

MARYLAND DEPARTMENT OF PLANNING

PROJECTIONS METHODOLOGY

Alfred Sundara, AICP

Manager, Projections and State Data Center
Maryland Department of Planning

February 26, 2020

POPULATION PROJECTIONS

Planning's Projections and State Data Center produces population projections. These projections include:

- Total Population
- Household Population
- Number of Households
- Average Household Size
- Labor Force

POPULATION PROJECTIONS

Mandated by Statute

Maryland Code, State Finance and Procurement, Division 1, Title 5-State Planning, Section 5-306

- The Department shall prepare population projections for the State and for each county and municipal corporation in the State.
- The population projections shall include details of age, sex, and race.
- The Department shall prepare the population projections for periods of 20 [30] years, in 5-year intervals beginning with 1990.
- Beginning in 1991, the Department shall revise the population projections at least every 3 years.
- In preparing the population projections for the Washington metropolitan area [and the Baltimore metropolitan area], the Department may use population figures developed by the Maryland-National Capital Park and Planning Commission [the Metropolitan Planning Organizations: Metropolitan Washington Council of Governments and the Baltimore Metropolitan Council]

Note: Text in brackets [] refer to subsequent changes to the language.

POPULATION PROJECTIONS - METHODOLOGY

Projections

- Major Projections - every three years
- Minor Projections - as needed

POPULATION PROJECTIONS - METHODOLOGY

Projections to 2045

Geography:

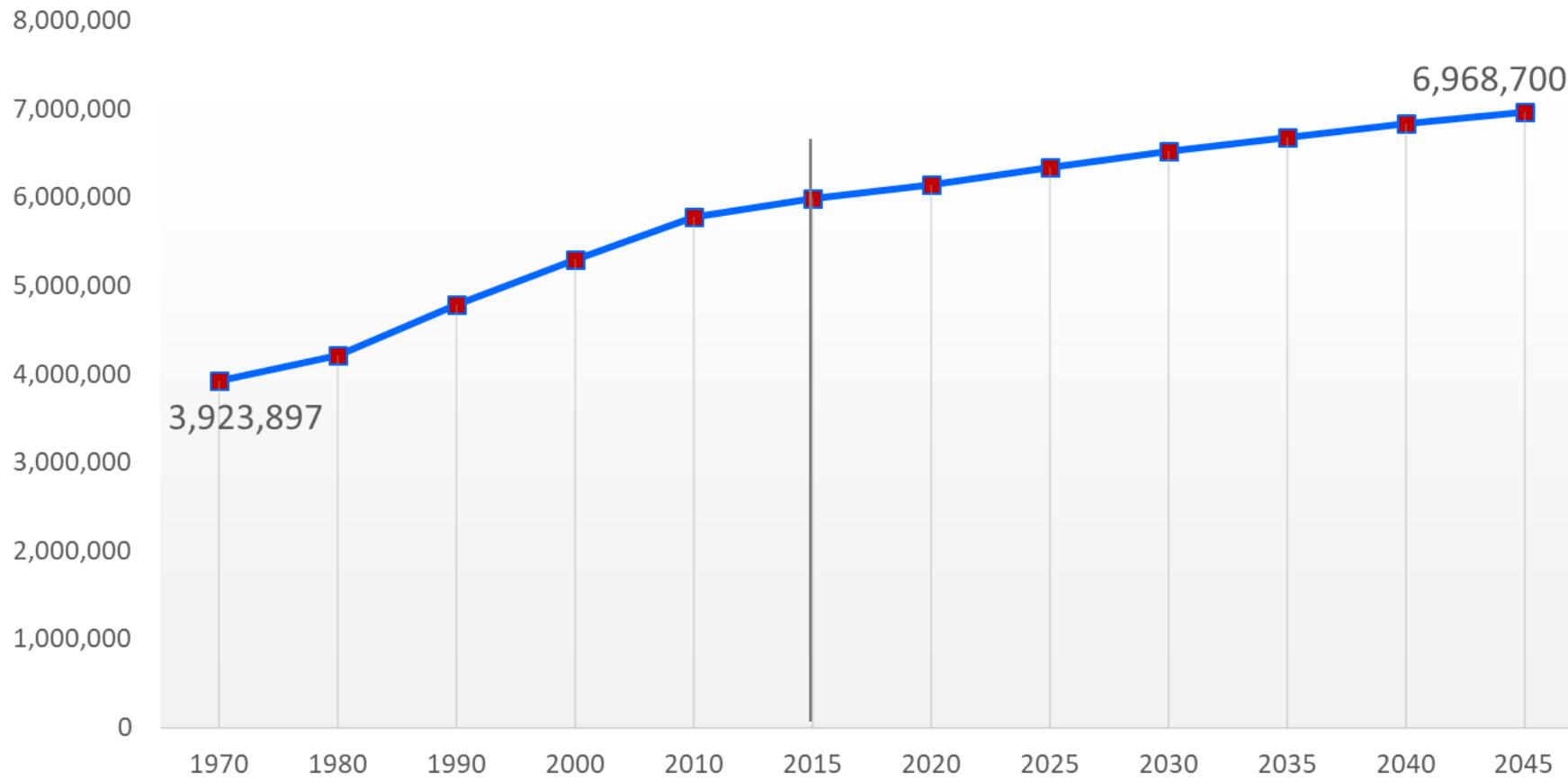
- State
- County Jurisdictions (24)

