

**Are you good at math?**

**Sit at a seat marked FIRM  
(2 people to a firm)**

**Not so good at math?**

**Sit at a seat marked WORKER  
(1 person to a worker)**

***Resist the temptation to open the bag.***

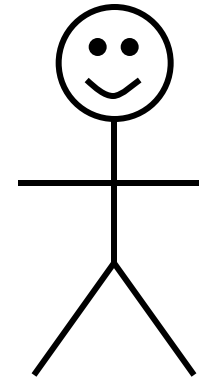
# **Minimum Wage**

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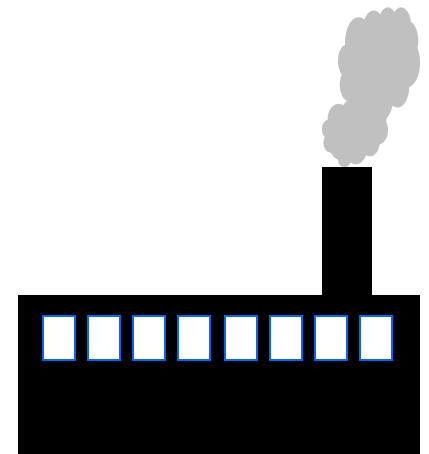
# The Players and the Goals

In this experiment, there are WORKERS and FIRMS.

WORKERS sell labor to the FIRMS.



FIRMS make and sell stuff.



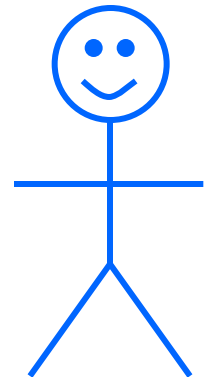
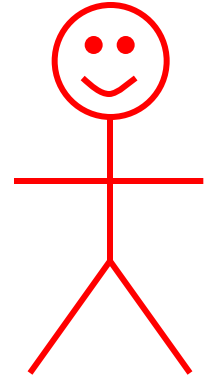
# The Players and the Goals

## Two types of worker

- Red workers
- Blue workers

**Each worker's goal: Maximize happiness**

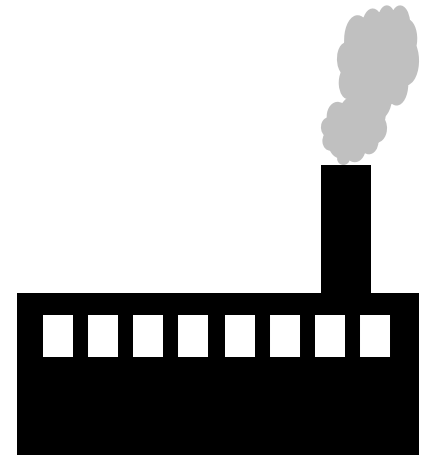
One thing makes you happy: Money



# The Players and the Goals

## One type of firm

- Firms hire **Red Labor** and **Blue Labor** to produce their products.
- Firms automatically sell everything they produce for \$2 per unit.



**Each firm's goal: Maximize profit**

$$\text{Profit} = \text{Ending \$} - \text{Starting \$}$$

# The Objects



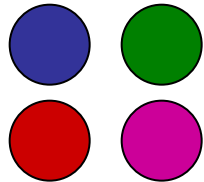
= 1 hour of **Blue labor**



= 1 hour of **Red labor**



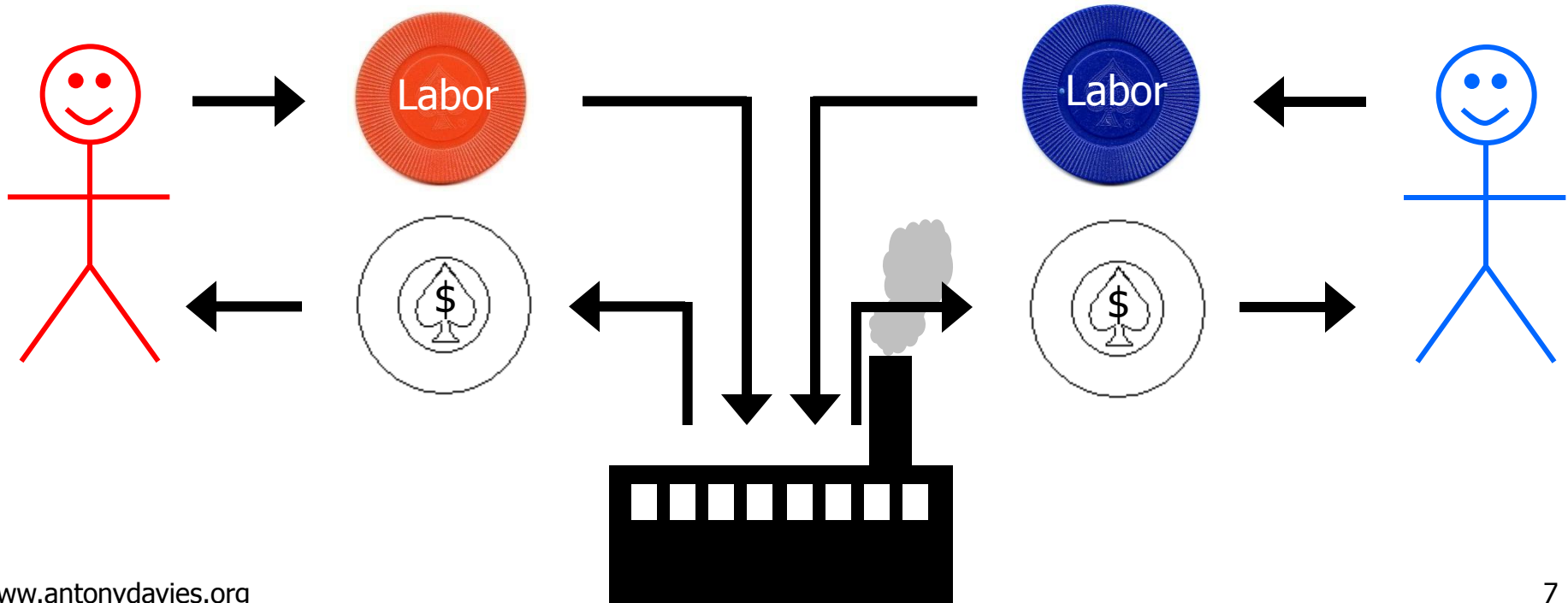
= 1 dollar



= \$5 dollars (each)

# Labor Market

Red workers and Blue workers sell as much labor as they can to firms for \$.



# Production and Goods Market

Hired labor produces product. Product is automatically sold for \$2 each.

Red labor hired  $\longrightarrow$

Blue labor hired  $\downarrow$

	0	1	2	3	4	5	6	7	8	9	10
0	0	35	43	49	53	57	60	63	65	68	70
1	0	39	48	54	59	63	66	70	72	75	77
2	0	41	51	57	63	67	71	74	77	80	82
3	0	43	53	60	65	70	74	77	80	83	86
4	0	45	55	62	68	72	76	80	83	86	89
5	0	46	56	64	69	74	78	82	85	89	91
6	0	47	58	65	71	76	80	84	87	91	94
7	0	48	59	66	72	77	82	86	89	92	95
8	0	49	60	68	74	79	83	87	91	94	97
9	0	49	61	69	75	80	85	89	92	96	99
10	0	50	62	70	76	81	86	90	94	97	100

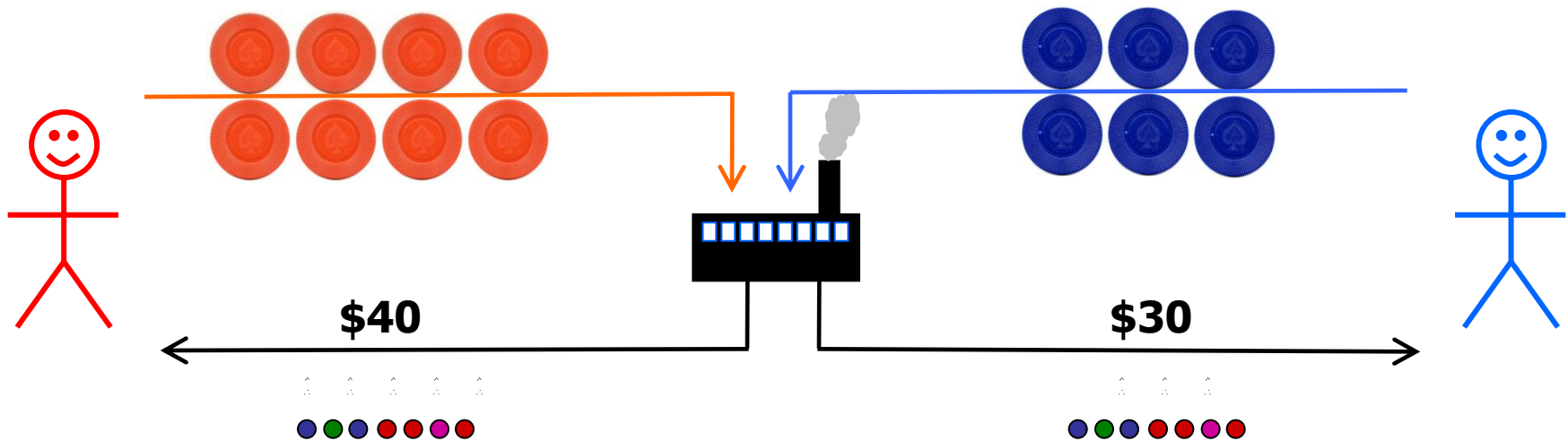
Units of output produced



# Example: Labor Market

Blue worker Sells 6  to the Firm for \$5 each.

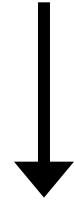
Red worker Sells 8  to the Firm for \$5 each.



**How much product does the Firm produce?**

# Example: Labor Market

The Firm manufactures 87 units of product.  
The product will be automatically sold for \$2 per unit.



	0	1	2	3	4	5	6	7	8	9	10
0	0	35	43	49	53	57	60	63	65	68	70
1	0	39	48	54	59	63	66	70	72	75	77
2	0	41	51	57	63	67	71	74	77	80	82
3	0	43	53	60	65	70	74	77	80	83	86
4	0	45	55	62	68	72	76	80	83	86	89
5	0	46	56	64	69	74	78	82	85	89	91
6	0	47	58	65	71	76	80	84	<b>87</b>	91	94
7	0	48	59	66	72	77	82	86	89	92	95
8	0	49	60	68	74	79	83	87	91	94	97
9	0	49	61	69	75	80	85	89	92	96	99
10	0	50	62	70	76	81	86	90	94	97	100

# Example: Labor Market and Goods Market

## Blue Worker

Ends the experiment with (6)(\$5) = \$30. Money = **\$30**.

## Red Worker

Ends the experiment with (8)(\$5) = \$40. Money = **\$40**.

## Firm

- Spent \$70 on labor, and
  - Produced and sold 87 output at a price of \$2 each.
- Firm's profit is  $\$174 - \$70 = \mathbf{\$104}$ .

# Example: Cost/Benefit of Hiring More Labor

Suppose you can hire 1 Red for \$6 or 1 Blue for \$7.

So far, you have hired 1 Red and 3 Blue.

---

1. How much am I producing right now?

*1 Red and 3 Blue → 43 output*

2. What happens to my output if I hire 1 more Red worker?

*Output increases from 43 to 53 → + 10 output*

3. What does that do to my revenue?

*(10 output)(\$2) = + \$20 revenue*

4. What does it do to my costs?

*Cost of 1 Red worker = \$6 → + \$6 cost*

5. What does it do to my profit?

*+ \$20 revenue & + \$6 cost → + \$14 profit*

# Example: Cost/Benefit of Hiring More Labor

Suppose you can hire 1 Red for \$6 or 1 Blue for \$7.

So far, you have hired 1 Red and 3 Blue.

---

6. What happens to my output if I hire 1 more Blue worker?

*Output increases from 43 to 45 → + 2 output*

7. What does that do to my revenue?

*(2 output)(\$2) = + \$4 revenue*

8. What does it do to my costs?

*Cost of 1 Blue worker = \$7 → + \$7 cost*

9. What does it do to my profit?

*+ \$4 revenue & + \$7 cost → - \$3 profit*

# Example: Cost/Benefit of Hiring More Labor

Suppose you can hire 1 Red for \$6 or 1 Blue for \$7.

So far, you have hired 1 Red and 3 Blue.

---

## Conclusion

Hiring 1 more red hour increases profit by \$14.

Hiring 1 more blue hour decreases profit by \$3

→ Hire 1 more red hour.

# The Mechanics

Firms: You may not leave your seats.

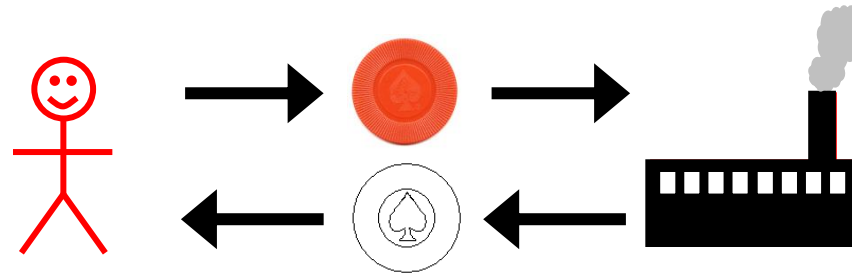
Consumers: Sell just one unit of labor at a time.





Ready to begin...



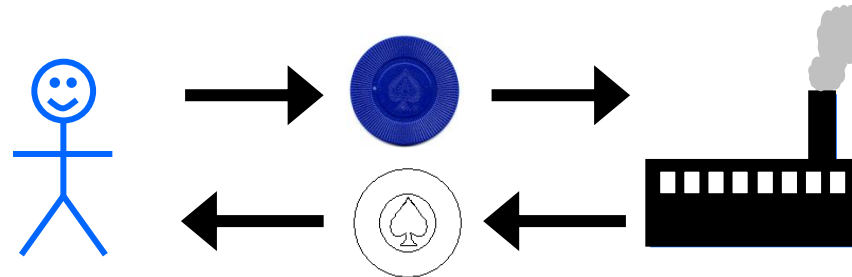
# Labor Market

Red workers sell your labor to firms for \$.



