

**Applied Price Theory**  
**Analyzing Changes in Relative Wages**  
**(An application of production theory)**

References:

Katz and Murphy, "Changes in Relative Wages, 1963-1987: Supply and Demand Factors," *Quarterly Journal of Economics* 107 (February 1992): 35- 78.

Murphy & Welch, "The Structure of Wages," *Quarterly Journal of Economics* 107 (February 1992): 285-326.

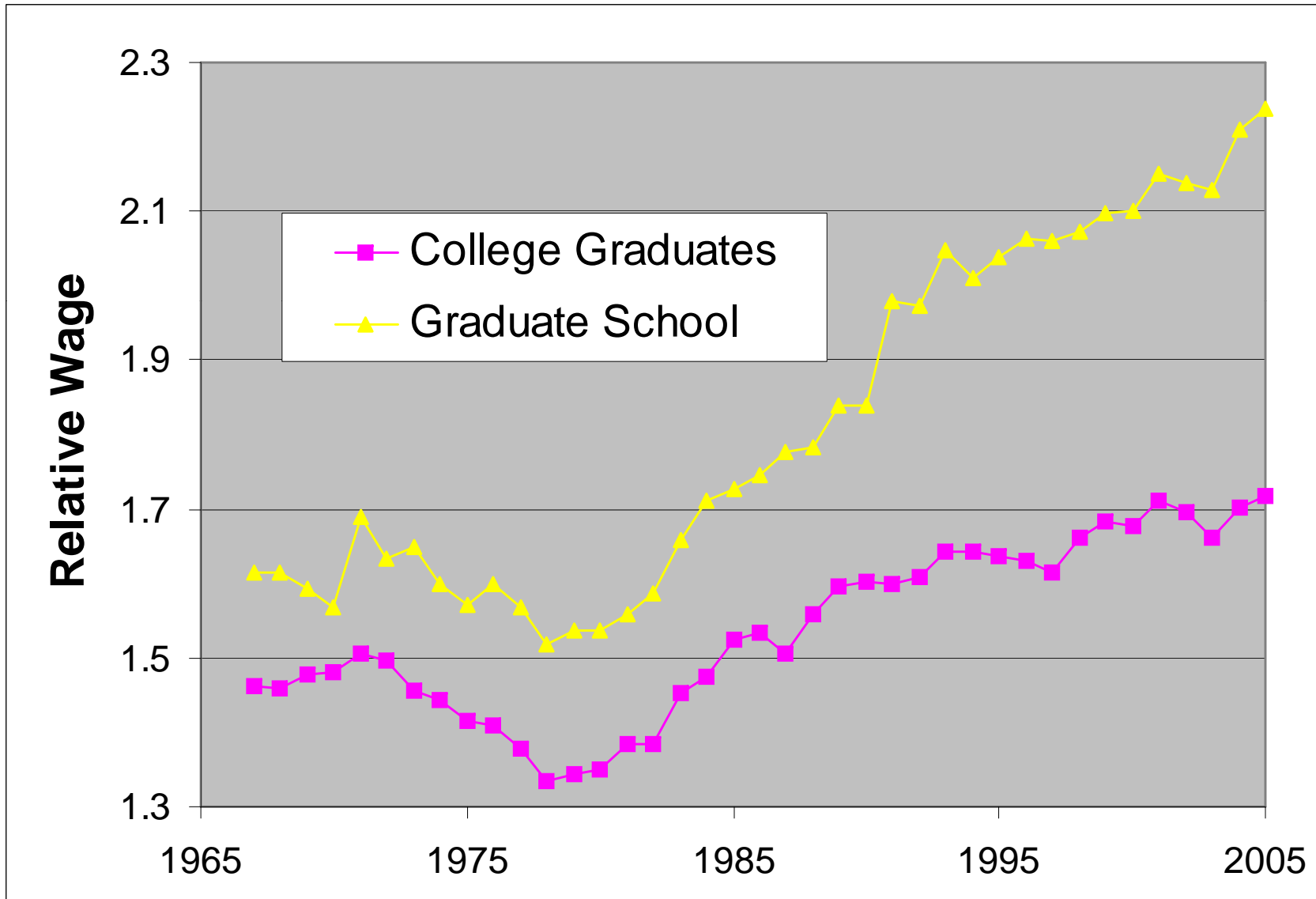
Murphy & Welch, "Industrial Change and the Rising Importance of Skill" In *Uneven Tides*, pp. 101-132, ed. Peter Gottschalk and Sheldon Danziger. New York: Russell Sage Foundation Publications, 1993

["Wage Differentials in the 1990s: Is the Glass Half Full or Half Empty?"](#) (with Finis Welch), in *The Causes and Consequences of Increasing Inequality*, edited by Finis Welch. Volume II in the Bush School Series in the Economics of Public Policy. Chicago: University of Chicago Press, 2001.

