Problem Set 1

International Macroeconomics (Master)

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<u>Exercise 1:</u> Univariate Process I

Consider the following autoregressive process of order 1 (i.e., AR(1) process)

$$x_t = \mu + \alpha x_{t-1} + \epsilon_t, \tag{1}$$

where ϵ_t is a white noise process.

(a) Under which condition is the process in (1) stationary?

(b) Given that the process is stationary, derive its MA(∞) representation.

(c) Calculate the impulse response function. What do you observe?