

Supply chain management, national culture, and refugee network performance

Supply chain
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Jason James Woldt

College of Business, University of Wisconsin Oshkosh, Oshkosh, Wisconsin, USA

Sameer Prasad

UW-Whitewater, Whitewater, Wisconsin, USA, and

Jasmine Tata

Loyola University Chicago, Chicago, Illinois, USA

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Abstract

Purpose – The purpose of this paper is to examine the flow of refugees through the dual lens of supply chain management and national cultural values.

Design/methodology/approach – The proposed model is first developed based upon an extensive literature review. The model is then applied to an example of migrants from Honduras traveling to the USA and those being repatriated back to Honduras.

Findings – The connection between national cultural values and elements of refugee supply chain management is identified in this research. The model examines four elements of refugee supply chain management (relationship continuity, partner involvement and development, inter-organizational communication, and network structure), and identifies the influence of these four elements on integrative and collaborative processes along the supply chain and, consequently, on the delivery of services to the refugees (refugee network performance).

Research limitations/implications – The model presented in this paper is tested using a single case and does not utilize an empirical methodology.

Practical implications – This research enables local municipalities and state entities along international migration paths to better manage their relationships with upstream/downstream players and improve refugee network performance by reducing transit time, lowering overall costs, ensuring the health and safety of the refugees, and identify eligible refugees (those likely to gain asylum) to support. Furthermore, the model provides specific recommendations for international Non-Governmental Organizations to help with the integrative and collaborative processes among the supply chain partners.

Originality/value – This research provides a unique perspective in examining the flow of refugees within the context of an international supply chain. The authors look at the critical players along refugee supply chains and develop a model that connects elements of refugee supply chain management with the cultural characteristics of nations.

Keywords Humanitarian logistics, Supply chain collaboration, Humanitarian supply chain, Emergency logistics, Development aid supply chain management

Paper type Research paper

1. Introduction

Recently, we have seen waves of Latin American migrants traveling through Mexico in hopes of reaching the USA. These waves are unplanned and put tremendous pressure on local communities along the transit routes. In managing these waves, municipalities, Non-Governmental Organizations (NGOs), state agencies, suppliers of material, international agencies, as well as their active upstream and downstream partners need to collaborate strategically and transnationally in order to ensure optimum operational outcomes including migrants' health and safety.

Using the dual lenses of supply chain management theory and concepts of national culture, we develop a model that encapsulates elements of refugee supply chain management with cultural characteristics of nations. To demonstrate the utility of the



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model, an example of refugee flow from Honduras to the USA and the reverse flow (repatriation) are examined.

This research contributes to both practice and theory. The relationships in the model offer specific recommendations to municipalities and other state actors on how better to integrate and collaborate with international upstream and downstream partners to ensure short transit time, adequate supplies and safety. In addition, this research contributes to theory by generalizing supply chain constructs to a new context (refugee flow) and links supply chain elements to the inter-cultural body of knowledge.

The next section of the paper presents our proposed model; the following sections examine the literature supporting the various aspects of the model and delineate a number of propositions based on the model.

2. A conceptual model of the relationships between elements of refugee supply chain management, integrative and collaborative processes, refugee network performance and national cultural values

Strategically, a supply chain can be considered a network of interdependent relationships developed and fostered through collaboration with the goal of achieving mutual benefits (Ahuja, 2000). In the case of humanitarian flow, the operational goals focus on providing service to the transiting refugees. Supply chain management theory has historically been studied in the context of manufacturing a product (Bozarth and Handfield, 2019). Yet, as economies become more service oriented, researchers have also found value in applying a similar supply chain management framework in service contexts by studying the flow of employees and customers (Victorino *et al.*, 2018). While researchers have connected supply chain frameworks to elements influencing organizational performance for private firms and public firms, little research exists to apply a supply chain management theory to the refugee context (Seifert *et al.*, 2018). As such, we will generalize supply chain management theory to explain the management of refugee flow spanning multiple countries.

The model developed in this research focuses on humanitarian supply chains and proposes that the connection between refugee supply chain management, integrative and collaborative processes, and refugee flow can be influenced by cultural factors (see Figure 1). The model examines four elements of refugee supply chain management (relationship continuity, partner involvement and development, inter-organizational communication and network structure). These four elements influence the integrative and collaborative processes (i.e. the coordinated and interdependent actions taken by refugee supply chain partners along the migration path from origin to final destination). In addition, the model also incorporates macro-level variables (national cultural values) that influence strategic refugee supply chain management and, hence, indirectly affect the supply chain network's operational capacity to deliver services to the refugees in transit. In this research, we assume that constructs and relationships developed in the corporate sector are transferable to the refugee network.

The next two sections examine the literature on supply chain management with a focus on integration and collaboration. The following sections investigate national cultural values along with their influence on the relationships between elements of refugee supply chain management and integrative and collaborative processes.

3. Integrative and collaborative processes

Integration refers to the degree to which organizations strategically work together in order to manage intra- and inter-organizational processes ensuring the efficient flow of products and services, information, money and decisions to maximize value (Flynn *et al.*, 2010).

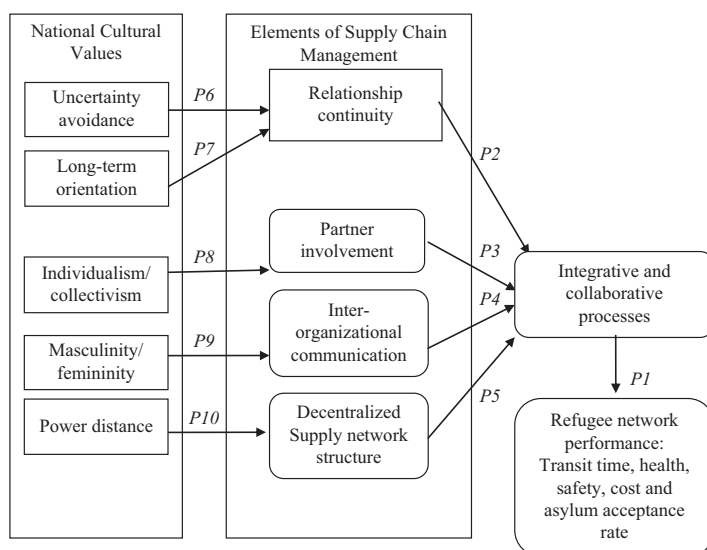


Figure 1.
A conceptual model of the relationships between national cultural values, supply chain management, and supply chain integration and collaboration

