

# The Tax-Transfer System and Labour Supply

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# Why Labour Supply Matters for Design of the Tax System

- “Optimal Taxation” – Basic Ideas:
- (1) Government needs to raise a certain amount of money to pay for government programs, public goods, etc.
- (2) Taxation causes people to work less. This leads to an efficiency or welfare loss. (The whole pie gets smaller).

# Why Labour Supply Matters for Design of the Tax System

- How bad is this “Shrinking Pie” problem?
- It depends how much people reduce their labour supply if you tax them.
- Basic Solution of the “Optimal Tax” literature:  
Tax people more if their labour supply is “inelastic”
- That is, tax people more if they won’t reduce their work effort much when you tax them.

# Why Labour Supply Matters for Design of the Tax System

- E.g., Saez, Slemrod and Giertz (2009) give the following simple formula for the revenue maximizing top bracket tax rate:

$$T = \frac{1}{1 + a \cdot e}$$

- $e$  = the labour supply elasticity (% decline in work for 1% increase in tax rate)
- $a$  = an (inverse) measure of the amount of income dispersion within the top bracket ( $a \approx 1.6$ )
- Rates higher than  $T$  will reduce revenue

# Why Labour Supply Matters for Design of the Tax System

$$T = \frac{1}{1 + (1.6) \cdot e}$$

Revenue maximizing top rate under different assumptions about  $e$ :

<u><math>e</math></u>	<u><math>T</math></u>
1.0	.38
0.5	.56
0.2	.76

# The Labour Supply Literature

- The clear consensus is that labour supply elasticities are very small:
- Seaz, Slemrod and Giertz (2009):  
“...the profession has settled on a value for this elasticity close to zero ... This implies that the efficiency cost of taxing labour income ... is bound to be low ...”

# The Labour Supply Literature

- There are minor exceptions:
- The Survey by Meghir and Phillips (2008) finds that elasticities are a bit higher for:
  - Married women
  - Lone mothers
  - Low skilled men
- But on the whole the consensus is that labour supply elasticities are quite small

# The Labour Supply Literature

- In my view most of the existing labor supply literature suffers from fundamental flaws that make it a poor guide for setting tax policy
- The key problem is that the literature treats the wage as the “opportunity cost of time”



# Basic Labour Supply Model

$$\frac{MUL(h)}{MUC(h)} = w(1 - T)$$

- As  $h \downarrow$  the  $MUL(h) \downarrow$  and  $MUC(h) \uparrow$
- So as  $h \downarrow$  the left side gets smaller
- If  $T \uparrow$  then the right side falls.
- So  $h$  must fall to maintain the equality
- How much  $h$  must fall is what determines the labour supply elasticity

