

Economics 404W

lecture 19

Professor Tybout
March 21, 2006

Note: No class this Thursday.

Turn in problem set in class to grader (who will come to pick them up), *or* to administrative assistant (Nancy Cole, room Kern 515) by 5 PM.

Extra office hours today, 4–5 PM; out of town tomorrow and Thursday

What fertility determinants are empirically important?

- Difficult to sort out the roles individual policies in determining fertility rates.
- One can, however, look at the proximate causes of fertility decline:
 - Marriage delay (x_{1i})
 - Breast feeding (x_{2i})
 - Use of contraception (x_{3i})
 - Other ($\beta_0 + u_i$)

Regression model:

$$f_i = 17 - \beta_1 x_{1i} - \beta_2 x_{2i} - \beta_3 x_{3i} - (\beta_0 + u_i)$$

	<i>Total Fertility Rate</i>	Reductions from Maximum Fertility due to:			
		<i>Marriage Delay</i>	<i>Breast-Feeding</i>	<i>Contraception</i>	<i>All Other Factors</i>
<i>Sub-Saharan Africa</i>					
Ghana (1979-80)	6.22	2.16	4.31	0.86	3.45
Kenya (1977-78)	7.40	2.69	4.22	0.67	2.02
Lesotho (1977)	5.27	3.05	4.34	0.47	3.87
Senegal (1978)	6.90	1.72	4.65	0.20	3.54
Sudan (1979)	5.93	2.88	3.87	0.44	3.99
<i>Latin America</i>					
Colombia (1976)	4.27	4.71	1.53	4.20	2.29
Costa Rica (1976)	3.17	4.70	0.83	6.92	1.52
Dominican Rep. (1975)	5.39	3.72	1.63	3.60	2.55
Guyana (1975)	4.78	2.93	1.10	3.18	5.01
Haiti (1977)	5.15	4.38	3.20	1.42	2.84
Jamaica (1975-76)	4.67	2.59	1.60	4.19	3.95
Mexico (1976-77)	6.27	3.43	1.82	3.43	2.04
Panama (1976)	3.84	4.21	1.45	6.71	1.18
Paraguay (1979)	4.56	4.48	1.99	3.23	2.74
Peru (1977-78)	5.35	4.66	2.68	2.80	1.51
Trinidad & Tob. (1977)	3.18	2.90	0.97	4.70	5.25
Venezuela (1977)	4.36	4.17	1.39	5.06	2.02

	<i>Total Fertility Rate</i>	Reductions from Maximum Fertility due to:			
		<i>Marriage Delay</i>	<i>Breast-Feeding</i>	<i>Contraception</i>	<i>All Other Factors</i>
<i>South Asia</i>					
Bangladesh (1975-76)	5.96	1.21	6.84	0.77	2.32
Nepal (1976)	6.12	1.74	6.09	0.22	2.83
Pakistan (1975)	6.24	2.26	4.52	0.43	3.55
Sri Lanka (1975)	3.70	5.05	4.26	2.26	1.73
<i>East Asia, Pacific</i>					
Fiji (1974)	4.14	3.47	1.67	3.60	4.24
Indonesia (1976)	4.51	2.62	5.25	2.50	2.12
S. Korea (1974)	4.23	4.72	3.32	2.55	2.17
Malaysia (1974)	4.62	4.33	0.99	2.97	4.09
Philippines (1978)	5.12	4.99	2.61	2.97	1.31
Thailand (1975)	4.55	3.98	3.86	3.49	1.12
<i>Middle East</i>					
Jordan (1976)	7.63	3.28	2.53	2.62	0.94
Syria (1978)	7.46	3.43	2.77	2.10	1.24

Source: *World Development Report 1984*, Table 6.1, The World Bank, 1984

What fertility determinants are empirically important?

- In the high fertility regions, marriage age is very young, and there is little use of contraception. Implications?
- In Latin America, contraception is quite common. Implications?

Inequality and development

- We saw
 - substantial variation in inequality across countries,
 - Persistence in inequality through time
- Now consider:
 - Why is inequality so persistent?
 - How does it affect the development process?

Why is inequality so persistent?

- Becker, Murphy, Tamura (1990) poverty traps apply on a regional level. To review:

Parents' characteristics		Parents' Incentives				Parents' Choices	
income	education	Opportunity cost of child rearing	Cost of educating each child	Need for children to work	Return to children's education	Family size	Education per child
<i>low</i>	<i>low</i>						
<i>high</i>	<i>high</i>						

Why is inequality so persistent?

- Becker, Murphy, Tamura (1990) poverty traps apply on a regional level.

