1 Impact of d, g, θ, μ on Cross Correlation of Quantities

1.1 Cross correlation within a market side

Figure 1 shows the effect of the sum of the indirect network effects d and g (INE) and the substitution parameter μ (which is equal to θ) on the correlation of quantites q_i, q_j on market side a. A high degree of homogeneity causes the negative correlation to increase, which is consistent with what we expected from theory. Homogenous products cause higher degree of competition which leads to a higher negative correlation of quantities (see also Figure 7). What is new is the effect of INE on the correlation: The higher the absolute amount of INE, the higher the negative correlation.
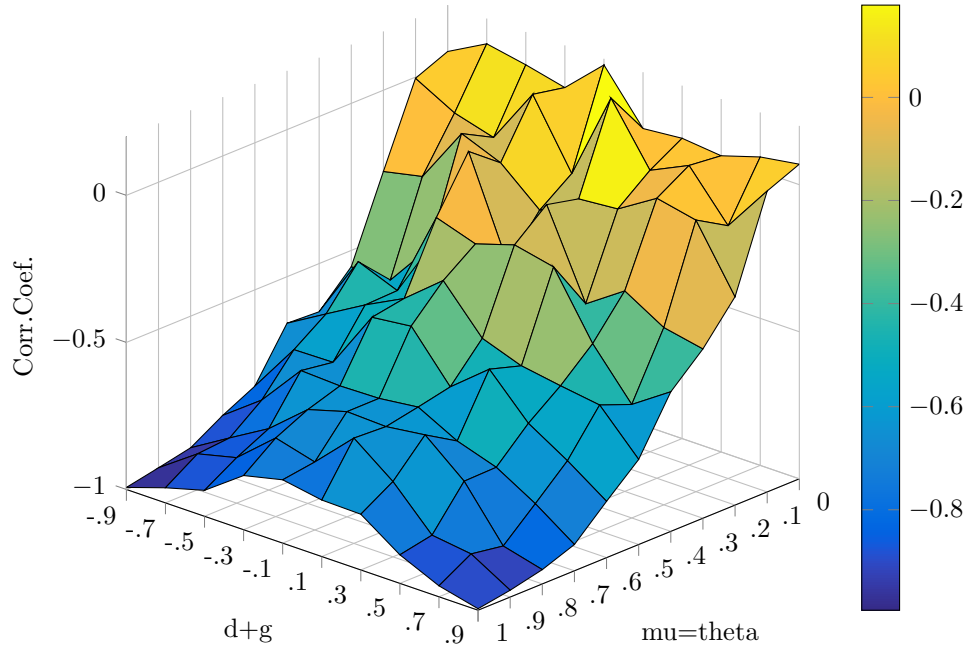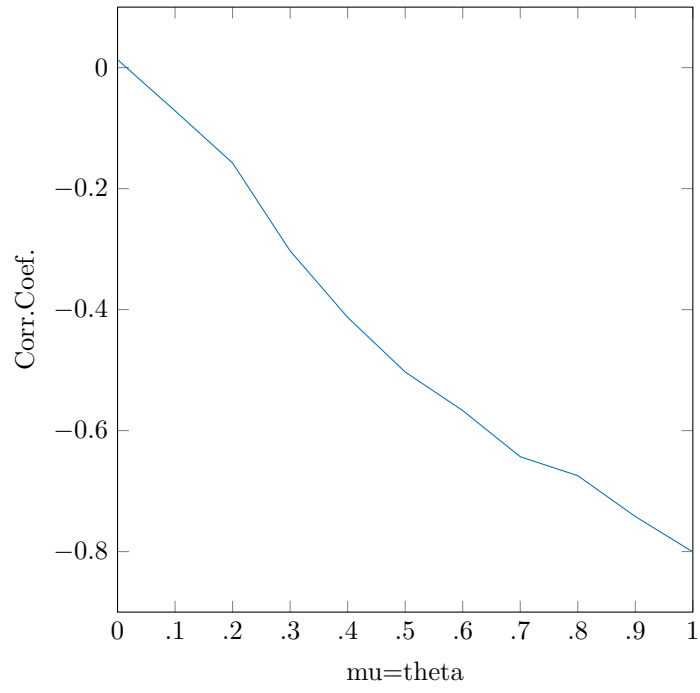

