

N. GREGORY MANKI
 PRINCIPLES OF
ECONOMICS
 Eight Edition



CHAPTER
19 **Earnings and Discrimination**

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Look for the answers to these questions:

- How do wages compensate for differences in job characteristics?
- Why do people with more education earn higher wages?
- Why are wages sometimes above their equilibrium values?
- Why is it difficult to measure discrimination?
- When might the market solve the problem of discrimination? When might it not?

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U.S. Median Weekly Earnings, Selected Occupations, 2015

Occupation	Both sexes	Men	Women	Gender gap
Chief executives	\$2,041	\$2,251	\$1,836	22.60%
Lawyers	1886	1914	1717	11.47%
Physicians & surgeons	1824	1915	1533	24.92%
Architects & engineers	1424	1452	1257	15.51%
Management	1351	1486	1139	30.47%
Registered nurses	1116	1222	1089	12.21%
Postsecondary teachers	1258	1405	1144	22.81%
Counselors	904	908	902	0.67%
Retail salespersons	590	694	494	40.49%
Waiters/waitresses	451	501	411	21.90%
All occupations	\$809	\$895	\$726	23.28%

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T.W. Average Monthly Earnings, Selected Occupations, 2014/9

Occupation	# of M	# of F	Salary (M)	Salary (F)	Gender Gap
銀行業	58,586	85,171	\$87,876	\$74,772	17.5%
電子零組件製造業	283,815	307,462	57,123	42,344	34.9%
電腦電子產品光學製品製造	116,408	99,035	66,913	41,207	62.4%
電力供應業	21,248	2,956	134,521	116,648	15.3%
金融及保險業	141,993	228,519	78,536	71,694	9.5%
專業科學及技術服務業	134,159	115,612	57,926	47,619	21.6%
醫療保健服務業	64,378	264,632	91,632	49,708	84.3%
航空運輸業	9,755	10,866	100,201	51,824	93.3%
法律服務業	3,524	6,774	54,756	47,930	14.2%
會計服務業	7,472	14,724	61,815	48,197	28.3%
廣告業及市場研究業	16,954	26,641	45,758	51,121	-10.5%
保全及私家偵探服務業	78,556	11,166	30,196	37,659	-19.8%
美髮及美容美體業	1,600	26,513	31,376	25,465	23.3%
營造業	386,195	73,607	44,303	31,587	40.3%

T.W. Average Monthly Earnings, Selected Occupations, 2017/9

Occupation	# of M	# of F	Salary (M)	Salary (F)	Gender Gap
銀行業	60,065	88,744	\$106,376	\$92,882	14.5%
電子零組件製造業	292,967	309,526	64,036	45,734	40.0%
電腦電子產品光學製品製造	113,537	97,013	71,505	41,952	70.4%
電力供應業	21,849	3,293	75,814	65,929	15.0%
金融及保險業	147,684	234,962	84,503	77,654	8.8%
專業科學及技術服務業	136,075	124,013	61,364	49,453	24.1%
醫療保健服務業	71,146	286,977	96,041	52,665	82.4%
航空運輸業	10,543	13,603	107,644	55,957	92.4%
法律服務業	3,067	7,270	55,538	47,154	17.8%
會計服務業	8,996	15,181	62,379	47,397	31.6%
廣告業及市場研究業	15,536	27,926	48,843	50,122	-2.6%
保全及私家偵探服務業	81,161	12,884	32,027	38,144	-16.0%
美髮及美容美體業	1,468	26,215	36,771	26,760	37.4%
營造業	386,053	76,328	42,637	31,506	35.3%

T.W. Average Monthly Earnings, Selected Occupations, 2014/9

Occupation	# of Men	# of Women	Men Salary	Women Salary
電力供應業	21,248	2,956	\$134,521	\$116,648
氣體燃料供應業	3,917	1,162	66,838	47,390
用水供應業	4,393	1,763	170,124	169,718
鐵路大眾捷運運輸業	19,702	4,472	52,787	42,500
公共汽車客運業	19,816	2,364	47,260	30,713
其他汽車客運業	9,222	2,594	26,959	26,744
汽車貨運業	59,330	14,582	33,297	28,772
航空運輸業	9,755	10,866	100,201	51,824
郵政業	18,120	7,981	143,946	137,297
快速服務業	7,168	4,204	49,124	46,659