	= 1 hour of Blue labor
	= 1 hour of Red labor
	= 1 dollar
	= \$5 dollars (each)

Blue workers sell your labor to firms for \$.



**Firms:** Every unit of output you produce is automatically sold for \$2.

# Report

**Round 1**

**Blue Worker #1**

Unsold Labor

Dollars

\_\_\_\_\_

\_\_\_\_\_

**Round 1**

**Red Worker #1**

Unsold Labor

Dollars

\_\_\_\_\_

\_\_\_\_\_

**Round 1**

**Firm #2**

Blue Labor

Red Labor

Dollars

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# New Rules

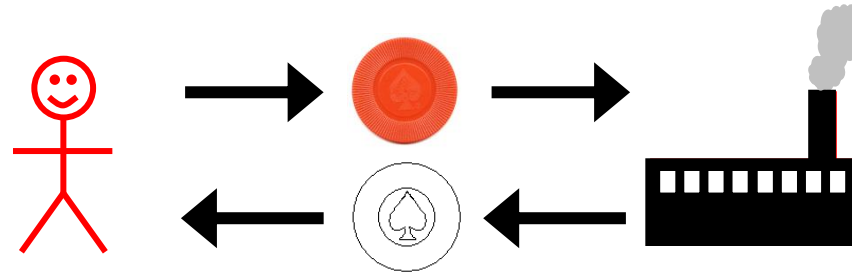
The wage rate that some workers receive is too low. In the interest of assuring a minimum standard of living, we now impose a minimum wage.

**LAW:** Henceforth, no firm may pay less than \$5 per hour.

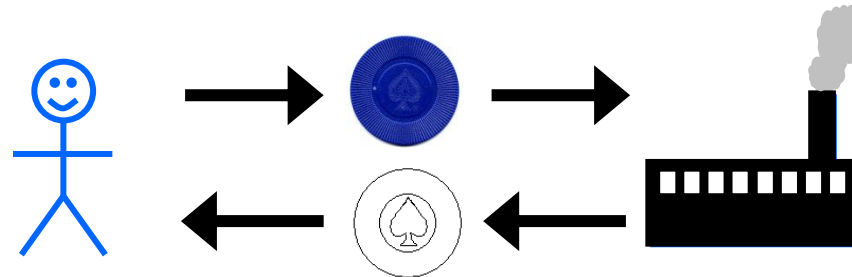
Ready to begin...





# Labor Market

Red workers sell your labor to firms for \$.



Blue workers sell your labor to firms for \$.



	= 1 hour of Blue labor
	= 1 hour of Red labor
	= 1 dollar
	= \$5 dollars (each)

FIRMS MUST  
PAY NO LESS  
THAN \$5 PER  
HOUR.

**Firms:** Every unit of output you produce is automatically sold for \$2.

# Report

**Round 2**

**Blue Worker #1**

Unsold Labor

Dollars

\_\_\_\_\_

\_\_\_\_\_

**Round 2**

**Red Worker #1**

Unsold Labor

Dollars

\_\_\_\_\_

\_\_\_\_\_

**Round 2**

**Firm #2**

Blue Labor

Red Labor

Dollars

\_\_\_\_\_

\_\_\_\_\_

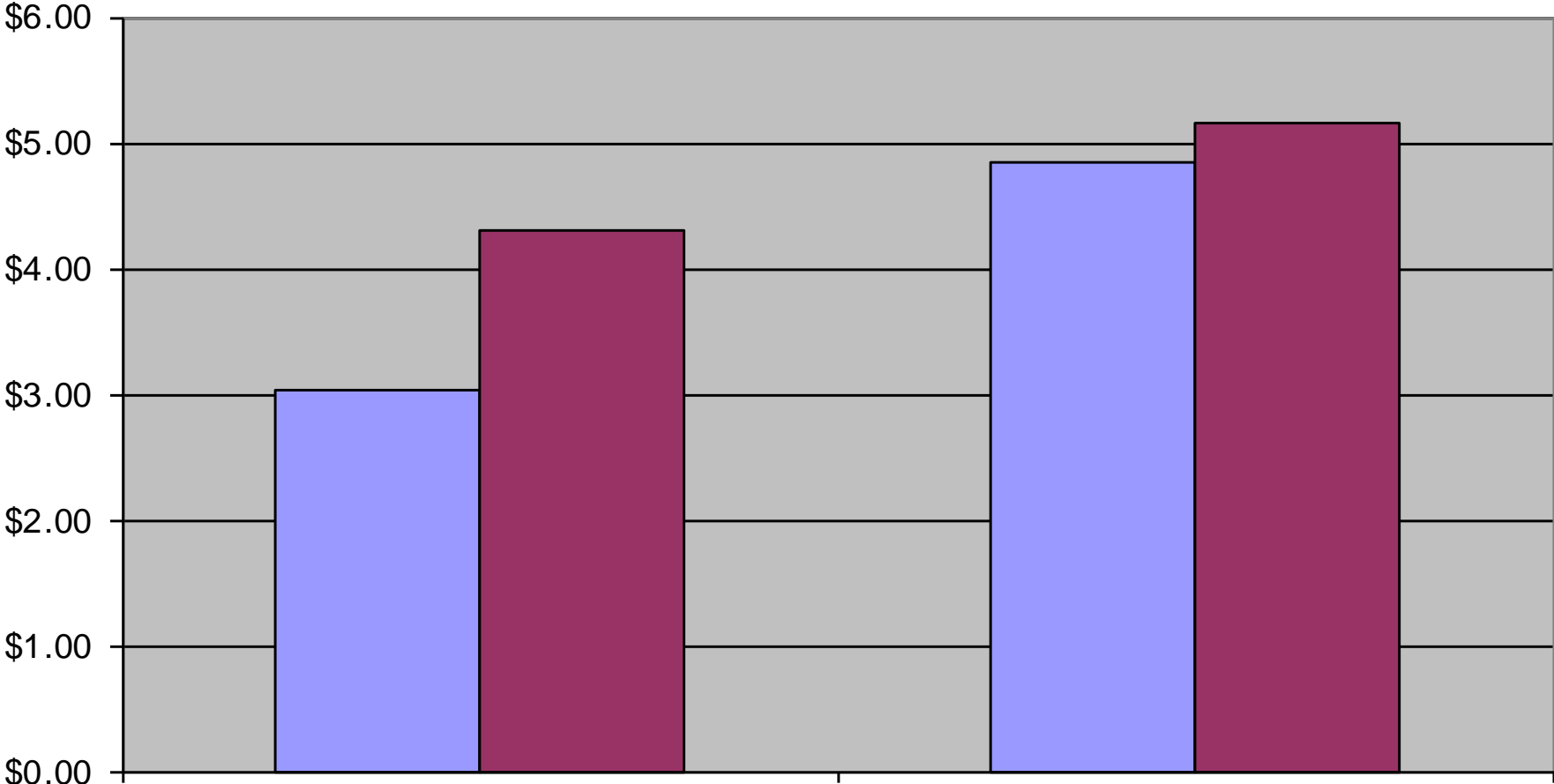
\_\_\_\_\_

# Results...

What effect do you believe the minimum wage has on average wage rates?

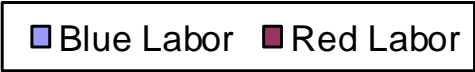


# Wage Rate



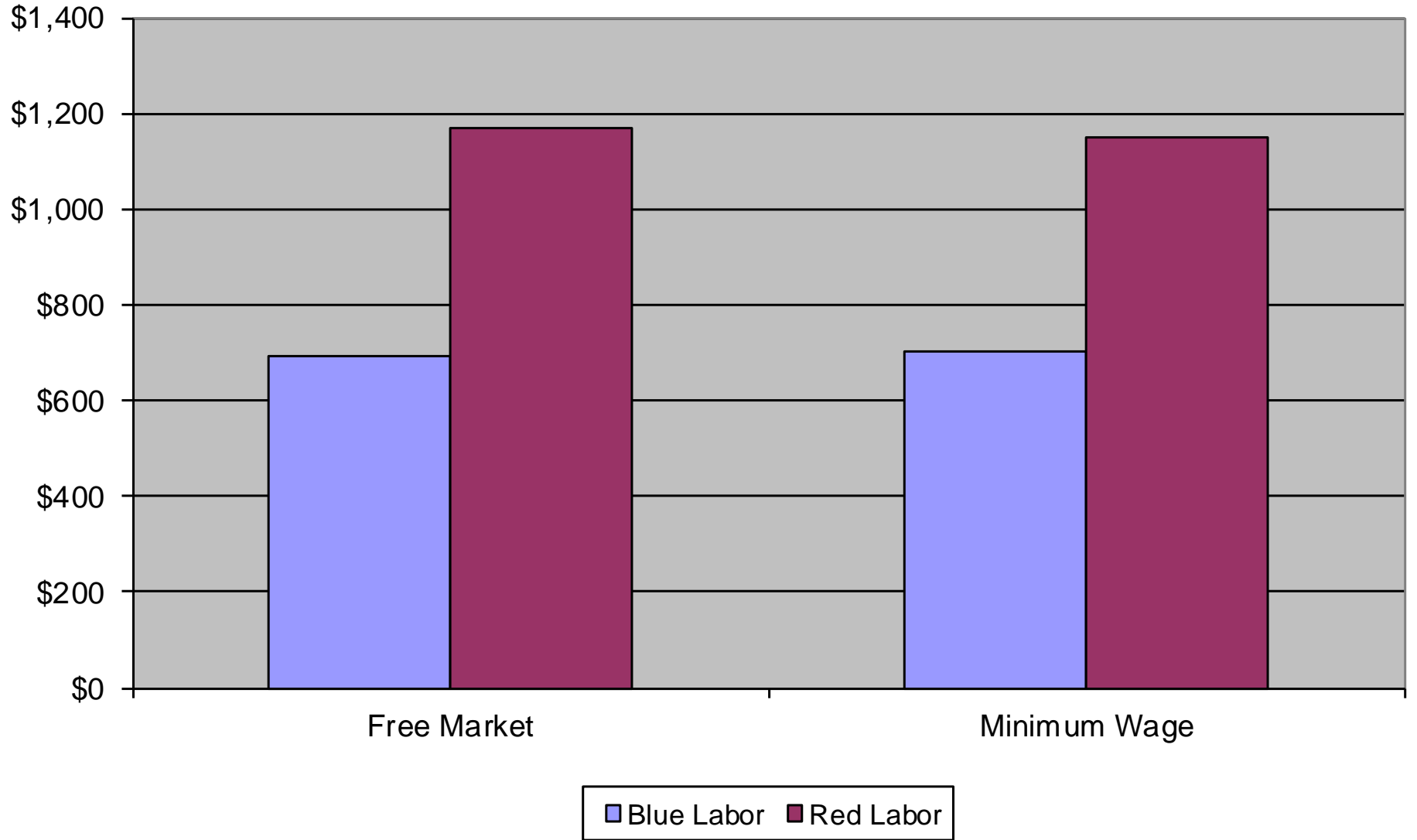
Free Market

Minimum Wage



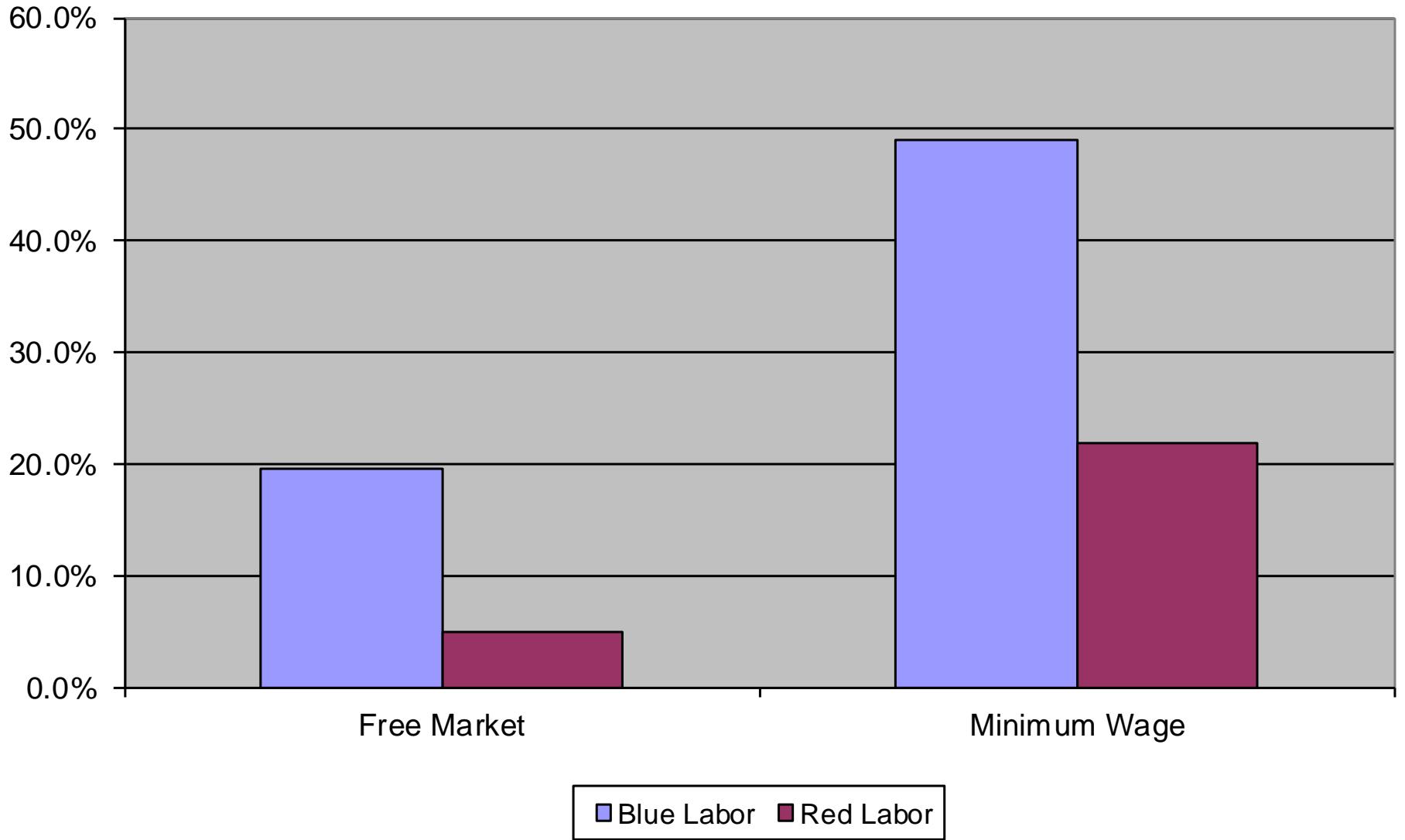
What effect do you believe the minimum wage has on workers' incomes?

