

RETAIL SECURITY IN ITALY

*A study on thefts, robberies
and new security solutions*

in collaboration with



with the support of

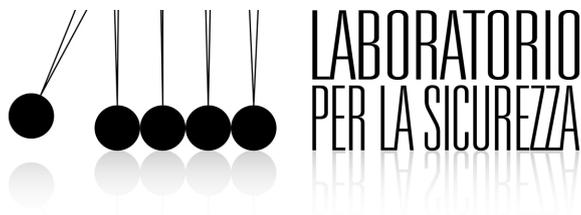


crime&tech
P o w e r e d b y T r a n s c r i m e



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

in collaboration with



with the support of

Checkpoint 

RETAIL SECURITY IN ITALY

A study on thefts, robberies and new security solutions

Scientific coordination

Ernesto U. Savona

Authors

Antonio Bosisio

Lorella Garofalo

Marco Dugato

Michele Riccardi

Graphic project: Ilaria Mastro

Suggested citation: Crime&tech (2017), *Retail security in Italy. A study on thefts, robberies and new prevention solutions*. Milano: Crime&tech (spin-off company of the Università Cattolica del Sacro Cuore – Transcrime). In collaboration with the Laboratorio per la Sicurezza and the support of Checkpoint Systems.

ISBN: 978-88-99719-05-0

Crime&tech s.r.l.

Spin-off company di Università Cattolica del Sacro Cuore (UCSC) - Transcrime

Largo Gemelli 1, 20123 Milano

Tel. +39 02 7234 3715/3716

info@crimetech.it

www.crimetech.it

CONTENTS

9

PREFACE

12

EXECUTIVE SUMMARY

17

GLOSSARY

18

1. THE STUDY

21

2. SHRINKAGE

2.1 Shrinkage by
business sector

2.2 Shrinkage by
geographic area

2.3 Shrinkage and
contextual factors

2.4 Shrinkage and
shopping malls

33

3. *MODI OPERANDI* AND
MOST STOLEN ITEMS

3.1 Causes and *modi operandi*

3.2 Most stolen goods

40

4. COUNTER MEASURES
AND LOSS PREVENTION
SYSTEM

4.1 Prevented thefts

4.2 Traditional systems and
new technologies

51

5 TOTAL COST
OF LOSSES

5.1 The economic impact on
companies and citizens

53

CONCLUSIONS

The implications for research

The implications for security
technologies and policies

56

REFERENCES

PREFACE

Crime&tech – Università Cattolica del Sacro Cuore

The aim of this study is to provide a picture of **security in the retail sector** in Italy. In particular, the main purpose is to analyse **losses and shrinkage** arising from theft, robbery and other crimes, to identify **differences among regions and sectors** and to provide an overview of the **security solutions** adopted by retailers.

This study is the result of **collaboration** among three sets of actors: academic researchers, retailers, and providers of security solutions. It has been carried out by **Crime&tech** with the collaboration of the **Laboratorio per la Sicurezza** and the support of **Checkpoint Systems**.

The study adopts an **innovative approach** that serves two purposes: first, in continuity with the Global Retail Theft Barometer, to provide experts with an **instrument that they can use to monitor** security trends in the retail industry; second, to provide a new point of observation on the phenomenon, with **more detailed data**, at geographic and sectoral level, that allow the more effective planning of prevention solutions and the establishment of security policies on the basis of **more empirical evidence**. In this regard, the study aims to be a tool useful not only for researchers but also, and especially, for experts in this field: retailers, security solutions providers, law enforcement and other public authorities.

This is the first analysis at **municipal and provincial level** ever conducted in Italy, and it is the first attempt to assess differences in the vulnerability of **stores located in shopping malls** and those located in **commercial streets**. The study provides **descriptive statistics** on, and insights into, important aspects (e.g. most stolen items, *modi operandi* of thefts, emerging trends) with several **case studies and best practices**. It gives **estimates of the costs** and impact of shrinkage on the retail industry. The report also provides **food for thought** on how to minimise losses both by technological means and through a more effective distribution of security measures across territories.

Obviously, this study is only the **first step** towards a more complete understanding of the risks related to the Italian retail industry: **better data** are needed to improve the quality of analysis and mapping. This will be made possible by improving the level of detail, harmonising the definitions, and guaranteeing greater coverage of stores, areas, and business sectors. At the same time, there is a need for continuous collaboration among **universities, businesses and the public sector** to explain the information collected correctly. Only through the combination of these three actors, it will be possible to turn the **analysis** into **security solutions** more effective in preventing crime against retail and minimising losses.

