Topic 2 – Wage Structures Across Markets

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Economics 471

Wage Structures Across Markets

- Wages vary across a number of different markets (dimensions)
- We've looked at how wages vary across skills (education) but there are a number of other interesting cases
- Here, and in later topics we will examine and attempt to explain why wages vary across markets
  - Do such earnings differentials indicate that the labour market is not fully integrated?

Earnings Function

- As we have shown, a simple way to summarize and isolate wage differences is through regression analysis

e.g. Earnings Function

(1) $\ln(w)=a + b*School + c*Exp + d*Exp^2 + \epsilon$

- Estimation of this equation by OLS gives estimates of the returns to schooling and experience
- Within this context we can allow wages to depend on other characteristics as well

Earnings Function

(2) $\ln(w)=a + b*School + c*Exp + d*Exp^2 + e*Occ + f*Ind + g*Prov + \epsilon$

- Equation 2 is estimated using the 2001 census to summarize differences in wages across these dimensions
- Let's start with the results looking across provinces
- The table gives the percentage difference in wages across provinces "holding constant" education, experience, industry and occupation

Table 10.1 Earnings Differentials by Province

Province	% Jobs	Premium
Newfoundland and Labrador	1.4	−4.6
Prince Edward Island	0.4	−14.7
Nova Scotia	2.7	−10.1
New Brunswick	2.3	−9.5
Quebec	23.4	−11.9
Ontario	40.0	—
Manitoba	3.5	−7.1
Saskatchewan	2.8	4.1
Alberta	12.5	15.7
British Columbia	12.0	1.5

Table 10.1 Earnings Differentials by Occupation and Industry

Occupation			Industry		
	% Jobs	Premium		% Jobs	Premium
Senior management	2.0	52.8	Agriculture, forestry, and fishing	1.5	−32.6
Middle management	5.0	34.7	Other primary	2.3	42.9
Other management	9.0	14.8	Utilities	1.7	32.9
Professionals (business and finance)	3.1	19.4	Construction	9.0	-5.2
Finance and administration	6.1	-11.9	Manufacturing	16.2	—
Clerical	1.2	−20.1	Wholesale trade	7.1	−0.4
Professionals (science)	7.4	19.0	Retail trade	9.4	−24.0
Other science occupations	6.1	1.8	Transportation and warehousing	7.1	−0.6
Professionals (health)	0.9	51.7	Information and culture	2.9	4.6
Other health occupations	1.1	1.4	Finance and insurance	4.0	9.6
Professionals (education and social services)	5.0	14.5	Real estate and leasing	1.6	−10.2
Other education and social occupations	3.2	16.1	Professional services	7.5	-1.9

Table 10.1 Earnings Differentials by Occupation and Industry

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	% Jobs	Premium		% Jobs	Premium
Professionals (education and social services)	5.0	14.5	Real estate and leasing	1.6	−10.2
Other education and social occupations	3.2	16.1	Professional services	7.5	−1.9
Professionals (arts, culture, and recreation)	1.5	-19.3	Administrative and support, and waste management	3.3	−26.0
Sales and service supervisors	4.4	-5.7			
Sales representatives	6.3	−16.8	Educational services	4.8	−12.8
Sales and services support	4.0	-32.4	Health and social assistance	3.5	−21.6
Trade workers	15.0	—	Accommodation and food	3.4	−53.7
Transportation and trade helpers	10.0	-21.4	Other services (except public administration)	5.1	−23.8
Supervisors and technicians (primary and secondary sectors)	5.9	-9.6	Public administration	9.6	4.8
Labourers	3.0	-27.5			

Results

- The wage premia in this type of a regression are always relative to some base category
- In this case, the base category is Ontario (largest group)
- As we can see there is a great deal of variation in wages across provinces
- Wages are significantly lower in the Atlantic Provinces and higher in Alberta

Results

- The base occupation is Trade Workers
- The highest paid occupation groups are Senior Management and Health Professionals
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- Finally, the base industry is manufacturing
- There is a large premium associated with "other primary" : 42.9 % higher than manufacturing controlling for region etc.
- Accomodation/food/beverage industry groups have a large penalty

Reasons for these Differences

Why do wages vary across these markets?

