Universal Basic Income

see Hoynes and Rothstein (2018)
Kearney and. Mogstad (2019)

Trevor Gallen

Disclaimer

- I hate it when profs shove opinions down your throat
- I have a set of arguments that I think are not well-represented and are actually dismissed out of hand in our readings
- I'll present the case for them (i.e. less of a flavor of "this is how things are" and more of a flavor of "this is why you should think this.")
- You don't have to agree with me, and I could be wrong!
- If I'm missing an argument, say it!

The Automation Jobless

"The number of jobs lost to more efficient machines is only part of the problem. What worries many job experts more is that automation may prevent the economy from creating enough new jobs. . . . Throughout industry, the trend has been to bigger production with a smaller work force. . . . Many of the losses in factory jobs have been countered by an increase in the service industries or in office jobs. But automation is beginning to move in and eliminate office jobs too. . . . In the past, new industries hired far more people than those they put out of business. But this is not true of many of today's new industries. . . . Today's new industries have comparatively few jobs for the unskilled or semiskilled, just the class of workers whose jobs are being eliminated by automation."

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When was this written?

The more things change...

- Written in TIME on February 24th, 1961 ($\approx$ 60 years ago)
- Blue-Ribbon National Commission on Technology, Automation and Economic Progress (1964) recommends: "**a guaranteed minimum income** for each family; using the **government as the employer of last resort** for the hard core jobless; **two years of free education** in either community or vocational colleges; a fully administered federal employment service, and individual Federal Reserve Bank sponsorship in area economic development free from the Fed's national headquarters"
- Things really don't change!

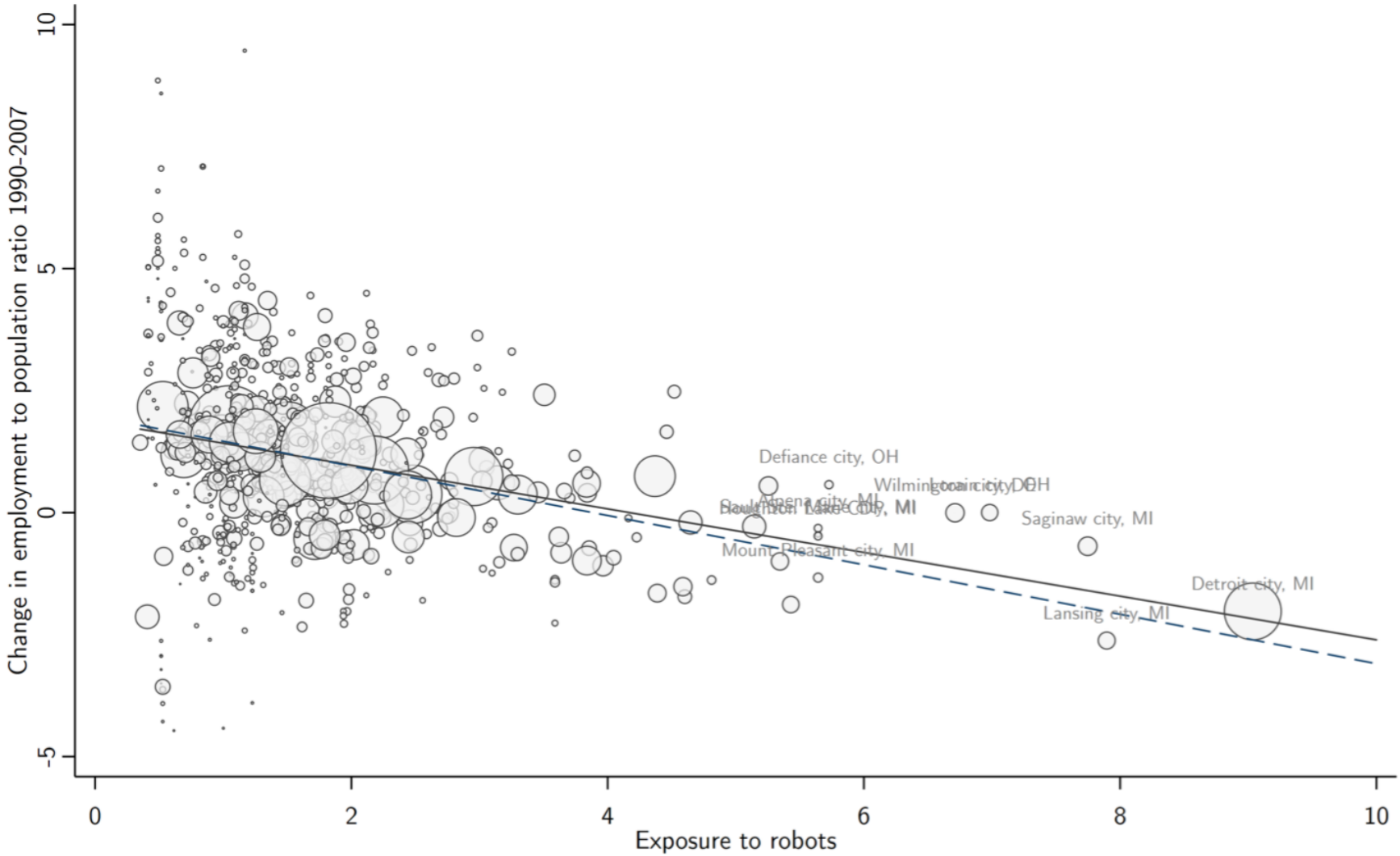
What is UBI?

- What's is UBI?
- **Basic**
  - Enough to meet a family's basic needs all on its own (at or above poverty line)
- **Universal**
  - Available to everyone (no targeting)
  - Paid to those with without earned income/effort to find work
  - Paid to those with high income
- **Income**
  - ...income

Why UBI?

- Some are concerned about the robocalypse
  - For instance, Acemoglu and Restrepo (2019) find for every 1 robot/1000 workers, employment/population declines by 0.2 percentage points, wages fall by 0.42%.
- Others are concerned more generally about stagnating wages and wage inequality
  - The gap between households with a HS vs College degree has grown from $30,000 to $58,000 (in 2012 dollars) (Autor 2014)
- Others concerned about incredible implicit marginal tax rates and administrative costs
  - For instance, for a thirty year old couple with children, moving from a one-worker $15 part-time job ($16,000/year) to a 40 hours/week 52 weeks/year **loses** them money: from about $32,000 including benefits to losing TANF, SNAP, Medicaid, and CHIP to about $30,000/year. (Kotlikoff Rapson 2007)
  - Administrative costs around $62 billion for SSA, Medicaid, Medicare, School Lunch, WIC, HUD, TANF, EITC, UI (by my count) (1.5% of all Federal spending(!))

Acemoglu and Restrepo (2019)