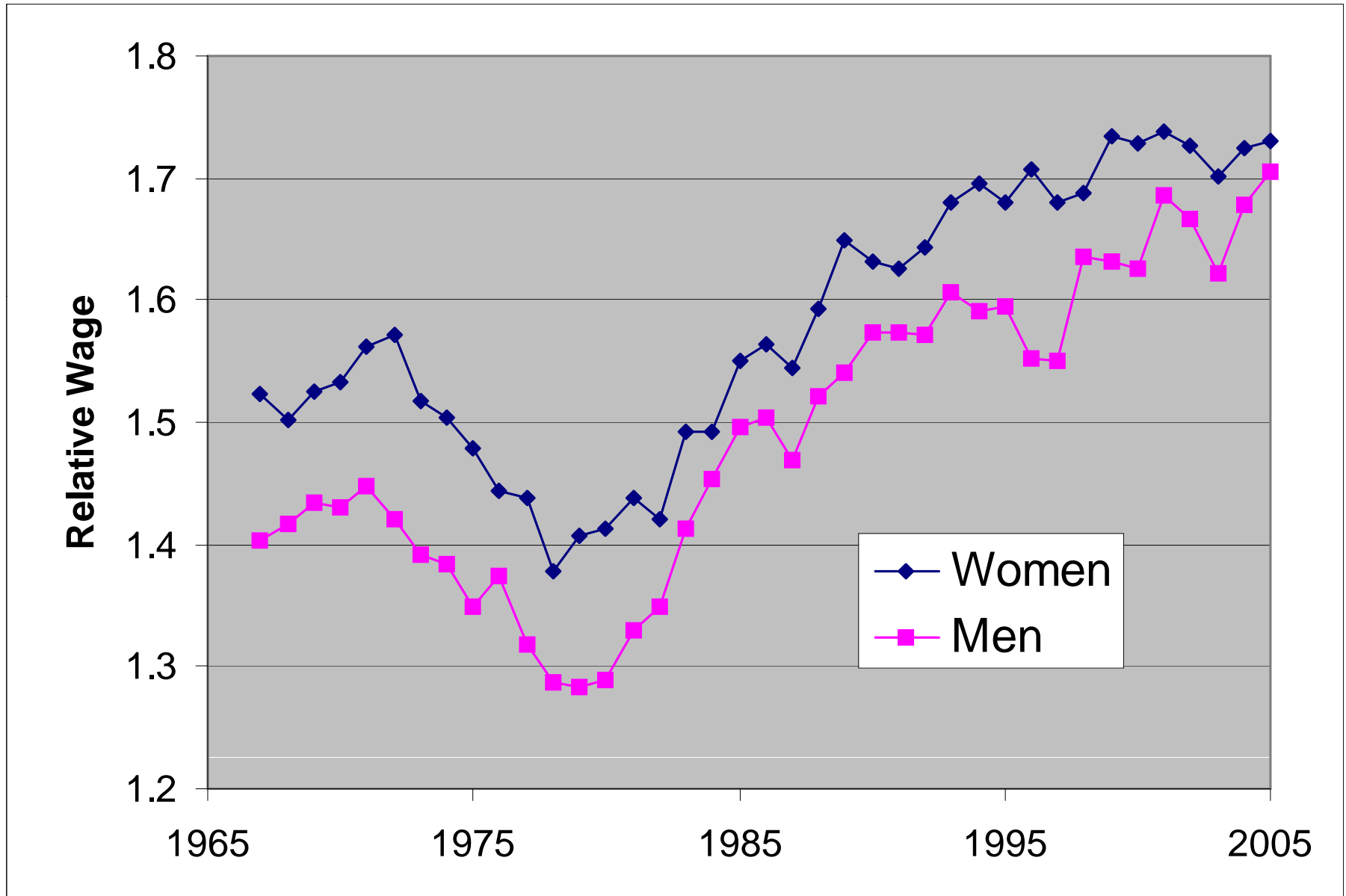
**Description of Analytical Approach**

- Step 1: Construct measures of factor prices and factor quantities for "types" of labor defined by education, gender and experience. Measure prices using a "reference population" and measure quantities using the "full" population
- Step 2: Focus on relative wages rather than the level of wages by deflating all wages by a wage index
- Step 3: Impose constant returns to scale by deflating all quantities by a "labor input index"
- Step 4: Examine price evidence to see that changes in wage premia reflect "prices" rather than composition or cohort effects by looking at price changes within and between cohorts
- Step 5: Examine evidence on prices and quantities to look for the importance of demand side factors and the nature of those factors using quasi-concavity condition for the production function (or equivalently the convexity condition for the cost function)
- Step 6: Aggregate factors using both a standard index (i.e. perfect substitutes approach) as well as a "linear synthesis" approach. Methods of (K & M and M & W) differ in terms of the amount of structure they place on the problem but are forms of the same basic underlying model. Aggregation is based on co-movement of prices.
- Step 7: Perform a "supply and demand" analysis using the aggregated measures of relative supply and demand. With two factors, we can reduce the problem to one relative quantity and the corresponding relative price; the key remaining question is what is the elasticity of substitution between the factors?
- Step 8: Examine measurable components of demand side factors to check alternative explanations for the observed changes in prices and quantities.

