

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>e</u>	<u>T</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

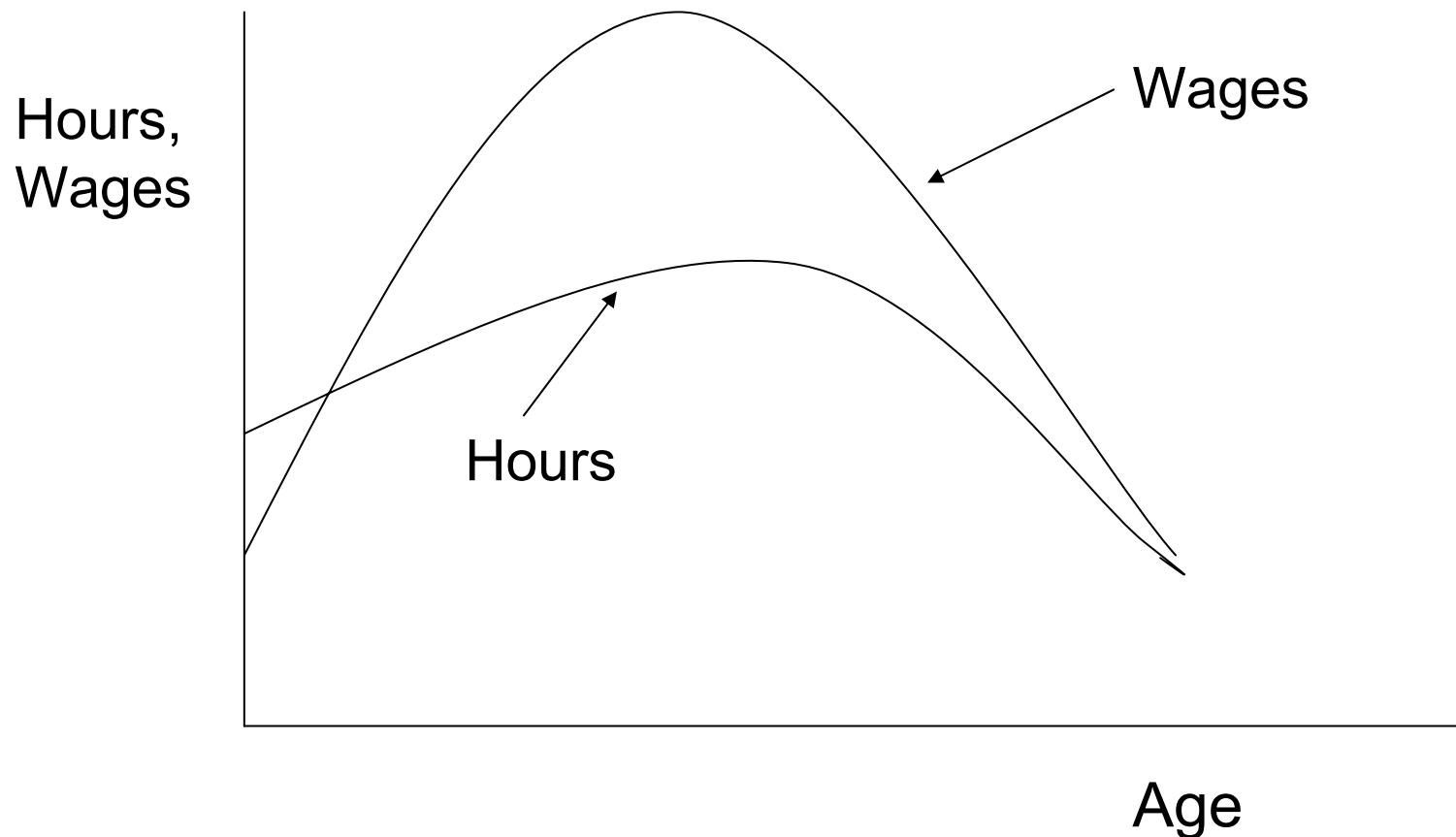
The Problem with the Basic Model