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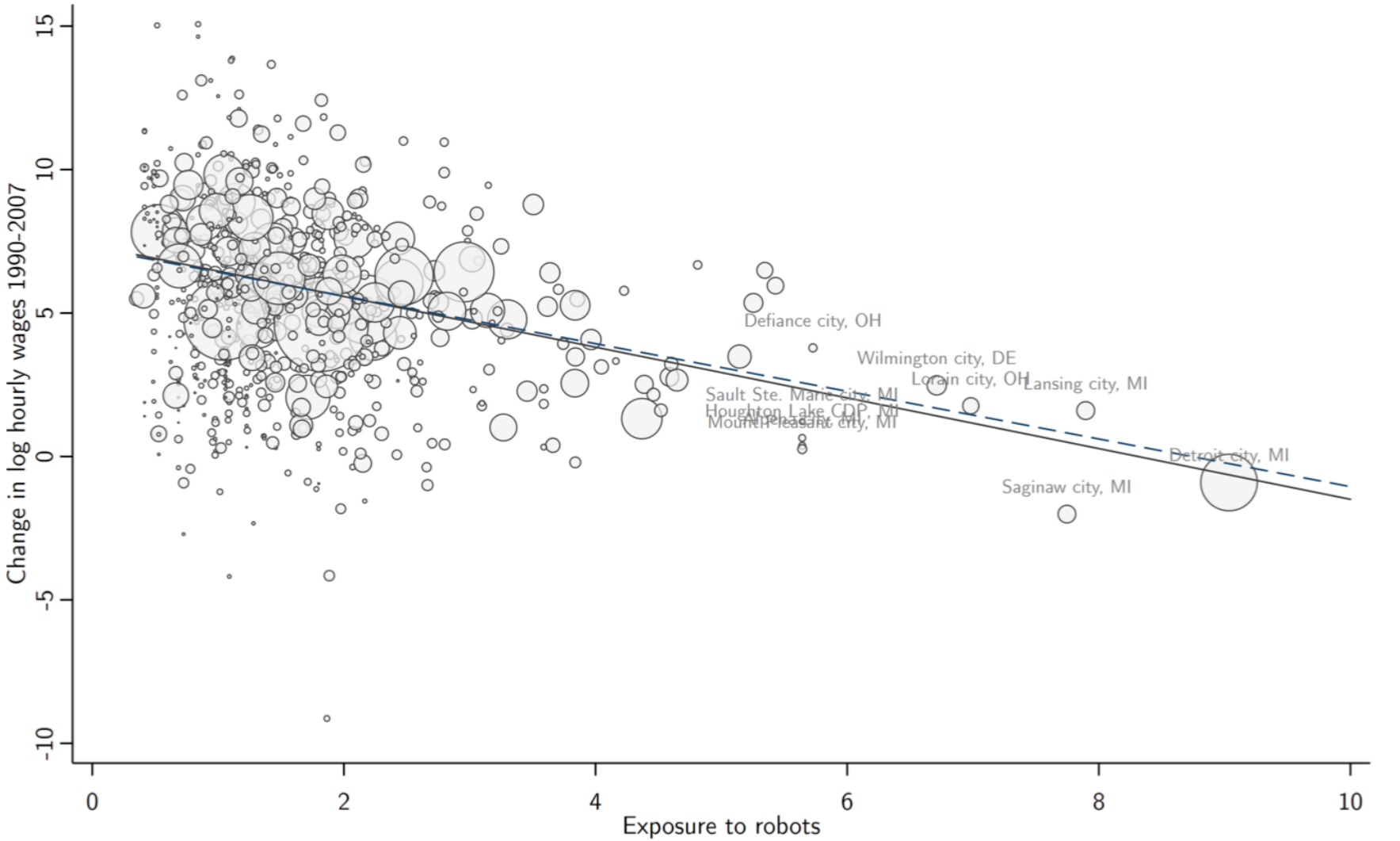
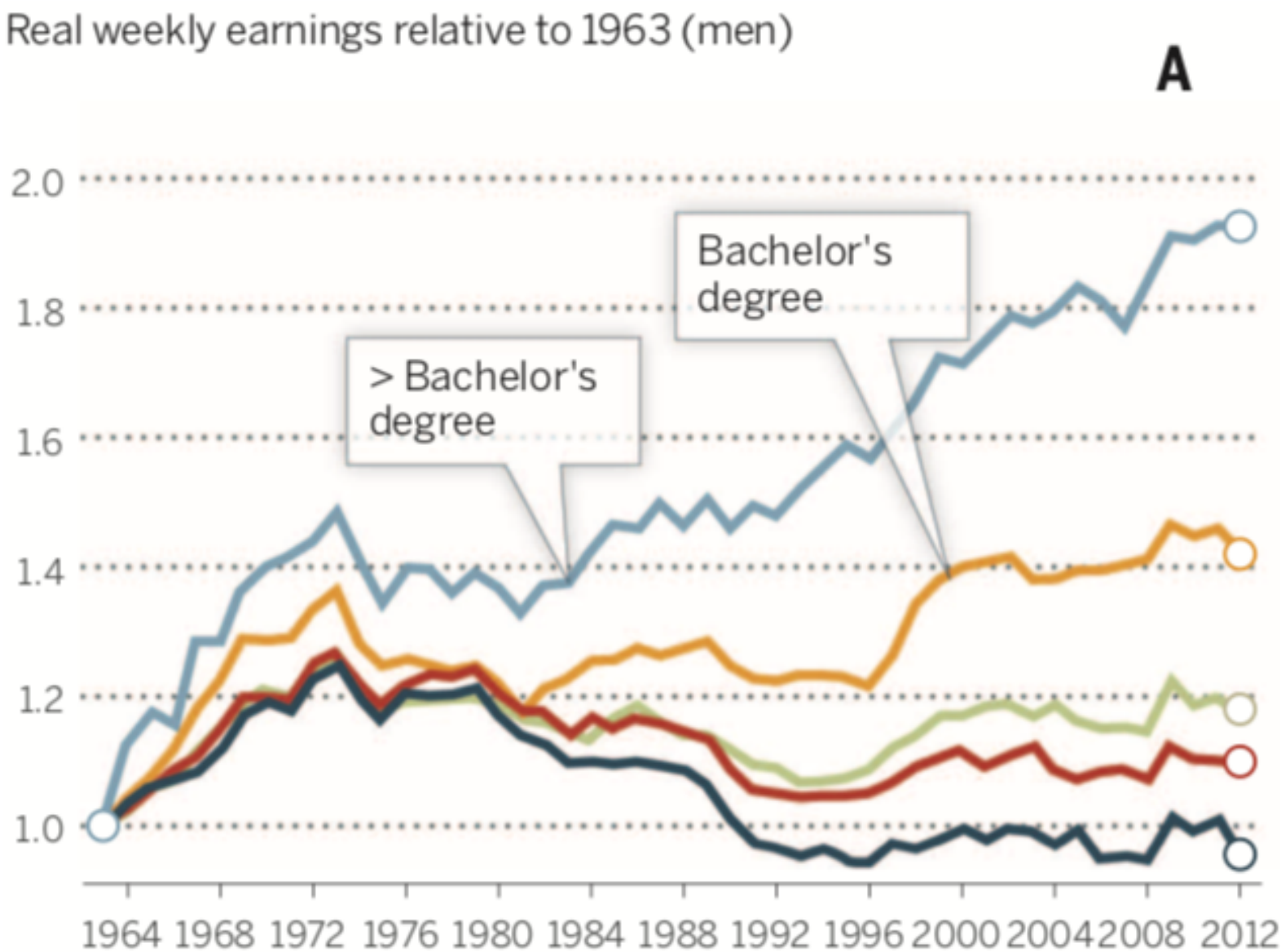
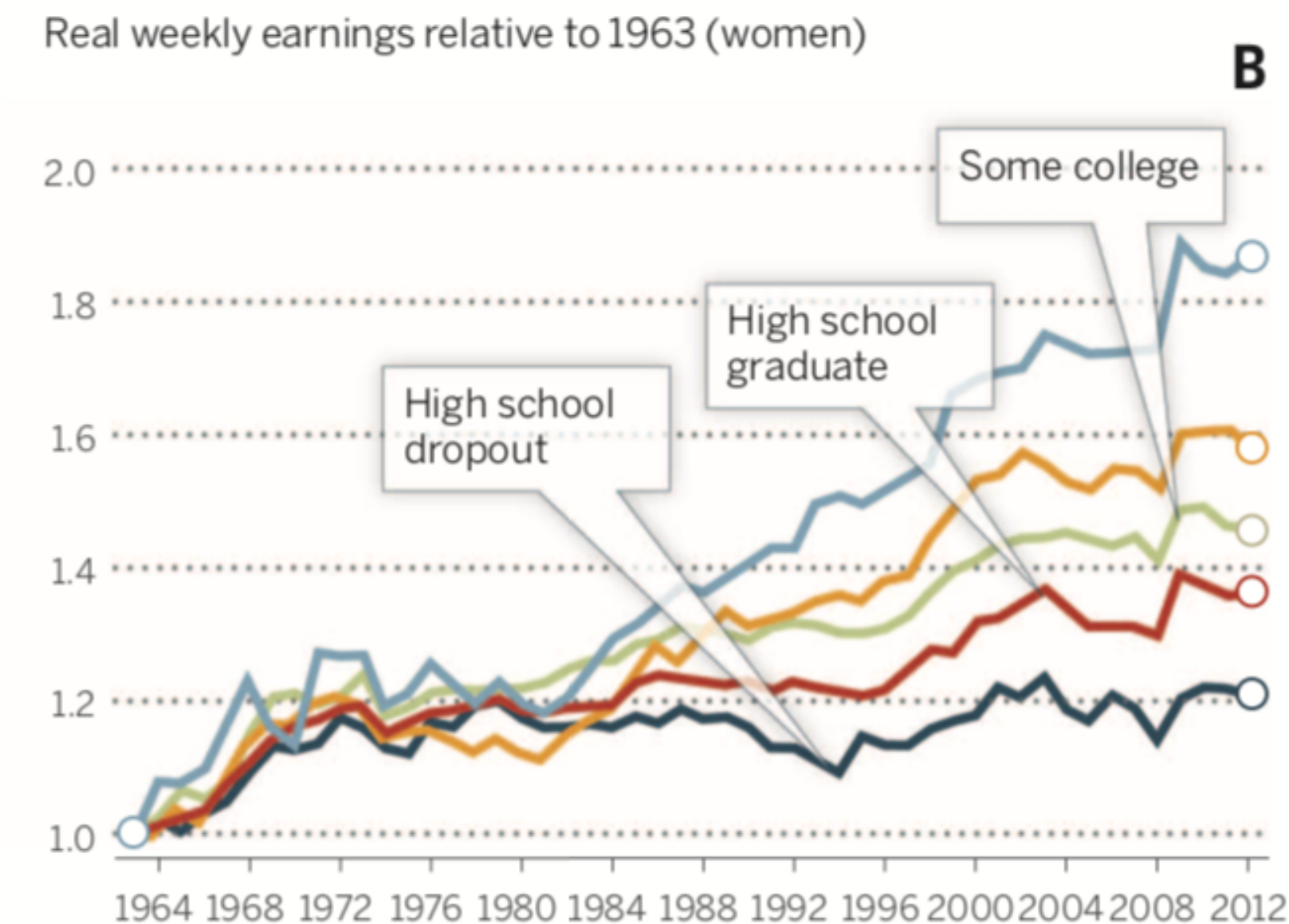


Autor (2014)


Real weekly earnings relative to 1963 (men)
A
2.0
1.8
1.6
1.4
1.2
1.0
Bachelor's degree
> Bachelor's degree
1964 1968 1972 1976 1980 1984 1988 1992 1996 2000 2004 2008 2012

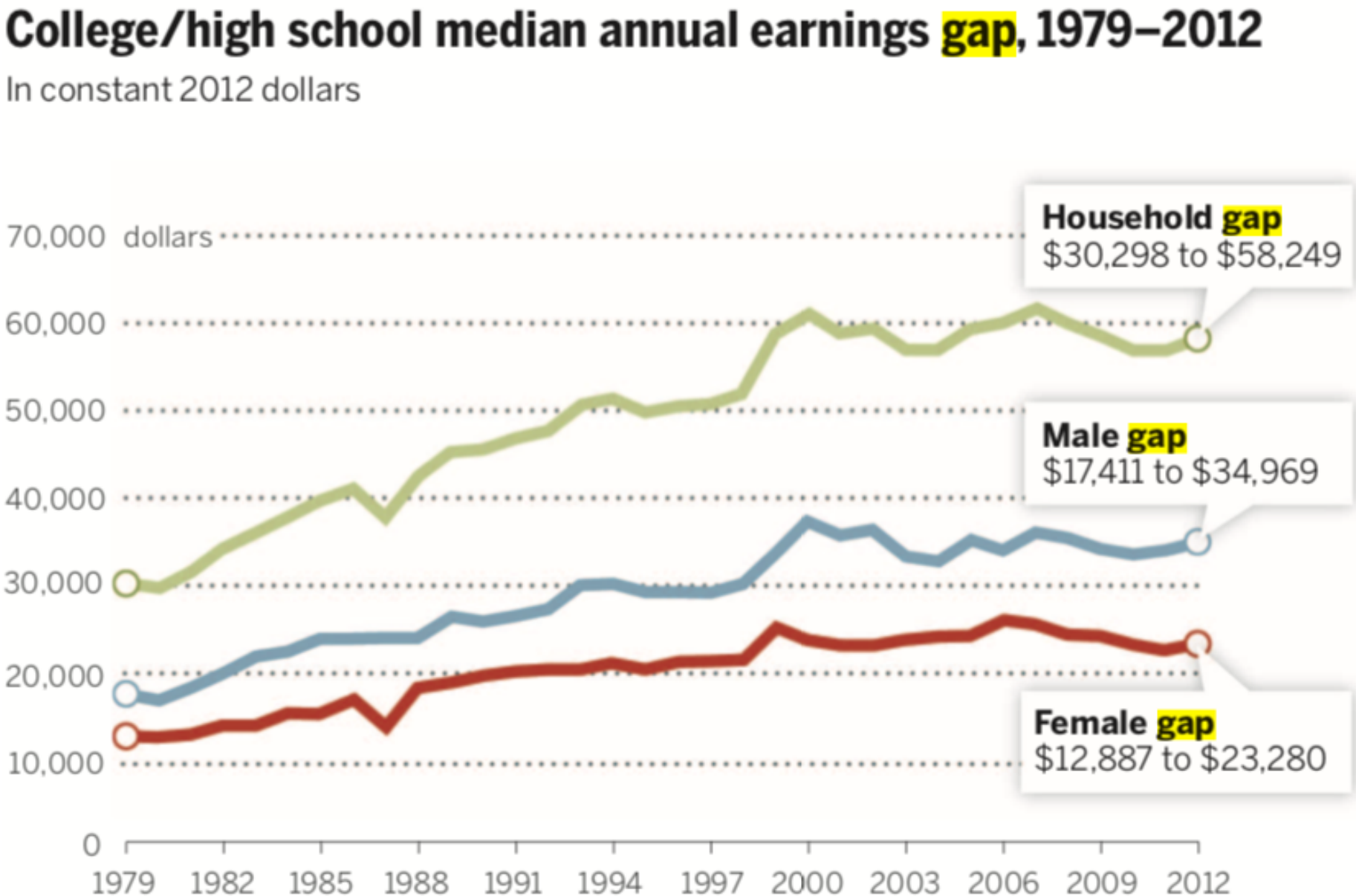
Autor (2014)


Real weekly earnings relative to 1963 (women)
B
2.0
1.8
1.6
1.4
1.2
1.0
Some college
High school graduate
High school dropout
1964 1968 1972 1976 1980 1984 1988 1992 1996 2000 2004 2008 2012

Autor (2014)

