Homework 3
due on Friday, January 8

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^* as well as the equilibrium number of firms, and show how these variables respond to changes in the trade cost.

b) Now 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, and repeat your calculations from part a).

c) Find empirical evidence (eg studies that show) that the size of firms does approximately follow a Pareto distribution. How does firm size relate to productivity in the Melitz model?

Problem 2: GATT/WTO.

a) Study the different articles of the GATT/WTO and cite the articles that relate to MFN, national treatment, and the exception granted for regional trade agreements.

b) Consider a tariff game between two large countries, as in the work of Bagwell and Staiger. Let the welfare of each country be given by $W_i(t_i, t_{-i}) = 0.125 + 0.25(t_i - t_{-i}) - t_i(t_{-i} + t_i)$ where $i \in \{home, foreign\}$. Find the optimal tariffs as a best response to the tariff set by the other country. Are tariffs strategic complements or substitutes? Determine the Nash equilibrium in tariffs, as well as the globally optimal tariff regime(s).

c) Continuing from part b), let this be a repeated game, and suppose both governments have the same discount factor. What is the critical discount factor that is required to render the symmetric cooperative outcome self-enforcing under the threat of Nash-reversion?

Problem 3: 'Economies of Scope' and Trade.

a) Compare economies of scope to economies of scale. Can you provide a sensible definition of increasing, constant, and decreasing economies of scope that is similar to the corresponding notion for economies of scale. If yes, please do so, if not, please explain.

b) Provide a brief summary of the paper "Multi-Product Firms and Flexible Manufacturing in the Global Economy" (REStud January 2010) by Eckel and Neary.

c) Explain the main similarities and differences between the Eckel/Neary approach and the one by Nocke and Yeaple that we discussed in class. How could you empirically test one against the other?