Parents' characteristics		Parents' Incentives				Parents' Choices	
income	education	Opportunity cost of child rearing	Cost of educating each child	Need for children to work	Return to children's education	Family size	Education per child
<i>low</i>	<i>low</i>	<i>low</i>					
<i>high</i>	<i>high</i>	<i>high</i>					

Why is inequality so persistent?

- Becker, Murphy, Tamura (1990) poverty traps apply on a regional level.

Parents' characteristics		Parents' Incentives				Parents' Choices	
income	education	Opportunity cost of child rearing	Cost of educating each child	Need for children to work	Return to children's education	Family size	Education per child
<i>low</i>	<i>low</i>	<i>low</i>	<i>high</i>				
<i>high</i>	<i>high</i>	<i>high</i>	<i>low</i>				

Why is inequality so persistent?

- Becker, Murphy, Tamura (1990) poverty traps apply on a regional level.

Parents' characteristics		Parents' Incentives				Parents' Choices	
income	education	Opportunity cost of child rearing	Cost of educating each child	Need for children to work	Return to children's education	Family size	Education per child
<i>low</i>	<i>low</i>	<i>low</i>	<i>high</i>	<i>high</i>			
<i>high</i>	<i>high</i>	<i>high</i>	<i>low</i>	<i>low</i>			

Why is inequality so persistent?

- Becker, Murphy, Tamura (1990) poverty traps apply on a regional level.

Parents' characteristics		Parents' Incentives				Parents' Choices	
income	education	Opportunity cost of child rearing	Cost of educating each child	Need for children to work	Return to children's education	Family size	Education per child
<i>low</i>	<i>low</i>	<i>low</i>	<i>high</i>	<i>high</i>	<i>low</i>		
<i>high</i>	<i>high</i>	<i>high</i>	<i>low</i>	<i>low</i>	<i>high</i>		

Why is inequality so persistent?

- Becker, Murphy, Tamura (1990) poverty traps apply on a regional level.

Parents' characteristics		Parents' Incentives				Parents' Choices	
income	education	Opportunity cost of child rearing	Cost of educating each child	Need for children to work	Return to children's education	Family size	Education per child
<i>low</i>	<i>low</i>	<i>low</i>	<i>high</i>	<i>high</i>	<i>low</i>	<i>big</i>	<i>low</i>
<i>high</i>	<i>high</i>	<i>high</i>	<i>low</i>	<i>low</i>	<i>high</i>	<i>small</i>	<i>high</i>

Why is inequality so persistent?

- Consumption patterns of the rich versus poor drive returns to factors?
 - The rich buy luxury goods, the poor buy basic needs (food, clothing, simple shelter).
 - When inequality is high, demand for luxury goods is high, so the factors that are used intensively in luxury good production are in high demand.
 - If luxury goods require factor inputs supplied by the rich, and the rich have most of the money, inequality breeds inequality.
 - Realistic?

Why is inequality so persistent?

- Credit markets perpetuate inequality (Banerjee and Newman)
 - Unless the government steps in, the poor are unable to obtain education loans probably be unable to obtain a loan for education (no collateral), and thus will become the next generation of poor parents.
 - The progeny of wealthy families will head off to school and become the next generation of wealthy parents.
 - Similar stories can be told for entrepreneurial investments.

Inequality and poverty cycles

- Suppose
 - businesses last for one period, and
 - to purchase the capital for a business an entrepreneur needs to invest I dollars.
 - Each business generates sales of q using m workers, who must be paid the wage w .
- Presuming that the loan will be repaid, the entrepreneur earns:

$$q - wm - I(1 + r)$$

Inequality and poverty cycles

- When are borrowers a default risk?
 - Borrower offers his wealth, W , as collateral, which after one period will be worth $(1+r)W$,
 - Total costs of default (monetary and psychic) can be summarized by F .
 - Creditors manage to capture some fraction λ of borrower's profits if he defaults.

So the return to a defaulting entrepreneur is:

$$(q - wm)(1 - \lambda) - W(1 + r) - F$$

- Default occurs if:

