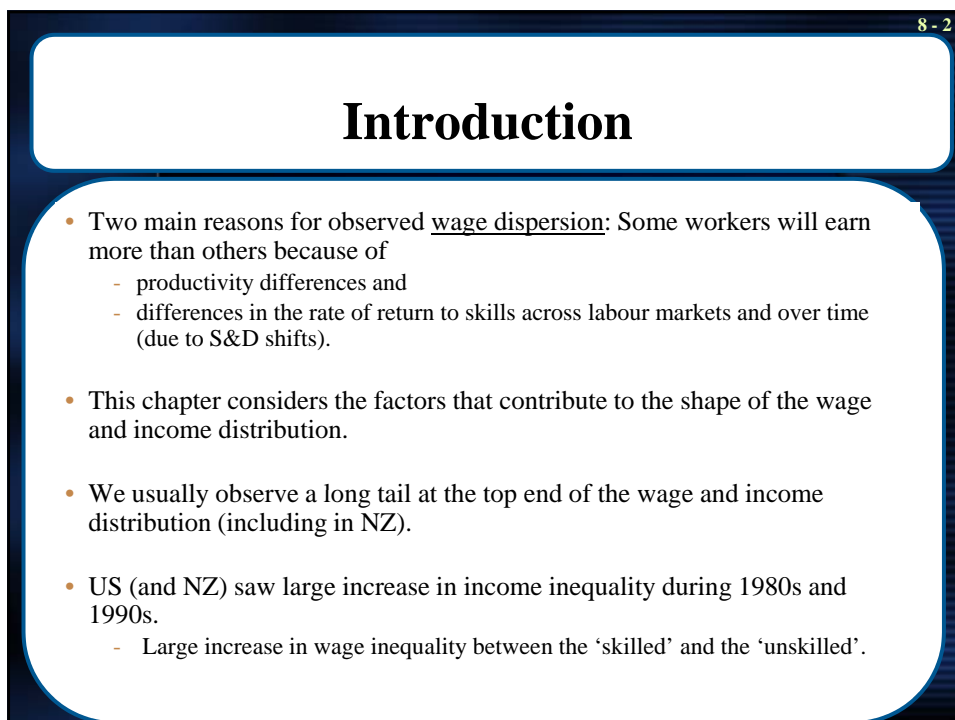
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Chapter 7

The Wage Structure

McGraw-Hill/Irwin
Labor Economics, 5th edition

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8 - 2

Introduction

- Two main reasons for observed wage dispersion: Some workers will earn more than others because of
 - productivity differences and
 - differences in the rate of return to skills across labour markets and over time (due to S&D shifts).
- This chapter considers the factors that contribute to the shape of the wage and income distribution.
- We usually observe a long tail at the top end of the wage and income distribution (including in NZ).
- US (and NZ) saw large increase in income inequality during 1980s and 1990s.
 - Large increase in wage inequality between the 'skilled' and the 'unskilled'.

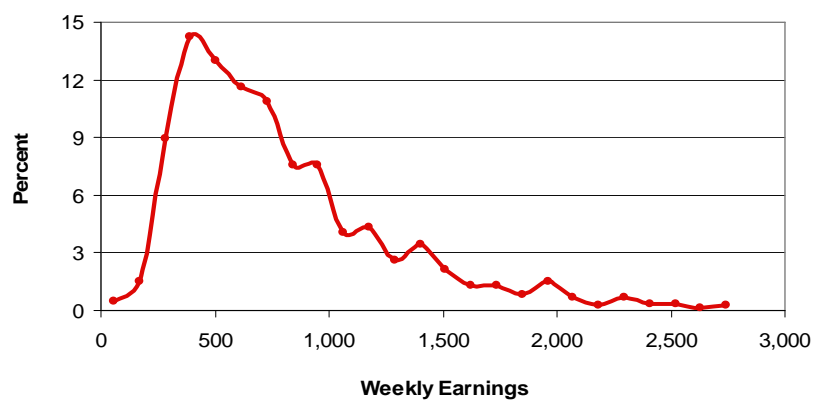
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7-1 The US Earnings Distribution

- The wage distribution is positively skewed (long right tail).
- A small percent of workers earn disproportionately large shares of the rewards for work. Most workers earn low wages.
- Large international differences in income distributions (see Table 7-1, p. 289).
- Some NZ evidence:
 - Statistics New Zealand (1999), *Income Distribution in New Zealand*, Key Statistics, May, pp. 7-9. (**Class handout**)
 - Ministry of Social Development (2008), *Social Report 2008 – Income Inequality*. (**2 page class handout**)

