# Why Haven't Global Markets Reduced Inequality?

E. Maskin Harvard University • Enormous increase in globalization last 20 years

- Enormous increase in globalization last 20 years
  - more trade of goods/services between countries

- Enormous increase in globalization last 20 years
  - more *trade* of goods/services between countries
  - more production of goods/services across national boundaries

- Enormous increase in globalization last 20 years
  - more *trade* of goods/services between countries
  - more production of goods/services across national boundaries
- caused by

- Enormous increase in globalization last 20 years
  - more *trade* of goods/services between countries
  - more *production* of goods/services across national boundaries
- caused by
  - decline in transport costs

- Enormous increase in globalization last 20 years
  - more *trade* of goods/services between countries
  - more *production* of goods/services across national boundaries
- caused by
  - decline in transport costs
  - decline in communication costs

- Enormous increase in globalization last 20 years
  - more *trade* of goods/services between countries
  - more *production* of goods/services across national boundaries
- caused by
  - decline in transport costs
  - decline in communication costs
  - removal of trade barriers

• prosperity to emerging economies

- prosperity to emerging economies
  - has often delivered: China and India

- prosperity to emerging economies
  - has often delivered: China and India
- to reduce gap between haves and have nots (inequality) in emerging economies

- prosperity to emerging economies
  - has often delivered: China and India
- to reduce gap between haves and have nots (inequality) in emerging economies
  - has not delivered

- prosperity to emerging economies
  - has often delivered: China and India
- to reduce gap between haves and have nots (inequality) in emerging economies
  - has not delivered
- In fact, in many emerging economies, inequality has *increased*

- prosperity to emerging economies
  - has often delivered: China and India
- to reduce gap between haves and have nots (inequality) in emerging economies
  - has not delivered
- In fact, in many emerging economies, inequality has *increased* 
  - including China and India

• Much in news about inequality

- Much in news about inequality
  - mostly about growing inequality in *rich* countries

- Much in news about inequality
  - mostly about growing inequality in *rich* countries
- My concern today is with increased inequality in *emerging* economies

- Much in news about inequality
  - mostly about growing inequality in *rich* countries
- My concern today is with increased inequality in *emerging* economies

• Why does reducing inequality there matter?

- Much in news about inequality
  - mostly about growing inequality in *rich* countries
- My concern today is with increased inequality in *emerging* economies

- Why does reducing inequality there matter?
  - egalitarian argument

- Much in news about inequality
  - mostly about growing inequality in *rich* countries
- My concern today is with increased inequality in *emerging* economies

- Why does reducing inequality there matter?
  - egalitarian argument
  - eradication of poverty

- Much in news about inequality
  - mostly about growing inequality in *rich* countries
- My concern today is with increased inequality in *emerging* economies

- Why does reducing inequality there matter?
  - egalitarian argument
  - eradication of poverty
  - political stability

• Is rise in inequality in emerging economies surprising?

- Is rise in inequality in emerging economies surprising?
- Yes - contradicts theory of comparative advantage

- Is rise in inequality in emerging economies surprising?
- Yes - contradicts theory of comparative advantage
  - goes back 200 years (David Ricardo)

- Is rise in inequality in emerging economies surprising?
- Yes - contradicts theory of comparative advantage
  - goes back 200 years (David Ricardo)
  - has been impressively successful in explaining international trade patterns

- Is rise in inequality in emerging economies surprising?
- Yes - contradicts theory of comparative advantage
  - goes back 200 years (David Ricardo)
  - has been impressively successful in explaining international trade patterns
  - predicts free trade should *reduce* inequality in emerging economies

- Is rise in inequality in emerging economies surprising?
- Yes - contradicts theory of comparative advantage
  - goes back 200 years (David Ricardo)
  - has been impressively successful in explaining international trade patterns
  - predicts free trade should *reduce* inequality in emerging economies
- Because that theory is so important, worth reviewing *why* it makes this prediction

• Theory of comparative advantage asserts: important difference between countries is in their relative endowments of "factors of production" i.e., the inputs to production

- Theory of comparative advantage asserts: important difference between countries is in their relative endowments of "factors of production" i.e., the inputs to production
- Assume 2 factors: high-skill labor and low-skill labor