$$(q - wm)(1 - \lambda) - W(1 + r) - F > q - wm - I(1 + r)$$

or

$$I(1 + r) > W(1 + r) + F + \lambda(q - wm)$$

Inequality and poverty cycles

- Default occurs if: $I(1+r) > W(1+r) + F + \lambda(q - wm)$

Note that

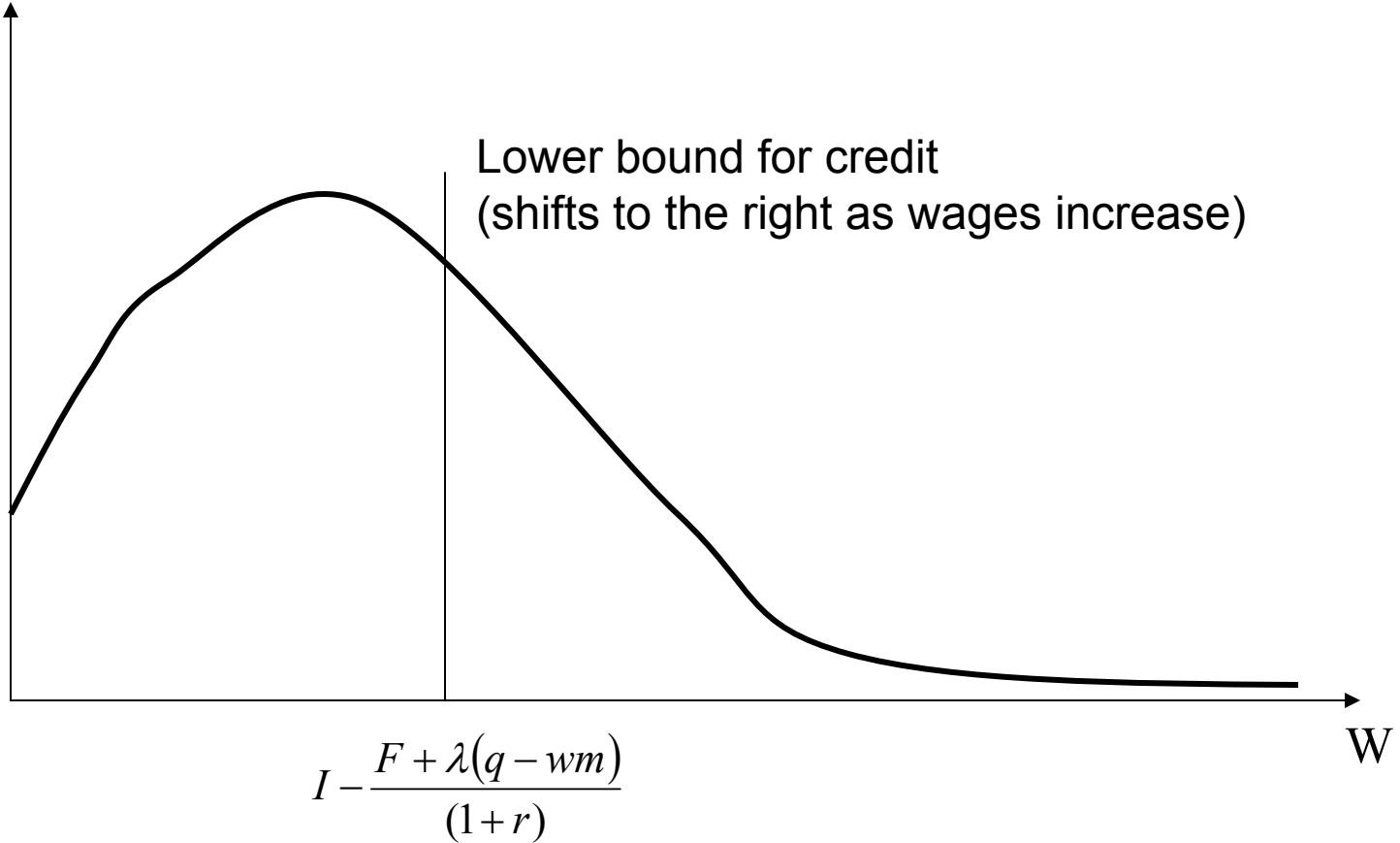
- Those with little collateral are relatively likely to default, so creditors won't lend to them. Lower bound on wealth:

$$I - \frac{F + \lambda(q - wm)}{(1+r)} < W$$

- High wages increase the likelihood of default because they reduce the attraction of full claims on the profit stream.

