

FROM DARKNESS TO LIGHT: A COMPREHENSIVE ANALYSIS OF UNDERAGE PROSTITUTION SUPPLY CHAINS IN FRANCE

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Abstract: This paper delves into the intricate web of underage prostitution, a persisting societal dilemma, through a comprehensive analysis presented in a chapter authored by Lavaud-Legendre & Plessard (2021). Published in April 2021, this chapter emanates from the University of Bordeaux, authored by a professor of law and a professor of sociology. The overarching concern addresses the proliferation of juvenile prostitution networks over the past decade, paralleled by the escalating use of cannabis among teenagers. The study meticulously explores the multifaceted dynamics of prostitution, unraveling the roles of pivotal actors such as "boss," "prostitute," "guardian," and "provider," not overlooking the pivotal role played by clients.

Prostitution, deeply embedded in human history, has evolved into a thriving black market, resembling a modern form of slavery in developed nations. Lavaud-Legendre & Plessard (2021) boldly employ a meticulous "supply chain" analysis to dissect the intricate layers of prostitution involving underage girls. This approach prompts a critical question about its legitimacy within the framework of marketing and the service economy. The affirmative answer to this question accentuates the urgency of addressing "sensitive topics" within a distributive context, extending beyond prostitution to encompass issues like drug trafficking and human trafficking.

This study grapples with the ethical dimensions of adopting a "supply chain" analysis, particularly when dealing with morally charged topics such as drug trafficking or human exploitation. Drawing on insights from literature, the authors navigate the challenging terrain of analyzing an illicit industry that intersects with issues of morality and societal well-being. The chapter strives to elucidate the intricate mechanisms that perpetuate the prostitution of underage girls, shedding light on the vulnerabilities that lead young individuals, battling low self-esteem, into the clutches of this modern form of slavery.

In adopting a rigorous and systematic approach, Lavaud-Legendre & Plessard (2021) contribute to the ongoing discourse on understanding and combating underage prostitution. The implications extend beyond the immediate concerns of the sex trade, branching into broader societal issues, demanding a nuanced exploration of the ethical implications embedded in the supply chain of illicit activities. This research not only sheds light on the dark underbelly of underage prostitution but also stimulates dialogue on the broader implications for society and the ethical responsibilities of researchers.

Keywords: Underage Prostitution, Supply Chain Analysis, Sex Trade, Black Market, Juvenile Prostitution Networks.

1. Introduction

In April 2021, a highly relevant chapter was published in France by two researchers from the University of Bordeaux, a professor of law and a professor of sociology. The book addresses the issue of prostitution of

underage girls, which has been in the newspapers and TV reports for several years. The multiplication of juvenile prostitution networks over the last decade is indeed a major societal problem, as is the use of cannabis by teenagers. The chapter by Lavaud-Legendre & Plessard (2021) deals more specifically with the functioning of prostitution, which involves multiple stakeholders called “boss”, “prostitute”, “guardian” and “provider”, not forgetting, of course, the clients themselves. Prostitution, or the sex trade, has its roots in human history (Ringdal, 2004). But we also know that prostitution is part of a thriving black market, and even a modern form of slavery in developed countries (Ditmore, 2011), in which an underage girl suffering from poor self-esteem can fall very quickly (Basu *et al.*, 2021). However, Lavaud-Legendre & Plessard (2021) boldly choose to adopt a rigorous “supply chain” analysis of the prostitutional activity of underage girls. Is such an approach legitimate in marketing as a part of the service economy? If the answer is positive, it raises the problem of analyzing “sensitive topics” in a distributive context, in particular drug trafficking (Boivin, 2014; Holste, 2020), or human trafficking, with a moral dimension that the researcher cannot ignore.

The sexual exploitation of children for commercial purposes is present in many countries. Since it is illegal, and takes different forms, it is very difficult to put an accurate figure on it. Commercial sex refers to the obedience of children to pimps or mafia groups who force them to have sex in exchange for payment. In many cases, the children do not earn this money, which goes to the person organizing the prostitution system. As Wójcik (2021, pp. 147-148) underlines, “the problem of sexual exploitation of children for commercial purposes has been indicated during the First World Congress against Sexual Exploitation of Children for Commercial Purposes, which took place in 1996 in Stockholm. The congress was oriented to get the attention of an international society towards the escalation of the phenomenon of commercial sexual exploitation of children, and the necessity of taking action to prevent and eliminate this problem”. If the subject has given rise to a growing number of academic works since the Stockholm congress, few researchers are interested in the operational organization of the prostitutional system.

This is the purpose of the present research note, structured in three sections: a second section specifies the roots of the phenomenon studied; a third section underlies the logistical issues and discusses the scientific legitimacy of exploring sensitive topics as juvenile prostitution; and a fourth section proposes an original synthesis of the dimensions of the juvenile prostitution supply chain that it is essential to take into account. The main objective is to show that managerial tools developed over the last few years to improve the monitoring of physical flows within supply chains allow a better understanding of some deviant practices. The aim is not, of course, to improve the commercial performance of these deviant practices, but to identify the key dimensions underlying their implementation, especially through the organization of the well-known *street gangs* (Dorais & Corriveau, 2008). The knowledge that the researcher can acquire about the coordination of the “logistical nodes” supporting juvenile prostitution will be very useful in combating the phenomenon. Conversely, refusing to analyze sensitive topics because they refer to a reprehensible societal reality could lead to their deleterious effects continuing over time. Studying sensitive topics can therefore be seen as a “civic act”: the marketing researcher at the service of Society.