Detail:

- Age at 5-year age cohorts (18)
- Race/Ethnicity (4)
- Gender (2)

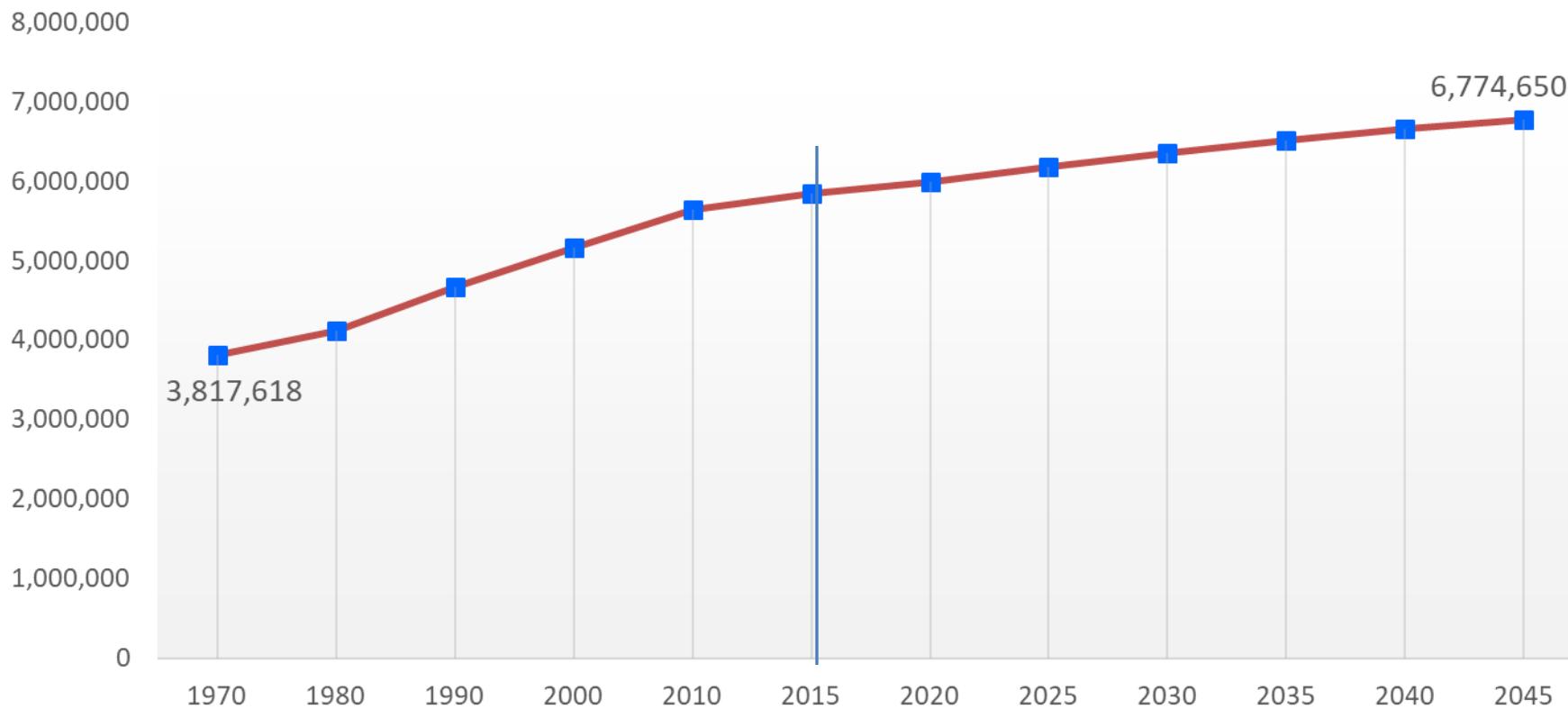
POPULATION PROJECTIONS

Maryland Population and Projections 1970 - 2045



POPULATION PROJECTIONS

Maryland Household Population and Projections 1970 - 2045



POPULATION PROJECTIONS - METHODOLOGY

County/Jurisdiction totals to 2045

- Use county total population from Washington and Baltimore Metropolitan Planning Organizations (MPO) forecasts as controls for age, race and sex distribution
- Develop total county population projections for jurisdictions in the Eastern Shore, Western Maryland, and Southern Maryland regions.

POPULATION PROJECTIONS - METHODOLOGY

Review of MPO Cooperative Forecasts

- Modify forecasts of MPO jurisdictions and regions if estimates of the near-term population diverge or if alternate assumptions about future growth trends are adopted.
- Use a Cohort Model, to break out the MPO population forecast into its components of change - births, deaths and net migration
- Check the migration component to test “reasonableness” of the projection

