

Optimal Transfers

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OPTIMAL TRANSFERS: MIRRLEES MODEL

Mirrlees model predicts that optimal transfer at bottom takes the form of a “Negative Income Tax”:

- 1) Lumpsum grant $-T(0)$ for those with no earnings
- 2) High MTRs $T'(z)$ at the bottom to phase-out the lumpsum grant quickly

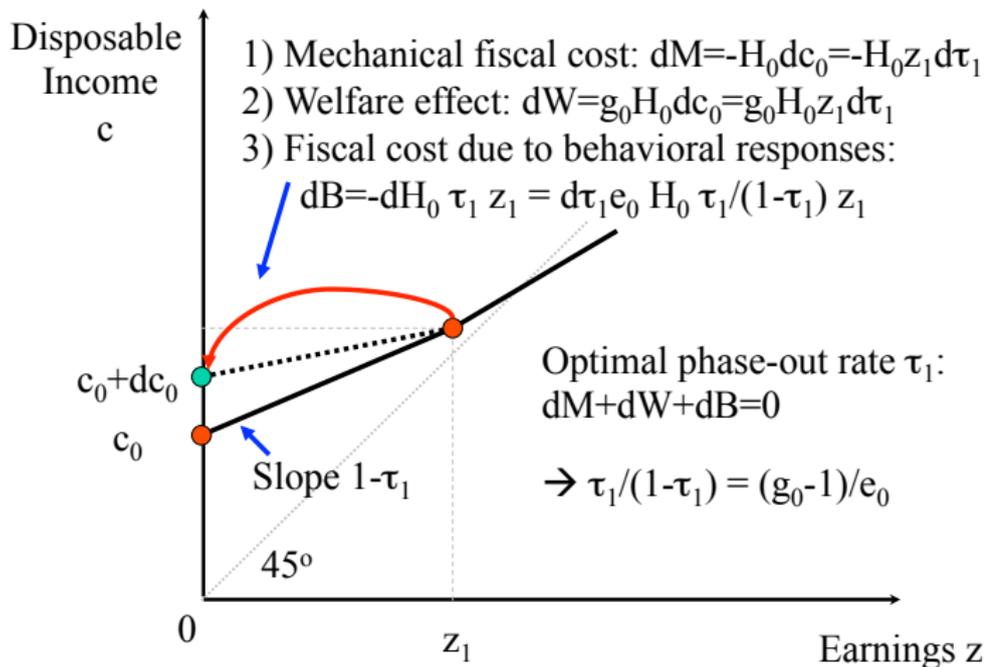
Intuition: high MTRs at bottom are efficient because:

- (a) they target transfers to the most needy
- (b) earnings at the bottom are low to start with so intensive response does not generate large output losses

Diamond-Saez JEP'11: $T'(0) = (g_0 - 1)/(g_0 - 1 + e_0)$ with e_0 elasticity of the fraction non-working wrt to $1 - T'(0)$ and g_0 social marginal welfare weight on non workers

[$\Rightarrow T'(0)$ large: e.g. $g_0 = 3$ and $e_0 = .5 \Rightarrow T'(0) = 80\%$]

Reform: Increase τ_1 by $d\tau_1$ and c_0 by $dc_0=z_1d\tau_1$



Optimal Transfers: Participation Responses

Empirical literature shows that participation labor supply responses [due to fixed costs of working] are large at the bottom [much larger and clearer than intensive responses]

Diamond JpubE'80, Saez QJE'02, Laroque EMA'05 incorporate such extensive labor supply responses in the optimal income tax model

Participation depends on participation tax rate: $\tau_p = [T(z) - T(0)]/z$: individual keeps fraction $1 - \tau_p$ of earnings when moving from zero earnings to earnings z :

$$z - T(z) = -T(0) + z - [T(z) - T(0)] = -T(0) + z \cdot (1 - \tau_p)$$

Key result: in-work subsidies with $T'(z) < 0$ (such as EITC) become optimal when labor supply responses are concentrated along extensive margin and social marginal welfare weight on low skilled workers > 1 .

SAEZ QJE'02 PARTICIPATION MODEL (skip)

Model with discrete earnings outcomes: $w_0 = 0 < w_1 < \dots < w_I$

Tax/transfer T_i when earning w_i , $c_i = w_i - T_i$

Participation labor supply: Skill i individual compares c_i and c_0 when deciding to work \Rightarrow Participation tax rate τ_i such that $c_i - c_0 = w_i \cdot (1 - \tau_i)$