The literature on integration refers to intra-organizational integration which occurs within an organization as well as inter-organizational integration occurring with customers and suppliers, which enables organizations to reduce transaction costs and improve operational performance (Flynn *et al.*, 2010; Zhao *et al.*, 2011). Thus, integration enables the flow of accurate and timely information which enables coordinated decision-making among members of the supply chain; it includes concepts of joint responsibility, shared planning and information exchange (Paulraj *et al.*, 2008; Hung *et al.*, 2011).

In traditional manufacturing supply chains, research illustrates the connection between higher levels of supply chain integration and supply chain innovation (Cao and Zhang, 2011), risk management effectiveness (Wiengarten *et al.*, 2016) and organizational performance (Leuschner *et al.*, 2013). Similarly, in the humanitarian context, organizations attempt to strategically build an integrated supply chain that can be used to operationally facilitate the flow of people, information and other resources including humanitarian supplies such as medicines, food and water. This goal can be achieved by developing integrated activities in a number of strategic areas (e.g. flow of goods, planning and control, organization, flow of information) (Lummus *et al.*, 2008). For example, Kabra and Ramesh (2015) found that supply integration increases as the range of coordinated and interdependent actions increase between an NGO and its direct and indirect refugee supply chain partners. These partners include other NGOs and international and national agencies. With greater levels of integration, these entities will likely have the ability to forge joint processes to facilitate knowledge-sharing routines across all activities (Lawson *et al.*, 2008). These joint processes concern the provision of services such as healthcare, food/water, structures and systems to provide safety and security to refugees in transit, as well as documentation to facilitate the seamless transfer of information to agencies downstream to ensure expedited processing.

Integration involves designing the supply chain network to ensure that the segmented activities associated with a dispersed network of organizations can operate together; it helps manage the flow of materials and information among refugee supply chain partners and links decision-making across partners such as NGOs and government entities. There is extensive literature illustrating the link between supply chain integration and a

firm's success (Ataseven and Nair, 2017; Flynn *et al.*, 2010; Prajogo and Olhager, 2012; Ralston *et al.*, 2015; Vanpoucke *et al.*, 2014). For example, Ataseven and Nair (2017) highlighted the significant research showing the positive benefits that integration initiatives have in different areas of the supply chain for organizations, customers and stakeholders. Vanpoucke *et al.* (2014) found that strong supplier relationships have a role in creating more flexible and cost-efficient supply chains. Furthermore, Ralston *et al.* (2015) found that integration enables a firm to be more responsive to the market. Finally, Zhu *et al.* (2018) found that both upstream and downstream integration enhances organizational learning capabilities. Hence, integration across the refugee supply chain should help manage the flow along the network path (e.g. by reducing operational bottlenecks at transfer points).

The supply chain literature refers to forward and backward integration as strategies to coordinate the flow of material and information in the supply chain. The concept of backward and forward integration equally applies in the humanitarian context where integration needs to occur with both upstream and downstream partners. However, to achieve either forward or backward integration, the municipalities and state actors must have already developed a network of collaborative relationships (Choi *et al.*, 2002). Collaboration involves actions undertaken by refugee supply chain partners to create new resources through connection and exchange with other organizations in the supply chain. The extent of collaboration indicates the extent to which firms use integrative mechanisms to make decisions and merge resources together in a strategy to achieve a goal that would not have otherwise been possible (Thompson, 2000). The literature on supply chain management often defines collaboration as two or more partners working together to plan and execute supply chain operations (Simatupang and Sridharan, 2005). Effective supply chain collaboration has been linked to reducing transaction costs, enhancing productivity and the ability of firms in the supply chain to gain a competitive advantage over time (Cao and Zhang, 2011). Even more important, collaboration has proven effective in a firm's ability to avoid operational failure and disruption (Li *et al.*, 2015). In the context of humanitarian flows, strategic collaboration is equally important (Adem *et al.*, 2018); operating failure would include undue delays in transit, excess costs to the migrants and supporting agencies, and potentially exposing refugees to dangerous or unsafe conditions.

Integration and collaboration occur when the organizational boundaries of municipalities and state actors' partners are interpenetrated so that the partners interact with each other and engage in joint decision-making and problem-solving (Homburg *et al.*, 2005). Joint operational activities may occur in product design and development, quality control, logistics and delivery systems. When supply chain partners make joint decisions about goals and plans, their relationship is more likely to result in positive outcomes such as the ability to better manage risk (Kogut, 1988), lower costs (Handfield and Bechtel, 2002), decrease lead times (Holweg *et al.*, 2005) and increase sales (Mohr and Spekman, 1994). In the humanitarian context, positive outcomes would be shorter transit times, lower total costs for the refugees and municipalities, keeping families intact, ensuring safety and health along the migration path, and maximizing asylum acceptance rates.

The literature suggests that supply chain integration and collaboration can provide access to resources and influence the transmission of accurate, high-quality and timely information, enabling the municipalities to rapidly adjust to the changing downstream and upstream environments (Krause *et al.*, 2007).

Integration and collaboration can also result in interdependence between the municipalities and other organizations in the refugee supply chain, which can be especially advantageous for entities operating with large partners (e.g. international development agencies and national agencies) in situations of mass migration. As such, municipalities committed to refugee supply chain integration are more likely to be

successful in transferring knowledge and achieving operational performance improvements (Krause *et al.*, 2007). Hence, it was proposed:

- P1.* Strategic integrative and collaborative processes engaged in by municipalities and their partners are likely to result in higher levels of refugee supply chain operational performance.