2. Sex Trafficking for Commercial Purposes

Seven years ago, Paché (2015) tried to show how one component of the sex economy, namely the production and distribution of *low-cost* pornographic movies, relied on recognized logistical patterns: a mass customization based on the standardization of modules and components (generic film scenes of sex that can be found in every production), before final differentiation of the “product” (the movie), by constantly renewed assembly of modules

and components. Some researchers had been amused by this logistical analysis, while recognizing its relevance: Le Goff (2012) came to an identical conclusion by taking the case of American westerns from the beginning of the 20th century. On the other hand, other researchers had noted that it was scandalous to use logistical tools to explain the production process of pornographic movies, which testified to the deviation of managerial thinking. It is to be feared that Lavaud-Legendre & Plessard's (2021) investigation will raise at least as many negative reactions, even though it appears to be particularly well argued to understand a phenomenon that plagues many countries: juvenile prostitution.

2.1. Roots of Juvenile Prostitution

Lavaud-Legendre & Plessard's (2021) chapter focuses on a particular segment of the sex market: the prostitution of underage girls, particularly high school students. The prostitution of underage girls is more broadly defined as human trafficking, as defined in Box 1. In an article devoted to human trafficking, Aronowitz & Koning (2014) clarify the particular case of this juvenile prostitution, which is widely developed in certain countries, by questioning the reasons for the demand for very young prostitutes. The main reason is that they are inexperienced girls, and unable to set boundaries for sexual play, as would mature professional prostitutes. Aronowitz & Koning (2014) also note that in specific cultural contexts, especially in Asia and Africa, there are ancestral beliefs that rely on the idea that having sex with an underage girl can bring good luck in business. The case of France arguably overlaps in part with Aronowitz & Koning's (2014) analysis, but it has one main specificity: the search for financial resources by underage girls to have access to luxury goods and, more broadly, an "easy life". However, it is regrettable that there is currently a lack of epidemiological research and complete statistical data on the French case, unlike in other Western countries such as the United States, Norway, Sweden and Switzerland (Dupont *et al.*, 2021).

Box 1. A Definition of Juvenile Sex Trafficking

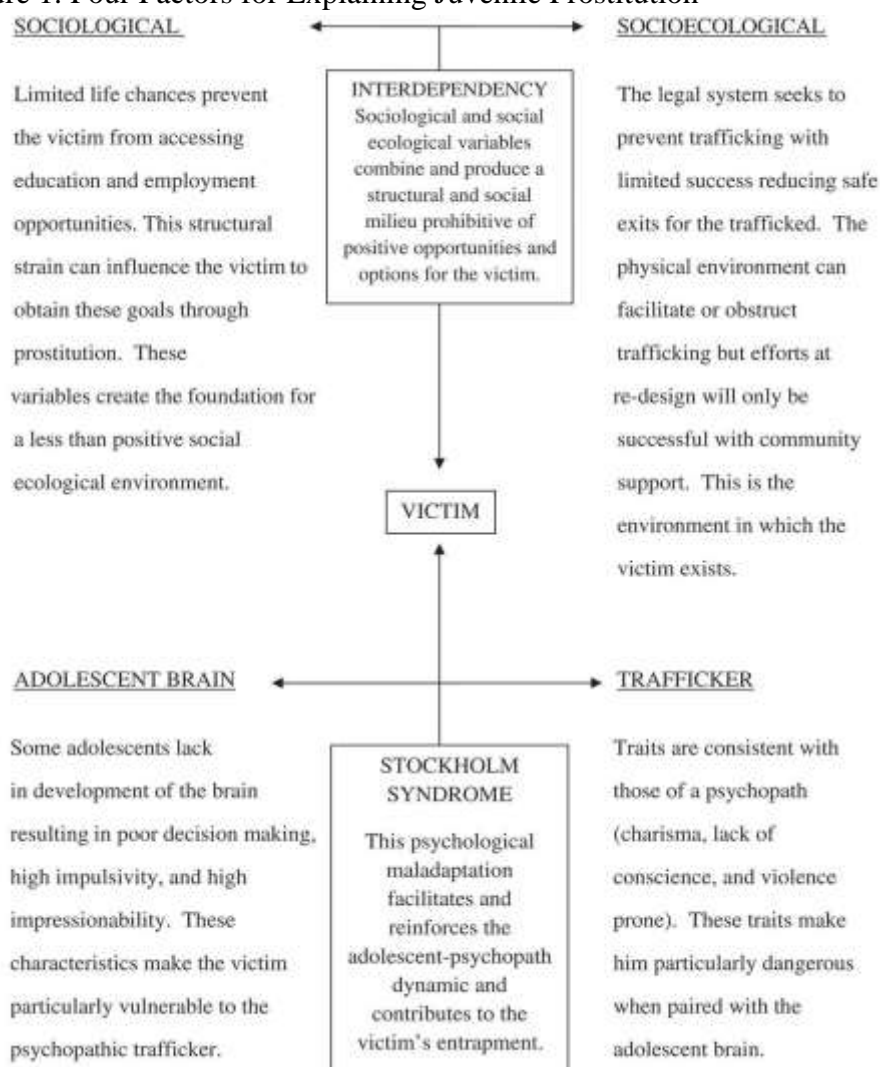
Juvenile sex trafficking is defined as an offense to knowingly recruit, entice, harbor, transport, provide, obtain, or maintain a minor (defined as someone under 18 years of age) knowing or in reckless disregard of the fact that the victim is a minor and would be caused to engage in a commercial sex act. "Commercial sex act" is defined very broadly to include "any sex act, on account of which anything of value is given to or received by any person". In other words, it is illegal both to offer and to obtain a juvenile and cause that juvenile to engage in any kind of sexual activity in exchange for anything of value, whether it be money, goods, personal benefit, in-kind favors, or some other kind of benefit. It is a crime for individuals to participate in a business venture that obtains minors and causes them to engage in commercial sex acts.