Inequality and poverty cycles

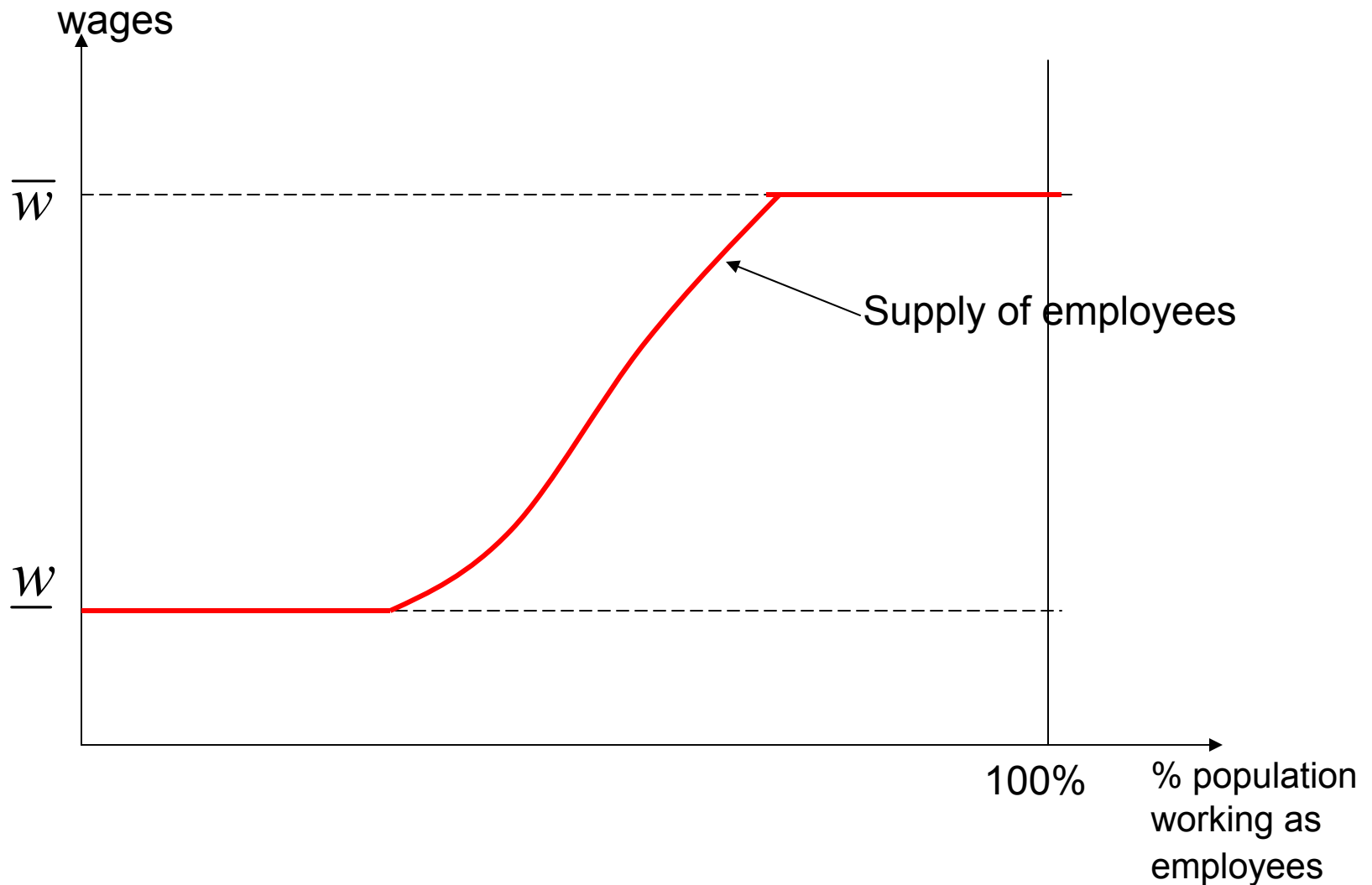
*density of households
at wealth W*



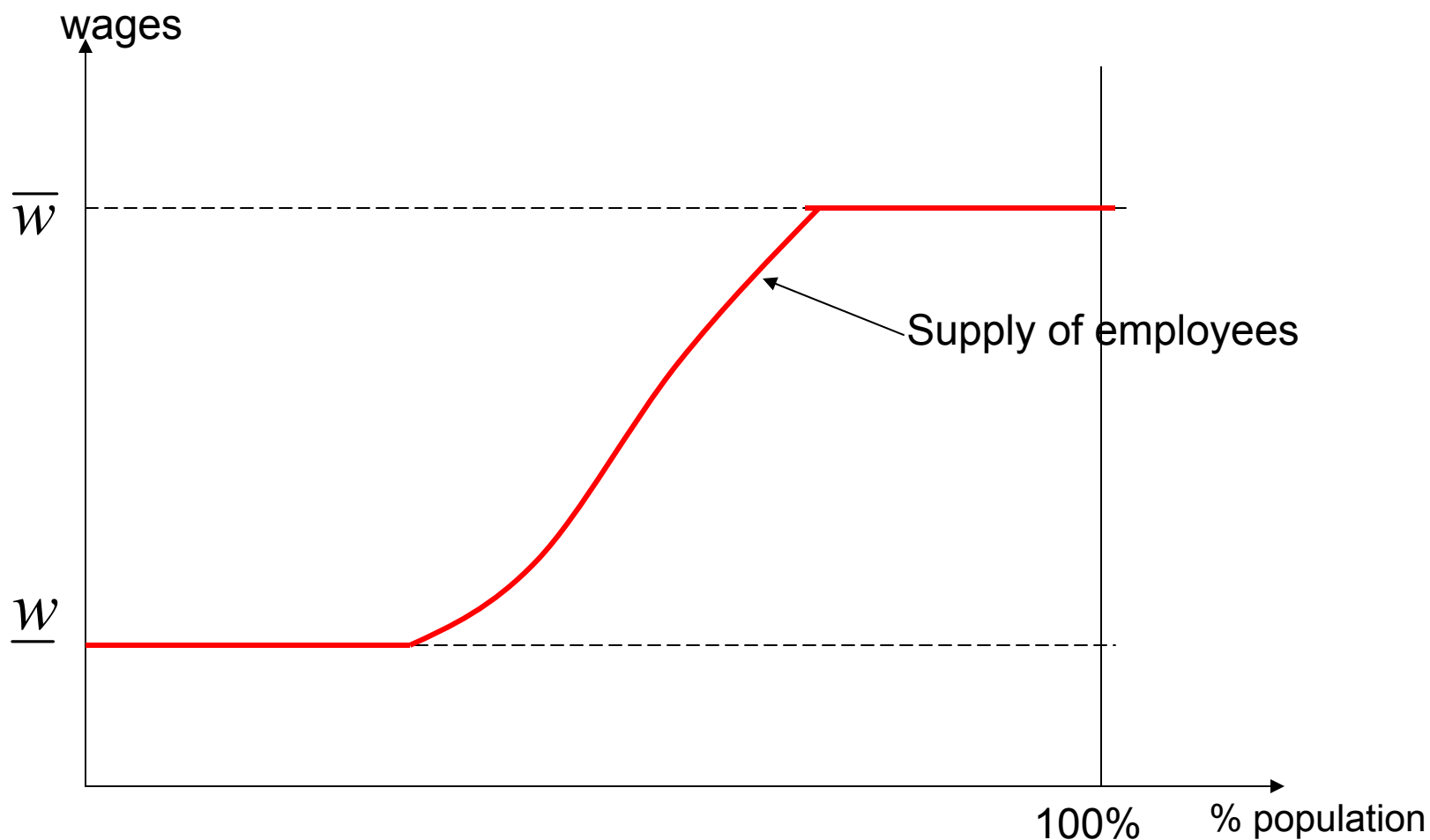
Inequality and poverty cycles

- Those who don't have credit access either go into self-employed subsistence work at the wage, \underline{w} , or they become employees and earn the wage w .
- If the employee wage is less than the subsistence wage, \underline{w} , no one will take a job in the modern industrial sector.
- As the wage rate increases, fewer people have access to credit, so they supply their services as employees.