CRIME&TECH

Crime&tech srl (www.crimetech.it) is the spin-off company founded by Università Cattolica del Sacro Cuore and Transcrime - Joint Research Centre on Transnational Crime.

Crime&Tech translates Transcrime's research into technology and applications for private and public institutions by offering advanced analyses to assess, monitor, map and prevent security and crime risks.

Laboratorio per la sicurezza

In the first meetings of the *Laboratorio per la Sicurezza*, when we were not yet an association, we dedicated most of our time to discuss the different risks experienced in stores throughout Italy. We had endless discussions, from which each participant drew useful lessons for revisiting his/her security strategies. One of the most interesting aspects of that period was the camaraderie that prompted the **great will to share our experiences**. It seemed to attend meetings of adventurers, who came together to tell each other what they had experienced in their wander.

During the next stage of the discussion, each of us began to propose his own ideas, solutions, but also to share his/her own difficulties in solving problems that we face daily in our job as retail **security managers**. Therefore, those meetings turned into a kind of 'mutual aid': we spontaneously addressed the colleague sitting next to us by offering our support or asking for information, **even though we belonged to competing companies**.

Laboratorio per la Sicurezza arose from this idea. But something was still missing. In our job, **sharing** and **participation** are **key elements** to provide **added value to protection of corporate assets**. We needed someone who would help us to analyse and systematized our data and information. This is the reason why we decided to look for a third actor who could help us carry out a structural analysis of **the huge and exclusive**

asset in our hands, the **data and information on predatory crimes** in the retail industry. We turned to **Crime&tech**, spin-off company of Università Cattolica del Sacro Cuore (Milan, Italy), that immediately believed in this project, understanding the need for sharing that animates *Laboratorio per la Sicurezza*.

The outcome, supported by **Checkpoint Systems**, is a report not only focused on the analysis of security in the retail sector, but also a **reliable instrument** for those experts who have to **take decisions and invest resources** in their daily job.

Data analysis is an essential tool for every business process, but it is not always available in the security area, mainly because of the difficulties in collecting and comparing information in a functional way.

This initiative, **the first in Italy**, wants to be only the first step towards a new approach to security management. The **innovative approach** behind this project brings the **world of business security**, represented by over 40 professionals, together with the **world of the academic research** and the world of service and technology providers, not only to complete a check-list, but to develop a real teamwork, made of constant **meetings and debates between these worlds**.

The result is impressive, and it is exactly what the few 'adventurers' wished when this idea began.

LABORATORIO PER LA SICUREZZA

Laboratorio per la Sicurezza is an association open to all experts in Security, Safety, Compliance and Loss Prevention functions of Italian and international retail companies and large-scale distributors (food, fashion, luxury, oil&gas, cosmetics, DIY, electronics) who, interested in the realisation of institutional goals, share common means and ideas.

Checkpoint Systems

Welcome to the study on 'Retail Security in Italy'. With this research focused on the Italian market, Checkpoint Systems wants to continue its **commitment** to help giving an overview on shrinkage and to **understand the issues** of merchandise availability in the retail sector.

We have so far supported 14 editions of the 'Global Retail Theft Barometer', the only study on shrinkage with a global coverage. Our will is to **contribute to the debate** on the phenomenon, by providing retail players with unique data that can be used as a benchmark for **strategic goals** and **performances**.

This study on 'Retail Security in Italy' represents an important turning point, thanks to the direct involvement of *Laboratorio per la Sicurezza*, an association that brings together many retailers and which, along with the involvement of the academic world, has been able to provide **detailed company data** and **offer new evidence of innovative and efficient prevention measures**.

The transformations occurring in the retail business are evident: to stand by and watch means falling behind. At the same time, in order to be able to undertake effective actions, it is crucial to **have a complete knowledge of the phenomenon**, to detect it and analyze it.

The new security manager has to face **new challenges**: new technologies that pervade every routine, changing and evolving purchasing habits,

new ways of communicating, complex dynamics pushing professional figures into evolution. Thieves have also changed their *modus operandi*: organized gangs are more widespread, especially in shopping malls and in the suburbs.

Nevertheless, in such a changing scenario, this research has found that shrinkage is declining if compared to previous years. This is an important outcome that we believe is the result of **new prevention policies**, greater **involvement of shop employees**, and more synergies with all the players involved (suppliers, technology partners, etc.).