POPULATION PROJECTIONS - METHODOLOGY

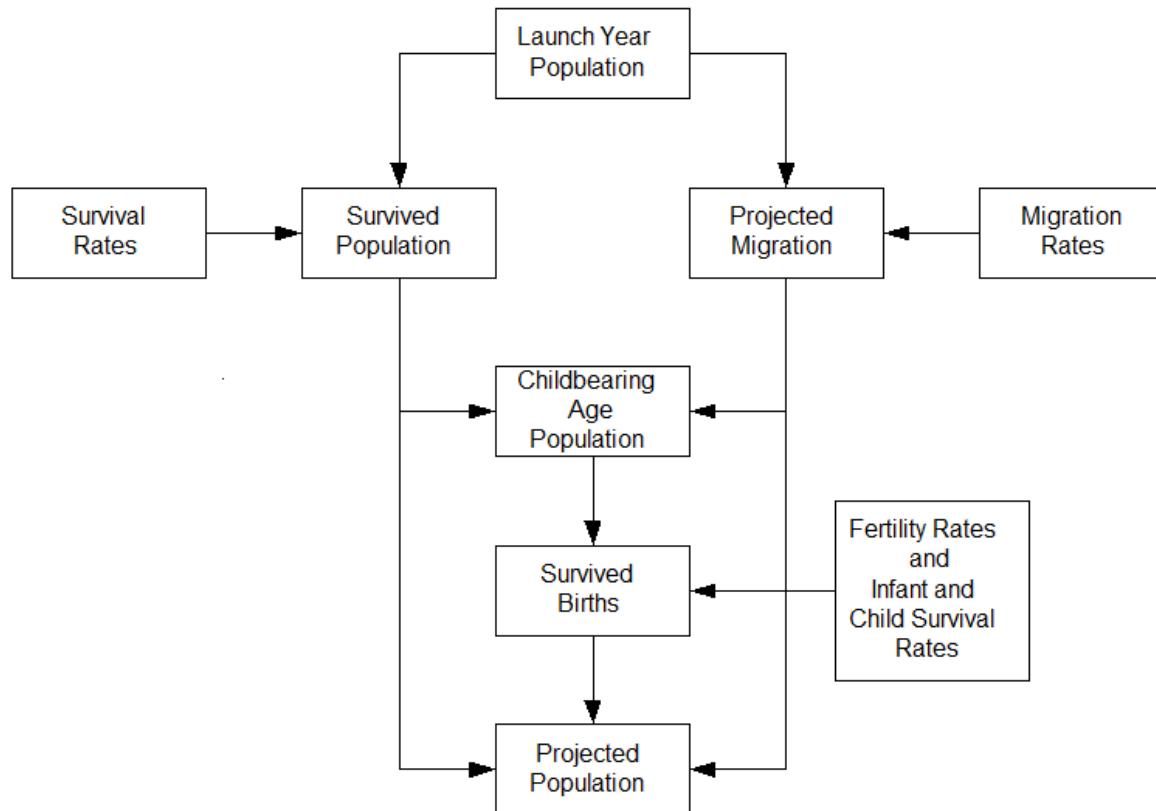
Cohort Component Model

General Equation:

- Projected Household Population =
Initial Household Population +
(Births - Deaths) +
Net Migration

POPULATION PROJECTIONS - METHODOLOGY

Cohort-Component Model



Source: Smith S., D. Swanson, and J. Tayman. "Overview of the Cohort-Component Model", Ch. In The Springer Series on Demographic Methods and Population Analysis.

POPULATION PROJECTIONS - METHODOLOGY

Fertility Rates

- Historical county specific births data by age and race of mother and the gender of the child
- Fertility rates are developed based on historical data for females by cohorts for ages 10 to 59.
- These rates are developed separately by race and gender.

POPULATION PROJECTIONS - METHODOLOGY

Survival Rates

- Survival determined by
Historical county-specific deaths data by age, race and gender
- Survival rates are developed based on the number of deaths by age cohorts
- These rates are developed separately by race and gender

POPULATION PROJECTIONS - METHODOLOGY

Migration Rates

- Total Migration determined by
 - Historical jurisdictional population between two time periods and the births/deaths that happened during the same period*
- Total migration numbers converted into rates for each age cohort
- Migration rates developed separately by race and gender

POPULATION PROJECTIONS - METHODOLOGY

Group Quarters

- In generating the fertility, survival and migration rates, persons in group quarters less than 65 years of age are excluded from each race, sex and age cohorts
- Jurisdictions are assumed to receive a share of the projected Statewide group quarters population based on the share they had in 2010 for each sex, race and age cohort