Figure 1: Cross Correlations QQ

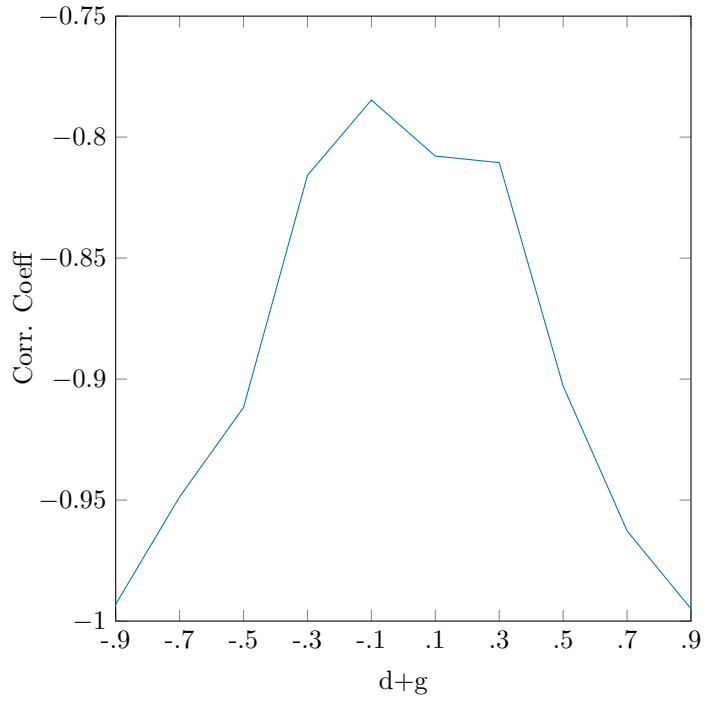Figure 2: Cross Correlations QQ for d=g=0

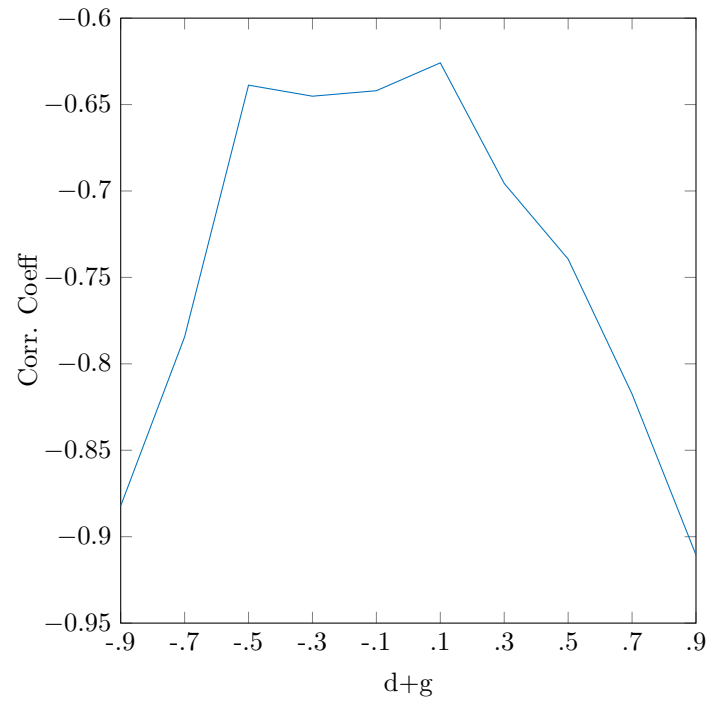Figure 3: Cross Correlations QQ for $\mu = 1$