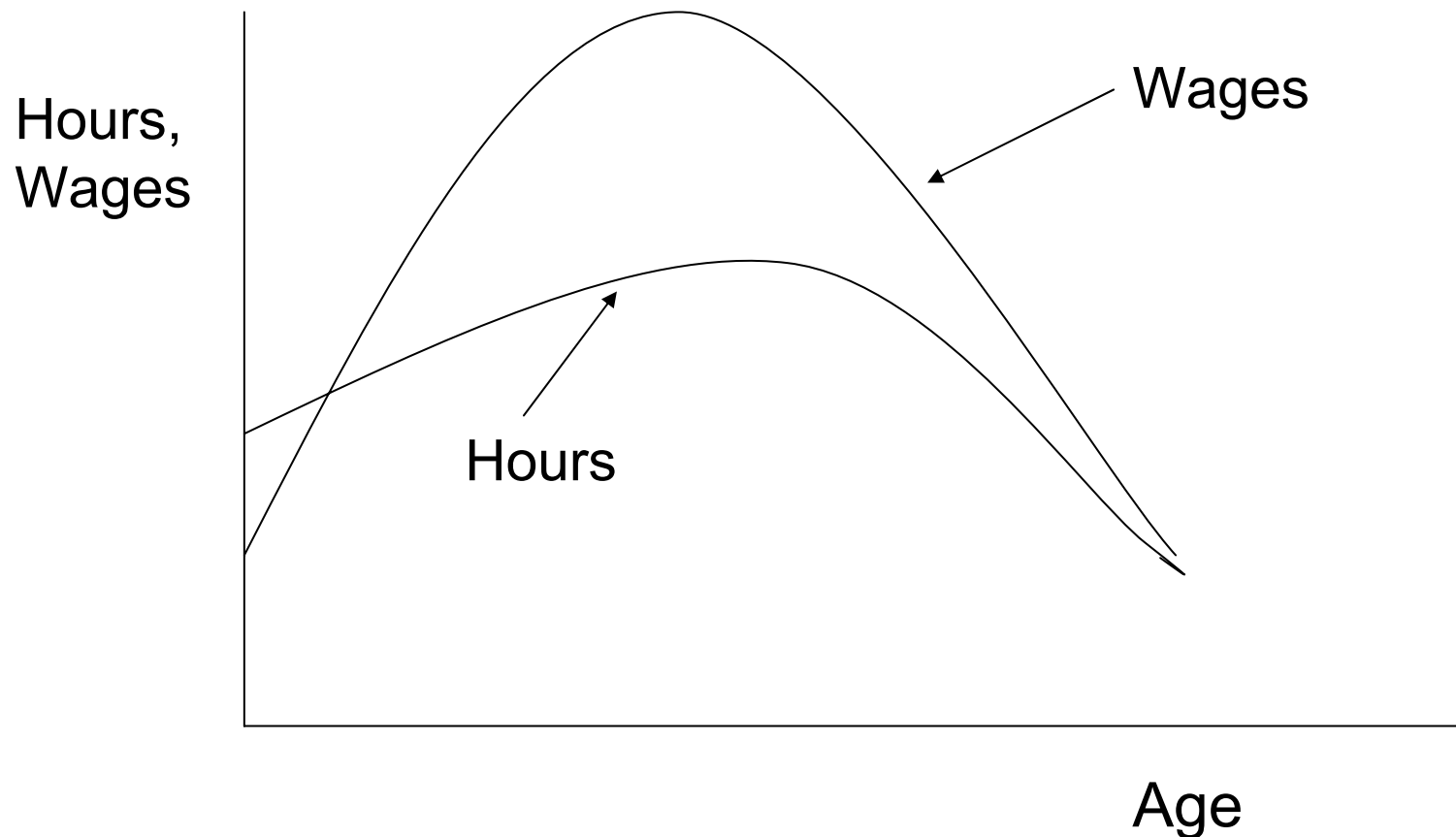
# The Problem with the Basic Model

$$\frac{MUL(h)}{MUC(h)} = w(1-T) + \textit{return on HC investment}$$

- The after tax wage is not the opportunity cost of time
- If you work for an hour you get both:
  1. The after tax wage rate
  2. The increase in future earnings due to the return to work experience