Source: Adapted from U.S. Department of Justice (2020).

For underage girls facing violence at home, an authoritarian patriarchal regime or a precarious standard of living, prostitution appears to be a way to be rapidly financially independent. More dramatically, prostitution has even become *glamorous* in the eyes of underage girls, who refer to fashion icons. One of the most famous examples in France is Zahia Dehar. In 2000, Dehar had sexual relations with players of the French soccer team, after taking up prostitution at the age of 16 in the European "*jet set*". The young woman then became famous with modeling, lingerie design and even film industry. Dehar, from an immigrant and working-class background, "made it" and many underage girls dream of doing the same and identify with her (O'Deyé & Joseph, 2013; Cheval &

Guzniczak, 2019). In other words, prostitution is just a step towards fame, but many underage girls will become disillusioned; prostitution will then become a source of income to simply eat their fill. More generally, Lopez & Minassians (2018) propose an explanatory model of juvenile prostitution based on four factors: a sociological factor; a socioecological factor; an “adolescent brain” factor; and a “trafficker” factor (see Figure 1).

Figure 1. Four Factors for Explaining Juvenile Prostitution



Source: Lopez & Minassians (2018), p. 263.

2.2. The French Context

An official report estimates that 7,000 to 10,000 teenagers are involved in prostitution in France (Champrenault, 2021). It mainly affects underage *girls* (85%), between 15 and 17 years old on average, with an increase in the number of victims of more than 340% between 2016 and 2020. The report indicates that prostitution of underage girls come from disadvantaged families, particularly from cities in crisis affected by poverty. About a quarter of underage girls in prostitution suffer from emotional and/or educational deficiencies linked to dysfunctional family contexts, with divorce/separation situations. Finally, nearly half of the underage girls say that they were subjected to violence during their childhood, mainly sexual, before entering the prostitutional system. Perhaps the most

dramatic dimension noted by Champrenault (2021) is the extreme youth of some of the underage girls involved in juvenile prostitution.

As Table 1 shows, one-third of the victims are under the age of 14, and some victims are under the age of 10. This makes it easier to implement the steps of the grooming model formalized by Winters *et al.* (2022): gaining access and isolation; trust development; desensitization to sexual content and physical contact; and post-abuse maintenance.

Table 1. Age Distribution of Underage Girls in Prostitution, 2020 (North of Paris)

<i>Age</i>	<i>Percentage</i>
10 years old and less	5%
Between 11 and 14 years old	28%
Between 15 and 17 years old	62%
No information	5%

Source: Observatoire des Violences Envers les Femmes (2020).

One might think that juvenile prostitution is a relatively recent phenomenon, linked in particular to sociological and societal developments such as the disintegration of the family unit or the rise of poverty in certain neighborhoods. This is not the case. Studying child prostitution in France, and particularly in Paris, at the beginning of the 20th century, Lohse (1913/2016) noted that the roots of juvenile prostitution are a strong disorganization of the family, following a divorce or poor living conditions in insalubrious dwellings, ill-treatment inflicted on the underage girl, and chronic financial difficulties generating misery. Of course, France in 1900 is not France in 2022, but it is interesting to note a relative convergence in the causes of juvenile prostitution highlighted by the very thorough work of Lohse (1913/2016), who also underlines the central role played by the pimps.

Still today, the prostitutional system relies on the presence of pimps, who present themselves as key intermediaries in the sex trade. Mauxion-Minda (2020) notes that juvenile prostitution is easier and less risky than drug trafficking. According to the data collected by the author, a pimp could obtain an income close to €200,000 per year with a single underage girl. In general, pimps, whom some underage girls prefer to call “protectors”, organize small networks, much more discreet and difficult to detect. It is often the friends of an underage girl who recruit new prostitutes in exchange for bonuses paid by the pimp, which can be as much as €350 per recruit. Mauxion-Minda (2020), however, points to the existence of another method of feeding juvenile prostitution, the *loverboys*, widely studied in the literature (Poelmans *et al.*, 2011; Van San & Bovenkerk, 2013; Katona, 2017; Twis *et al.*, 2022). Loverboys are men only slightly older than underage girls, who act as “lure”. They approach vulnerable teenagers with hopes of love and money, later becoming controlling and violent. Trapped, the victims become dependent on the loverboy, who assumes the status of pimp.

