Determining marginal tax rates, benefit cliffs, and impacts of policy changes using a hypothetical family approach

41st Annual Fall Research Conference - Association for Public Policy Analysis & Management (APPAM)

November 8, 2019

Seth Hartig

NCCP National Center for Children in Poverty
Putting research into action to improve lives

Bank Street Graduate School of Education

What is the "hypothetical family approach?"

- *"The hypothetical family approach … estimates marginal tax rates for hypothetical families varying in characteristics such as household composition, household income, state of residence, and program receipt. [It]answers questions such as: 'What is the marginal tax rate for a single parent household with two children earning $20,000, in Colorado, assuming that they receive a given set of benefits for which they are eligible?"'This approach uses program rules to compute marginal tax rates for each 'hypothetical family.'"* [1]
- The National Center for Children in Poverty (NCCP) employs this approach for an online tool, the Family Resource Simulator (FRS), for measuring the potential impacts of safety net policies on low-income families.

[1] Giannarelli, L.; Lippold, K.; Maag, E.; Steuerle, C.E.; Chien, N.; Macartney, S. (2018). *Estimating Marginal Tax Rates Using a Microsimulation Model: Technical Appendix*. ASPE, 2019.

The Family Resource Simulator (FRS)

- An online tool that analyzes the individual and combined impacts of safety net polices and potential policy changes on low-income families.
- Updated state by state.
- The tool can help states develop effective policies for supporting low-income families.
- It has been used by advocates, policymakers, and program administrators to model state and federal rules for all major benefit programs. It can show the impact of marginal tax rates and benefit cliffs at an individual family level.
- The public-facing FRS is freely available for public use at www.nccp.org/tools/frs.

The Family Resource Simulator (FRS)

- The last complete update was for DC, for 2017 policies and basic expenses. In this presentation, we will discuss some data generated from this update.
- It is currently being expanded to include basic expenses and policies as of 2019 in Allegheny County, PA, Tompkins County, NY, and Kentucky.
- The Pennsylvania tool is being completed through a collaborative process with Allegheny County DHS. Findings discussed in this presentation represent initial findings based on expense and policy formulas still in progress.
- In this presentation, we will explore the potential impact of a proposed rule change to remove broad-based categorial eligibility criteria in the SNAP program.

Basic terms and considerations

- Net resources = wage income + cash assistance + SNAP – expenses, inclusive of subsidies that reduce expenses
- Marginal tax rate from \$A to \$B (\$B>\$A) :
  - 1-((net resources at \$B – net resources at \$A)/(\$B-\$A))
- Benefit cliffs: instances when net resources decline due to marginal increases in income, meaning that a family experiences a marginal tax rate exceeding 100%.
- Negative values for net resources occur when family's basic expenses outweigh its total resources. (When net resources are negative, families will need to either cut back on expenses below standard levels, use up savings, or go into debt.)
- Detailed methodology of the 2017 DC FRS is available online in a technical manual.

www.nccp.org/tools/frs

- Below is what users see at the FRS landing screen. Choosing the state and county is the first of eight steps the FRS asks to generate output.

Family Resource Simulator

The Family Resource Simulator illustrates the impact of "work supports"—such as earned income tax credits and child care assistance—on the budget of a hypothetical family. Based on the answers provided on steps 1 through 7, the Simulator generates graphs that show how family resources and expenses change as earnings increase. Create your own scenario by following the steps below or see sample results. A related tool, the Basic Needs Budget Calculator, allows users to see how much income is necessary to cover a family's basic expenses.

step 1	step 2	step 3	step 4	step 5	step 6	step 7	step 8
City & State	Family	Income & Assets	Work Supports	Child Care	Health Insurance	Other Expenses	Results