Figure 4: Cross Correlations QQ for $\mu = 0.7$

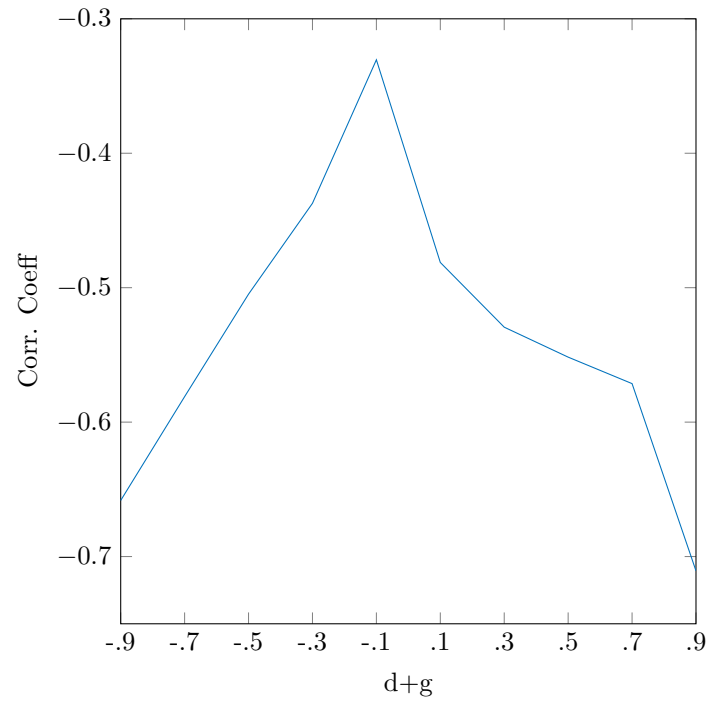Figure 5: Cross Correlations QQ for $\mu = 0.5$
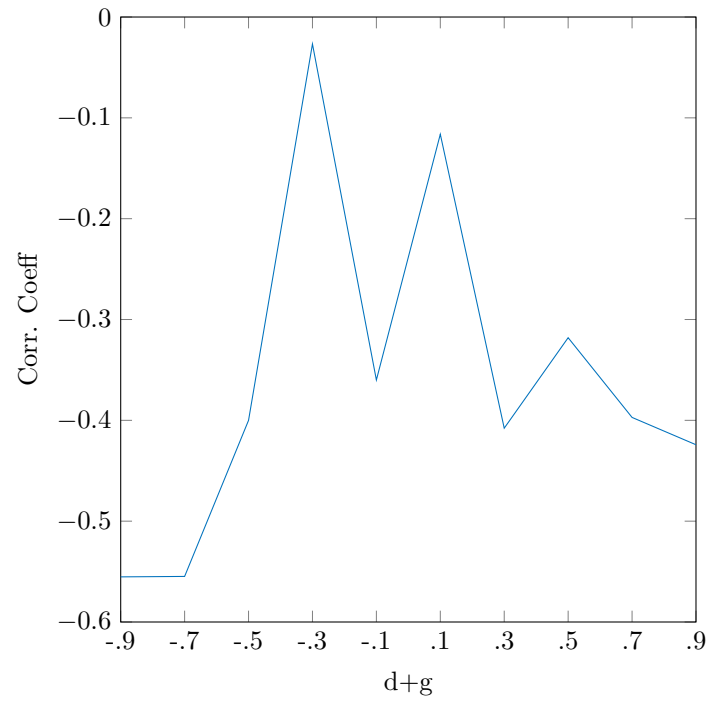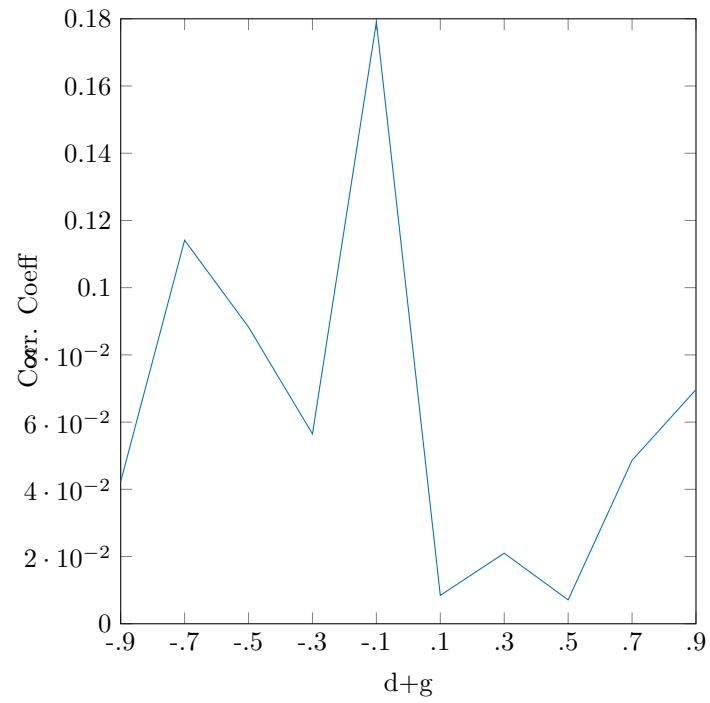
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Figure 6: Cross Correlations QQ for $\mu = 0.3$

Figure 7: Cross Correlations QQ for $\mu = 0$

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1.2 Crosscorrelation between market sides

