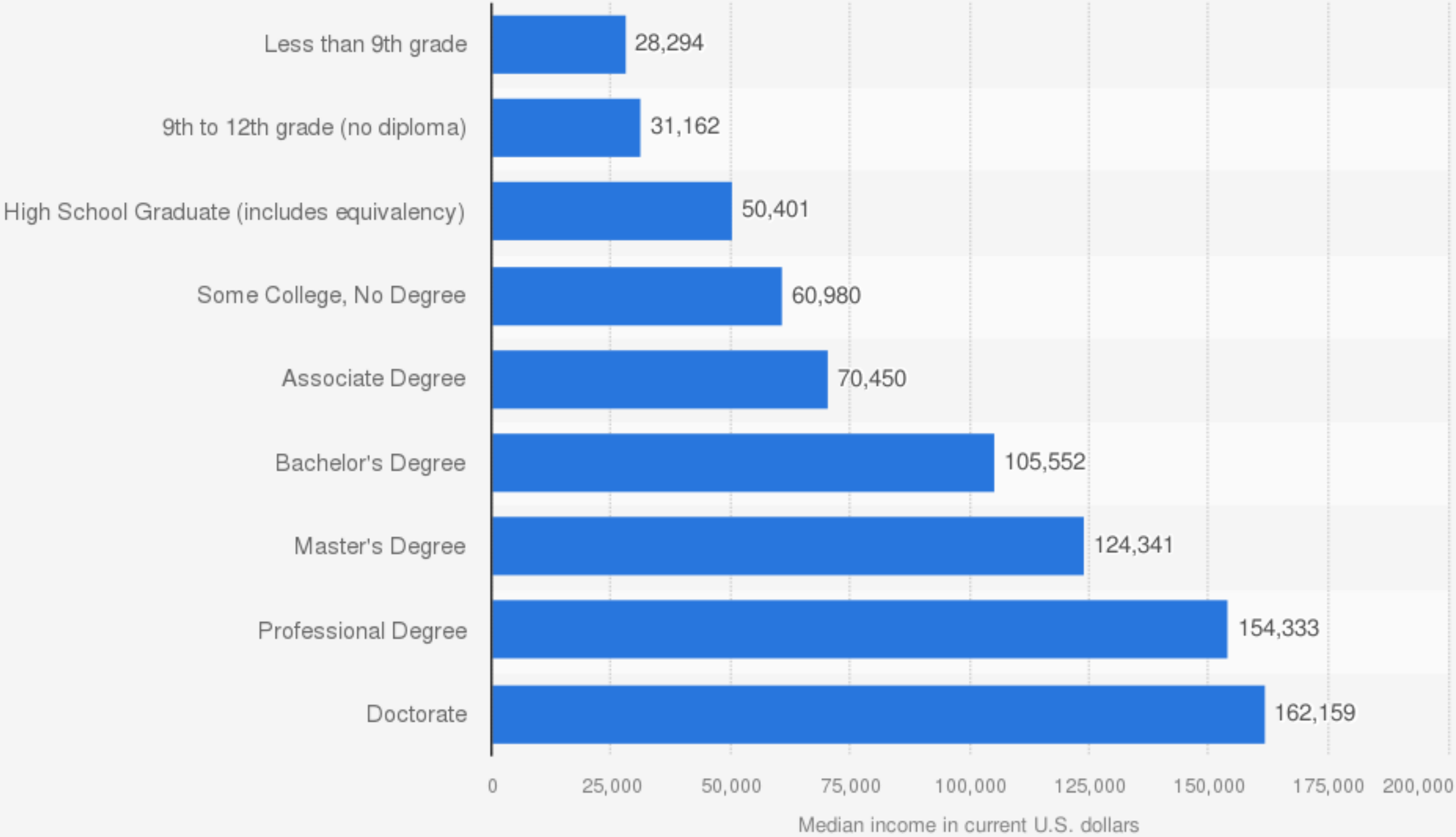
U.S. median household income 2021, by education level

Less than 9th grade	$28,294
9th to 12th grade (no diploma)	$31,162
High School Graduate	$50,401
Some College, No Degree	$60,980
Associate Degree	$70,450
Bachelor's Degree	$105,552
Master's Degree	$124,341
Professional Degree	$154,333
Doctorate	$162,159