1 Select state and city (or county).

District of Columbia 2017 ▾ ---Select a Location--- ▾

Family Resource Simulator, Steps 2-7

- **Step 2: Family:** single or 2-parent family, ages of the parent(s), the number and ages of children, and (as of 2017) whether any parents have disabilities.
- **Step 3: Income & Assets:** Starting wage rate for parent(s), amounts for family savings, the value of the family's vehicles, and debt, child support, income, and (beginning in 2017) questions about work schedules.
- **Step 4: Work Supports:** Users select each public benefit, or work support, the modeled family will receive when eligible. <u>We look more closely at Step 4 in the following slide.</u>
- **Step 5: Child Care:** Users select a child care setting to estimate costs for each child, or can opt to enter their own cost estimates. Defaults are 75^{th} percentile of market rates.
- **Step 6: Health Insurance:** Users select cost of premiums for employer health insurance or marketplace insurance when the family is not covered by Medicaid. Defaults for employer plans are based on MEPS data, while defaults for marketplace plans are premiums for Second Lowest Cost Silver Plans. Users can also enter additional out-of-pocket medical costs.
- **Step 7: Other Expenses:** Users enter or select costs for rent, utilities, food, and transportation. Default costs are HUD Fair Market Rents, USDA Low-Cost Food Plans, and either local public transportation costs or federal standard mileage and cost-per-mile rates.

Users select which benefits the family receives when eligible.

step 1 City & State | step 2 Family | step 3 Income & Assets | **step 4 Work Supports** | step 5 Child Care | step 6 Health Insurance | step 7 Other Expenses | step 8 Results

4 Select work supports.

The simulator is capable of modeling the impact of the below programs, benefits, and work supports. Select which benefits the family receives if/when eligible:

- [x] Child Care and Development Fund (CCDF) Subsidies
- [x] SNAP/Food Stamps
- [x] Public Health Insurance (Medicaid)
- [ ] Section 8 Housing Vouchers
- [x] TANF Cash Assistance
- [x] Lifeline
- [x] Low Income Home Energy Assistance Program (LIHEAP)
- [x] Women, Infants, and Children (WIC)
- [ ] Supplemental Security Income (SSI)
- [x] Pre-Kindergarten (PreK)
- [x] Afterschool (Out of School Time Program)
- [x] National School Breakfast Program (NSBP)
- [x] National School Lunch Program (FRPL)
- [x] Free Summer Meals Program (FSMP)

