
Population Estimates, Projections and Evaluation for Harris County 2011-2030

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Introduction

- This presentation includes population estimates for Harris County for year 2011 and population projections until 2030.
 - It is expected that after it, the audience will have a keen idea of different methods of estimations and the demographic outlook of Harris County and the demographic transformations this county will face as time passes.
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Data

- Data comes from different sources. Population counts comes from U.S. Census, housing and building permits come from the Texas Data Center. Voters registration come from Texas Secretary of State and Vehicle registration comes from the Department of Motor Vehicles.
 - For projections data come from U.S. Census Bureau, Texas Department of Health and Human Services, Texas State Data Center and Texas Department of State.
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Methods

- Estimates (County Level)

- Extrapolative (Arithmetic, Geometric, Exponential)
- Complex Estimations (Ratio Correlation and Housing Unit)
- Average of Methods

- Evaluation

- Mean Percent Error (MPE), Mean Absolute Percent Error (MAPE) and Mean Percent Absolute Difference (MPAD).

- Estimates (Place Level) and Evaluation

- Projections

- Cohort Component Method

- Evaluation

- Mean Percent Error (MPE)
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Estimates

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- Extrapolative Methods
 - Complex Methods

Extrapolative

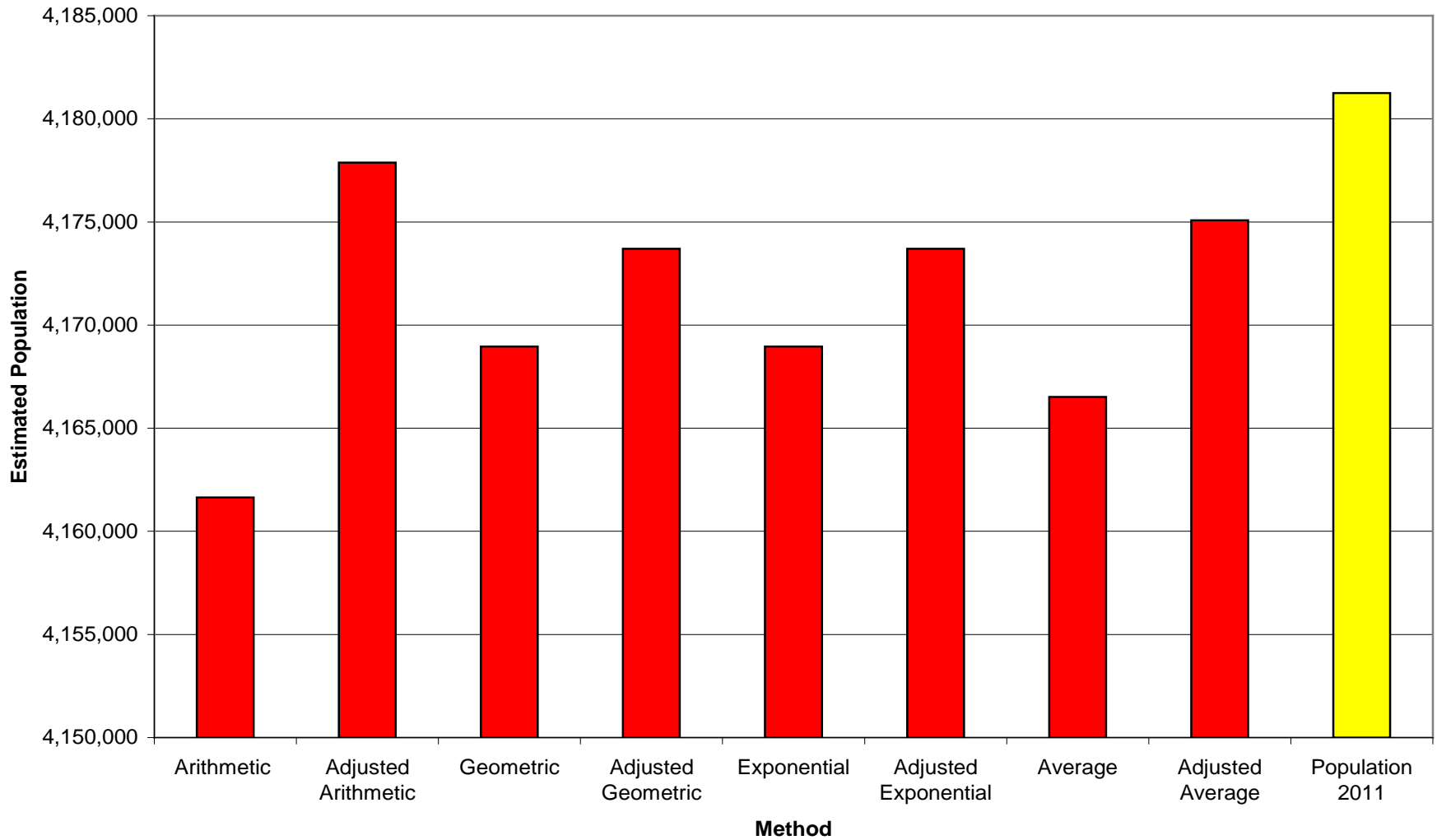
Arithmetic