# Total Income



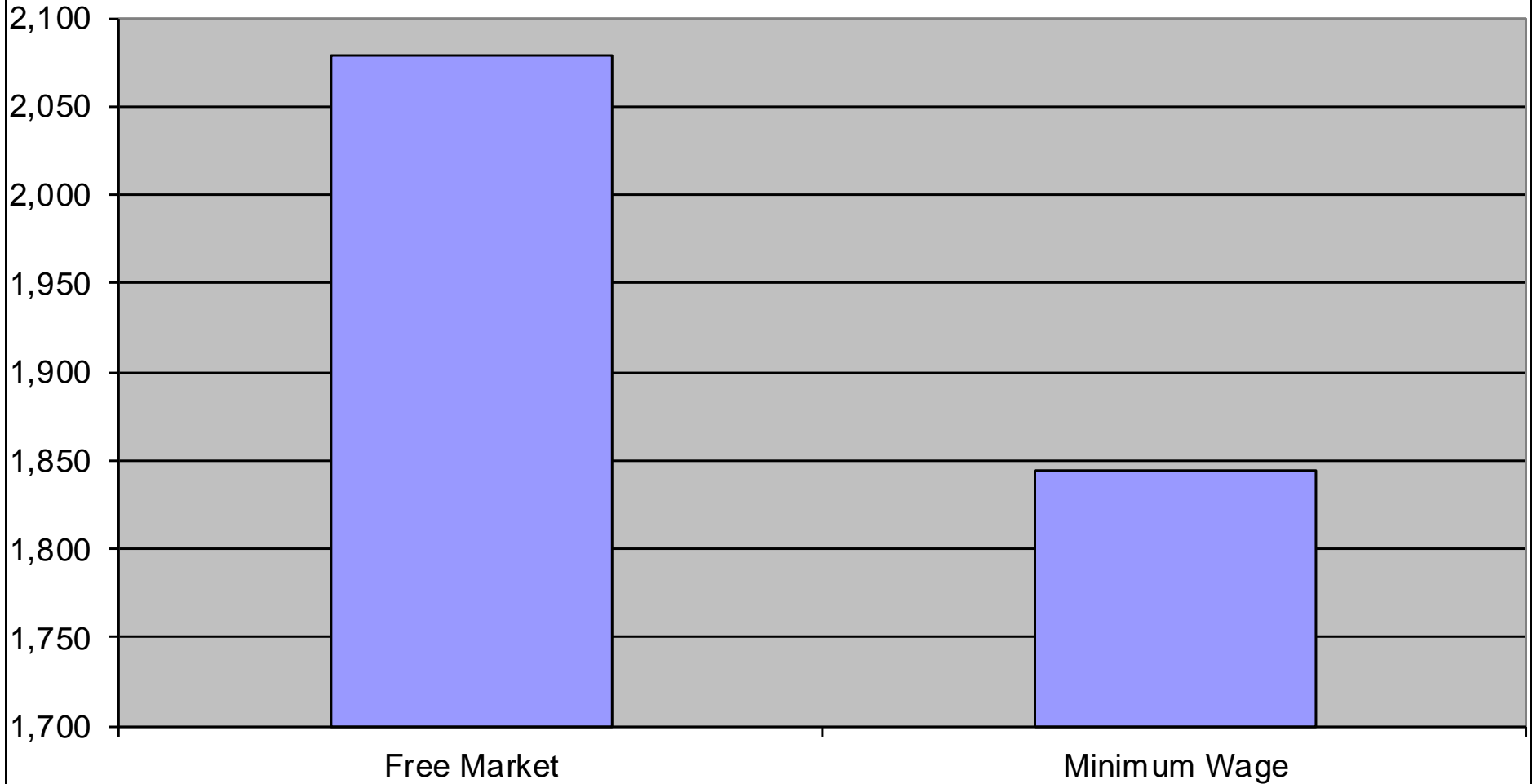
What effect do you believe the minimum wage has on unemployment rates?

# Unemployment Rate



What effect do you believe the minimum wage has on production (GDP)?

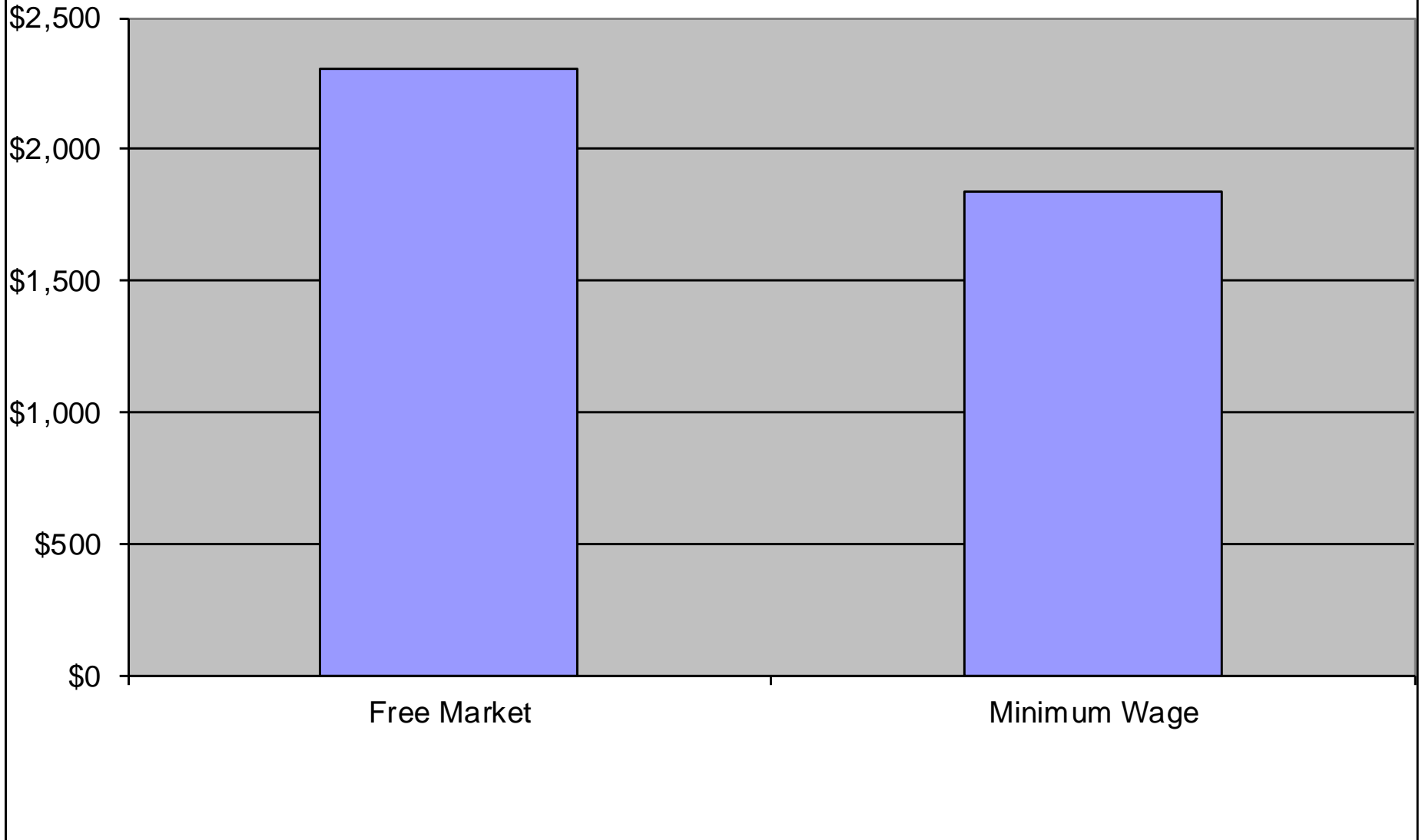
## Units of Output Produced (all firms combined)



What effect do you believe the minimum wage has on firms' profits?

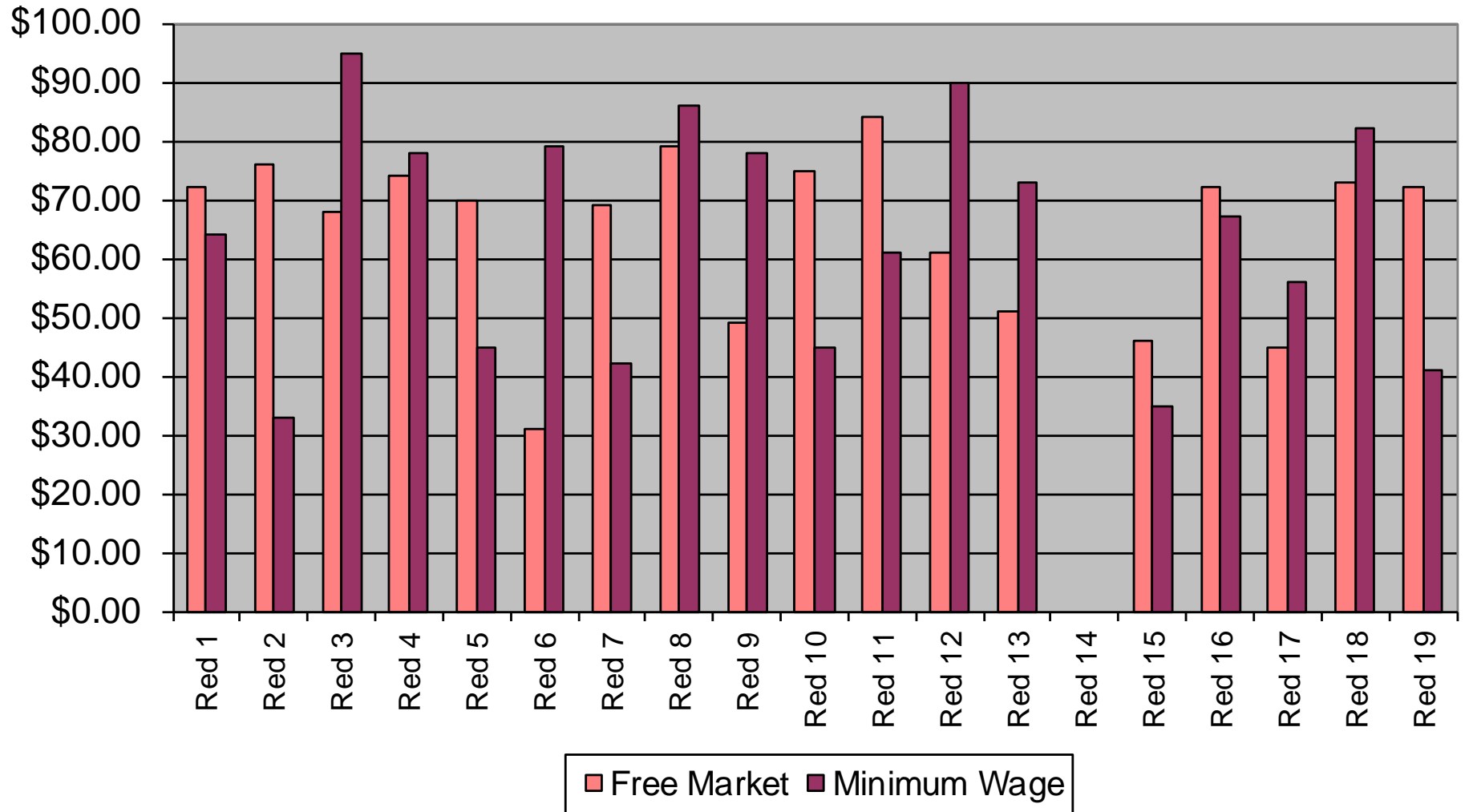


# Total Profits (all firms combined)

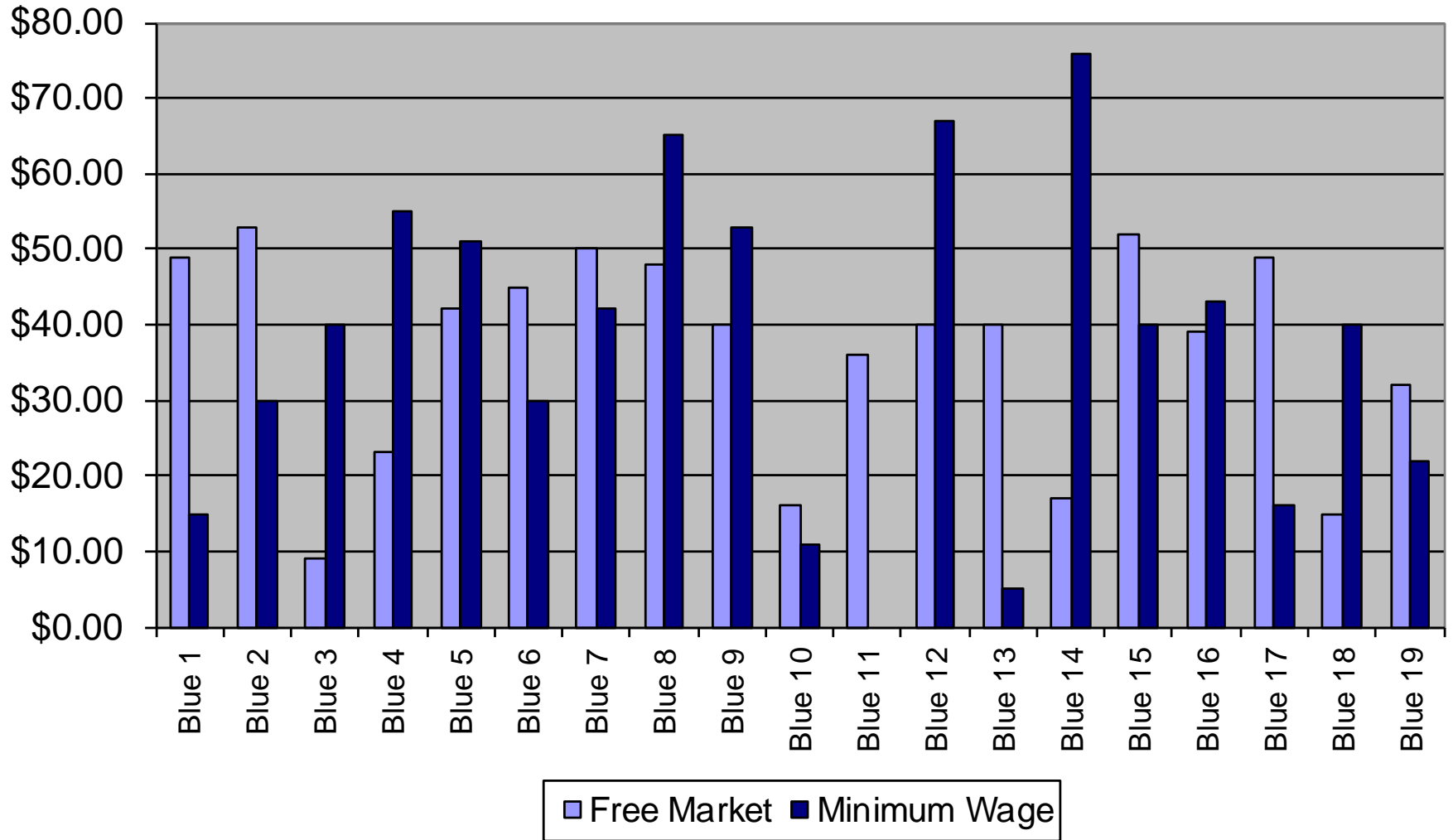


Did the minimum wage make anyone better off?