3. Supply Chain Analysis of Juvenile Sex Trafficking

In November 2021, the French government launched a €14 million plan to better fight against juvenile prostitution of underage girls, considered a major societal problem. The plan is based on four pillars: (1) raising awareness and providing information to underage girls; (2) strengthening identification at all levels of those involved in prostitution; (3) supporting underage girls in prostitution; and (4) strengthening legal action against clients and pimps. While this initiative is positive and demonstrates a political will, it only focuses on the different

stakeholders of human trafficking –including the sanctioning of them– without really emphasizing all the elements that constitute the prostitutional system. However, as the Industrial Marketing & Purchasing (IMP) group reminds us (Gadde *et al.*, 2003), it is difficult to decide and act without a complete knowledge of the actors, activities and resources involved in the organization of a business network. The identification of logistical resources is particularly important in juvenile prostitution; this is a sensitive topic whose academic treatment requires various methodological precautions.

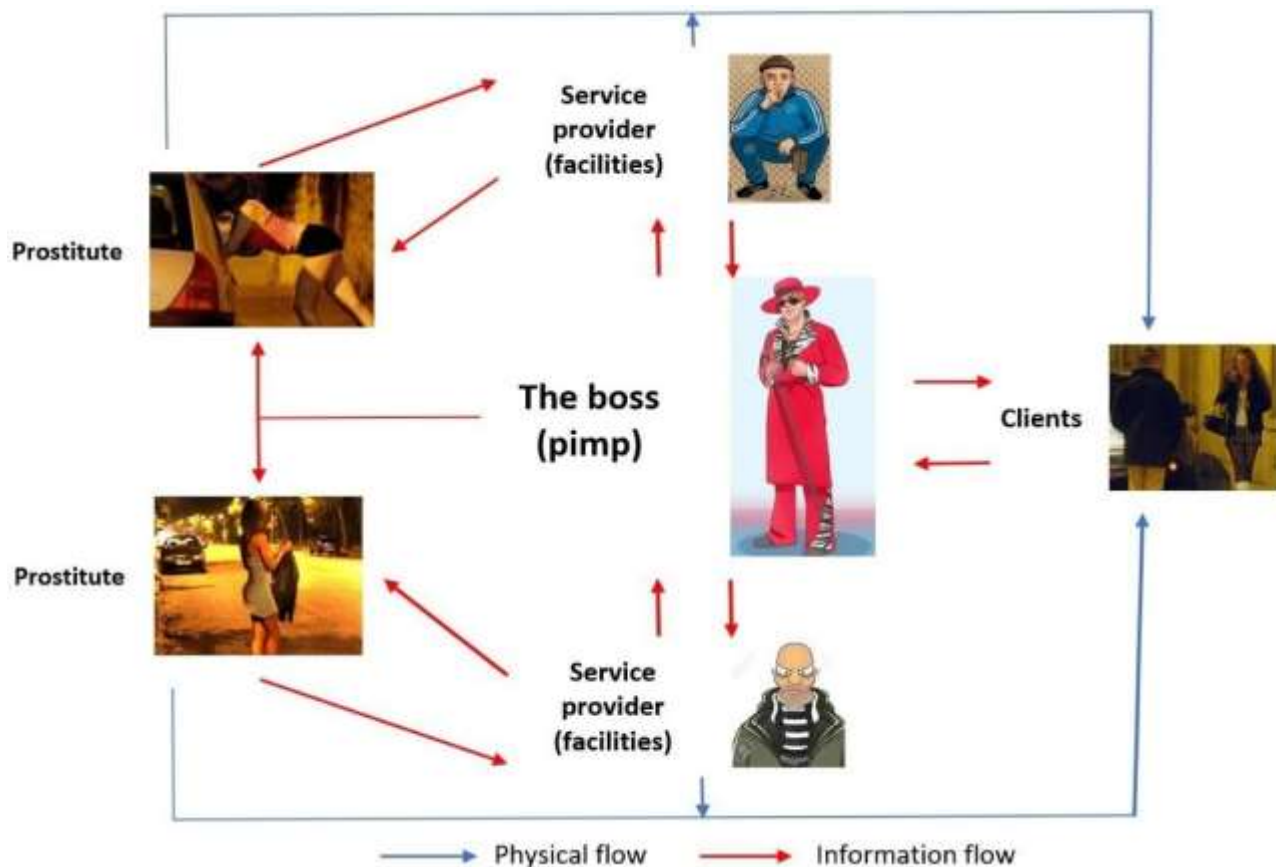
3.1. Identification of Logistical Resources

Taking this reality into account, Lavaud-Legendre & Plessard's (2021) argument is based on a rigorous investigation derived from an in-depth study of ten criminal proceedings conducted in 2019 and 2020 in France. These proceedings resulted in the criminal judgment of facts qualified as procuring (with an aggravating fact: the presence of an underage girl). This allows Lavaud-Legendre & Plessard (2021) to extract a series of verbatims testifying of the prostitutional activity experienced by underage girls, with a spiral of violence, humiliation, blackmail and drug use. Step by step, Lavaud-Legendre & Plessard (2021) construct an original framework that places logistics at the heart of the analysis, in a double aspect: (1) the presence of logistical resources of a physical nature; and (2) the importance of information systems as a tool for “monitoring” the activity. We find here the foundations of business logistics and supply chain management (SCM) as developed for more than thirty years (Chopra, 2018), especially in the management of information systems, and of which an application to sexual exploitation has been proposed by Stapleton *et al.* (2012) and Thompson (2017).