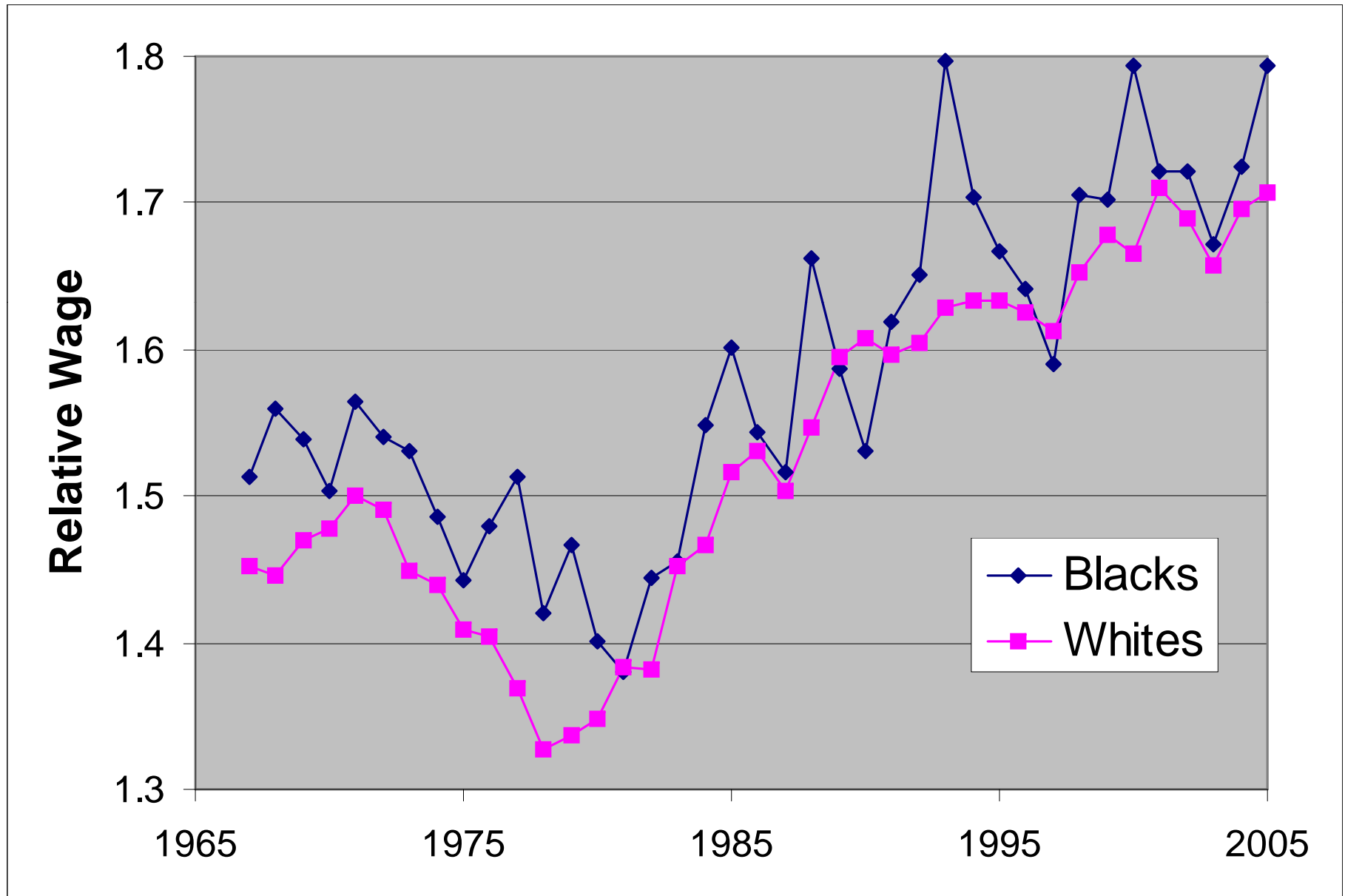
# Education Wage Premiums



