

Simulations for „Redistributive Income Taxation with Directed Technical Change“

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The simulations are conducted using MATLAB Version 9.3 (R2017b).

1. Overview of the Code

The following scripts are used in the simulations:

1. TaxationDTC_sim_public.m
2. hazardratiosmooth.m
3. revenuechange.m
4. laborinputcrp.m
5. welfare.m
6. welfarechange.m
7. mtroptimal.m
8. mtroptimalex.m
9. laborinput.m

2. Replicate the Results of the Paper

The file TaxationDTC_sim_public.m replicates all results reported in the paper. In doing so, it successively calls the functions 2 to 9 listed above. Running the file produces a total of 18 figures, five of which appear in the paper or its appendices.

1. Figure 1 produced by the code appears as Figure 3 in the paper. It displays the hazard ratio of the earnings distribution under the initial tax (the CRP approximation to the US 2005 tax and transfer system).
2. Figure 2 produced by the code appears as Figure 1 in the paper. It displays wage changes by percentile of the wage distribution as generated by the hypothetical tax reform described in the paper.
3. Figure 6 produced by the code appears as Figure 4 in the paper. It displays changes in the lump sum payment (in % of initial average earnings) that produce welfare changes equivalent to the welfare changes induced by the hypothetical tax reform described in the paper.
4. Figure 11 produced by the code appears as Figure 2 in the paper. It displays optimal marginal tax rates as a function of income for the baseline calibration described in the main text.
5. Figure 17 produced by the code appears as Figure 5 in the paper. It displays optimal marginal tax rates as a function of income for the Rawlsian welfare function studied in the supplementary material appendix.