3.1.1. Physical Resources

The presence of logistical resources of a physical nature is clearly identified by Lavaud-Legendre & Plessard (2021) in their survey based on secondary data. The “bosses”, in other words the “pimps” leading a gang, need to have facilities to practice prostitution, whether they are hotel rooms or rented apartments, when they are not squalid wastelands out of sight; in reference to the work in service marketing, it is the physical environment on which the design of the servicescape is based and the supply of tangible elements to guarantee the service performance (Kursunluoglu Yarimoglu, 2014). They also need to organize the transport of underage girls by mobilizing the most suitable –and least expensive– means of physical moving. To do this, the “bosses” turn to “service providers” responsible for making physical resources available, while ensuring their security in the face of potential police intervention. Figure 2 is a simplified representation of the supply chain related to underage girls’ prostitution as it emerges from Lavaud-Legendre & Plessard's (2021) investigation. Careful observers of commercial supply chains will immediately draw a parallel with the interaction between a shipper –or network hub– and its logistics service provider in the process of delegating delivery operations and the exploitation of supply chain interdependencies (Huemer, 2012). It can also be seen that Figure 2 highlights the interconnectedness attribute and the systemic nature of supply chains, as introduced by Kweku Hoeyi (2019).

Figure 2. Prostitution of Underage Girls: A Supply Chain Perspective



3.1.2. Information Resources

As far as information systems are concerned, digitalization is a major trend in prostitution around the world. Charpenel (2019) underlines the misappropriation of new technologies for the benefit of a “prostitution 2.0”. A survey conducted in 35 countries leads to alarming findings in the widespread use of smartphone applications. Thus, the “bosses” use WhatsApp to communicate with each other and with underage girls, they find their preys on Instagram and they attract customers via ads on the Internet. This new form of digital prostitution has succeeded in supplanting traditional prostitution in the street, and all countries are affected, regardless of their legislation. In Europe, underage girls are spotted on Snapchat or Instagram, before being prostituted in apartments rented on a platform and transformed into “ephemeral brothels”. Digitalization facilitates concealment, anonymity, and discretion that allow illicit activities to be developed discreetly (Charpenel, 2019).

As a main part of the digitalization process, the smartphone plays a major role at three complementary levels: (1) bringing the “boss”, the “service provider”, the prostitute and the client into contact with each other; (2) the actual organization of prostitutional system (recruiting underage girls, reserving places for prostitutional activity); and (3) the control of prostitutional system by the “bosses” (real-time tracking and tracing of underage girls).

Lavaud-Legendre & Plessard (2021) add that the use of the smartphone makes it possible to establish a climate of “well-being” (?) around the prostitute, as it becomes a privileged logistical tool for placing orders for food products, intimate hygiene products or psychotropic drugs. For the “boss”, it is more about reducing perceived risk through continuous control of behaviors; in SCM, we know that risk is a source of uncertainty that threatens the performance of a business venture (Lawrence & Wayuparb, 2018). This is an objective observation resulting

from the in-depth use of criminal proceedings, which does not exclude a legitimate condemnation of the prostitution of underage girls, insofar as pimps take advantage of the great emotional instability of teenagers, widely studied elsewhere, and also conducive to the over-consumption of alcohol.

3.1.3. Illustration

It is possible to concretely describe the elements constituting the supply chain of a prostitution network from the dismantling of one of them, in 2017, in the surroundings of Paris (Constant, 2017). The investigation conducted by the police forces, followed by the hearings of the main stakeholders in court, thus highlights three major points: (1) recruitment of clients from escort girl sites; (2) communications between the boss, the service provider and the prostitutes with smartphones used under assumed names; (3) room rentals and cab reservations by a service provider. The service provider organized the activity in Airbnb apartments in Paris or in low-cost hotels in the suburbs, facilities paid for with fraudulent credit card numbers recovered on the darknet. Step by step, the small network (or gang) had succeeded in “industrializing” prostitution by using the resources of 10 underage girls at a time, in 10 different rooms, sometimes in the same low-cost hotel. This is one example, among many others, of the phenomenon of “pimping in the suburbs”, which is expanding rapidly, even if the sexual exploitation of underage girls is not limited to it (Crémière, 2017).