• ratio of high-skill to low-skill workers higher in rich country

- ratio of high-skill to low-skill workers higher in rich country
- so, rich country has *comparative* advantage producing goods requiring high proportion of high-skill workers -- e.g., computer software

- ratio of high-skill to low-skill workers higher in rich country
- so, rich country has *comparative* advantage producing goods requiring high proportion of high-skill workers - e.g., computer software
- emerging economy has comparative advantage producing goods where skill doesn't matter so much - e.g., rice

To see effect of globalization on production:

To see effect of globalization on production:

• look at production patterns *before* globalization (no trade)

### To see effect of globalization on production:

- look at production patterns *before* globalization (no trade)
- look at production after globalization

### To see effect of globalization on production:

- look at production patterns *before* globalization (no trade)
- look at production after globalization
- compare the two

• companies in rich country produce *both* software and rice

(both demanded by rich country consumers)

- companies in rich country produce both software and rice
   (both demanded by rich country consumers)
- companies in emerging economy also produce both goods

- companies in rich country produce both software and rice
   (both demanded by rich country consumers)
- companies in emerging economy also produce both goods
- emerging economy's software production "inefficient"

- companies in rich country produce both software and rice
   (both demanded by rich country consumers)
- companies in emerging economy also produce both goods
- emerging economy's software production "inefficient"
  - emerging economy's labor force better suited to rice

• low-skill workers in emerging economy *hurt* by that country's software production

- low-skill workers in emerging economy *hurt* by that country's software production
  - not needed much for software

- low-skill workers in emerging economy *hurt* by that country's software production
  - not needed much for software
  - greatly needed for rice

- low-skill workers in emerging economy *hurt* by that country's software production
  - not needed much for software
  - greatly needed for rice
  - if production diverted from rice to software,
     demand for low-skill labor reduced

- low-skill workers in emerging economy *hurt* by that country's software production
  - not needed much for software
  - greatly needed for rice
  - if production diverted from rice to software,
     demand for low-skill labor reduced
  - downward pressure on low-skill wages

- low-skill workers in emerging economy *hurt* by that country's software production
  - not needed much for software
  - greatly needed for rice
  - if production diverted from rice to software,
     demand for low-skill labor reduced
  - downward pressure on low-skill wages
- similarly high-skill workers in emerging economy *benefit* from software production

- low-skill workers in emerging economy *hurt* by that country's software production
  - not needed much for software
  - greatly needed for rice
  - if production diverted from rice to software,
     demand for low-skill labor reduced
  - downward pressure on low-skill wages
- similarly high-skill workers in emerging economy *benefit* from software production
  - puts them in higher demand

Suppose door for trade between rich country and emerging economy opens

Suppose door for trade between rich country and emerging economy opens

 rich country will shift production from rice to software — will import rice from emerging economy Suppose door for trade between rich country and emerging economy opens

 rich country will shift production from rice to software — will import rice from emerging economy

 emerging economy will shift production from software to rice — will import software from rich country

raises demand for low-skill workers

- raises demand for low-skill workers
  - rice uses low-skill workers more intensively than does software

- raises demand for low-skill workers
  - rice uses low-skill workers more intensively than does software
- reduces demand for high-skill workers

- raises demand for low-skill workers
  - rice uses low-skill workers more intensively than does software
- reduces demand for high-skill workers
- so, low-skill wages *rise* and high-skill wages *fall*

• in second half of 19<sup>th</sup> century

- in second half of 19<sup>th</sup> century
  - Europe - relative abundance of low-skill labor

- in second half of 19<sup>th</sup> century
  - Europe - relative abundance of low-skill labor
  - U.S. - relative abundance of high-skill labor

- in second half of 19<sup>th</sup> century
  - Europe - relative abundance of low-skill labor
  - U.S. - relative abundance of high-skill labor
- trade between U.S. and Europe increased dramatically

- in second half of 19<sup>th</sup> century
  - Europe - relative abundance of low-skill labor
  - U.S. - relative abundance of high-skill labor
- trade between U.S. and Europe increased dramatically
- inequality fell in Europe (and rose in U.S.)