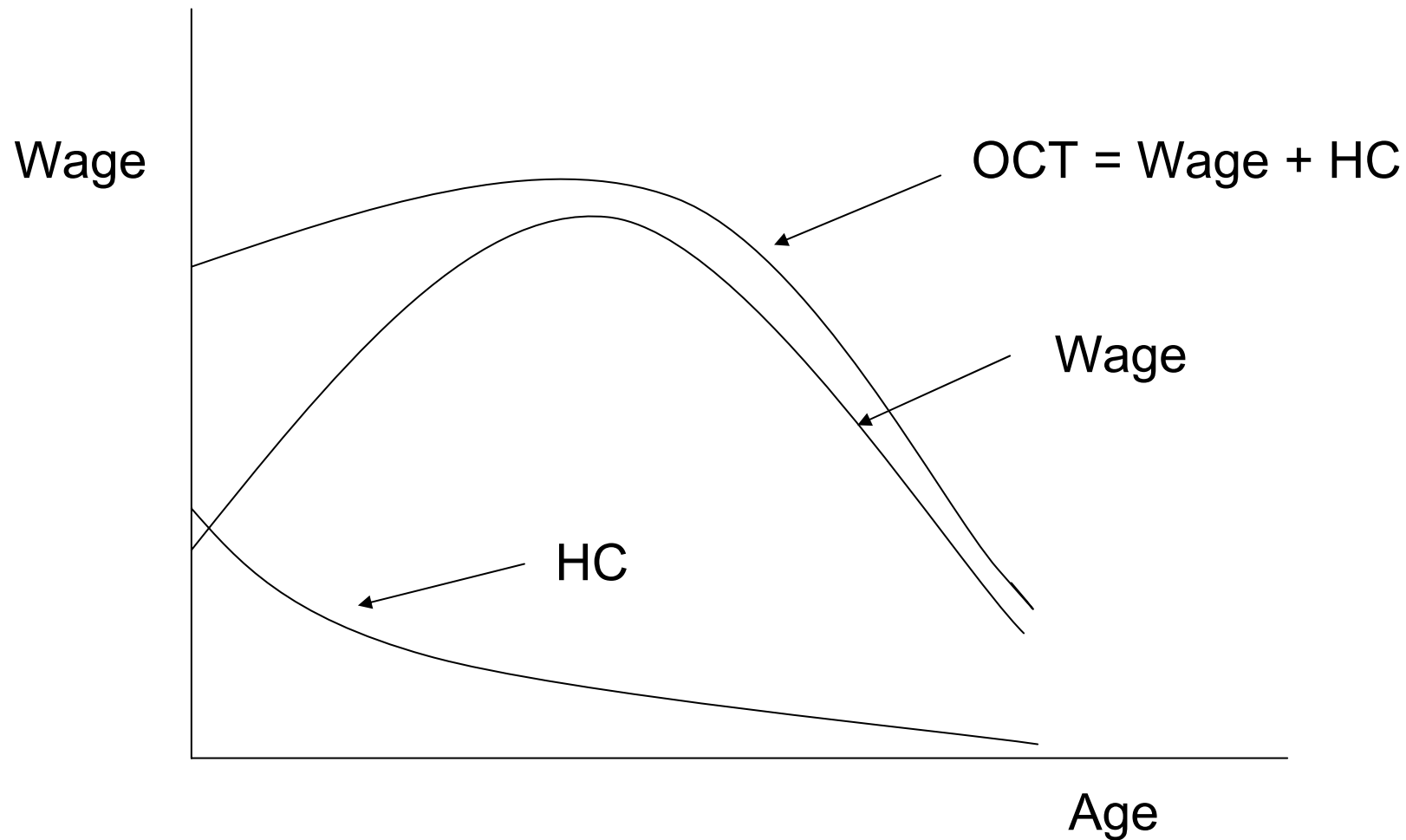
# Why are Labour Supply Elasticity Estimates so Small?