3.2. The Logistics of Juvenile Prostitution as a Sensitive Topic

In their study of juvenile prostitution in the Midwest, Williamson & Prior (2009) formalized the existence of social networks involving multiple players. Their conclusion is as follows: “Analysis of the data revealed that there are several players connected to domestic minor sex trafficking that assume various roles within the social network of prostitution. This loosely connected system of players serves to keep the underground network operating with little disruption from law enforcement, neighborhood watches, or social service agency interventions. The roles played by those in the underground network include *connectors*, *recruiters*, *groomers*, *traffickers*, *bottoms*, *watchers*, and *wife-in-laws*” (Williamson & Prior, 2009, p. 53). The player most involved in logistical operations is the watcher, “assigned to walk girls back and forth at the truck stop, make sure they don’t slip out of the strip club after dancing, and make sure they come back to the car after being dropped off at a motel room. They may be assigned to drive the girls to destinations out of town” (Williamson & Prior, 2009, p. 55). However, the supply chain associated with juvenile prostitution has broader dimensions than just the transport of underage girls, and it is essential to study them in depth, even if it is a sensitive topic that is morally reprehensible. We must remember from Lavaud-Legendre & Plessard’s (2021) contribution that the researcher is above all a scientist. They must not shy away from sensitive topics, but they must take numerous methodological and ethical precautions, including when accompanying young researchers (Renzetti, 1993; Dickson-Swift *et al.*, 2007; Lee & Lee, 2012), especially in investigations with vulnerable populations (Hill, 1995; Hilario & Augusto, 2020). The prostitutional activity of underage girls as vulnerable population is undoubtedly a very sensitive topic, and while investigation using secondary data, such as criminal proceedings, may avoid certain dangers for the researcher, this will not be the case at all with the collection of primary data (Melrose, 2002). Moreover, any knowledge generated cannot be considered as ethically “neutral”: underlining the presence of remarkably organized logistics in prostitution system, in other words, an efficient service delivery system (Martin, 2020), should not give the impression that the researcher is admiring efficient supply chain practices imported from management science.

It would be easy to speak of provocation or “inappropriate academic behavior” when researchers apply logistical reasoning to prostitutional system. In our opinion, this would be a double mistake. On the one hand, management does not have to ask itself moral questions about the themes to be investigated: the existence of a business model, even a reprehensible one, implies strategies, organizational choices, and productive investments, and the researcher cannot ignore this reality; from this point of view, economists, who do not hesitate to take an interest in themes as sensitive as the marketing of drug or arms economy (Ciccarone, 2005; Sandberg, 2012; Parey & Rasul, 2021), have much to teach us.

On the other hand, and above all, the supply chain approach has been able to initiate advanced reflections whose universal character appears obvious; this is the case of many notions widely applied today in companies, which finally allow us to better understand the world in which we live, even its dark side (see Table 2), and the related risks for the research strategy (see Box 2)

Table 2. Sensitive Topics: Dark Side of Management

<i>Examples of sensitive topics</i>	<i>Difficulties in gathering information</i>
Drug and alcohol abuse	Personal embarrassment
Teenager sexual exploitation	Fear of the investigator’s judgment
Peer pressure at work	Not respecting confidentiality
Insider information	Risk to their safety

Box 2. Related Risks for Marketing Research on Sensitive Topics

Research that is classed as “sensitive” carries its specific risks that need to be managed, with particular consideration being given to the potential consequences of these risks. This includes risks and consequences for individual researchers, research participants, and individuals, groups, communities connected either with the research participants or the research topic/focus. It is important therefore that, in order to minimize the impact/consequences for the individuals/groups concerned, researchers undertaking sensitive research consider beforehand what potential risks may arise from the research, to whom and how these risks could be removed, reduced or best managed. The main thing to consider is what the potential risks might be, how they could arise and who they would or could affect. Risks arising as a direct result of the research can include:

- *Risk of harm to researchers due to the location the research is being undertaken in unsafe locations, lone working, etc., or due to the research methods being used or topic being researched.*
- *Risk of harm –physical, physiological or emotional– to participants during data collection, being interviewed about past or current traumatic events, or the risk could arise after they have finished their participation in the research.*
- *Risk to individuals, groups or communities not participating in the research, but who could be impacted due to the topic being researched, or because of information provided by research participants/through data collection; for instance, risk of persecution or harm to reputation.*

Source: Adapted from <https://www.ucl.ac.uk/research/integrity/sensitive-research> (Accessed December 29, 2021).

This exploration of the dark side of management could provide useful information for policy makers to better understand the driving forces of criminal systems, and how to identify them, not only by referring to the most visible mechanisms (sex exploitation, drug use, murders, etc.), but by studying their back office. Better knowledge of teenagers' perceptions is obviously essential to preventing juvenile prostitution (Côté *et al.*, 2020), but it may not be sufficient. The recent dismantling of several juvenile prostitution networks in France has brought to light a systematically efficient information systems, of which one of the most illustrative examples is that of the Perpignan network (near the Spanish border), dismantled after an eight-month investigation in March 2021. The police forces discovered that it was based on a real *call center* worthy of the largest online retailers. The clients, who found the number of the young prostitutes on the Internet, were then put in touch with the call center, which arranged the meeting in an apartment rented for the occasion. We can therefore consider that the operational knowledge of the flow monitoring will allow us to act in situations of human trafficking, in order to eradicate them durably.