(1) predicts that *greater* differences in skill ratios between countries imply *more* trade between them

- (1) predicts that *greater* differences in skill ratios between countries imply *more* trade between them
  - but, relatively little trade between rich industrialized nations and very poorest countries (e.g., Malawi)

- (1) predicts that *greater* differences in skill ratios between countries imply *more* trade between them
  - but, relatively little trade between rich industrialized nations and very poorest countries (e.g., Malawi)
- (2) predicts decrease in inequality in emerging economies

- (1) predicts that *greater* differences in skill ratios between countries imply *more* trade between them
  - but, relatively little trade between rich industrialized nations and very poorest countries (e.g., Malawi)
- (2) predicts decrease in inequality in emerging economies

this has not generally happened

Alternative theory (in collaboration with M. Kremer)

## Alternative theory (in collaboration with M. Kremer)

• globalization = international *production* 

## Alternative theory (in collaboration with M. Kremer)

- globalization = international *production* 
  - computers

designed in U.S. programmed in Europe assembled in China

# Alternative theory (in collaboration with M. Kremer)

- globalization = international *production* 
  - computers

```
designed in U.S. programmed in Europe assembled in China
```

• many skill levels (not just 2)

## Alternative theory (in collaboration with M. Kremer)

- globalization = international *production* 
  - computersdesigned in U.S.programmed in Europeassembled in China
- many skill levels (not just 2)
  - today: 4 levels

rich country

- rich country
  - workers of skill levels A and B

- rich country
  - workers of skill levels A and B
- emerging country

- rich country
  - workers of skill levels A and B
- emerging country
  - workers of skill levels C and D

- rich country
  - workers of skill levels A and B
- emerging country
  - workers of skill levels C and D

•

- rich country
  - workers of skill levels A and B
- emerging country
  - workers of skill levels C and D

•

(argument still holds if C > B)

- rich country
  - workers of skill levels A and B
- emerging country
  - workers of skill levels C and D
- A>B>C>D (argument still holds if C>B)
- wages will depend on how workers of different skill levels "matched" together to produce output

• production process consists of different *tasks* 

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

Output = 
$$M^2S$$

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

Output = 
$$M^2S$$
  
 $M = \text{skill-level of manager}$ 

- production process consists of different tasks
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

Output = 
$$M^2S$$
  
 $M$  = skill-level of manager  
 $S$  = skill-level of subordinate

- production process consists of different tasks
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

Output = 
$$M^2S$$
  
 $M$  = skill-level of manager  
 $S$  = skill-level of subordinate  
if  $M = 4$   $S = 3$ , output =  $4 \times 4 \times 3 = 48$ 

- production process consists of different tasks
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

Output = 
$$M^2S$$
  
 $M$  = skill-level of manager  
 $S$  = skill-level of subordinate  
if  $M = 4$   $S = 3$ , output =  $4 \times 4 \times 3 = 48$ 

many producers compete to hire workers

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

Output = 
$$M^2S$$
  
 $M$  = skill-level of manager  
 $S$  = skill-level of subordinate  
if  $M = 4$   $S = 3$ , output =  $4 \times 4 \times 3 = 48$ 

- many producers compete to hire workers
  - ensures that matching is efficient

- production process consists of different *tasks* 
  - "managerial" task - sensitive to skill level
  - "subordinate" task - less sensitive to skill
- output produced by "matching" managers and subordinates
- amount of output depends on skill levels:

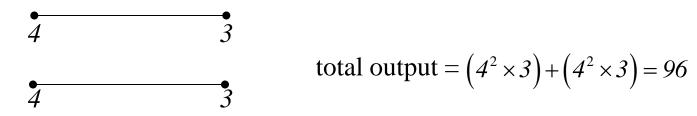
Output = 
$$M^2S$$
  
 $M$  = skill-level of manager  
 $S$  = skill-level of subordinate  
if  $M = 4$   $S = 3$ , output =  $4 \times 4 \times 3 = 48$ 

- many producers compete to hire workers
  - ensures that matching is efficient
  - ensures that workers paid according to productivity

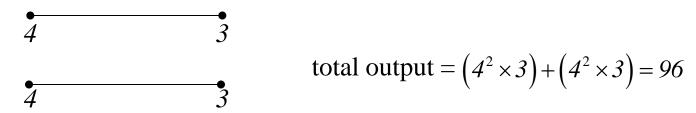
• Different ways workers could be matched