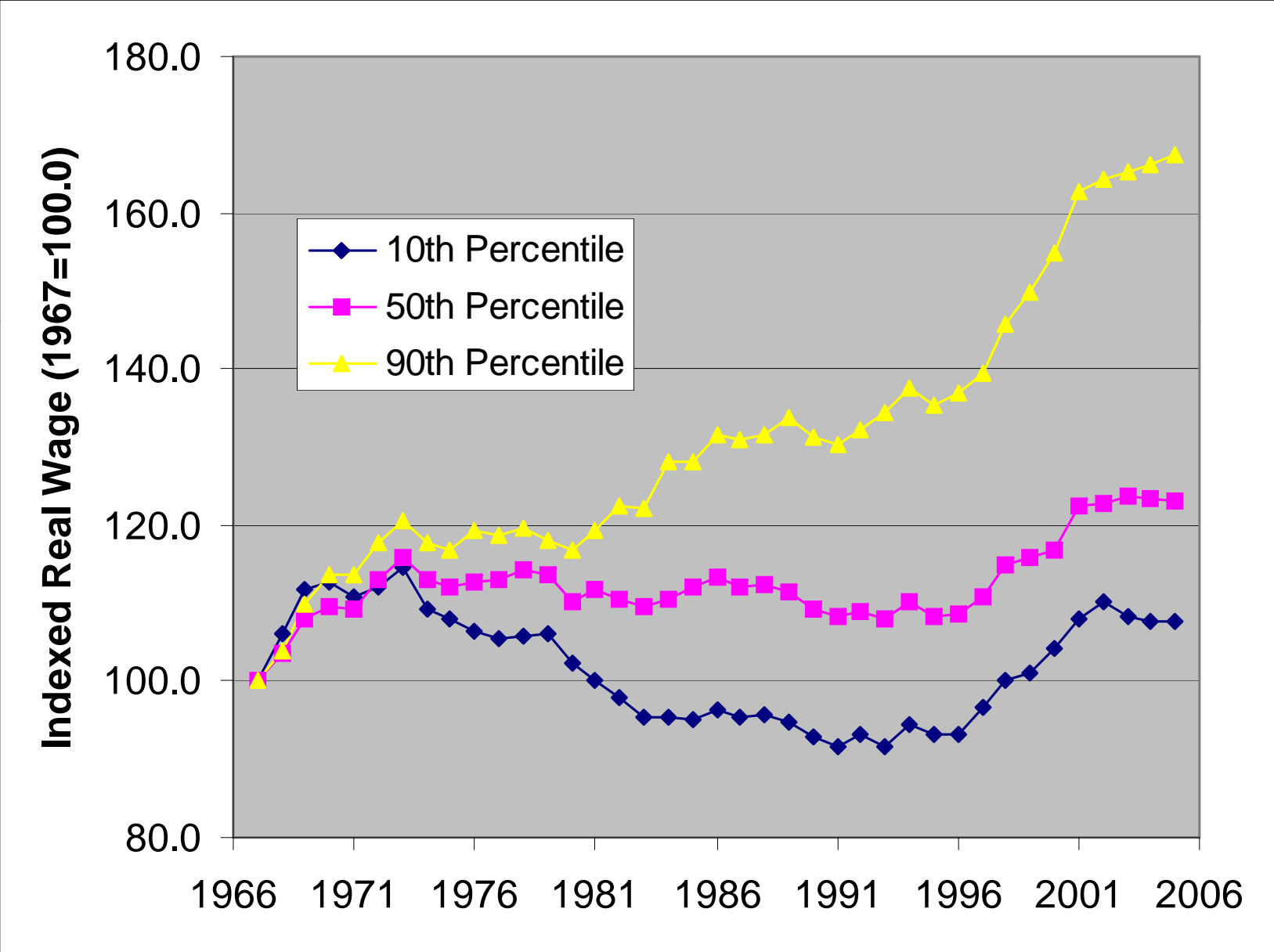
# Education Premiums by Gender



