HW 1 – Answers

(If you think that there is a mistake, please let me now.)

1. Assume that an individual solves:

s.t.

Therefore, the FONC is

The derivative of with respect to the endogenous variables is

We can simplify the elements in by taking into account the equations in . For example, the first element of

due to the first order optimality condition with respect to . This would give us

The derivative of with respect to is

By the Cramer’s rule:

because

due to the definition of determinant operation. Now we can simplify the right hand side

by observing that as can be seen in the budget constraint. After similar operations:

is obtained.

1. A consumer ssolves

s.t.

Write for the solution to this problem.

Therefore, the FONC is

The derivative of with respect to the endogenous variables is

whose determinant is

The derivative of with respect to is

By the Cramer’s rule:

1. The first order conditions are

So the labor supply is

The wage elasticity of labor supply is therefore zero. The Frisch elasticity can be easily calculated by looking at

So the answer is

1. This is too simple, c’mon!