



# Food crime: An often-ignored money laundering typology and a predicate crime

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## ARTICLE INFO

### Keywords:

Food crime  
Money laundering  
Money laundering typology  
Organized crime  
Predicate crime

## ABSTRACT

Food crimes, including adulteration, poisoning, mislabelling, and misrepresentation of information, have cost billions in the global food industry. The coronavirus (COVID-19) pandemic has highlighted the weaknesses of the food supply chain. Unfortunately, such weaknesses are exploited by actors to engage in illicit activities. Consequently, this work aims to highlight the inherent susceptibility of the food sector to being exploited to launder illicit funds and as a predicate crime for generating illicit funds. This study emerges from two independent systematic literature reviews on trade-based money laundering and food crime to identify a knowledge gap highlighting the dual role of the food sector, both to launder illicit funds and as a predicate crime generating such funds. It adopts a viewpoint approach by considering the factors identified in the academic literature to outline the vulnerabilities of the food sector to illicit practices. The novelty of this study lies in focusing on the dual role of the food sector, which to date has been ignored.

## 1. Introduction

The annual cost of fraudulent activities in the food sector is estimated to be USD 40–49 billion (Galvin-King et al., 2018; Lindley, 2020). However, the exact magnitude of these activities is difficult to ascertain because they are often undetected (McElwee et al., 2017). Nevertheless, the profits derived from food fraud are comparable to those generated from cocaine trafficking but with a lower risk (Lindley, 2020). Consequently, there has been a surge in the academic literature on fraudulent activities in the food sector (Manning, 2016; Manning et al., 2016; McElwee et al., 2017). The academic literature has focused on various types of food crimes, motivations for engaging in illicit activities within the food sector, as well as measures taken to protect the food sector from intentional adulteration, including adopting a root cause analysis approach and risk assessment tools. However, as noted by McElwee et al. (2017), the focus on food crime and food fraud associated with farming or food policy has been limited. This contrasts with the growing incidence of food-related criminal activities, such as sheep theft, trading in illegal halal meat, adulteration, and mislabelling of food products.

Spink and Moyer (2011) use the term ‘food fraud’ to describe various activities, including deliberate and intentional substitution; adding, tampering, or misrepresenting food, food ingredients, or food packaging; and making false or misleading statements about a product

for economic gain. Similarly, the Elliot Review (2014) and Manning and Soon (2016) concur that food fraud transforms into food crime with the involvement of actors who set out to deceive or injure those purchasing food. Croall (2009) identified seven types of food fraud and Manning et al. (2016) categorized food fraud as a subset of food crimes.

The academic literature on food crime encompasses various aspects, including the assessment of food fraud, organizational factors facilitating illicit practices, regulatory efforts to curb such activities, exploration of food crime within the context of green criminology, and discussion of its social and environmental harm. Additionally, food crimes have also been associated with the involvement of organized criminals (Croall, 2013; De Rosa and Trabalzi, 2016; Moyer et al., 2017; Pointing, 2005; Raemaekers et al., 2011; Spink and Moyer, 2013). The works of Spencer et al. (2018) and Rizzuti (2022a) have highlighted the challenges associated with differentiating the involvement of organized criminals and corporate actors in acts of food crime, thereby leading to the emergence of organized food crime as a distinct phenomenon.

According to Rizzuti (2022a, 2022b), such categorization helps address a range of illicit activities in the food sector executed by corporate and organized crime actors. Furthermore, it helps shift the focus to corporate actors involved in harmful and criminal practices in the food sector, thus pushing the remits of institutional agencies to more corporations. Apart from institutional, activity, and actor perspectives, from a law enforcement perspective, associating financial crimes such

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as money laundering can aid in increasing policing resources in the food sector and the further identification of potential food crimes.

Money laundering refers to efforts made to conceal or disguise the origin of illegally obtained proceeds so they appear to be derived from legitimate sources (Oliva, 2022). Milon and Zafarullah (2023) suggest that food products are vulnerable to money laundering activities, often involving the manipulation of prices to transfer value. For instance, Rizzuti (2022b) noted instances of the sale of adulterated extra-virgin olive oil to the US market at higher prices, thereby facilitating the laundering of illicit funds. Furthermore, the cash-intensive nature of the food sector and the complexity of the food supply chain provide numerous opportunities for undertaking illicit activities within the sector, such as using restaurants and pizzerias as front businesses for money laundering operations.