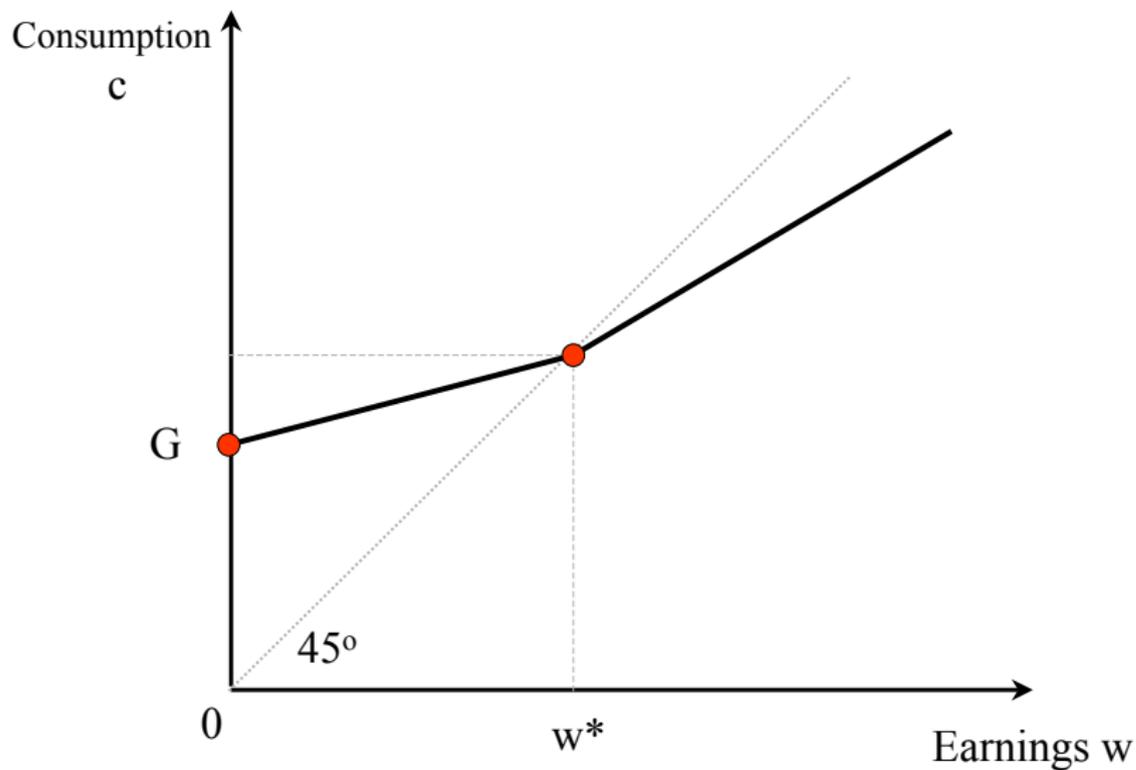
Person works iff $c_i - \theta \geq c_0$ where θ is fixed cost of working

\Rightarrow In aggregate, fraction $h_i(c_i - c_0)$ of population earns w_i

Participation elasticity $e_i = (c_i - c_0) / h_i \cdot \partial h_i / \partial (c_i - c_0)$

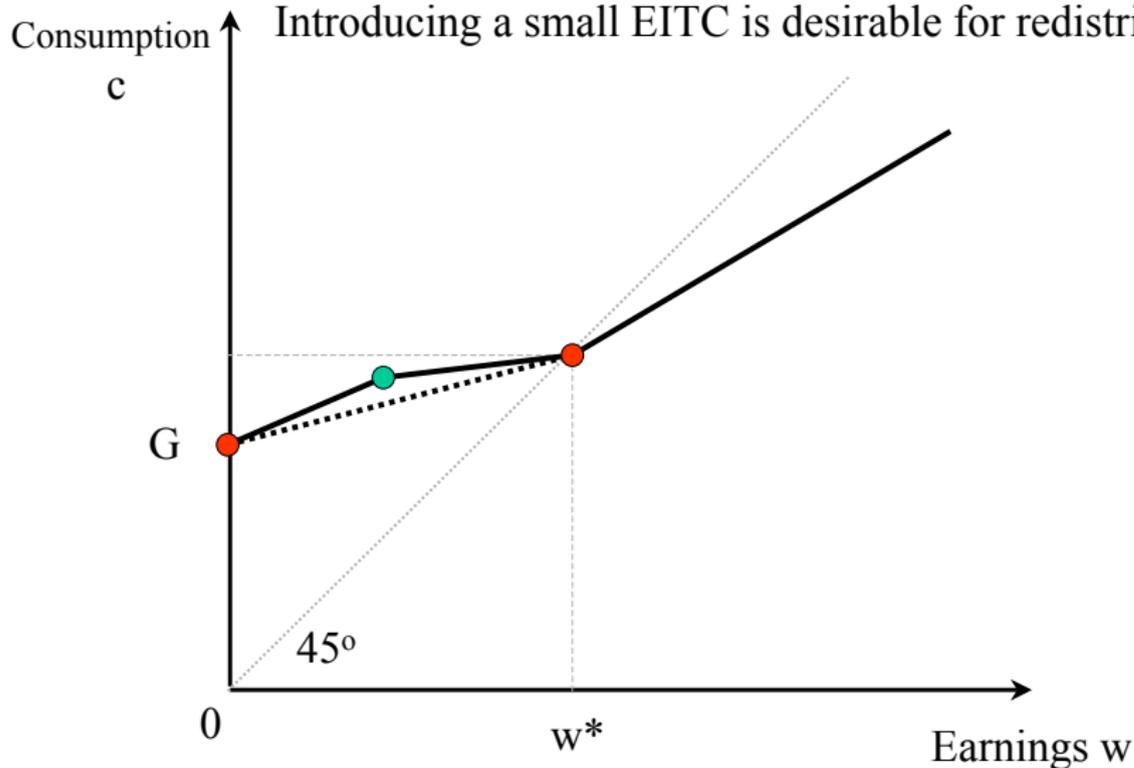
Social Welfare function is summarized by social marginal welfare weights at each earnings level $g_i \downarrow i$, and average to one $\sum_i g_i h_i = 1$ (if no income effects)