- Hours vs. Wages over the Life-Cycle



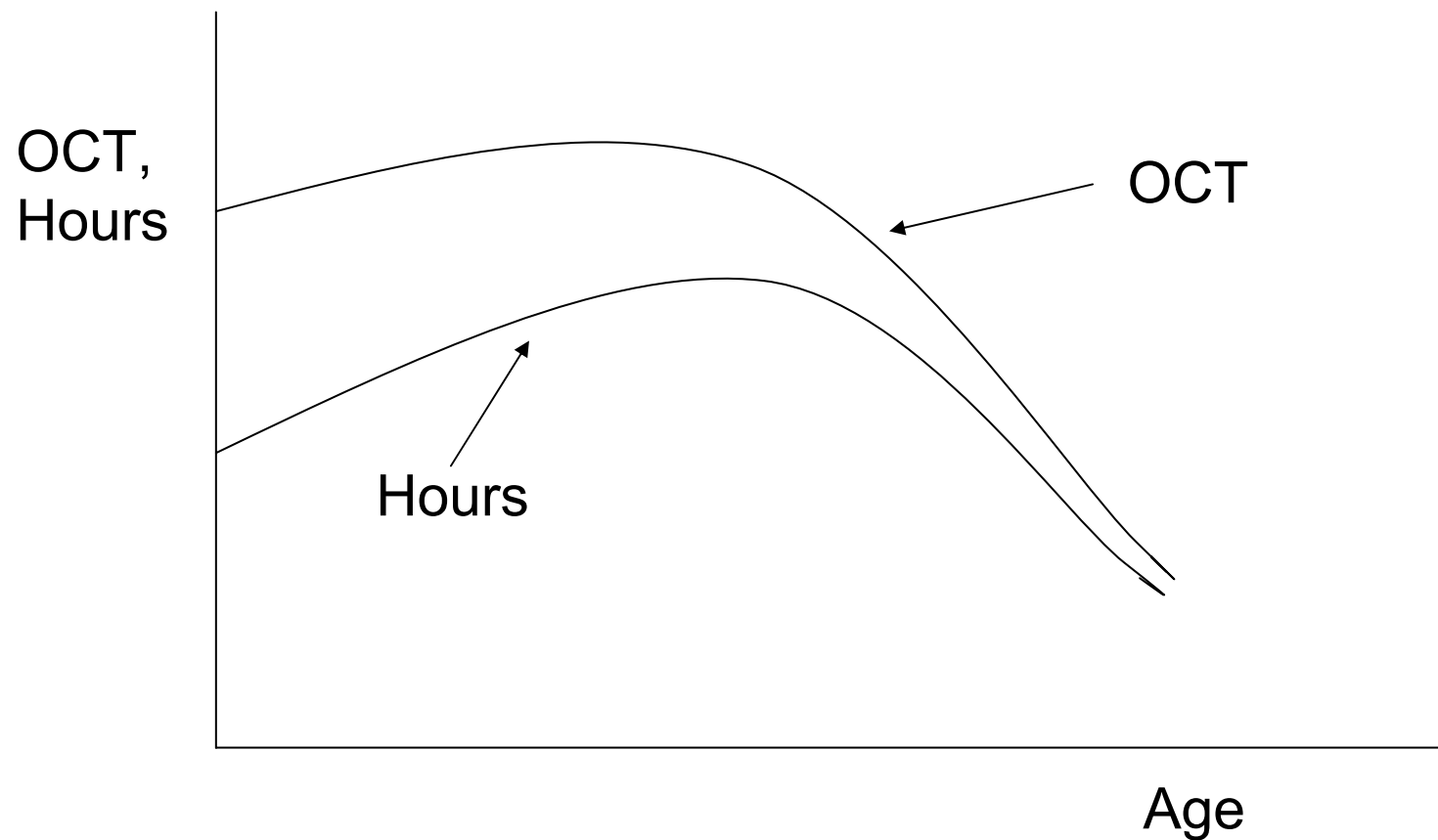
# The Opportunity Cost of Time

- The Wage vs. the OCT over the life-cycle



# Response of Labour Supply to the Opportunity Cost of Time

- Hours vs. the OCT over the Life-Cycle



# Implications of the OCT View

- Hours of work are actually very responsive to changes in the opportunity cost of time
- Consequences:
  - A temporary tax change may have a small effect, as it only alters the current wage
  - A permanent tax change may have a much larger effect, as it shifts the whole opportunity cost of time (both the wage and the return to human capital investment).

# Implications of the OCT View

$$OCT = w(1 - T) + HC(1 - T_F)$$

A temporary wage  
or tax increase  
hits only this

A permanent tax  
change hits this  
too

Prior literature has not come to grips with how taxes affect incentives for HC investment, and how this can magnify effects on labour supply

# Labour Supply Summary

- What economists call the “welfare cost” of income taxation (how much it shrinks the pie) is likely to be much higher than previously thought, because:
  - Economists have ignored how taxes alter incentives to acquire human capital
  - Mismeasurement of the return to work has lead economists to underestimate how much taxes can reduce labour supply



# Labour Supply Summary

- A simple calculation of welfare costs of taxation

Elasticities			Welfare Losses		
Frisch	Marshall	Hicks	Log(P)	$2P^{1/2}$	P
4.00	0.21	0.81	13.4	19.0	35.3
2.00	0.18	0.70	11.4	15.5	27.6
1.00	0.13	0.53	8.9	11.5	19.4
0.50	0.09	0.35	6.2	7.6	12.2
0.25	0.05	0.21	3.9	4.6	7.0