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Figure 7-1: The Wage Distribution in the United States, 2006



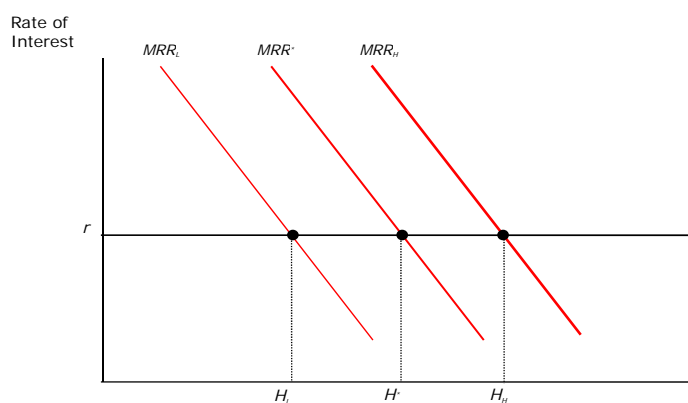
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Some General Facts About the Earnings Distribution

- According to human capital theory, wage differentials exist due to:
 - Human capital investments that vary from worker to worker.
 - Age (young workers are still accumulating human capital, older workers are collecting returns from earlier investments).
- There is a positive correlation between ability and human capital investments, which “stretches out” wages in the population.
 - High-ability workers earn more both because they have more ability *and* because they acquire more human capital (Figure 7-2).

8 - 6

Figure 7-2: Income Distribution When Workers Differ in Ability



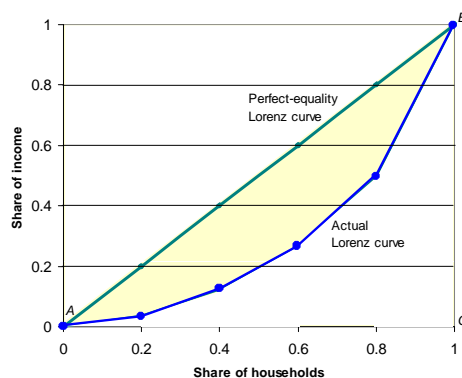
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7-2 Measuring Inequality

- The standard measure of the extent of inequality in an income distribution:
 - The Lorenz Curve: It shows the cumulative share of income going to the various quintiles (i.e. 20% shares) of households.
 - The more inequality, the further is the actual Lorenz curve from the 45 degree line (the 'perfect-equality' Lorenz curve).
 - The Gini coefficient (note: it can, and has been, applied to many types of income-related data) .
 - '0' if perfect equality; '1' if perfect inequality.
 - Problem: Different household income distributions can result in the same Gini coefficient.
 - Supplementary measures: 90-10 wage gap; 80-20 wage gap, 50-10 wage gap, etc.

8 - 8

Figure 7-3: The Lorenz Curve and the Gini Coefficient

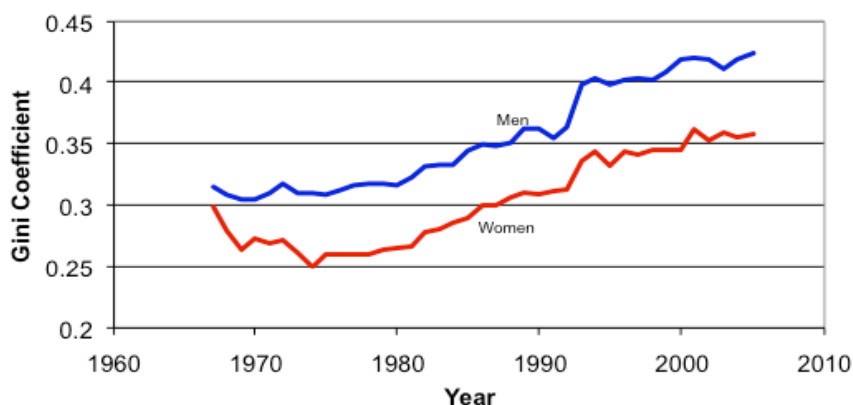


The "perfect-equality" Lorenz-curve is given by the line AB, indicating that each quintile of households gets 20 percent of aggregate income, while the Lorenz curve describing the actual income distribution lies below it. The ratio of the shaded area to the area in the triangle ABC gives **the Gini coefficient**.

