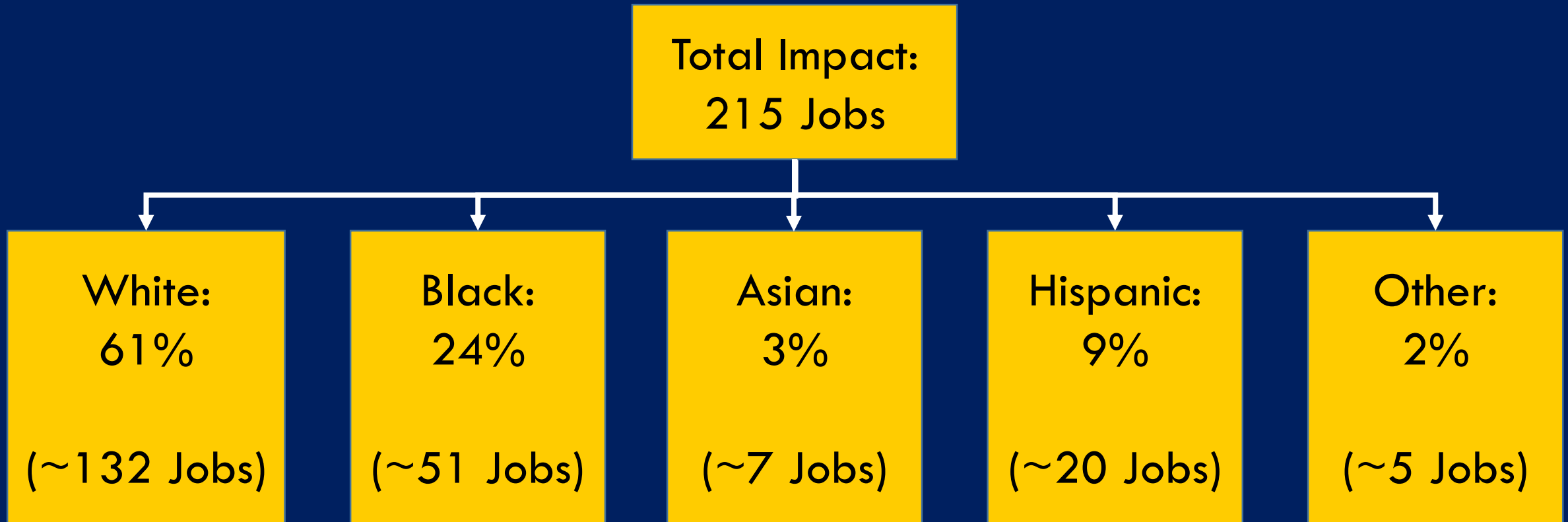- Enter in $12,500,000 for 4 years using Industry Sales (Exogenous Production)

What Does REMI Say?
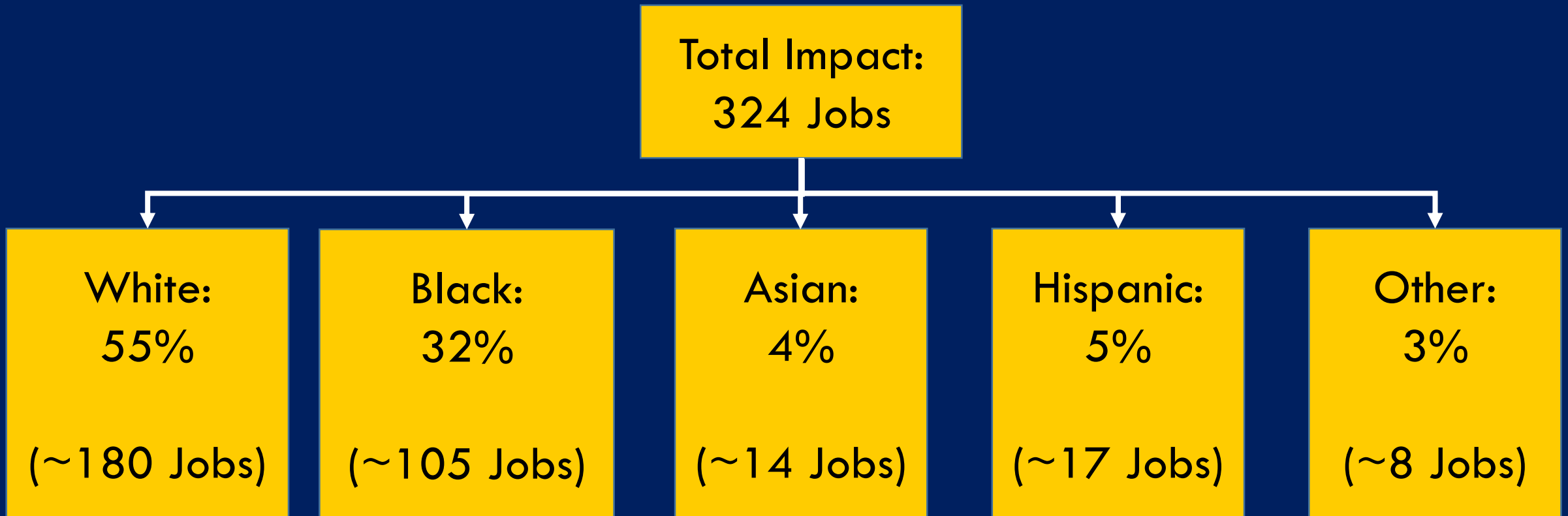# Equity Analysis For Scientific R&D Spending

