

Chapter Two

Labour Supply: Individual Attachment to the Labour Market



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Learning Objectives, cont'd

- Changes in the Wage Rate and the Labour Supply
- Extensions and Applications
 - Added and Discouraged Worker Effects
 - Hidden Unemployment
 - Moonlighting, Overtime, and Flexible Hours

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Learning Objectives

- Labour Market Attachment
 - Labour Force Participation
 - Measurement and Trends
 - Hours of Work
- Basic Income-Leisure Model
 - Utility Maximizing Behaviour
- Labour Supply
 - Factors Influencing the Supply of Labour

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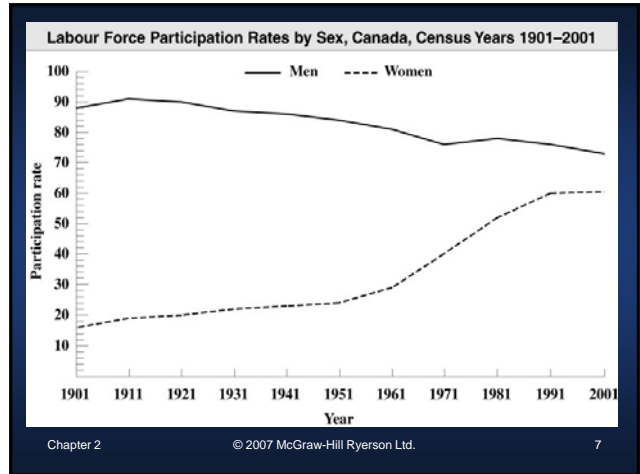
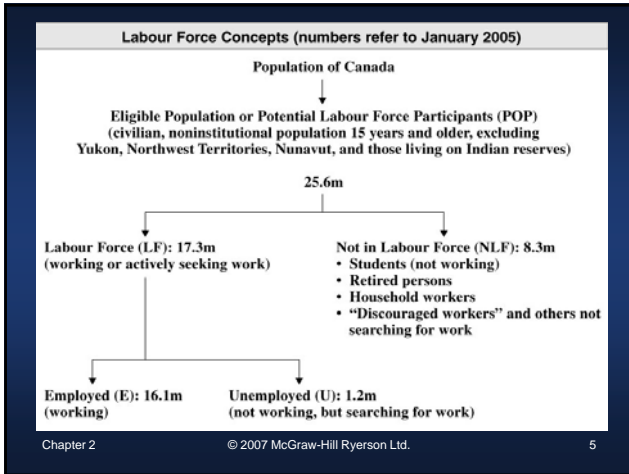
Labour Market Terminologies: Labour Force and Labour Force Participation Rate

- LF (Labour Force)
 - Individuals in the eligible population (15 years and older) who participate in labour market activities, either employed or unemployed
- LFPR
 - The fraction of the eligible population that participates in the labour force
 - $LFPR = LF/POP$

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Unemployment

- To be considered unemployed, a person must be in one of the following three categories:
 - Without work but has made specific efforts to find a job within the previous four weeks
 - Waiting to be called back to a job from which he or she has been laid off
 - Waiting to start a new job within four weeks

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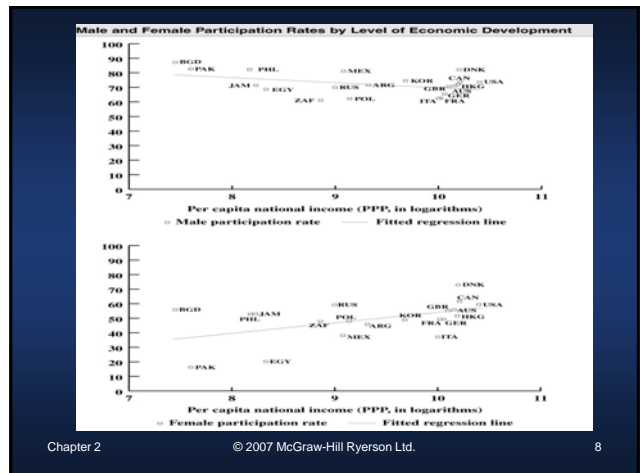