# Red Worker Wage Income



# Blue Worker Wage Income



# Why Doesn't the Minimum Wage Work?

How do you cure a fever?

Prices are not levers that set value, they are metrics that respond to value.

Price controls fail on two counts:

- legislating price does not legislate value,
- legislating price prevents price from signaling value.

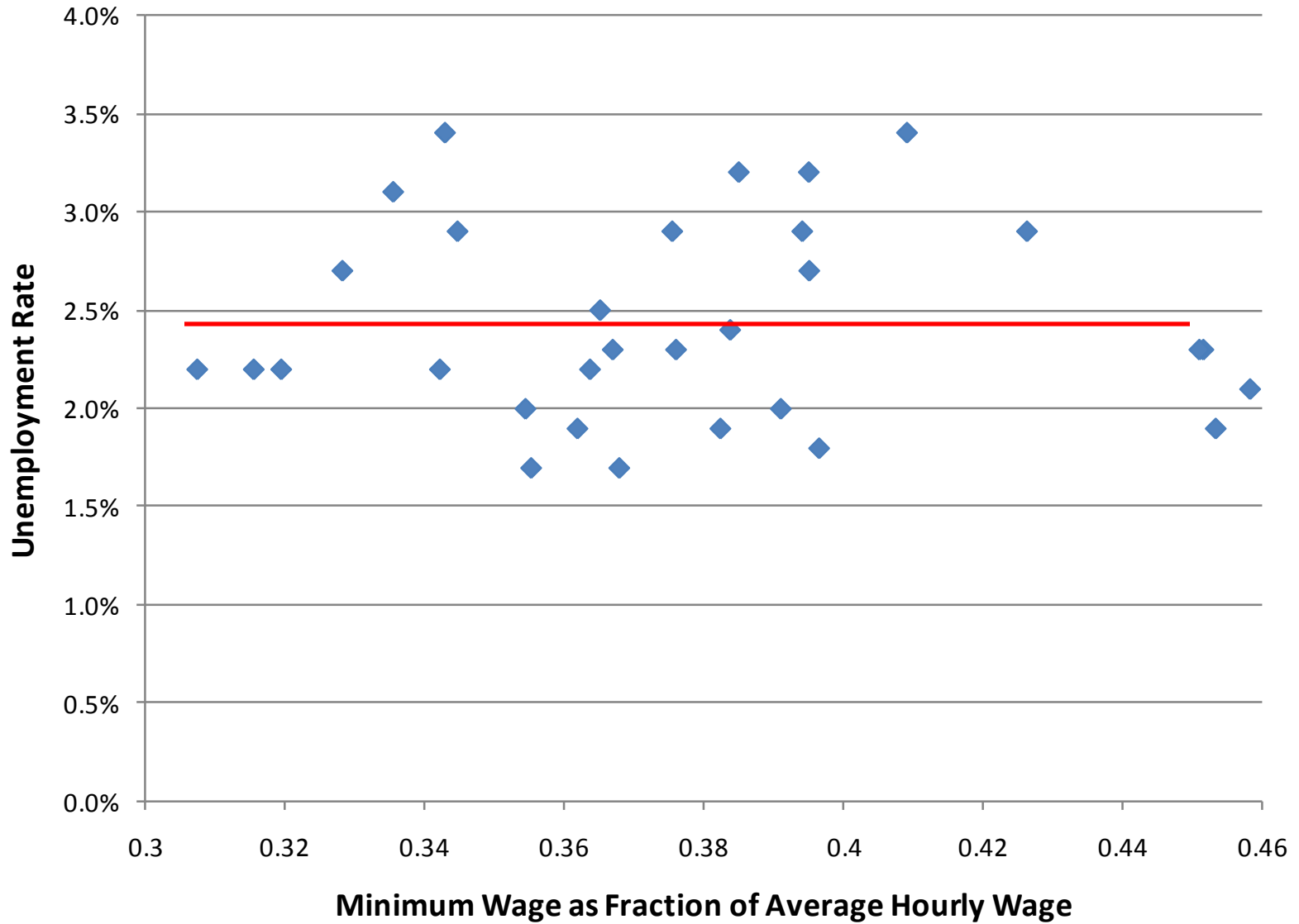
# **How to Pay for a Minimum Wage**

Three ways to pay for an increased minimum wage.

1. Raise prices.
2. Reduce profits.
3. Layoff workers.

Is this true?

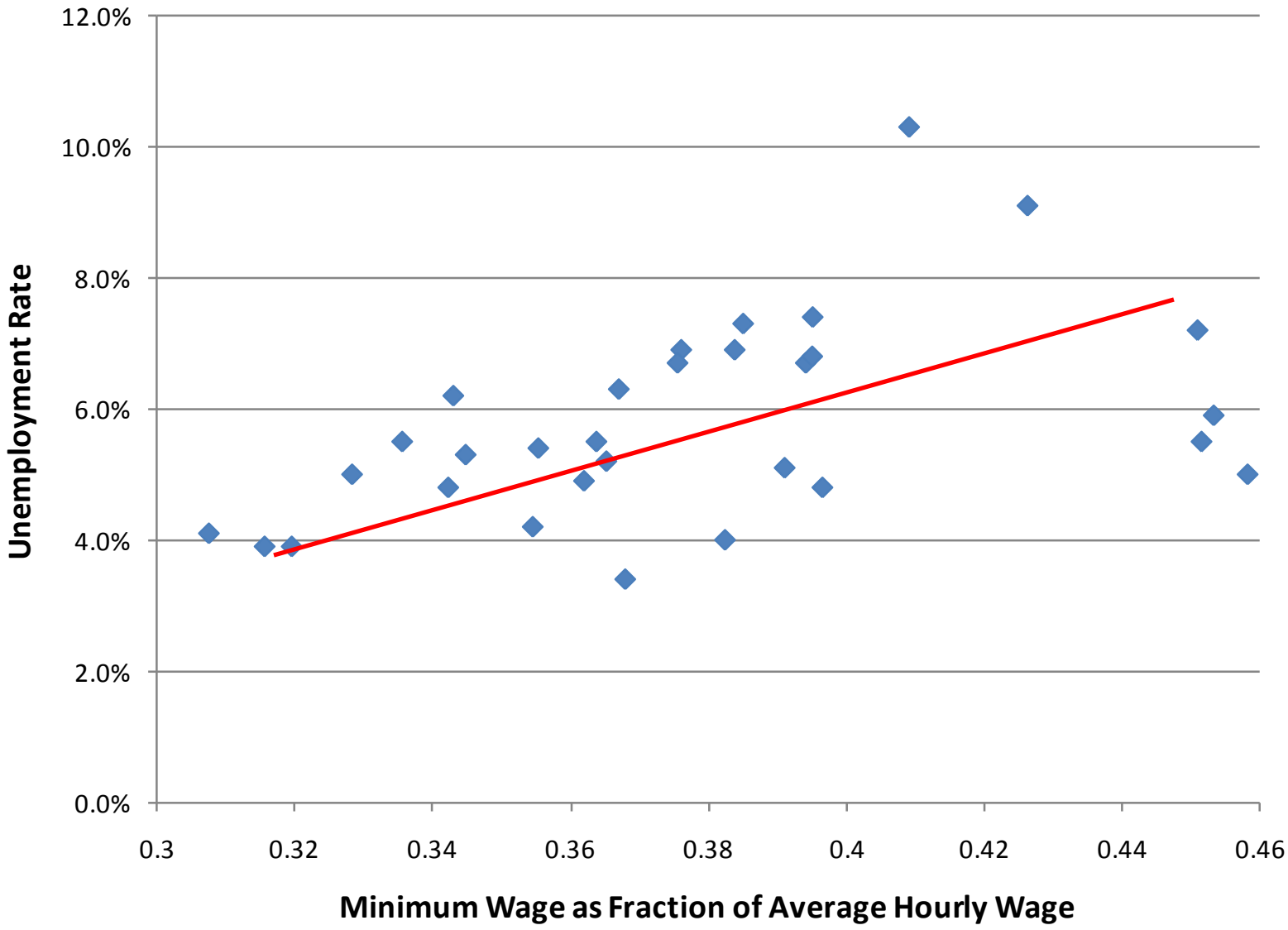
# College Education (1978-2008)



Data sources: Statistical Abstract of the United States, and Bureau of Labor Statistics



# HS Education (1978-2008)



Data sources: Statistical Abstract of the United States, and Bureau of Labor Statistics

## Less than HS Education (1978-2008)



Data sources: Statistical Abstract of the United States, and Bureau of Labor Statistics

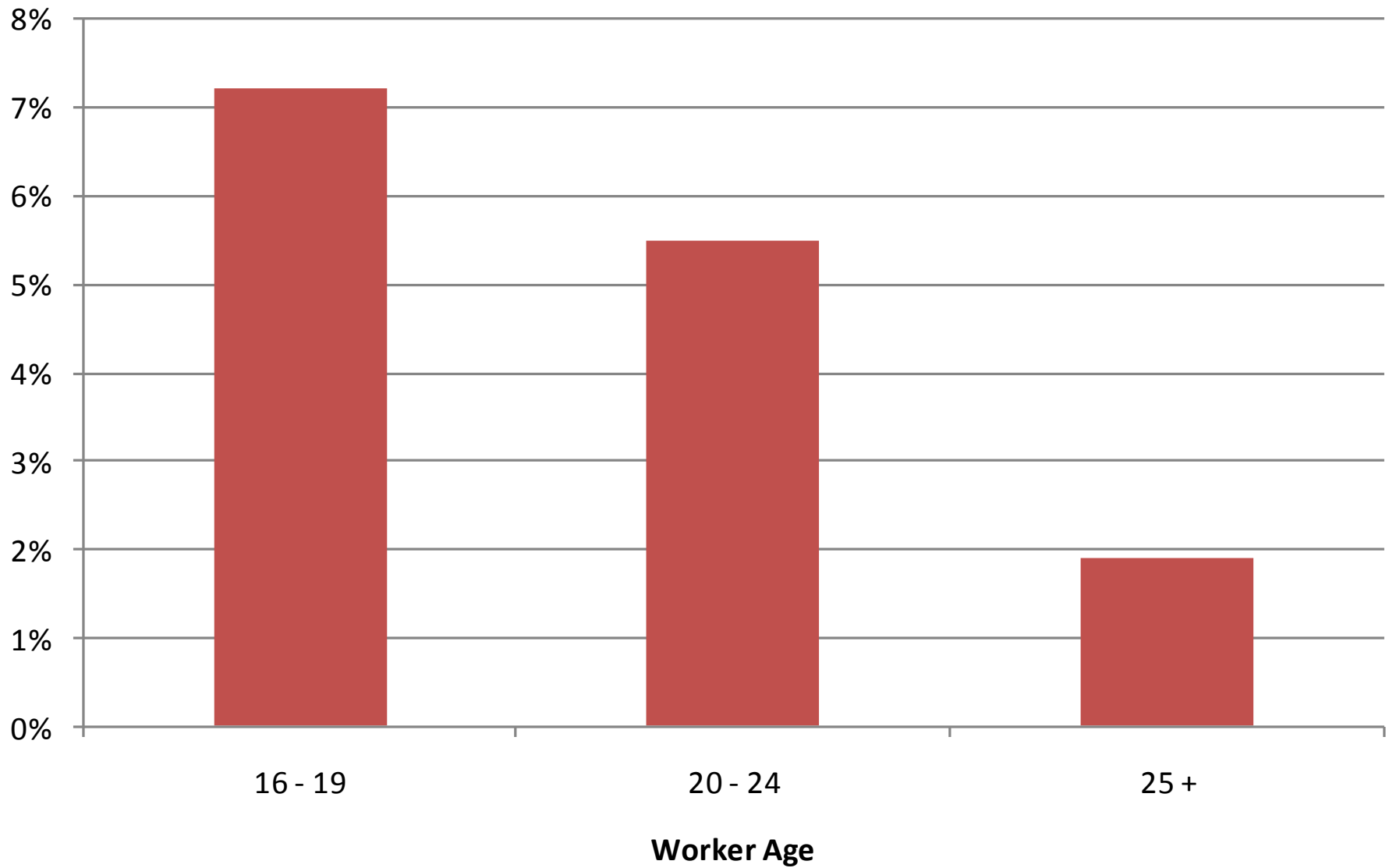
But, we have to do something!

Look at how many people earn the minimum!

What percentage of US workers earn the minimum wage?

