Charity, Status, and Optimal Taxation: Welfarist and Non-Welfarist Approaches –

The `CharityPG` Package

Thomas Aronsson[a], Olof Johansson-Stenman[b], Ronald Wendner[c]

[a] Department of Economics, Umeå School of Business, Economics and Statistics, Umeå University, Sweden. `thomas.aronsson@umu.se`

[b] Department of Economics, School of Business, Economics and Law, University of Gothenburg, Sweden. `olof.johansson@economics.gu.se`

[c] Corresponding author; Department of Economics, School of Business, Economics and Social Sciences, University of Graz, Austria. `ronald.wendner@uni-graz.at`

1 Introduction

The purpose of this README.pdf file is to explain the usage of the `CharityPG` Package for replicating all data (and figures) provided in the main text of our paper.

2 The `CharityPG` Package

The `CharityPG` package consists of the file `CharityPG.nb` and this README.pdf file. It is programmed in Wolfram MATHEMATICA version 13.2. The program file `CharityPG.nb` is a MATHEMATICA notebook. The notebook contains the program codes (including parameter combinations and initial guess values) for replicating all data displayed in the simulations in our paper. The notebook also contains the final simulation data along with the code to reproduce the figures as displayed in our paper.

All simulations employ an iterated FindMaximum routine. For replication purposes, the necessary iterations are automated in `CharityPG.nb`.

The built-in FindMaximum routine of MATHEMATICA ensures that the second-order conditions for a maximum are satisfied for all simulation results.

3 Usage

The notebook `CharityPG.nb` contains five sections.

I Welfarist Government: Model
II Welfarist Government: Simulations

III Non-welfarist Government: Model
IV Non-welfarist Government: Simulations

V Data and Graphs

Sections I and II are used to replicate simulation results for the welfarist government. Sections III and IV are used to replicate simulation results for the non-welfarist government. Section V contains the code for the visualization of the simulation results and for replication of the figures displayed in the paper.

3.1 Usage: Welfarist Government

In this subsection, we give instruction on how to replicate simulation results for the welfarist government. In the following instructions:
`Run` means: *select a cell* (by either selecting the cell at the right-hand side of the MATHEMATICA notebook window or putting the cursor at any point within that cell) and *press Shift+Enter*;
`Expand` means: *click on a* $>$ *sign* at the left-hand side of the MATHEMATICA notebook.

The simulation results for the welfarist government are replicated in two steps. Make a copy of the original `CharityPG.nb` file before starting to work with it.

Step 1. `Run` Section I Welfarist Government: Model.

Step 2. `Expand` Section II. A list of 40-50 parameter combinations appears. Furthermore, a subsection labeled *Simulation (Iterated FindMaximum)* shows up.

Step 2a. `Expand` the cell of a parameter combination of your choice (e.g., Baseline simulation) and `Run` the cell. The cell contains both the respective parameter values and appropriate[1] initial guess values of all variables.

Step 2b. `Run` the Simulation (Iterated FindMaximum) cell. A table containing all simulation results appears.

Step 2c. For a different parameter combination, go right back to Step 2a.

3.2 Usage: Non-welfarist Government

The simulation results for a non-welfarist government can be replicated in the very same two steps described above. There are two differences. In Step 1, `Run` Section III Non-welfarist Government: Model. In Step 2, `Expand` Section IV. Steps 2a and 2b are the same as above.

3.3 Usage: Data and Graphs

In this section, all simulation results, as obtained by 3.1 and 3.2 above, are stored as vectors. The figures as displayed in our paper are obtained by the code in the subsection Graphs.

[1] Appropriate means that the iterated simulation procedure converges to a fixed point.