Externalities - review group 4 by group 14

Summary

The authors focus on DDOs attacks and the actors that are involved. They first list the actors which they have chosen and then describe the corresponding countermeasures that they can take. Next, a cost/benefit analysis is made for each actor, to explain what the consequences of the countermeasures are. Following is an incentive analysis, which describes why the different actors would take the countermeasures as described. Also, the negative & positive consequences of the countermeasures for third parties are described in the externality analysis. Finally, they analyze their dataset and extend it and they apply a statistical analysis on the set, in the form of a linear regression analysis.

Strengths

- The paper provides a clear explanation of the actors and their countermeasures and externalities. Throughout, it is always clear what they mean and explained well. For the reviewers, the reasoning behind the incentives is clear and in some cases it is strengthened with references. Lastly, the overall look of the paper is good.
- It is a good and clever solution that they create monthly data out of 2 static data points using Lagrange Interpolating Polynomial. By doing this, they extent their dataset and are able to do the linear regression. The reviewers think this is a smart move to make a statistical analysis possible.

Major issues

- When describing the actors involved, there is one actor called "IoT device owners". Within this actor, you mention the (home) consumers and companies as well. First, you state that home consumers don't really have an incentive to think about cyber security, since they have no monetary loss because of compromised devices. However, you also state that this is completely different for companies, since they have to think about what devices to plug into their network. If the incentives for these two parties are very different, why would you list them under the same actor? It makes more sense to have (home) consumers and companies using these devices as separate actors.
- You define externalities as costs or benefits that influence the actors and are caused by third parties. However, this is not the correct definition of externalities. An externality is something caused by the actors itself, and has an influence on third parties.
- The statistical analysis is poorly done, mainly because it lacks any form of detail. This analysis becomes a lot more clear if you define your regression function, show what software and methods were used, and explain how well the formula fits. Right now, you describe the analysis as "The linear regression shows that there is somewhat a

correletion between ...". Try to show quantitive data instead of "somewhat of a correlation".

Minor issues

- The reviewers noticed several spelling and grammar mistakes. Of course it did not affect the ability to read the paper (as mentioned in “Strengths”) but at a certain point in reading the assignment, it was getting annoying.
- Some explanation on the cost-benefit analysis is missing. Although the short sentences do provide some explanation, a more detailed description of the is wanted. The incentive analysis can be used to partly explain the costs/benefits, but perhaps a separate description was also useful.
- Some sentences contain (bold) statements, and aren't explained afterwards. For example, in the "external factors" section, you say "If the government educates kids about the damage of DDoS attacks, less attacks might occur". This is a rather bold statement, and not explained anywhere in the paper.