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

- 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

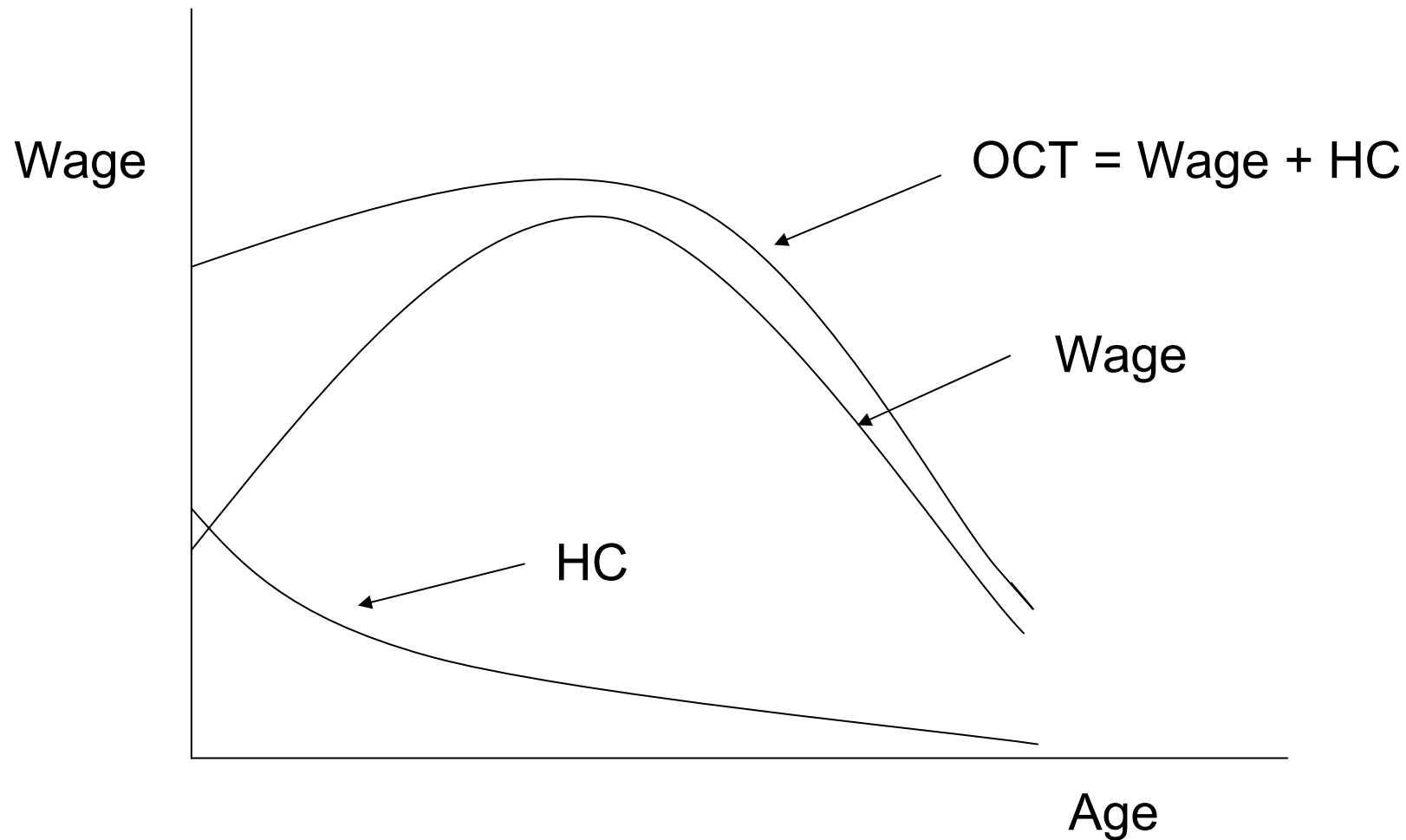
Why are Labour Supply Elasticity Estimates so Small?