4. Elements of refugee supply chain management

Integrative and collaborative processes in supply chains can be influenced by four types of capabilities that improve competitive advantage: relationship-specific assets, knowledge-sharing routines, complementary resources and effective governance (Dyer and Singh, 1998). Our conceptual model is grounded in the relational view (Dyer and Singh, 1998; Paulraj *et al.*, 2008) and focuses on relational capabilities (i.e. the competencies required for effectively managing an organization's relationships with its partners in the refugee supply chain) (Lado *et al.*, 2011; Paulraj *et al.*, 2012).

Based on the relational view, we identify four relevant elements that can influence integrative and collaborative processes in refugee supply chains: relationship continuity (also referred to as adoption of long-term relationships in the literature), partner involvement (also referred to as supplier involvement in the literature), inter-organizational communication and network structure (also referred to as network governance or cross-functional teams in the literature) (Lado *et al.*, 2011; Paulraj *et al.*, 2012). These elements include relational aspects such as trust and commitment. Trust ameliorates concerns about entering into long-term relationships; commitment engages supply chain partners to put effort into maintaining the relationships and to involve partners in decision making; both trust and commitment foster open communication and collaboration.

4.1 Relationship continuity

Relationship continuity is often referred to as long-term relationship orientation in the supply chain literature (Lado *et al.*, 2011; Paulraj *et al.*, 2012). Long-term relationship orientation, however, does not necessarily refer to a specific length of time for the relationship to last, but rather to the intention of the parties that the arrangement between them is not temporary (Chen and Paulraj, 2004). Hence, we refer to this element as relationship continuity.

Trust (Ta *et al.*, 2018) and continuity (relational stability) in the relationship (Yang *et al.*, 2008) have been found to be important aspects in building long-term relationships. Fawcett *et al.* (2008) found that culture, trust, aversion to change and willingness to collaborate were critical elements in forging lasting supply chain relationships across organizations. Relational exchange theory (Ring and van der Ven, 1992) identifies relational attributes such as trust, commitment and reciprocity that can act as internal forms of behavioral control; relational exchanges among members of refugee supply chains increase coordination of decision making, compilation of information, and joint planning, resulting in competitive advantage. Trust ameliorates concerns about negative implications of the relationship, and commitment results in greater comfort in exchanging information.

In the humanitarian context, suppliers may be classified as short-term contracting partners if they supply a refugee camp on annual competitive bidding or have contracts that span a short length of time (two to six months). In contrast, suppliers may be considered long-term partners if they have long-term or continuous relationships with the municipality and the supply chain provides for incentives to ensure long-term value creation (Krause *et al.*, 2007).

One factor that can influence the continuity of relationships is the selection of refugee supply chain partners. Although the literature largely focuses on long-term relationships

with suppliers, similar relationships with upstream/downstream players and other organizations in the refugee supply chain are equally important. The literature on supplier and customer (buyer) selection suggests that a commitment to a long-term relationship with refugee supply chain partners requires the careful selection of those partners (Prajogo and Olhager, 2012). Trustworthiness and integrity are indicated by a willingness to share information on costs, quality and production. These dimensions are often considered important attributes in the selection of suppliers (Dyer, 1997) and have also been linked to supply chain performance measures (Lin *et al.*, 2005). Trustworthiness and integrity are equally important with upstream and downstream players in the refugee supply chain; these qualities help ensure a seamless flow of information on the costs to host refugees, ensure the proper selection of services being provided on the ground, and ensure a high level of health and safety across all immigrant staging and transfer points (nodes).

Municipalities need to take the time to develop these relationships with a few long-term partners. At the same time, municipalities might have to be especially careful in the selection of refugee supply chain partners. Because municipalities are often times small, they may be perceived as having less power than their larger refugee supply chain partners such as national and international agencies. In a manufacturing context, a dominant partner might make demands not only about the delivery and quality of products but may also force suppliers to manufacture unprofitable products (Saunders, 1997). In the context of humanitarian operations, municipalities need to be careful that they are not pushed to operate beyond their own capacity, thereby jeopardizing the health and safety of refugees under their care. However, with long-term exclusive relationships, the larger partner can become dependent on the smaller entities balancing out the power (Hingley, 2001). Often, many local municipalities have unique access to local communities along the migration route that larger international agencies might not have. Hence, this unique access potentially changes the balance of power in the relationship allowing the smaller municipalities to develop more balanced relationships with larger upstream and downstream players to ensure functional, long-term partnerships.

The continuity of relationships with refugee supply chain partners can provide greater opportunities for integrative and collaborative processes. As long-term relationships evolve, the partners begin to develop trust, mutual obligations and commitment that help establish social relationships and promote mutually beneficial exchanges and supportive behavior between refugee supply chain partners. Indeed, many scholars (e.g. Fawcett *et al.*, 2012) have suggested that trust can only be established through repeated interactions over time. Organizations that are involved in long-term, continuous relationships with refugee supply chain partners are more likely to consider the impact of their current behavior on future relationships, to develop a deeper understanding and knowledge of each other's capabilities, and be willing to incur short-term disadvantages for the opportunity to better serve the refugees in the long-term. Increased levels of interdependence resulting from the continuity of relationships may also increase the supply chain partner's sense of control over the relationship, which can increase their level of affective commitment to the relationship. Thus, relationship continuity can promote commitment and collaboration, and agreements in such relationships are often enforced operationally through internal processes rather than through external arbitration or the court system (Paulraj *et al.*, 2008). Continuity of relationships strategically positions municipalities to develop additional initiatives and opportunities to further engage with refugee supply chain partners. Hence, it was proposed:

- P2. Higher levels of relationship continuity are likely to result in a greater number of opportunities to engage in integrative and collaborative processes with refugee supply chain partners.