Starting from a Means-Tested Program



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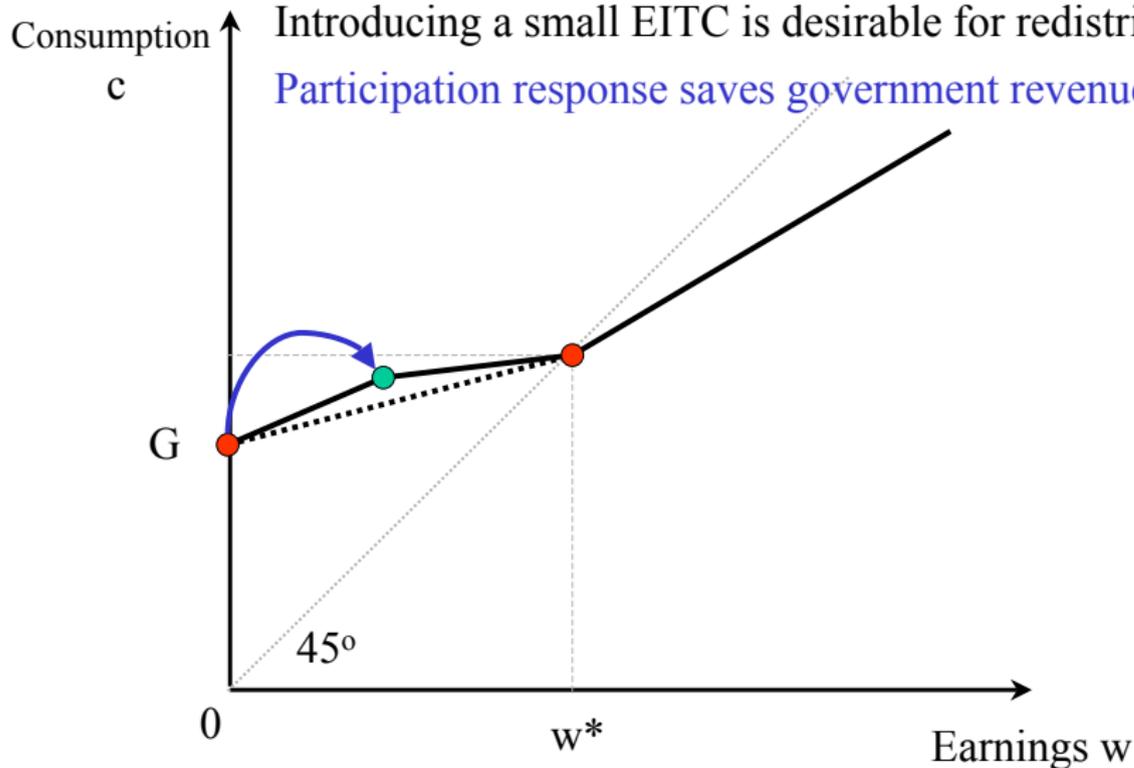
Introducing a small EITC is desirable for redistribution



Starting from a Means-Tested Program

Introducing a small EITC is desirable for redistribution

Participation response saves government revenue



Starting from a positive phasing-out rate $\tau_1 > 0$:

- 1) Increasing transfers by dc_1 at z_1 is desirable for redistribution: net effect $(g_1 - 1)h_1 dc_1 > 0$ if $g_1 > 1$
- 2) Participation response saves government revenue

$$\tau_1 z_1 dh_1 = e_1 \tau_1 / (1 - \tau_1) h_1 dc_1 > 0$$

→ Win-win reform ...if intensive response is small

Disposable
Income

c

c_0

Slope $1 - \tau_1$

45°

0

z_1

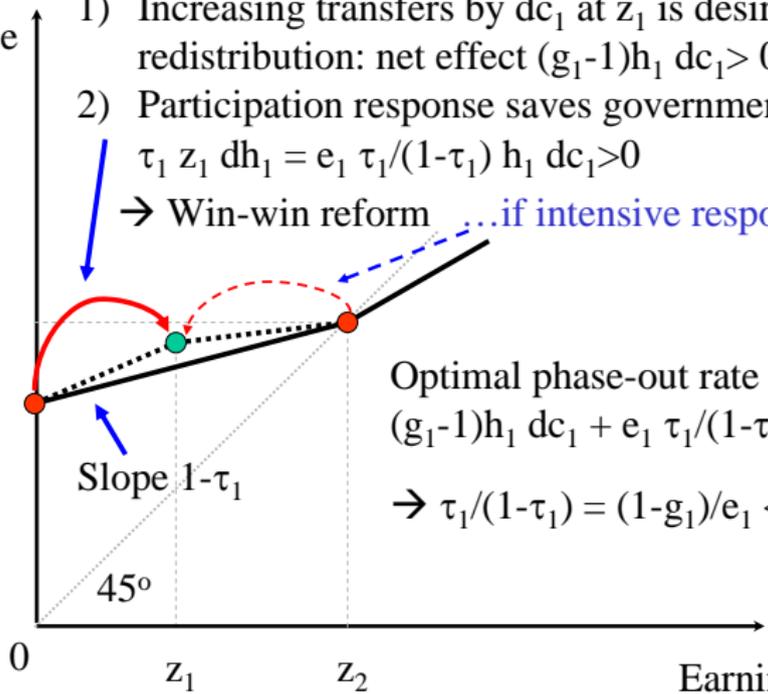
z_2

Earnings z

Optimal phase-out rate τ_1 :

$$(g_1 - 1)h_1 dc_1 + e_1 \tau_1 / (1 - \tau_1) h_1 dc_1 = 0$$

$$\rightarrow \tau_1 / (1 - \tau_1) = (1 - g_1) / e_1 < 0 \text{ if } g_1 > 1$$



SAEZ QJE'02: OPTIMAL TAX DERIVATION

Small reform $dc_i = -dT_i > 0$. Three effects:

1) Mechanical Change in tax revenue $dM = h_i dT_i$

2) Behavioral Effect: $dh_i = -e_i h_i dT_i / (c_i - c_0) \Rightarrow$ Tax loss:
 $dB = -(T_i - T_0) dh_i = -e_i h_i dT_i (T_i - T_0) / (c_i - c_0)$

3) Welfare Effect: each worker in job i loses dT_i so welfare loss
 $dW = -g_i h_i dT_i$ [No first order welfare loss for switchers]

FOC: $dM + dB + dW = 0 \Rightarrow$

$$\frac{\tau_i}{1 - \tau_i} = \frac{T_i - T_0}{c_i - c_0} = \frac{1}{e_i} (1 - g_i)$$

$g_1 > 1 \Rightarrow T_1 - T_0 < 0 \Rightarrow$ in-work subsidy

ACTUAL TAX/TRANSFER SYSTEMS

1) Transfer programs used to be of the traditional form with high phasing-out rates (sometimes above 100%) \Rightarrow No incentives to work (even with modest elasticities)

Initially designed for groups not expected to work [widows in the US] but later attracting groups who could potentially work [single mothers]

2) In-work benefits have been introduced and expanded in OECD countries since 1980s (US EITC, UK Family Credit, etc.) and have been politically successful \Rightarrow (a) Redistribute to low income workers, (b) improve incentives to work

TAGGING

We have assumed that $T(z)$ depends only on earnings z .