4. Discussion and Conclusion

Traditional SCM approaches focus on logistical activities that allow wholesaling, retailing and manufacturing companies to optimize the delivery of products to customers. Step by step, new horizons have emerged in a societal perspective, especially in humanitarian logistics (Merminod *et al.*, 2014; Banomyong *et al.*, 2019), with the clear goal of helping populations in distress, following a natural or man-made disaster. The present research note offers a complementary perspective that seeks to identify the supply chain underpinnings of prostitution understood as a particular form of human trafficking with commercial purposes. From this point of view, it is possible to project the supply chain aspects as a potential element of the theoretical framework proposed by Lutya & Lanier (2012), but which the authors did not really integrate into their analysis. However, Konrad *et al.* (2017), by adopting an OR/OM vision, underline the relevance of this perspective, and of the research avenues it contains. This is undoubtedly a major theme for marketing knowledge, and even if the sensitive topic dimension might hold back some SCM researchers, it would be regrettable not to give it strong attention. Indeed, the supply chain perspective could help prosecutors to better understand the operating mechanisms of sex exploitation of underage girls.

4.1. Managerial Implications

The official reports published, but also the numerous articles devoted to juvenile prostitution in France, paradoxically indicate that if the logistics are very often evoked, it is in a very allusive way, in a few quick words. The prostitution networks are described in depth from their criminal organization, emphasizing the moral and physical violence inflicted on the underage girls by the service providers. At the same time, very few details are provided on the logistical means they implement to guarantee the success of the prostitutional system. As is often the case, logistics is presented as a minor stewardship task that does not require specific competences. This perspective remains dominant in much of the work on juvenile prostitution and is reminiscent of General de Gaulle's statement to one of his officers that "*L'intendance suivra*" ("Stewardship will follow"). However, there is no doubt that prostitution requires, on the one hand, the presence of physical facilities available at the right time and in the right place, and on the other hand, rapid communication between stakeholders made possible by the widespread use of the smartphone. From this point of view, as for any value chain in the business world, taking into account supply chain dimensions is a major element of a successful marketing strategy. Table 3 shows the

five dimensions of the juvenile prostitution supply chain and their equivalence with conventional business logistics. Moreover, didn't Heskett (1977) noted, back in the 1970s, that "logistics is essential to strategy"?

Table 3. The Five Dimensions of the Juvenile Prostitution Supply Chain

<i>Components of the juvenile prostitution supply chain</i>	<i>Equivalence in business logistics</i>	<i>Definition in business logistics</i>
Recruitment of underage girls	Procurement	Acquisition of goods and services from external suppliers
Transport of underage girls	Transport	Moving goods or people from one physical place to another
Harboring/receipt of underage girls	Storage	Act of depositing goods in a store or in a warehouse for safe keeping
Management of food/non-food product orders	Delivery	Act of making a product available to a customer (purchaser)
Smartphone exchanges between participants	Information systems	Provision of good information and tracking to delivery

The identification of the five dimensions of the juvenile prostitution supply chain should thus enable police forces and prosecutors to carry out a precise logistical diagnostic. As Friedman (2013) points out, the way in which value chains are organized is a pre-requisite for a meaningful process analysis. A diagnostic usually corresponds to the description and investigation of the state of an organization, with a view to identifying its strengths and weaknesses in reference to a technical, economic and human context. In the field of logistics, the implementation and execution of a diagnostic allows us to propose a "picture" of the existing situation, which implies a rigorous collection of data, using various techniques, and then an evaluation of the data. It is essential to note that a successful logistics diagnostic will address the supply chain *as a whole* and not from separate elements (raw material transport, finished goods storage, etc.) (Sindi & Roe, 2017). This holistic approach underlines the reciprocal impacts of logistical activities on each other. In the specific case of juvenile prostitution supply chain, the mistake would be to focus on the behavior of the "bosses" as the heads of the network, and to consider that the service providers are only insignificant guys, easily interchangeable, in the prostitutional process. On the contrary, to effectively combat this type of human trafficking, we need to analyze globally the procurement, transport, storage and delivery operations, which are organized to deliver value to customers.

As Taj & Megdadi (2019) underline, one of the key elements of the supply chain approach is indeed to deliver value that matters to the customer, with a trade-off between sacrifice and benefit that is favorable to them. Unfortunately, we must admit that a similar philosophy can be found in the case of prostitution of underage girls. The "bosses" have perfectly understood that the efficient use of a set of facilities –transport, prostitution places– is essential for the success of their "business model", and the creation of a consumer attitudinal loyalty. It is not only a question of making available young girls to clients for satisfying their deviant impulses, but also of

guaranteeing them acceptable material conditions: secure places for sexual relations, moving of prostitutes without driver's license, rapid communication with pimps to arrange appointments, etc.

It may seem shocking to refer to customer value creation and the role played by the supply chain organization to understand a phenomenon as dramatic as the prostitution of underage girls. This is to forget that management tools can serve a "right cause", in this case the rigorous dismantling of prostitution networks, just as they know how to better deliver medical service to patients in hospitals, or to help the suffering Humanity during major healthcare crisis, including Covid-19 crisis.