4.2 Partner involvement

The extent to which municipalities involve refugee supply chain partners (e.g. suppliers of material upstream and downstream, national and international agencies) in critical activities is identified as an important relational capability of supply chain management (Lado *et al.*, 2011; Paulraj *et al.*, 2012). In traditional supply chains, supplier involvement can facilitate the development of strategic aspects such as knowledge-sharing processes and the sharing of relational assets and competencies to increase competitive advantage (Paulraj *et al.*, 2012), as well as operational aspects such as providing quality training to suppliers' engineers (Dyer and Nobeoka, 2000).

Extensive research has documented the benefits of involving suppliers in the new product development and strategic planning processes (Johnsen, 2009). Supplier involvement in crucial project and planning processes may range from regular site visits to supply chain partners (Busse *et al.*, 2016), giving minor design suggestions to being responsible for the development of a specific part or process (Chen and Paulraj, 2004). In the context of refugee flows at a strategic level, project and process planning entails possible guidance as to the formation of refugee camps. This could also include establishing a reporting mechanism to meet the expectations of donors and creating documentation that will be needed by downstream players such as the immigration authorities. These initiatives can be used to synchronize the refugee supply chain from origin to destination. Integration and collaboration between a municipality and its refugee supply chain partners can be influenced by partner involvement in the planning and implementation of processes and by organizing joint teams or committees for decision making, thus enabling the supply chain to take proactive actions to avoid potential supply chain disruptions (Kleindorfer and Saad, 2005).

Operationally, partner involvement activities can also include regular site visits to upstream municipalities or involving partners to create a seamless document flow. Municipalities can include refugees in strategic planning, quality initiatives, product customization and responsiveness (Chen and Paulraj, 2004), which can help in improving the delivery of operational services to refugees. Since refugee needs are dynamic (numbers, nationality, families, religion and health conditions), a municipality needs to reassess them regularly to align and refine its client (refugee) focus and adjust its supply chain strategy. Furthermore, feedback and partnership with former refugees can provide the opportunity for partner involvement. Operationally, refugees can share their positive and negative experiences throughout the migration journey to eliminate barriers, reduce stress and reduce unnecessary partner waste. Hence, it was proposed:

- P3. Higher levels of partner involvement and development are likely to result in a greater number of opportunities to engage in integrative and collaborative processes with refugee supply chain partners.

4.3 Inter-organizational communication

The supply chain relational capability of inter-organizational communication (Lado *et al.*, 2011; Paulraj *et al.*, 2012) can be crucial in the refugee supply chain network. The literature emphasizes the importance of effective interaction and communication for supply chain management (Scholten and Schilder, 2015). Frequent exchange of information enhances trust, commitment and cooperation among members of the refugee supply chain (Hult *et al.*, 2007). Chen and Paulraj (2004) define effective inter-organizational communication as frequent, genuine and involving personal contacts with other parties in the supply chain. Smaller municipalities, because of their size, might be at a perceived disadvantage when trying to obtain information and cooperation from larger refugee supply chain partners. However, careful development of inter-organizational communication can result in the formation of

strong ties with both direct and indirect refugee supply chain partners. This partnership can result in a more streamlined flow of information and resources to municipalities, which can be critical to the refugee network performance.

Strategies that increase communication with suppliers, refugees and other upstream/downstream supply chain organizations can also increase integrative and collaborative processes between the NGO and the other organizations. For example, Toyota supported the set-up of a supplier network forum to increase integrative and collaborative processes (Dyer and Nobeoka, 2000). Likewise, communication mechanisms can provide access to resources and influence the transmission of accurate, high-quality and timely information that enables the municipalities to rapidly adjust to the changing needs of refugees and changes in the environment (e.g. changing government policies). Collaboration in the supply chain has been linked to higher levels of supply chain performance (Zhou and Benton, 2007; Kembro *et al.*, 2017). This collaboration could include sharing information between supply chain partners (Zhou and Benton, 2007) or across multiple tiers of the supply chain (Kembro *et al.*, 2017). Furthermore, the communication quality (Prajogo and Olhager, 2012) and intensity (Klein *et al.*, 2007) have been shown to also positively moderate this relationship.

Inter-organizational communication mechanisms include processes that have been created to communicate expectations and share useful information and knowledge between supply chain partners (Yu and Huo, 2018). Examples of such formal operational processes include meetings between partners, project teams, site visits and conferences. Furthermore, with the general availability of internet and low-cost communication technologies, municipalities can easily develop virtual communication mechanisms with partners along the refugee supply chain. This would enable the use of real-time information on the location and status of refugees in the various nodes (camps) and in transit along the supply chain. Furthermore, additional streams of information could include available products (food, medicine, water, clothes), due dates of supplies, and even the identification of specific “product” needs based upon the respective Bill of Materials associated with the various migrants (e.g. baby formula if there are refugee infants).

Thus, collaboration and integration are enhanced through sustained contact and regular dialog, and municipalities that institute mechanisms for interaction can enhance the development of integrative and collaborative processes with refugee supply chain partners. Hence, it was proposed:

- P4. Higher levels of interaction and communication mechanisms are likely to result in a greater number of opportunities to engage in integrative and collaborative processes with refugee supply chain partners.

4.4 Network structure

Network structure (also referred to as network governance in the supply chain literature (Lado *et al.*, 2011; Paulraj *et al.*, 2012) refers to the systems of inter-organizational coordination, usually supported by relational norms of trust and commitment; it can help members of the refugee supply chain exchange knowledge processes and engage in mutual learning. Network structure can highly be dependent on the series of complex strategic and operational decisions that organizations make regarding location, distribution of capacity and deployment decisions (Meixell and Gargeya, 2005). Because modern day supply chains are so complex, organizations must implement structure and governance mechanisms to manage supply chain relationships among actors (Formentini and Taticchi, 2016). Network structure refers to the task, authority and coordination mechanisms across distinct firms or organizational units that enhance supply chain performance (Kim *et al.*, 2015).

