

Homework 3 (optional)

due on Wednesday Jan 16 at noon

Problem 1: Consider the heterogeneous firm trade model as pioneered by Melitz (Econometrica 2003):

- a) Formally derive the entry and export market cutoffs φ^* and φ_x^* , and show how both respond to changes in the trade cost.
- b) Explain the zero cutoff profit condition (ZCP) and the free entry condition (FE) and depict them in a suitable diagram.
- c) Find the equilibrium number of firms.

Problem 2: In the context of the Melitz model, assume that productivity is drawn from a Pareto distribution, that is, the density function takes the form kx_m^k/x^{k+t} , where x_m is the lower bound of the support (ie the minimal value for x) and parameter $k > 0$. Repeat your calculations from Problem 1 for this special case.

Problem 3: Find evidence (ie studies that show) that the variables below approximately follow a Pareto distribution:

- a) Firm size. Please think about how firm size relates to productivity in the Melitz model.
- b) Household income.
- c) City size within countries (Zipf's law).