Geometric

Exponential

Average Method

Extrapolative



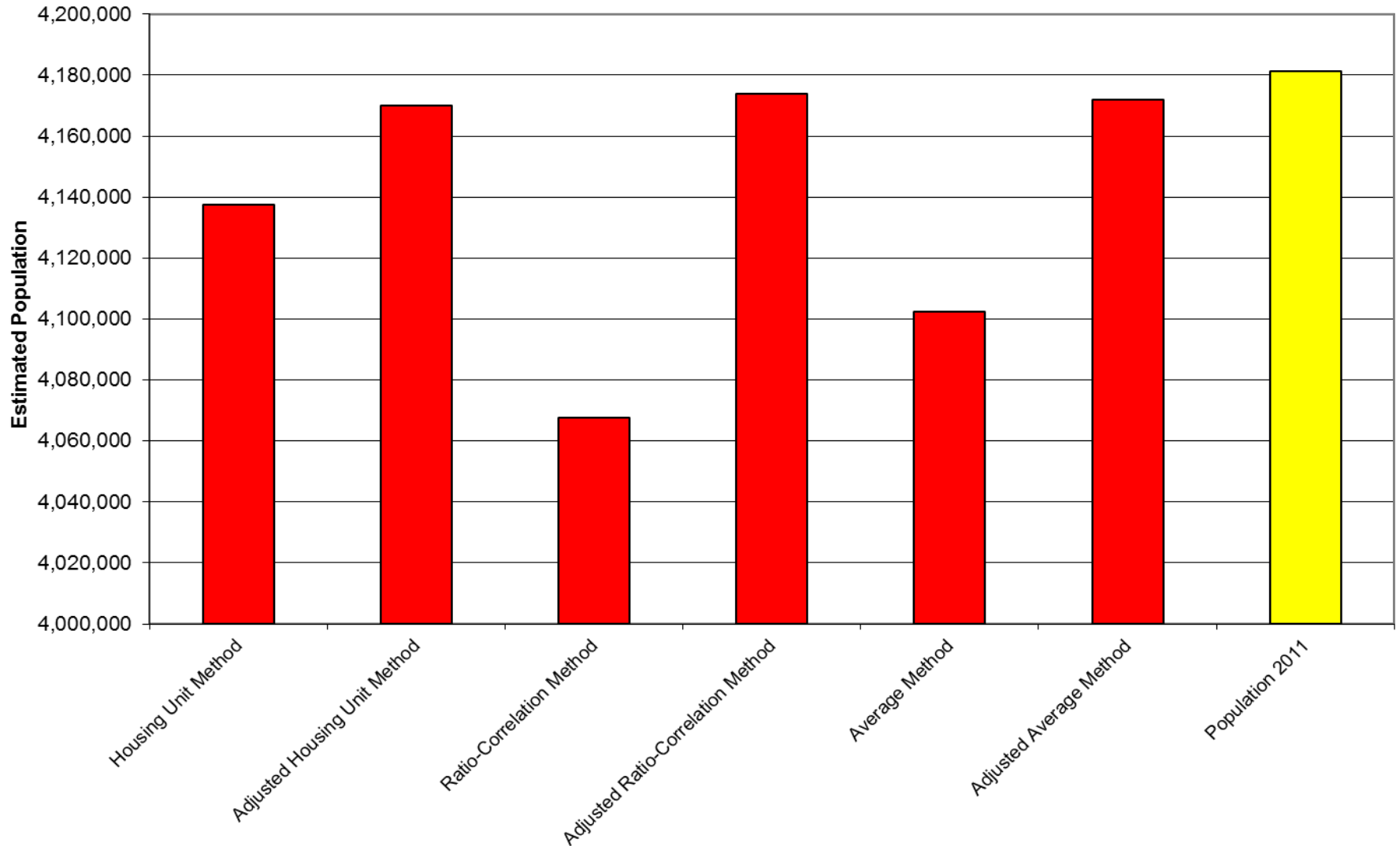
Complex Estimation

Housing Unit Method

Ratio Correlation Method

Average Method

Complex Estimation



Evaluation for Texas County Estimates

Mean Percent Error (MPE), Mean Absolute Percent Error (MAPE) and Mean Percent Absolute Difference (MPAD) for 2011 Estimates Produced by Ratio Correlation Method, Housing Unit Method.

	Method	Estimate 2011	MPE	MAPE	MPAD
Extrapolative Methods	Arithmetic Method	4,161,647	-0.244	0.721	0.335
	Geometric Method	4,168,958	-0.523	0.852	0.528
	Exponential Method	4,168,958	-0.523	0.852	0.528
	Average Method	4,166,521	-0.557	0.844	0.504
Adjusted Extrapolative Methods	Arithmetic Method	4,177,878	-0.631	0.836	0.501
	Geometric Method	4,173,694	-0.410	0.813	0.505
	Exponential Method	4,173,694	-0.410	0.813	0.505
	Average Method	4,175,086	-0.353	0.777	0.444
Complex Estimation Methods	Ratio-Correlation Method	4,067,703	-2.086	2.303	2.557
	Housing Unit Method	4,137,386	-0.484	0.775	0.887
	Average Method	4,155,683	-0.007	0.820	0.549
Adjusted Complex Estimation Method	Ratio-Correlation Method	4,173,980	0.472	1.407	0.443
	Housing Unit Method	4,169,997	0.472	1.409	0.469
	Average Method	4,171,988	0.386	0.916	0.383

Place Level Data

Housing Unit Method

Places

- Estimates with Place level data were calculated with the estimate and the official 2011 estimate available in the Texas Data Center having an overall difference of 45,108 which is 1.12% of the total population of Harris County.
- Evaluation of these estimates provide supporting evidence to adjusting to for the total population of the county. Reducing the percent error by 85%.