In humanitarian supply chains, strategic, network structures are delineated by strong linkages between refugee supply chain members with low levels of vertical integration and

high levels of mutual interdependence; such structures have low levels of hierarchical dependence (Dubey and Gunasekaran, 2016). Decentralized decision-making in supply chain networks provides flexibility and enables organizations to accommodate the uncertainties associated with the flow of materials (Thomas *et al.*, 2016); Schmitt *et al.* (2015) found that decentralized networks allowed firms to avert supply chain risk. Therefore, a decentralized network will likely be more effective in accommodating changing refugee patterns by facilitating rapid knowledge exchange. Municipalities operating within a network of decentralized decision making will have the ability to more quickly make time sensitive decisions to deploy resources based on network changes. Thus, supply network structures with decentralized decision-making are more likely to enable municipalities to engage in integrative and collaborative processes. Hence, it was proposed:

- P5. Decentralized decision-making in the network structure is likely to result in a greater number of opportunities to engage in integrative and collaborative processes.

5. National cultural values

National cultural differences can influence the elements of refugee supply chain management as well as the types of integrative and collaborative processes that are considered effective in a society (Pagell *et al.*, 2005). The literature suggests that socio-cultural forces can influence the elements of supply chain management; these cultural factors also play an important role in humanitarian supply chains (Oloruntoba and Banomyong, 2018). Empirical work comparing supply chain management across nations has found that country-level differences impact inter-organizational relationships, business outcomes and the amount of trust that others place on the supply chain partnerships, as well as teamwork, information sharing and risk taking (e.g. Cao *et al.*, 2015; Lioukas and Reuer, 2015; Özer and Zheng, 2017; Ribbink and Grimm, 2014; Shore, 2001; Ueltschy *et al.*, 2007).

We use Hofstede's (Hofstede, 1993; Hofstede *et al.*, 2010) cultural value dimensions to examine the elements of refugee supply chain management and integrative and collaborative processes. Hofstede (1980) describes culture as mental programming that is developed through socialization in early childhood and reinforced throughout life through various shared experiences in organizations and society. Because of shared common experiences of people within countries, these mental programs are articulated as dimensions of national cultural values that dominate among people from a country (Hofstede, 1980). Hofstede's work was originally based on data collected from a large organization in 66 countries (see Hofstede (1980) for an extended discussion on the methodology used) and has since been replicated by numerous researchers in several countries and cited by many more on the Social Science citation index. Although we believe that Hofstede's findings are relevant to the supply chain context, there are certain limitations of his research that we have to keep in mind, such as the time at which the original study was conducted, the original sample which consisted of mostly white collar employees of a company and the emphasis on between culture variations (Hofstede has stated that within-culture variations can be as important as between culture variations).

Hofstede's dimensions have been used to explain a number of inter-cultural phenomena and complexity related to work-related culture. These five dimensions have been empirically tested across cultures and offer a generalizable framework within which to examine the impact of culture (Clark, 1990; Özer and Zheng, 2017). In addition, the suitability of Hofstede's work in examining supply chain relationships has been suggested in the literature (Kale and McIntyre, 1991; Williams *et al.*, 1998). Although Hofstede's cultural dimensions are meant to examine cultural values at the national level, the values of an organization or NGO are often influenced by the nationality of its home country through its founders and significant leaders; these values serve as a frame of reference for

organizational activities (Hofstede *et al.*, 2010). Similarly, the values of municipalities along a refugee supply chain will be influenced by the cultural values of the countries of those municipalities.

The following sub-sections are organized around Hofstede's five cultural dimensions.

5.1 *Uncertainty avoidance*

The uncertainty avoidance dimension of national cultural values measures the extent to which people feel the need to avoid ambiguous situations by providing unambiguous rules and regulations. This construct also refers to citizens' acceptance of varying situational demands and the likelihood of engaging in risk-taking behavior (Hofstede, 1993; Hofstede *et al.*, 2010). From an operations management perspective, this high uncertainty avoidance structure creates an environment that is more conducive to structure and procedure. For example, researchers found that countries ranking higher in uncertainty avoidance have more suppliers for each manufactured part (Pagell *et al.*, 2005), tend to be more attractive locations for offshoring (Hahn and Bunyaratavej, 2010), conduct better analysis of information (Flynn and Saladin, 2006) and are more effective in implementing quality control systems (Kull and Wacker, 2010). In the context of mass refugee flow, examples of countries with high uncertainty avoidance cultures include Greece, France and Mexico, moderate uncertainty avoidance cultures are present in Germany, and the Netherlands, and low uncertainty avoidance cultures include India, the UK and the USA (Hofstede, 1980, 1993; Hofstede *et al.*, 2010).

As the level of uncertainty avoidance in a culture increases, risk-taking propensities decrease, resulting in less willingness on the part of municipalities to engage in the relational investments necessary for supply chain integration. Integrative and collaborative processes are often perceived as risky and require a significant level of relational effort and a willingness to engage in change. Municipalities based in such cultures may seek to reduce their perceived uncertainty and increase stability by hesitating to engage in integrative and collaborative processes perceived as risky. Organizations in high uncertainty avoidance cultures also have higher levels of secrecy and are reluctant to share information with refugee supply chain partners unless they are in a long-term relationship and have established trust, norms and obligations (Homburg *et al.*, 2005).

In contrast, low uncertainty avoidance cultures encourage tolerance for risk, and municipalities in such cultures are more likely to be willing to engage in relational investments and change relationships with refugee supply chain partners. For example, Hewett *et al.* (2006) found that higher levels of uncertainty avoidance in Latin America led organizational buyers to stick with known suppliers, in contrast to US buyers (with lower levels of uncertainty avoidance) who were likely to break ties easily with any one supplier. Furthermore, Childerhouse *et al.* (2017) found that countries with high uncertainty avoidance are more likely to adhere to fact-based decision making and follow structured processes.