- Hours vs. Wages over the Life-Cycle



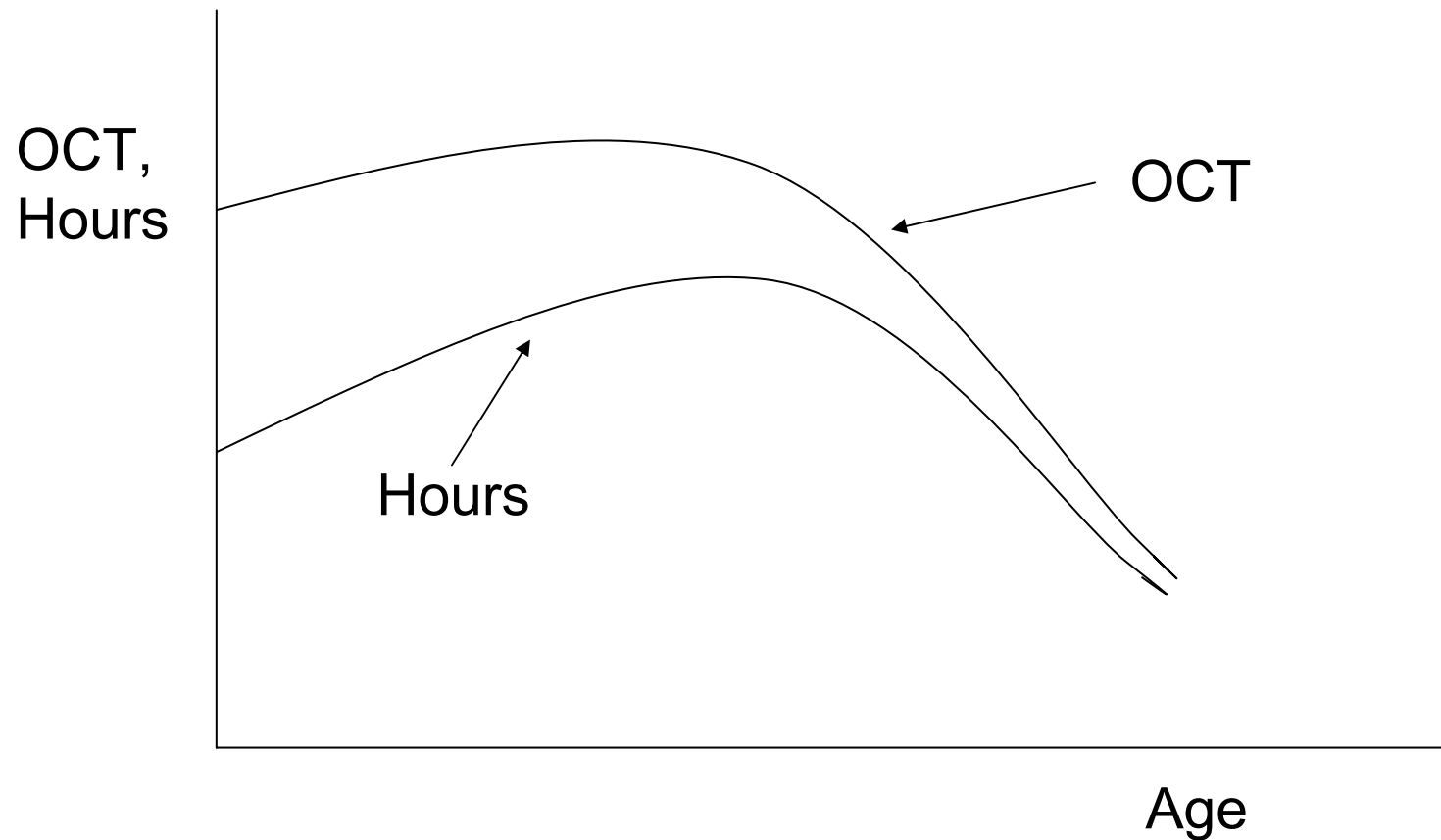
The Opportunity Cost of Time

- 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