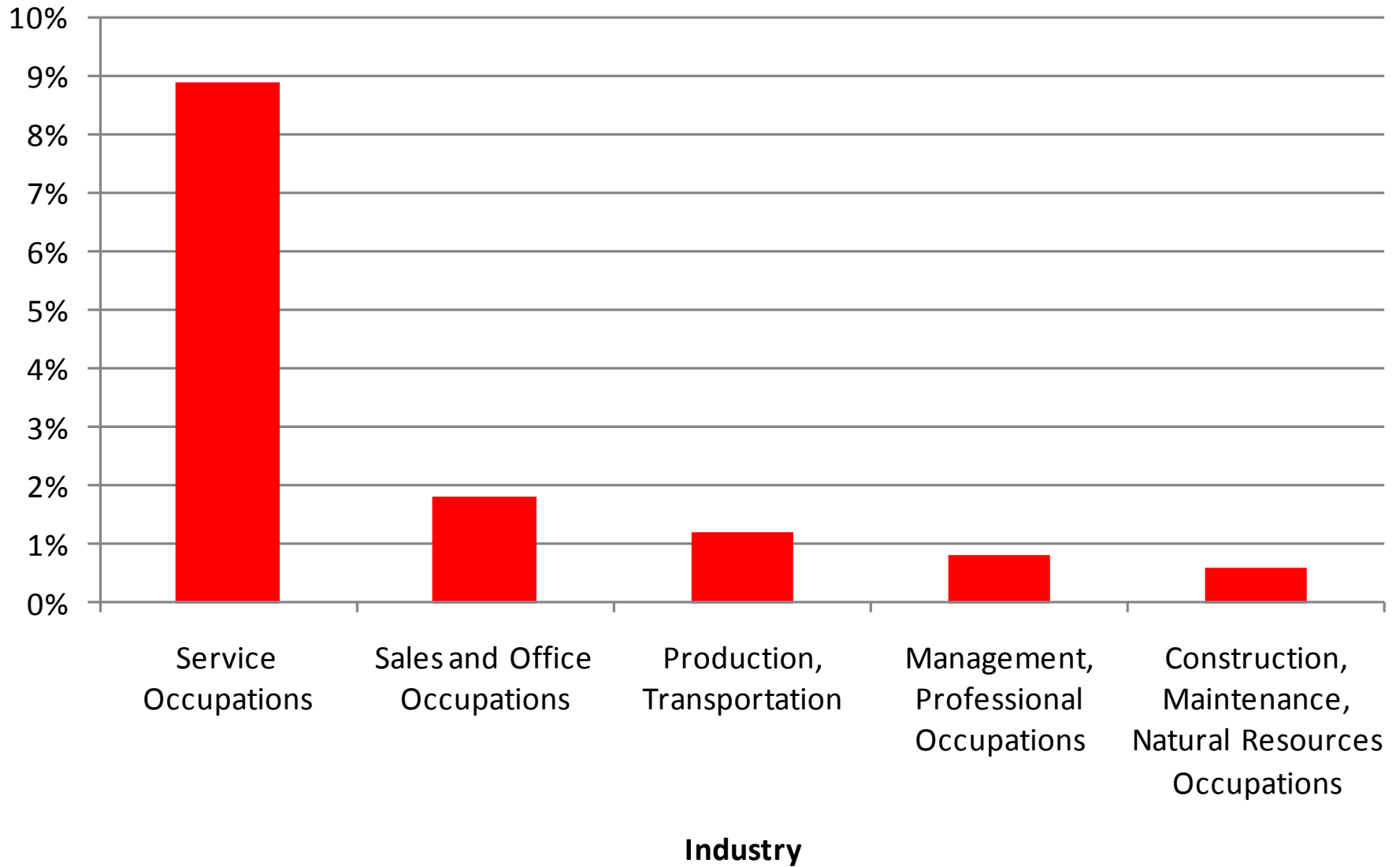
- a. 50%
- b. 30%
- c. 25%
- d. 10%
- e. 5%

# % of Hourly Workers Earning Minimum Wage or Less



Data source: Bureau of Labor Statistics, 2008

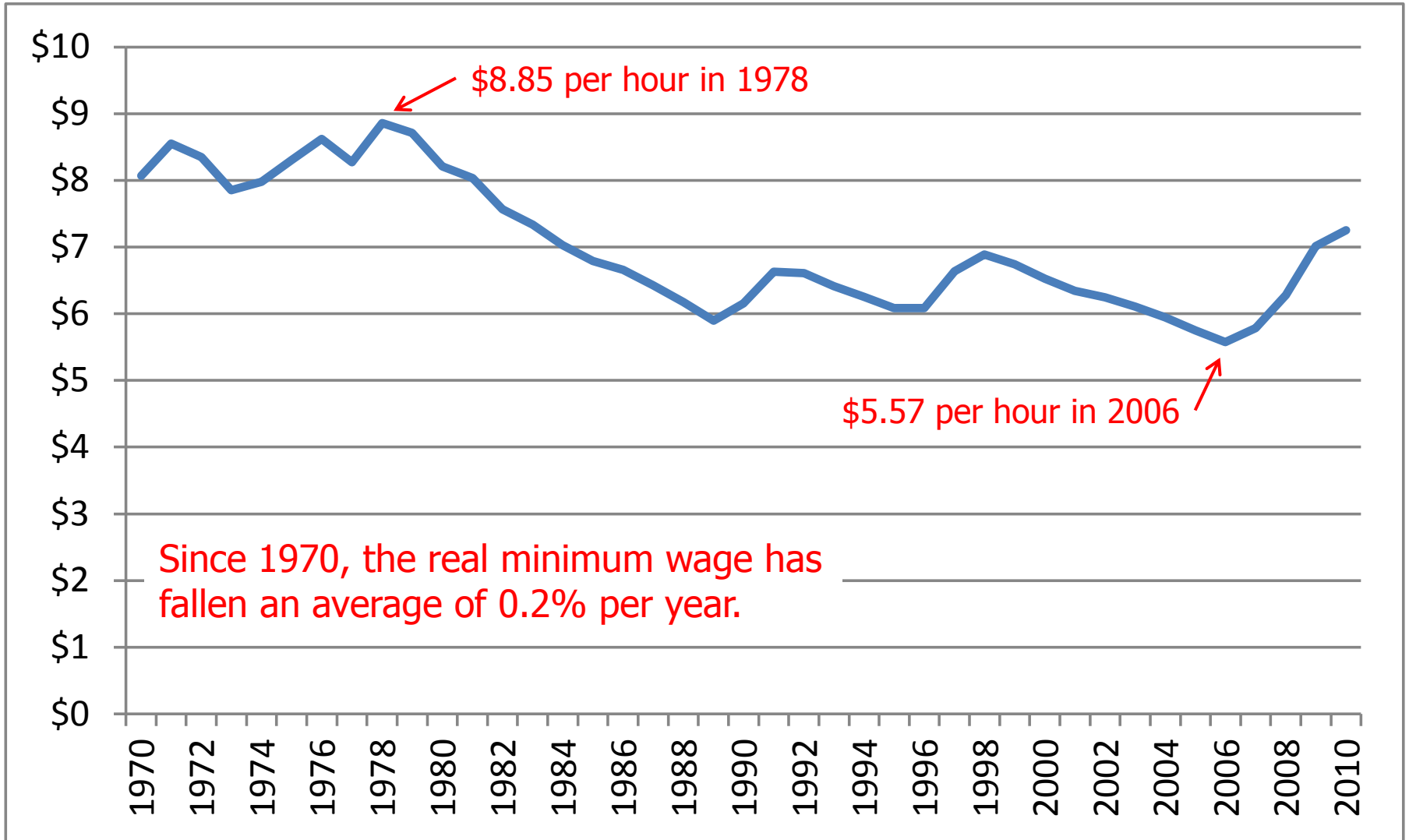
# % of Hourly Workers Earning Minimum Wage or Less



Data source: Bureau of Labor Statistics, 2008

What has the minimum wage been over time?

# Minimum Wage (2010\$)



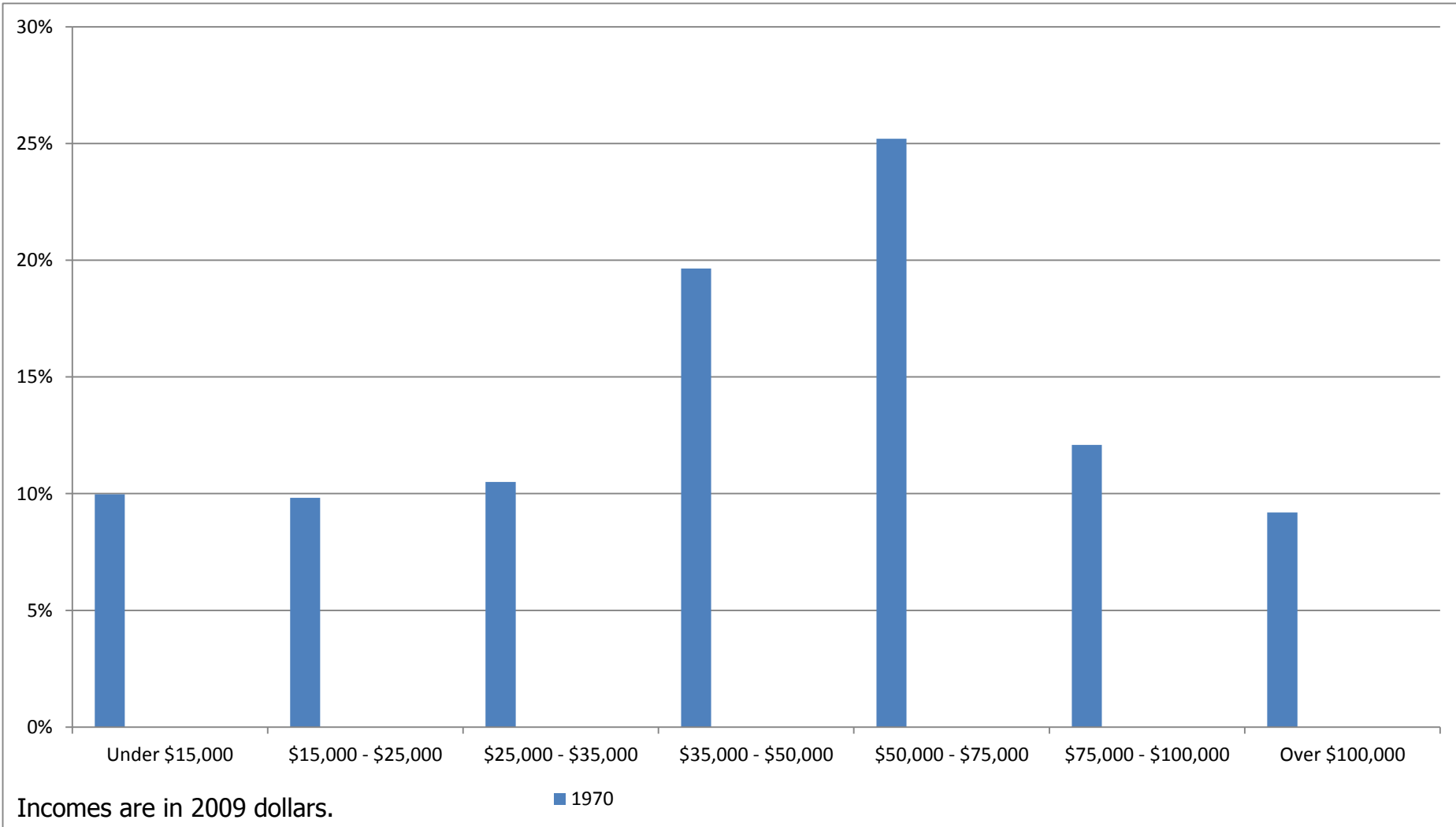
Data source: Bureau of Labor Statistics, 2011



We have to do something!

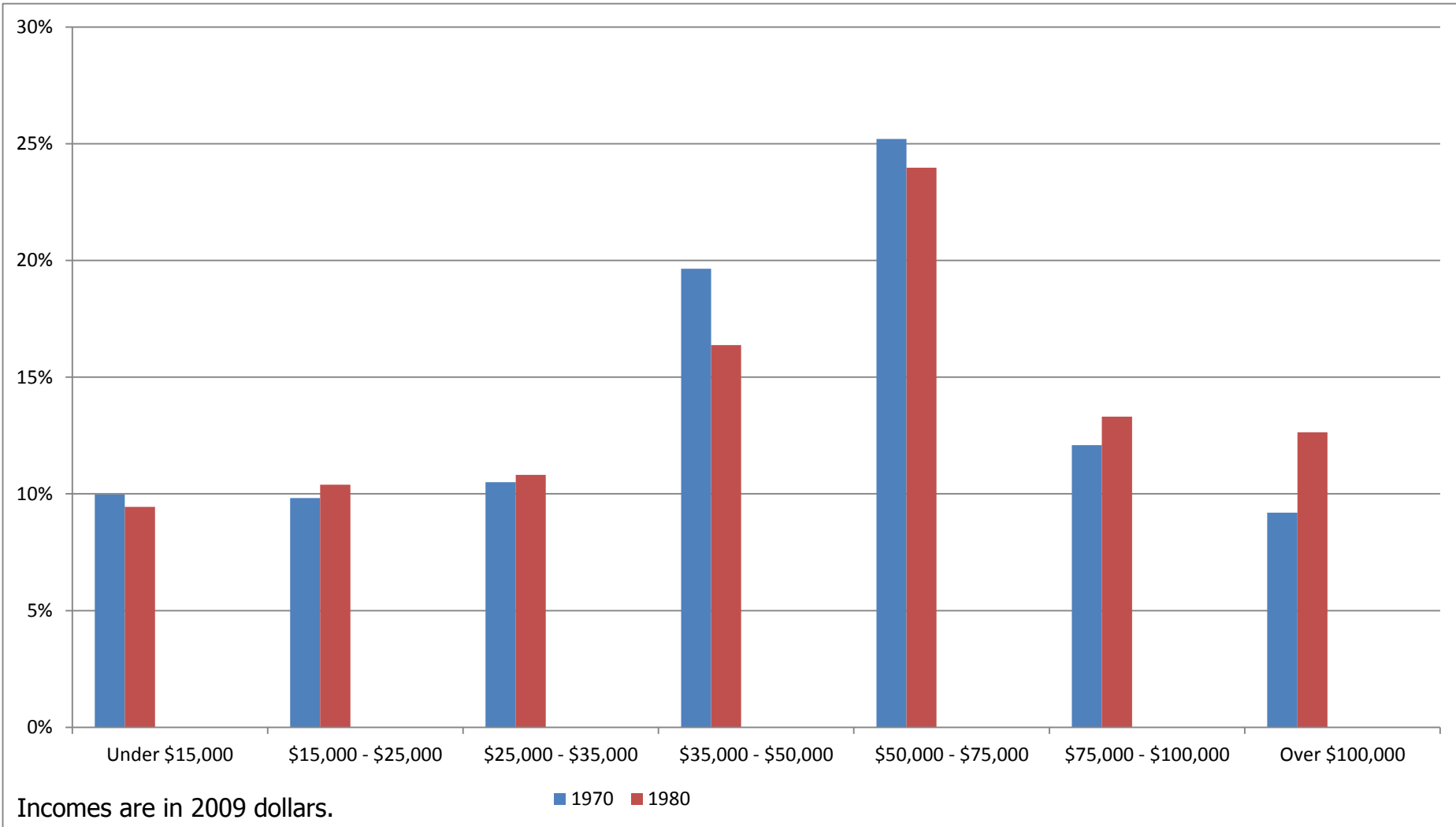
The rich are getting richer while the poor get poorer!