Similar patterns would also be expected in the refugee supply chain networks, whereby municipalities based in high uncertainty avoidance cultures would prefer to maintain relationships with established suppliers and upstream/downstream players, whereas municipalities based in low uncertainty avoidance cultures would be more likely to constantly search for new suppliers and upstream/downstream partners. Thus, it was proposed:

- P6. Municipalities in high uncertainty avoidance cultures are more likely to develop relationship continuity with refugee supply chain partners compared to municipalities in low uncertainty avoidance cultures.

5.2 *Orientation toward time*

Hofstede's (1993) dimension of long-term vs short-term orientation toward time refers to a tendency to focus on the past, present or future. Long-term orientation refers to

future-oriented values (e.g. perseverance and thrift); short-term orientation focuses on past- or present-oriented values (e.g. respect for tradition). Countries that have faced refugee flows with high long-term orientations are India, those with moderate long-term orientations include Germany, the Netherlands and Sweden, and those with short-term time orientations include the USA, Canada, the UK and France (Hofstede, 1993).

In long-term-oriented cultures, there is a focus on taking time to build strong relationships and sacrificing immediate returns in favor of long-term benefits (Makri and Schlegelmilch, 2017). Ryu *et al.* (2006) examined supply chain management in Korea (a long-term-oriented culture) and found that cultural values can facilitate the development of long-term relationships among members of a supply chain. Similarly, Dyer *et al.* (1998) found that Japanese and Korean automakers (with higher long-term orientation) maintained relationships with their suppliers that involved long-term contracts, less frequent re-bidding and high levels of relationship-specific investments. Hence, municipalities in such cultures may be more likely to put time and effort into relationship continuity (building long-term relationships with their suppliers, refugees, and other upstream/downstream refugee supply chain partners), and emphasize long-term goals formed with such partners.

In contrast, short-term-oriented cultures tend to focus on immediate returns (e.g. funding) on invested time and effort, and on short-term, shallow relationships without long-term bonds. Dyer *et al.* (1998) found that US automakers (with short-term orientation) were more likely to prefer short-term contracts with suppliers and frequent re-bidding. Mentzer *et al.* (2000) found that if both supply chain partners focused on a short-term orientation, a strategic partnership would not survive. In the humanitarian context, municipalities in short-term-oriented cultures are likely to expend less effort and time in establishing relationship continuity because they do not see immediate benefit in the form of resources or information from those contacts. As a result, they are more likely to gravitate to short-term relationships that change frequently. In contrast, municipalities operating in countries with long-term-oriented cultures are more likely to develop continuous relationships with other municipalities and suppliers in the refugee supply chain. Hence, it was proposed:

- P7. Municipalities in long-term-oriented cultures are more likely to develop relationship continuity with refugee supply chain partners compared to municipalities in short-term-oriented cultures.

5.3 Individualism–collectivism

Individualism refers to a focus on individual goals, autonomy, and individual rights and responsibilities over collective obligations; collectivism focuses on group goals and collective concerns (Hofstede, 1993; Hofstede *et al.*, 2010). Countries with high refugee flows in which individualistic values predominate include the USA, Canada, Australia and Great Britain; Mexico and Guatemala scored high on collectivism (Hofstede, 1993; Hofstede *et al.*, 2010).

Individualistic cultures are less likely to emphasize actions that enhance relationships, such as partner development and involvement activities (Golini *et al.*, 2018). Such an individualistic focus results in weaker relationship-building activities and can decrease the opportunities of municipalities in such cultures to engage in partner involvement and development.

In contrast, collectivist cultures value personal relations and consider relationships to be reciprocal and mutually binding and are likely to expend effort in actions that enhance relationships, such as partner development and supplier involvement activities. The cooperative values of collectivistic cultures enable supply chain integration; the motivation to cooperate increases mutual understanding and the development of close working

relationships with supply chain partners. For example, Zhao *et al.* (2011) found that collectivist cultural values in China resulted in high levels of commitment to network partners which, in turn, positively influenced supply chain performance. In the refugee context, partner development and involvement could involve joint training sessions across refugee supply chain partners, joint specification of the type of food and healthcare services to be provided, and a streamlined documentation format to be created for each type of refugee. Hence, it was proposed:

- P8. Municipalities in collectivistic cultures are more likely to engage in partner involvement and development with refugee supply chain partners compared to municipalities in individualistic cultures.

5.4 Masculinity–femininity

Masculinity refers to values such as autonomy, advancement and dominance, whereas femininity refers to values such as nurturance and affiliation (Hofstede, 1980, 1993; Hofstede *et al.*, 2010). Countries experiencing high levels of migration flows with cultures having high levels of masculinity include the USA, Germany, Great Britain and Mexico, those with moderate levels of masculinity include Canada, Croatia and Turkey, and those with low levels of masculinity (i.e. high levels of femininity) exist among Scandinavian countries (Hofstede, 1980, 1993; Hofstede *et al.*, 2010).

High femininity cultures are more likely to value building relationships with other parties (e.g. suppliers, upstream/downstream players) in the refugee supply chain over financial gains (e.g. size of donor funding) and to emphasize adapting to the needs and desires of those parties. Municipalities in such cultures may have an increased tendency to develop commitment based on goodwill factors; they have expressive bonds with refugee supply chain partners formed through informal inter-organizational communication (Song *et al.*, 2018). In contrast, high masculinity cultures encourage aggressive behavior in pursuit of personal benefits or financial rewards. Municipalities in such cultures might not focus on inter-organizational communication that maintain and enhance relationships with refugee supply chain partners. For example, research indicates that countries with a high masculinity cultures found that poor communication between supplier and buyer personnel resulted in lack of supplier participation in solving supplier–buyer problems (Lawrence and Lewis, 1993; Song *et al.*, 2018).

Thus, cultures high in femininity values have an increased propensity to build social bonds through communication and interaction; municipalities in such cultures are more likely to focus on inter-organizational communication with refugee supply chain partners compared to municipalities in high masculinity cultures. Thus, it was proposed:

- P9. Municipalities in high femininity cultures are more likely to develop and use interaction mechanisms with refugee supply chain partners compared to municipalities in individualistic cultures.