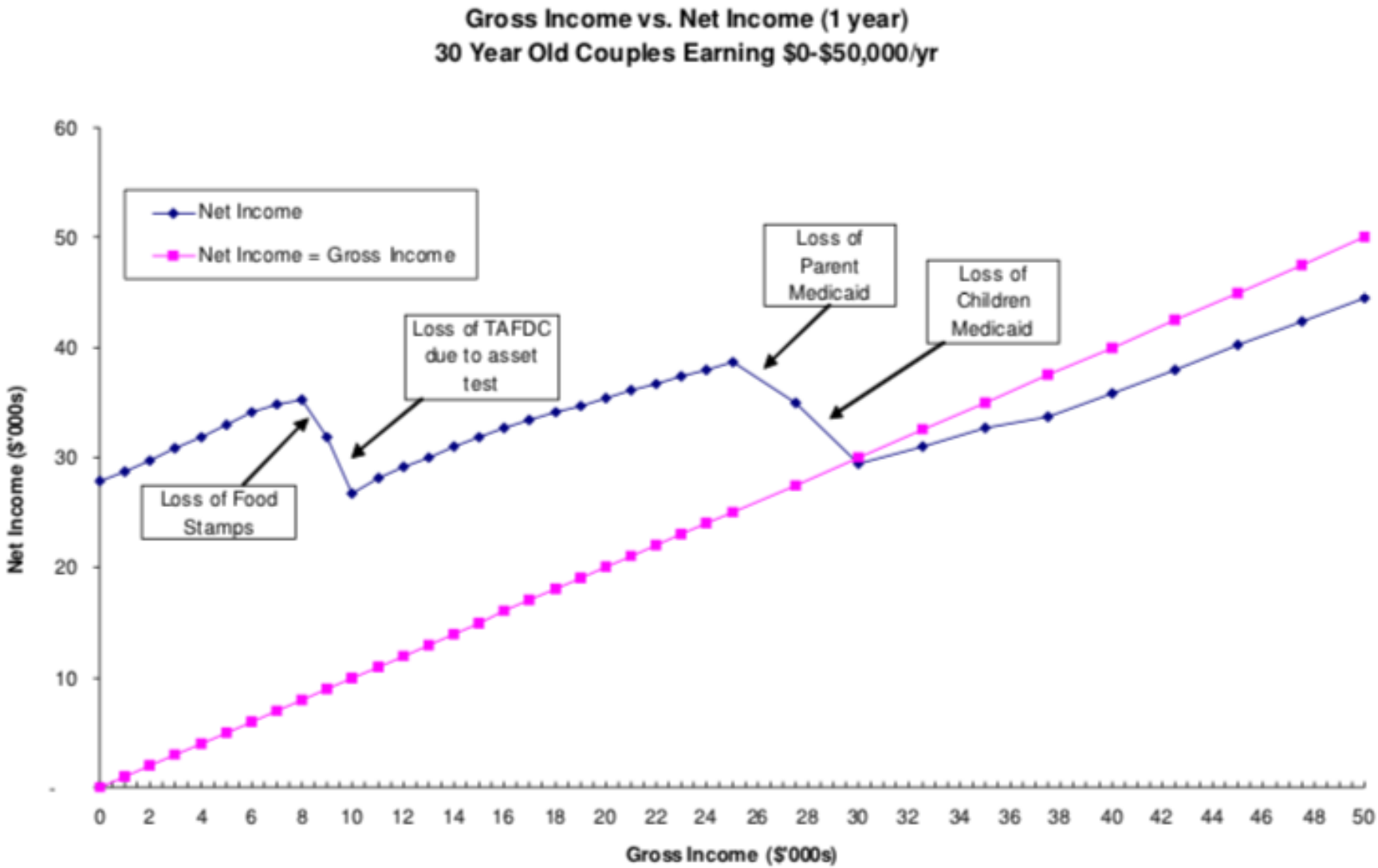

Cross-national differences in wage returns to skills, 2011–2013
Percentage increase for a one standard deviation increase in skill
Earnings gain
95% confidence interval
Sweden
Czech R.
Norway
Italy
Denmark
Cyprus
Finland
Belgium
France
Estonia
Slovak R.
Austria
Netherlands
Japan
Poland
Canada
Korea
U.K.
Spain
Germany
Ireland
U.S.
0
5
10
15
20
25
30 percent

Autor (2014)


College/high school median annual earnings gap, 1979–2012
In constant 2012 dollars
70,000 dollars
60,000
50,000
40,000
30,000
20,000
10,000
0
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009
2012
Household gap
$30,298 to $58,249
Male gap
$17,411 to $34,969
Female gap
$12,887 to $23,280

Kotlitkoff Rapson (2006)

COUPLES



Putting some Bare Bones on it

- U.S. poverty line for a single adult is $13,000
- About $4500/extra child
- US population is 331 million, including 79.5 million children
- Total cost is about $3.6 trillion/year
- Compare to current Federal non-Medicaid, Medicare, Defense spending of $2.2 trillion
- (Recall that average employer/employee costs of family-of-four medical plan is $28,000, so we probably don't want to get rid of Medicaid/Medicare)
- This is **big**

Effects on Labor Supply

- To get a grasp on effects on labor supply, consider "average" person: let's calibrate a model
  - Personal income of $57,000/person
  - $35000 from wages
  - $16500 from capital income/other
  - $9700 in transfers
  - $11000 in taxes
  - Consumption of $45000
  - Savings of $4000
  - Average marginal tax rate is about 30% (Mok)
  - Average tax rate of about 20%
  - Average labor hours of 840/person (1786 h/worker)*(156 million workers)/331 million persons

HSV Tax Function

- We need a tractable tax function (real one is highly piecewise/hard to solve on)
- Heathcote, Storesletten and Violante (2017)
- Taxes paid on pretax income y are:

$$T(y) = y - \lambda y^{1-\tau}$$

- Marginal tax rate rises smoothly as a function of income
- λ controls the "baseline" level of taxation
- τ controls progressivity.
- Let's see how it fits our actual tax schedule

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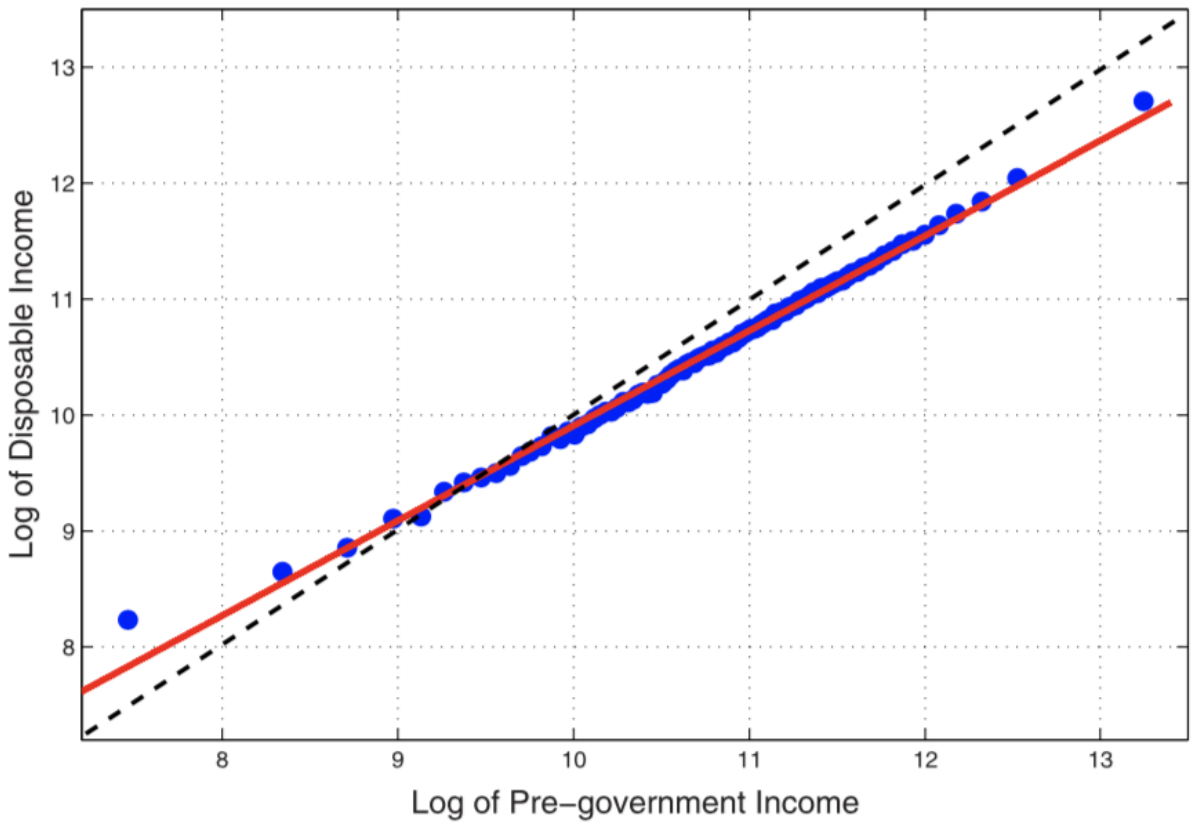
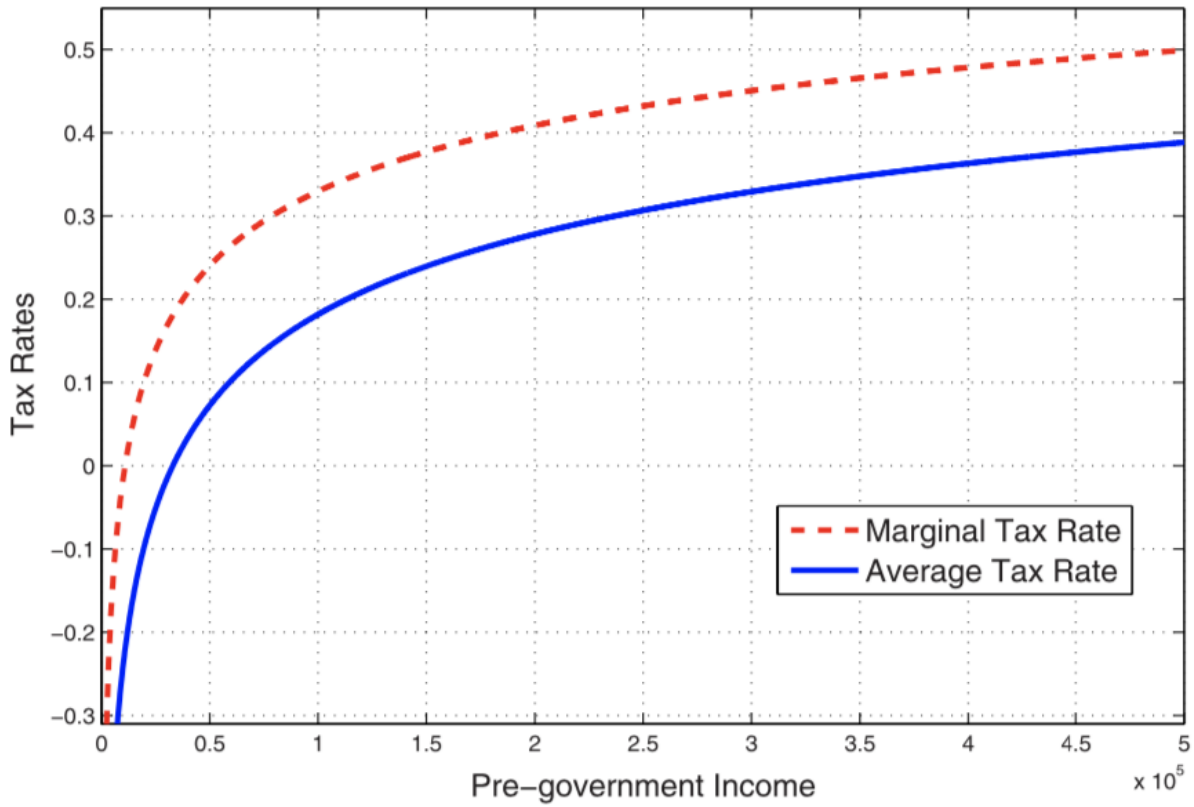
HSV Tax Function Fit



Red line is HSV-fitted function, blue dots are actual taxes paid by group (from PSID)

HSV Tax Function



Calibrating

- We need to get w
- \$35000/840=42
- Have budget constraint with HSV tax function

$$c + s = \lambda(w \cdot L + r \cdot K)^{(}1 - \tau) + Tr$$

- Preferences

$$U(c, L) = \log(c) - \psi \frac{\epsilon}{1+\epsilon} L^{\frac{1+\epsilon}{\epsilon}}$$

- Assume $\epsilon = 0.75$, need ψ. From FOC:

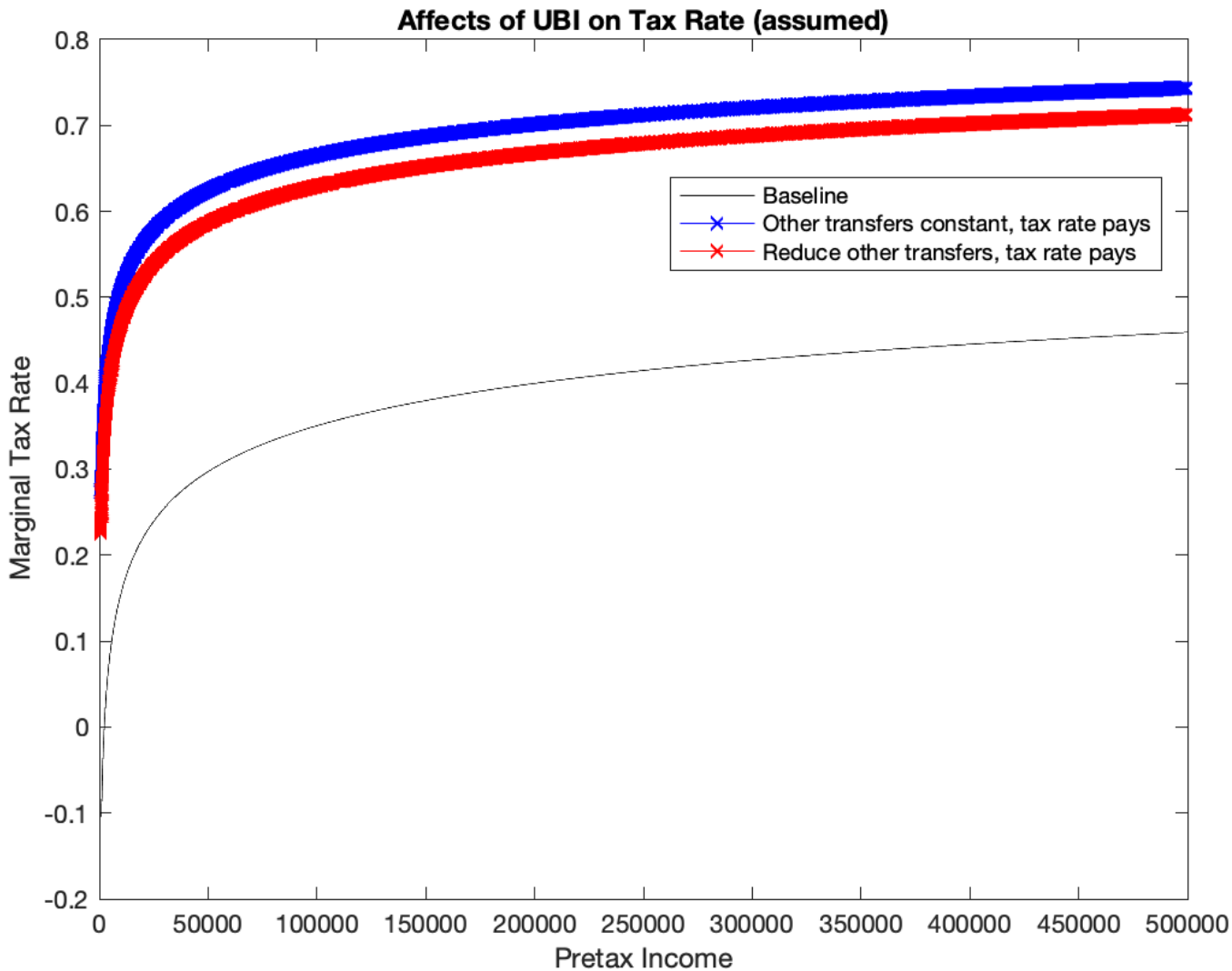
$$\psi = \frac{1}{L^{\frac{1}{\epsilon}}} \frac{\lambda(\tau - 1)w}{\text{Transfers}(Lw + \text{rK})^{\tau} + \lambda(Lw + \text{rK})}$$

- Plug in our values and get ψ (i.e. the ψ that makes us choose the L we see in reality)
- Great! Now we can change our tax/transfer parameters to see what happens to labor.

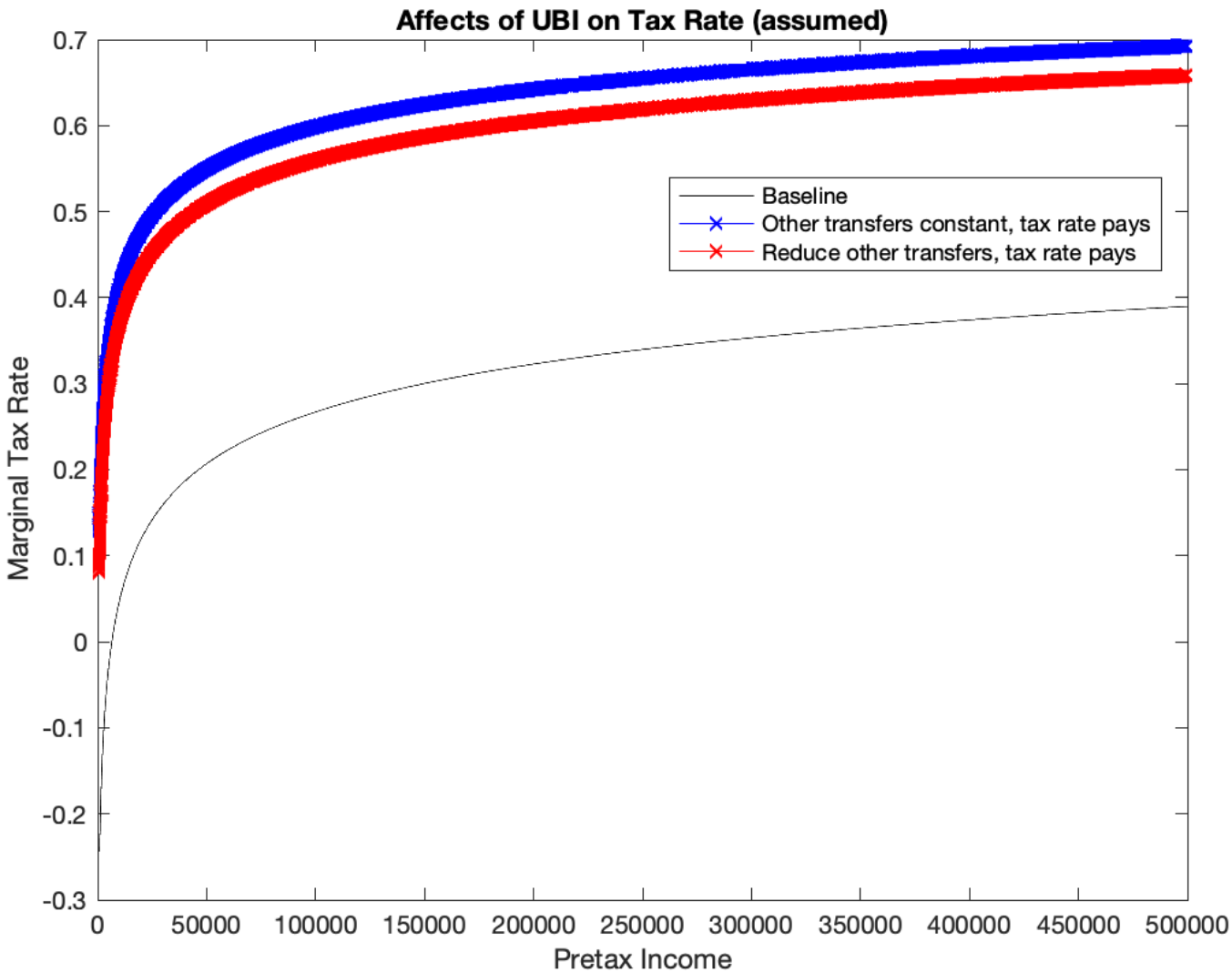
Three Scenarios

- There are a bunch of ways to pay for this
- We'll just try three:
  1. Keep all other transfers constant, $13,000 UBI, don't change taxes to pay (free!)
  2. Keep all other transfers constant, $13,000 UBI, change progressivity to pay
  3. Drop all non-Medicare and Medicaid transfers, $13,000 UBI, change progressivity to pay

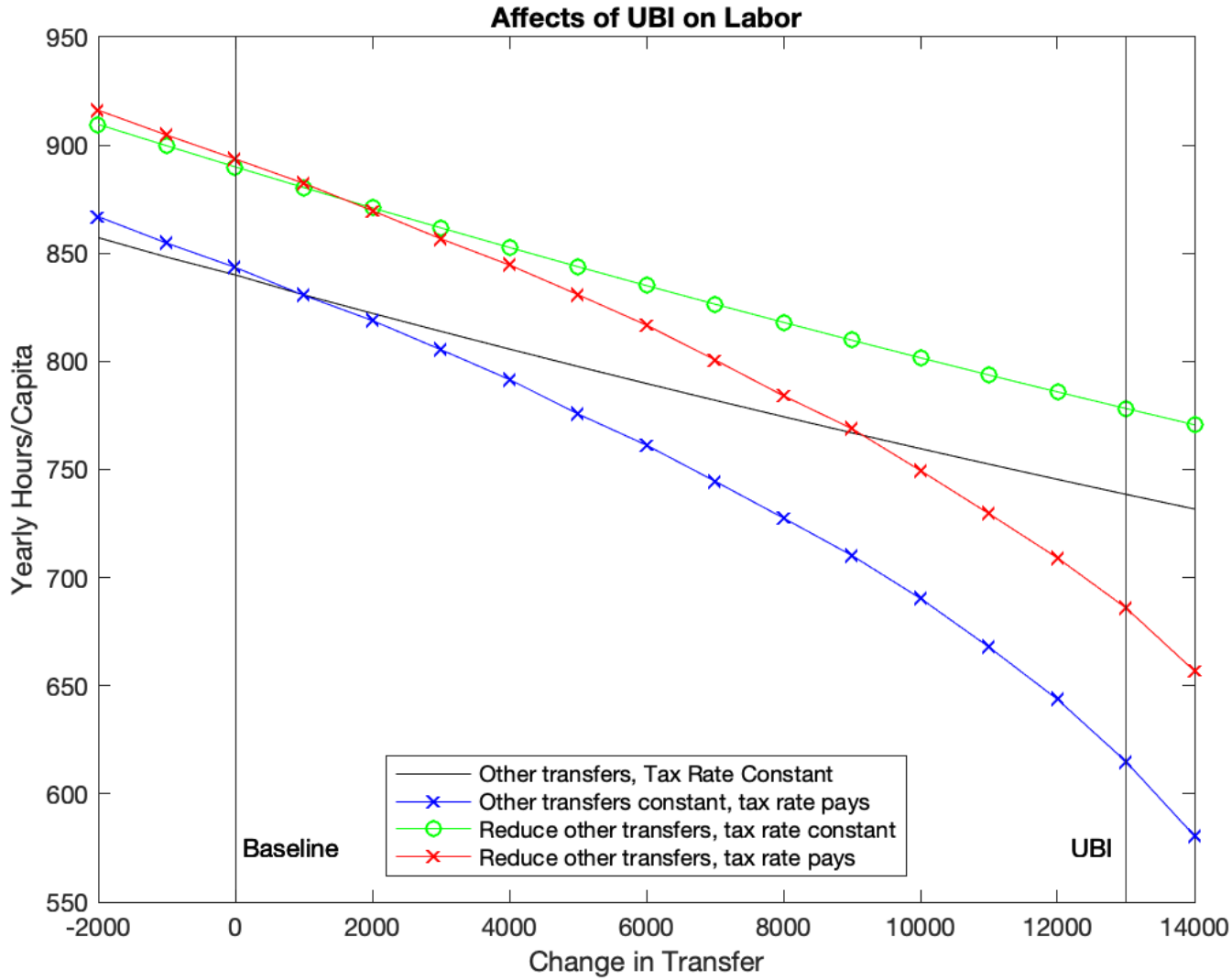
UBI's affects on the Marginal Tax Rate by Income



UBI's affects on the Average Tax Rate by Income



UBI's affects on the Labor Hours by UBI Size



Why do we get these results?