Consequently, this study aims to highlight the potential of the food sector to be exploited for both laundering illicit funds and as a predicate crime for generating illicit funds. This notion is motivated by the work of Spink (2017), who attributed product counterfeiting as a source of funding terror activities. Furthermore, Lynch and Mah (2021) shed light on opportunities within the sector, such as using food convenience stores to move illicit substances to generate illicit funds requiring laundering.

The remainder of this paper is organized as a viewpoint to highlight the potential of food crime as a predicate crime generating proceeds requiring laundering, as well as an avenue for money laundering proceeds. The next section will outline the methodology adopted to develop the viewpoint for conceptual work. This will be achieved by examining various aspects that make the food sector susceptible to illicit practices, followed by an exploration of the opportunity it presents to generate illicit funds that require laundering or laundering already generated illicit funds. Efforts to combat food crimes are also discussed, leading to a conclusion.

## 2. Methodology

The need for this work to elucidate the dual role of the food sector as a predicate crime and conduit for money laundering emerged from two distinct systematic literature reviews on trade-based money laundering (TBML) and food crime.

TBML, as defined by the Financial Action Task Force (2006), is the process of disguising the proceeds of crime by moving value through trade transactions to legitimize their illicit origins via misrepresentation of the price, quantity, or quality of imports or exports. This has emerged as a preferable typology for illicit actors to launder funds. Consequently, considering the limited research in this domain due to the complexities associated with trade, a systematic literature review was initiated by Tiwari et al. (2023). This review, which is currently under consideration for publication, seeks to determine the extent of the existing research and identify potential research opportunities for further investigation.

Scopus and Clarivate Web of Science (WoS), with comprehensive coverage of relevant content (Siva et al., 2016; Suárez et al., 2017), were used for the systematic literature review. The following search keywords were used to extract the literature primarily focusing on TBML: "trade-based money laundering", "TBML", "drug traffic\*", "traffic\*", "detect\*", "crim\*", "organised crime\*", "organized crime\*", "terror\*", "terror financ\*", "terror fund\*", "white collar crime\*", "white-collar crime\*", "bank\*", "predicate crime\*", "fraud\*", "piracy\*", "counterfeit\*", "smuggl\*", "typo\*", "monitor\*", "misinvoic\*", "mispric\*", "trad\*", "briber\*", "corrupt\*", "internal control\*", "AML," "prevent\*", and "investigat\*".

The obtained citation records were added to ResearchRabbit, an online citation-based literature mapping tool. This was performed to address any subjectivity associated with keyword coverage and identify any additional literature associated with TBML. Finally, in line with Dymant and Downing (2020) and Suárez et al. (2017), academic

articles with a Journal Citation Report (Thomson Reuters) or a Scimago Journal & Country Rank by Scopus (SJR) impact factor were considered for this review. Among the 39 studies reviewed on TBML, only one notable work by Milon and Zafarullah (2023) focused on the food sector. They conducted semi-structured interviews with customs officials, customs brokers, importers, and other relevant personnel at a seaport in Bangladesh to conclude that food products were susceptible to exploitation for money laundering.

Similarly, another systematic literature review, in line with the PRISMA-ScR guidelines using the Population, Concepts and Context (PCC) framework, is being conducted on food crime by Tiwari, Gepp, et al. (2023). The adopted methodological approach was registered with the Open Science Framework (Tiwari, Gepp, et al., 2023). This review identifies the work of Spink (2017) and Rizzuti (2022a), who focus on the potential of the food sector to be exploited for generating illicit funds requiring laundering.

Consequently, these findings resulted in the development of a viewpoint underscoring the need to focus on the dual role of the food sector, both to launder illicit funds and as a predicate crime that generates illicit funds that require laundering. This viewpoint is strengthened by the integration of additional work from the literature on food and financial crime. Despite the studies discussing the role of the food sector in money laundering and generating illicit funds requiring laundering, academic literature in the domain of financial crime and food has largely ignored the exploration of the dual role of the food sector. Therefore, the current work, in accordance with Miles (2017), seeks to fill this knowledge gap by integrating insights from seemingly unrelated domains.

The current study, while presenting a unique perspective on the dual role of the food sector in money laundering and as a predicate crime, has certain limitations that need to be acknowledged. This study presents a viewpoint that requires further empirical validation. Furthermore, it does not investigate the mechanisms through which money can be laundered via the food sector, or opportunities where illicit funds can be invested within the food sector. Lastly, it does not analyze the roles and motivations of actors involved in illicit practices within the food sector.