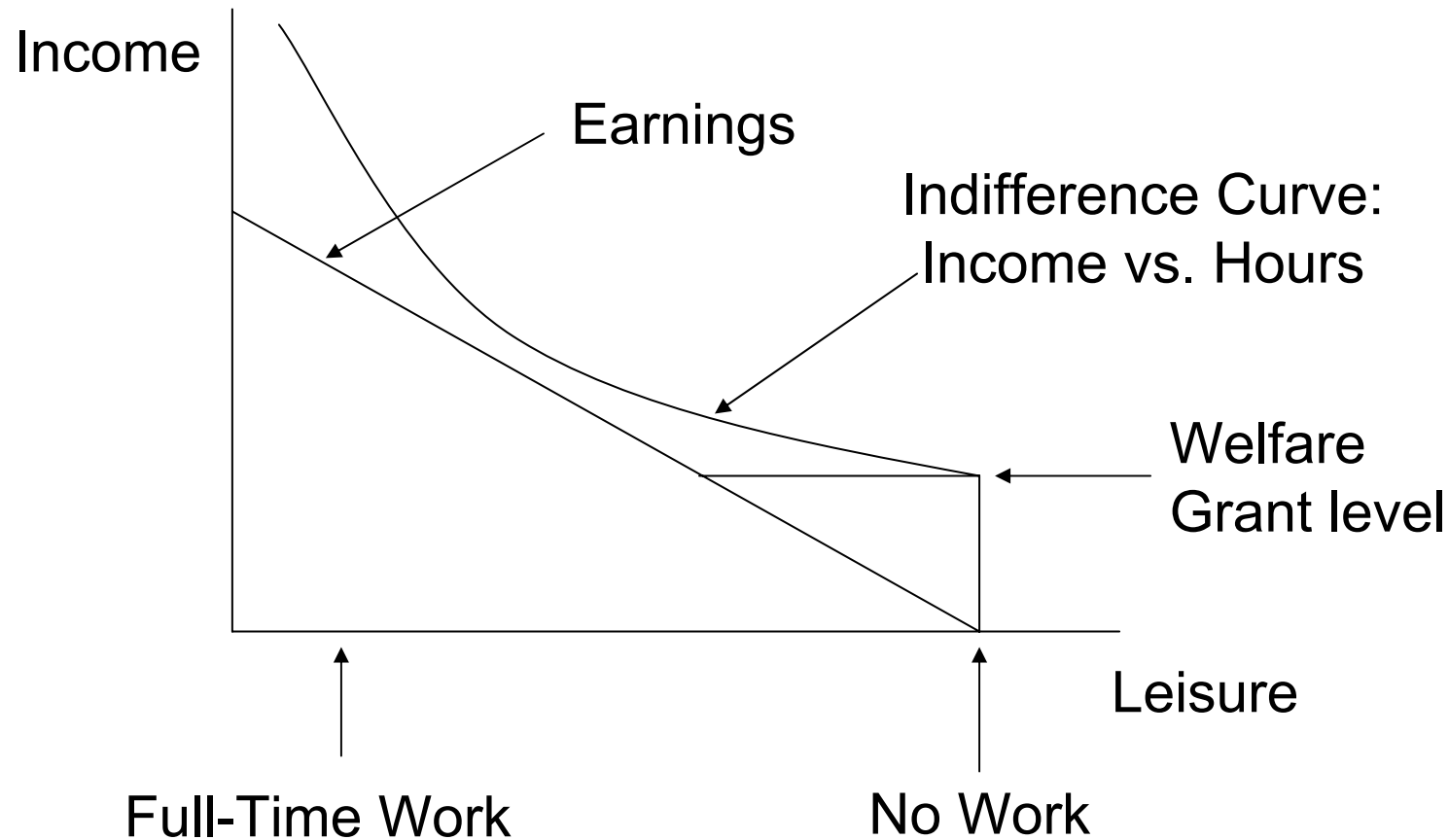
Welfare Losses as a percentage of consumption.

Bottom row is conventional wisdom (small elasticities).