Place level estimates and evaluations

Place Name	Housing Unit Estimate 2011	Adjusted Housing Unit Estimate 2011	Difference	Population 2011
Harris County	3,980,301	4,025,409	45,108	4,025,409

Evaluation of Place Level Estimates Harris County in 2011		
	Housing Unit Estimate	Adjusted Housing Unit Estimate
MPE	-1.323	-0.205

Projections 2000-2030

Cohort Component Method

Assumptions

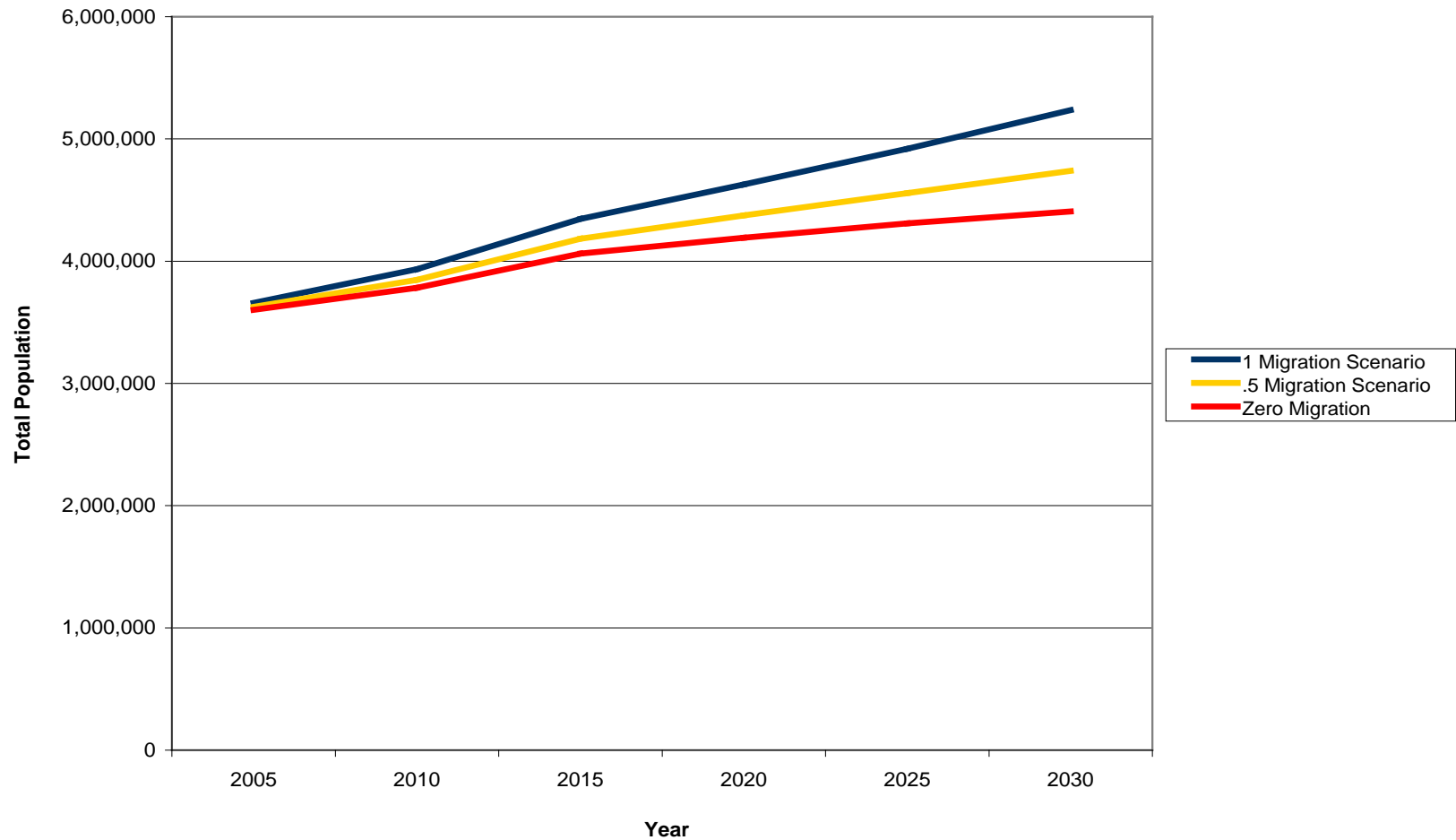
- Estimation of Baseline Fertility, Mortality, and Migration Rates
 - Fertility – using three year average 1999-2001 Births (Age, Race Specific Fertility Rate)
 - Mortality – using 2000 Life Tables (Sex, Age Group, and Race/Ethnic Group). The three year average death was considered for each specific group (1999-2001).
 - Migration – Estimated with the Residual Method or Vital Statistics Method for the 1990 to 2000 decade.
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Projection Scenarios

- Calculation of projections are done assuming Complete Net Migration (1 scenario), Half Net Migration (.5 scenario) and Zero Net Migration (0 scenario).
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Total Population