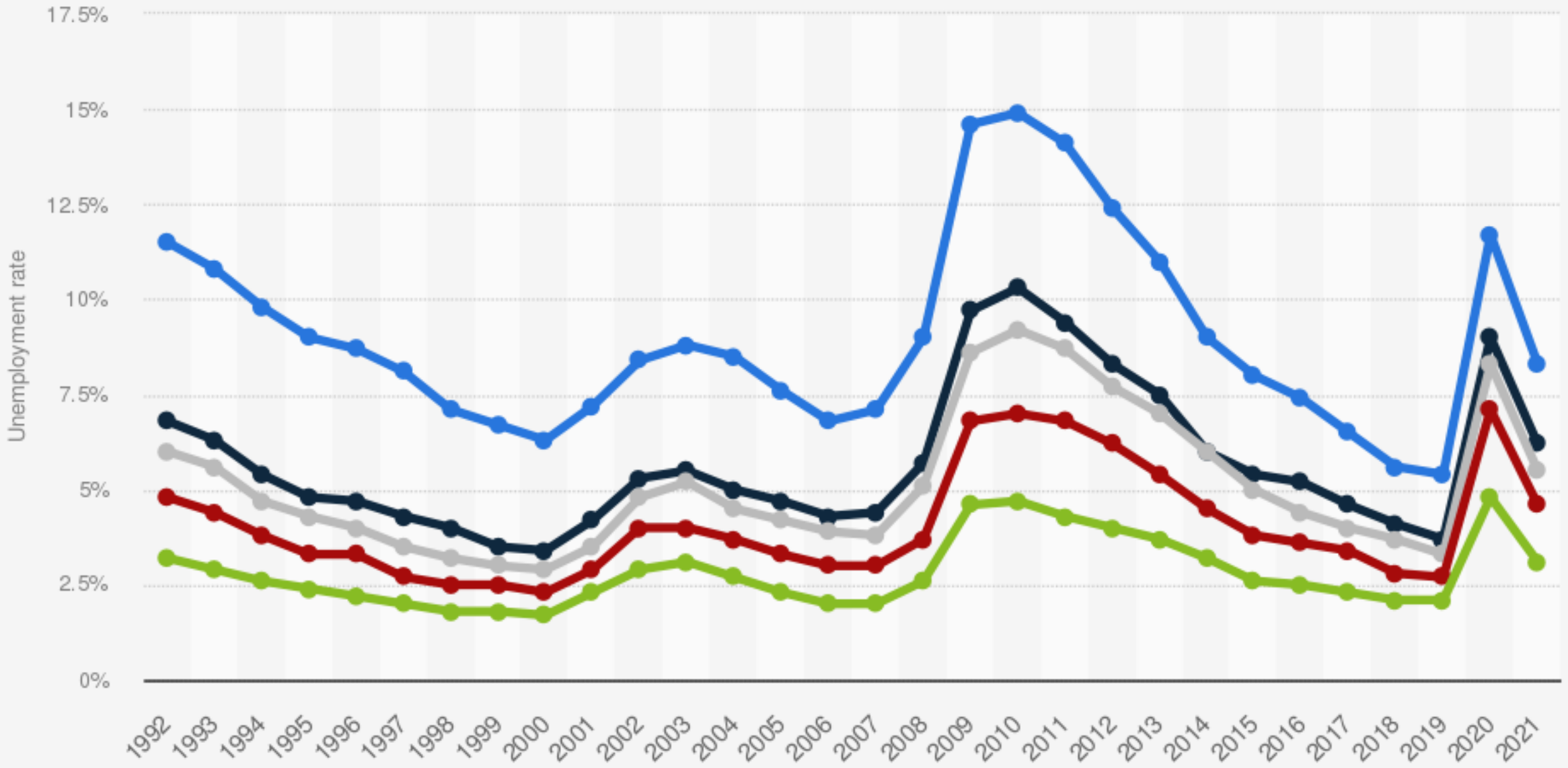
Median household income in the United States in 2021, by educational attainment of householder (in U.S. dollars)