POPULATION PROJECTIONS - METHODOLOGY

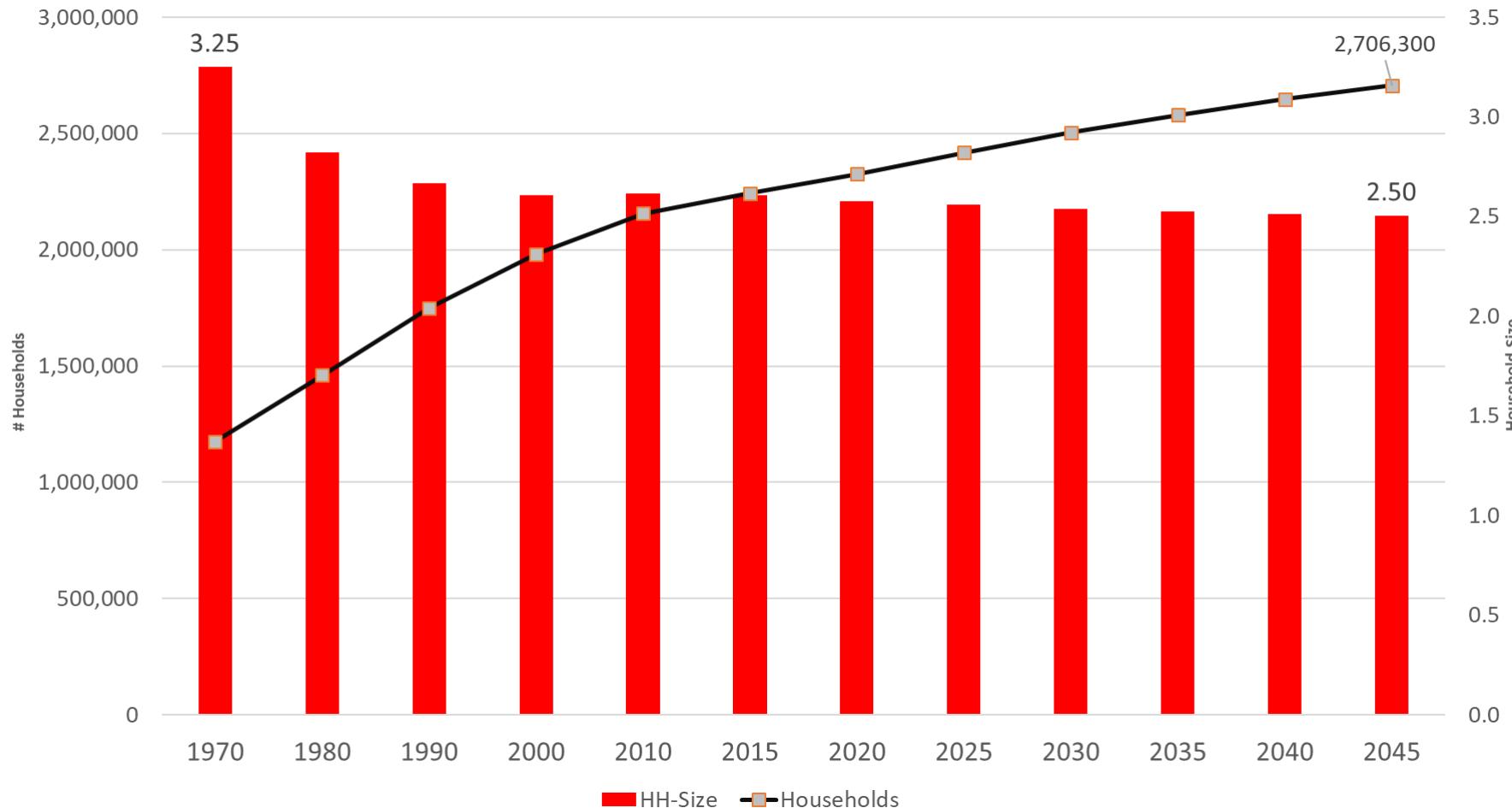
Household Population Projections

Serve as the base for developing

- Households
- Average Household Size

POPULATION PROJECTIONS - METHODOLOGY

Maryland Household Size and Number of Households Projected, 1970-2045



POPULATION PROJECTIONS - METHODOLOGY

Number of Households & Average Household Size

■ Inputs

- Projected Household Population by age cohort
- 2010 Age of householder by age cohort
- Projected Number of Households