The following sub-section outlines the factors that make the food sector vulnerable to exploitation.

## 3. Results

### 3.1. Factors making food sector attractive for illicit activities

Food crime can be considered an economic crime involving both organized crime and corporate actors, as exemplified by investigative operations such as Operation Providenza, Operation Boldo, and Operation Arbequino (Rizzuti, 2022b). The food sector is characterized by instances of criminal infiltration and illicit investments. This is further reinforced by Savona and Richards (2015), who assert that the food sector has the most instances of criminal infiltration and illicit investment. Notably, there have been numerous occurrences of mafia-type groups controlling fruit and vegetable markets, and companies owned by them are involved in managing food logistics. One such case occurred during Operation Acero-Krupi, when mafia-type groups used food trucks and canned food to hide and transport drugs and weapons. Furthermore, Operation Pollino revealed how mafia clans exploited restaurants and other food-catering services for money laundering purposes. Finally, Operation Nebrodi highlighted the infiltration of the mafia into EU farm subsidy fraud (Rizzuti, 2022a).

The attractiveness of the food sector to fraudulent activities and illicit practices can be attributed to several factors. One factor that makes the food sector attractive for illicit activities is its reliance on cash transactions and resilience to economic downturns at both the macro and micro levels (Moyer et al., 2017). Furthermore, operations within the sector are characterized by low technological dependence, with no

requirement for sophisticated expertise or costly machinery. Instead, it relies on traditional production methods and local market competition, rendering the food sector susceptible to illicit practices (Sciarrone and Storti, 2014).

Another factor that contributes to the attractiveness of the food sector to criminal practices and dysfunctionality is the complexity of the food supply chain. Such complexity fosters a lack of transparency in the supply chain, resulting in illicit practices, such as adulteration and mislabelling. This is further complicated by the concentration of market power in the hands of a few corporate actors. Additionally, various factors, such as diverse regulatory structures, inelastic demand for certain food products, a lack of stringent punishments for food offenses, a lack of investigative resources, and minimal cooperation across jurisdictions to address cross-border food trade activities, create additional opportunities for fraudulent acts in the food sector (Rizzuti, 2022b).

Similarly, cultural and structural conditions within the food sector can encourage fraudulent activities. Rezazade et al. (2022) extended this notion by highlighting how the level of corruption in detecting countries and the supply and pricing of raw materials influence an actor's motivation to engage in illicit activities within the food sector. The authors found that when there is tolerance towards corrupt business practices, the motivation to act illicitly increases. Similarly, the supply and pricing of raw materials have become prevalent factors for resorting to illicit acts owing to increased demand during special events/festivals.

Lindley (2020) applied crime opportunity theory to understand the modus operandi and underlying drivers of illicit activity within the food sector. She noted that illicit actors within the food sector target low to medium cost, high-demand everyday foods that involve many consumers for profit maximization. Furthermore, she observed that high-demand, high-priced food products were vulnerable to exploitation for illicit gains. Consequently, other efforts have been made in the academic literature to identify dysfunctions and factors that encourage illicit activities within the food sector (Cheng, 2012; Davies, 2018). For instance, Cheng (2012) attributes the facilitation of criminal activities in the food sector to "cheap capitalism", that is, an economic environment prompting the production and sale of unsafe food. Routine activity and situational crime theories have also been used to identify circumstances that facilitate the commission of illicit practices within the food sector (Lord et al., 2017a, 2017b; McElwee et al., 2017; van Ruth et al., 2018).

### 3.2. Opportunity for money laundering and generation of illicit proceeds

The academic literature focusing on the food domain has explored various aspects associated with food defense, food safety, supply chain integrity, theories exploring misconduct within the sector and its effects, and detection mechanisms proposed to combat these issues (Davidson et al., 2017; Galvin-King et al., 2018; Lee et al., 2022; Lindley, 2020; Lord et al., 2017a, 2017b; Mangla et al., 2021; Manning and Soon, 2016; Meerza et al., 2019; Rezazade et al., 2022; Soon and Wahab, 2022). Similarly, in the financial crime domain, particularly money laundering, the literature focuses on aspects associated with the magnitude of the problem, emerging opportunities to launder funds, and methods of detection (Teichmann, 2020, 2017; Tiwari, Ferrill, et al., 2023; Tiwari et al., 2022, 2020; Unger and den Hertog, 2012; Walker and Unger, 2009). Scholarly works examining novel channels for money laundering include real estate, trade, and the use of art and artifacts (Hufnagel and King, 2020; Naheem, 2017; Teichmann, 2017). However, the dual role of the food sector, both to launder illicit funds or conceal other illicit activities of the actors involved, and as a predicate crime for generating illicit funds requiring laundering, has so far been ignored, except for Rizzuti (2022a).

