International Economics 2024

Home assignment 5: The Melitz effect

The following questions are based on the Excel spreadsheet entitled “heterogeous firms.xls”. This provides data for a hypothetical monopolistically competitive market with heterogeneous firms.

Each firm is numbered from 1 to 100, and has its marginal product of labor φ marked. The common value of the fixed labor requirement, f, is marked at the top of the spreadsheet. For each firm, an assumed value for the firm’s initial quantity produced is marked as well; assume that this has been derived by setting each firm’s marginal cost equal to its marginal revenue.

Note that firms with higher marginal products of labor are assumed to produce more output.

(a) Compute each firm’s employment of labor under autarky.

(b) Use this information to compute the industry’s labor productivity (total output per worker).

(c) Now, suppose that the industry is opened to trade, and in accordance with the Melitz effect, the least efficient 15% of the firms drop out. Further, suppose that firm #54 and all of the firms more efficient than firm #54 export, while the remainder of the surviving firms produce only for the domestic market. Suppose that exporting firms increase their output by 10% compared to autarky, while non-exporters reduce their output by 10% compared to autarky. Now, redo your calculations in parts (a) and (b). Interpret your results. In particular, what happens to industry productivity and why?

(d) Draw a graph to illustrate these results.