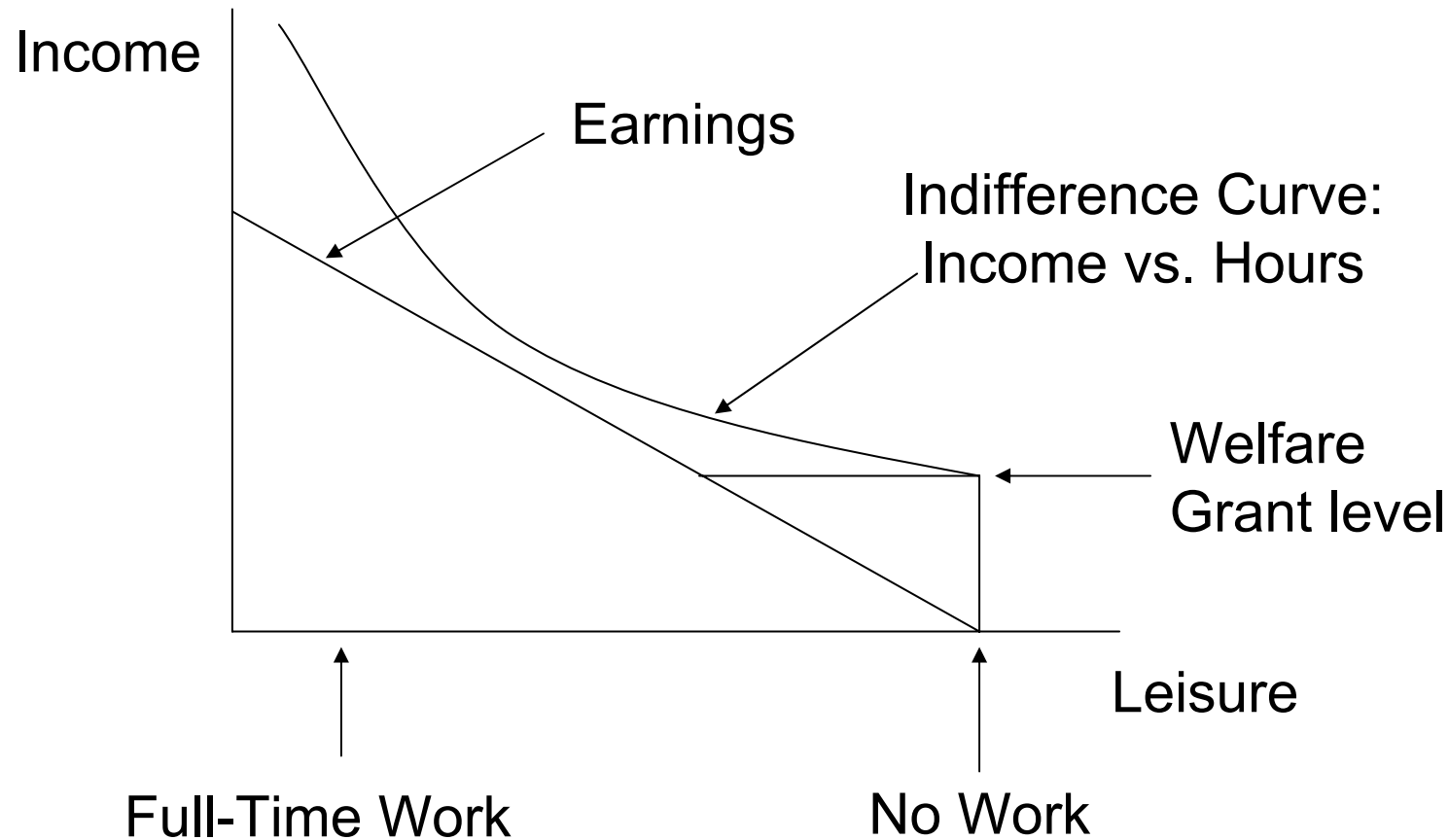
Welfare Losses as a percentage of consumption.

Bottom row is conventional wisdom (small elasticities).

Top row uses larger elasticities implied by HC model.