- There are two big affects.
- First, there's a pure income effect: when people have more money, all else constant, they want to consume more of all normal goods (including leisure)
- Second, the progressivity of the tax system is changing (marginal tax rates moving up), so substitution effect
- Note *average* tax rates wouldn't necessarily change labor (income and substitution effects cancel)
- Let's do a back of the envelope!

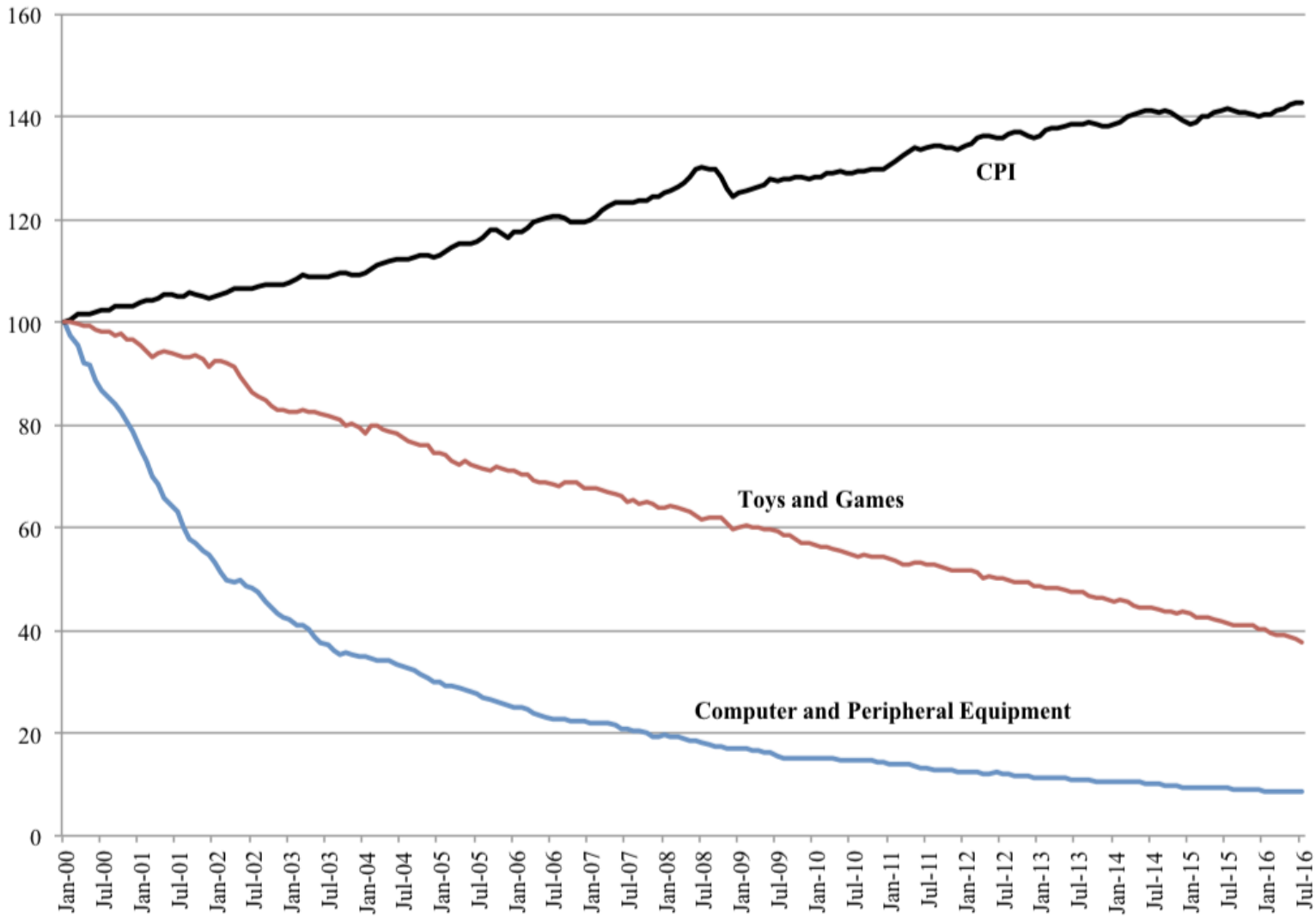
Why do we get these results?

- When young people win lotteries, for every dollar they get they earn about \$0.17 less over the course of their lifetime (we use young-people because for UBI, eventually everyone will be young) (Cesarini, Lindqvist, Notowidigdo and Ostling 2017)
- That means that each person should be earning about \$2210 less each year, or work 50 fewer hours/year
- Also, when wages fall holding constant utility (roughly the UBI), we think for every 1% fall in wages, people work 0.5% less. (Chetty et al. 2011)
- *Behavior constant* marginal tax rate rises by nearly 30%, so we expect labor to fall by about 126 hours
- In total our structural model had a fall of 233 hours/person, back of the envelope gives about 176 hours/person.

Will UBI Be Transformative?

- A natural response is that UBI will be transformative/this isn't representative of where we're going as a society
- Possible! But playing with fire
- Two responses:
  1. What do young men do with their time?
  2. Is the European welfare state causing people to work more?

Games are Far Less Expensive



Note: Price series from BLS.

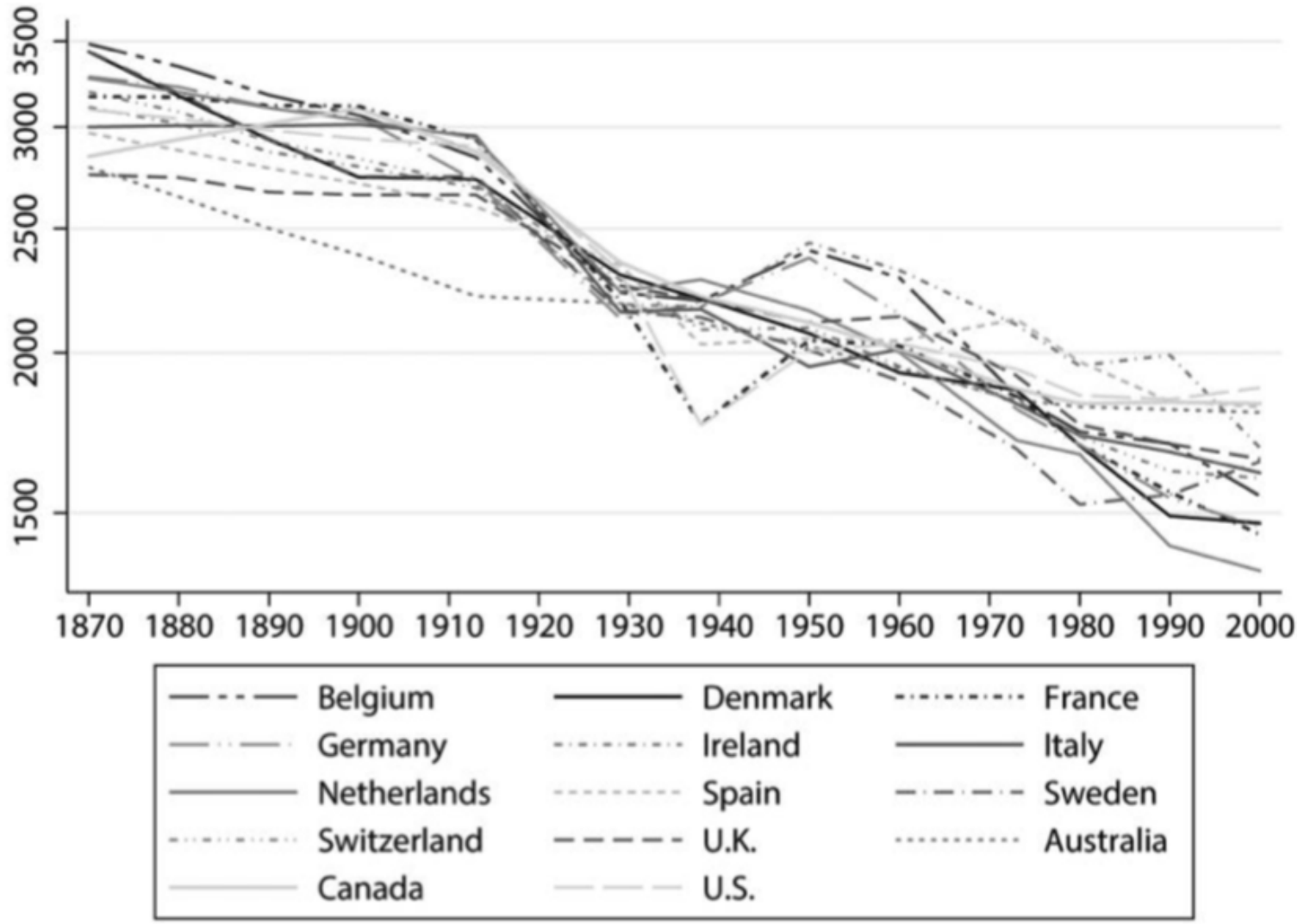
How do Young Men Spend their Time?

Table 4: Leisure Activities for Men 21-30 (Hours per Week): By Employment Status

	Employed			Non-Employed		
Activity	2004-2007	2012-2015	Change	2004-2007	2012-2015	Change
Total Leisure	57.6	59.6	2.0	86.9	82.1	-4.8
Recreational Computer	3.0	4.3	1.3	5.4	9.6	4.3
Video Game	1.8	2.9	1.0	3.4	5.9	2.5
ESP	23.6	23.9	0.3	30.1	29.9	-0.2
TV/Movies/Netflix	15.9	15.5	-0.5	27.8	25.0	-2.7
Socializing	7.4	7.8	0.3	10.6	8.9	-1.7
Other Leisure	7.7	8.1	0.5	13.0	8.6	-4.4
Job Search and Education	2.0	1.9	-0.1	9.4	14.1	4.7

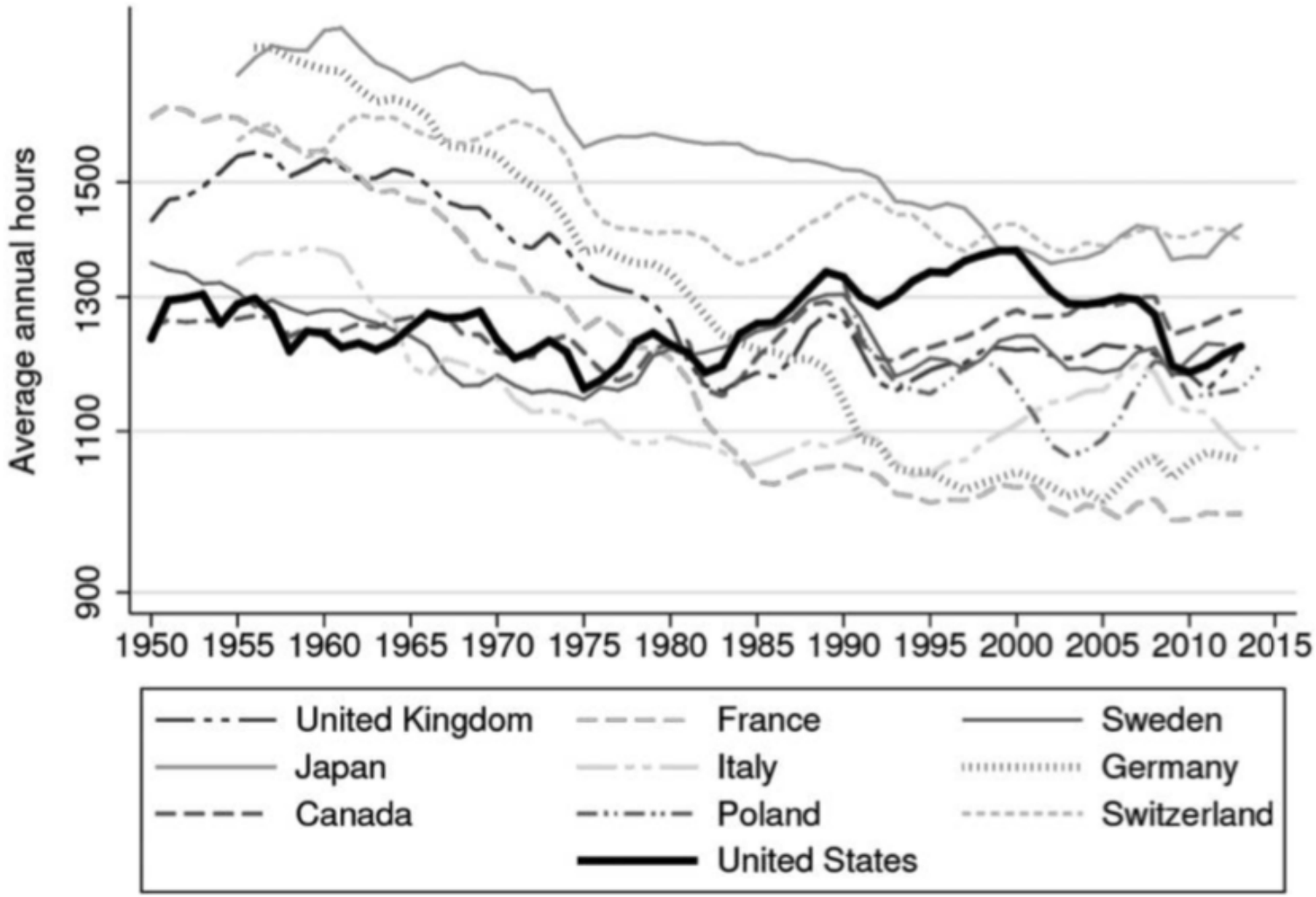
2012-2015, **3.4 hours/day, >23 hours a week*** on computer if spent positive time on computer. (Aguiar, Bils, Charles, Hurst 2017)