T.W. Average Monthly Earnings, Selected Occupations, 2017/9

Occupation	# of Men	# of Women	Men Salary	Women Salary
電力供應業	21,849	3,293	\$75,814	\$65,929
氣體燃料供應業	4,132	1,300	64,414	50,950
用水供應業	4,284	1,784	76,576	77,397
鐵路大眾捷運運輸業	20,273	5,368	53,895	45,291
公共汽車客運業	20,607	2,567	47,950	31,925
其他汽車客運業	8,905	2,514	27,022	24,510
汽車貨運業	59,657	17,275	36,210	31,376
航空運輸業	10,543	13,603	107,644	55,957
郵政業	17,798	8,529	53,333	50,991
快遞服務業	7,645	4,401	55,496	53,803

T.W. Average Monthly Earnings, Selected Occupations, 2014/9

Occupation	# of Men	# of Women	Men Salary	Women Salary
銀行業	58,586	85,171	\$87,876	\$74,772
人身保險業	33,166	74,986	67,758	72,675
財產保險業	7,627	7,520	53,342	42,006
其他保險退休基金輔助業	215	257	95,999	72,430
證券期貨及其他金融業	22,193	32,059	82,752	73,447
不動產開發業	23,156	20,100	52,268	46,557
不動產經營相關服務業	36,531	38,124	31,875	43,499
企業總管理機構及管顧業	40,935	41,232	51,453	46,957
專門設計服務業	19,740	3,343	68,836	51,586

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T.W. Average Monthly Earnings, Selected Occupations, 2017/9

Occupation	# of Men	# of Women	Men Salary	Women Salary
銀行業	60,065	88,744	\$106,376	\$92,882
人身保險業	36,971	77,243	55,944	67,452
財產保險業	8,276	8,231	56,025	44,021
其他保險退休基金輔助業	208	265	95,231	77,001
證券期貨及其他金融業	20,383	29,678	90,917	75,755
不動產開發業	24,104	20,808	54,123	48,787
不動產經營相關服務業	32,145	39,324	29,405	37,214
企業總管理機構及管顧業	40,425	43,744	57,946	52,680
專門設計服務業	21,180	3,729	68,441	53,430

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Introduction

- In competitive markets
 - The wages workers earn equal the value of their marginal products
- There are many factors that affect productivity and wages...

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Compensating Differentials

- Compensating differential:
 - Difference in wages that arises to offset the nonmonetary characteristics of different jobs (unpleasantness, difficulty, safety)
 - Coal miners and fire fighters are paid more than other workers with similar education to compensate them for the extra risks.
 - Night shift workers are paid more than day shift to compensate for the lifestyle disruption of working at night.

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Ability, Effort, and Chance

- **Greater ability or effort**
 - Often command higher pay
 - These traits increase workers' marginal products
 - Make them more valuable to the firm
- **Wages are also affected by chance**
 - E.g., new discoveries no one could have predicted make some occupations obsolete, increase demand in others.

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Ability, Effort, and Chance

- **Ability, effort, and chance**
 - Are difficult to measure
 - So it is hard to quantify their effects on wages
 - They are probably important, though, since easily measurable characteristics (education, age, etc.) account for less than half of the variation in wages in our economy

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CASE STUDY

The Benefits of Beauty

Research by Hamermesh and Biddle:

- People deemed more attractive than average earn 5% more than people of average looks
- Average-looking people earn 5–10% more than below-average looking people.

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CASE STUDY

The benefits of beauty

What explains these differences in wages?

- **Good looks - a type of innate ability**
 - Determines productivity and wages
 - Attractive worker - more valuable to the firm
 - Acting, sales, and waiting on tables
 - Firm's willingness to pay more to attractive workers reflects its customers' preferences

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CASE STUDY

The benefits of beauty

What explains these differences in wages?

- **Reported beauty - indirect measure of other abilities**
 - Dress, hairstyle, personal demeanor
 - Attributes that a person can control
 - Perhaps - more likely to be an intelligent person who succeeds at other tasks as well
- **Beauty premium - type of discrimination**

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CASE STUDY

The benefits of beauty

For Taiwanese female college graduates, Mei-Hsuan Chen (2009) shows that:

1. Height/weight related to self-confidence
 - in college: Being higher and skinnier makes you more confident about yourself
2. Self-confidence (during college) increases initial salary by NT\$1,1xx, while
 - height increases it by NT\$5x/cm and weight decreases it by NT\$5x/kg
3. Consistent with **reported beauty as "indirect measure of other abilities"**

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ASK THE EXPERTS

Inequality and Skills

“One of the leading reasons for rising U.S. income inequality over the past three decades is that technological change has affected workers with some skill sets differently than others.”

