



MIT SCALE RESEARCH REPORT

The MIT Global Supply Chain and Logistics Excellence (SCALE) Network is an international alliance of leading-edge research and education centers, dedicated to the development and dissemination of global innovation in supply chain and logistics.

The Global SCALE Network allows faculty, researchers, students, and affiliated companies from all six centers around the world to pool their expertise and collaborate on projects that will create supply chain and logistics innovations with global applications.

This reprint is intended to communicate research results of innovative supply chain research completed by faculty, researchers, and students of the Global SCALE Network, thereby contributing to the greater public knowledge about supply chains.

For more information, contact
MIT Global SCALE Network

Postal Address:

Massachusetts Institute of Technology 77
Massachusetts Avenue, Cambridge, MA 02139 (USA)

Location:

Building E40, Room 267
1 Amherst St.

Access:

Tel: +1 617-253-5320
Fax: +1 617-253-4560

Email: scale@mit.edu
Website: scale.mit.edu

Research Report: ZLC-2008-1

**An Analysis of Opportunities for Increasing Donation Quantity and Quality
by Food Retailers in Spain and India**

Puneet Agarwal

For Full Thesis Version Please Contact:

Marta Romero

ZLOG Director

Zaragoza Logistics Center (ZLC) Edificio

Náyade 5, C/Bari 55 – PLAZA 50197

Zaragoza, SPAIN

Email: mromero@zlc.edu.es

Telephone: +34 976 077 605

An Analysis of Opportunities for Increasing Donation Quantity and Quality by Food Retailers in Spain and India

Puneet Agarwal

EXECUTIVE SUMMARY

More than 850 million people in the world go to bed hungry every night. The irony of the hunger situation is that the amount of food that we as citizens of the world waste is more than enough to feed all of our hungry fellow humans. There are several ways by which good food can be recovered from wastage, one of which is to ensure that we do not let food sit and expire on supermarket shelves or in our homes. We can be proactive and donate this excess food before it expires. However, are food retailers driven by altruistic motives or do they like to see the bottom line benefit in acts of charity?

This thesis focuses on donation of excess food by retailers in a developed and developing economy. It uses Spain and India being as cases representative of the two economies, respectively to answer the following questions:

- 1. How can food donation from retailers be improved in terms of quantity and quality?*
- 2. What are the differences in the challenges and the opportunities for food donation by retailers in developed and developing economies?*

Approach:

- In order to find the total food donation potential, this thesis began by identifying the different stages in the food supply chain and the respective food wastage at each stage.
- A survey was carried out in Zaragoza, Spain by visiting retail stores and e-mailing key decision makers at the retailers' headquarters. The aim of the survey was to enquire about their supply chain layout and factors that they think facilitate or hinder donation.
- Discussions were also made with the Spanish food bank in Zaragoza, in order to understand the existent donation situation and their food collection network.
- A study similar to that in Spain was carried out for Indian retailers, using information gathered primarily from the internet and consultation with people related to Indian retail.
- Based on the results of the study, suggestions were made for retailers and food banks to help improve the quantity and quality of food donation.
- Finally, the donation scenario for the two different countries was compared and contrasted.

Results:

Food Wastage:

Rough estimates put food wastage in Spain to be 6% of the market, i.e. about \$ 3.5 billion, whereas food worth \$ 13 billion is estimated to be wasted in India annually. The point of largest food wastage in a developed economy is the household (about 33.5% in UK) followed by food manufacturers (17.5%); whereas for a developing economy, it is during storage post farming (20% of the food grains produced annually in India is eaten by rodents).

Top reasons why retailers donate:

Spain: 1. Wasting food is shameful 2. Improved company image and employee morale. While it was hypothesized that monetary benefits such as tax deductions may play an important role in motivating retailers to donate, tax deductions ranked 4 out of the top 5 reasons listed.

India: 1. Perceived need of the beneficiary 2. Feeling of social and moral responsibility.

Top reasons why retailers do not donate:

Spain: Product reputation may suffer and firm may be liable for damages if quality issues arise.

India: No economic incentive for retailers to donate (Indian retailers, surviving on razor-thin margins, do not get tax deductions on in-kind donations, unlike retailers in developed countries).

Key Recommendations to Improve Food Donation:

- Testing Services (Spain): If food banks in Spain could offer quality testing services for food donated by retailers, any quality issues could be nipped in the bud. At present, the onus of quality rests on the shoulders of the retailer who, understandably, is not too keen to invest in testing the quality of a donated product it considers safe in the first place.
- Retailer-Food bank cost sharing model (India): Retailers could sell food to the banks at discounted prices. For the food bank, a discounted price is better than the full market price.
- Planning for donation (Spain & India): Retailers could enter into periodic contracts with food banks, indicating to the banks in advance their donation estimates for the next month. Banks could pool this information from several retailers and optimize transportation costs by scheduling a “milk run”. Knowing their collection sources, banks could further plan to establish centers that are optimally located to serve these sources. This can improve speed, food quality and costs associated with collection.

Recommendation for Donation Network Design in the Two Economies:

The balance between organized and unorganized retail coupled with infrastructural differences and differing government policies have given rise to significantly different supply chain structures in the two economies. The dominance of local “mom and pop” stores in developing economies suggests that a decentralized collection and distribution network for food donation would be optimal as opposed to a more centralized one for developed economies in which large organized retailers control the market.

Conclusion: The findings and recommendations from the research could be helpful to both food retailers and food banks in defining their strategies for the different economies, and, entering into a win-win situation that would be beneficial not just for the retailer and the food bank, but also for the many millions of people who suffer from hunger!