

# Demographics and U.S. Presidential Elections

## Can Changing Population Characteristics Explain Elections?

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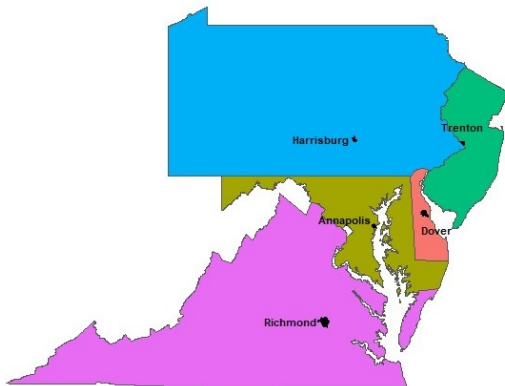
Northern Illinois University

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# States

I was assigned 5 states in the mid-Atlantic region of the United States:

- Maryland
- Pennsylvania
- New Jersey
- Virginia
- Delaware



## Brief Overview of Each State

Mid Atlantic States					
	Maryland	Pennsylvania	New Jersey	Virginia	Delaware
Population	6,018,848	12,791,530	8,878,503	8,454,463	957,248
Largest City	Baltimore	Philadelphia	Newark	Virginia Beach	Wilmington
Largest Industry (by number of employees)	Real estate	Health Care and Social Assistance	Health Care and Social Assistance	Health Care and Social Assistance	Finance and insurance

# Quadratic Forms

$$f(x) = bx^2$$

## Definition 4.D

A quadratic form on  $\mathbb{R}^k$  is a real-valued function of the form

$$Q(x_1, \dots, x_k) = \sum_{i,j=1}^k a_{ij}x_i x_j.$$

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Common for econ: indifference curves

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Matrix Representation (“Expansion around a matrix”)

$$(x_1 \ x_2) \begin{pmatrix} a_{11} & a_{12} \\ a_{12} & a_{22} \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix}$$