Total Impact:
159 Jobs

White:	Black:	Asian:	Hispanic:	Other:
61%	25%	5%	6%	2%
(~97 Jobs)	(~40 Jobs)	(~9 Jobs)	(~10 Jobs)	(~4 Jobs)

What Does REMI Say?
Equity Analysis For Construction Spending

Total Impact:
215 Jobs

| White: 61% (~132 Jobs) | Black: 24% (~51 Jobs) | Asian: 3% (~7 Jobs) | Hispanic: 9% (~20 Jobs) | Other: 2% (~5 Jobs) |

What Does REMI Say?
Equity Analysis For Healthcare Spending

Total Impact:
324 Jobs

White: 55%	Black: 32%	Asian: 4%	Hispanic: 5%	Other: 3%
(~180 Jobs)	(~105 Jobs)	(~14 Jobs)	(~17 Jobs)	(~8 Jobs)

REMI Equity Analysis Limitations

- Source Data

- Size and Scope of Study

- Manual Adjustment

- What is the goal of equity analysis?

Education, Training, and REMI PI+

- Once we have a policy in place, how do we think about the skills needed for our workforce?

- What education will new workers need? How can we upskill existing workers?

- If your city wins HQ2, how ready are you to handle increased demand for programmers?

Summarize Education with Job Zones

Job Zone	Preparation Needed	Example	Degrees/Experience
5	Extensive	Doctors	Doctorate's and Master's with experience
4	Considerable	Teachers	Bachelor's and Master's
3	Medium	Electricians	Associate, Bachelor's, and apprenticeships
2	Some	Tellers	Some on-the-job training
1	Little to No	Waiters	Minimal on-the-job training

Merge Job Zones with REMI Output to Estimate Education Needs

SOC	Occupations	Job Zone					Total
		1	2	3	4	5	
43	Office and Administrative Support Occupations	0	256	164	1	0	421
35	Food Preparation and Serving-Related Occupations	220	65	5	0	0	289
51	Production Occupations	60	171	54	0	0	285
41	Sales and Related Occupations	75	86	23	66	0	249
	Total	**318**	**785**	**840**	**366**	**89**	**2,398**

More Realistically, Education is a Continuum

SOC_Title	SOC	< HS	High School	Some College	Associate	BA/BS	MS	PhD +
Total, all occupations	00-0000	8.6	23.9	21.0	9.4	22.8	9.9	4.2
Chief executives	11-1011	1.5	9.0	14.7	5.4	39.8	22.3	7.4
General and operations managers	11-1021	2.6	17.1	25.4	9.4	33.0	11.1	1.5
Legislators	11-1031	1.5	9.0	14.7	5.4	39.8	22.3	7.4
Advertising and promotions managers	11-2011	0.7	5.0	11.1	4.4	62.7	13.3	2.8

Instead of Training New Workers From Scratch, How do We Upskill?

- First, we need to identify relevant skills and abilities for each profession.

- If we need more computer programmers, how do we find them?
  - Start with what defines a programmer

Skills

5 of 16 displayed

- ⊕ Programming
- ⊕ Reading Comprehension
- ⊕ Complex Problem Solving
- ⊕ Critical Thinking
- ⊕ Active Listening

Sources: O*NET Online

O*NET Databases of Skills can Help You Find Related Positions

Skills — Programming   Save Table (XLS/CSV)

Writing computer programs for various purposes.

Sort by: Importance ▲	Level	Code	Occupation
88	68	15-1131.00	Computer Programmers
78	61	15-1134.00	Web Developers ☀ Bright Outlook
78	59	51-4012.00	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic ☀
75	68	15-1132.00	Software Developers, Applications ☀
75	57	15-1199.11	Video Game Designers
69	50	15-1199.01	Software Quality Assurance Engineers and Testers
66	55	15-1142.00	Network and Computer Systems Administrators
63	Not available	15-1111.00	Computer and Information Research Scientists ☀
63	Not available	19-2012.00	Physicists ☀
60	57	15-2041.00	Statisticians ☀
60	55	15-1141.00	Database Administrators ☀
60	54	15-1199.02	Computer Systems Engineers/Architects

Rapid Education Through Certifications

- Certifications offer a quicker way to prepare your workforce than traditional education programs.
  - Easier to increase programming certifications than computer science degrees

- How do we determine what certifications we need to train our workers?

What Certifications Do People Hold?

We found **67** certification(s) from **13** organization(s) for O*NET Code **15-1131.00/Computer Programmers**.