Figure 8 shows the correlation between the quantities q_i and s_i of platform i on market side a and b. The substitution parameters μ and θ nearly have no impact on the correlation (see also Figure 9 [1]), while the sum of the INE has an important effect on the correlation. Different to Figure 1, we can see a difference between the sign of the sum of INE: If the sum has a negative sing, correlation gets negative. A quantity increase on one market side - say b - causes a decrease on market side a. One can think of a real world example as a TV-Program. If the negative impact (g) of advertisement (side b) on viewers (side a) is much larger than the positive effect of viewers on advertiser (d) so that $d + g < 0$, negative correlations of quantities might be possible.
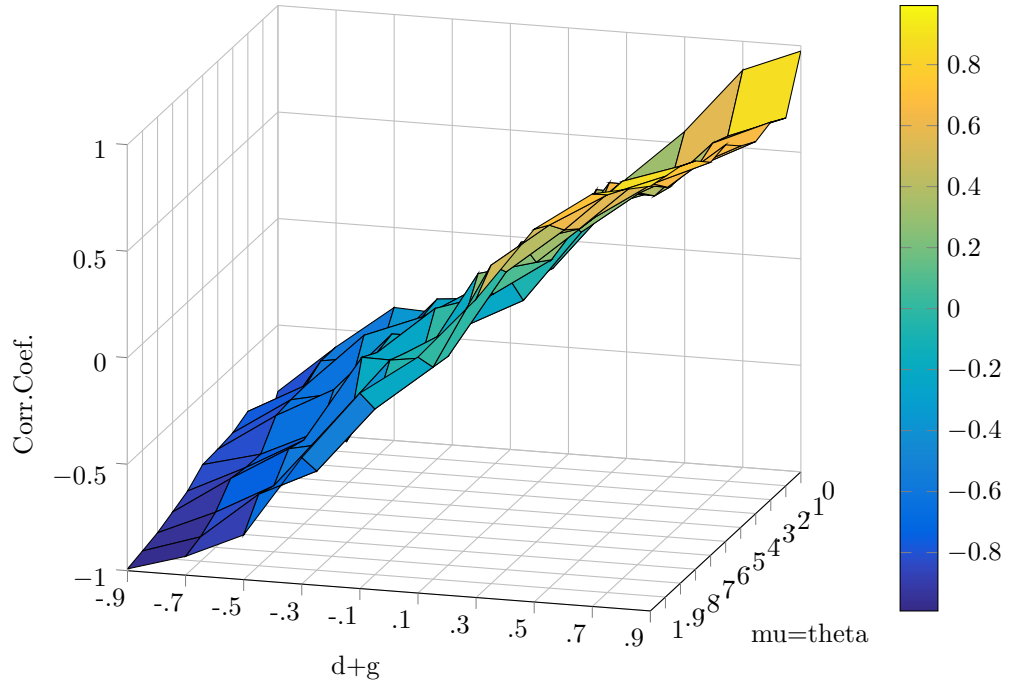

Figure 8: Cross Correlations QS

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[1] A change in the substitution parameters does not seem to have any impact on the cross correlation coefficient. The variation of the cross correlation goes from $-0,04$ to $0,04$.
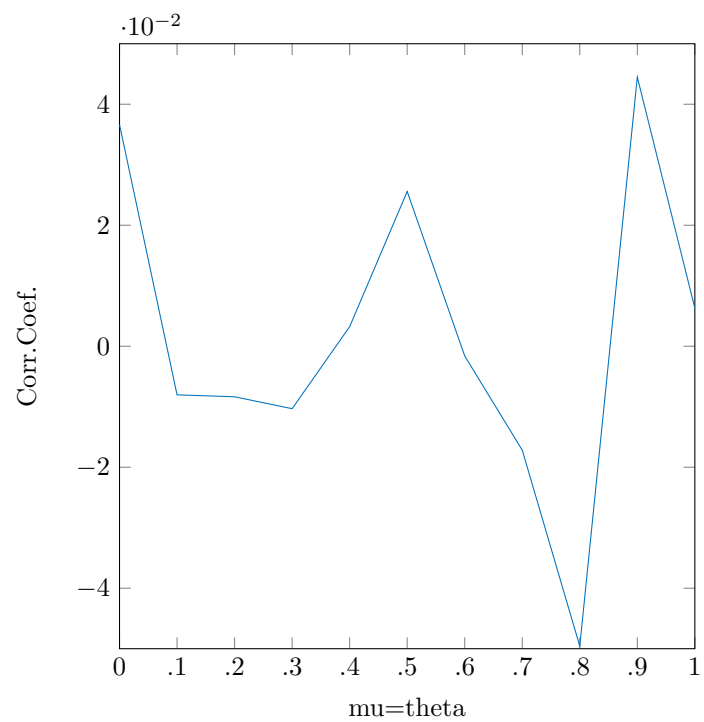
Figure 9: Cross Correlations QS for d=g=0