What do economists say?

Response	Percentage
agree	88%
uncertain	8%
disagree	4%

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The Superstar Phenomenon

- Superstars in their field (F4/Chih-Ling Lin)
 - Great public appeal and astronomical incomes
- Superstars arise in markets where
 - Every customer in the market wants the good supplied by the best producer
 - The good is produced with a technology that allows the best producer to supply every customer at low cost

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Weekly Earnings of Full-Time Employed Persons Age 25+ by Education, 2017:Q3

Educational attainment	Median weekly earnings
Less than H.S.	\$ 522
H.S. diploma	714
Some college or Associate degree	801
Bachelor's degree only	1,164
Advanced degree	1,470

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Weekly Earnings of Full-Time Employed Persons Age 25+ by Education, 2017:Q3 (TAIWAN 2016)

Educational attainment	Median weekly earnings	TAIWAN median (US\$1=NT\$30)
P. S. and below	\$ 522	\$ 174
Mid. school (vocal.)		248
H.S. diploma	714	275
Associate/Some college	801	355
Bachelor's degree only	1,164	321
Advanced degree	1,470	515

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Human Capital

- Human capital
 - Accumulation of investments in people, such as education and on-the-job training
 - Affects productivity, labor demand, wages
 - Firms, demanders of labor, are willing to pay more for highly educated workers (higher marginal products)
 - Workers, suppliers of labor, are willing to pay the cost of becoming educated only if there is a reward for doing so (higher wages)

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The Increasing Value of Skills

The earnings gap between college-educated and non-college-educated workers has widened in recent decades.

Percentage difference in annual earnings for college graduates vs. high school diploma		
	1974	2014
Men	42%	81%
Women	35%	71%

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Screening (篩選機制)

5. Does Empirical Data Match the Theory?
 - ▶ How many ♠♣ (♥◇) really choose plan A(B)?
6. Can Individual Differences be Explained?
 - ▶ If you are different, what were you thinking?
7. How Can the Institution (Rules) Improve?
 - ▶ What would you do as a marketing manager?
8. Where Did this Institution Come From?
 - ▶ Copied from other countries? Only one approved?

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Earnings and Discrimination

Joseph Tao-yi Wang

Applications of Screening (篩選機制的應用)

- ▶ Screening Devices designed to Differentiate
 - ▶ Let some choose Plan A, others Plan B
- ▶ Examples:
 - ▶ Marketing Campaigns Target Specific Groups
 - ▶ Student/NP plans of cell phone companies
 - ▶ BOGO, 2nd pair 50% off, 2nd bottle 41% off...
 - ▶ HR Screen CVs Based on Certain Criteria
 - ▶ Ivy League, GPA, extra-curriculum activities, GIS
 - ▶ Students try their best to satisfy those criteria

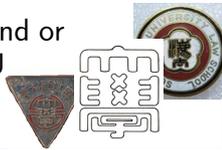
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Signaling (認證標籤)

1. Expected Salary if you graduate from:
 - ▶ ♥◇: National iDaiwan University: 35k/mo
 - ▶ ♠♣: Private Salty Chicken University: 22k/mo
2. If you go to graduate school at NiDU:
 - ▶ Expected salary 40k/mo, but need to repay student loans @ 5k/mo
3. Would you (advise your friend or your son to) apply for NiDU graduate school? Why?



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Earnings and Discrimination

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Signaling (認證標籤)

1. A Set of Rules
 - ▶ Credentialism on the job market (and society)
2. Individuals Optimize
 - ▶ Which choice is better for my job market?
3. You React to Others Optimizing
 - ▶ Would salary be the same if everyone has a MA?
4. What Should Aggregate Data Look Like?
 - ▶ Pooling equilibrium says all should get a MA, though NiDU undergrads (♥◇) are indifferent

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Earnings and Discrimination

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Signaling (認證標籤)

5. Does Empirical Data Match the Theory?
 - ▶ How many ♠♣(♥◇) really applied grad school?
6. Can Individual Differences be Explained?
 - ▶ If you are ♥◇, what were you thinking?
7. How Can the Institution (Rules) Improve?
 - ▶ What would you do as an employer?
 - ▶ As the Minister of Education?
8. Where Did this Institution Come From?
 - ▶ The Imperial Examination System (科舉制度)?