Certification Name	Certifying Organization	Type
Certified Computing Professional [M]	Institute for the Certification of Computing Professionals	Advanced
IBM Certified Application Developer - Cúram V6.0.4	IBM Corporation	Product/Equipment
Adobe Campaign Developer	Adobe Systems Incorporated	Advanced
Adobe Campaign Developer	Adobe Systems Incorporated	Product/Equipment
AEM 6 Architect	Adobe Systems Incorporated	Advanced
AEM 6 Architect	Adobe Systems Incorporated	Product/Equipment
Java SE 7 Programmer I	Oracle Corporation	Product/Equipment

Sources: O*NET Online, Career OneStop

Mapping/Interactive Dashboards

- One of the major advantages of using REMI is the ability to see the interplay between different regions

- Mapping allows you to visually tell your story quickly and efficiently

- Interactive dashboards allow the client to interact with all of the data available to them.

- Dashboards allow you visualize patterns in your results, important for identifying next steps.

Using Multiple REMI Regions Allows You and Clients to Better Visualize Winners and Losers
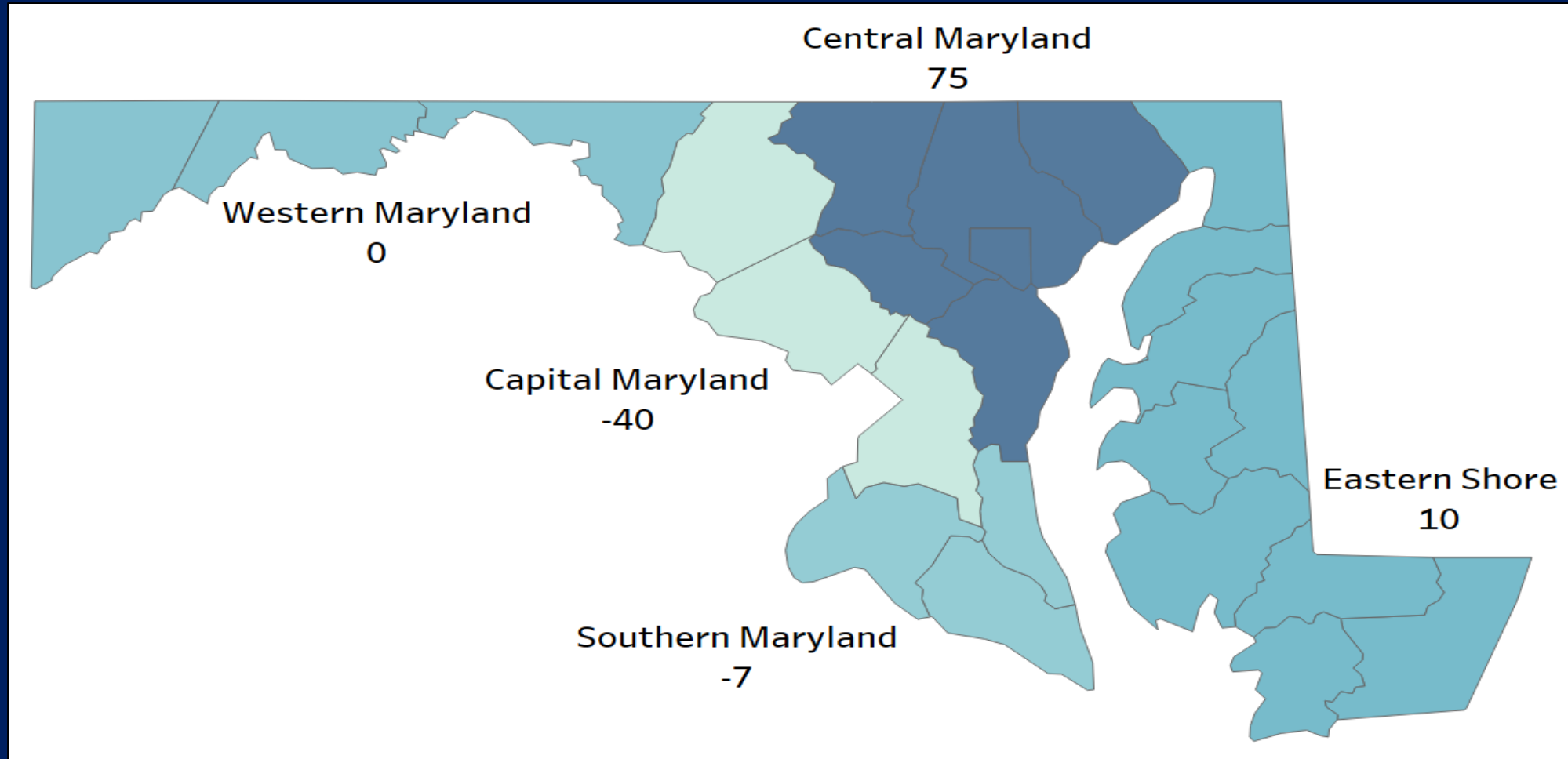
Tableau and Power BI

- Tableau and Power BI are two fantastic tools for creating dashboards

- Power BI is free, while Tableau is fee-based

- Tableau is a bit more developed and user friendly

- Power BI is newer, meaning slightly less developed.
  - However, it is being integrated more into Microsoft products

QUESTIONS?

msiers@towson.edu