# U.S. Households According to Income



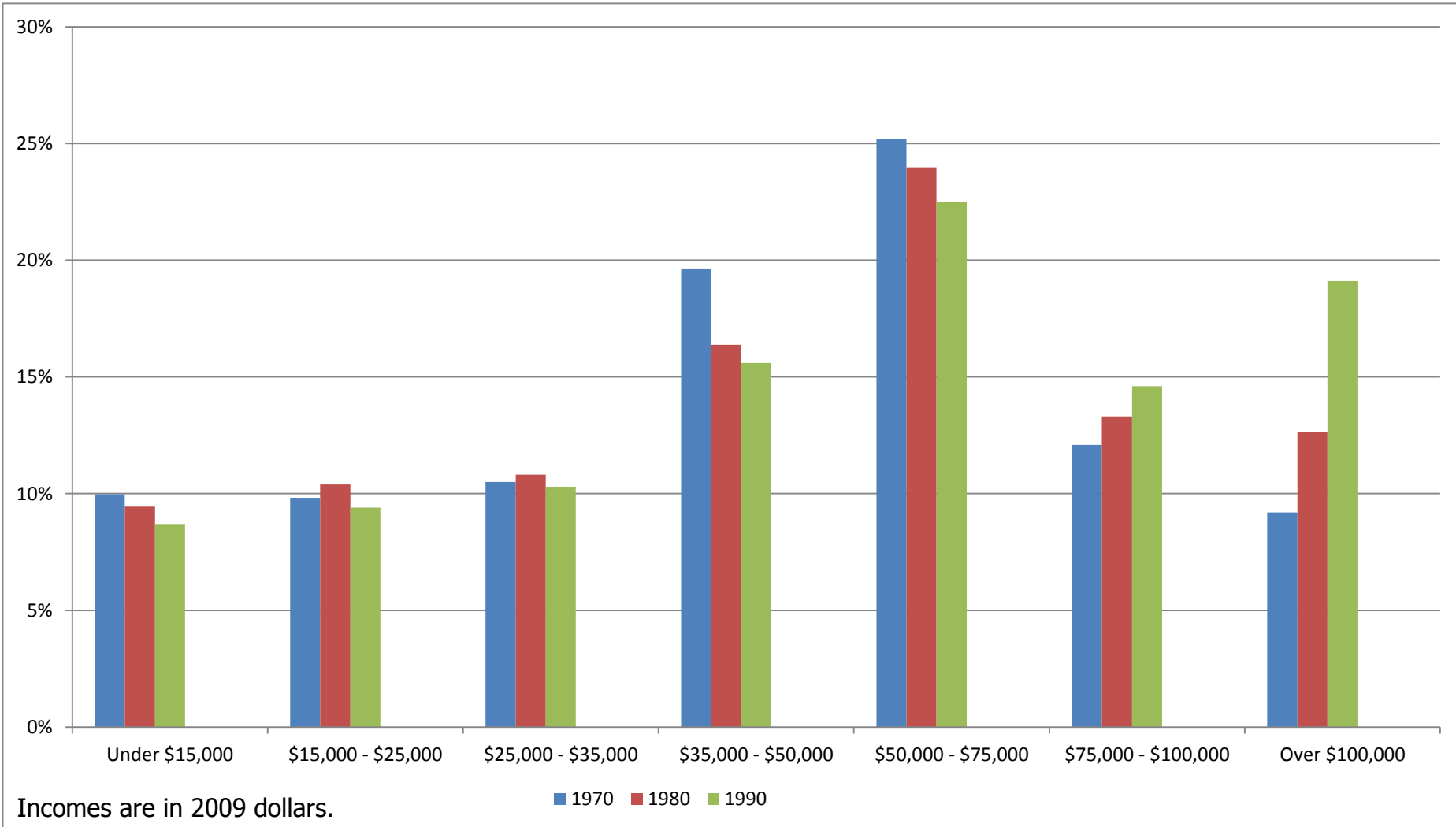
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 1995-2012.

# U.S. Households According to Income



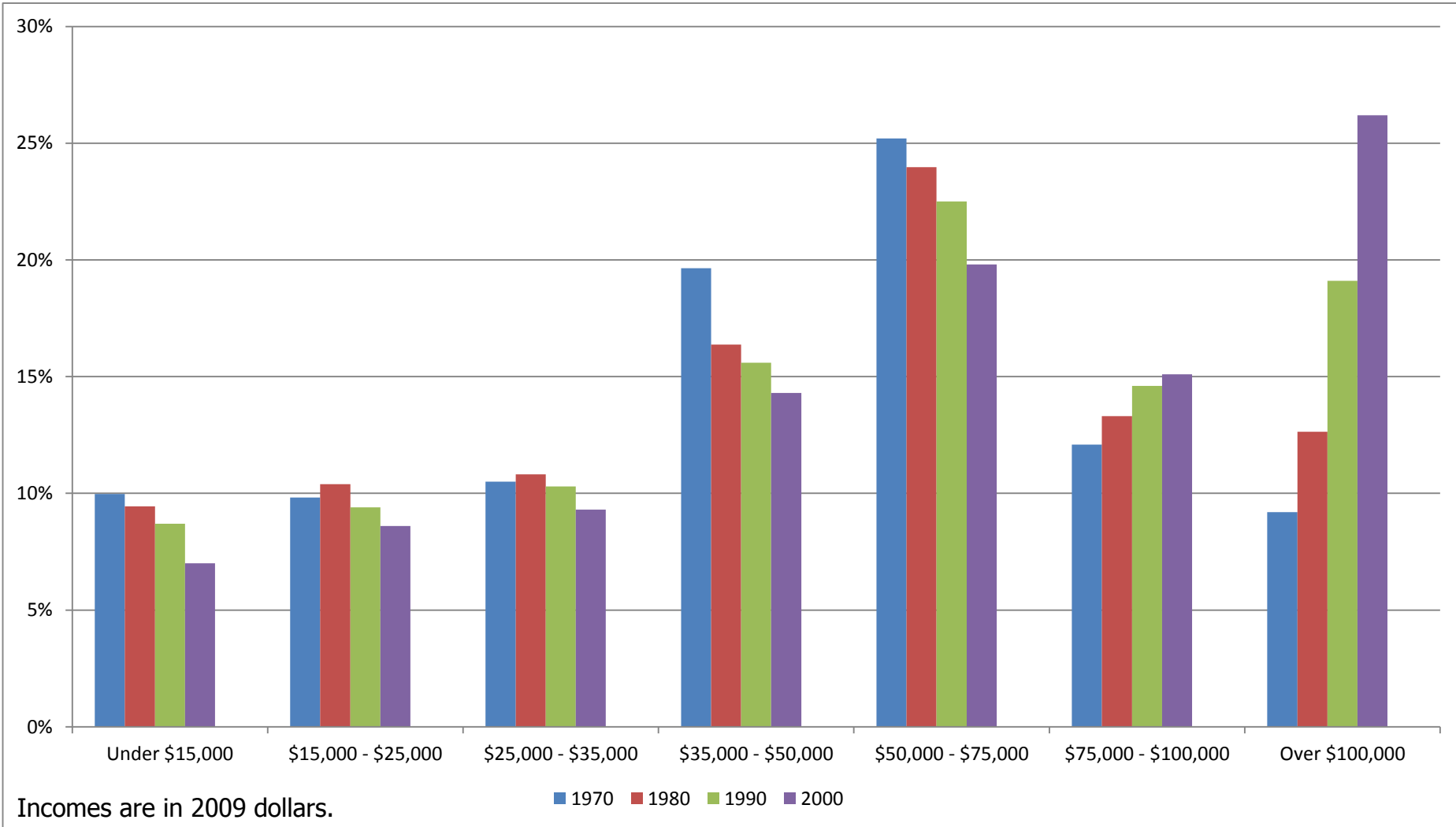
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 1995-2012.

# U.S. Households According to Income



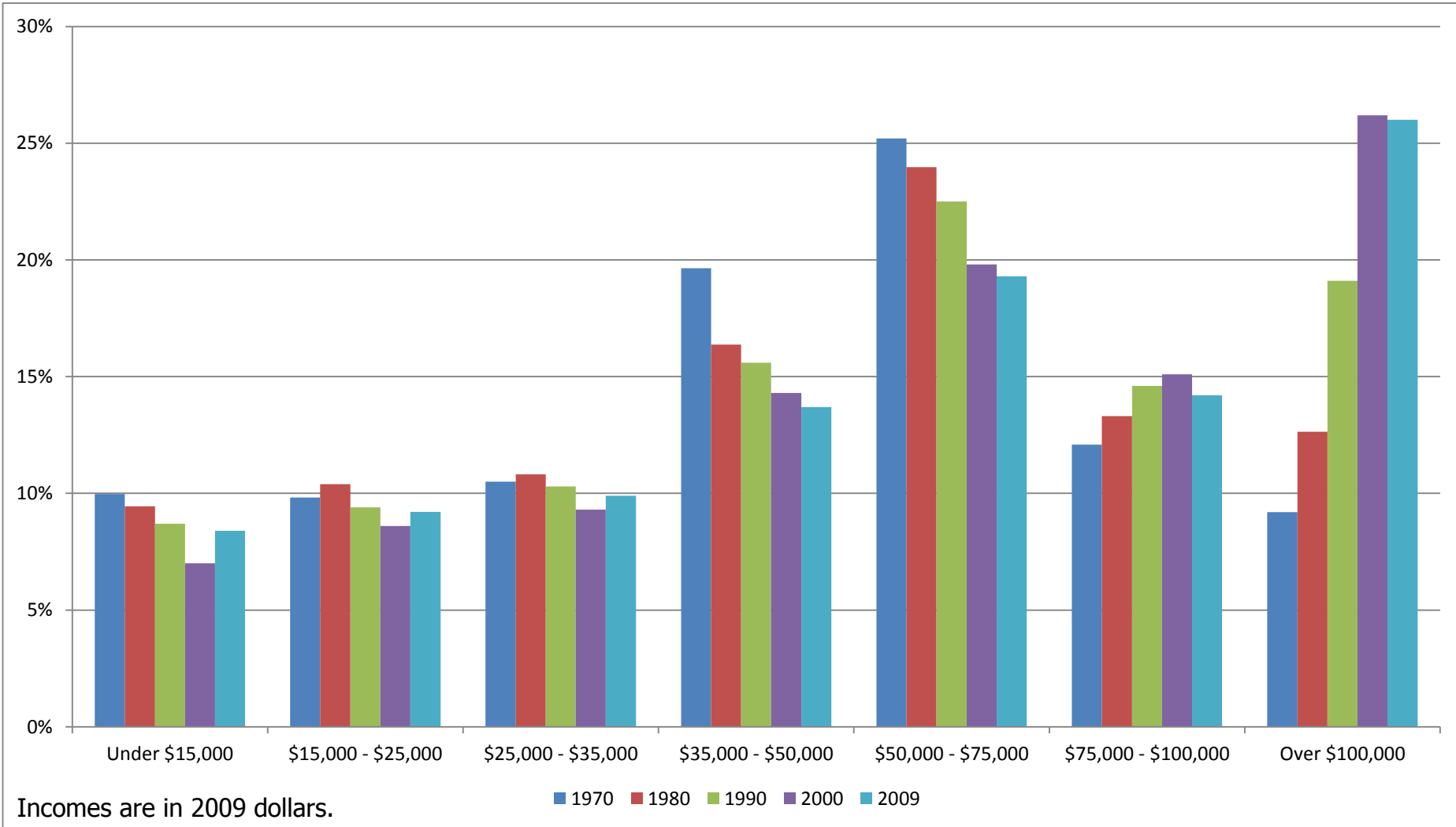
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 1995-2012.