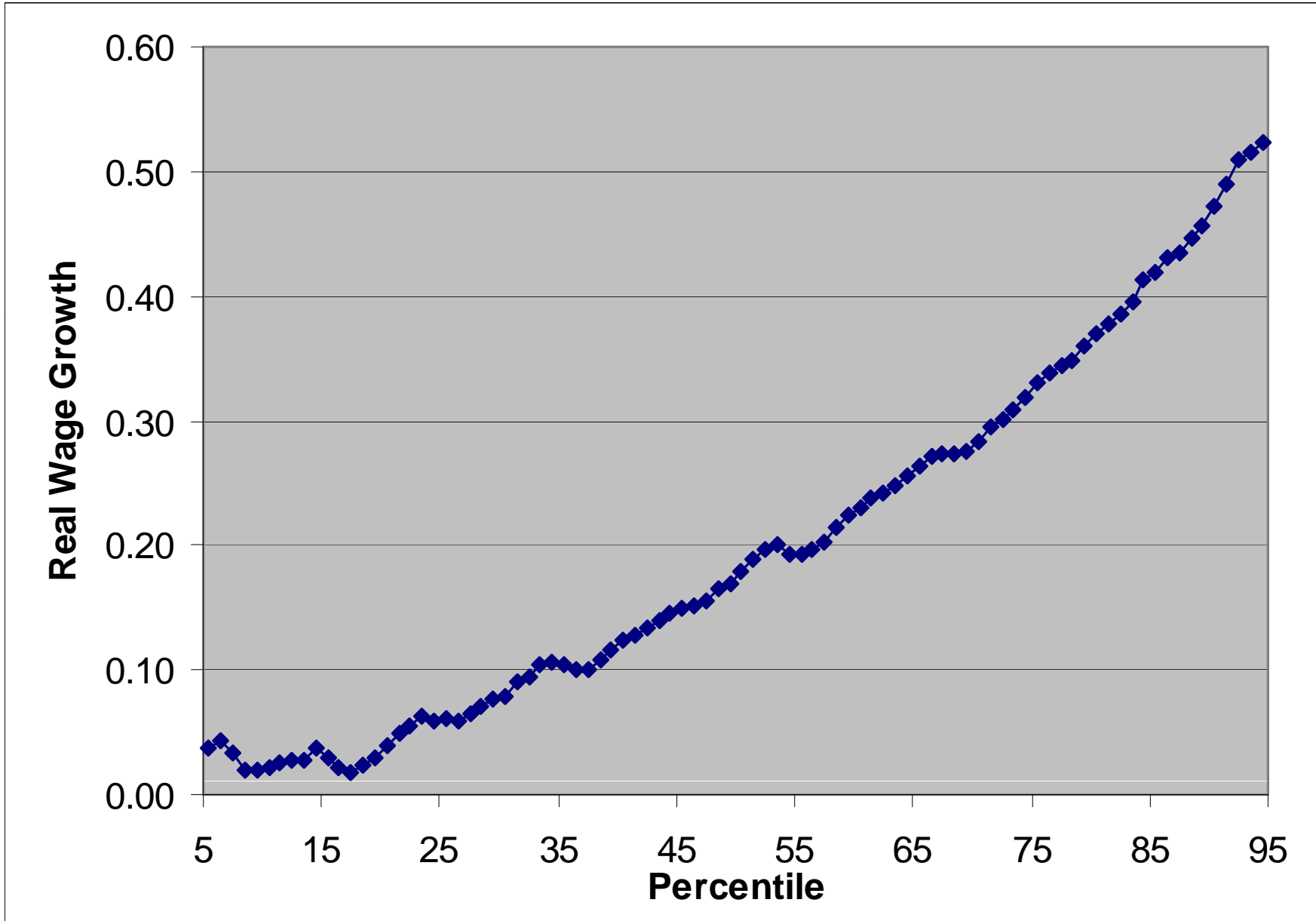
# Education Premiums by Race