4.2. Limitation and Future Research

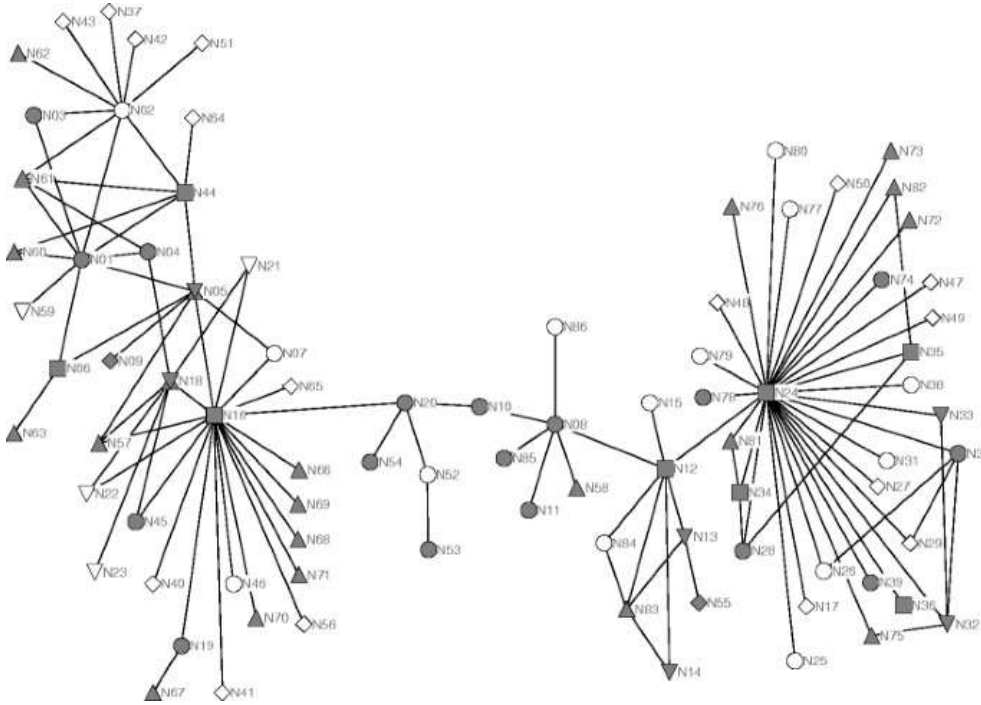
In its current development, this research note has one main limitation: it is descriptively focused on a societal issue rather than a business issue. Conventionally, papers in management, including supply chain management, focus on business challenges. The objective is to provide top managers, entrepreneurs or executives with clear and actionable prescriptions. In this case, the research note proposes academic research that combines a political and a societal dimension, even if it has some managerial implications. At this point, we are not suggesting a contribution that can help marketing practitioners looking on new ways of approaching problems and doing things differently. In other words, this audience is looking for principles and guidelines, rather than research results. In our opinion, it is important to broaden the advances in supply chain management beyond these purely managerial dimensions. A better understanding of hidden supply chains in an activity such as juvenile prostitution will certainly not bring more wealth to shareholders. On the other hand, it will allow us to identify the operational drivers of human trafficking. Management practices are as old as Humanity insofar as man/woman is a "social animal". As soon as human groups exist, their functioning is linked to the achievement of objectives, both positive (feeding the most vulnerable) and negative (waging war). To do this, they must define ways of acquiring and using resources and rules of organization.

Analyzing juvenile prostitution through the exploitation of logistical resources is therefore not incoherent from a managerial point of view, and the legitimacy of a research program using the fundamentals of service marketing seems indisputable. The seminal work of Eiglier & Langeard (1987) in service marketing is based on the concept of *servuction* to qualify the production process of a service. The authors speak of a system in which three basic ingredients interact for a service to exist: the physical support, or servicescape (Bitner, 1992); the participation of customers; and the contact personnel. The concept of *servuction* therefore corresponds to the organization of the material and human resources necessary to deliver a service, emphasizing the different interactions that make it possible. In order to better understand and fight juvenile prostitution, it is therefore important to identify all the "elementary bricks" of *servuction*, and not to focus on the actions of the contact personnel (the pimps, the service providers). Once these elementary bricks have been identified, the analysis of their interactions should make it possible to map the *nodes* and *arcs* of juvenile prostitution networks, to use Kim *et al.*'s (2015) terminology, and to provide the Authorities with the means to neutralize them.

From this point of view, several works have been conducted on sex trafficking networks using the tools of social network analysis (Cockbain *et al.*, 2011; Ibanez & Gazan, 2016; Sabon *et al.*, 2022). The main idea is to map the inter-individual relations between the stakeholders of the prostitutional system, and to identify the actors who benefit from a position of centrality. This allows them to implement a "brokerage strategy" that brings in important revenues linked to an intermediation function. The case of the "madams" studied in Italy by Mancuso (2014), in other words Nigerian women "formerly enslaved in prostitution who have been able to repay their

debts and to „buy“ girls, who become their slaves” (Mancuso, 2014, p. 68), is very representative of research based on social network analysis. Figure 3 illustrates the network and the attributes of the nodes in the case of the Nigerian “madams”, which could serve as an example for a similar mapping underlying the actors, activities and resources involved in monitoring the supply chain of juvenile prostitution. This is undoubtedly a stimulating research avenue to investigate in the coming years.

Figure 3. Nigerian “madams”: a social network view



Source: Mancuso (2014), p. 73.

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