

BORJAS JEP (1995)

CLOSED ECONOMY

BORJAS

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- instead of focusing on the distributional effects of immigration (i.e. how much does wage fall? how much does rental rate rise?) Borjas asks if natives AS A WHOLE benefit from immigration and how large are the benefits
- natives benefit from immigration because of production complementarities between immigrant workers & other factors of production
- benefits are larger when immigrants are sufficiently different from the stock of native productive inputs - shows that gains to US greater if US attracted more skilled immigrant flow

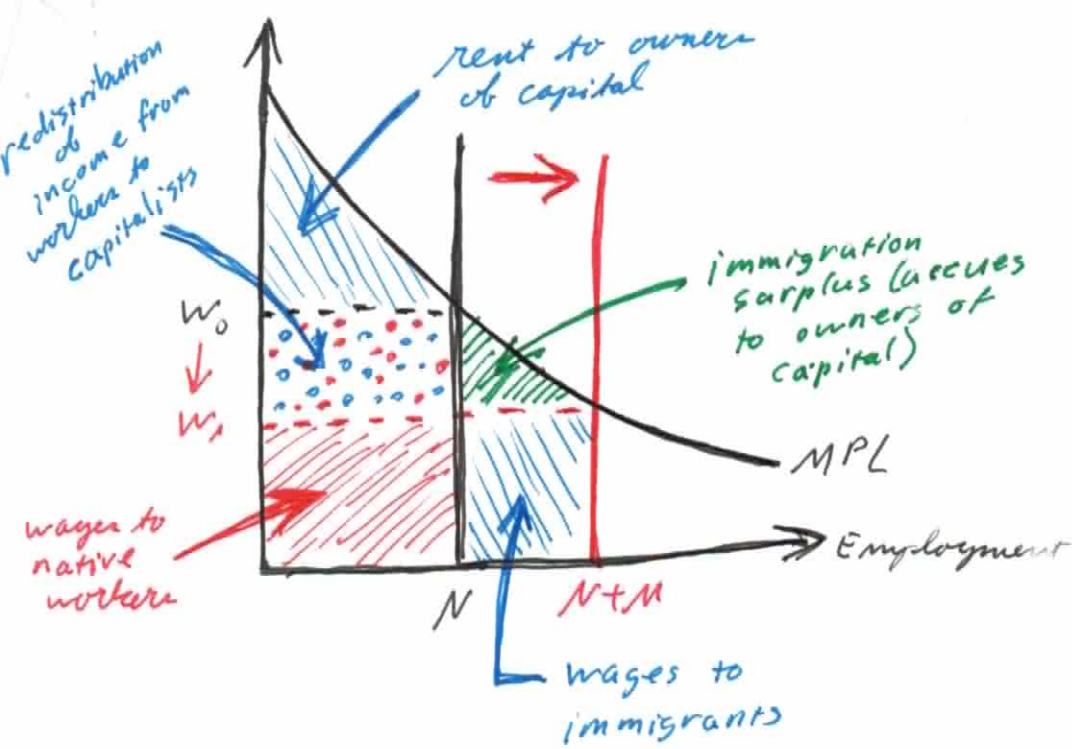
### INITIAL MODEL

ASSUME: Labor is homogenous (native labor + immigrant labor are perfect substitutes)  $L = N + M$

- constant returns to scale (entire output is distributed to owners of capital and workers)
- ~~single~~ aggregate production function
- input prices are measured in units of output so prior to immigration

$$Q_N = r_0 K + w_0 N$$

- supply of capital is inelastic (no area under MPL curve given total output)



→ immigration surplus arises because immigrants increase national income by more than it costs to employ them

→ immigration surplus arises only when the native wage FALLS as a result of immigration and is larger the more the wage rate falls

→ immigration surplus is approx. equal to:

$$\frac{1}{2} (w_0 - w_1) M$$

and if  $(w_1 - w_0) \approx \frac{\Delta w}{\Delta L} \cdot M$  then:

$$\frac{\Delta Q_N}{Q} = -\frac{1}{2} \frac{\Delta w}{\Delta L} \cdot M \cdot \frac{M}{Q} = -\frac{1}{2} \frac{wL}{Q} \cdot \frac{\Delta w}{\Delta L} \cdot \frac{L}{w} \cdot \frac{M}{L} \cdot \frac{M}{L}$$

$$\begin{aligned} \rho &\equiv \frac{wL}{Q} & e &\equiv \frac{\Delta w}{\Delta L} \cdot \frac{L}{w} \\ m &\equiv \frac{M}{L} \end{aligned}$$

$$\frac{\Delta Q_N}{Q} = -\frac{1}{2} \rho \cdot e \cdot m^2$$

immigration surplus

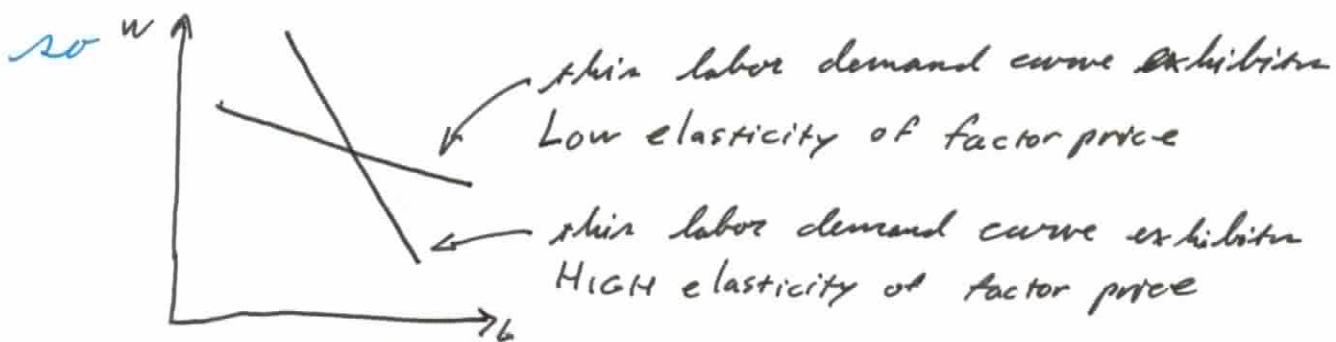
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instead of working with:

$$\frac{\Delta L}{\Delta w} = \frac{w}{L} \quad \text{the elasticity of labor demand with respect to the wage}$$

he chooses to work with:

$$\frac{\Delta w}{\Delta L} = \frac{L}{w} \quad \text{the elasticity of factor price for labor}$$



BACK of the ENVELOPE CALCULATIONS:

if  $\alpha = 70\%$   $e = -0,3$  and  $m = 10\%$

and if GDP is \$7 trillion, then

immigration surplus: \$7 billion 0,1% of GDP

change in income of capitalists \$140 billion 2,0% of GDP

change in income of native workers: -\$133 billion -1,9% of GDP

small immigration surplus disguises a sizeable redistribution of wealth from native workers to capitalists

→ What if immigration also augments the capital stock?

suppose that immigrants augment both labor force + capital stock by 100%

because production fn has constant returns to scale output doubles and FACTOR PRICES REMAIN UNCHANGED so immigration would have no impact on the national income accruing to natives immigration surplus would be ZERO

→ the economic benefits of immigration only arise if immigrants LOWER the wage of native workers

*X*

### IMMIGRANT SKILLS + IMMIGRATION SURPLUS

simple case where: no capital and two types of workers - the skilled + the unskilled

→ if skill composition of immigration flow replicates the skill composition of natives, then due to the assumption of constant returns to scale the immigration surplus would be zero

→ immigration surplus would only be positive if the skill composition of immigrant flow differs from skill composition of natives

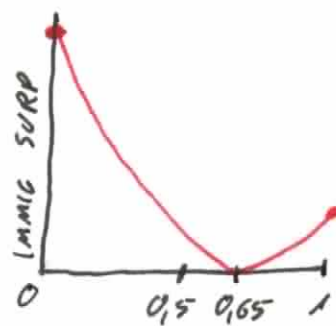
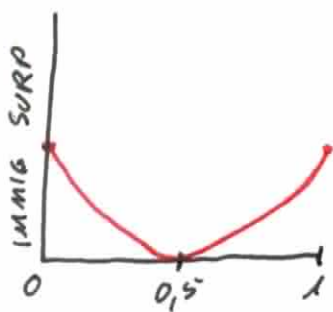
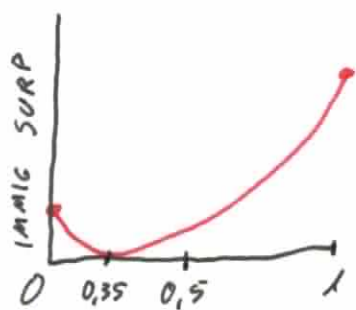
→ immigration surplus maximized when immigrant flow consists ~~entirely~~ of exclusively skilled workers or exclusively of unskilled workers

35% NATIVES  
ARE SKILLED

50% NATIVES  
ARE SKILLED

65% NATIVES  
ARE SKILLED

BORJAS  
(7.5)



FRACTION OF IMMIGRANTS WHO ARE SKILLED

the US has a relatively skilled workforce, so IN THE ABSENCE OF CAPITAL the immigration surplus would be maximised by pursuing an immigration policy that **ONLY** admitted unskilled workers

WHAT HAPPENS WHEN WE INCLUDE CAPITAL?

→ result depends on:

$p_s$  or  $p_u$  • skill composition of native workforce

$s_s$  • share of income that goes to skilled workers

$s_u$  • share of income that goes to unskilled workers

$m$  • fraction of ~~the workforce~~ that immigrants in the workforce

$e_{ss}$  • elasticity of factor price for skilled workers

$e_{uu}$  • elasticity of factor price for unskilled workers

• cross factor price elasticities:

$e_{su}$  → elas. of skilled factor price w/ respect to unskilled labor

$e_{us}$  → elas. of unskilled factor price w/ respect to skilled labor

see article for details

Borjas shows that if the elasticity of factor price for skilled workers is greater (in absolute value) than the elastic of factor price for unskilled workers (in other words: if the demand for skilled workers is less elastic than the demand for unskilled workers) then the immigration surplus may be larger when the immigrant flow is composed of skilled workers only.

Because the demand for skilled workers is less elastic than the demand for unskilled workers, skilled workers are highly complementary with other factors of production.

The complementarities across factors play a central role in generating gains from immigration. ~~(The elasticity of the demand for skilled workers is higher than the elasticity of the demand for unskilled workers because capital and skills are highly complementary),~~ so the immigration surplus is maximised when the immigrant flow is skilled.

The complementarity between capital and skills provides an economic rationale for admitting skilled workers ONLY.

CONCLUSION CHANGES IF NATIVE WORKFORCE IS PREDOMINANTLY SKILLED HOWEVER