Population Projections 2005-2030



Transformations of Harris County based on these projections

Age Structure

Race/Ethnic Composition

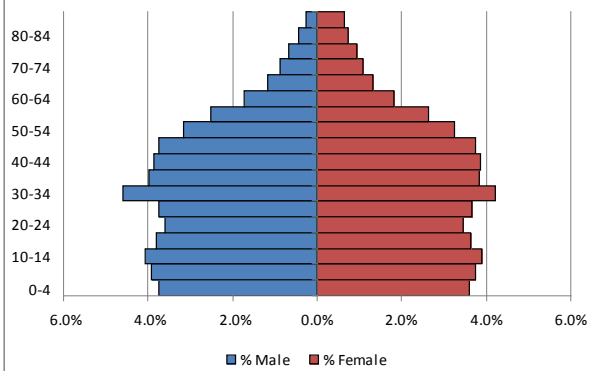
Age Structure

1 Migration

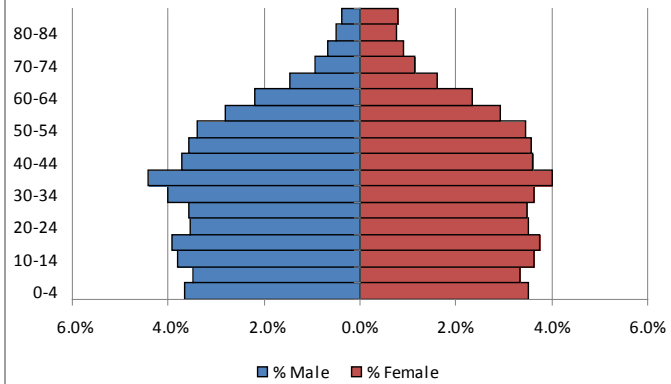
.5 Migration

0 Migration

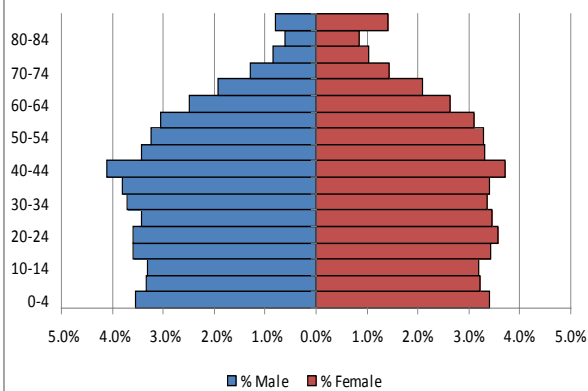
Population Pyramid - Harris County 2005



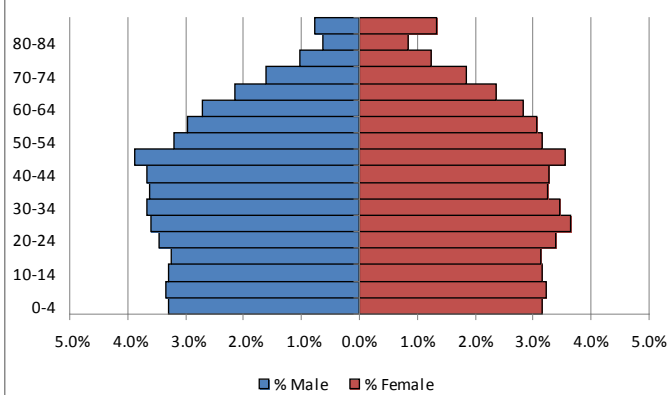
Population Pyramid - Harris County 2010



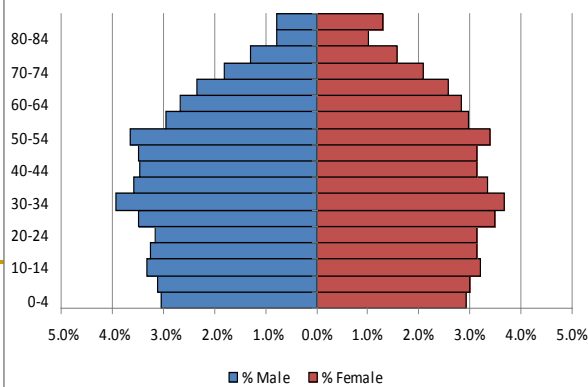
Population Pyramid - Harris County 2015



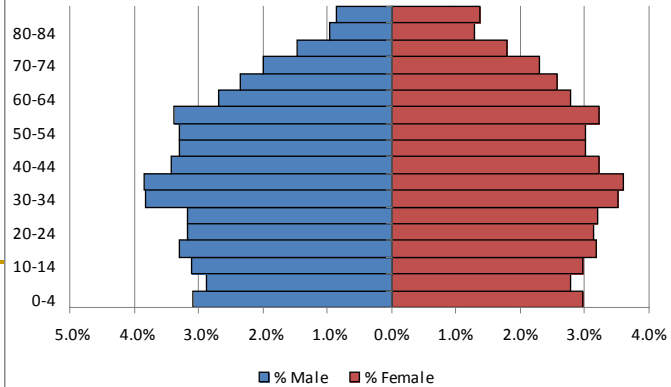