■ Equations

Total Number of Households =

Projected Household Population / Age of Householder

Average Household Size=

Projected Household Population / Projected Number of Households

POPULATION PROJECTIONS - METHODOLOGY

Labor Force and Labor Force Participation Rates

■ Inputs

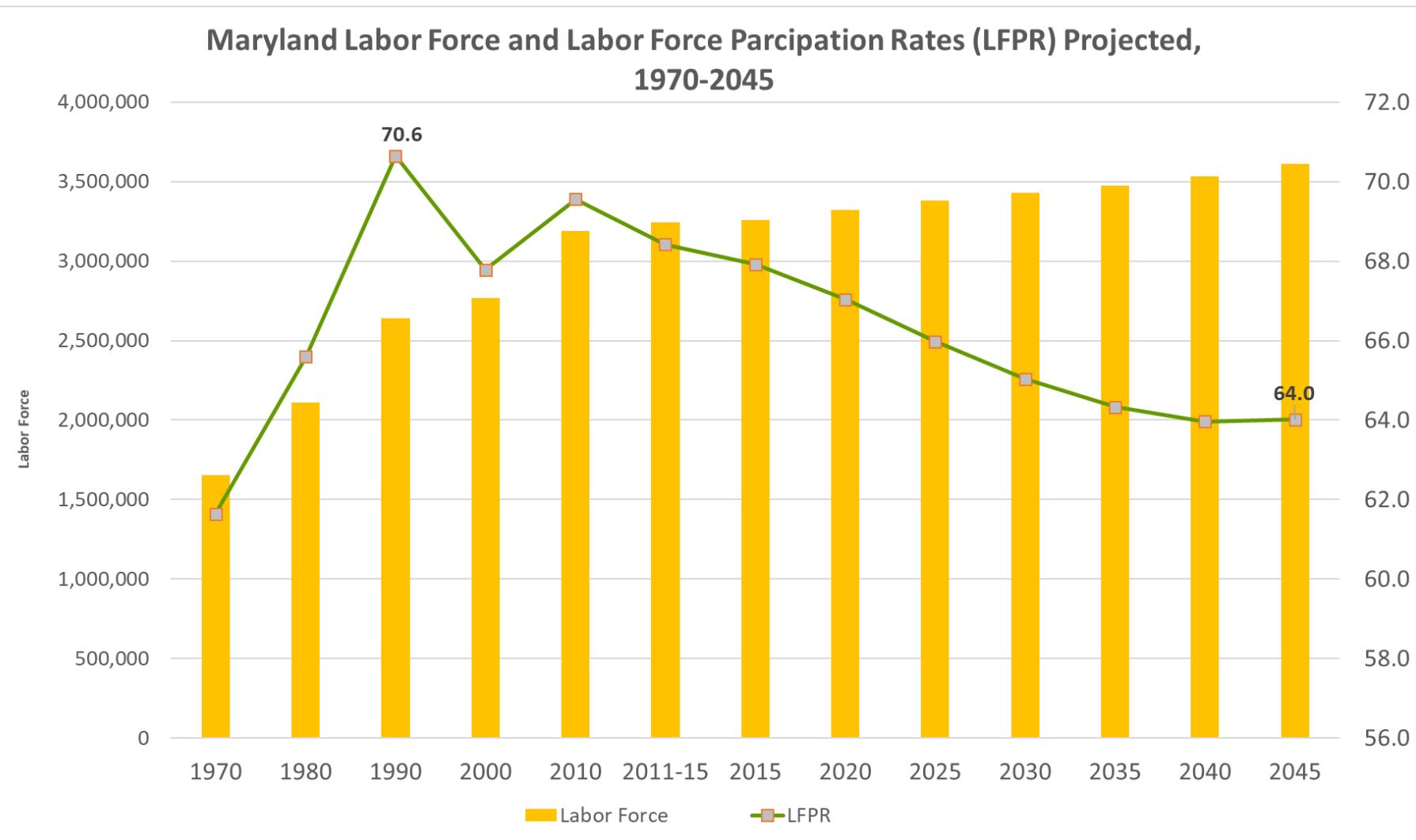
- Population 16 years and over (by different age cohorts)
- Labor Force Participation rates from American Community Survey (ACS) and US Bureau of Labor Statistics (BLS)

■ Equations

- $\text{Labor Force} = \text{Population 16 years and over} * \text{BLS projected Labor Force Participation Rates by different age groups}$
- $\text{Labor Force Participation Rate} = \text{Labor Force} / \text{Population 16 years}$

POPULATION PROJECTIONS - METHODOLOGY

Maryland Labor Force and Labor Force Participation Rates (LFPR) Projected,
1970-2045



WEBSITE AND CONTACT

Maryland State Data Center Projections website

https://planning.maryland.gov/MSDC/Pages/s3_projection.aspx

CONTACT

Alfred Sundara, AICP

Manager, Projections and State Data Center

Ph: 410-767-4002

Email: Alfred.Sundara@Maryland.gov