7-3 Changes in the US Wage Structure – the 1980s & 1990s

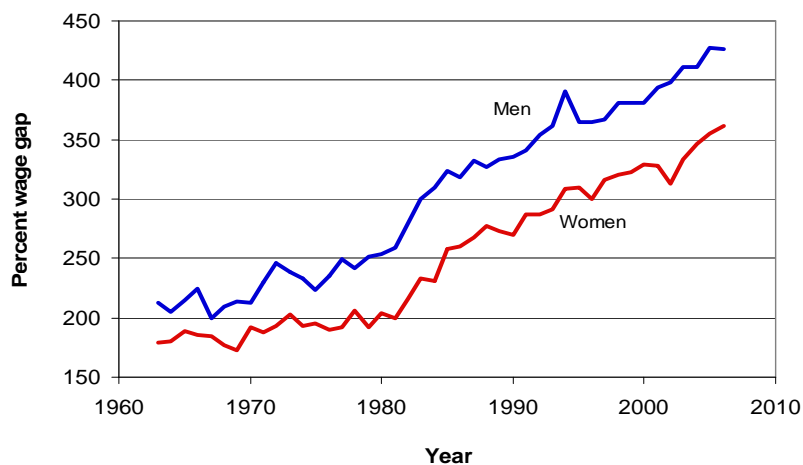
- The wage gap between those at the top of the wage distribution and those at the bottom widened dramatically.
- Wage differentials widened among education groups, experience groups, and age groups.
- Wage differentials widened within demographic and skill groups.
- Reasons? Some of it due to increase in return to schooling & experience (Figure 7-5).
- Also large increase in *within* skill group inequality, i.e. rise in income inequality between similar workers!

Figure 7-4a: Earnings Inequality for Full-Time, Year-Round Workers, 1963-2006: The Gini Coefficient



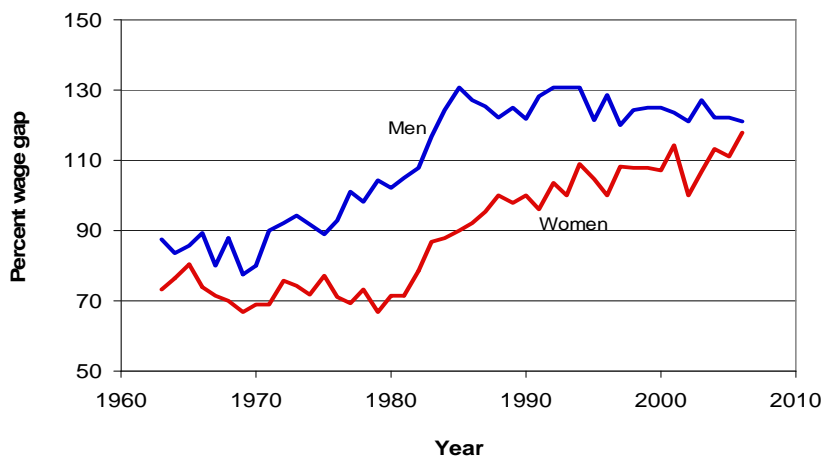
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Figure 7-4b: Earnings Inequality for Full-Time, Year-Round Workers, 1963-2006: The 90-10 Wage Gap



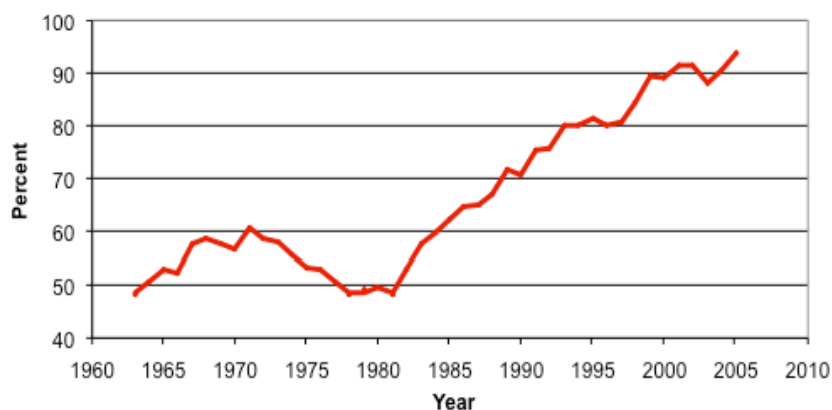
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Figure 7-4c: Earnings Inequality for Full-Time, Year-Round Workers, 1963-2006: The 50-10 Wage Gap



8 - 13

Figure 7-5: Wage Differential Between College Graduates and High School Graduates, 1963-2006



8 - 14

7-4 Policy Application: Why Did Wage Inequality Increase?