Despite this, shrinkage in the retail sector still accounts for almost 2.4 billion euros, a figure that does not allow us to let our guard down, but instead should stimulate us even more to continue on the undertaken path.

We believe that **prevention solutions**, in order to be truly **innovative** and **effective**, must be integrated with **new technologies**. Only in this way they can be flexible and adapt to the evolutions of the theft phenomenon, thus allowing the retailers to act with knowledge-based **prevention** behaviors, and not only with repression actions.

Our commitment will always be to work side by side with retailers and research centers, in order to help them in studying and analyzing these phenomena, in the certainty that the desired results can be reached only with a **joint effort**.

CHECKPOINT SYSTEMS

Checkpoint Systems is a global leader in merchandise availability solutions for the retail industry, encompassing loss prevention and merchandise visibility. Checkpoint provides end-to-end solutions enabling retailers to achieve accurate real-time inventory, accelerate the replenishment cycle, prevent out-of-stocks and reduce theft, thus improving merchandise availability and the shopper's experience. Checkpoint's customers benefit from increased sales and profits by implementing merchandise availability solutions, to ensure the right merchandise is available at the right place and time when consumers are ready to buy.

EXECUTIVE SUMMARY

Aim and methodology

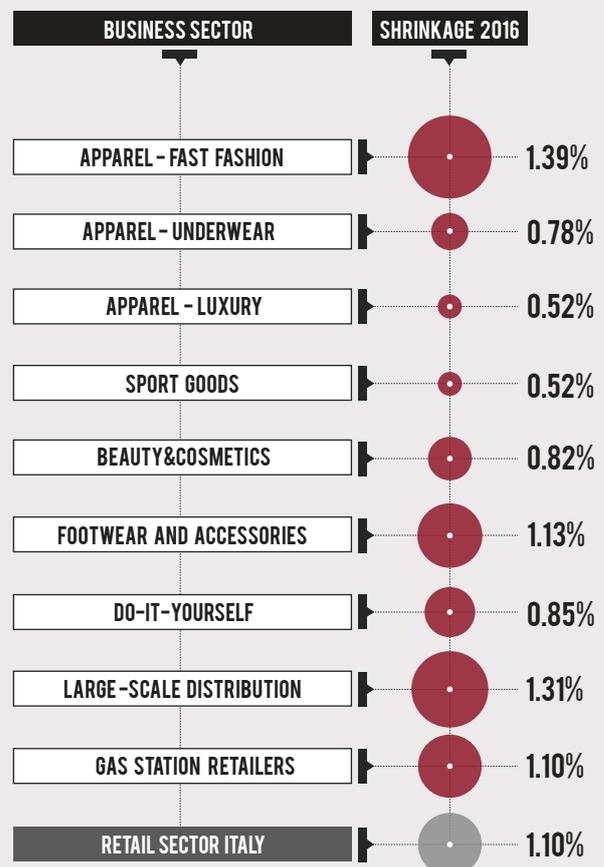
- ▶ This study has been carried out by **Crime&tech**, spin-off company of Transcrime – Università Cattolica del Sacro Cuore, with the collaboration of **Laboratorio per la Sicurezza** and the support of **Checkpoint Systems**.
- ▶ It focuses on the analysis of thefts, robberies and security solutions in the retail industry in Italy. The study analyses:
 - **Shrinkage** as a percentage of the turnover;
 - Differences among **regions, sectors** and **location** (shopping malls vs commercial streets);
 - **Socio-demographic, economic** and **criminal** contextual factors related with shrinkage:
 - The most recurrent **modi operandi** and **offenders** involved in **external thefts**;
 - The most common types of **internal thefts** (i.e. committed by dishonest employees);
 - **Prevented thefts** by area and store location;
 - **Security solutions** adopted among the different sectors.
- ▶ The study combines **two different** but complementary **sources of information** and two methods of **data collection**.
 - **Method 1**: quantitative and qualitative information at company level collected through an online questionnaire (coverage: 30 companies, 8,140 estimated stores, 11.5% of total turnover of the Italian retail sector);
 - **Method 2**: quantitative and qualitative information at a single point of sale level, shared directly by companies (coverage: 12 companies, 1.088 stores, 2.9% of total turnover of the Italian retail sector).

The results

Shrinkage, *modi operandi* and most stolen items

- ▶ In 2016, shrinkage accounted for **1.1% of turnover** for retail companies in Italy on average. A figure that is worth about **2.3 billion euros**.
- ▶ A few business sectors (e.g. Apparel – Fast fashion, Large-scale distribution, Footwear and accessories) recorded figures higher than the mean; whereas other sectors lower figures (e.g. Apparel – Underwear, Do-it-yourself, Sport goods) (Figure A).

