Microeconomics 1: Problem Set 3

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Exercise 1. (Integrability) Consider a demand system with $L = 2$, such that $p_2 = 1$, $x_1(p_1, w) = \beta - \alpha p_1$.

(i) Obtain the demand of $x_2(p_1, w)$ under Walras' law.

Hint. Use $p^* = 0$, for obtaining $v(p, w) = \mu(p^*, p, w)$.

(ii) Compute the Slutsky matrix and check that the Hurwicz-Uzawa theorem of integrability of demand conditions are satisfied.

(iii) If (ii) is integrable in the sense that satisfies the conditions of the Hurwicz-Uzawa theorem, find the utility that generates the demand system, i.e., find the expression for $u(x_1, x_2)$.

Exercise 2. Download the replication package of Aguiar Kashaev (2020, Restud) from .

It contains the dataset from:

- Ahn, D., Choi, S., Gale, D., & Kariv, S. (2014). Estimating ambiguity aversion in a portfolio choice experiment. Quantitative Economics, 5(2), 195-223. [Replication files] <http://qeconomics.org/supp/243/code

(i) Use the file ReplicationAK/Data_all/rationalitydata3goods.csv to test GARP for each individual in the experiment. Provide the Julia code name_lastname_ps3.jl and the results in written form in your submission. Hint: you can use the file /ReplicationAK/SecondApp/Deterministic_test/2App_dt.jl in Julia 1.0 or 1.1, or if you use another version of Julia you can use it as a basis for your code.

(ii) Read the notes for Afriat's efficiency index. Compute the Afriat's efficiency index for the same data set. Provide the Julia code name_lastname_ps3.jl and the results in written form in your submission, for this part you can mimic the figure we saw in class (without the randomly generated dotted curve).