Top row uses larger elasticities implied by HC model.

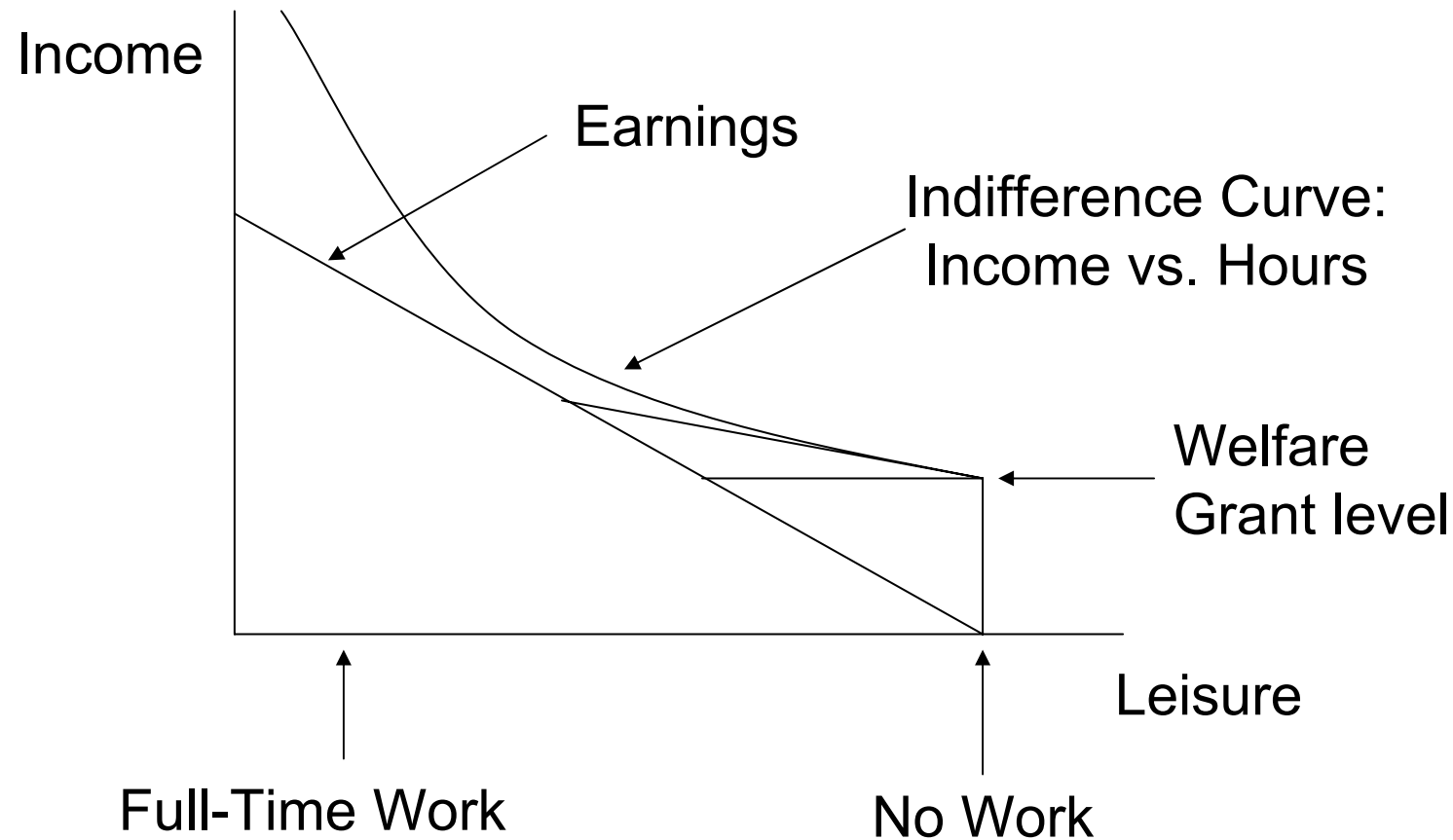
Smarter Transfers

- A Typical Welfare