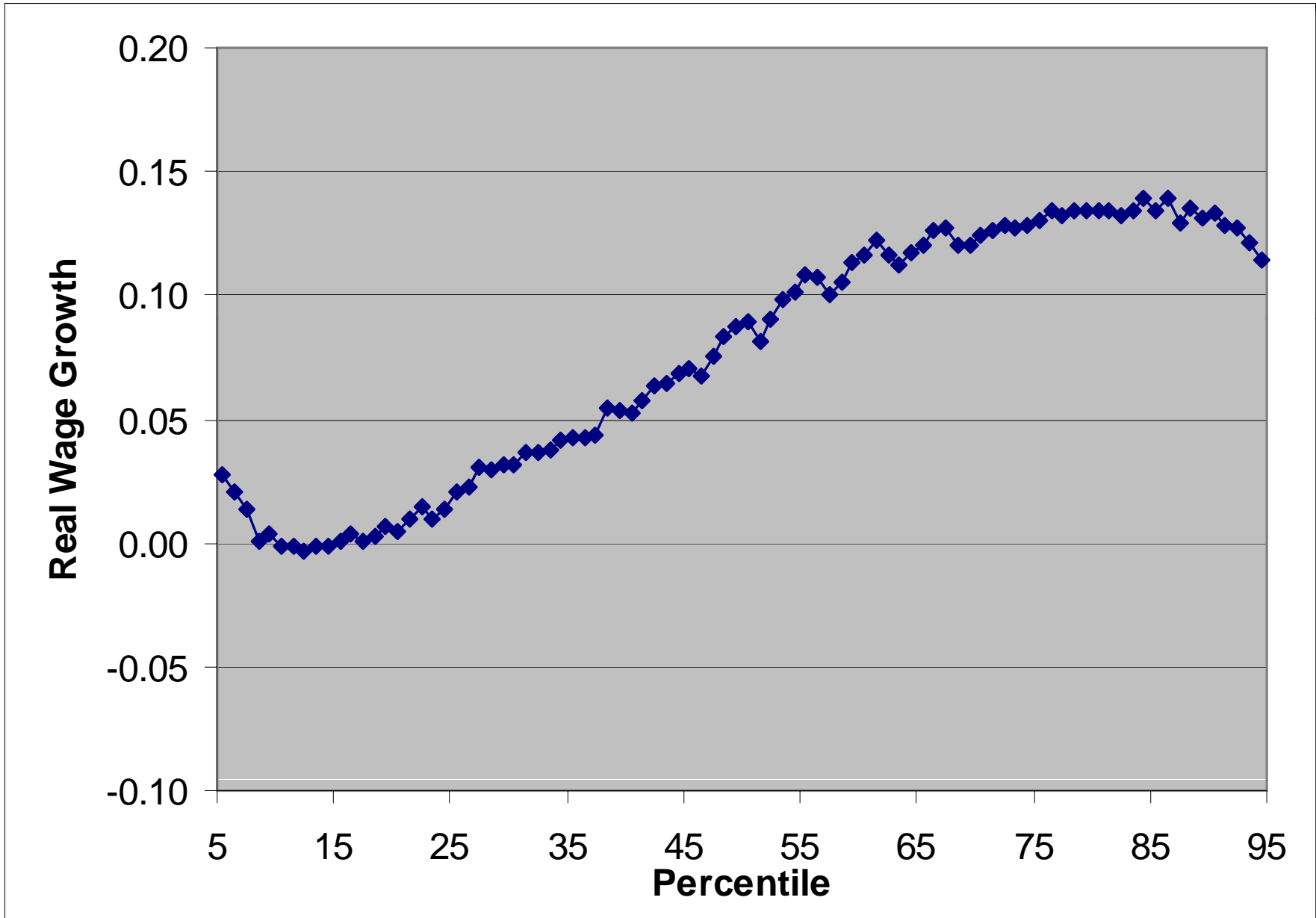
# Overall Rise in Wage Inequality for Men