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Earnings and Discrimination

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Applications of Signaling (認證標籤的應用)

- ▶ Signals Let You Stand Out (鶴立雞群)
 - ▶ Convince others you (your products) are better
- ▶ Examples:
 - ▶ Consumers Demand Certificate of Origin
 - ▶ Credentials, Recommendation Letters, MIT, ISO
 - ▶ Demonstrate Qualification in Job Interviews
 - ▶ Hire me, because...
 - ▶ Should I go for MBA immediately after college?

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What Course Are You Taking?

- ▶ Your GPA serves two purposes:
 - ▶ Signal you are a smart and responsible student
 - ▶ Reflect the knowledge and abilities you have accumulated in college
- ▶ But what does **sweet and cheap GE** indicate?
 - ▶ What if I get a C in a tough course? Isn't that worse than taking easy sweet and cheap ones?
 - ▶ Next year, should you take the **road to heaven** (天堂路線) or the **deadly triangle** (必死鐵三角)?
 - ▶ (cf. NTUCourse on ptt)

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Earnings and Discrimination

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Some Personal Recommendations

- ▶ In your 2nd year, take 古慧雯's Intermediate Micro
 - ▶ Learn data analysis from 駱明慶's Econometrics
- ▶ In your 3rd and 4th year, take:
 - ▶ 吳聰敏's 市場與台灣經濟發展 (Capstone Course on "Economist", Presentation and Writing)
 - ▶ 馮勃翰's 賽局理論與策略思考 Game Theory & Strategic Thinking (Capstone Course on Business Strategy)
 - ▶ Try graduate Micro, Macro or Econometric Theory or Master-level electives (駱明慶, 陳虹如, 李怡庭,...)
 - ▶ English Composition (2 yr) or other languages
- ▶ Apply for exchange programs such as BESAP

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Earnings and Discrimination

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Some Personal Recommendations

- ▶ Find your interest by taking electives broadly
 - ▶ Try **Summer** interns (industry) or RAs (academics)
- ▶ Then focus on **one** field to sharpen your skills
 - ▶ Use tough core courses required by other majors to establish your **secret weapon** (吃飯的傢伙)
- ▶ Develop **General Skills** as well:
 - ▶ **Logical Reasoning** by taking English Composition II (英文作文二) or Advanced Calculus (分析導論)
 - ▶ **Communication** (writing and oral presentation)
 - ▶ **Programming Skills** (C++/Python/Matlab/R,...)

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Earnings and Discrimination

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Some Personal Recommendations

- ▶ Interested in micro-economics?
 - ▶ Master **Intermediate Micro** and take **Micro Theory I**
- ▶ Like the experiments I run?
 - ▶ Signup for more experiments at TASSEL lab
 - ▶ Take my class in experimental economics
 - ▶ Start to do research with me now!
- ▶ If you want to apply for graduate school in Econ:
 - ▶ Take **Advanced Calculus** (2nd yr), **Linear Algebra** (1st yr) and **Advanced Statistical Inference** (grad.) @ NTU Math
 - ▶ Take 2 years of **English Composition (I and II)**
 - ▶ Start to do research now!

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Earnings and Discrimination

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Above-Equilibrium Wages

1. Minimum-wage laws

- The minimum wage may exceed the equilibrium wage of the least-skilled and experienced workers

2. Market power of labor unions

- **Union**: worker association that bargains with employers over wages and working conditions
 - Higher wages; most union workers earn 10–20% more than similar nonunion workers

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55

Above-Equilibrium Wages

3. Theory of efficiency wages

- **Efficiency wages**: above-equilibrium wages paid by firms to increase worker productivity
 - Firms may pay higher wages to reduce turnover, increase worker effort, or attract higher-quality job applicants.
- **Effects of above-equilibrium wages**
 - Surplus of labor (unemployment)

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56

Active Learning 2 **Explaining wage differentials**

In each case, identify which worker would earn more and use the concepts in this chapter to explain why.

