

Analysis of Spatial Pattern and Domain of Smuggling in the Border Areas of the Country (Case Study: General Food Smuggling in Bushehr Province)

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Extended Abstract

Introduction

Smuggling, in violation of the law, especially without payment of legal duties, is one of the complex and challenging criminal behavior in the country. This criminal behavior causes irreparable material and spiritual damages to the country each year. Avoiding regulatory controls, the criminals behind these activities typically peddle often-dangerous goods with a complete disregard for the health and safety of the consumers. The phenomenon has grown into an unprecedented level, posing tremendous risks to society and the global economy. Much smuggling occurs when enterprising merchants attempt to supply demand for a good or service that is illegal or heavily taxed. As the smugglers are faced with significant risk of civil and criminal penalties if caught with contraband, they are able to impose a significant price premium on smuggled goods. The profits involved in smuggling goods appear to be extensive. The profits are also obtained from avoiding taxes or levies on the imported goods. The problems associated with smuggling include loss of revenue, distortion of market prices, collapse of local industries and unemployment. In Bushehr, in the southern area of Iran, due to the extensive water boundaries and geographical and strategic features, high rate of goods smuggling is one of the most important issues of the province.

Methodology

This paper aimed at analysis of the spatial pattern and the domain of general food smuggling in the Bushehr province. In order to identify and analyze the spatial patterns of crime in this area, some statistical and graphic models have been applied in Geographical Information Systems (GIS). This study is based on analytic-comparative method and the essential data and information have been collected from documentary and survey. All the good smuggling events occurred in Bushehr province in 2010 were studied in this research. The spatial patterns of crime distribution in Bushehr Province have been identified using some statistical methods, including Mean Center, Standard Deviation Ellipse, Network Analysis and Quartic Kernel Density Estimation. The mean center point can be used as a relative measure to compare spatial distributions of different crime types or the same crime type for different periods. Levels of

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dispersion can be presented using standard deviation ellipses. The size and shape of the ellipse help explain the degree of dispersion and its alignment helps explain the orientation of crime type. The most suitable method to visualize crime data as a continuous surface is quartic kernel density estimation. The quartic kernel density method creates a smooth surface of the variation in the density of point events across an area.

Results and Discussion

The Mean Center points for goods smuggling events indicate that this type of crime shows a greater tendency to occur in the central part of the study area. Levels of dispersion can be presented using Standard Deviation Ellipses. The north-west and southeast orientation of drug-related crimes helps to describe the general direction toward which these crimes have a tendency to be patterned. The most suitable method for visualizing of crime data as a continuous surface is Quartic Kernel Density Estimation. Based on this method, the major drug hot spot has been identified in Bisim District. The crime maps produced by the network analysis are one of the common methods to identify crime hotspots. In these maps, crime density has been calculated according to the area or population within each grid cell, independent of defined political and administrative boundaries. The results of this study show that the highest discoveries of food smuggling in Bushehr were in Kangan and the lowest were in Dashty. However, based on the network analysis and Quartic Kernel Density Estimation, central part of the Deilam has the highest density of food smuggling crimes. The findings of the present research show that the most important origin of food smugglings was located in Bushehr and Hormozgan provinces and the main destinations were Bushehr and Fars provinces. Temporal analysis of crime occurrence shows that food smuggling occurs more in the middle of the week, and during the day, it was more in the middle of the day.

Conclusion

The phenomenon of smuggling in Bushehr province is affected by geographical, social and economic factors and conditions. In fact, the most important factors in shaping spatial patterns of smuggling in Bushehr province are geographical location as a narrow strip along the shore in 475 kilometers and natural facilities including estuaries, tide, dark or stormy nights. In addition, some social and economic characteristics affected the high rate of smuggling such as unemployment and lack of appropriate employment opportunities, and low quality of life of residents. There are some causes of smuggling in the national level. The causes are including the profits of smuggling activities, the existence of the market and the demand for foreign goods, instability in export and import regulations, monopolies and exemptions in the exports and imports field, the difference in the market price in the domestic market with neighboring countries. In order to decrease goods smuggling these suggestions should be considered as a priority for the authorities and the people in charge. These suggestions are selection of police station in the strategic entry and exit of the cities, updating database of control centers, comprehensive and integrated databases of smuggling events, application of new technologies in the field of crime analysis. The other important issue to control crime occurrence and prevent smuggling is to consider the situational crime prevention strategies and analysis of crime events with crime hotspots. Criminal activity tends to be spatially localized in the regions called crime 'hot spots', where high criminal activity is surrounded by low criminal activity. The use of hotspots to identify the problematic areas in urban environments and to determine policing and crime prevention strategies has grown over the recent years. Crime hotspots have appealed both crime prevention practitioners and police managers.

Keywords: Bushehr, goods smuggling, spatial pattern.