Population Pyramid - Harris County 2020



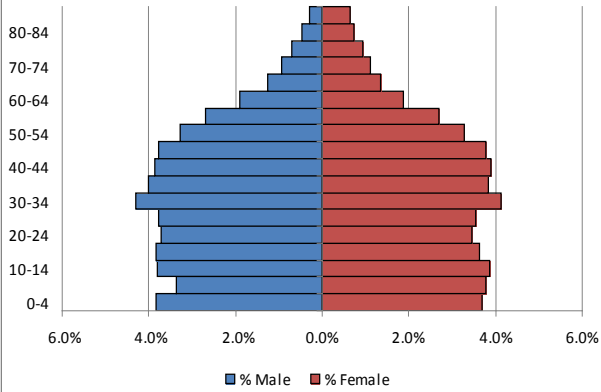
Population Pyramid - Harris County 2025



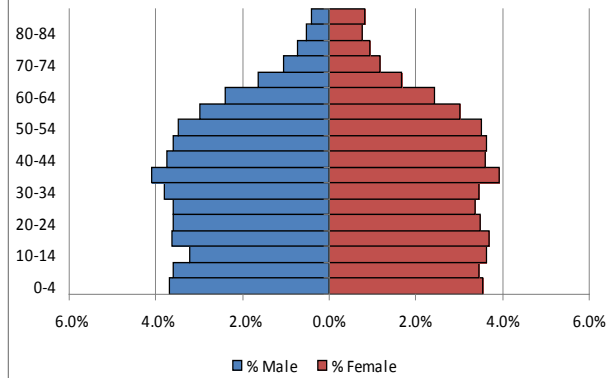
Population Pyramid - Harris County 2030



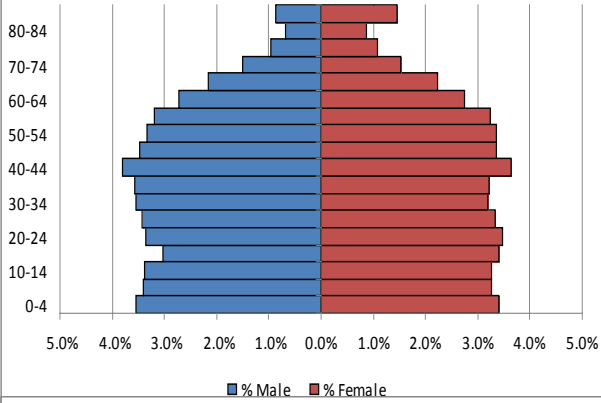
Population Pyramid - Harris County 2005



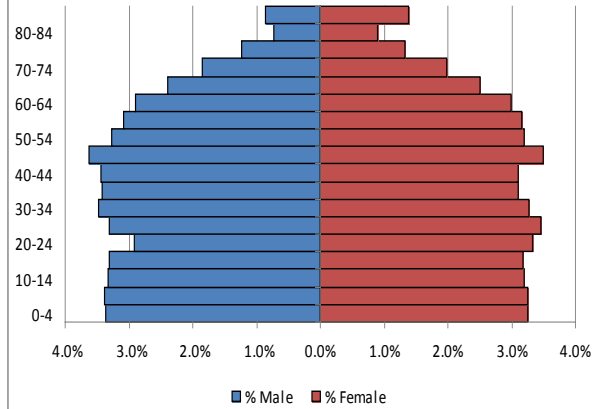
Population Pyramid - Harris County 2010



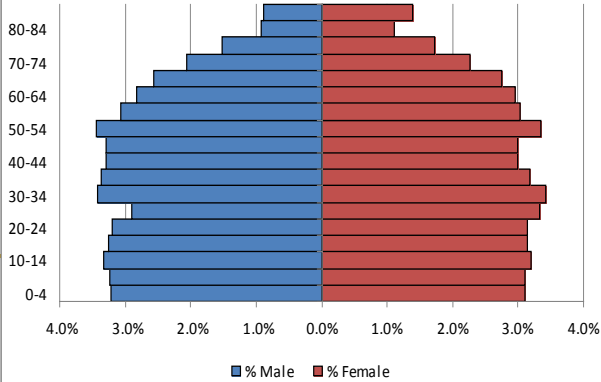
Population Pyramid - Harris County 2015



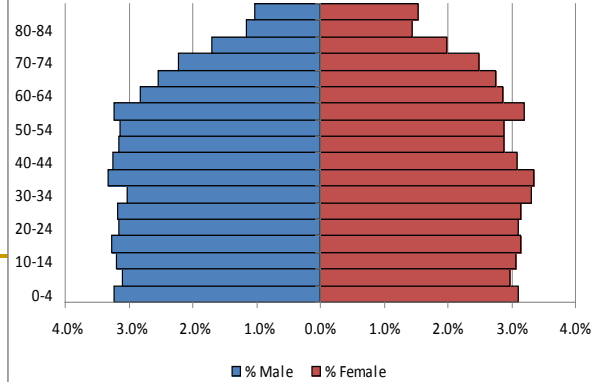
Population Pyramid - Harris County 2020



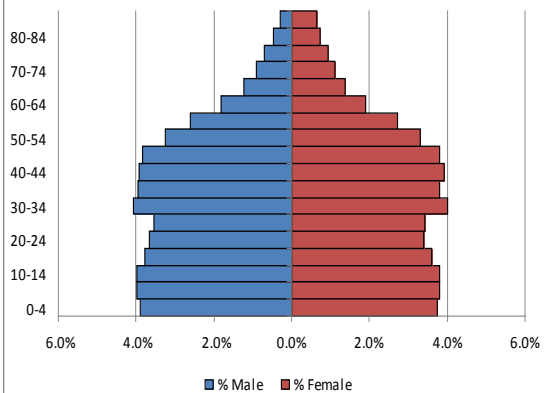