- A. The world's best physical therapist or the world's best writer
- B. A trucker who hauls produce or a trucker who hauls hazardous waste
- C. A graduate of NTU (台大) or an equally intelligent & capable graduate of NTUST (天大地大...)
- D. Someone who graduated from NTU (台大) with a 3.7 GPA or someone who graduated from the same university with a 2.4 GPA

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Active Learning 2 **Answers**

- A. The best physical therapist on the planet or the best writer on the planet
 - **The superstar phenomenon:**
The best writer can service many more customers than the best physical therapist.
- B. A trucker who hauls produce or a trucker who hauls hazardous waste from nuclear power plants
 - **Compensating differentials:**
The hazardous waste hauler earns more to compensate for the higher risks.

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Active Learning 2 **Answers**

- C. A graduate of NTU (台大) or an equally intelligent & capable graduate of NTUST (天大地大...)
 - **The signaling theory of education:**
Employers assume the Ivy League grad has more ability than the state university grad.
- D. Someone who graduated from NTU (台大) with a 3.7 GPA, or someone who graduated from the same university with a 2.4 GPA
 - **The human capital theory of education:**
A higher GPA reflects greater learning, which leads to higher productivity and wages.

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 **Economics of Discrimination**

- **Discrimination**
 - Offering of different opportunities to similar individuals who differ only by
 - Race, ethnic group, sex, age, or other personal characteristics

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 **Gender Discrimination of Taiwan**

- **什麼都漲，就是薪水不漲？ More true from men!**
 - Narrowing wage gap btw Taiwanese female vs. male workers.



Wage Gender Gap of Taiwan (Average Disposable Income in NTD)			
	Male	Female	Diff.
2017	\$ 594,336	\$451,563	31.6%
2013	575,000	435,552	32%
2007	580,712	430,339	35%
1994	503,473	320,960	57%
1976	78,680	40,775	93%

Source: 民國 106/102/96/83/65 年家庭收支調查

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 **Measuring Labor-Market Discrimination**

- **Median earnings, full-time white males:**
 - Earn 22% more than white females.
 - Earn 28% more than black males.
- **Taken at face value**
 - These differences look like evidence that employers discriminate.
- **Many possible explanations for wage differences besides discrimination...**

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Economics of Discrimination

- Different groups of workers earn substantially different wages
 - Discrimination?
 - Human capital
 - Quality and quantity of education
 - Job experience
 - Kinds of work able & willing to do
 - Compensating differentials
 - Working conditions

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Economics of Discrimination

- Differences in educational attainment
 - 2014, men age 25 and older
 - 32% of the white population had college degree
 - 20% of the black population
 - 2014, women age 25 and older
 - 32% of the white population had college degree
 - 24% of the black population

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Economics of Discrimination

- Quality of public schools
 - As measured by: expenditure, class size, and so on
 - Historically: public schools in predominantly black areas have been of lower quality than public schools in predominantly white areas
 - There may well be discrimination in access to education, but this problem occurs long before workers enter the labor force.

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Economics of Discrimination

- Human capital acquired in the form of job experience
 - Women are more likely to interrupt their careers to raise children
 - Women have less on-the-job experience than men
 - Population aged 25 to 44
 - 75% of women are in the labor force
 - 90% of men

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Economics of Discrimination

- Compensating differentials
 - Men and women do not always choose the same type of work
 - Women are more likely to be secretaries
 - Men are more likely to be truck drivers
 - Different working conditions

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Is Emily more employable than Lakisha?

CASE STUDY

- Economists Marianne Bertrand & Sendhil Mullainathan (AER 2004)
 - Answered more than 1,300 help-wanted ads run in Boston & Chicago newspapers
 - Send in nearly 5,000 fake résumés - similar
 - Half of the résumés had names that were common in the African American community
 - Lakisha Washington or Jamal Jones
 - The other half had names that were more common among the white population
 - Emily Walsh or Greg Baker

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CASE STUDY

Is Emily more employable than Lakisha?