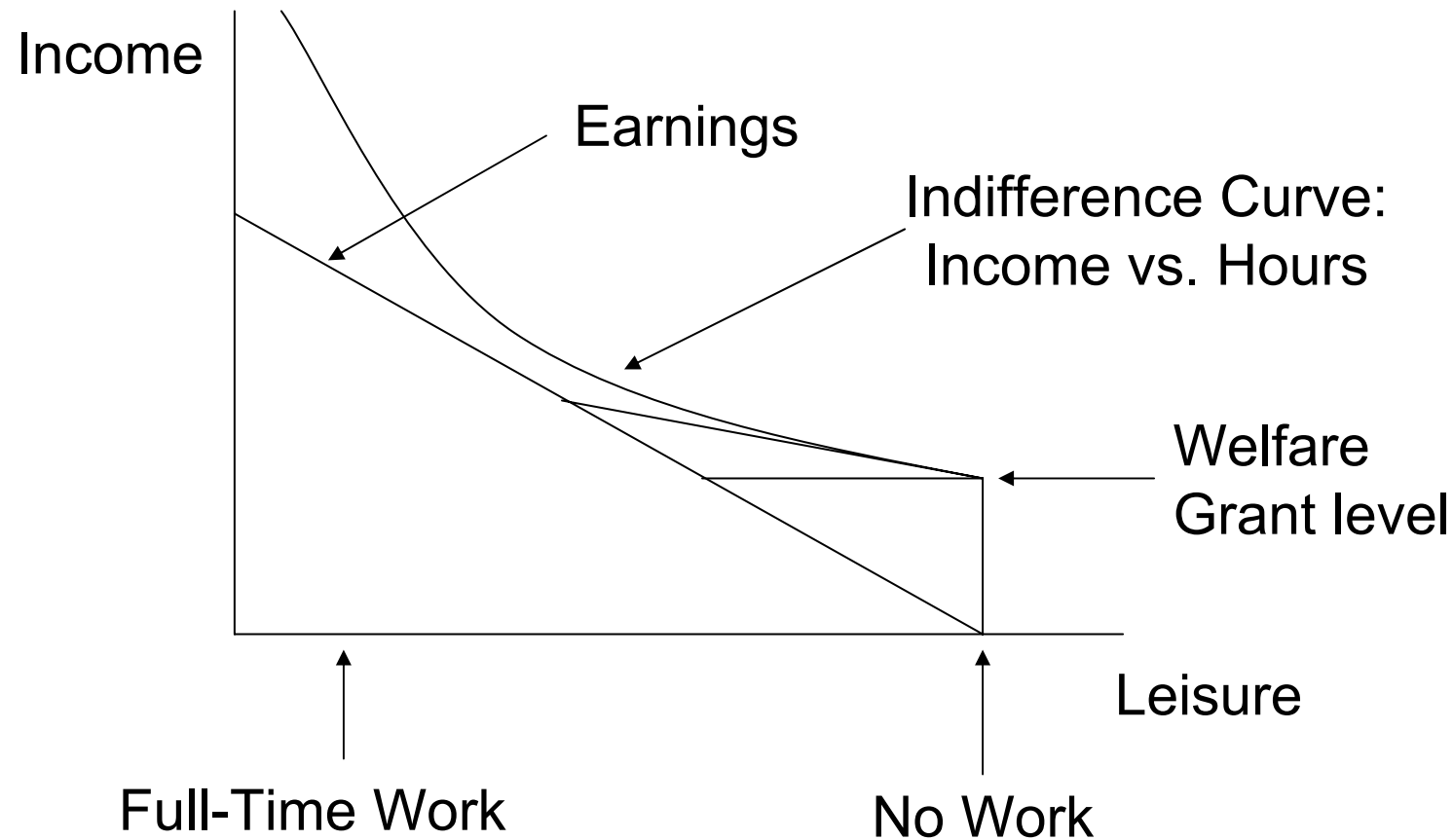
# Smarter Transfers

- A Typical Welfare or Transfer Program



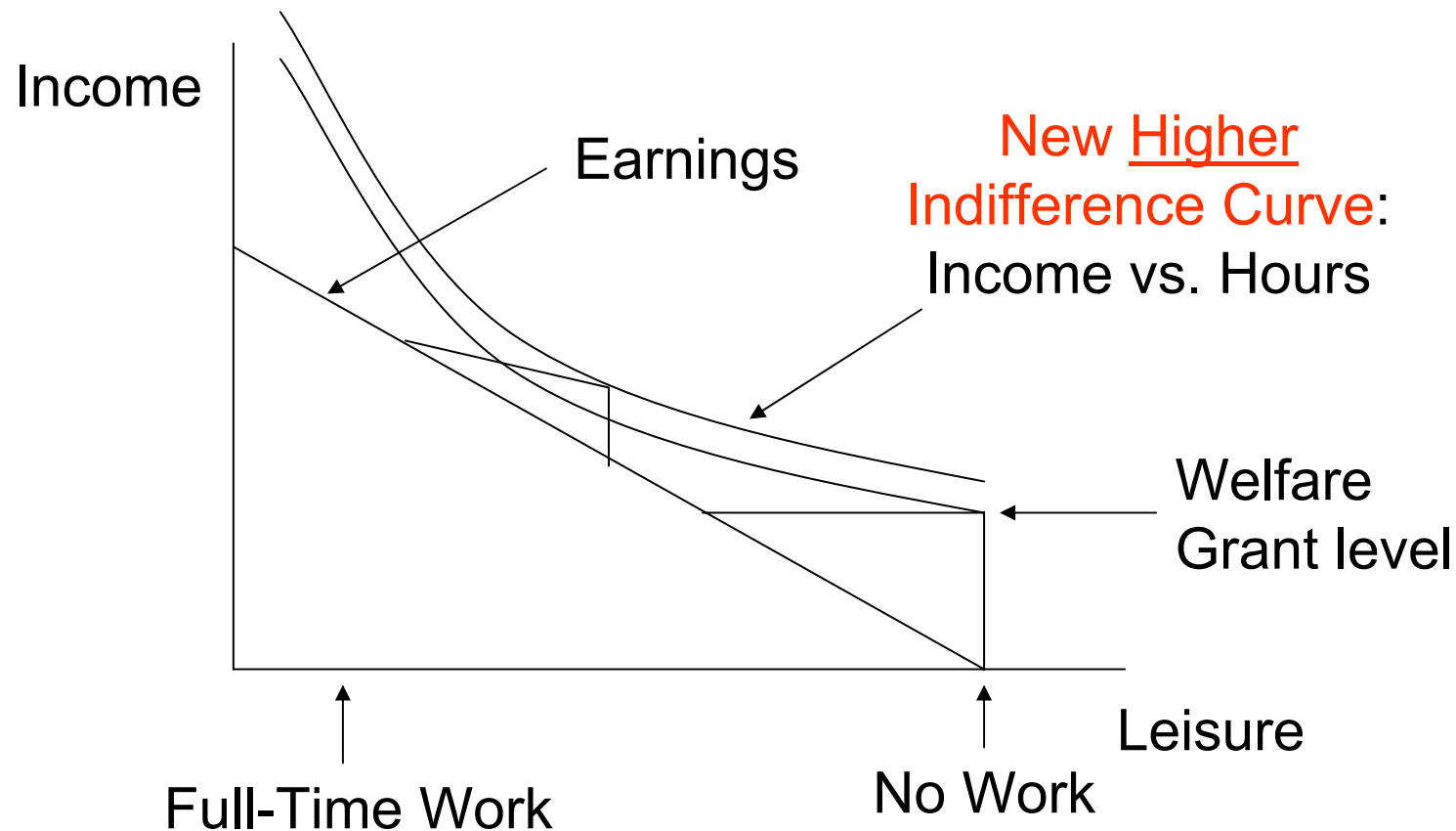
# Smarter Transfers

- Lower Phase-Out Rates Don't Work



# Smarter Transfers

A Bonus for Work (including subsidies of fixed costs)



Government Saves Money and the Person is Happier !!

# Smarter Transfers

- This idea for welfare reform was proposed in: Keane (1995). “A New Idea for Welfare Reform.” *Federal Reserve Bank of Minneapolis Quarterly Review*, 19:2, 2-28.
- Also discussed in: Keane and Moffitt (1998). “A Structural Model of Multiple Welfare Program Participation and Labor Supply.” *International Economic Review*, 39:3, 553-589.
- The “working families tax credit” in the UK has a similar design, with a 16 hour work requirement

# The EITC ??

- The EITC is a similar idea
- But it is a much more expensive way to encourage labour supply
- More of the benefits go to people who would have worked anyway
- In the US, spending on EITC exceeds that on the “welfare” programs it was meant to replace (a well kept secret by both parties)

# Subsidizing Costs of Work

- In US this is sometimes called “making work pay” – i.e., subsidize work instead of paying people not to work
- A big part of the cost of work is **child care/pre-school**, especially for lone mothers.
- Cost of work subsidies play a dual role as **early childhood education** and human capital policy

# Conclusion

In general, we should think more about how the tax/transfer system interacts with human capital development