Interestingly, the involvement of various actors within the food sector provides opportunities for generating illicit proceeds that necessitate laundering by disguising them through legitimate activities

within the food sector. An example of this was noted in Italy, where mafia-type actors assumed an intermediary role by protecting the production and sale of lemons to exporters. Similarly, 'agromafia' denotes the perpetration of illicit activities within the food industry by criminal actors. Academic and public discourse acknowledge the infiltration of mafia influence within the food sector. Conversely, corporate actors often perpetuate food crimes (Rizzuti, 2022a; Smith et al., 2017). Consequently, Rizzuti (2022a) concludes that both organized and corporate crime actors are involved in illicit practices within the food sector, resulting in the conceptualization of both under the category of organized food crime.

Such a conceptualization necessitates the consideration of opportunities for generating illicit proceeds via practices within the food sector. This is motivated by the work of Spink (2017), who attributed product counterfeiting as a major source of revenue for organized crime groups. The food sector is susceptible to illicit practices at various stages, including the production, processing, labeling, and distribution of food items compromised in their safety, quality, and integrity. In addition, criminal behavior also occurs in other stages of the supply chain, encompassing agricultural labor, catering, and food-related services (Davidson et al., 2017; Davies, 2018; Galvin-King et al., 2018; Lee et al., 2022; Manning et al., 2016; McElwee et al., 2017; Pointing, 2005; Savona and Richards, 2015). Consequently, there is an opportunity to resort to illicit practices, such as adding water and pesticides to food, to generate money given limited industry supervision or scrutiny (Manning et al., 2016).

Furthermore, dysfunctionality within the food sector creates avenues for investing illicit proceeds in legitimate business activities within the sector, as well as opportunities to disguise and move proceeds. For instance, Perone (2020) attributes money laundering to the distortion of food prices in Italy caused by reinvesting illicit proceeds in firms with a strong cost advantage. Furthermore, because of complex food system structures and business models, criminal and corporate actors can use front businesses, such as restaurants to conceal the origin of illicit funds or even hide the movement of illicit substances, such as drugs through food shipments (Campana, 2011). Similarly, there have been instances where trucks and canned food have been exploited to conceal and transport drugs and weapons. Moreover, during situations like the Covid-19 pandemic, when legitimate food businesses may be struggling financially, organized crime groups can exploit such vulnerabilities by offering financial resources to these businesses via loansharking or money laundering (Rizzuti, 2022a).

### 3.3. Measures to combat food crime

Given that various factors make the food sector attractive for exploitation, a wide variety of measures have been proposed to combat this problem. For instance, to combat illicit activities resulting from the complexity of the supply chain of food products, food companies have incorporated anti-bribery and corruption training, established whistleblowing systems to report wrongdoing, adopted ethical codes of conduct, and ensured mandatory compliance schemes. Moreover, emphasis has been placed on enhancing public-private partnerships, sharing intelligence with public food regulators, and engaging in discussions with stakeholders from different sectors, including industry, government, private organizations, and non-governmental organizations. These efforts also aim to encourage cooperation with stakeholders at different stages of the supply chain (Rizzuti, 2022b).

Furthermore, emphasis has been placed on developing detection techniques for combatting illicit practices within the sector, as well as enhancements made to existing techniques, such as DNA analysis and mass spectrometry (Galvin-King et al., 2018). In addition to focusing on detection mechanisms, attention has been paid to ensuring food integrity through the implementation of models such as Vulnerability and Critical Control Points (VACCP), reporting systems, and human intelligence to prevent food crime (Manning, 2016; Soon-Sinclair et al.,

2023; Steinberg and Engert, 2019). These are considered to be effective early warning indicators.