Population Pyramid - Harris County 2025



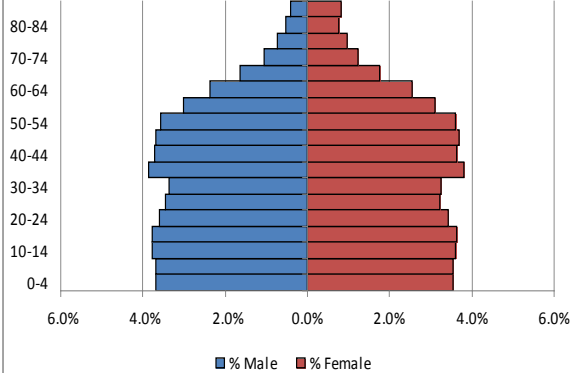
Population Pyramid - Harris County 2030



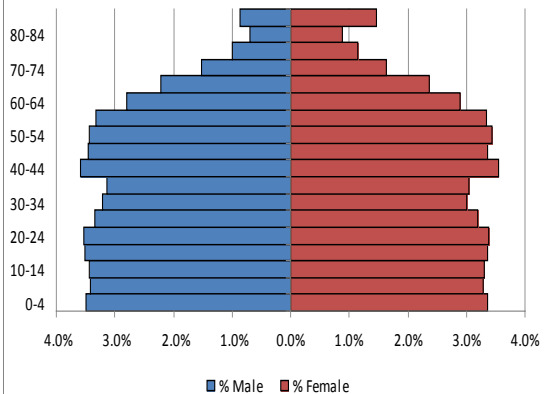
Population Pyramid - Harris County 2005



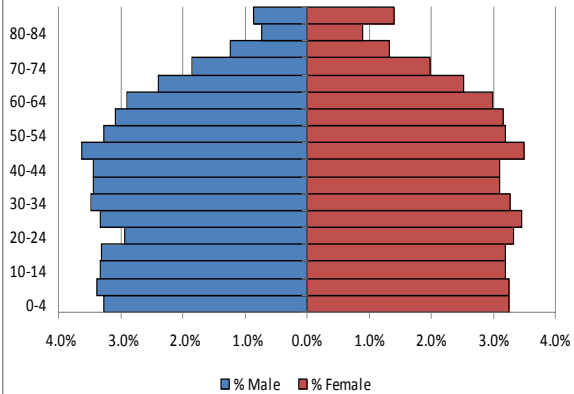
Population Pyramid - Harris County 2010



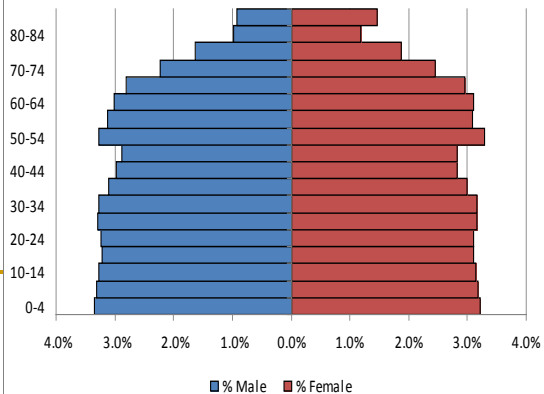
Population Pyramid - Harris County 2015



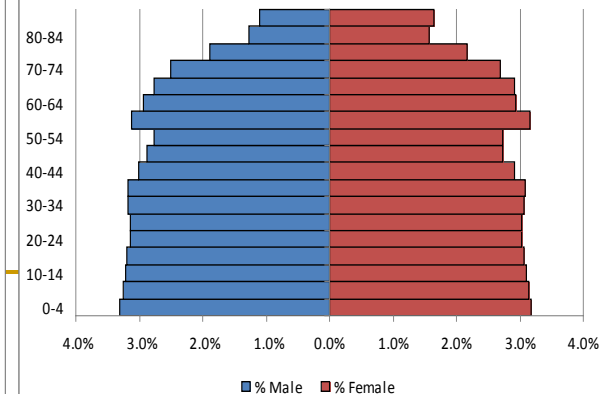
Population Pyramid - Harris County 2020



Population Pyramid - Harris County 2025



Population Pyramid - Harris County 2030



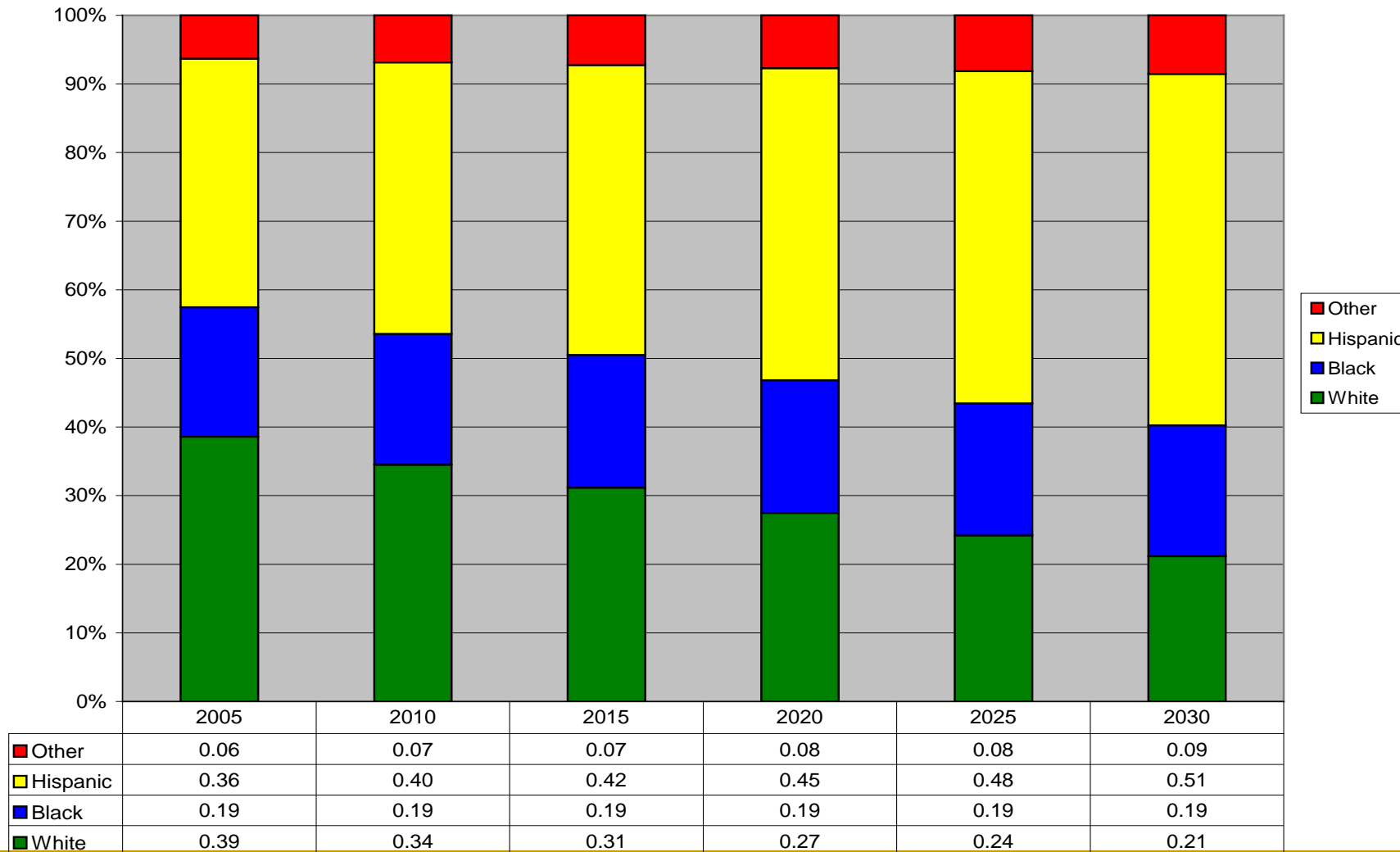