- Different ways workers could be matched
- Assume two 3-workers and two 4-workers

- Different ways workers could be matched
- Assume two 3-workers and two 4-workers
  - 3s could be matched with 4s (cross-matching):



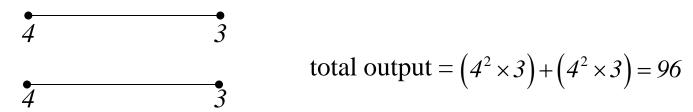
- Different ways workers could be matched
- Assume two 3-workers and two 4-workers
  - 3s could be matched with 4s (cross-matching):



- or 3 could be matched with 3, and 4 with 4 (homogeneous-matching):

$$\begin{array}{c}
3 \\
4
\end{array}$$
total output =  $(3^2 \times 3) + (4^2 \times 4) = 91$ 

- Different ways workers could be matched
- Assume two 3-workers and two 4-workers
  - 3s could be matched with 4s (cross-matching):

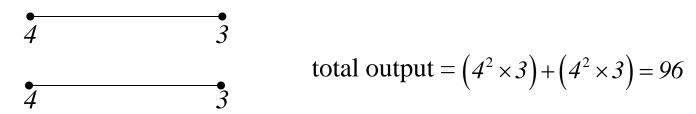


- or 3 could be matched with 3, and 4 with 4 (homogeneous-matching):

$$\begin{array}{c|c}
4 \\
4
\end{array}$$
total output =  $(3^2 \times 3) + (4^2 \times 4) = 91$ 

competition ensures matching pattern maximizes output

- Different ways workers could be matched
- Assume two 3-workers and two 4-workers
  - 3s could be matched with 4s (cross-matching):



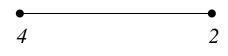
- or 3 could be matched with 3, and 4 with 4 (homogeneous-matching):

$$\begin{array}{c}
4 \\
4
\end{array}$$
total output =  $(3^2 \times 3) + (4^2 \times 4) = 91$ 

- competition ensures matching pattern maximizes output
- so, in this case, we expect *cross-matching*

- Suppose instead two 2-workers and two 4-workers
  - 2 s could be matched with 4 s (cross-matching):

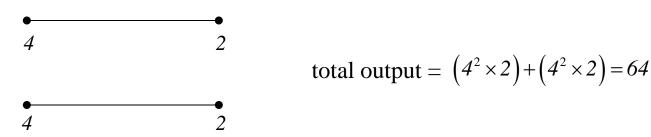
- 2 s could be matched with 4 s (cross-matching):





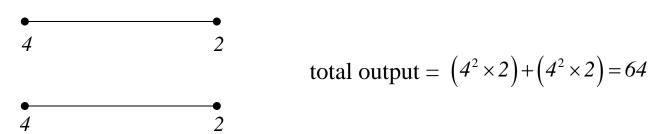
total output = 
$$(4^2 \times 2) + (4^2 \times 2) = 64$$

- 2 s could be matched with 4 s (cross-matching):

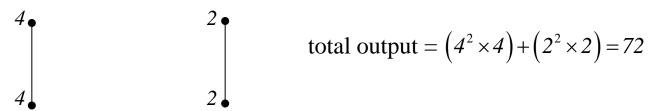


or could have homogeneous-matching

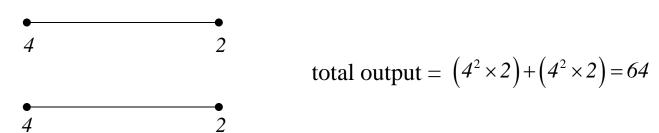
- 2 s could be matched with 4 s (cross-matching):



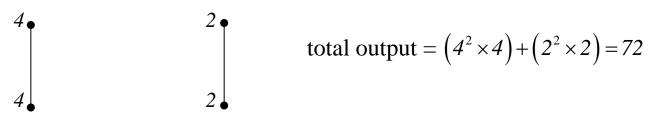
or could have homogeneous-matching



- 2 s could be matched with 4 s (cross-matching):



or could have homogeneous-matching



here expect homogeneous-matching

• because two tasks (managerial, subordinate) differentially sensitive to skill, argument for *cross-matching* 