or Transfer Program



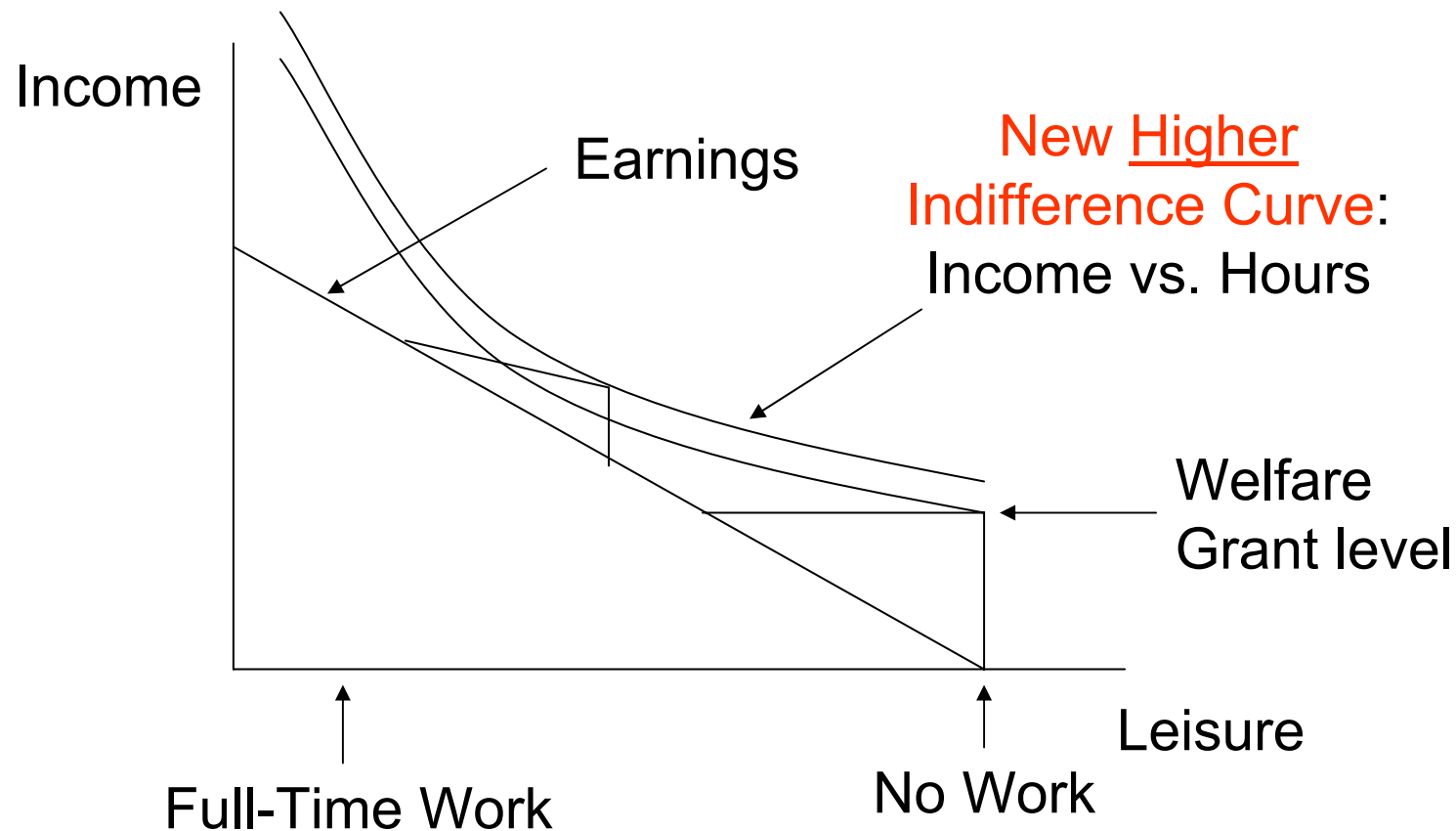
Smarter Transfers

- 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