In addition, to tackle issues arising from the complex nature of the supply chain, encompassing the production and distribution stages, innovative technologies such as blockchain have been implemented (Pearson et al., 2019; Rogerson and Parry, 2020; Smith and Tiwari, 2023; Verdouw et al., 2016). Such an implementation assists with the challenges faced in food supply chains concerning food authenticity, food safety, and fair trade by providing a real-time ledger, enabling the digitization and tracking of the excisable product throughout the supply chain. This results in reduced anonymity, increased provenance, and transparency, which in turn assists in combatting illicit practices prevailing in the sector (Lindley, 2022). However, the effectiveness of blockchain in addressing illicit practices associated with supply chain complexity is limited because of certain challenges. These challenges include interoperability issues, a lack of regulatory oversight, and scalability, which make it difficult to connect all the actors involved in the supply chain (Harris, 2019, 2021; Juels et al., 2016; Zheng et al., 2020). Furthermore, the costs involved in maintaining such an infrastructure and participating in the blockchain network may become a barrier for small producers wishing to export food products globally. Consequently, global standards for data encryption, infrastructure, and access are required (Pearson et al., 2019).

To address the concerns associated with data confidentiality, a permissioned blockchain infrastructure was proposed. Such infrastructure, such as Hyperledger Fabric, facilitates access to data only when permission from data owners is granted (Pearson et al., 2019). Furthermore, a national blockchain infrastructure that connects industry stakeholders and regulators through permissioned blockchain networks is being established. For instance, this includes implementing blockchain excises platforms in Australia to combat fraudulent activities in the wine industry (Convergence.Tech, 2022).

While such measures contribute to enhanced transparency and food traceability, it is important to note that additional measures are necessary to combat criminal infiltration within the food sector under the guise of legitimate businesses. This is to avoid using a conduit to either generate illicit proceeds or being abused for laundering proceeds generated from other illicit activities. Similar to the discourse within the art market associated with implementing an anti-money laundering (AML) framework (Hufnagel and King, 2020; Stoll, 2022; Ulph, 2011), it would be worth considering the food sector from such a perspective.

#### 4. Conclusion and future directions

The food sector presents an intriguing context where an interplay exists between the motivation of legitimate actors and their social/criminal networks to take advantage of opportunities that arise within the sector. Subsequently, both corporate and criminal actors have taken advantage of the prevailing vulnerabilities within the food sector. These vulnerabilities may stem from low barriers to entry, low levels of regulatory scrutiny, and supply chain complexity. Keeping in mind the factors that make the food sector vulnerable to exploitation, as well as the work of Spink (2017) and Lynch and Mah (2021), this study draws upon the knowledge gap identified from two independent systematic literature reviews and presents a viewpoint that considers the food sector as a possible money laundering typology to hide the origin of illicit funds, as well as a predicate crime for generating illicit funds. The present study lays the foundation for future work to examine the validity of this viewpoint. First, in accordance with Miles (2017), this study presents an opportunity to address this empirical gap by examining case studies or conducting empirical investigations to test the validity of the issue.

Second, integrating insights from financial crime literature could help determine the various techniques that can be used to launder the illicit proceeds generated from the food sector, thereby addressing a theoretical gap. For instance, the APPT framework, named after four

factors, namely, the actors involved, the predicate crime, the purpose of laundering, and technological innovations, as proposed by Tiwari, Ferrill, et al. (2023) can provide valuable guidance concerning possible money laundering technique(s) that can be used to launder the illicit proceeds generated by the food sector. Such a framework is dependent upon its key components, namely, the actors involved, which may encompass both corporate and organized crime actors; the purpose of laundering, which can be used to either fund further criminal activities or hide or disguise the generated proceeds; the predicate crime, comprising any illicit activity within the food sector; and adoption of technology, such as FinTech, for moving funds.

Likewise, assessing the role of virtue ethics and professional judgment in fostering sound professional judgment and ethical behavior on the part of individuals and organizations engaged in the food business becomes critical in addressing a practical knowledge gap (Alkhoury et al., 2023; Howieson, 2018). Additionally, developing appropriate regulations or deterrence mechanisms to prevent the food sector from being exploited for money laundering or as a predicate crime could bridge another practical knowledge gap. For instance, as in the arts and antiquities sector, there is a need to evaluate the food sector from an AML perspective.

#### Funding

This work was supported by the Charles Sturt University Sturt Scheme grant.

#### Declaration of Competing Interest

We have no conflict of interest to disclose.

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