Table 2.2 Labour Force Participation Rates of Married Women, Canada

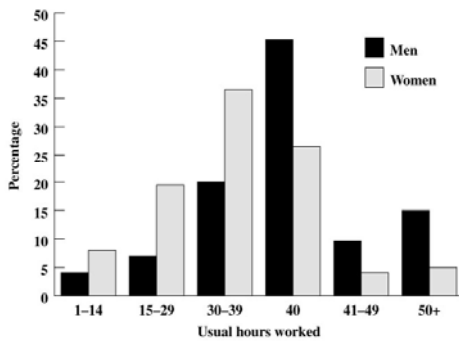
	Participation Rate	Difference from Base Group ^a	Adjusted Difference from Base Group ^b
All Women, Total	65.0		
Age			
15-24	72.2	N/A	N/A
25-34	77.0	4.7	5.5
35-44	79.1	6.9	10.2
45-54	73.9	1.7	2.0
55-64	38.1	-26.1	-21.3
65-74	7.5	-66.7	-60.1
Children under 17 Years Old at Home			
No children	56.5	N/A	N/A
One child	76.8	20.2	-4.6
Two children	75.7	19.2	-8.4
Three children	69.0	12.5	-14.9
Four or more children	57.9	1.4	-24.4
Education			
Less than Grade 9	29.4	N/A	N/A
Grade 9-13 without certificate or diploma	51.5	22.1	8.9
Grade 9-13 with certificate or diploma	66.2	36.8	17.6
Trades (with or without certificate)	74.5	45.1	23.9
Some university (without certificate or diploma)	73.5	44.1	22.2
University with certificate or diploma	77.2	47.8	27.3
University degree	83.4	54.0	30.5
Husband's Income			
Under \$10,000	57.8	N/A	N/A
\$10,000-\$19,999	52.3	-5.4	3.5
\$20,000-\$29,999	62.9	5.1	5.3
\$30,000-\$39,999	69.6	11.8	6.0
\$40,000-\$49,999	71.5	13.8	5.1
\$50,000-\$59,999	72.0	14.2	3.4
\$60,000-\$99,999	71.5	13.7	2.0
Over \$100,000	66.8	8.9	-1.5

Basic Income–Leisure Model

Underlying Foundation:

The General Theory of Consumer Behaviour

Distribution of Hours Worked per Week by Sex, January 2005



The General Theory of Consumer Behaviour

- **Consumption Possibilities (The Budget Constraint/Line)**
 - Budget Equation
 - Relative Prices and the Slope of the Budget Line
- **Consumer Preferences**
 - Indifference Curve
 - Slope of the Indifference Curve and the Marginal Rate of Substitution (MRS)
 - Diminishing Marginal Rate of Substitution

The General Theory of Consumer Behaviour

- **Consumer Optimization (Utility Maximization)**
- **Substitution and Income Effects**
 - Normal Goods
 - Inferior Goods

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Preferences

- Two “goods”
 - consumption
 - leisure
- Represented by indifference curves
(A person is indifferent between various combinations of consumption and leisure on an indifference curve)

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Basic Income–Leisure Model

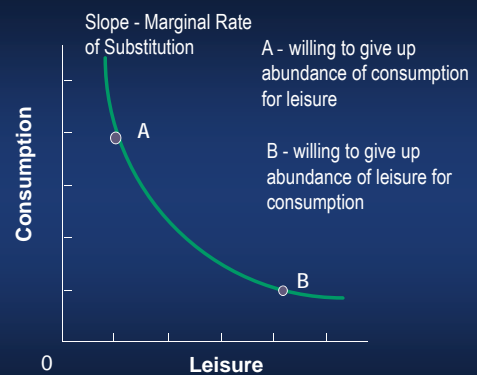
- The choice of hours worked given opportunities and value of non-market time
 - preferences and constraints
 - individuals choose the feasible outcomes which yield the highest level of satisfaction

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Indifference Curve



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Preferences

- Preferences over all conceivable combinations of consumption and leisure
- All combinations lie on some indifference curve
- Represented by an indifference map

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Constraints

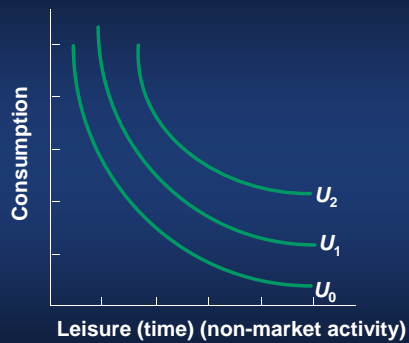
- Constraints are determined by the economic properties of the market, which, in turn, transform consumption-leisure to income-leisure by setting the price of consumption

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Indifference Curve Map for an Individual

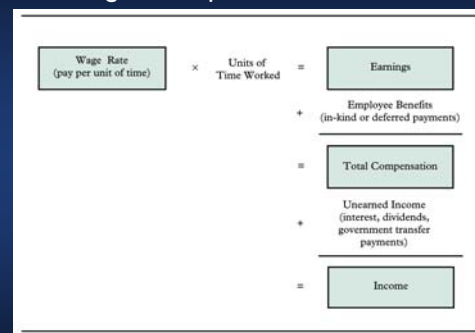


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Relationship between Wages, Earnings, Compensation, and Income