Figure A – Shrinkage by business sector, mean % of turnover. Year 2016



- ▶ The results generally indicate a **decrease of shrinkage** in recent years. However, for some sectors shrinkage is increasing for the years 2014-2016 (i.e. Luxury, Footwear, Beauty&Cosmetics).
- ▶ **Campania** is the region with the highest value (1.4%), followed by **Apulia** (1.4%) and **Emilia Romagna** (1.3%).
- ▶ Some territorial clusters have been identified: for instance, the **lower Padana plain** between Alessandria and Bologna, **Bari and Brindisi** provinces and the area between **Naples and Cosenza**. These are large-scale interregional areas crossed by important roads and motorways (Figure B).
- ▶ On average, **shrinkage is higher** in stores located in less densely populated areas, in smaller municipalities with lower GDP per capita and a higher unemployment rate and incidence of young people aged between 11 and 20 years.
- ▶ Shrinkage tends to be higher in **stores within shopping malls**. This emerging pattern may depend on certain characteristics of shopping malls, for instance: greater crowding, lower customers/visitors conversion rate, and more complex surveillance activities.
- ▶ The main cause of shrinkage is **external theft**, followed by internal theft by dishonest employees and supplier fraud along the supply chain. The least relevant cause was administrative/accounting errors.
- ▶ Organised thefts committed by micro-gangs of 2-3 persons and by more organised criminal groups are increasing (especially for night-time intrusions).
- ▶ The majority of external thefts are committed by **men aged 18-25** and **26-40** (especially for Gas station retailers and those specialised in DIY, Sport goods and Apparel – Luxury) and **women aged 26-40** (especially for Beauty&Cosmetics, Footwear and Apparel in general). Concerning nationality, offenders are mainly from Eastern European countries.
- ▶ Shoplifting committed with **booster bags** (crafted with aluminium foil or similar to circumvent anti-shoplifting barriers) seems to be the most recurrent *modus operandi*.
- ▶ The **most stolen items** vary according to the business sectors. The most desirable are those **small** products with a **high value** per volume, which have a **single size** and **greater popularity** among consumers (Figure C, p.14).

Figure B – Shrinkage by province, mean % of turnover. Top 10 provinces. Year 2016