5.5 Power distance

Hofstede's (1980) power distance dimension measures the acceptance of unequal distributions of power in institutions and organizations, and of inequality and dependence in a society. Countries that experienced refugee flows with high power distance cultures include Mexico, India and France, moderate power distance cultures are present in Italy, and Spain, and low power distance cultures are found in the Netherlands, Germany, Canada, the UK and the USA. (Hofstede, 1980, 1993; Hofstede *et al.*, 2010).

Power values can influence the configuration of supply chains. In high power distance or hierarchical cultures, decentralized supply networks with mutual interdependence might be

more difficult to establish. In such cultures, those who perceive themselves as lower on the hierarchy (due to gender, class, caste, etc.) may view non-power-based networks as something for the elite because the depth and status level of social connections may count more than individual capabilities. For example, Lawrence and Lewis (1993) found that supply networks in Mexico (with high power distance values) were more likely to be centralized. Similarly, Lee Park and Paiva (2018) found that it was more difficult to establish supply network structures in cultures of low power distance. As such, municipalities in low power distance or egalitarian cultures are likely to be more open to heterogeneous, non-power-based supply networks. Therefore, it was proposed:

- P10.* Municipalities in low power distance cultures are more likely to develop non-power-based decentralized network structures compared to municipalities in high power distance cultures.

6. Discussion

In this research, we use supply chain management theory along with constructs of national cultural values to examine the management of refugee flow. We generalize supply chain theory to the humanitarian context and develop a model that proposes relationships between national cultural values, elements of refugee supply chain management, integrative and collaborative processes, and refugee network performance (see Figure 1). In this section, we borrow data from Hofstede's work (Hofstede, 1980, 1993; Hofstede *et al.*, 2010) on cultural traits to determine the effectiveness of municipalities and state entities in particular countries and along different refugee paths. We use the model and data to assess the network capabilities of refugee flows from Honduras to the USA and the corresponding reverse flow on account of repatriation. Based on cultural values, we can identify the level of supply chain integration and collaboration along a refugee supply chain which, in turn, influences the refugee network performance, and specifies how NGOs can help with the network's performance.

6.1 Honduras to the USA via Guatemala and Mexico

The current refugee crisis stems from the disintegration of the social fabric in Honduras and elsewhere in Central America. Tied with El Salvador, Honduras has the highest homicide rate in the world (Taylor and Dinan, 2016). Women, in particular, are vulnerable and often report being assaulted, extorted and threatened (The Borgen Project, 2016). Over the last 10 years, nearly 10 percent of the region's citizens have fled Honduras, primarily to the USA (WorldData.info, 2017).

The refugee path from Honduras to the USA traverses Guatemala and Mexico (see Figure 2). In this example, we explore the route taken by the refugee caravan. From San Pedro Sula, migrants travel to Ocotepeque (Honduras) and attempt to cross over into Guatemala. The Guatemalan authorities are often unable to control the border and allow migrants to pass through. The migrants then transit through Guatemala and reach the Mexican border at Tecun Uman. On the Mexico side of the border (Tapachula), the migrants are provided resources (e.g. hygiene kits). The migrants then traverse through several towns and cities, including Mexico City. Often such cities find their utility systems are unable to cope with the extra demands. The migrants finally make their way to Tijuana and apply for asylum into the USA. Many refugees wait in Mexico in informal refugee camps or are transferred to short- and long-term detention facilities in the USA. This network can be considered operationally problematic, with long lead times (average 578 days for jurisdiction for asylum seekers), high rejection rate of asylum (80 percent), and high travel costs (average of \$10,000) (Lu and Watkins, 2019). In addition, according to the Office of Refugee Resettlement (2019), a majority of women and female children face some form of

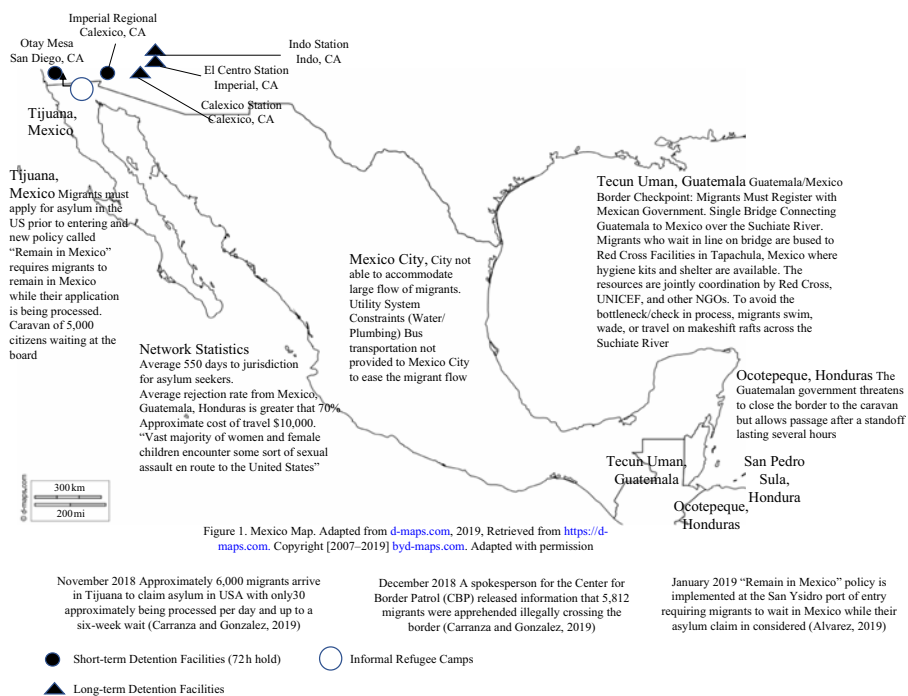


Figure 2.
Caravan migration
route from Honduras
to USA and migrant
repatriation

sexual assault in transit to the USA. Finally, individuals and families rejected in the asylum process are subsequently deported to their home country.

