Appendix A

Proofs

Proposition 1. *In the pure strategy and symmetric Nash Equilibrium, both firms charge a total price that is equal to the marginal cost $T_i^* = c$. Buying consumers end up purchasing at the marginal cost. This is the only symmetric equilibrium solution.*

Proof of proposition 1. *Suppose otherwise that firm i raises the price greater than the marginal cost. But since consumers are browsing with positive probability and can check the total price of other firms, firm j might attract the consumers if its price is slightly lower. Firm i loses its demand and makes zero profit. Thus, firm i has no incentive to deviate its price from the marginal cost. Reversely, if firm i were to sell below marginal cost it would not be profit-maximizing. Thus, $T_i^* = c$ is the only symmetric equilibrium solution.*

Proposition 2. *When products are unbundled, firms charge the monopoly price for chargers and phones in equilibrium with $f_i^* = V^P$ and $a_i^* = V^C$. Buying consumers end up purchasing the phone and the charger for the monopoly price. This is a unique-symmetric equilibrium solution.*

Proof of proposition 2. *Let's suppose otherwise that firm i decides to price its phone below the monopolistic price, with $f_i < f_i^* = f_j^*$ in order to attract a higher demand for its phones. But since consumers who browse do not buy (i.e., an additional phone without a charger gives 0 value for consumers), firm i does not increase its demand. Buying consumers would not browse for phones from other firms and stick to the price of the phone they were originally assigned to. Regarding chargers, if firm i decides to deviate by doing $a_i < a_i^*$, profit of firm i would decrease since buying consumers are studying to look at the price of the charger of i, and cannot price-compare with firm j 's charger. Reversely, if firm i decides to price* *its charger and phone such as: $a_i > a_i^*$ or $f_i > f_i^*$, it may exceed the consumer's willingness to pay and the latter would not buy. Thus, firm i does not deviate from $V^C = a_i^*$ or $V^P = f_i^*$.*

Proposition 3. *In presence of counterfeit products in a market, buying consumers study and learn the quality to avoid the damage from a counterfeit quality charger. Firms charge in equilibrium $P_i^* = V^C$. Buying consumers are studying and pay the monopoly price for the brand quality charger. This is a unique-symmetric equilibrium solution.*

Proof of proposition 3. *In the proposition 3, firms charge $P_i^* = V^C$ in equilibrium. Suppose otherwise that firms decide to charge $P_i > P_i^*$, consumers would not buy the charger since it is above their willingness to pay. Similarly, it would be unprofitable for firms to charge below the equilibrium price to undercut their rivals $P_i < P_i^* = P_j^*$, since buying consumers do not make price comparison and spend their attention to study in order to not suffer from the counterfeit quality. Firms do not increase their demand through undercutting. Thus, firms do not deviate from the equilibrium $P_i^* = V^C$.*

Proposition 4. *With MQS, only brand quality firms remain on the market, and allows consumers to make price comparison. The price is equal to the marginal cost, such as $P_i^* = c$. This is a unique-symmetric equilibrium solution.*

Proof of proposition 4. *In this proposition, firms charge $P_i^* = c$ and buying consumers are browsing. If we suppose otherwise that now firm i charges $P_i < P_i^*$, to attract more demand, the company would sell under the marginal cost and would not be profit-maximizing. If firm i sells $P_i > P_i*$ would find it unprofitable since consumers would see the rival's price as a better deal, and attract the whole demand, as consumers are able to observe the rival's price. Thus, buying consumers are browsing and pay the price $P_i^* = c$.*