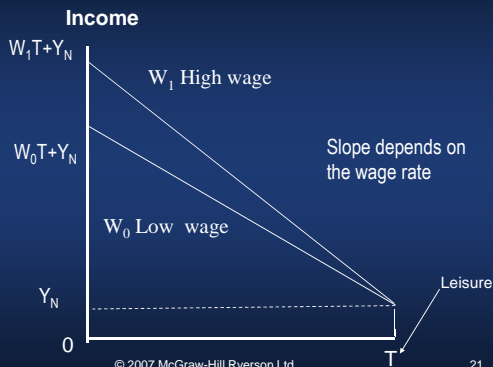


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Linear Potential Income Constraint

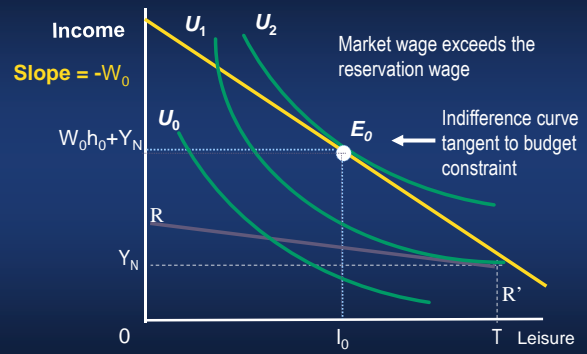


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Equilibrium of a Participant



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The Consumer's Optimum

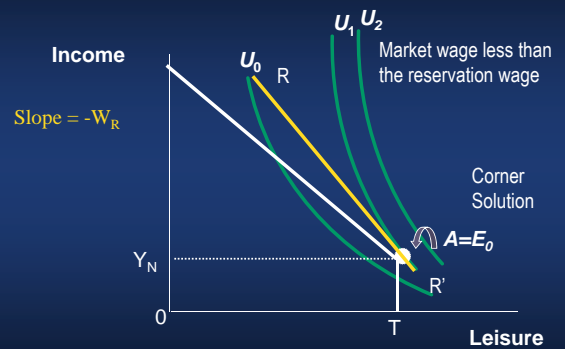
- Optimal amount of income and leisure
- Utility-maximizing equilibrium
 - highest indifference curve given the income constraint
- Compare MRS with the Market Wage Rate
 - MRS: measures the willingness to exchange leisure for consumption (or income)
 - Market Wage Rate: measures the ability to exchange leisure for income

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Equilibrium of Non-Participant



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The Effect of an Increase in Non-Labour Income on Labour Supply (two effects)

1. Labour Participation Effect

If Leisure is a *normal* good:

Increase in non-labour income leads to increase in consumption of leisure (some leave the labour market: decrease in labour supply, and non-participants continue to remain non-participants)

If Leisure is an *inferior* good:

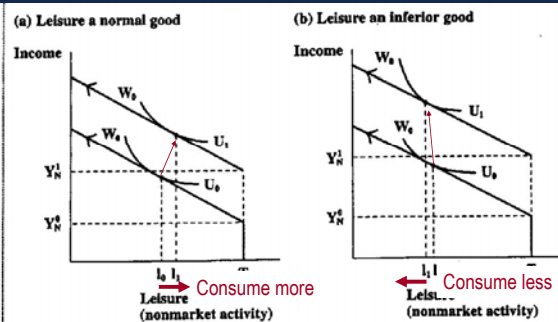
Increase in non-labour income leads to reduction of consumption of leisure (increase in labour supply)

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The Effect of an Increase in Non-Labour Income on Supply (hours of work)



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Effect of Non-Labour Income on Labour Supply

2. Hours of Work Effect

Increase in non-labour income results in a parallel outward shift of the budget constraint

– Leisure, Normal good:

- more leisure will be consumed resulting in less work hours

– Leisure, Inferior good:

- less leisure will be consumed resulting in more work hours

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Change in Wage Rate

Two effects:

1. Income effect

- the worker has more income to buy more goods including leisure (reduces work hours)