Inequality and poverty cycles

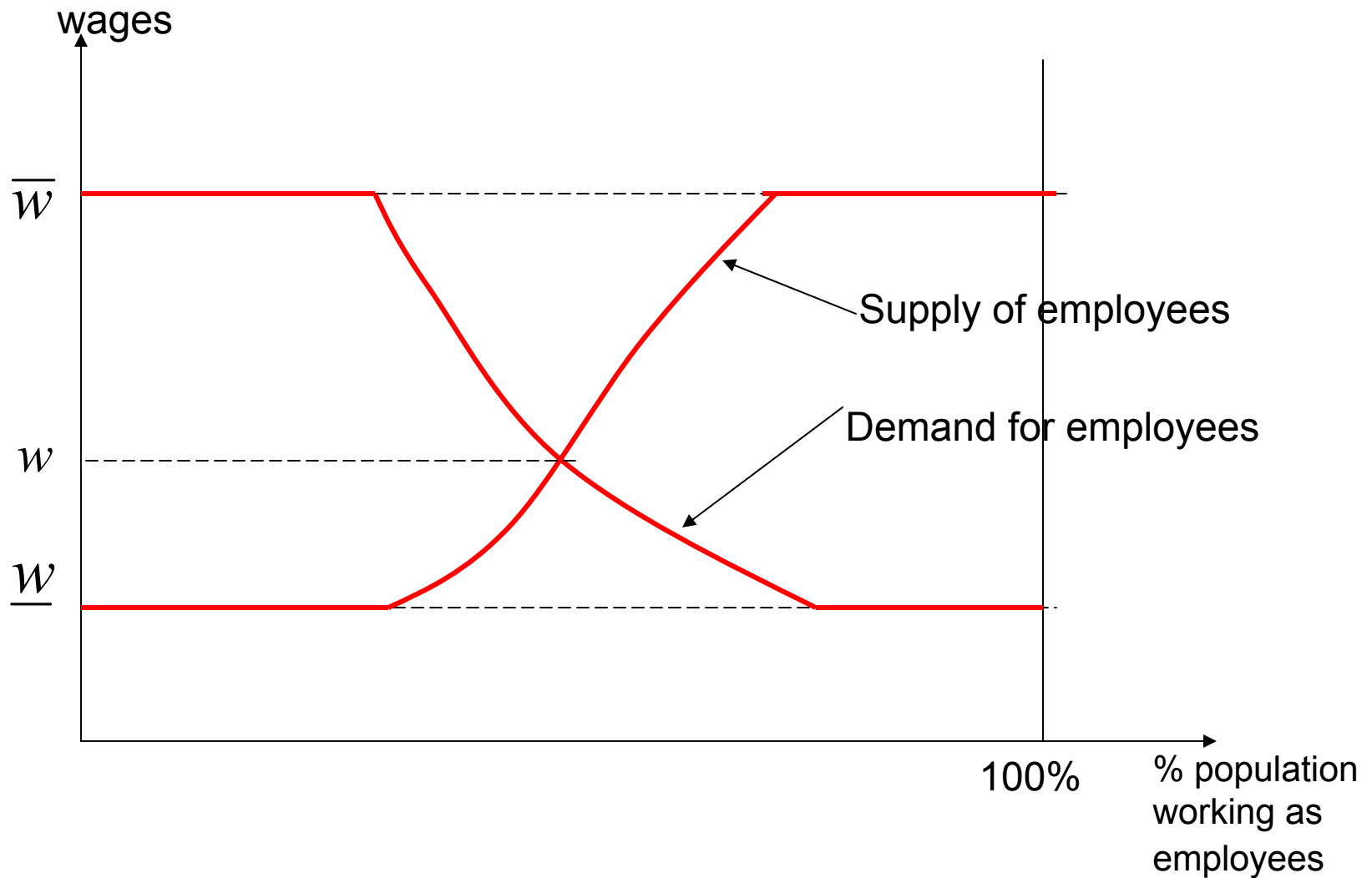


Inequality and poverty cycles

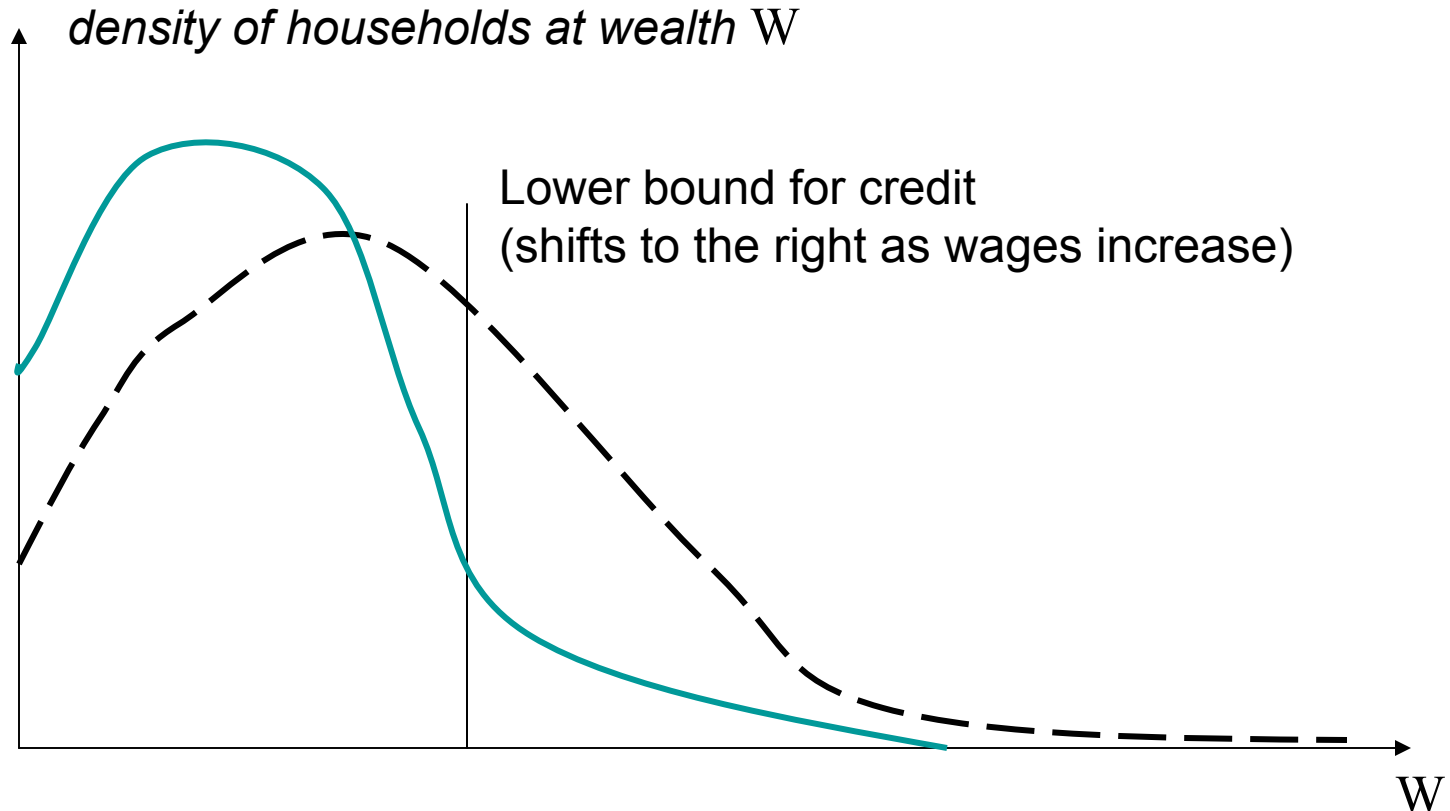


Note \bar{w} solves $\bar{w} = q - \bar{w}m - I(1+r)$. At any greater wage, everyone wants to be an employee