- Much of the material in this section is also relevant for countries other than the US. You should focus on the different possible reasons for wage inequality.
- No single factor explains all of the observed changes in income inequality.
- The increase in US inequality seems to have been caused by concurrent changes in economic “fundamentals” and labour market institutions.

8 - 15

Changing the Wage Structure

- Simple demand & supply model explanations:
 - Assume just two types of workers: Skilled and unskilled.
 - Wage ratio between skilled and unskilled workers: 'r'.
 - Ratio of number of skilled to unskilled workers: 'p'
(not constant in the long-run, but here assumed constant).
 - See Figure 7-7:
 - Demand curve gives demand for skilled workers *relative* to demand for unskilled workers.
 - Perfectly inelastic *relative* supply of skilled workers.

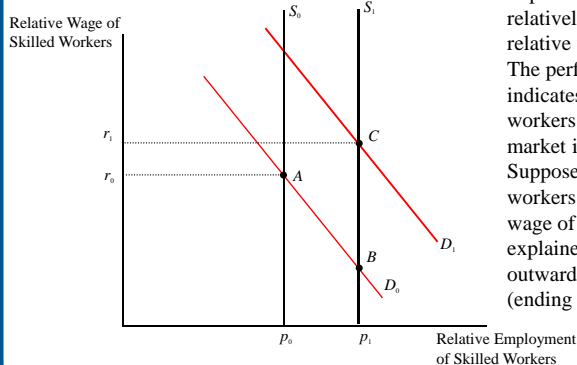
8 - 16

The Simple Demand & Supply Model ctd.

- In this simple model, only two ways that the wage gap r could have increased:
 - Decrease in supply of skilled workers will cause widening of wage gap.
 - Increase in demand for skilled workers will cause widening of wage gap.
- What actually happened in US: Large increase in the relative supply of skilled workers. Therefore, there must also have been a large outward shift of the relative demand curve for skilled workers, ceteris paribus.

8 - 17

Figure 7-7: Changes in the Wage Structure Resulting from Shifts in Supply and Demand



The downward-sloping demand curve implies that employers wish to hire relatively fewer skilled workers when the relative wage of skilled workers is high. The perfectly inelastic supply curve indicates that the relative number of skilled workers is fixed. Initially, the labour market is in equilibrium at point A. Suppose the relative supply of skilled workers increased to S_1 . The rising relative wage of skilled workers can then be explained only if there was a sizable outward shift in the relative demand curve (ending up at point C).

8 - 18

Possible Explanations

- Search for explanations: What factors might explain a large enough increase in relative demand for skilled workers to overcome the impact on r of the increase in relative supply of skilled workers?
- Supply shifts:
 - They cannot explain the 'big picture' of what happened to the wage structure, but they can explain the fall in the relative wage of skilled workers' wages during the 1970s!
 - Some of the relative decline in high-school drop-out wages also due to immigration of mostly unskilled workers, i.e. high-school drop-outs (explains about one-third).

Possible Explanations ctd.

- Demand shifts:
 - International Trade
 - Has it increased demand for skilled workers? Are workers employed in export industries (on average) better educated than workers in import industries? Depends on structure of exports and imports! In the US, foreign trade seems to have contributed modestly (20%) to the rise in wage inequality. *NZ evidence? Did trade hurt or benefit unskilled and/or low skilled workers?*
 - Skill-Biased Technological Change (often seen as the main explanation)
 - Technological change and skilled work are likely to be complements.
 - Technological change and unskilled work are likely to be substitutes.

Possible Explanations ctd.

- Example: Personal computer (**PC**) use often thought to be positively correlated with increased demand for skilled workers and higher wages for such workers. But: Measurement is an issue, and so is causality. For example, some critics of the US case argue that much of the increase in inequality occurred **before** the major increase in PC use.
 - The effects of PC and, more generally, ICT (Information & Communication Technology) use are an active area of economic research.
 - Some NZ evidence: Blumenfeld and Thickett (2003), Dalry and Gibson (2003)(full references are listed on p. 3 of your 'Supplementary Reading List')

8 - 21

Possible Explanations, ctd.

- Institutional Changes
 - Decline in union membership (de-unionisation). Weakened bargaining power of unions in US (& in NZ during 'Employment Contracts Act' era!). This can be interpreted as a relative outward shift in the relative demand curve for skilled labour (Figure 7-7).
 - Minimum wage fell in real terms (in U.S.), thereby increasing wage gap between unskilled and skilled workers.
 - But cannot explain widening gap between and within different groups of skilled workers.
- **Summary:** None of the (at least five) factors mentioned can explain all of the observed changes (including their timing) in the US wage dispersion.