- **Results**
 - Job applicants with white names
 - Received about 50% more calls
 - Discrimination occurred for all types of employers
 - Conclusion
 - “Racial discrimination is still a prominent feature of the labor market”
- **What about Asian names?**

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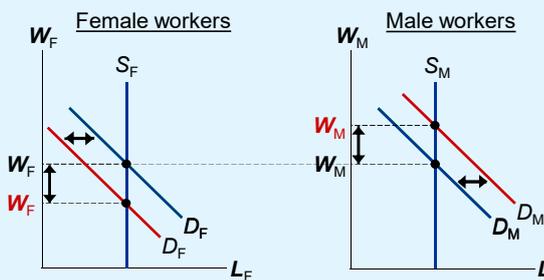
Discrimination by Employers

- If one group in society receives a lower wage than another group
 - Even after controlling for human capital and job characteristics
 - Who is to blame for this differential?
 - Employers - discriminatory wage differences?
- **Competitive market economies**
 - Natural antidote to employer discrimination: profit motive

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Discrimination by Employers

Result: Demand for female workers increases, demand for male workers falls until wages are equalized.



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Discrimination by Consumers

- **Discrimination by consumers may result in discriminatory wage differentials.**
 - Suppose firms care only about maximizing profits, but customers prefer being served by whites
 - Then firms have an incentive to hire white workers, even if non-whites are willing to work for lower wages

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Discrimination by Governments

- **Some government policies mandate discriminatory practices.**
 - Apartheid in South Africa before 1994
 - Early 20th century U.S. laws requiring segregation in buses and streetcars
- **Such policies prevent the market from correcting discriminatory wage differentials**

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Conclusion

- **In competitive markets**
 - Workers are paid a wage that equals the value of their marginal products
 - Many factors affect the value of marginal products and equilibrium wages
- **The profit motive can correct**
 - Discrimination by employers,
 - But not discrimination by customers or discriminatory policies of governments

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Summary

- Workers earn different wages for many reasons:
 - Wage differentials play a role compensating workers for job attributes
 - Workers in hard, unpleasant jobs are paid more than workers in easy, pleasant jobs.
 - Workers with more human capital are paid more than workers with less human capital
 - Years of education, experience, and job characteristics
- The unexplained variation in earnings is largely attributable to natural ability, effort, and chance.

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75

Summary

- Signaling theory
 - More educated workers earn higher wages not because education raises productivity but because workers with high natural ability use education as a way to signal their high ability to employers
 - So increasing the educational attainment of all workers would not raise the overall level of wages
- Three explanations of above-equilibrium wages
 - Minimum-wage laws, unions, efficiency wages

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76

Summary

- Some differences in earnings are attributable to discrimination based on race, sex, or other factors.
- Competitive markets tend to limit the impact of discrimination on wages
 - Nondiscriminatory firms will be more profitable than discriminatory firms.
- Discrimination persists in competitive markets
 - If customers are willing to pay more to discriminatory firms or if the government passes laws requiring firms to discriminate

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77

Chapter 19: Earnings & Discrimination

- ▶ Benchmark (Ch.18): $W=VMPL$
- ▶ Other reasons for wage differentials:
 - ▶ Job Characteristics: Difficulty, Risk, Superstar
 - ▶ Personal Traits: Ability, Effort, Chance, etc.
 - ▶ Education: Human Capital vs. Signaling
- ▶ Discrimination (and possible cures)
- ▶ Homework: Mankiw, Ch.19, Problem 1, 6-8

2018/12/27

Earnings and Discrimination

Joseph Tao-yi Wang

Chapter 19: Earnings & Discrimination

- ▶ Challenge Questions (Past Finals)
 - ▶ 2007 - Part 2
 - ▶ 2008 - Part A
 - ▶ 2012 - Essay C
 - ▶ 2014 - Essay C1-2
 - ▶ 2016 - Essay D

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Earnings and Discrimination

Joseph Tao-yi Wang

一對一最後通牒談判 (Ultimatum Game)

- ▶ Form groups of 3. Two group are paired
 - ▶ 三人一組，各組兩兩配對。配對的兩組有十張彩券
- ▶ Each pair has 10 tokens: one group is the Proposer, the other the Respondent.
 - ▶ 一組為面試官，負責提議如何分配十張彩券
- ▶ Proposers decide amount to give Respondents
 - ▶ 可能的提議有10-0, 9-1, 8-2, 7-3, 6-4, 5-5,...
- ▶ Respondents can either accept the split, or reject so that both get nothing
 - ▶ 另一組為應徵者只能回覆接受與否：如果接受，則按照該提議分配/如果不接受，則兩人都得到零張彩券

2018/12/27

Earnings and Discrimination

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