Inequality and poverty cycles

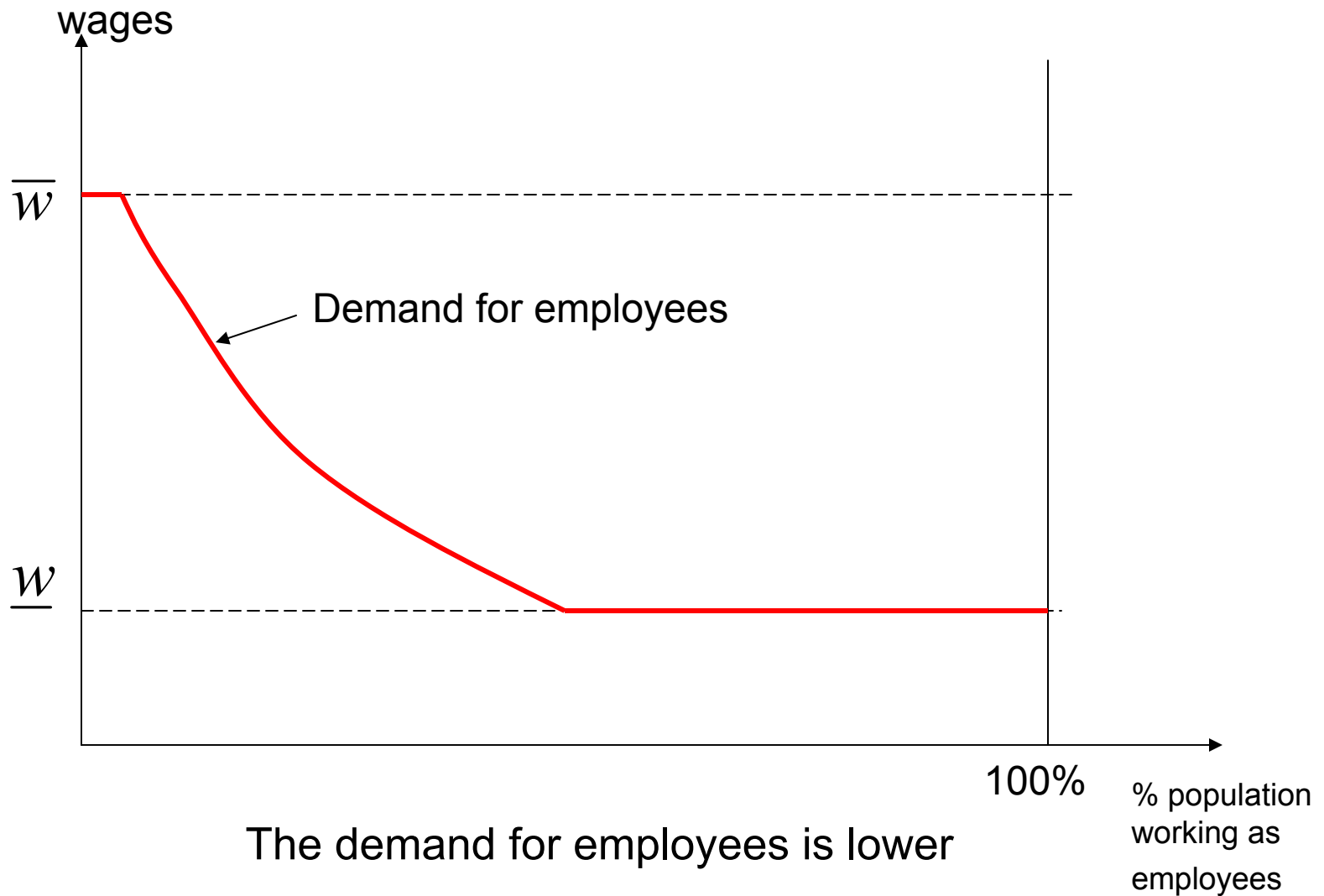


Inequality and poverty cycles

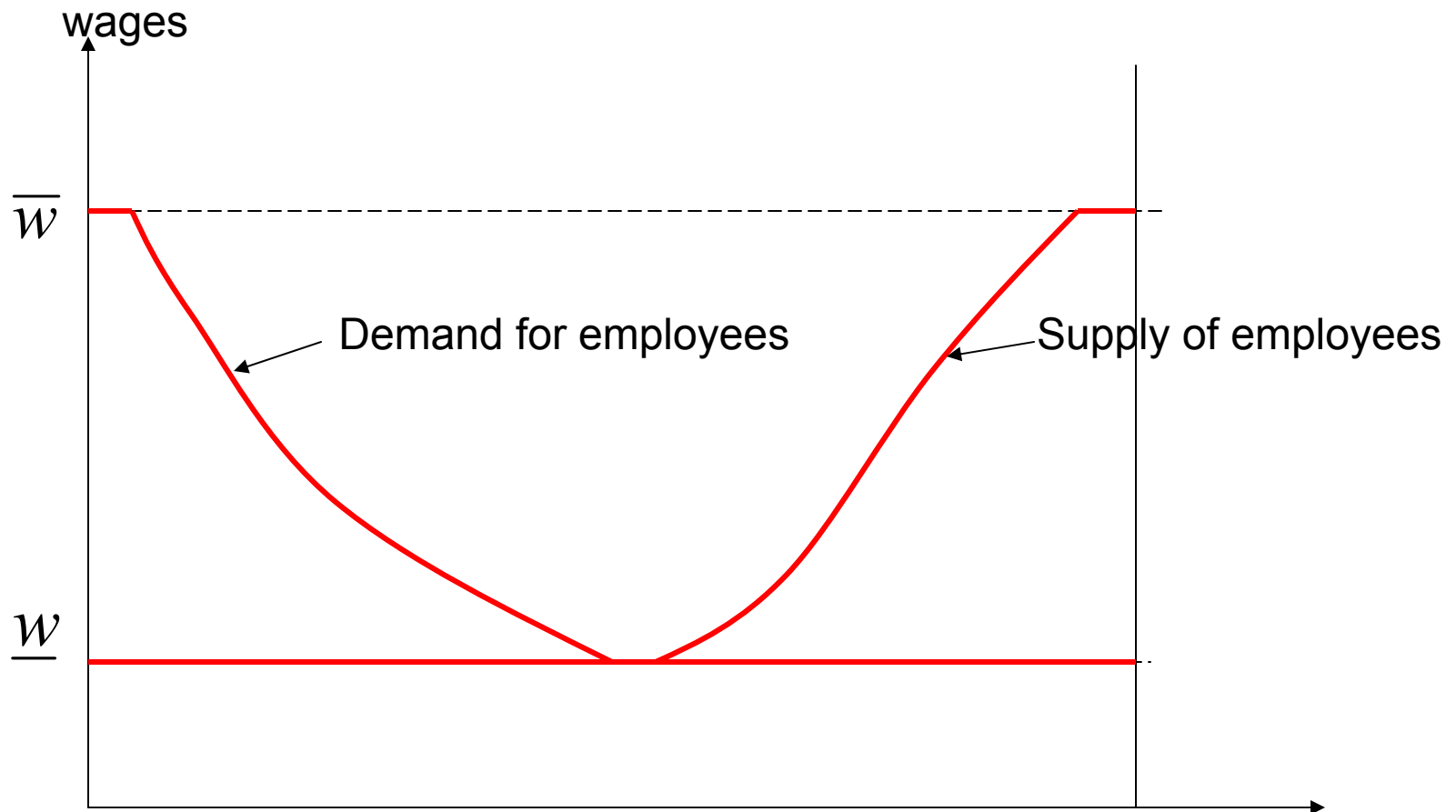


With more inequality (shift dotted to solid line), fewer people have the option to become entrepreneurs

Inequality and poverty cycles



Inequality and poverty cycles



... and the supply of employees is larger. Inequality is perpetuated, and production is foregone (why?)

100%
% population
working as
employees

Inequality and poverty cycles

- Loose ends (modeling details)
 - Who lends the money?
 - Why don't people with all the wealth build multiple businesses or very big firms?