Federal Tax Credits

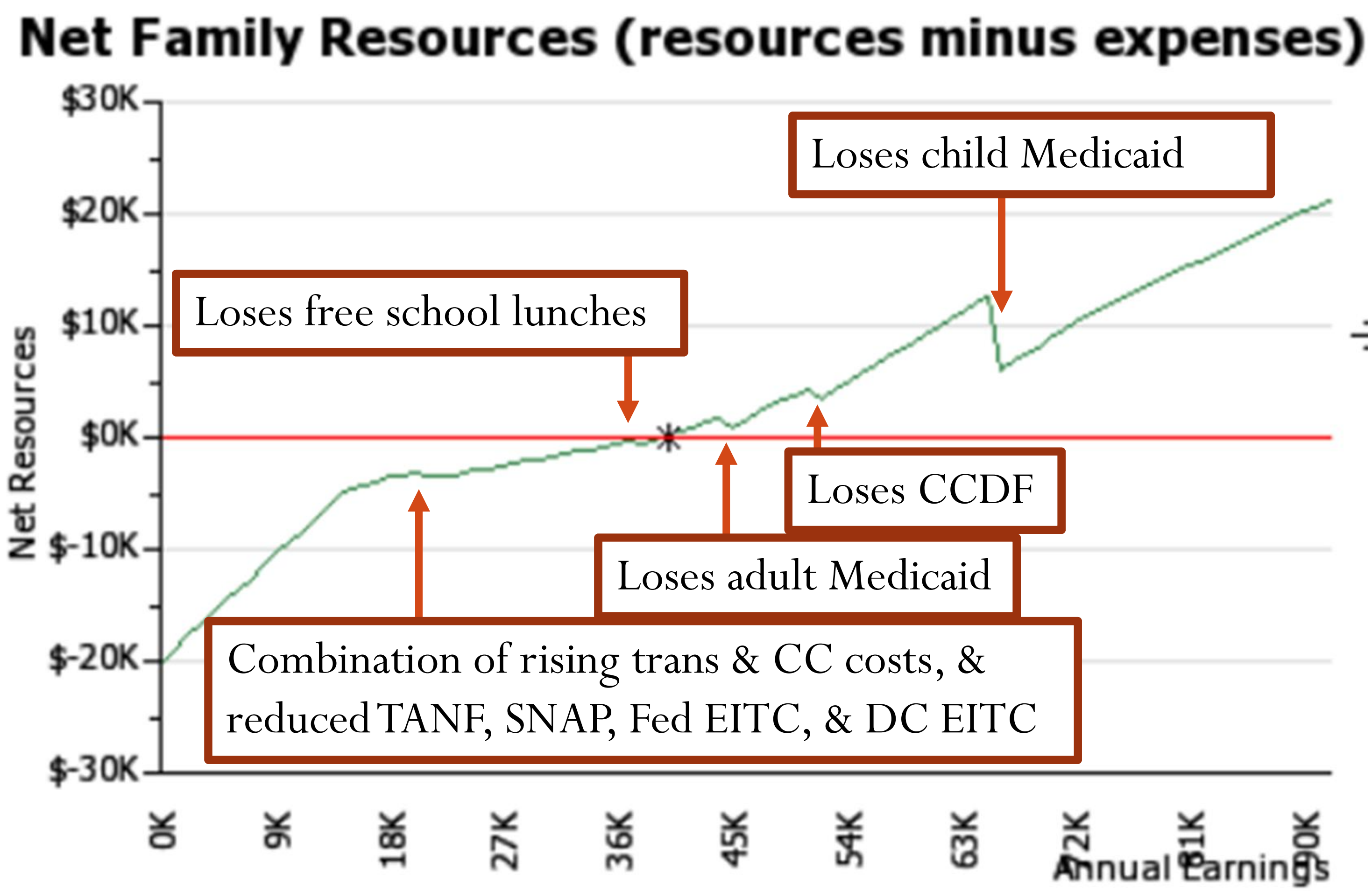
- [x] Earned Income Tax Credit (EITC)
- [x] Child Tax Credit
- [x] Child and Dependent Care Tax Credit
- [x] Premium Tax Credit

DC Tax Credits

- [x] DC Earned Income Tax Credit / Low-Income Credit
- [x] DC Child and Dependent Care Credit