Appendix B

Figures

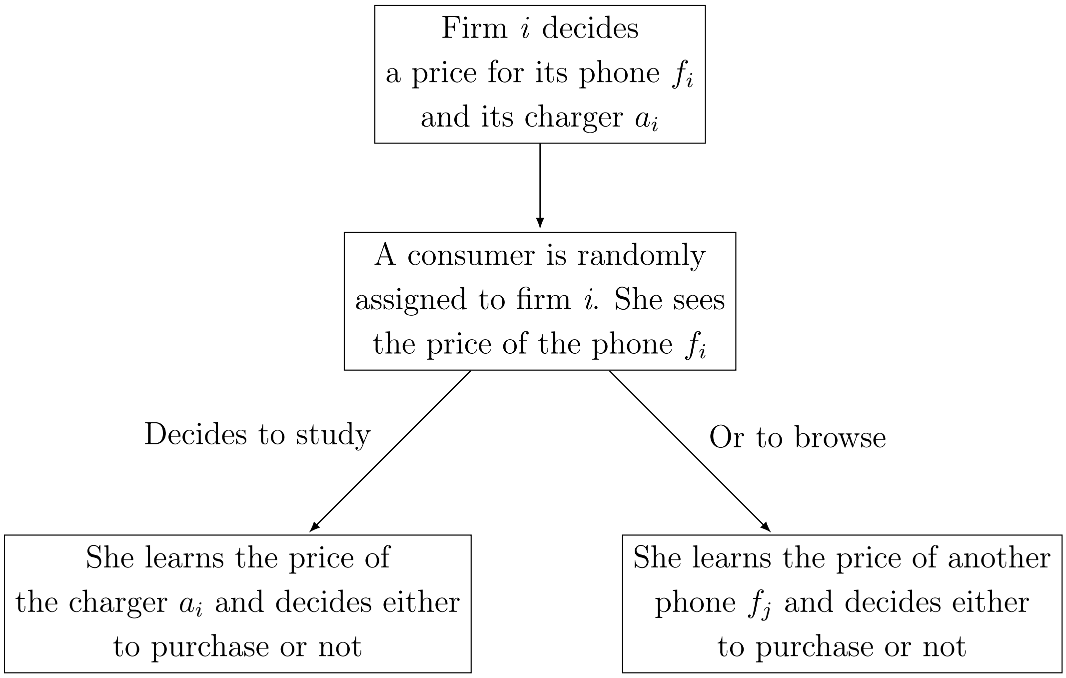

Figure 1: Timeline of the game under decoupling.

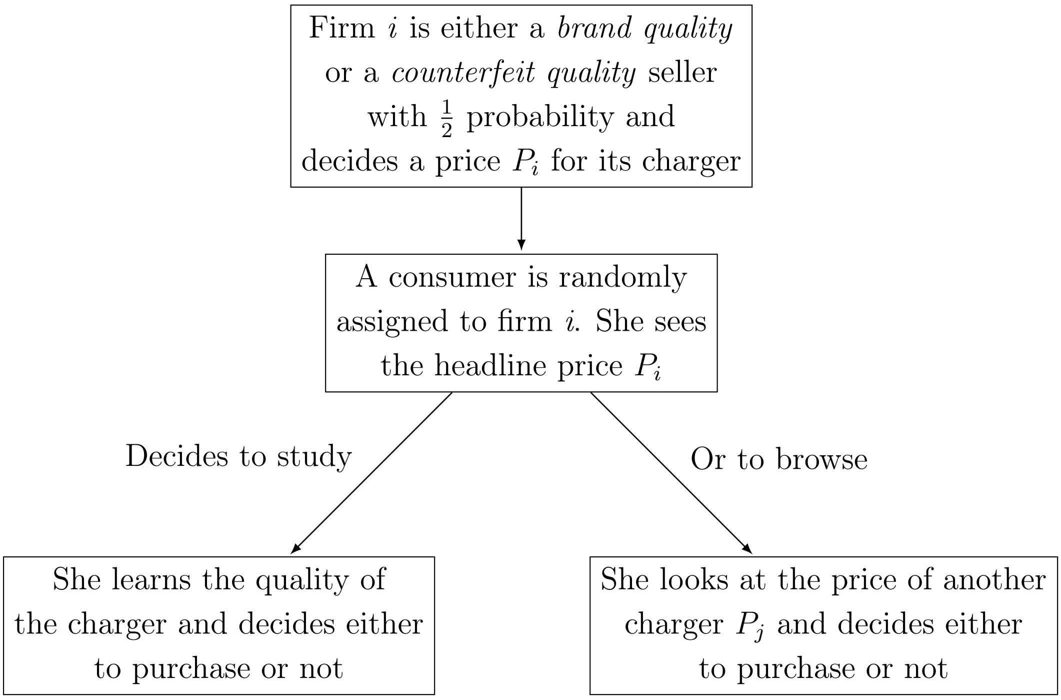

Figure 2: Timeline of the game under safety concerns.

Appendix C

Tables

Company	**Market share**
Samsung	36%
Apple	19%
Huawei	16%
Xiaomi	5%
Nokia	3%
LG	3%
Sony Ericsson	3%
Others	15%

Table 1: Market shares of phone sellers in the EU.

Source: Ipsos and Trinomics (2019).