- because two tasks (managerial, subordinate) differentially sensitive to skill, argument for *cross-matching* 
  - higher skill in managerial position

- because two tasks (managerial, subordinate)

  differentially sensitive to skill, argument for crossmatching
  - higher skill in managerial position
  - lower skill in subordinate position

- because two tasks (managerial, subordinate)

  differentially sensitive to skill, argument for crossmatching
  - higher skill in managerial position
  - lower skill in subordinate position
- But if skill levels *too* different, then *homogeneous-matching* better

- because two tasks (managerial, subordinate) differentially sensitive to skill, argument for *cross-matching* 
  - higher skill in managerial position
  - lower skill in subordinate position
- But if skill levels *too* different, then *homogeneous-matching* better
  - tasks are complementary

- because two tasks (managerial, subordinate)

  differentially sensitive to skill, argument for crossmatching
  - higher skill in managerial position
  - lower skill in subordinate position
- But if skill levels *too* different, then *homogeneous-matching* better
  - tasks are complementary
  - even very high-skill manager has low productivity if matched with very low-skill subordinate

- because two tasks (managerial, subordinate)

  differentially sensitive to skill, argument for crossmatching
  - higher skill in managerial position
  - lower skill in subordinate position
- But if skill levels *too* different, then *homogeneous-matching* better
  - tasks are complementary
  - even very high-skill manager has low productivity if matched with very low-skill subordinate
- Matching pattern that arises strikes balance between these two forces

- because two tasks (managerial, subordinate)

  differentially sensitive to skill, argument for crossmatching
  - higher skill in managerial position
  - lower skill in subordinate position
- But if skill levels *too* different, then *homogeneous-matching* better
  - tasks are complementary
  - even very high-skill manager has low productivity if matched with very low-skill subordinate
- Matching pattern that arises strikes balance between these two forces
  - depends on available distribution of skills

