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# Efficient Child Care Subsidies

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The directory includes 8 sub-directories:

- 1Market_Productivities
- 2Calibration_Theta
- 3Calibration_ M
- 4Optimal_Allocations
- 5Pareto_Improving_Allocations
- 6Welfare
- 7Graphs
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The content of each sub-directory is described below.

## 1Market_Productivities

This directory includes files related to market productivity imputation described in the main paper (section 6.1) and in the Online Appendix (sections B.2 and B.4).

- "cpsmar10.dta" contains data from the 2010 Current Population Survey March supplement in STATA format. Raw data files and variable dictionary are publicly available for download from NBER at: http://data.nber.org/data/current-population-survey-data.html.
- "Wage_imputation.do" is the STATA program file for
  - Imputing market productivities (z) according to Heckman two step selection correction method.
  - Generating Online Appendix Tables B1 and B2, and Figure B1.
  - Discretizing wage bins and corresponding labor hours for the calibration exercise and numerical analyses.
- Variables and output
  - "wageoutput.log" is the log from running the .do file. "WageDensity.pdf" and "WageDensity.eps" are graphs corresponding to Figure B1.
  - "Dictionary.xls" contains two sheets. The sheet labelled "CPS" describes the variables used for the wage regression. The sheet labelled "Bins" describes the wage bins and corresponding labor hours.

## 2Calibration_Theta

This directory includes files related to the calibration of the parameter $\theta$ described in the main paper (section 6.1) and in the Online Appendix (section B.4).

The Maltab program files are:

- Main.m - master program (comment and uncomment the alternative specifications)
- myconU.m and U.m - constraints and objective function for those with labor market opportunities ($z > 0$)
- myconV.m and V.m - constraints and objective function for those without labor market opportunities ($z = 0$)

The output files are: 01ThetaBaseline.mat, 02Theta1e34.mat, 03ThetaHighw.mat, and 04ThetaUSGamma2.mat, respectively, for the specifications labelled Baseline, 1e=34, $\omega = 6.4$, and $\gamma = 2$ in the Online Appendix Table B3.

The subfolder "Concave" contains the corresponding Matlab program and output files for the specification labelled *log(c)* in the Online Appendix Table B3.


3Calibration_M

This directory includes files related to the calibration of the parameter *M* described in the main paper (section 6.1) and in the Online Appendix (section B.4).

The Maltab program files are:

- Main.m - master program (comment and uncomment the alternative specifications)
- myconU.m and U.m - constraints and objective function for those with labor market opportunities ($z > 0$)
- myconV.m and V.m - constraints and objective function for those without labor market opportunities ($z = 0$)

The output files are: 01ActualBaseline.mat, 02Actual1e34.mat, 03ActualHighw.mat, and 04ActualUSGamma2.mat, respectively, for the specifications labelled Baseline, 1e=34, $\omega = 6.4$, and $\gamma = 2$ in the Online Appendix Table B3.

The subfolder "Concave" contains the corresponding Matlab program and output files for the specification labelled *log(c)* in the Online Appendix Table B3.


4Optimal_Allocations

This directory includes files related to solving for the optimal allocation from the government problem to generate the results described in the main paper (section 6.2) and in the Online Appendix (section B.5 and B.6).

The Maltab program files are:

- Main.m - master program (comment and uncomment the alternative specifications)
- mycon.m - constraints
- V.m - objective function

The output files are: 01Baseline.mat, 021e34.mat, 03Highw.mat, and 04USGamma2.mat, respectively, for the specifications corresponding to (1) *Baseline*, (2) 1*e*=34, (3) $\omega = 6.4$, and (4) $\gamma = 2$ in the Online Appendix Table B4.

The directory contains two additional subfolders:

- The subfolder "Rawlsian" contains the corresponding Matlab program and output files for the specification labelled (5) *Rawls* in the Online Appendix Table B4.
- The subfolder "Utilitarian with concave preferences" contains the corresponding Matlab program and output files for the specification labelled (6) *log(c)* in the Online Appendix Table B4.

## 5Pareto_Improving_Allocations

This directory includes files related to solving for the Pareto improving optimal allocation from the government problem to generate the results described in the main paper (section 6.2) and in the Online Appendix (section B.5 and B.6).

The directory contains three subfolders:

- The subfolder "Baseline" contains the corresponding Matlab program and output files for the specification labelled (6) $\rho=0$ in the Online Appendix Table B4.
- The subfolder "Almost Utilitarian" contains the corresponding Matlab program and output files for the specification labelled (7) $\rho=99$ in the Online Appendix Table B4.
- The subfolder "Utilitarian with concave preferences" contains the corresponding Matlab program and output files for the specification labelled (8) $\rho=1$ in the Online Appendix Table B4.

In each of the three subfolders, the Maltab program files are labelled as follows:

- Main.m - master program
- mycon.m - constraints
- V.m - objective function

## 6_Welfare

This directory includes files related to the welfare computations reported in the Online Appendix Table B5.

The labelling is as follows:

- Main`X' - master program for specification `X'
- F`X' - objective function for specification `X'

The specifications `X' are as follows:

1. MainBaseUSA correspond to (1) *Baseline* the Online Appendix Table B5.
2. Maine34USA correspond to (2) 1*e*=34 the Online Appendix Table B5.
3. MainHighwUSA correspond to (3) $\omega = 6.4$ the Online Appendix Table B5.
4. MainGamma2USA correspond to (4) $\gamma = 2$ the Online Appendix Table B5.
5. MainRawlsUSA correspond to (5) *Rawls* the Online Appendix Table B5.
6. MainLogUSA correspond to (6) *log(c)* the Online Appendix Table B5.
7. MainParetoBaseUSA correspond to (7) $\rho=0$ the Online Appendix Table B5.

8. MainParetoAlmostUSA correspond to (8) $\rho=0.99$ the Online Appendix Table B5.
9. MainLogPareto correspond to (9) $\rho=1$ the Online Appendix Table B5.

7_Graphs

This directory includes output graphs from Matlab for the main paper and online appendix.

- Figure1USSubsidy.m generates Figure 1 in the main paper (section 2).
- Figure3Allocations.m generates Figure 3 in the main paper (section 6.2).
- Figure4Welfare.m generates Figure 4 in the main paper (section 6.2).
- Figure5Subsidy.m generates Figure 5 in the main paper (section 6.2).
- FigureB2Welfare.m generates Figure B2 in the Online Appendix (section B.6).
- FigureB3Bins.m generates Figure B3 in the Online Appendix (section B.6).

8_Tables

"Subsidy_and_MTR.xls" contains information on the US and optimal child care subsidy rates and marginal income tax rates reported in Online Appendix Tables B6 and B7.

- The sheet labelled "USA" reports the US child care subsidy rates and marginal tax rates reported in column (0) of Tables B6 and B7.
- The remaining sheets report the optimal child care subsidy rates and marginal tax rates for the different specifications in columns (1) to (9) of Tables B6 and B7.