Race/Ethnic Composition

1 Migration Scenario

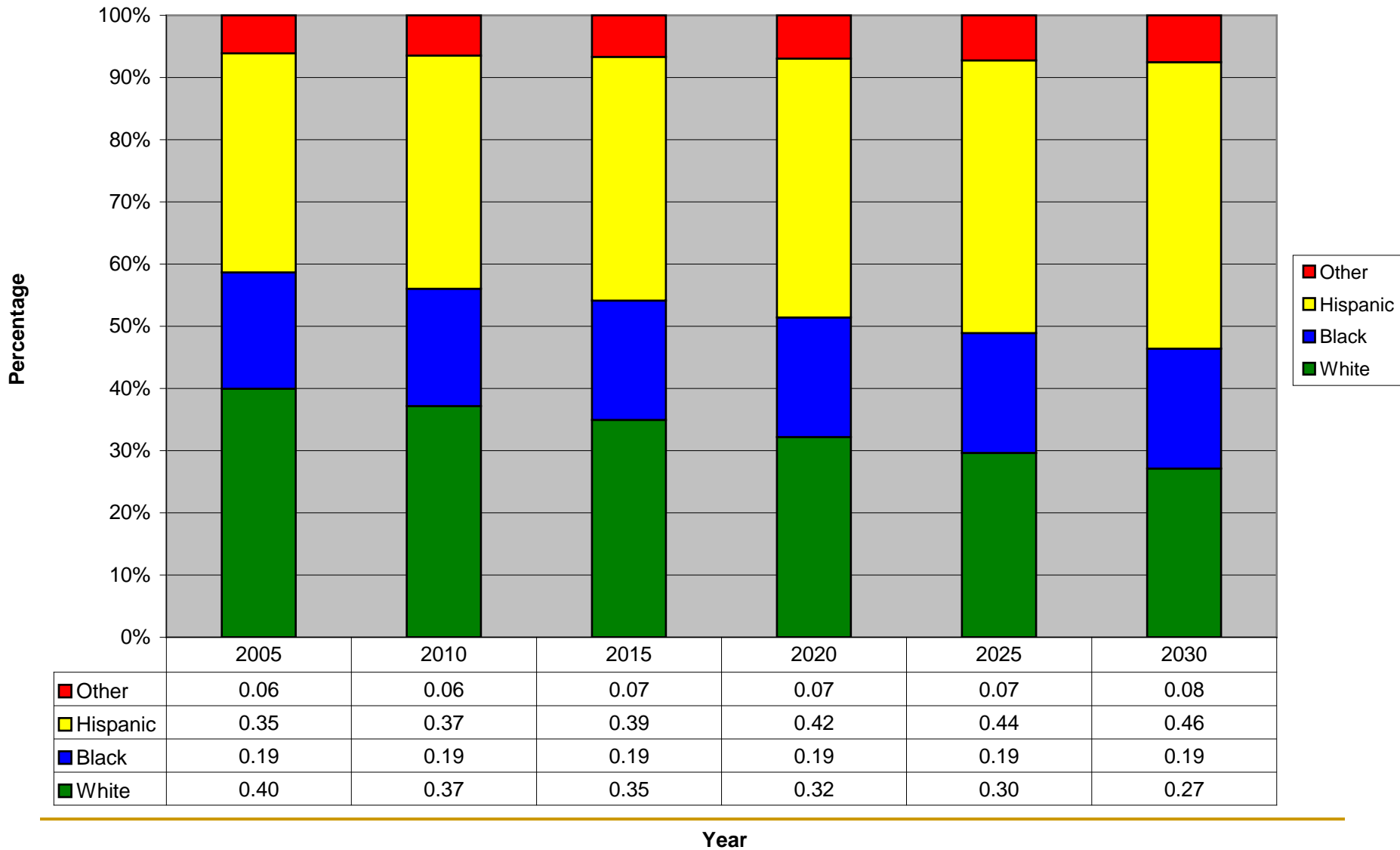
.5 Migration Scenario

0 Migration Scenario

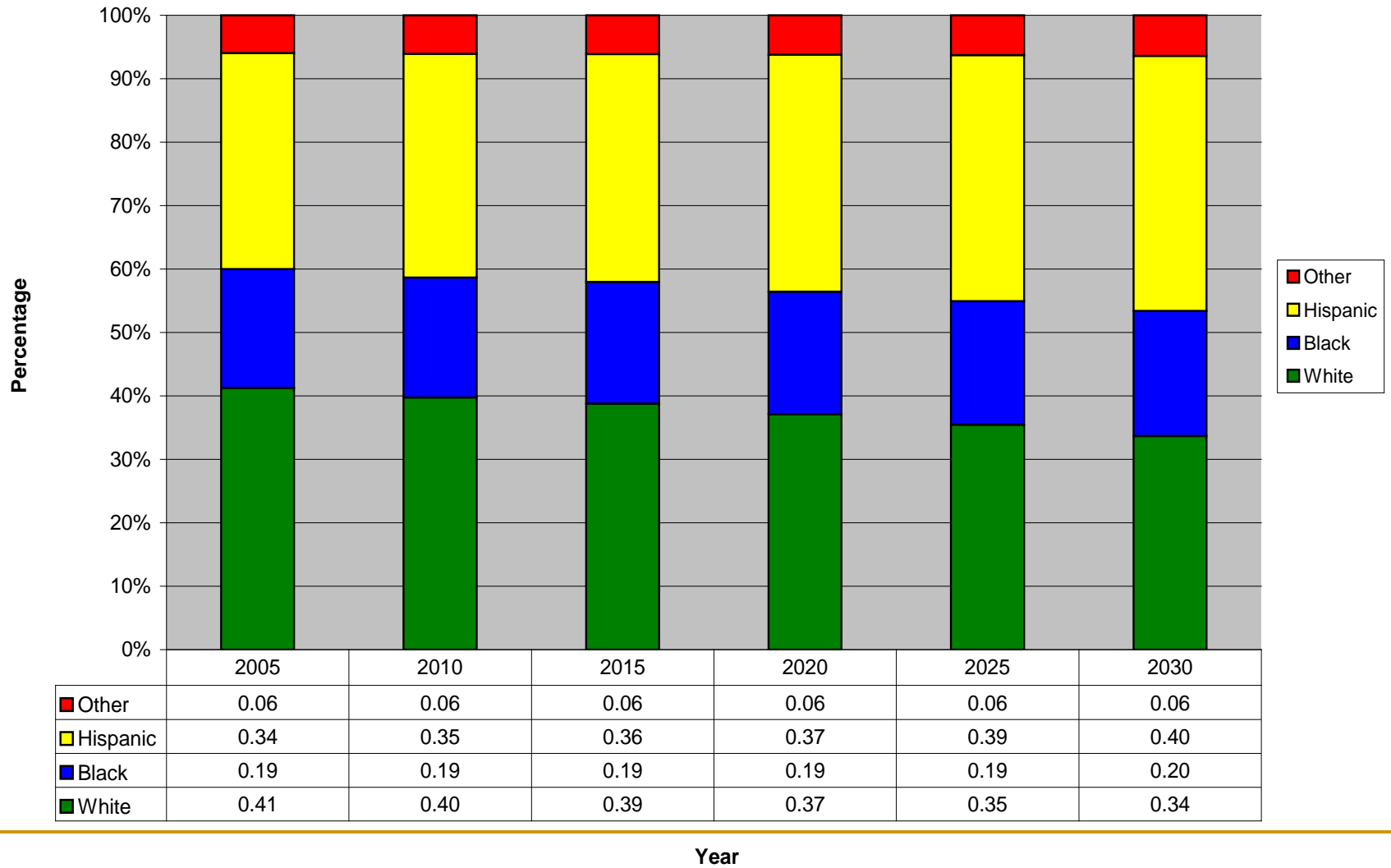
1 Migration Scenario



.5 Migration Scenario



Zero Migration Scenario



Evaluation of Projections (2010)

Evaluation of Projections of 2010 with Census 2010

Scenario	Projection	Census 2010	MPE
1 Migration Scenario	3,935,130	4,092,459	-3.84
.5 Migration Scenario	3,847,607	4,092,459	-5.98
Zero Migration Scenario	3,782,759	4,092,459	-7.57

Future perspectives

- The population projections presented in this paper indicate that Harris County will experience transformations in both age structure and race/ethnicity.
 - Race/ethnic group structure seems to shift from Non-Hispanic Whites being a majority to Hispanic becoming majorities, this process seems to be slower less for the zero migration scenario.
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Future perspectives

- Harris County can expect population to continue increasing should the baseline rates stay the same.



Thank you for your attention

Questions? or Comments?
are highly appreciated!