Source
US Census Bureau

Additional Information:
United States; US Census Bureau; 2021

Unemployment rate in the United States from 1992-2021, by level of education



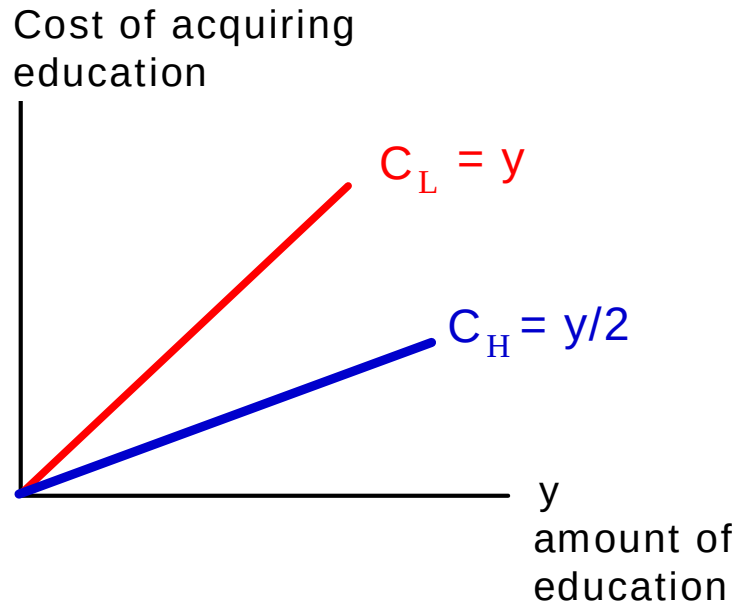
Source
Bureau of Labor Statistics

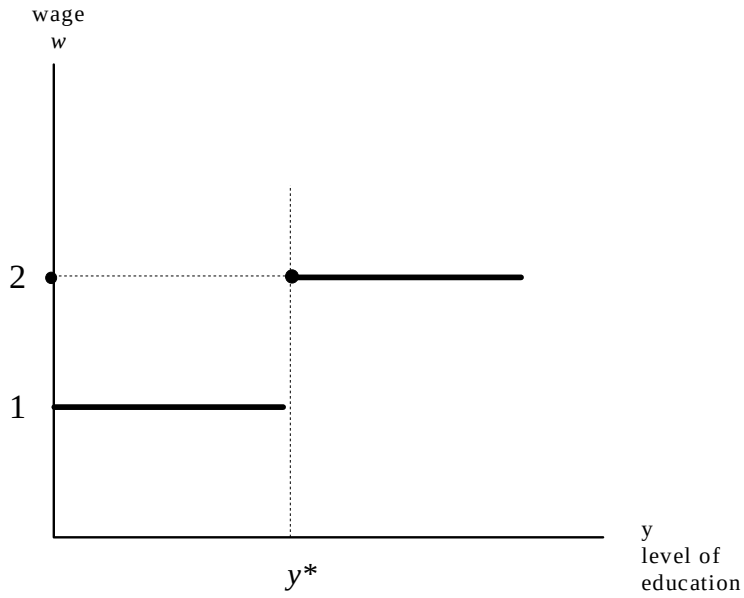
Additional Information:
United States; 1992 to 2021; 25 years and older

Suppose that there are two groups of individuals:

Group L	Group H
Marginal productivity = **1**	Marginal productivity = **2**
Proportion in population: q_L	Proportion in population: $1-q_L$

with $0 < q_L < 1$.



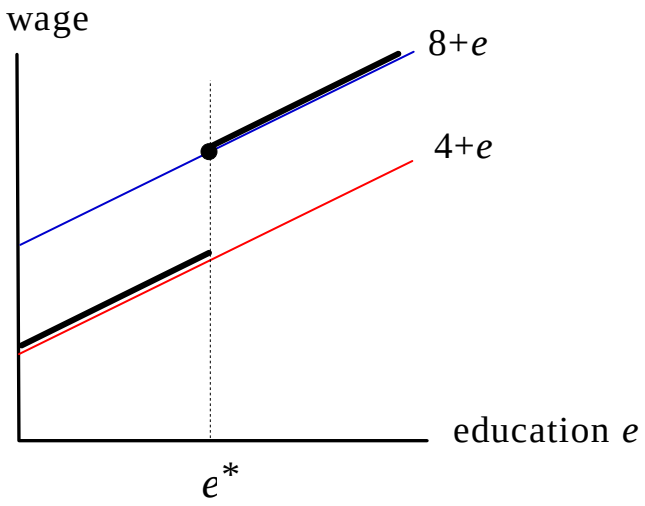


For a GROUP L individual	**If choose $y = 0$**	get w = pay C = net wage =
	If choose $y = y^*$	get w = pay C = net wage =
For a GROUP H individual	**If choose $y = 0$**	get w = pay C = net wage =
	If choose $y = y^*$	get w = pay C = net wage =

Can a signaling equilibrium be Pareto inefficient?

Example of a signaling equilibrium when education does increase productivity

Type *L*: $\begin{cases} \text{productivity: } 4+e \\ \text{cost: } C_L(e) = 4e \end{cases}$ and **Type *H***: $\begin{cases} \text{productivity: } 8+e \\ \text{cost: } C_H(e) = 2e \end{cases}$



For a signaling equilibrium we need:

for Type *L*:

for Type *H*:

Suppose that 50% of the population is Type *L* and 50% is Type *H*.

Consider a signaling equilibrium with $e^* = 3$.

Then Type *L* have a net wage of

Type *H* a net wage of

Force everybody to choose *e* = 0 and force employers to pay everybody *w* = average productivity: