

1 Cocaine Trafficking as Illegal Supply Chain

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The Dutch National Police is dealing with the violence and extortion in cocaine trafficking, as the Netherlands is one of the transit countries. Cocaine is produced in South America, transported by countries such as Mexico and makes its way to customers all over the globe [3]. Cocaine enters a continent through a transit country, for Europe the main transit countries are The Netherlands (possibly because of the large harbor and good trading position) and Spain (possibly through common grounds with South America as they are both Spanish speaking). The criminals are, in contemporary times, divided in small syndicates spread through each country. These syndicates work together and form a chain that produces drugs and delivers them to the consumer. As such, cocaine trafficking is starting to get modeled by supply chain theory.

Supply chain theories are described in many economical papers. These theories are however not directly suitable for analyzing illegal supply chains. In this project we have investigated the difference between legal and illegal supply chains [2]. We propose two cocaine trafficking supply chain models, one that is based on legal supply chain theory. It is modeled after Jalbut and Sichman [1], which contains trust, that is defined as the ratio between correctly delivered shipments and send orders. The other simulation is a copy of the first with conceptual changes to trust and risk. Comparing these models showed that the illegal supply chain was less efficient and supply lines would be more clustered.

The simulation, see GitHub¹, already lead to interesting results, however it leads to even more interesting questions.

- What would happen if criminals in the simulation were modeled as individuals instead of syndicates?
- How would the cocaine trafficking market with a supply push behave?
- What happens when agents can adjust pricing themselves and start to compete?
- What would the effect of police interventions be on the cocaine supply chain?
- How do the criminals use the legal trade for their cocaine trafficking?
- How would the chain behave with dynamic quality?

¹<https://github.com/maartenjensen/Social-simulation-illicit-supply-chain>

References

- [1] André Jalbut and Jaime Simo Sichman. Impact of Trust on Agent-Based Simulation for Supply Chains. Stockholm, 2018.
- [2] Maarten Jensen and Frank Dignum. Drug Trafficking as Illegal Supply Chain - A Social Simulation. Mainz, 2019.
- [3] Irma Vermeulen, Wouter van der Leest, and Vanessa Dirksen. Doorvoer van cocaine handel via Nederland. Technical report, Dienst Landelijke Informatieorganisatie, Zoetermeer, 2018.