# U.S. Households According to Income

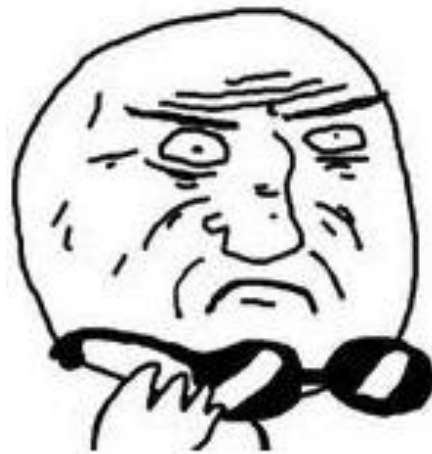


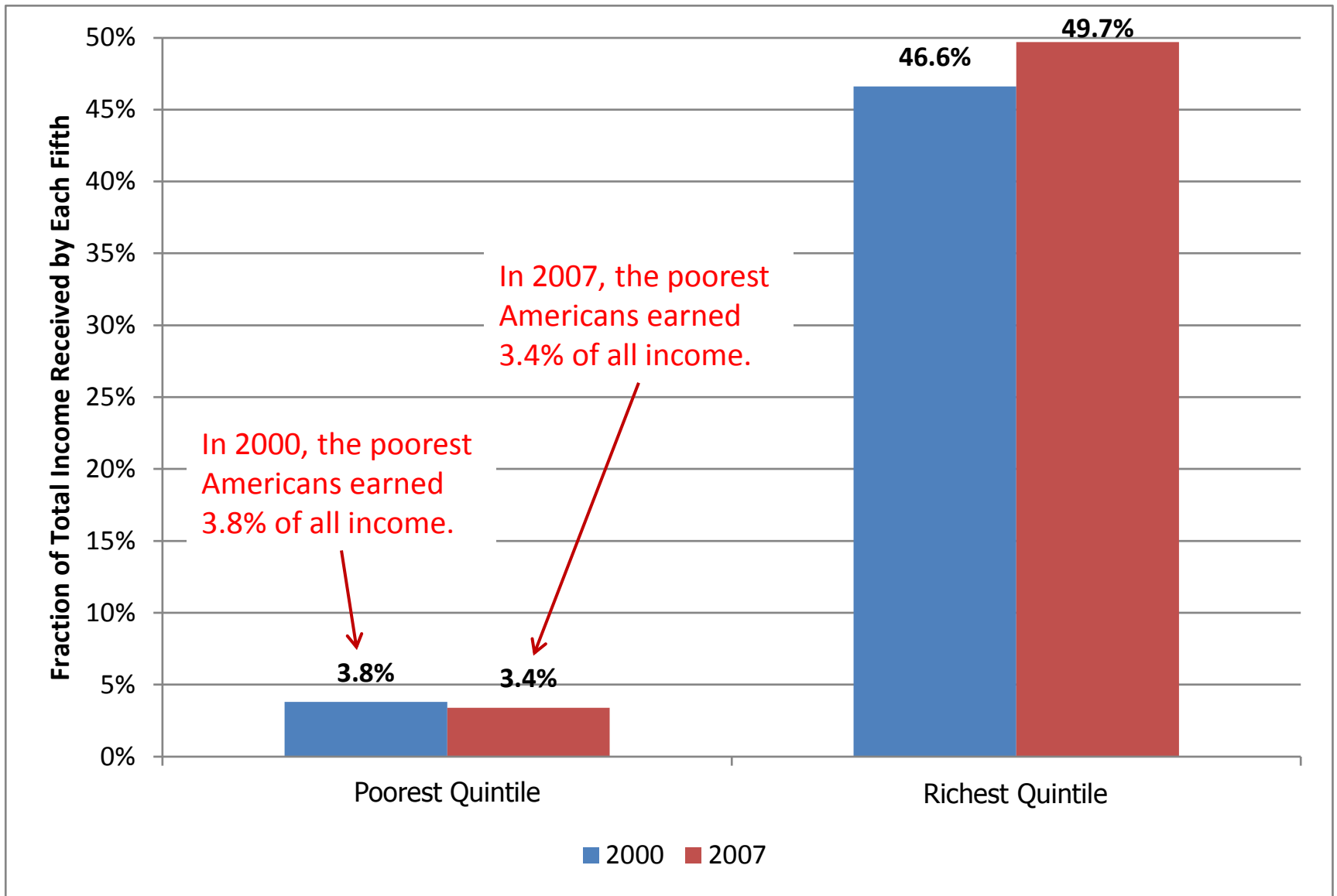
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 1995-2012.

# U.S. Households According to Income



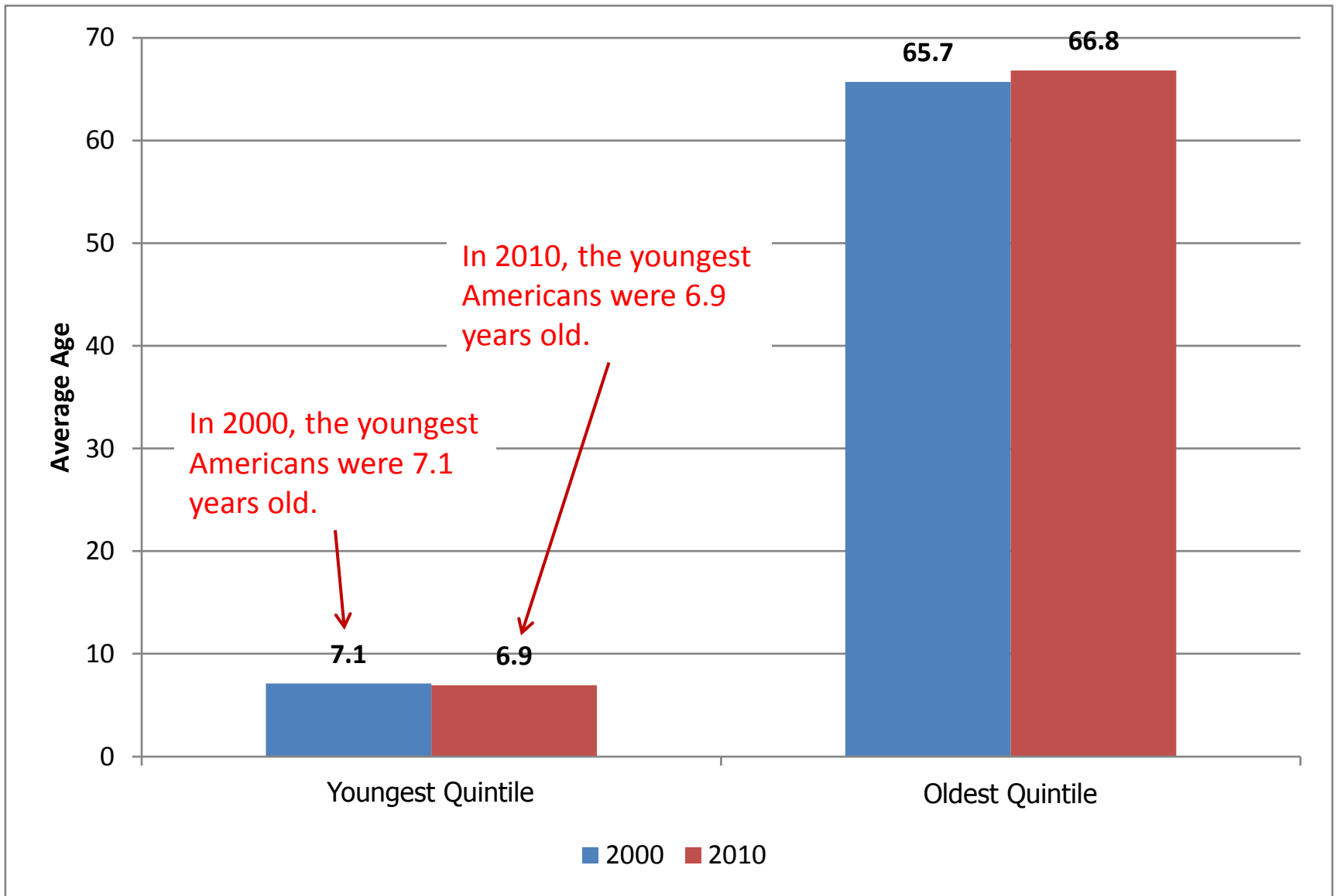
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 1995-2012.





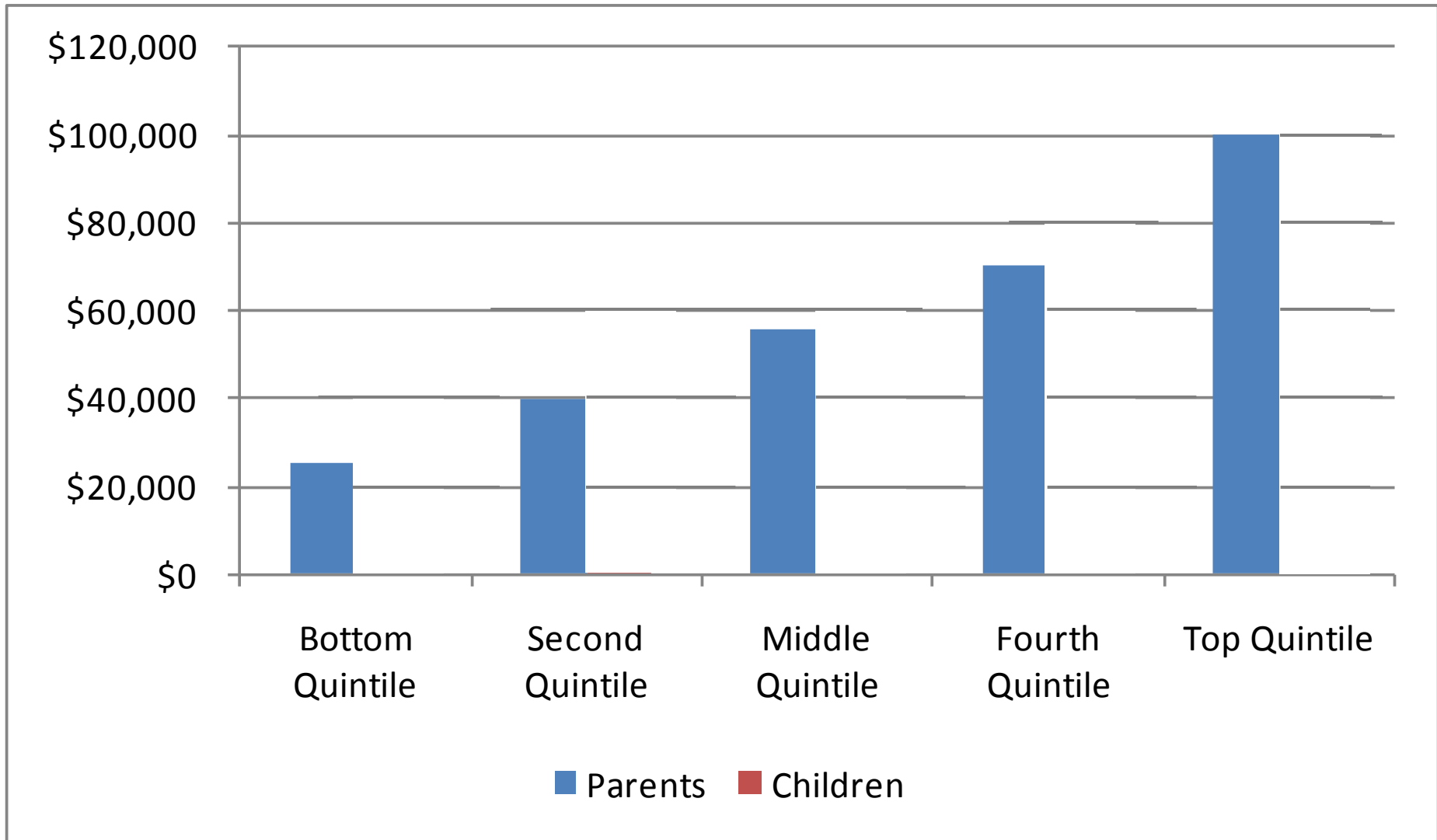
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 2010, Table 678.





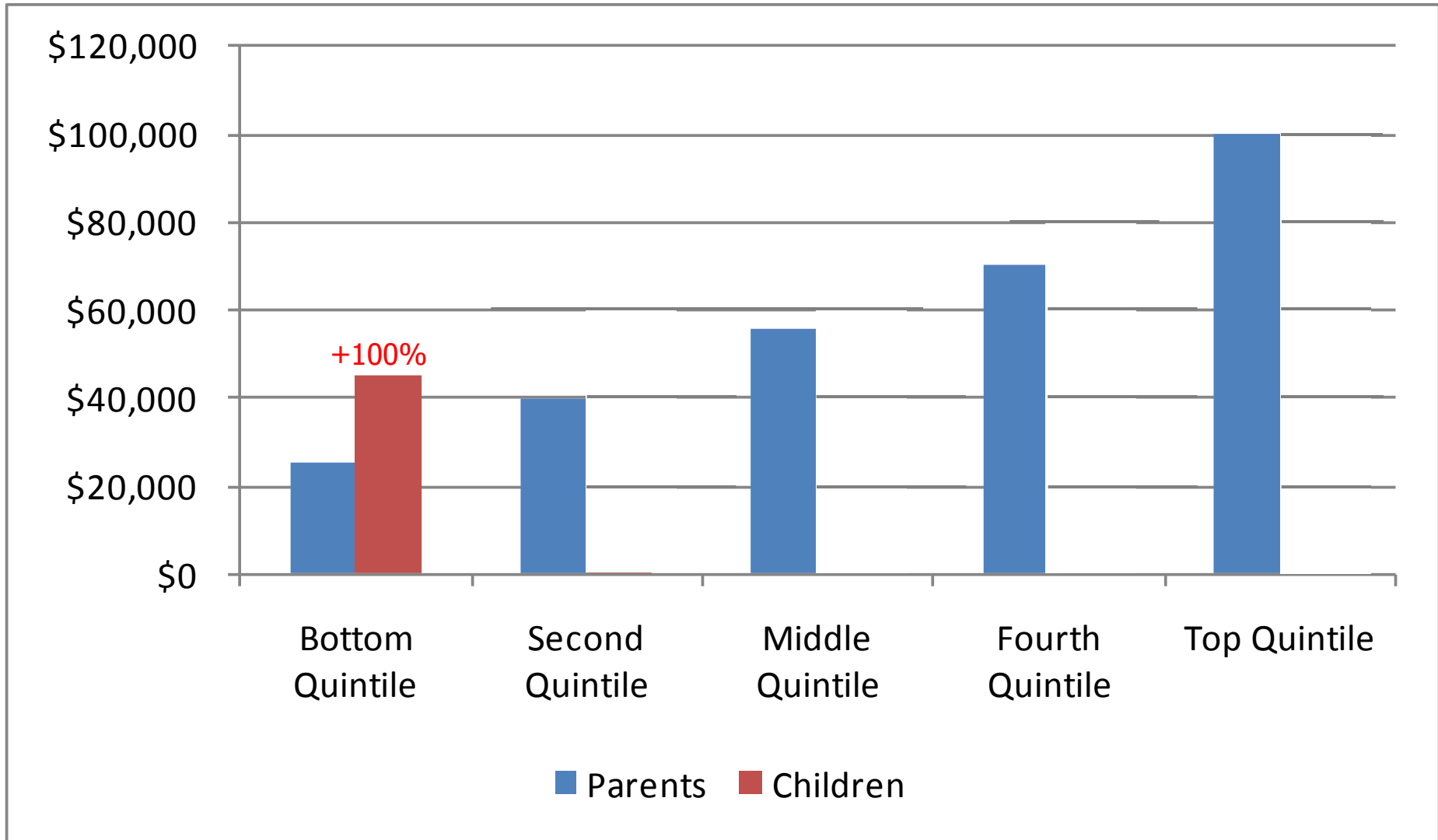
Data source: Statistical Abstract of the United States, U.S. Bureau of the Census, 2010, Tables 8, 9.