- Clearly differences in educational requirements for the jobs matter
- But differentials still exist even after controlling for schooling
- There are a number of reasons we might consider that apply broadly to most cases

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Reasons for these Differences

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e.g. -

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- Problematic because this suggests that the labour market is not integrated

3. Short-run Disequilibrium:

4. Unobserved Heterogeneity:

Occupational Wage Structures

- The term occupation is used to refer to a number of jobs that have "the same basic work content"
- These jobs may be found in different establishments and industries
- Occupations can be broadly defined (e.g. clerical) or very narrowly defined (e.g. typist)
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- Otherwise workers at the margin will move from jobs of low net advantage to ones of high net advantage

Occupational Wage Structures

- This does not imply that wages across occupations are equal at the margin (even in the long-run)
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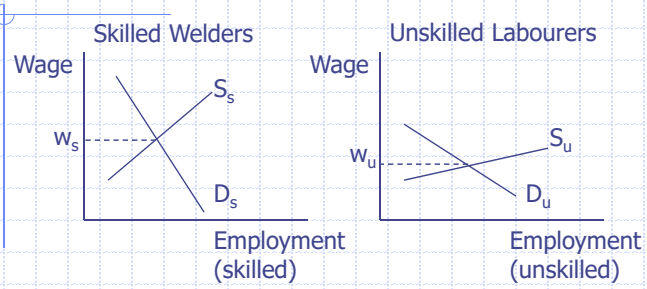
I. Occupational wage differentials may exist to compensate workers for pleasantness, safety, fringe benefits and stability of the job

- Part of the compensating wage premium may be paid for costly education requirements
- Or simply for some "endowment" of skills

A Simple Example



- Upward sloping supply –
- May require costly skills, preferences for certain occupations
- Supply ranks workers according to reservation wages for that occupation
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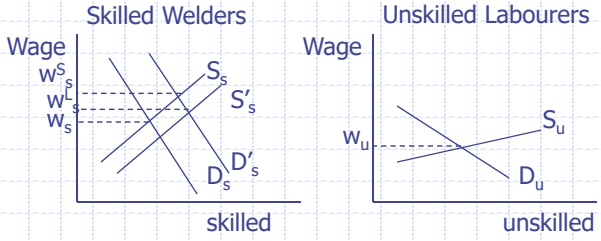
Short-run Adjustments

II. This example can illustrate how short-run adjustments may also affect occupational wage structures



- Suppose technological change induces an increase in demand for skilled labour
- Supply schedule for skilled workers may be fairly inelastic –
- Wages will rise in the skilled sector in the short-run
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Imperfect Competition

III. Finally, imperfect competition, which hinders adjustment to the long-run equilibrium, will also affect the occupational wage structure

Examples,

1. Occupational Licensing:

2. Unions:

3. Minimum wages and pay equity work directly on wages and affect the wage structures of low-wage and female dominated occupations

Regional Wage Structures

- Once again, theory predicts equality of net advantage at the margin for identical jobs across regions
- Wage and non-pecuniary aspects of the job must be the same otherwise workers would move to the region with higher "pay"
- Wages need not be the same, however, because of compensating differences, short-run adjustments and non-competitive factors

Compensating differences include:

Regional Wage Structures

- As before, short-run wage differentials may exist as the labour market adjusts to long-run equilibrium
- Non-competitive factors that hinder labour movement across regions will also impact the wage structure

Some examples are:

1. Occupational licensing – some provinces may not recognize training completed in other provinces or may have residency requirements
2. Unions – may require that workers with experience in the province be hired first
3. Social transfer programs –

   e.g.

The Migration Decision

- While we will discuss the migration decision in greater detail under immigration a simple treatment here will highlight some aspects of internal migration
- One can think of the migration decision in a similar manner as the human capital decision
- Migration will occur as long as the marginal benefits exceed the marginal costs

Benefits?

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Costs?