In reality, govt can observe many other characteristics X also correlated with ability [gender, race, age, disability, family structure, height,...] and set $T(z, X)$. Two theory results:

- 1) If characteristic X is **immutable** then redistribution across the X groups will be complete [until average social marginal welfare weights are equated across X groups]
- 2) If characteristic X can be **manipulated** [behavioral response or cheating] but X correlated with ability then taxes will still depend on both X and z .

References: Akerlof AER'78 (welfare), Nichols-Zeckhauser AER'82 (welfare), Weinzierl '11 (age), Mankiw-Weinzierl '10 (height), Kaplow '08 (chapter 7)

TAGGING WITH IMMUTABLE CHARACTERISTICS

Consider X binary immutable (**T**alls vs. **S**horts)

With $T(z)$ independent of X , Talls have higher ability on average \Rightarrow Average social marginal welfare weights $\bar{g}^T < \bar{g}^S \Rightarrow$ Transfer from Talls to Shorts is desirable (surtax on Talls which finances an allowance on Shorts)

Optimal height transfers should be up to point where $\bar{g}^T = \bar{g}^S$

Mankiw-Weinzierl '09 compute the optimal $T^{Tall}(z)$ and $T^{Short}(z)$ based on calibrated mode: optimal transfer $T^{Tall}(z) - T^{Short}(z)$ not trivial ($\simeq 10\%$ of income)

They also show that you can get a (very modest) **Pareto** improvement using taxes on height and income instead of only income

PROBLEM WITH TAGGING

In practice public would oppose height based redistribution because height does not cause high earnings \Rightarrow

- 1) **Horizontal Equity** concerns [people with same “ability-to-pay” should pay the same tax] impose constraints on feasible policies [not captured by utilitarian framework]
- 2) Constrained optimization analysis [$T(z)$ instead of $T(z, X)$] remains valid even with heterogeneity in preferences
- 3) In practice $T(z, X)$ depends on X only when X is **directly** related to welfare [family structure, # kids, medical expenses] or ability to earn [disability status] (“ability-to-pay” intuition)

IN-KIND REDISTRIBUTION

Majority of actual transfers are in-kind (health care, child care, education, public housing, nutrition subsidies)

1) **Rational Individual perspective:**

- (a) In-kind transfer is **tradeable** at market price \Rightarrow in-kind equivalent to cash
- (b) In-kind transfer **non-tradeable** \Rightarrow in-kind inferior to cash.

IN-KIND REDISTRIBUTION

2) **Social perspective:** 4 justifications:

- a) Commodity Egalitarianism: some goods (education, health, shelter, food) seen as **rights** and ought to be provided to all
- b) Paternalism: society imposes its preferences on recipients [recipients prefer cash]
- c) Behavioral: Recipients do not make choices in their best interests (self-control, myopia) [recipients understand that in-kind is better for them]
- d) Under standard welfarist objective: Efficiency considerations in a 2nd best context

EFFICIENCY OF IN-KIND REDISTRIBUTION

Depends on what income tax tools are available:

- 1) No income tax: Income z not observable (devo countries) \Rightarrow In-kind provision or subsidies for necessities desirable
- 2) Linear tax model (Ramsey): Guesnerie-Roberts EMA'84 \Rightarrow rationing goods encouraged by the tax system is desirable [and forcing consumption of goods discouraged by tax]
- 3) Nonlinear income tax: Under Atkinson-Stiglitz assumption [weak-separability and homogeneity $U^h(v(c_1, \dots, c_K), z)$] \Rightarrow Any distortion (quota, rationing, subsidy) involving c choices not desirable provided $T(z)$ optimal

If good c_k related to leisure/ability [soup kitchen with queuing requirement] then A-S fails and in-kind redistribution possibly desirable even with optimal $T(z)$

IMPOSING ORDEALS ON TRANSFER RECIPIENTS

Many actual transfer programs impose requirements on beneficiaries (complex application, job search, training, or work requirements) and hence have low take-up (often $< 50\%$)

1) If social objective is welfarist and income z observable: ordeals unlikely to be desirable:

Compare ordeal to benefit cut: (a) only benefit cut saves money mechanically, (b) both reduce welfare of recipients, (c) both reduce take-up [good fiscally]

Need implausible sorting effects for ordeal to be desirable [e.g., ordeal does not hurt much deserving beneficiaries and discourages undeserving take-up, conditional on z]

2) If z is not observable then ordeal could be desirable (kitchen soup line)

3) With non-welfarist objective [such as poverty alleviation], ordeal can be desirable [Besley-Coate AER'92]