# Apply this to our two countries

# Apply this to our two countries

$$A > B > C > D$$
rich emerging country

# Apply this to our two countries

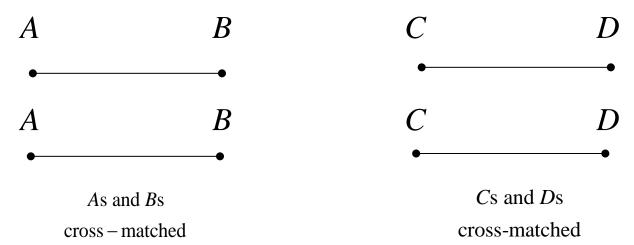
$$A > B > C > D$$
rich emerging country

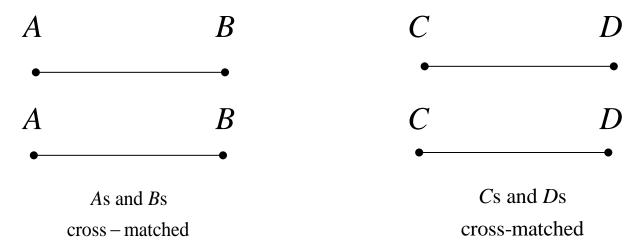
$$A = 13$$

$$B = 8$$

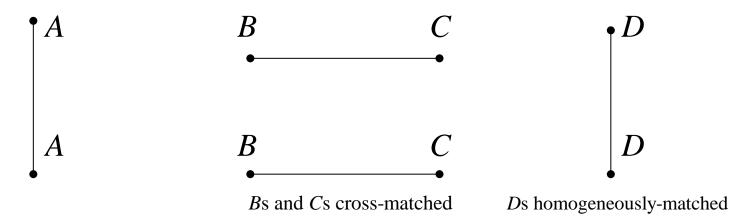
$$C = 6$$

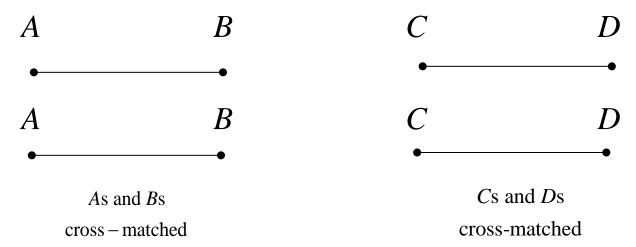
$$D=4$$



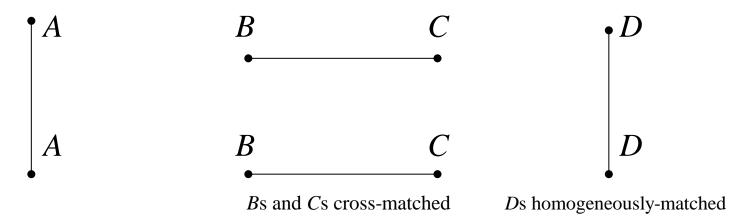


Post-globalization (international production possible)

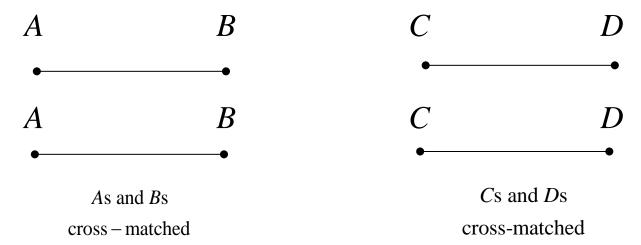




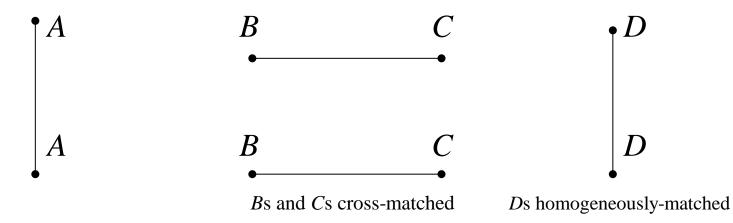
Post-globalization (international production possible)



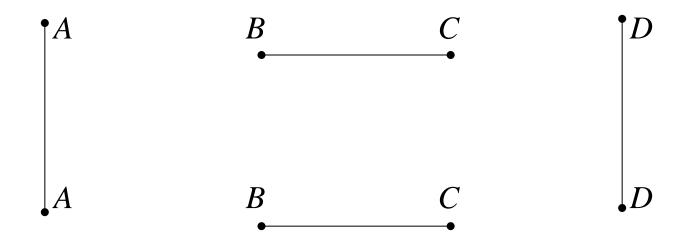
• Similar conclusion for other skill distributions

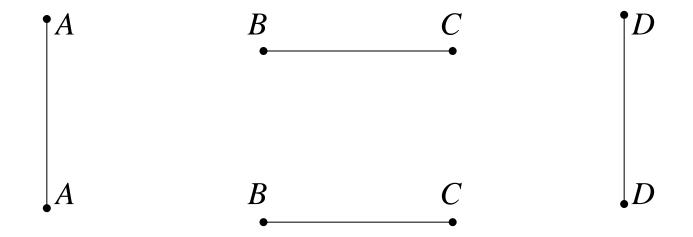


Post-globalization (international production possible)

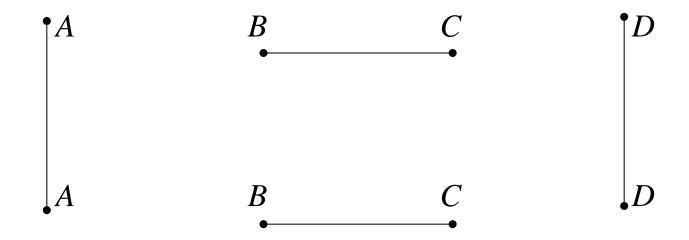


- Similar conclusion for other skill distributions
  - what's important is that *D*-worker's skill not high enough to match with *B* or *A* workers