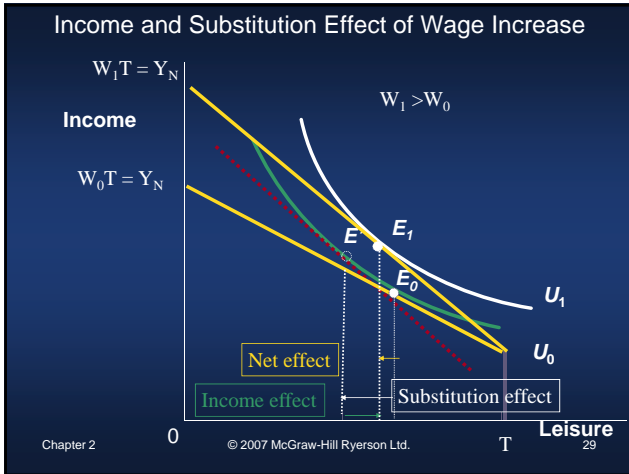
2. Substitution effect

- individual may work more because the returns are greater substituting away from leisure

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- ### Individual Supply Curve
- If substitution effect dominates,
 - \uparrow wage leads to \uparrow labour supplied
 - labour supply continues to \uparrow until a point where substitution effect and income effect offset each other
 - Supply curve bends backward when income effect dominates substitution effect
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- ### Effect of Wage Increase on Participation
- The net effect depends on both substitution effect and income effect
 - If income effect dominates, hours of work may decline
 - For a non-participant an $\uparrow W$ may leave the equilibrium unchanged or induce the individual to participate
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Extensions and Applications of the Model

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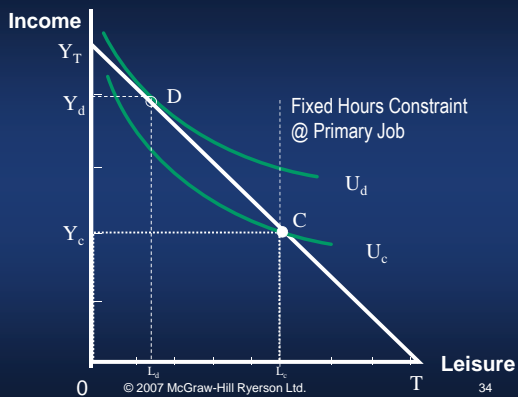
Moonlighting, Overtime, Flexible Work Hours

- Why do some people moonlight at a second job at a wage less than their market wage on their first job?
- Why do some people require an overtime premium to work more?

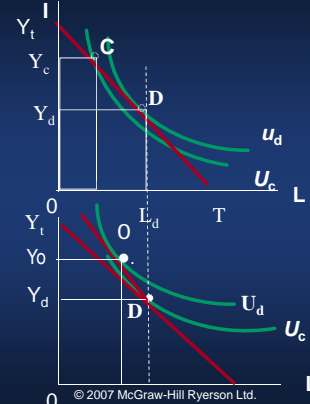
Overtime and Overemployment

- Workers prefer to work fewer hours at the going wage rate
- Workers are induced to work more hours through an overtime premium

Underemployment and Moonlighting



Overemployment and Overtime



Overtime Premium

- Substitution effect is larger than the income effect
- Price of leisure is higher for overtime hours

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Is Overtime Premium preferred to Straight Line Equivalent? Why?

- Yes!
- Because:
 - Worker would not remain at overtime equilibrium
 - New (straight line) equilibrium on a higher utility curve when wage is between the normal and overtime rates
 - Income effect outweighs the substitution effect causing the person to supply less work
 - By contrast, higher overtime wages results in a larger substitution effect

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- Is Overtime Premium preferred to Straight Line Equivalent? Why?

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Choice in Working Hours

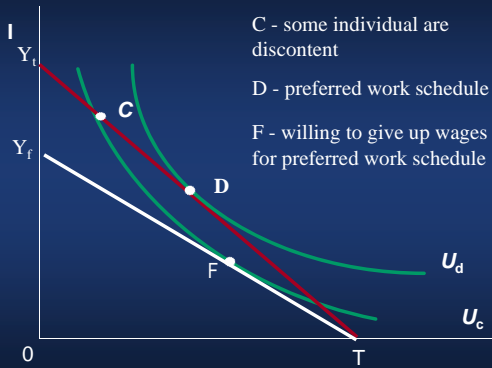
- Changing work force
- Different groups with different preferences for work-time arrangements
- 1985: two-thirds of the work force was discontent with work-time arrangements (@ $\frac{1}{2}$ wanted more hours and $\frac{1}{2}$ wanted fewer)

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Gains from Alternative Work Schedules



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Summary

- Two ways of measuring individual attachment to the labour market
- Use of consumer choice theory and income-leisure model to explain labour supply behaviour
- Reservation wage; income and substitution effects
- Labour supply curve
- Extension of the income-leisure model to explain moonlighting, overtime, and flexible working hours

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Solution

- No difference in utility between C and F even though F implies a lower wage rate
- Allowing workers to work desired amount of hours saves on costs
- Flex-time
- Compressed work week

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End of Chapter Two

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