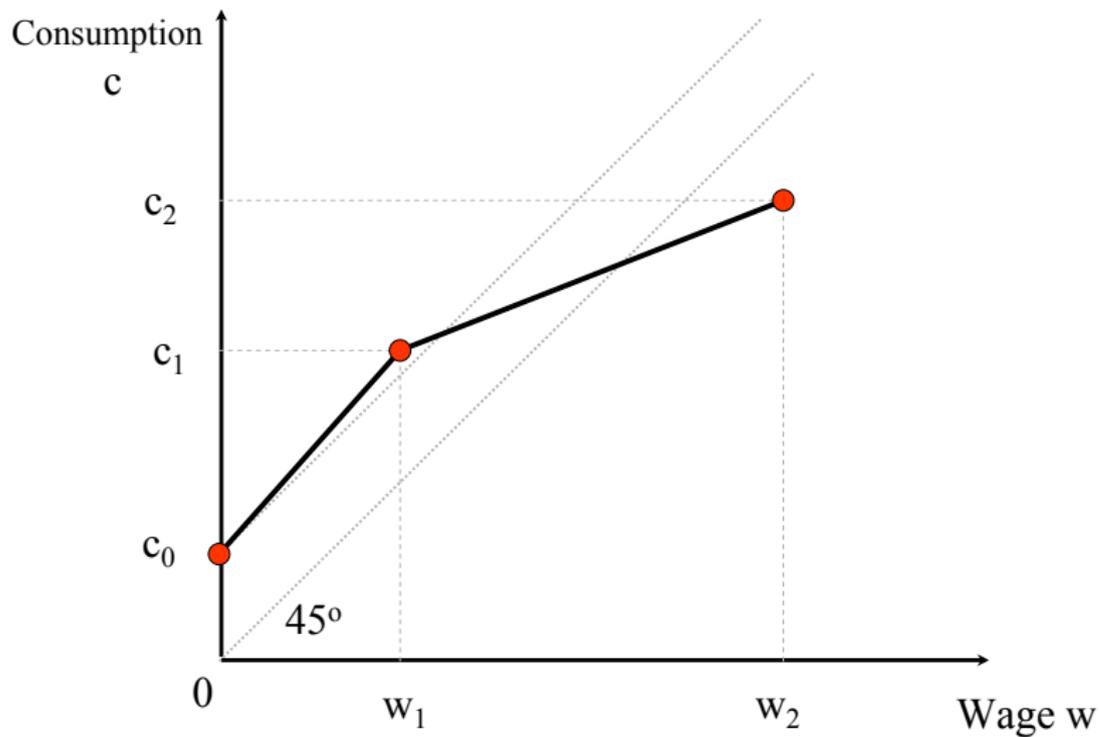
WORK RESTRICTIONS AND MINIMUM WAGE

Minimum wage creates rationing of low skilled work. Could minimum wage be desirable on top of nonlinear tax/transfer?

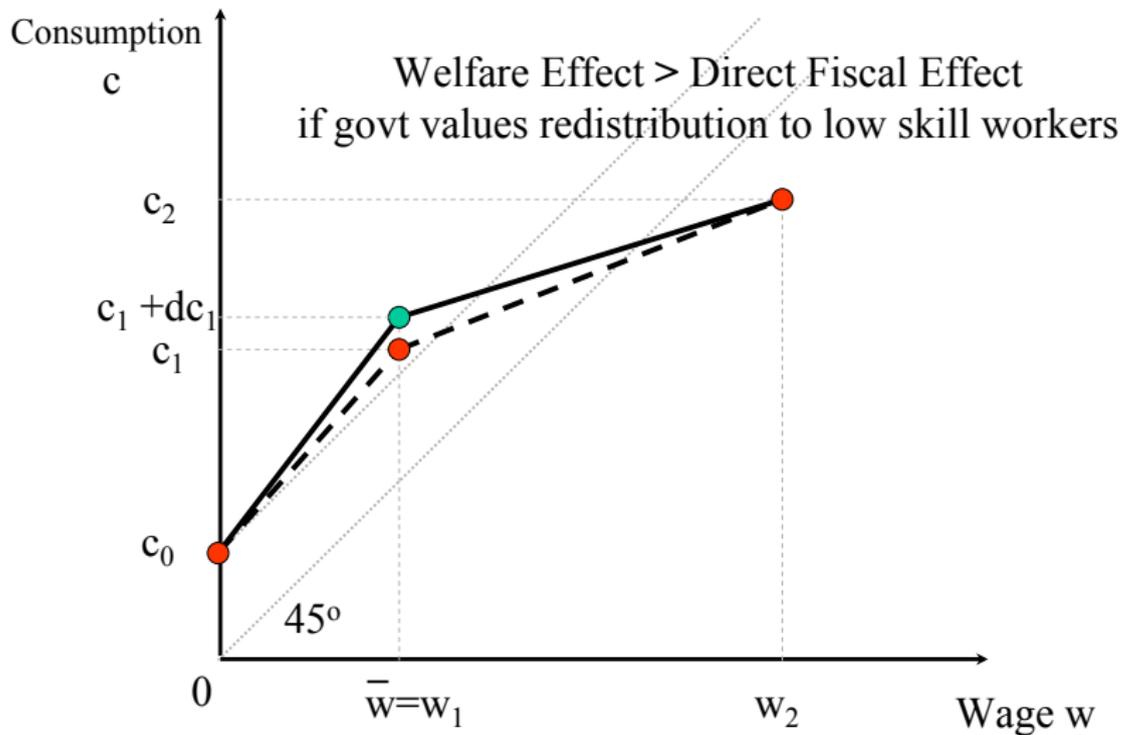
Lee and Saez JpubE'12 use a job choice model [Saez QJE '02 with endogenous wages]. Two results:

- 1) Minimum wage desirable if (a) govt wants to redistribute to low skilled workers ($g_1 > 1$) and (b) rationing created by min wage is **efficient**
 - 2) If labor supply responses along extensive margin only then minimum wage with positive tax rate on low skilled work $\tau_1 > 0$ is 2nd best Pareto inefficient
- ⇒ EITC and min wage are complementary