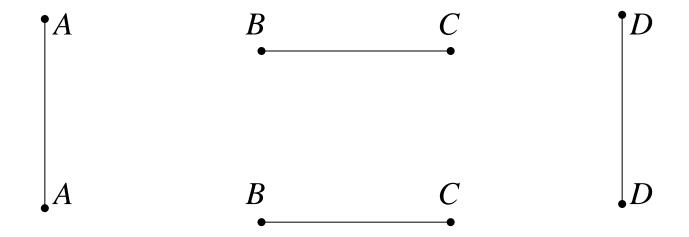




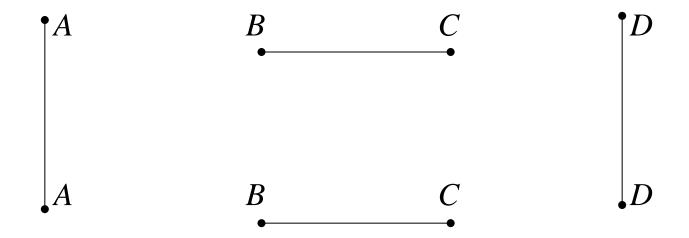
• What is effect of globalization on wages?



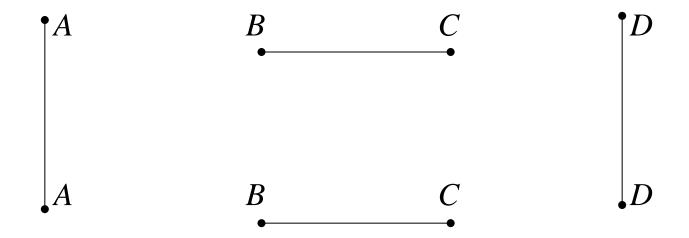
- What is effect of globalization on wages?
  - Competition implies worker paid according to productivity



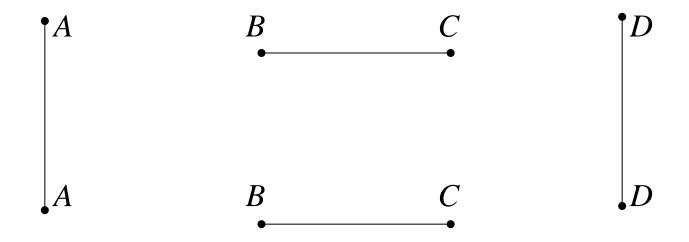
- What is effect of globalization on wages?
  - Competition implies worker paid according to productivity
  - Before globalization, D-workers benefited from being matched with higher-skill C-workers (this enhanced their productivity)



- What is effect of globalization on wages?
  - Competition implies worker paid according to productivity
  - Before globalization, D-workers benefited from being matched with higher-skill C-workers (this enhanced their productivity)
  - After globalization, D-workers left to homogeneously match
     So D-worker wages fall



- What is effect of globalization on wages?
  - Competition implies worker paid according to productivity
  - Before globalization, D-workers benefited from being matched with higher-skill C-workers (this enhanced their productivity)
  - After globalization, D-workers left to homogeneously match
     So D-worker wages fall
  - By contrast, C-worker wages rise
     (because of new international matching opportunity with Bs)



- What is effect of globalization on wages?
  - Competition implies worker paid according to productivity
  - Before globalization, D-workers benefited from being matched with higher-skill C-workers (this enhanced their productivity)
  - After globalization, D-workers left to homogeneously match
     So D-worker wages fall
  - By contrast, C-worker wages rise
     (because of new international matching opportunity with Bs)
- So inequality in emerging country is made *worse*

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

Who's going to pay?

not workers themselves

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity
  - but then have to pay higher wages

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity
  - but then have to pay higher wages
- role for investment by *third parties*

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity
  - but then have to pay higher wages
- role for investment by *third parties* 
  - domestic government

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity
  - but then have to pay higher wages
- role for investment by *third parties* 
  - domestic government
  - international agencies, NGOs

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity
  - but then have to pay higher wages
- role for investment by *third parties* 
  - domestic government
  - international agencies, NGOs
  - foreign aid

Raise skill level (through job training) of *D*-workers, so have international matching opportunities too

- not workers themselves
  - probably can't afford to
- not producers
  - training raises workers' productivity
  - but then have to pay higher wages
- role for investment by *third parties* 
  - domestic government
  - international agencies, NGOs
  - foreign aid
  - private foundations

Thus, if theory correct, right course of action:

#### Thus, if theory correct, right course of action:

not to stop globalization

#### Thus, if theory correct, right course of action:

- not to stop globalization
- allow low-skill workers share benefits by investing in their training