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The Migration Decision

- This framework has a number of implications which have been tested empirically – it implies:

i. Younger workers should be more mobile than older workers

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ii. Mobility should be from areas of high unemployment to areas of low unemployment

iii. Mobility should increase at the "peak" of business cycles and decline in recessions
   - Move when opportunities are abundant

The Migration Decision

iv. Mobility to and from Quebec is likely to be lower
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v. Distance should matter
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vi. Mobility to provinces with more generous social programs, lower taxes and higher expenditure on health and education should be higher
- The empirical evidence to date appears to support these propositions
- There is also evidence that regional wage disparities are eroding over time (as theory predicts)
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Evidence

U.S. – wage differential between the North and the South (controlling for the cost of living, human capital etc.) disappeared by the 1970's

Canada – Interprovincial differences in per capita income levels are falling
- There is some debate about whether or not regional differences still exist but there has been some movement towards equalization

Interindustry Wage Differentials

- The term "industry" refers to the principal kind or branch of economic activity of the establishment in which the individual works
- Industries can be broadly defined (e.g. non-durable manufacturing) or narrowly defined (e.g. textiles)
- Because industry classification is based on the establishment, interindustry wage differentials reflect a variety of factors
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- To get "pure" industry differentials we need to net these out

Interindustry Wage Differentials

- These difference reflect, once again:

i. Compensating differentials:

- Some industries are safer than others
- Some industries are characterized by seasonal employment (e.g. construction)

ii. Short-run adjustments to changes in demand

iii. Non-competitive factors

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Interindustry Wage Differentials

- Interindustry wage differentials likely also reflect a fourth factor; "Efficiency Wages"
- They may do so in order to reduce shirking, improve morale, reduce turnover and absenteeism and to elicit effort from employees
- The desirability of paying efficiency wages depends on the cost of shirking, turnover and absenteeism to the firm
- Econometric results suggest that efficiency wages exist – pure interindustry wage differentials exist

Public-Private Wage Differentials

- Because the public sector is simply one industry, we might think of this differential as an interindustry wage differential
- However, the public sector has a number of peculiarities that merit special attention
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- The public sector includes all sectors that are funded or owned by the government, including
  - Education
  - Health
  - Government enterprises
  - Government employment (federal, provincial, municipal)

Public-Private Wage Differentials

- Many of the same reasons for wage differentials discussed earlier apply here

Compensating differentials:

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- These suggest that wages should be lower in the public sector, all else equal

Short-run adjustments:

- e.g. contraction of the public sector may have lead to downward pressure on wages making it difficult for the government to recruit and retain employees

Public-Private Wage Differentials

Non-competitive factors:

- It is perhaps here that the public sector deviates most from the private sector
- We will discuss four peculiarities of the public sector under this heading

i. Political rather than profit constraint
ii. Monopsony power of government
iii. An inelastic demand for labour
iv. A high degree of unionization

Political rather than profit constraint:

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Public-Private Wage Differentials

- Taxpayers are diffuse, often ill-informed and can apply pressure only infrequently
- Future taxpayers have little or no representation in today's political process
- That said, working against public sector workers is the fact that even during a strike revenues come in
- This isn't true in the private sector

Monopsony:

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- There is some evidence with regard to teachers and nurses which suggests governments do utilize this power

Public-Private Wage Differentials

Inelastic demand for labour:

- If demand is inelastic, unions can bargain for higher wages without having to worry about the effects on employment
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- Empirical evidence suggests that the demand for labour in the public sector is highly inelastic

Unionization:

- The public sector in Canada tends to be highly unionized
- Such non-competition restricts the ability of wages to adjust

Public-Private Wage Differentials

- Most of the factors examined suggest that wages will be higher in the public sector than in the private sector
- There is another reason to believe that wages will be higher in the public sector
- The government would not be able to lower wages below those in other industries
  - Couldn't recruit or retain employees
- Competitive forces do not preclude the government from paying wage that are higher, however

Public-Private Wage Differentials

- The empirical evidence suggest that public sector worker in the 90's earned a 9% premium over private sector workers
- This premium was higher for women (pay equity)
- Lower for high skill workers (wage compression)
- This premium is up from 5% in the 1970's