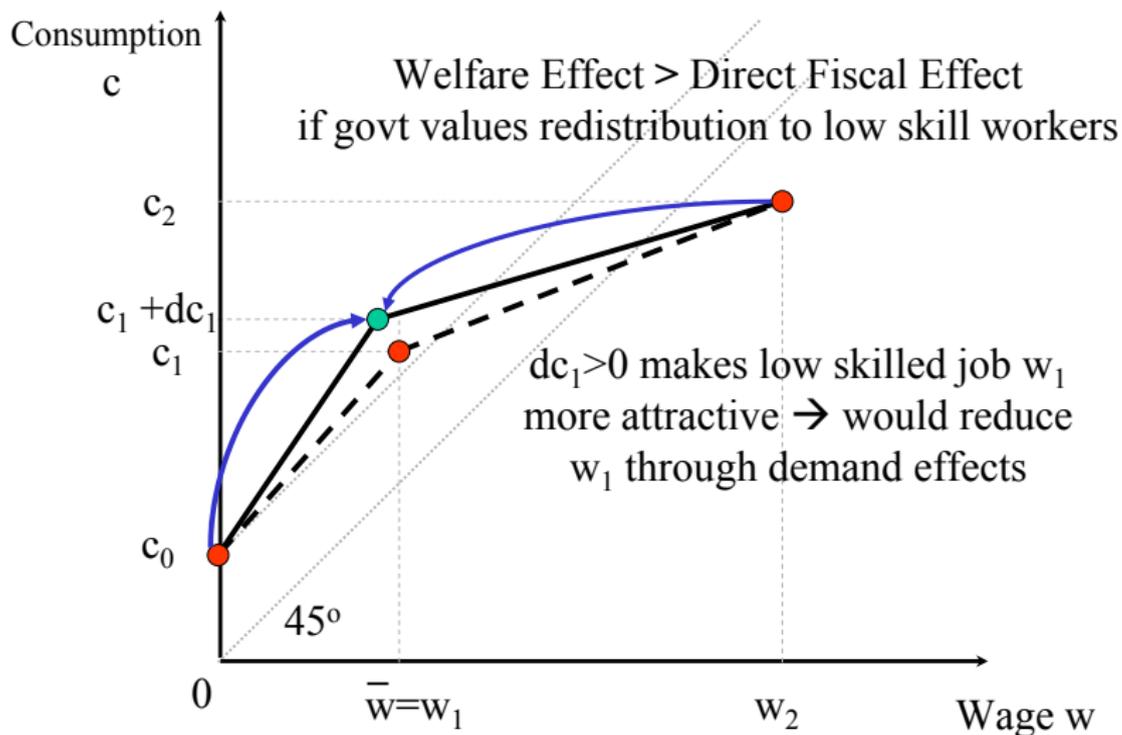
2. Optimal Tax/Transfer System (no min wage)



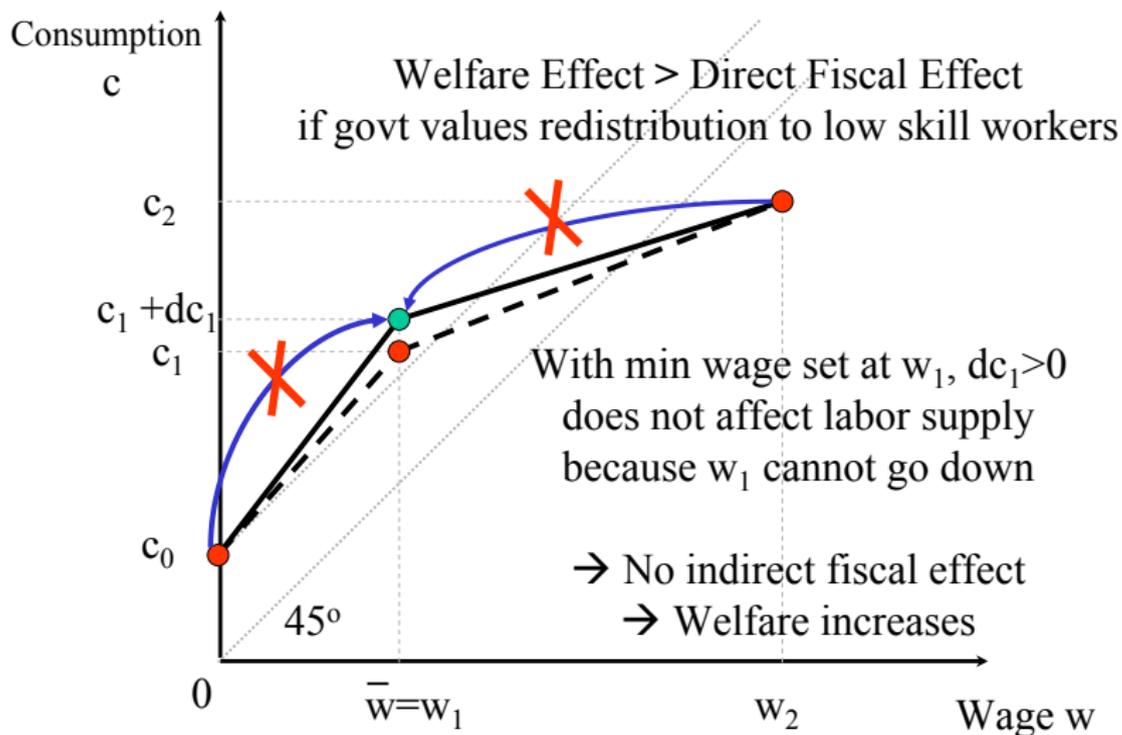
2. Set Min wage $\bar{w}=w_1$ and increase c_1 by dc_1