This failure in the network is due to the lack of integration and collaboration among the various municipalities and state authorities to work across countries and cultures. The objective of the network should be to provide fast, safe and low-cost travel for those refugees that will ultimately be successful in gaining asylum. Individuals and families who are unlikely to win asylum should be discouraged and prevented from taking the dangerous journey.

In this research, we proposed that transnational NGOs can play a pivotal role in ensuring a higher degree of integration and collaboration among the network partners to ensure successful flows. Based upon the model in Figure 1, we see that the expected supply chain integration and collaboration among network partners is moderately low (7.2 out of maximum score of 20) (see Table I). This is due to the short-term orientation/low relationship continuity (1.375), and centralized network structure (1.5). As such, the refugee network performance for overall service to refugees is also expected to be moderately negative. Thus, the costs borne by refugees and municipalities will be higher than expected, the duration of travel time and processing time would be longer than usual, and quality issues including the health and safety of the refugees will be lower than normal. To rectify these inherent weaknesses, international development agencies can help network partners build decentralized decision-making processes and develop policies to encourage long-term continuous relationships. Specifically, long-term continuous relationships can develop when repeated interactions are encouraged among all parties over time. Also, agreements are developed and enforced through intra-party processes rather than external arbitrators. In terms of decentralized decision-making processes operational decisions relating to location, distribution and deployment should be left to local parties.

Honduras to the USA	Culture				Elements of the supply chain	Supply chain integration and collaboration along the chain	
	Honduras	Guatemala	Mexico	USA			
Uncertainty avoidance	Low (1)	High (3)	Med (2)	Low (1)	(UA 1.75 + LT/ST 1.0)/2 = 1.375 Short-term relationship continuity (repatriation = 1)	1.4 (Repatriation = 1)	Low (repatriation = low)
Long-term vs short-term orientation	Low (1)	Low (1)	Low (1)	Low (1)			
Individualism/Collectivism	Low (3)	Low (3)	Med (2)	High (1)	I/C 2.25 Moderate partner involvement (repatriation = 2)	2.3 (repatriation = 2)	Med/High (repatriation = med)
Masculinity/Femininity	Low (3)	Low (3)	High (1)	High (1)	M/F 2 Moderate communication and interaction mechanisms (repatriation = 2)	2 (repatriation = 2)	Med (repatriation = med)
Power distance	High (1)	High (1)	High (1)	Low (3)	P/D 1.5 Centralized network structure (repatriation = 2)	1.5 (repatriation = 2)	Low (repatriation = med)
Total	—	—	—	—	—	7.2 (repatriation = 7)	

Notes: The five Hofstede variables for each country were categorized as either low, medium or high based on the cultural category score for that country relative to the scores of all other countries. First, based on the values in the database, the 33.33 percentile and the 66.66 percentile were identified in order to categorize a country as either “Low,” “Med” (medium) or “High.” The supply cultural traits along the path were averaged and then totaled to calculate an aggregate supply chain integration and collaboration score for each migration path. Supply chain category (relationship/partner involvement/communication/decision making): scores (1–3): Low (1–1.6); med (1.6–2.4); high (2.4–3). supply chain integration scores: scale (4–12): low (4.0–5.3), low/med (5.3–7.1), med (7.1–8.9), med/high (8.9–10.7), high (10.7–12). Repatriation from the USA to Honduras via direct flight

Table I.
Supply chain cultural path from Honduras to the USA and USA to Honduras repatriation

6.2 Repatriation from the USA back to Honduras

Honduran nationals denied asylum are deported and flown from various US cities or ICE Air Operations (2019) hub cities such as Mesa, Ariz., San Antonio, Texas, Alexandria, La. and Miami, Fla., to Honduras. In the case of repatriation, we see that the expected supply chain integration and collaboration among US and Honduran state actors is relatively negative (7.0) (see Table I). This is due to short-term orientation/low relationship continuity (1.0). As such, the refugee network performance in terms of overall service to repatriated refugees is also expected to be moderately negative.

NGOs with international capabilities such as International Organization for Migration (2019) can play a particularly effective role in the reverse flow network performance by ensuring low cost, short transit time, health and safety, and proper resettlement. Specifically, such international NGOs can help with integration and collaboration between US and Honduran state actors by encouraging long-term continuous relationships.

7. Conclusion and future research

Future researchers need to examine the applicability of the proposed model via empirical verification. The specific items to measure cultural constructs have been well defined (see Hofstede (1980) for an extended discussion on the constructs and measures used) and been cited by a large number of researchers on the Social Science citation index. Within the supply chain literature, the specific items to measure each of the supply chain elements have been developed for corporate settings. The operational network performance variables such as lead-time, costs and rejection rates are also well established within the corporate context. Based on the instruments available, it would be possible to test the proposed relationships within the refugee context and even identify possible moderating and mediating effects if present. For example, the interaction of cultural dimensions with other critical factors such as the quality of infrastructure and legal barriers on the degree of supply chain integration and collaboration would be interesting to uncover. Furthermore, it would be interesting to examine the influence of culture and organizations where municipalities/state actors and their partners are of different size. For example, small municipalities in high power distance cultures might be hesitant to engage in interactions and partnership with larger state actors that are perceived as having more power. They may be more likely to form relationships with those they perceive as being at similar levels of hierarchy and status. Finally, future researchers could also take into consideration the values of various sub-cultures within countries (e.g. indigenous) and examine their impact on the refugee networks.

Because political events cause migrants to move in large numbers with little warning, it is also important to study demand variability in the migration context. In traditional supply chains, a popular characteristic of poorly managed information flows is the “bullwhip effect” in which demand variability amplifies through the supply chain network leading to inaccurate forecasts, excess inventory, poor capacity utilization and poor supply chain relationships (Wang and Disney, 2016). Best practices in managing the bullwhip effect in traditional manufacturing supply chains could also be applied in the humanitarian context to understand how municipalities can communicate upward and downward in the supply chain to better manage surges in migration.

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Corresponding author

Jason James Woldt can be contacted at: woldtj@uwosh.edu

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