8 - 22

Possible Explanations, ctd.

- Also large differences in international trends in wage inequality (see Table 7-4).
 - Differences in labour market institutions.
 - Maybe some countries responded to the increased demand for skilled workers by changing prices (i.e. lowering unskilled wages; US, UK, NZ, Australia), whereas other countries responded by changing quantities (i.e. higher unemployment of unskilled workers; Canada, Germany, Norway?).
 - There is still much to learn about what caused the changes in wage/income inequality observed during the last two or three decades!

Some More NZ-Specific Literature & Evidence

- My paper “Towards a Knowledge Economy? Changes in New Zealand’s Information Work Force 1976-1996”, *Prometheus*, Vol. 18, No. 3, 2000, pp. 265-282 (especially the section on ‘The changing income distribution’).
- Dixon, Sylvia (1998), “Growth in the dispersion of earnings: 1984-97”, *Labour Market Bulletin*, Issue 1&2, pp. 71-107.
 - Largest component of rise in earnings dispersion came from increased inequality within groups of workers with similar observed levels of education, age and potential work experience.
 - Earnings inequality mainly rose before 1991, i.e. role of Employment Contracts Act is unclear.
- O’Dea, Des (2000), ‘The Changes in New Zealand’s Income Distribution’, *Treasury Working Paper 00/13*, Wellington.
 - Importance of social trends, i.e. changes in household composition (growth in sole parent households and older household without children); more skilled workers.

Some More NZ Literature & Evidence, ctd.

- Hyslop, D. and D. Mare (2005), “Understanding New Zealand’s Changing Income Distribution, 1983-1998: A Semi-parametric Analysis”, *Economica*, 72, pp. 469-495.
- Atkinson, A. B. and A. Leigh (2005), *The Distribution of Top Incomes in New Zealand*, Centre for Economic Policy Research Discussion Paper No. 503, Australian National University, Canberra, November.
- Statistics New Zealand (2007), *Wealth Disparities in New Zealand*, Wellington, April.

8 - 25

7-5 The Earnings of Superstars

- What determines the economic rewards at the very top of the wage distribution?
 - Superstar phenomenon: A few persons in some professions earn very high salaries and seem to dominate their field.
 - Pre-conditions for 'superstar' incomes:
 1. Even if a job is the same, different people bring different skills to the same job, i.e. some (a few) people are very talented at what they do. "Sellers are not perfect substitutes".
 2. The technology of mass production allows the very talented to reach very large markets (at very low price).

1 not enough! 2 is crucial!

8 - 26

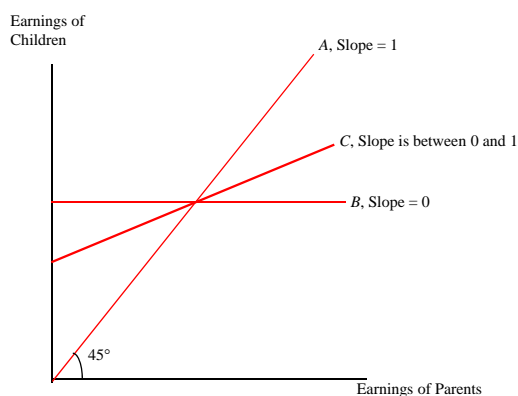
7-6 Inequality Across Generations

- Degree of social mobility in a society?
- There is a correlation between the skills of parents and their children: "Parents usually care about the well-being of their children". Implies that high-income parents will typically invest more in the education of their children compared to low-income parents.
- There is a tendency for income differences across families to get smaller over time ("regression toward the mean"). In terms of Figure 7-8, the intergenerational correlation (slope of the line) is less than 1 but greater than 0.
 - Three possible reasons for regression toward the mean (p. 309).
- US not as socially mobile as previously believed.

8 - 27

Figure 7-8: The Intergenerational Link in Skills

The slope of the regression line linking the earnings of the children and the earnings of the parents is called an intergenerational correlation. If the slope is equal to 1, the wage gap between any two parents persists entirely into the next generation, and there is no regression toward the mean. If the slope is equal to 0, the wage of the children is independent of the wage of the parents, and there is complete regression toward the mean.



8 - 28

Inequality Across Generations ctd.

For recent international evidence, including data on NZ, see:

D'Addio, Anna Cristina (2007), "Intergenerational Transmission of Disadvantage: Mobility or Immobility across Generations" A Review of the Evidence for OECD Countries", *OECD Social, Employment and Migration Working Papers No. 52*, Paris.

<http://www.oecd.org/dataoecd/27/28/38335410.pdf>

End of Chapter 7