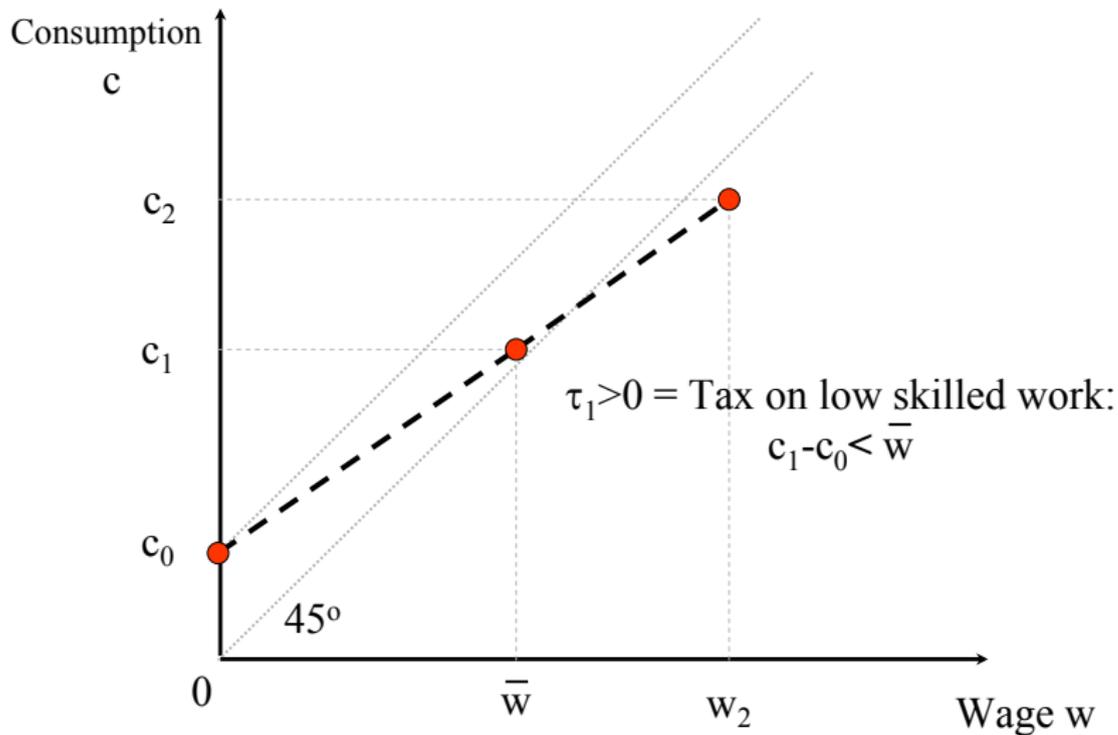
2. Desirability of Min Wage with Optimal Taxes



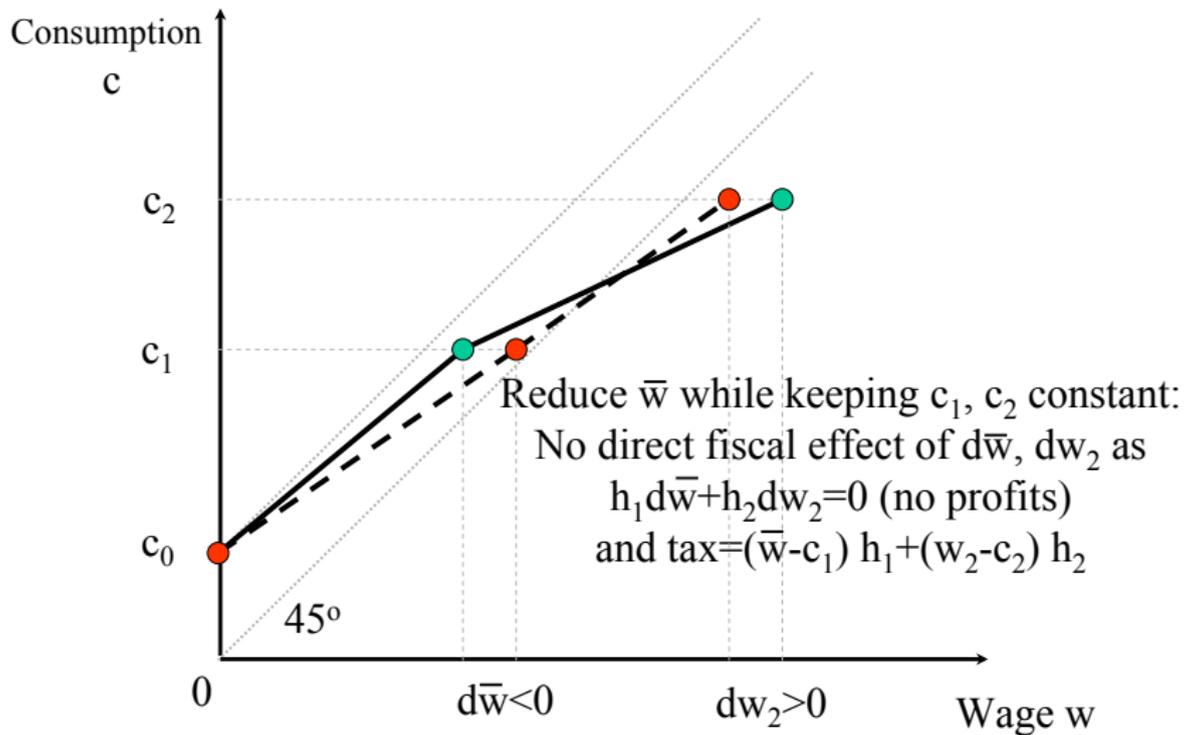
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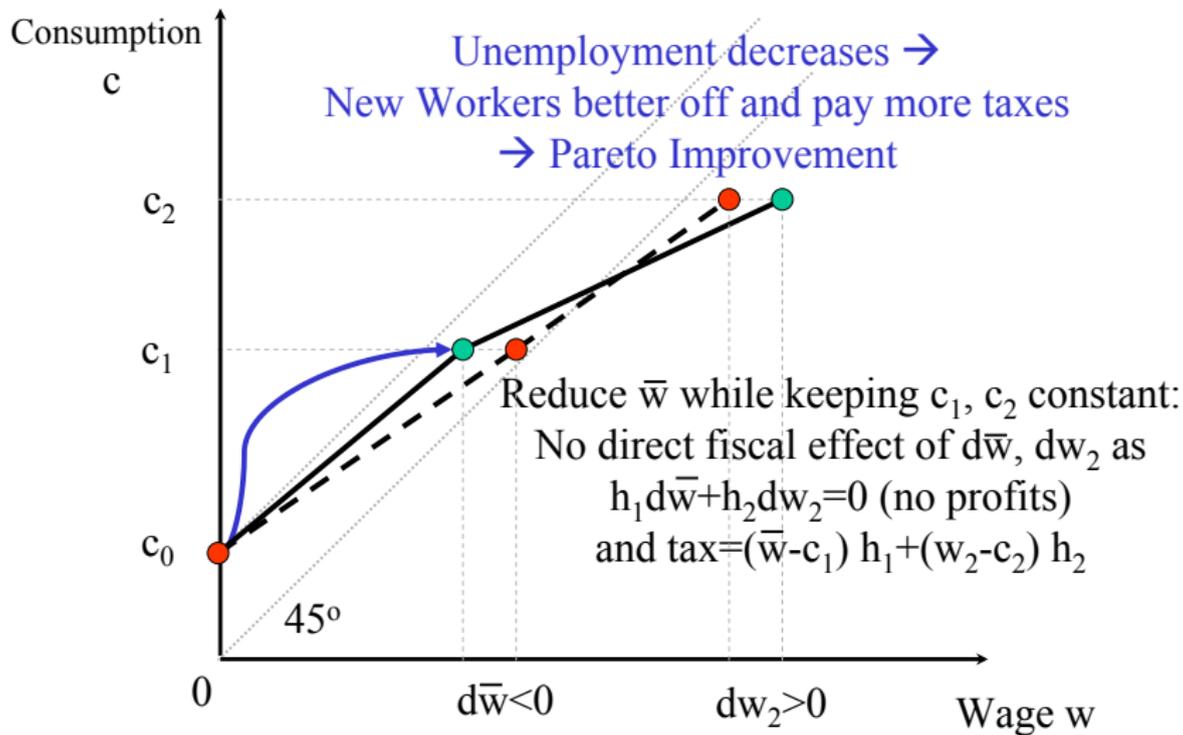
3. Pareto Improving Policy when $\tau_1 > 0$ and min wage binds