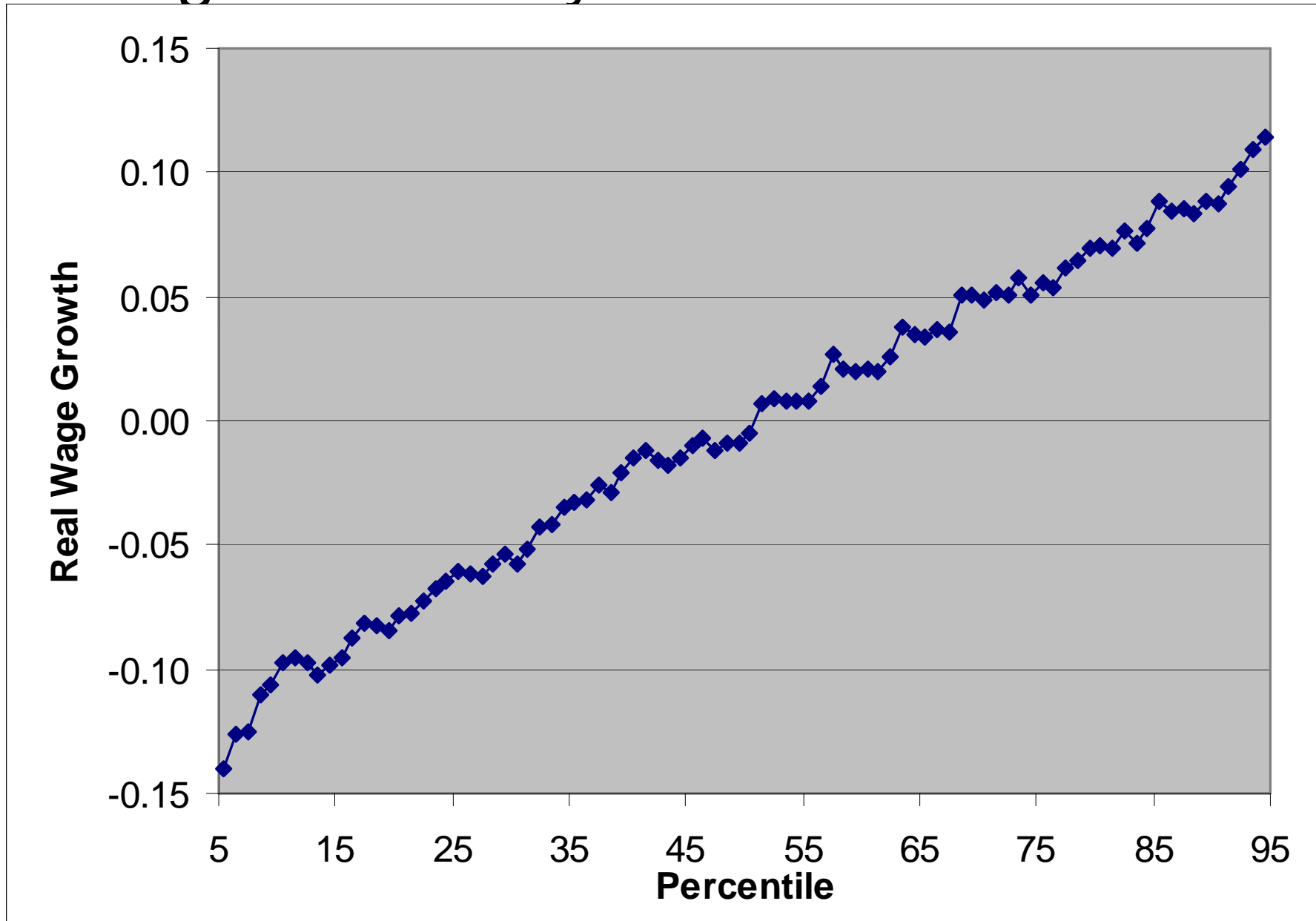
# Wage Growth by Percentile 1968-2004



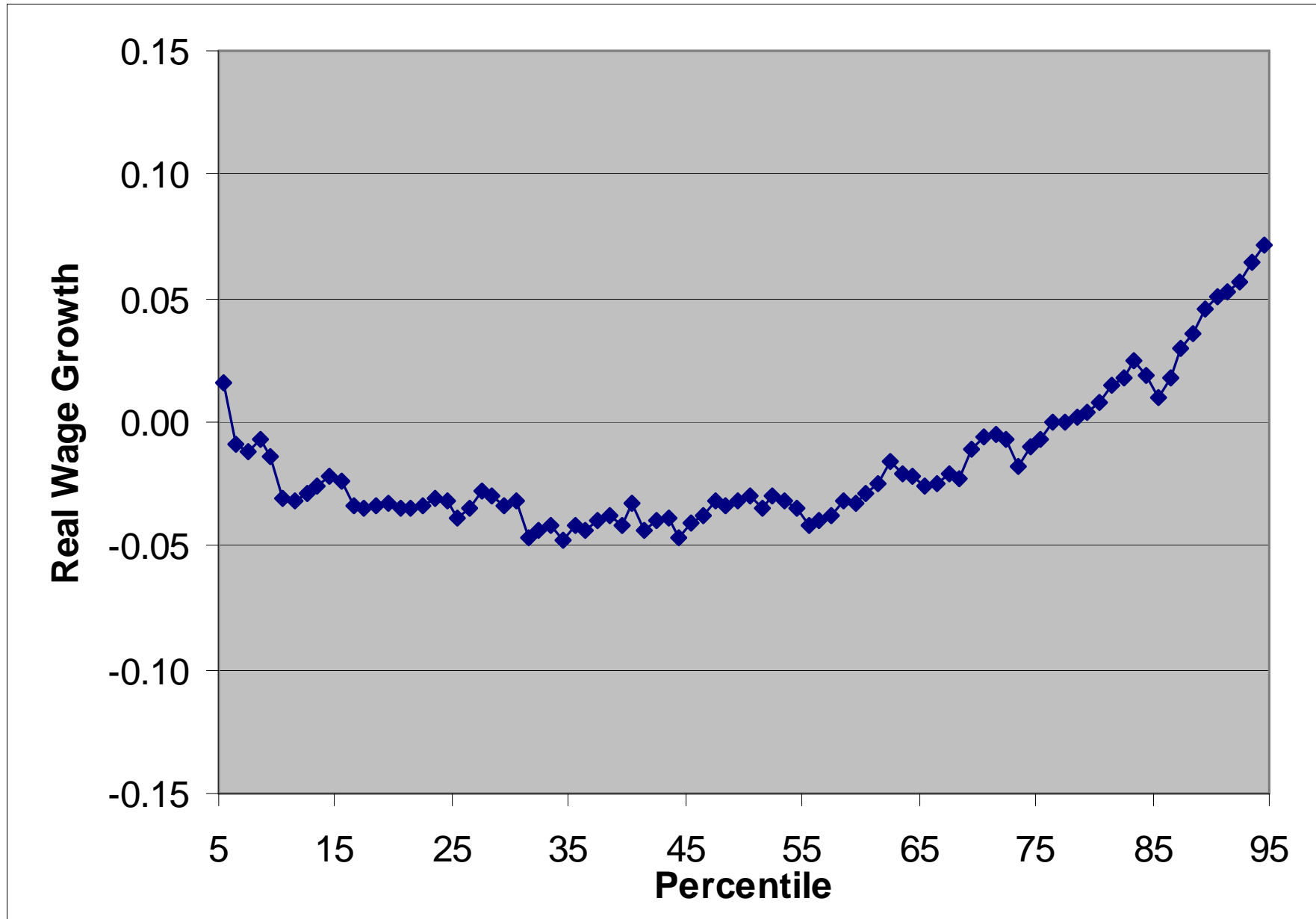
# Wage Growth by Percentile 1968-1977



# Wage Growth by Percentile 1977-1986



# Wage Growth by Percentile 1986-1995



# Wage Growth by Percentile 1995-2004