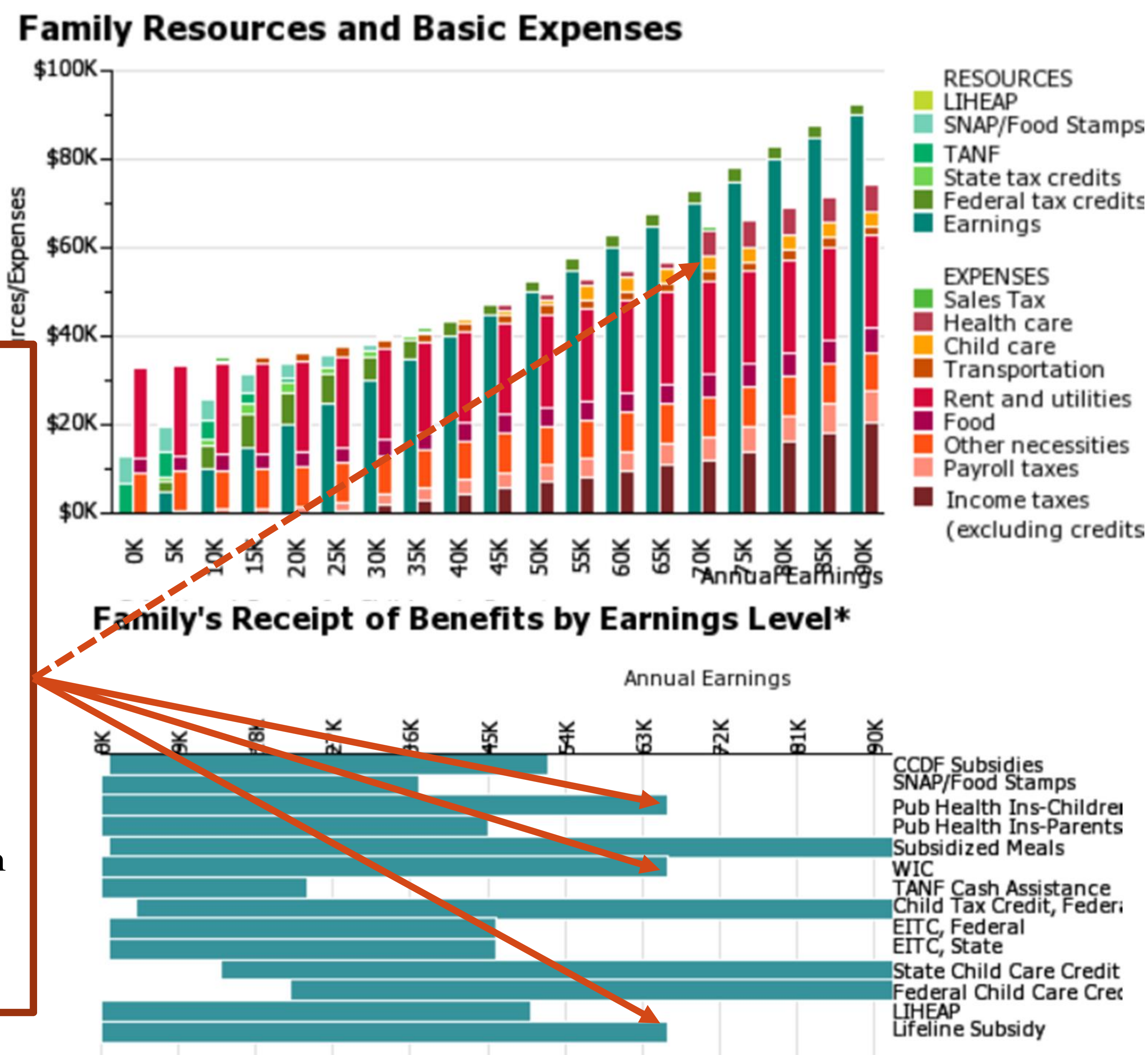
Step 8: Output and Graphs

- The online tool can generate a simple, visual representation of where benefit cliffs lie for the hypothetical family. The below graphic is from a single-parent family of 3 living in DC in 2017.

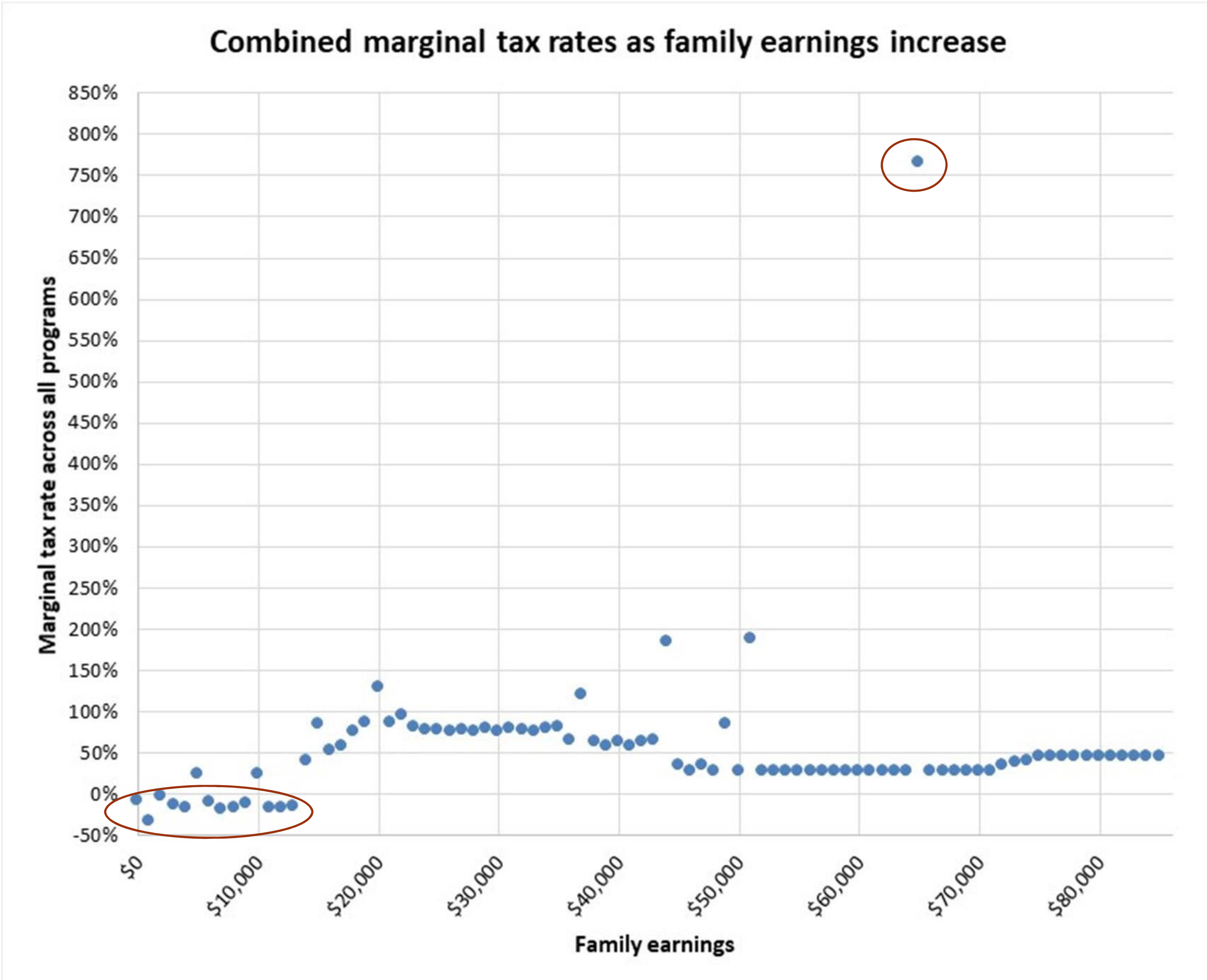


More graphs, same family:

Same child benefit cliff on previous slide. While categorical eligibility extends the income range that families receive benefits, it also exacerbates benefit cliffs when families lose Medicaid.

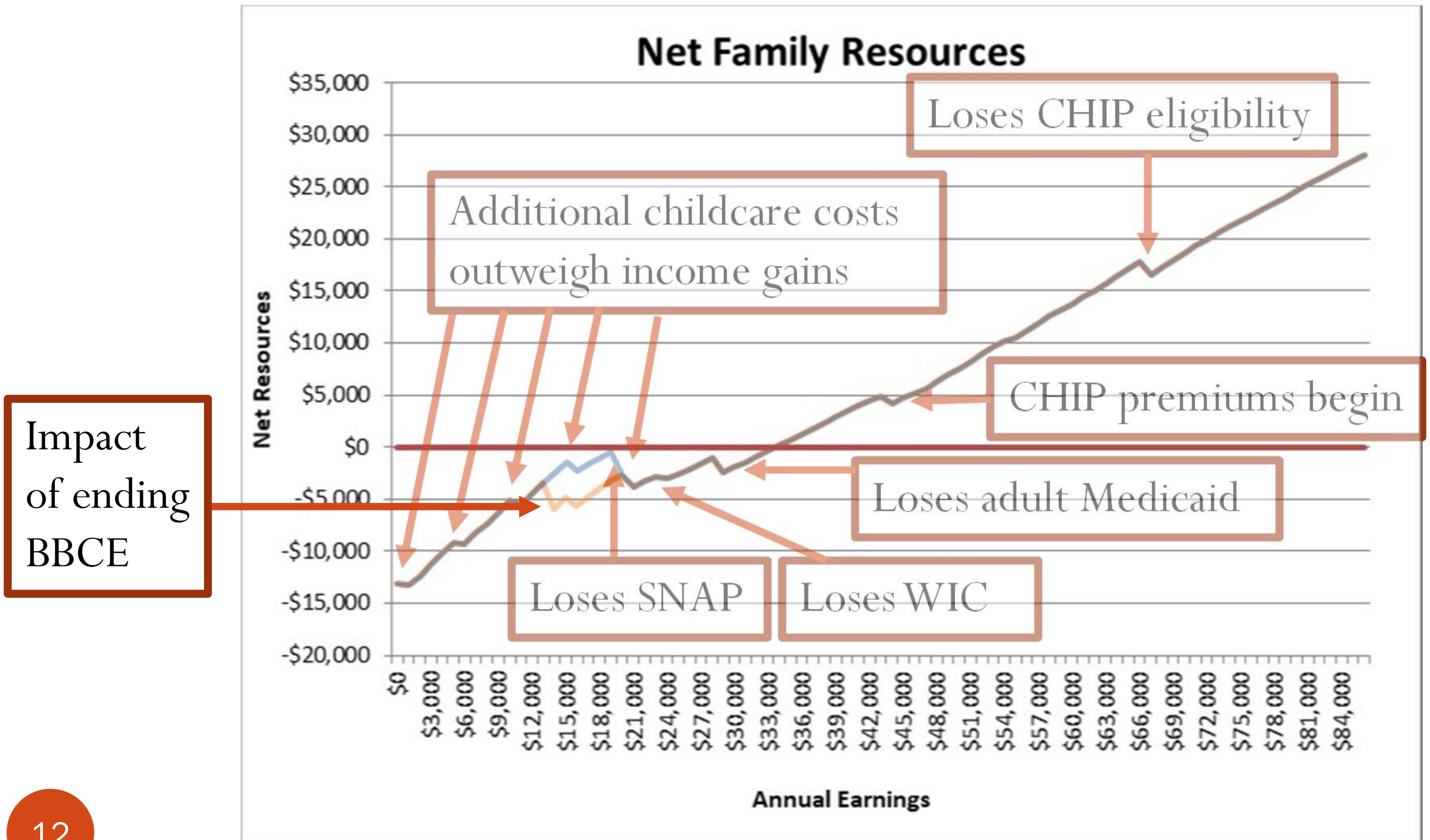


Marginal tax rates – DC 2017 example

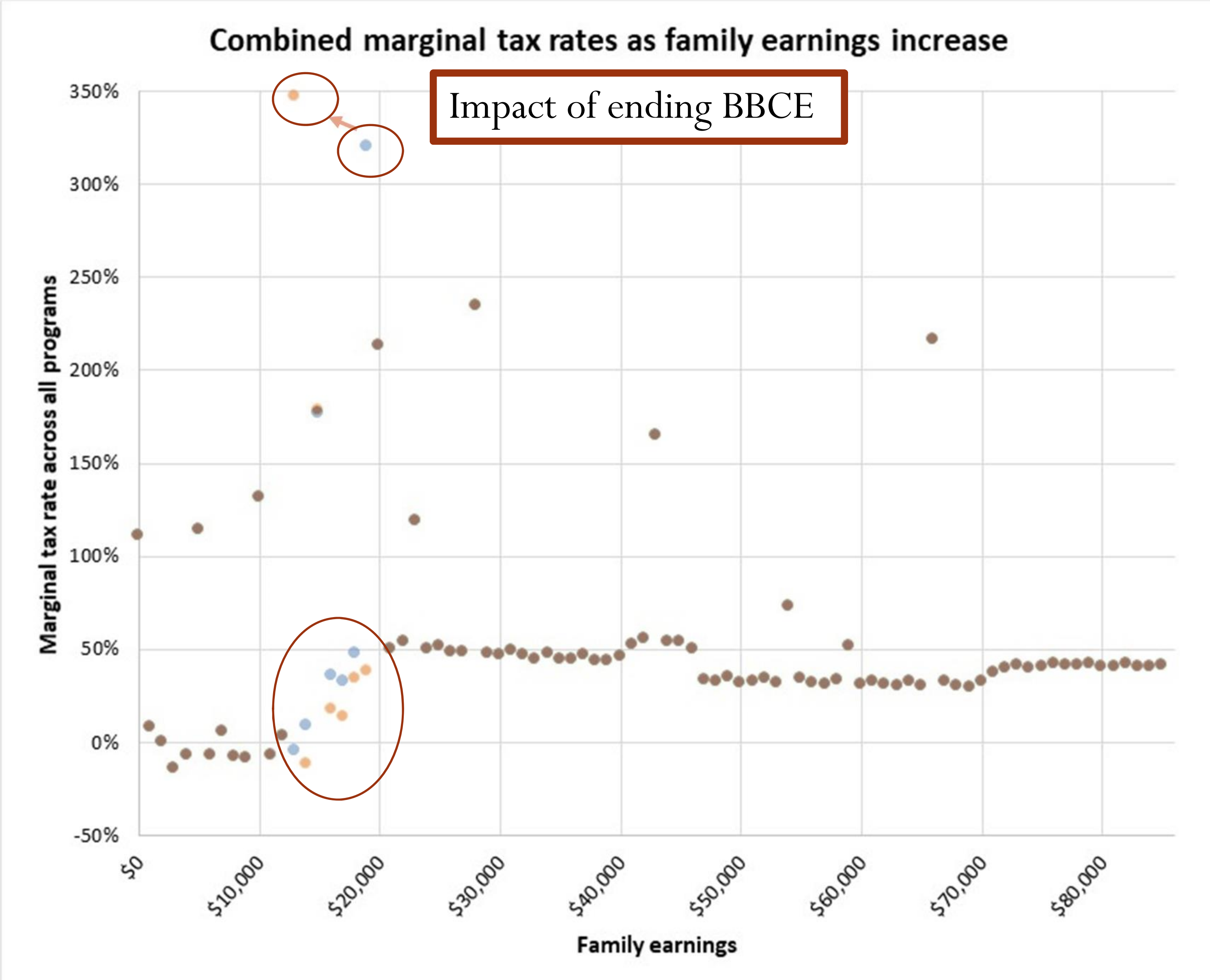


Pittsburgh FRS 2019: Net Resources

- 1-parent family of 2 children ages 2 & 6 receiving child support, SNAP, Medicaid/CHIP, federal tax credits, free & reduced price meals, and WIC:



Pittsburgh 2019: Marginal Tax Rates



Advantages of the hypothetical family approach

- No privacy concerns, as no data from actual families are used.
- Codes can be adapted to model ideal/optimal application of program rules.
- Can potentially be used to inform individual family decision-making (e.g. case managers helping clients)
- Can capture rare (potentially marginalized) family situations not significantly represented in publicly available microdata.
- Can capture differences in costs of living for smaller geographies than models using survey-based microdata can capture
- Updates not contingent on schedules of microdata releases.

Disadvantages of the hypothetical family approach

- Typically used to model only one family at one time.
- Unless merged with microdata, cost-benefit analysis not possible.
- Can tend toward oversimplification / too many assumptions.
- Typically defaults toward assuming family income and family characteristics are consistent from week to week, with little volatility.
- Typically defaults toward optimal program usage on the part of families, when in reality families may not use programs optimally. (This can also be an advantage.)

Downloadable data:

0K 6K 12K 18K 24K 30K 36K 42K

© National Center for Children in Poverty
Family Resource Simulator, Ohio 2015 (Results reflect

This graph displays net family resources as the family's income. The green line represents the net resources av expenses. The red horizontal line represents the "break equal to basic expenses; asterisks indicate where the fa about how resources and expenses are calculated, see Family Expenses.

Methods

- Calculating Family Resources
- Calculating Family Expenses
- Assumptions for Determining Work Support Eligibility
- Estimating Family Child Care Needs

Also of

- Making "
- Basic Ne

Change Graph Settings

Maximum earnings 62134 **Interval** 1000 REDRAW

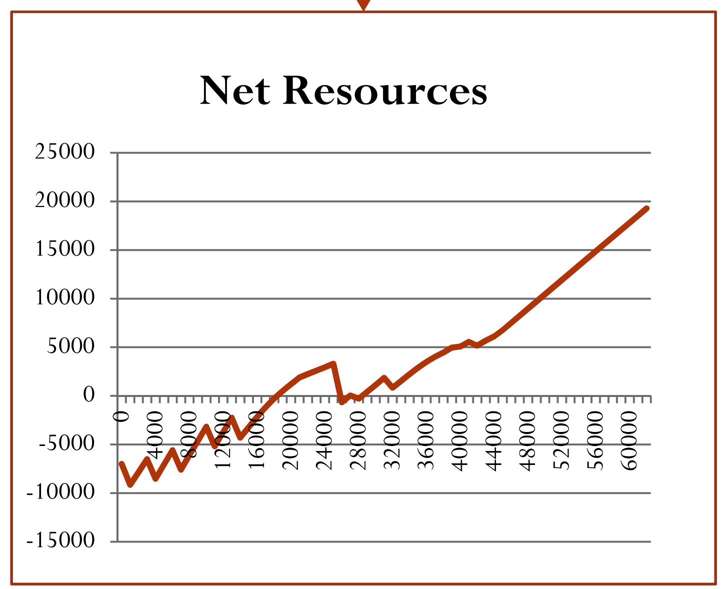
State median income: $62,134

Downloads

Download Numeric Data

NCCP's Family Resource Simulator: OH 2015 (nccp.org/t
Output Generated Fri Oct 30 17:46:34 2015. Results refle

Federal Ea	State Earn	State Chil	Earnings	Net Resou	Chi
1	1	1	0	-6992.4	
1	1	1	1000	-9155.83	
1	1	1	2000	-7832.33	
1	1	1	3000	-6508.83	
1	1	1	4000	-8522.26	
1	1	1	5000	-7048.76	
1	1	1	6000	-5575.26	
1	1	1	7000	-7588.7	
1	1	1	8000	-6115.2	
1	1	1	9000	-4641.7	
1	1	1	10000	-3168.2	
1	1	1	11000	-5181.63	
1	1	1	12000	-3708.13	
1	1	1	13000	-2234.63	
1	1	1	14000	-4300.07	



Brief History of the FRS

- The FRS was begun in 2004 by the National Center for Children in Poverty (NCCP), through funding from the Annie E. Casey Foundation.
- Originally developed to analyze state-level policies following the passage of The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), including how some policies lead to "benefit cliffs."
- Since then, the FRS has been updated for specific states and years, with the most recent update in DC in 2018.
- Since inception, NCCP has worked with state governments and other stakeholders to expand the coverage of the FRS to 26 states.
- NCCP is currently working on upcoming FRS expansions in KY and NH, and an ASPE-funded project to develop similar tools for use directly by case managers and families.

THANK YOU!

For more information, or for answers to any questions, please contact any of the following NCCP staff working on the FRS:

Seth Hartig
Project Director / Senior Research Associate
hartig@nccp.org

Suma Setty
Senior Research Associate
setty@nccp.org

Heather Koball
Co-Director, NCCP
koball@nccp.org