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FAMILY TAXATION: MARRIAGE AND CHILDREN

Two important issues in policy debate:

- 1) Marriage: What is the optimal taxation of couples vs. singles? Should secondary earnings be treated differently?
- 2) Children: What should be the net transfer (transfer or tax reduction) for family with children (as a function of family income and structure)?

Theoretical literature is not great in part because utilitarian framework is not satisfactory

TAXATION OF COUPLES

1) Economies of scale and sharing in consumption within families \Rightarrow Welfare best measured by family income relative to size [\equiv **normalized income**]

\Rightarrow Taxes/Transfers should be based on normalized family income which can create a marriage penalty / subsidy

Note: Impossible to have a tax/transfer system that

(1) is family income based $T(z^h + z^w)$

(2) has marriage neutrality $T(z^h, z^w) = T(z^h) + T(z^w)$

(3) is progressive (i.e., not strictly linear)

Proof: (1)+(2) $\Rightarrow T(z^h + z^w) = T(z^h) + T(z^w) \Rightarrow T(z) = \tau \cdot z$

TAXATION OF COUPLES

2) If marriage responds to tax/transfer differential \Rightarrow better to reduce marriage penalty and move toward individualized system

Particularly important cohabitation is close substitute to marriage (Scandinavian countries)

3) Labor supply of secondary earners more elastic than labor supply of primary earner \Rightarrow Secondary earnings should be taxed less (standard Ramsey intuition, Boskin-Sheshinski JpubE'83)

But labor supply elasticity differential is decreasing as earnings gender gap decreases [Blau and Kahn JOLE'07]

In OECD countries: income tax systems have become **individual based** but means tested transfers have remained **family based**

TRANSFERS OR TAX CREDITS FOR CHILDREN

1) Children reduce **normalized income** \Rightarrow Transfer for children T_{kid} should be positive

In practice, transfers for children are always positive

2) Should $T_{kid}(z)$ increase with income z ?

Pro: they reduce normalized income most for upper earners [e.g., France computes taxes as $N \cdot T(z/N)$ where N is # family members, kids count as .5 $\Rightarrow T_{kid}(z)$ increases with z].

Cons: lower earners need child transfers most [most OECD countries have means-tested transfers conditional on number of kids $\Rightarrow T_{kid}(z)$ decreases with z , US has $T_{kid}(z)$ inverted U-shape due to EITC and Child Tax Credit]

TRANSFERS OR TAX CREDITS FOR CHILDREN

- 3) Family does not make decisions as a single unit (Chiappori JPE'92): transfers to mothers has bigger effects on children's consumption than transfers to fathers [Lundberg et al. '97, Duflo '03]
- 4) Children create externalities [positive: pay-as-you-go retirement programs, negative: global warming]. If fertility responds to transfers, case for subsidizing/taxing children
- 5) Child care costs are positively related to work \Rightarrow Such costs should be subsidized by Atkinson-Stiglitz [often they are in practice]:

Public pre-kindergarten in Europe is a huge in-work subsidy for mothers \Rightarrow Large effect on mothers' labor force participation (bigger effect than US EITC)

CHILDREN AND LIMITS OF UTILITARIAN MODEL

If fertility decisions unrelated to children tax/transfers \Rightarrow Social marginal utility should be equated across families with 0 children, families with 1 child, etc.

If ability uncorrelated with children \Rightarrow Families with kids will get fully compensating transfers

If ability positively correlated with children \Rightarrow Families with kids might be taxed more heavily [as in the height tax case]

Seems an absurd model to think about transfers for children \Rightarrow Need to come up with more realistic alternative

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