Hours per Worker



Boppart Krusell 2019

Hours per Worker



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Some Claims

- Claim: leisure is fun and valuable work is hard
- Claim: Reward to work is important motivator to work
- Belief: UBI would sharply reduce work hours because enables leisure lifestyle and would be paid by lessening reward to work (particularly among the marginal)
  - Example (Maestas, Mullen, Strand 2013): for the 23% of applications on margin of disability program entry, employment is 28% higher if not receive benefits
  - No effect for severe impairments, such as respiratory, immune system, and blood disorders,
  - Big effects for non-severe (91% for skin disorders, 50% for respiratory, 36% for endocrine disorders (such as diabetes))

Other Arguments

- Kearney and Mogstad (2019)
  - UBI very expensive
  - But doesn't reduce inequality
  - Doesn't advance opportunity, social mobility
  - Instead should pay wage subsidies to low-wage workers + targeted transfers
  - "Pro-work" version

US UBI Experiments

- Seattle-Denver Income Maintenance Experiment (SIME/DIME) last of four large-scale NIT experiments
  - Guarantee \$3800, \$4800, and \$5600 to different groups
  - Tax them at 50%, 70%, and at 80% and 70% with declining tax of 5%/\$1000
- With 50% tax, 6.7%, 8.8%, and 11.8% reduction in labor supply by second year
- Overall affect of $\approx$ 13% by year 3-5

Modern UBI Experiments

- Finland 2017-2018 (cancelled early) + reduction in tax rate to work: no change in unemployment
  - Note that because we think unemployment benefits starkly affect work, no change *may* be seen as a negative affect
- Ontario 2017-2018 (cancelled early): no labor results I could find
- Y-Combinator: planned in 2016, repeatedly pushed back until 2020(??)
- Switzerland (TBD (since 2017))
- Stockton (ongoing): Treatment group 4% less likely to be employed FT, 3% more likely to be PT. 5% less likely to be in labor force.

Jones and Marinescu (2020)

- Look at dividends from Alaska Permanent Fund
- Try to control for employment rate, LFP, part time, age structure, industry structure using a synthetic Alaska (43% Utah, 34% Wyoming, 10% Washington, 8% Nevada, 3% Montana, 3% Minnesota (for example)
- Find dividend did not affect employment (increased PT work by 1.8 p.p.)

Changing Tack

- So far we've just been thinking about employment
- There are potentially other problems with UBI

Hoynes and Rothstein

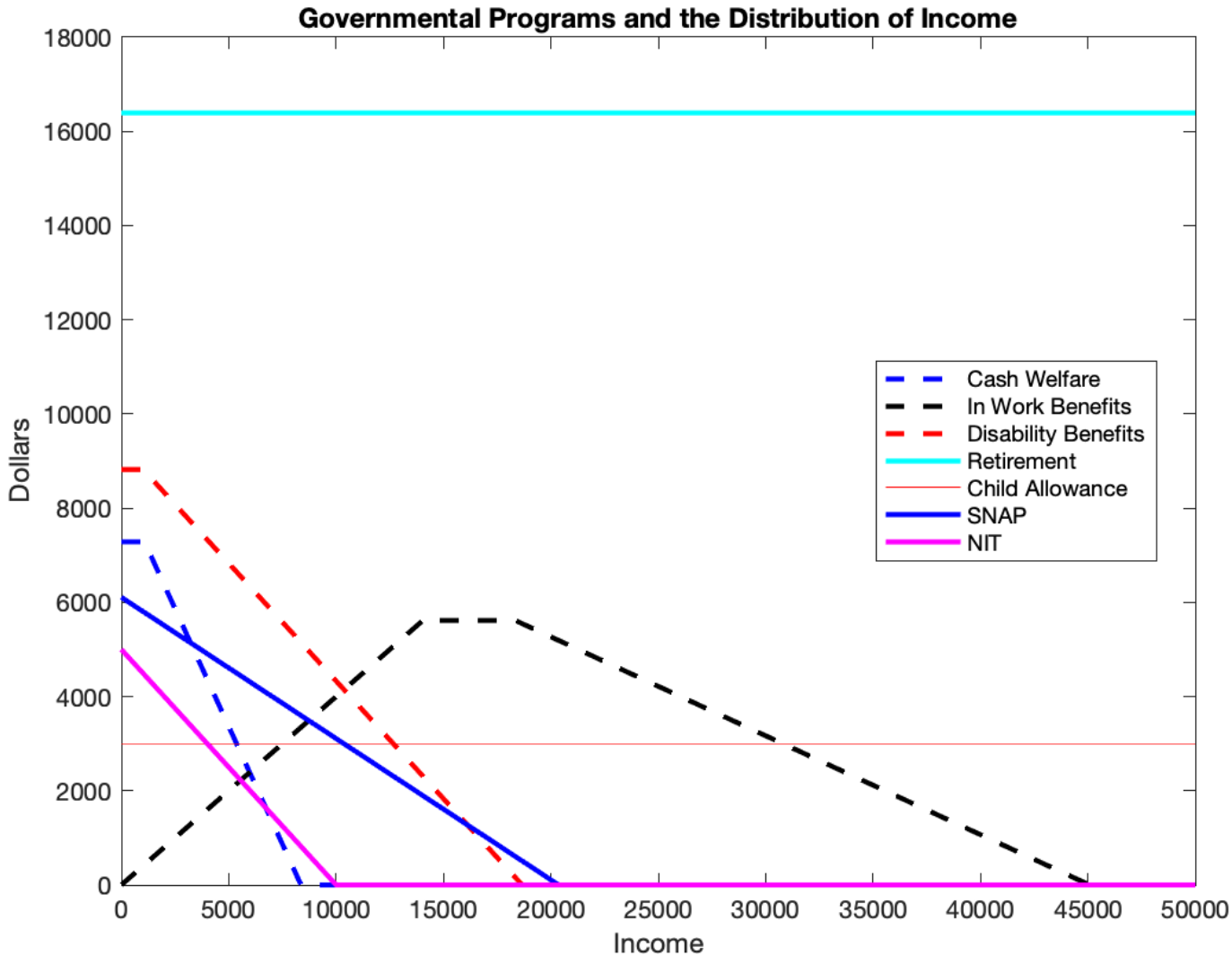
- Canonical equation to write down your transfer program for family with income Y and characteristics X:

$$B(X, Y) = E(X) \cdot \min(G + SY, M, max(M - T(Y - P), 0))$$

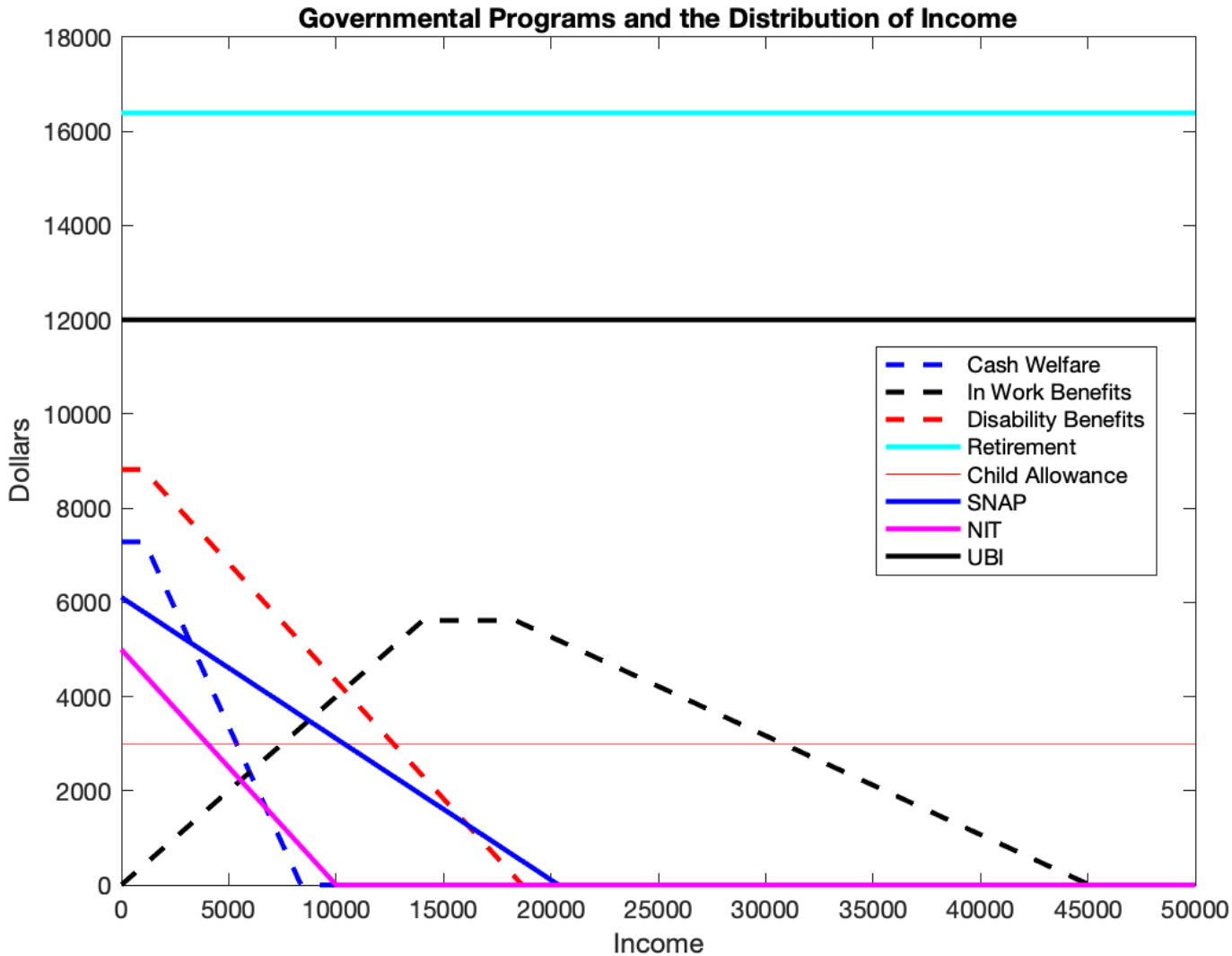
  - G (guarantee): transfer to a family with zero earnings
  - S (subsidy rate): rate at which transfer grows as earnings rise above zero
  - M (max transfer): maximum transfer
  - P (phase out): highest earnings before starts being clawed back
  - T (tax rate): rate at which starts being clawed back
  - E (eligibility): which families are eligible based on characteristics

