

5 DISCUSSION

In this work, accident data and nighttime light intensity observations obtained through satellite images are merged together in order to analyze the effect of road lighting on the number of road accidents during nighttime. Negative Binomial regression model is estimated and the results show that poor road lighting increase the number of accidents in rural areas. While, intense road lighting increase the number of accidents in urban areas.

The increment of the number of accidents due to poor road lighting in rural area can be explained by the low visibility and, therefore, the lower capability to perceive dangerous situations. On the other side, the opposite trend occurring in the urban area can be due to the fact that drivers tend to drive faster when the road is illuminated; increasing, so, the risk of having an accident. However, the urban area are known to be complex environment where the risk of accidents is affected by multiple factors.

Moreover, this study suggests that the road lighting in the rural area in Denmark should be enhanced in order to decrease the number of accidents.

REFERENCES

- [1] Per Ole Wanvik. Road Lighting and Traffic Safety Do we need Road Lighting?. 2009.
- [2] Frith, William; Jackett, Mike; Chisnall, Julian and Tate, Fergus. The safety impact of road lighting on roads with speed limits greater than 70 km/h. 2016.
- [3] Christopher Edwards. Lighting Levels for Isolated Intersections Leading to Safety Improvements. 2015.
- [4] Alameen Najjar and Shun'ichi Kaneko and Yoshikazu Miyanaga. Combining Satellite Imagery and Open Data to Map Road Safety. 2017.
- [5] Zubair Salman and Ghazal Lubna and Kazm Jamil. Evaluating the Road Safety Design through High Resolution Satellite Image: A Case Study of Karachi Metropolitan. 2016.
- [6] Mehrad Eslami and Karim Faez. Automatic traffic monitoring using satellite images. 2010.
- [7] timeanddate.com
- [8] ngdc.noaa.gov