Justus Liebig University Giessen
Faculty 02 - Economics and Business Studies
Chair VWL I

Competition Policy and Strategy
Assignment 11

Exercise 11.1 (**Two-Sided Markets: Descriptions**)
Describe ...

a) ... the properties of a two-sided market and provide an example. In this, distinguish between the roles of buyers and sellers on a platform.

b) ... the pricing structure in two-sided markets. What is the relationship between the volume of trade and the (entry) price structure: $a = a_B + a_S$, where a denotes the participation fee and B and S denote buyers and sellers, respectively?

Exercise 11.2 (**Two-Sided Markets: Modelling**)
Assume that a monopolistic platform serves two groups of users. For each group $i \in \{a, b\}$, membership fees of M_a and M_b are charged. There is a unit mass of users from each group. The net utility of a user from group i can be represented as follows:

$$U_i = u_i + \gamma_i n_j - M_i$$

The intrinsic utility from visiting the platform is represented as u_i and is uniformly distributed on the interval $[0, v_i]$. The parameter γ_i measures the strength of indirect network effects acting from group j to group i and n_j is the number of users from group j.

a) Determine the number of participating users from group i as a function of the number of participating users from the other group.
Note: First determine the indifferent user, that is, the user for whom $U_i = 0$. All users for whom $U_i \geq 0$ holds will use the platform, so $n_i = U_i(u_i = v_i) - U_i(u_i = M_i - \gamma_i n_j)$ holds.

b) Solve the system of equations $n_a(n_b)$ and $n_b(n_a)$ worked out earlier for n_a and n_b so that the number of participating users on the two sides results as a function of the access fees M_a and M_b. Why is it reasonable to conclude $\gamma_a, \gamma_b < 1$ based on these functions?

c) Now assume that $\gamma_a = \gamma$ with $0 < \gamma < 1$ and $\gamma_b = 0$ holds. This means that there is a positive network effect from group b to a, but not vice versa. For simplicity, also assume $v_a = v_b = 1$. Determine the optimal membership fees M_a and M_b that maximize the platform operator's profit $\pi = M_a n_a + M_b n_b$.
Hint: Under these assumptions, it follows that $n_a = 1 - M_a + \gamma(1 - M_b)$ and $n_b = 1 - M_b$.

d) Interpret your findings. Which group has to pay the higher access fee? Why? How does the access fee and profit change with an increase in the network effect? What is the reason?