- With this in hand we can plot a bunch of social programs (cash welfare, in-work benefits/EITC, disability benefits, retirement (Social Security), child allowances, negative income taxes, and UBI)

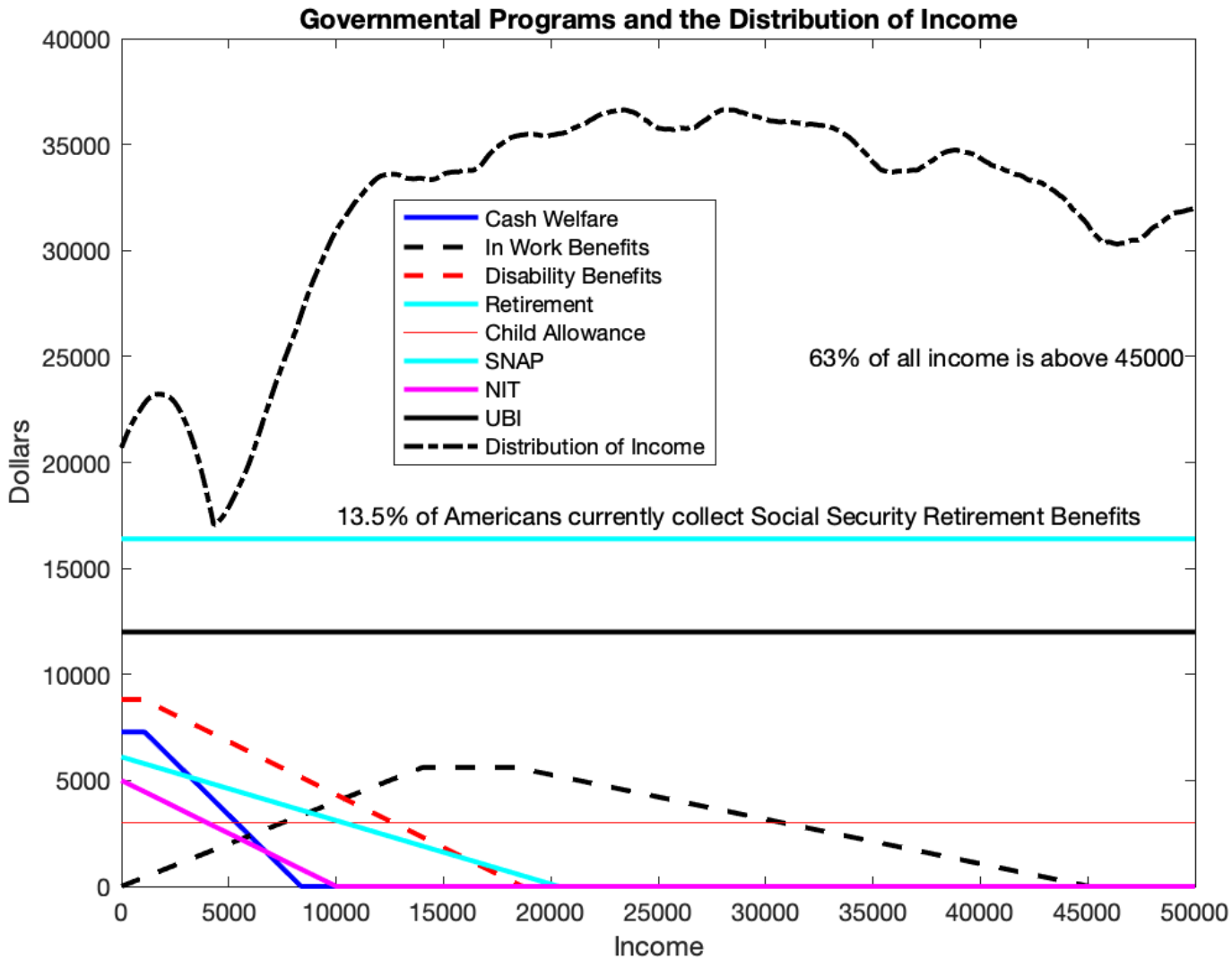
Current Social Programs



Current Social Programs+UBI



Current Social Programs+UBI+Distribution of Income



Current Social Programs

- Two important takeaways:
  - UBI is **big** (big transfer)
  - Other programs are **targeted** (focused at bottom end, where there are few people: only $\approx$7% of households have incomes below \$10000, when most of the programs have largely phased out
- This will mean that replacing these programs with UBI will be extremely **regressive**

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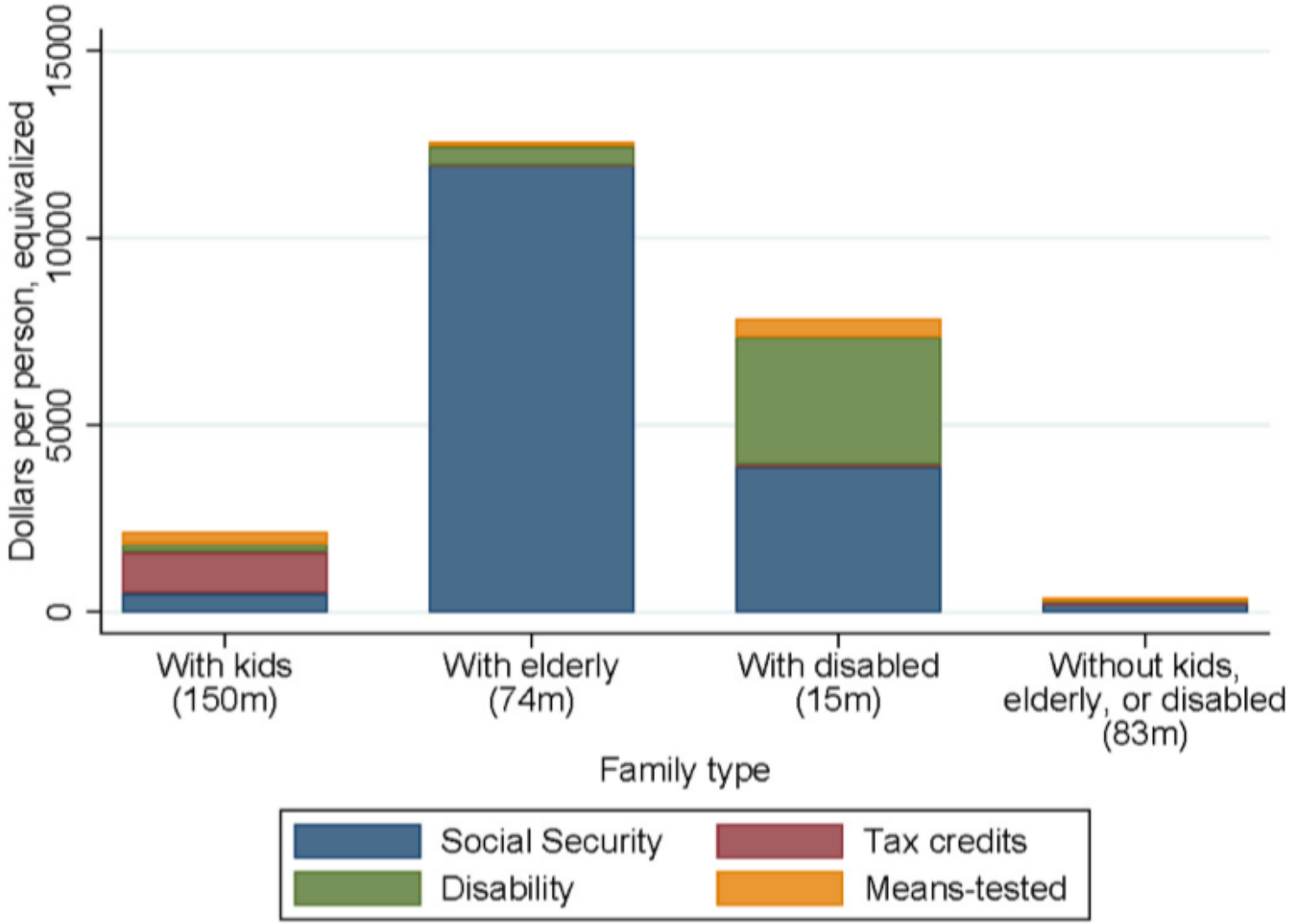
- This will mean that replacing these programs with UBI will be extremely **regressive**
- Let's get a flavor for the magnitudes of current programs

Program	Eligibility [E]	Total expenditures (billions)	Number of recipients (millions)
Cash welfare			
TANF	Single parent, work requirements	7.4	2.8
SSI /Elderly	65+	5.4	1.2
SSI children	under age 18, blind or disabled	9.3	1.2
In-kind, near-cash welfare			
SNAP	near universal	63.6	42.1
School Lunch	K-12 children	12.3	22.0
School Breakfast	K-12 children	4.5	12.5
WIC	pregnant, postnatal women & children<5	5.6	7.3
Section 8 & Public Housing	universal, but rationed	26.9	9.4
In-work tax credits			
EITC	Earners 25-64 for childless	69.8	69.7
CTC	Families with children with earned income	52.8	105.9
Disability programs			
SSDI	Documented work limiting disability	142.7	10.4
SSI/Disability	Documented work limiting disability	39.6	5.9
Social Insurance			
Social Security retirement	Retirement age, with work history	680.2	45.5
Social Security survivors		118.3	6.0
Unemployment insurance	Work history, actively looking for work	29.9	5.7
Health insurance			
Medicare	65+, Disabled	689.0	57.0
Medicaid	Low income	368.0	82.2
CHIP	Children	14.3	9.2
TOTAL COST	**ALL PROGRAMS**	$2,340	
	EXCLUDE HEALTH	$1,268	
	EXCLUDE HEALTH & SS RETIREMENT	$588	
Potential UBIs			
Canonical	Ages 18+	$3,025	252.1
Phased out around median Y	Ages 18+	$1,512	126.0
Age-limited	Ages 18-64	$2,414	201.2

Current Transfers by Type

Figure 4. Average household transfers, by family type and program



Targeting

- Caveat: some of these numbers coming up come from spending/persons

Targeting-I

- An important reason the U.S. welfare state is "small" is targeted benefits.
- Single disabled mother of one on food stamps gets (per year):
  - $14850 from SSDI
  - $4260 from SNAP
  - $560 from school lunch
  - $360 from school breakfast
  - $16800 from Medicaid (auto-enrolled if disabled)
  - $2580 from CHIP benefits (child Medicaid)
- $39,410 in value ($19110 near-liquid)
- Add $2800/year if Section 8
- Contrast to median US personal income of $31100