# Median Income Within Each Quintile (2006\$)



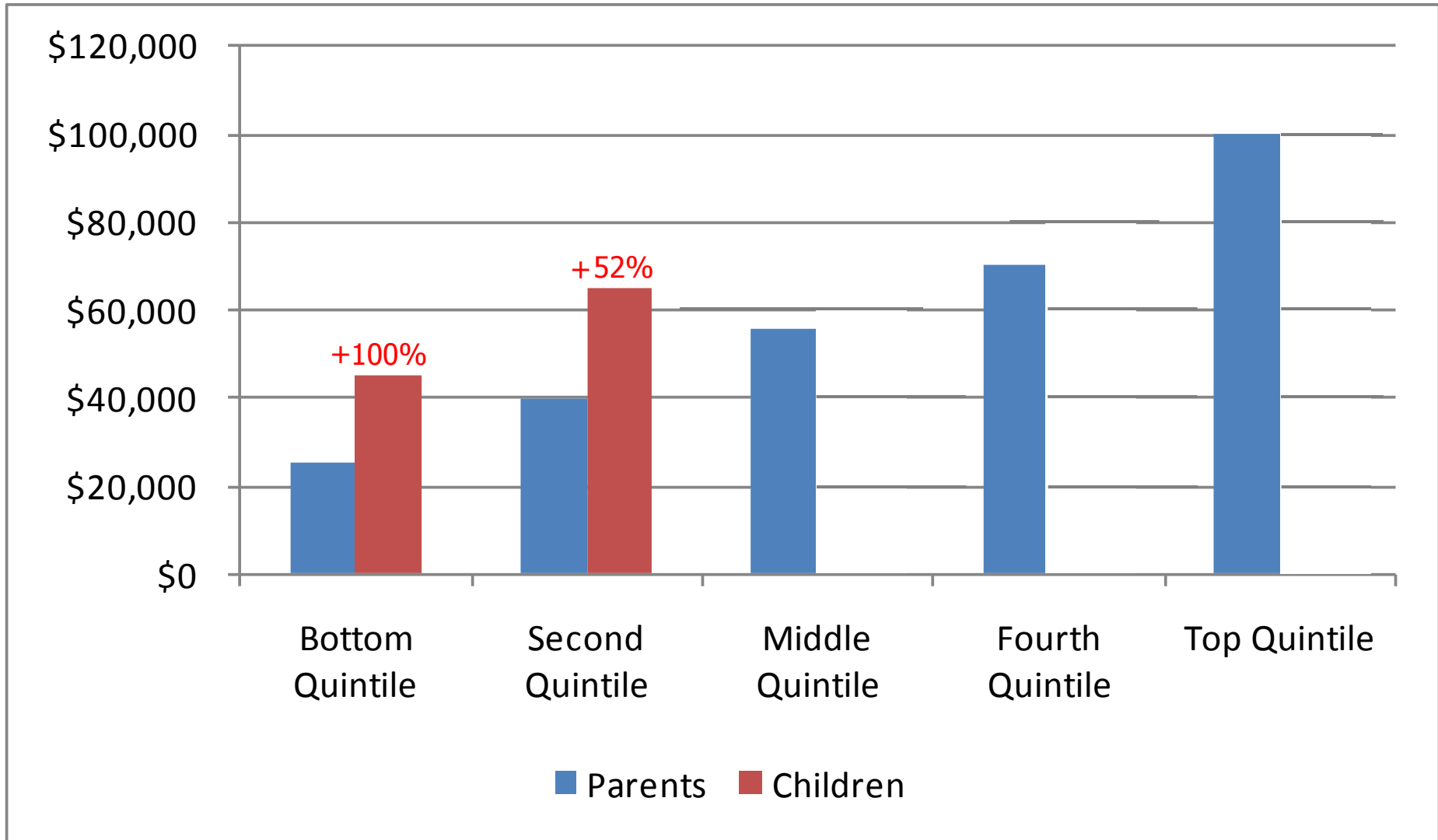
Source: Pew Economic Mobility Project

# Median Income Within Each Quintile (2006\$)



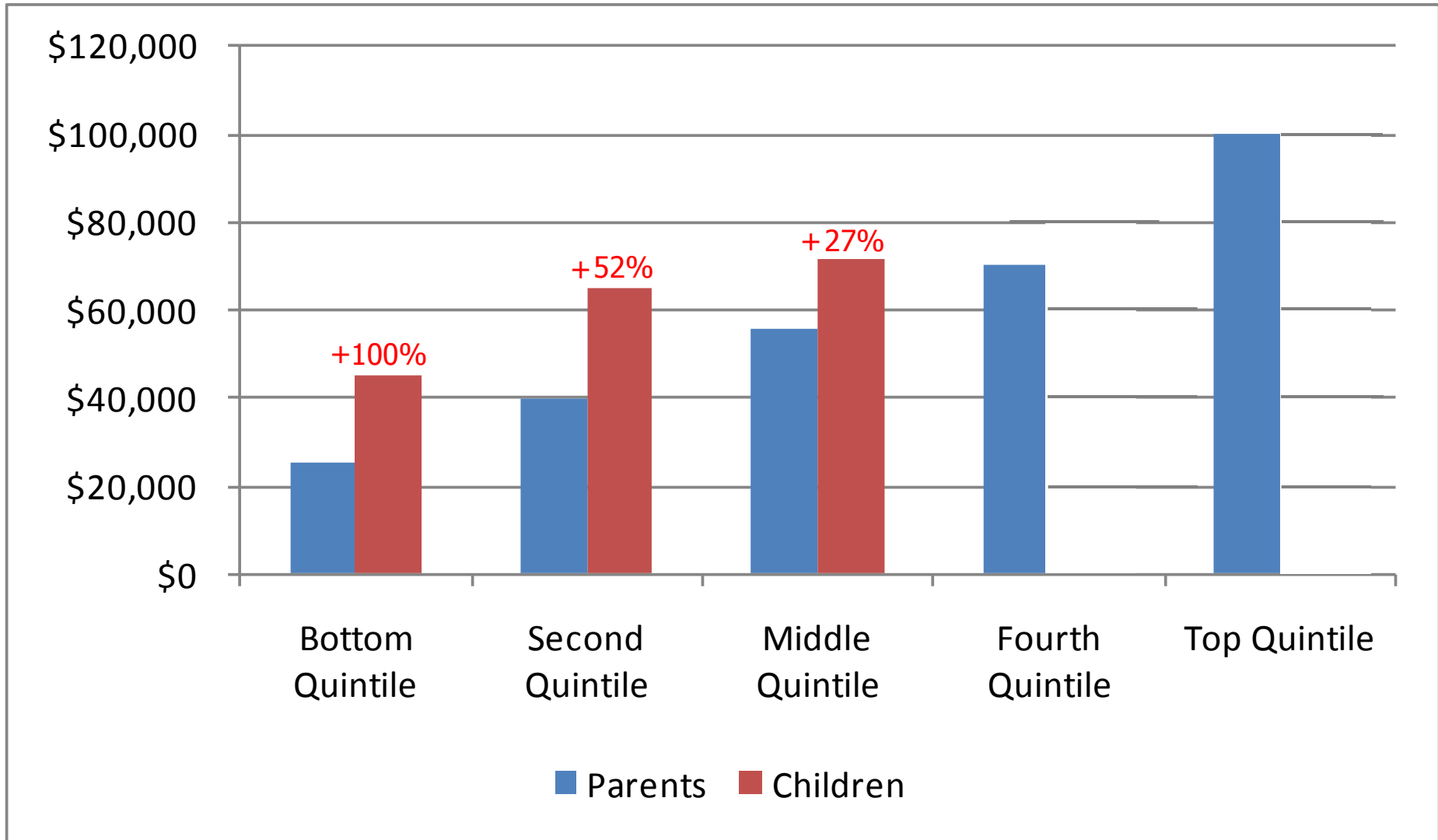
Source: Pew Economic Mobility Project

# Median Income Within Each Quintile (2006\$)



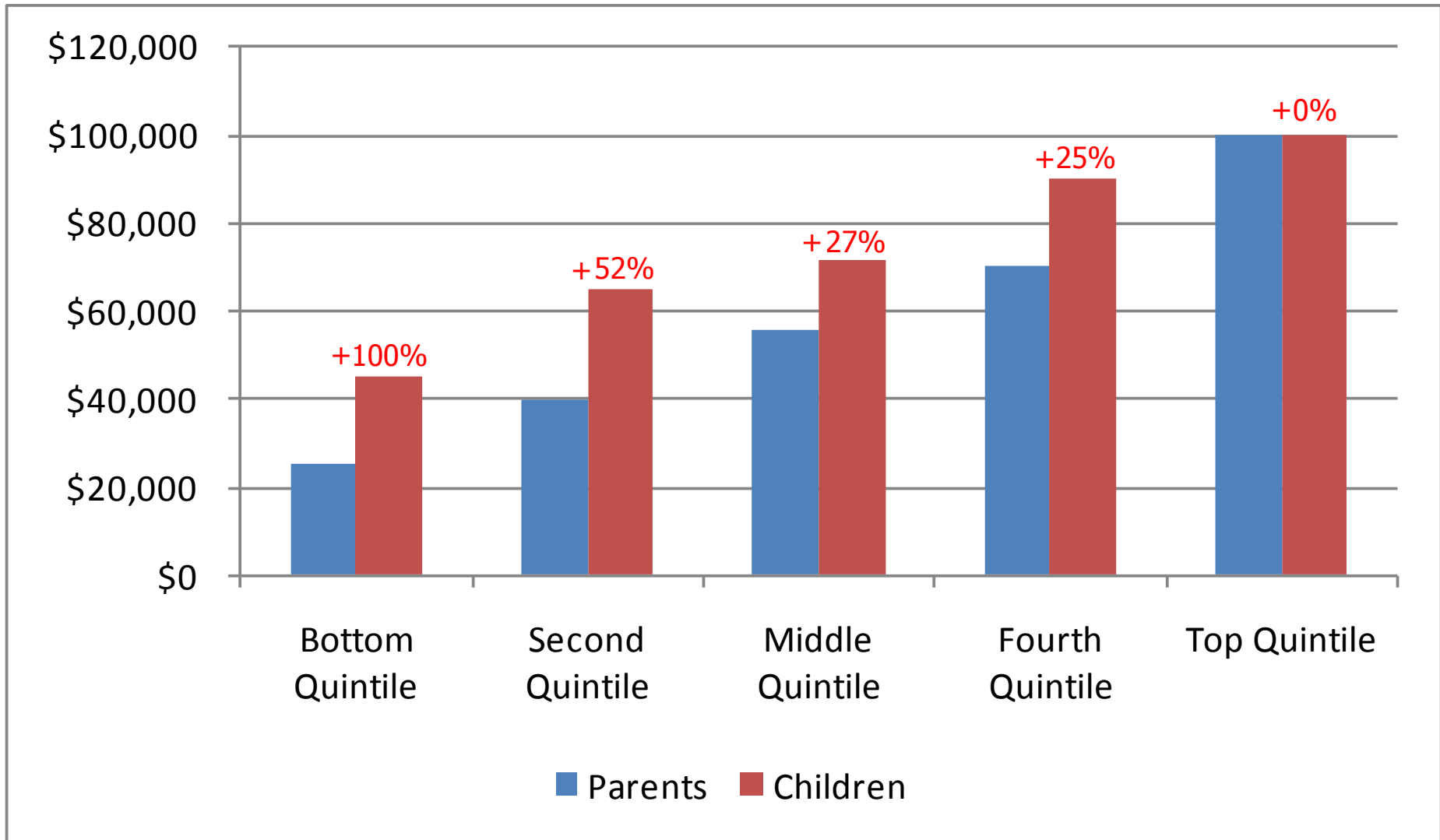
Source: Pew Economic Mobility Project

# Median Income Within Each Quintile (2006\$)



Source: Pew Economic Mobility Project

# Median Income Within Each Quintile (2006\$)



Source: Pew Economic Mobility Project

People argue for the minimum wage saying that the poor are getting poorer.

Not only are the poor getting richer, but the minimum wage prevents them from getting richer faster.

It's not just the minimum wage that hurts the  
poor.

Our welfare system as a whole encourages  
poverty.



# Implicit Marginal Tax Rates

$$1 - (\text{change in after-tax and after-subsidy income}) / (\text{change in earned income})$$



## Closing thoughts

In 2007, Congress applied minimum wage law to American Samoa. The average wage was \$3.26 before the minimum wage of \$7.25.

Chicken of the Sea moved its labor-intensive canning operations from Samoa to an automated plant in Georgia.

This created 200 jobs in Georgia but destroyed 2,000 jobs (more than 10% of all jobs) in Samoa.

## Closing thoughts

In apartheid South Africa, white unions were major supporters of minimum wages for black workers.

*“The method would be to fix a minimum rate for an occupation or craft so high that no Native would likely be employed.”*

– South African Economic and Wage Commission, 1925

## Closing thoughts

During the Great Depression, politicians tried to force black workers out of the labor market so that more jobs would go to white workers.

*“With the [minimum wage]...the white man will receive a wage which will enable him to accept the job which the poor Negro has been filling in the South, because the wage will now be sufficiently high...so that the poor negro who has been having the labor job heretofore will be out of luck.”*

- Sen. Theodore Bilbo (D, MS) speaking on the effect of the National Industrial Recovery Act of 1933.

## Closing thoughts

In the US, following a strike by railroad workers, an arbitration board decreed that blacks and whites were to be paid equal wages.

*"If this course of action is followed by the company and the incentive for employing the Negro thus removed, the strike will not have been in vain."*

– Brotherhood of Locomotive Firemen, 1909

## Conclusions

1. The poor are getting richer.
2. The minimum wage prevents disadvantaged workers from competing for jobs.
3. The welfare system encourages people to remain poor.

# **Minimum Wage**

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