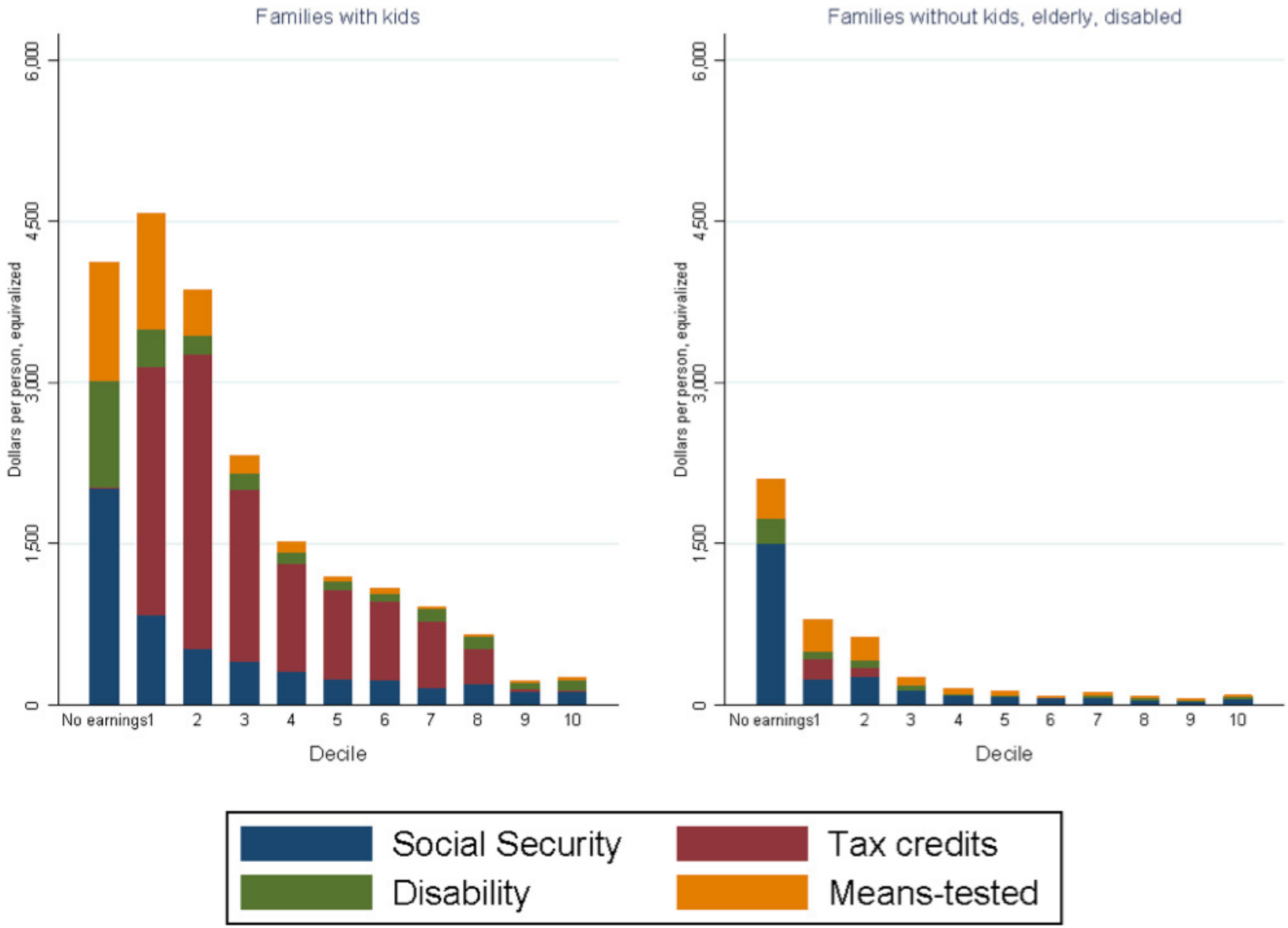
Targeting-II

- What about a minimum wage mother of two working part-time?
  - \$9048 pretax from minimum wage job (24 hours/week)
  - $\approx$ \$2600 from TANF (up to 5 years lifetime)
  - \$3619 from EITC
  - \$4260 from SNAP
  - \$1020 from school lunch
  - \$720 from school breakfast
  - \$3278 from Medicaid (auto-enrolled if disabled)
  - \$5154 from CHIP benefits (child Medicaid)
- \$18050 in value + \$9048 pretax income = \$27098
- Contrast to median US personal income of \$31100

Hoynes & Rothstein's Point

- UBI is expensive
- Our current programs are targeted
- Killing current programs to pay for UBI is incredibly regressive

Who gets transfers?



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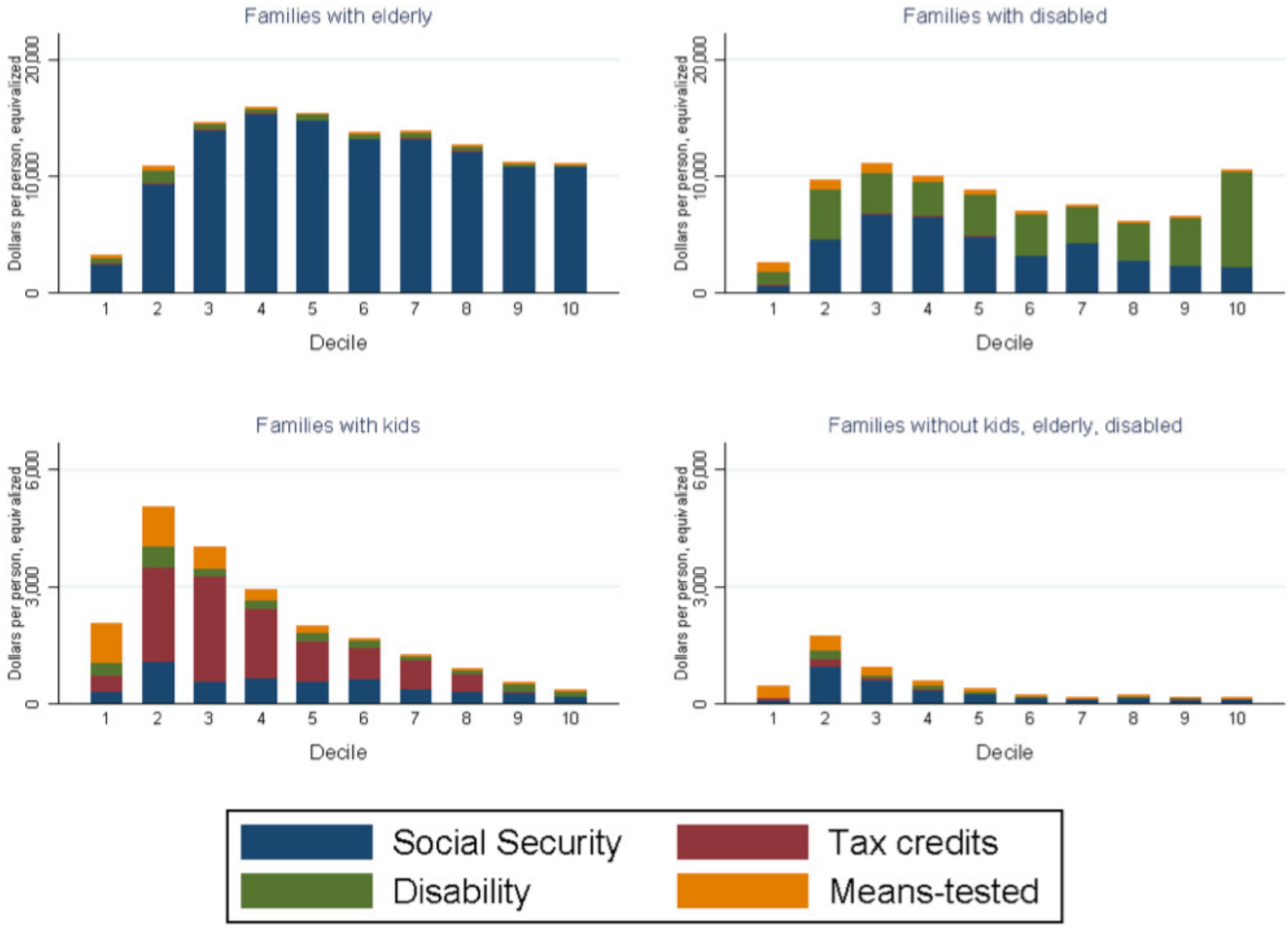
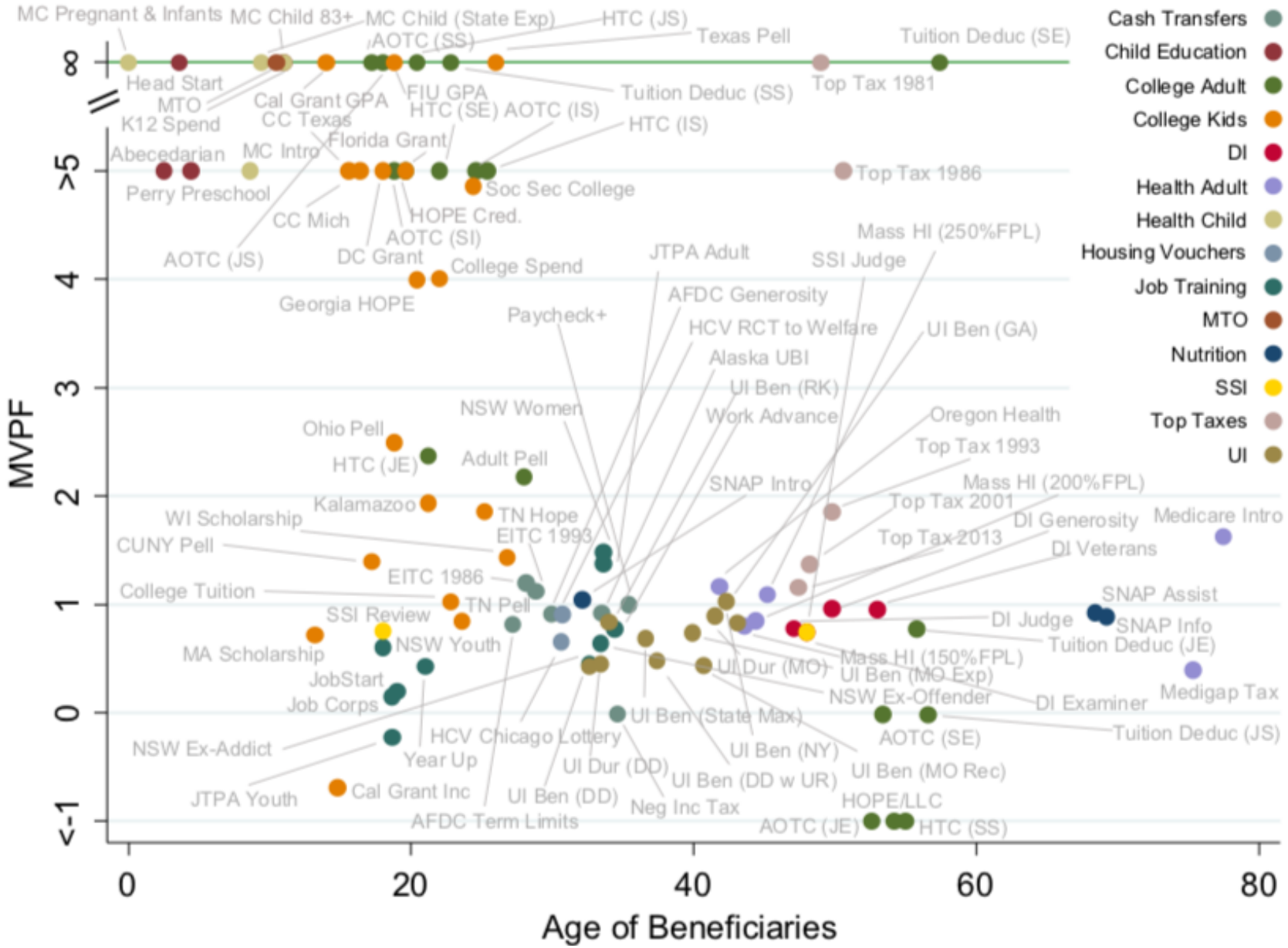


Is it all hopeless?

- What do we want to do?
- Help the needy?
- Stave off robocalypse?
- Efficiently spend money?

Hendren 2019



Hendren 2019

Conclusions

- I think the deck is stacked against UBI
- It's very expensive, and current programs are very targeted
  - If want to pay for it with taxes, doubly-strong work disincentives
  - If want to pay for it by killing other programs, incredibly regressive on families, disabled, and poor.
- More likely there are higher social returns ways to spend money