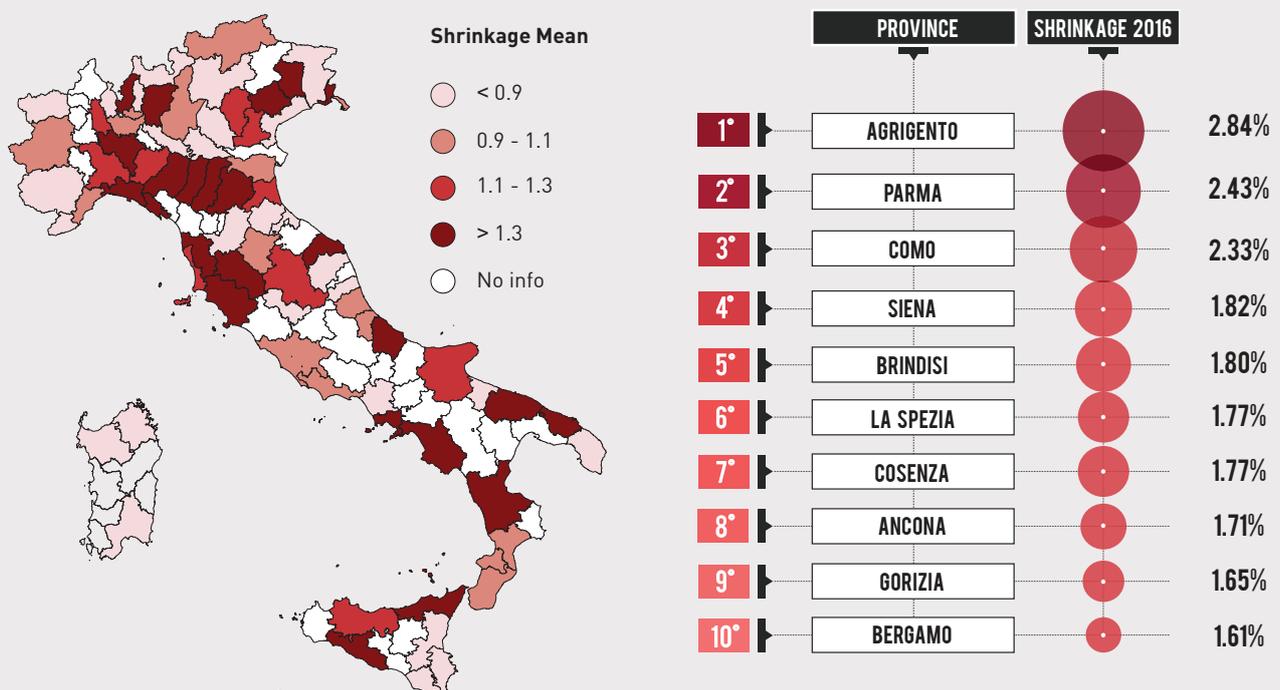
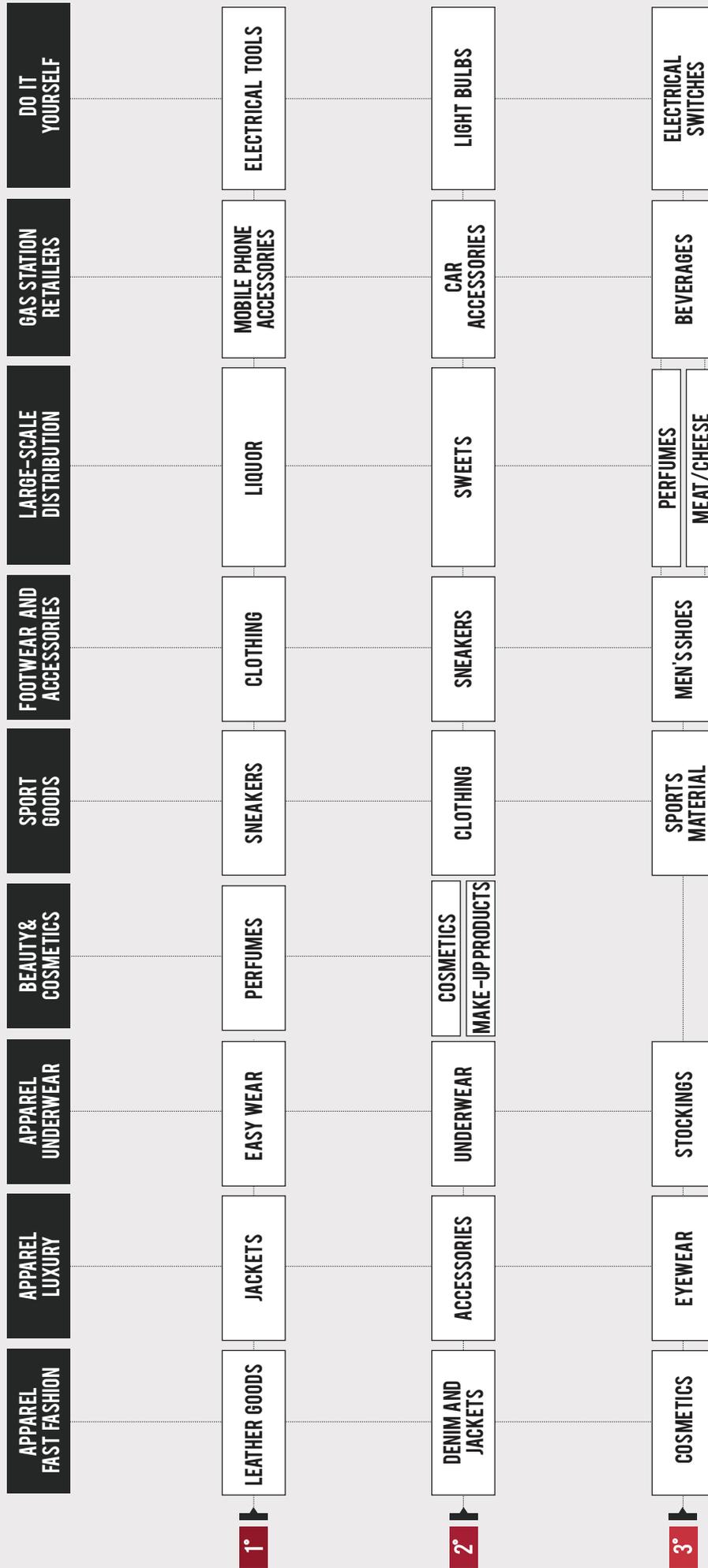


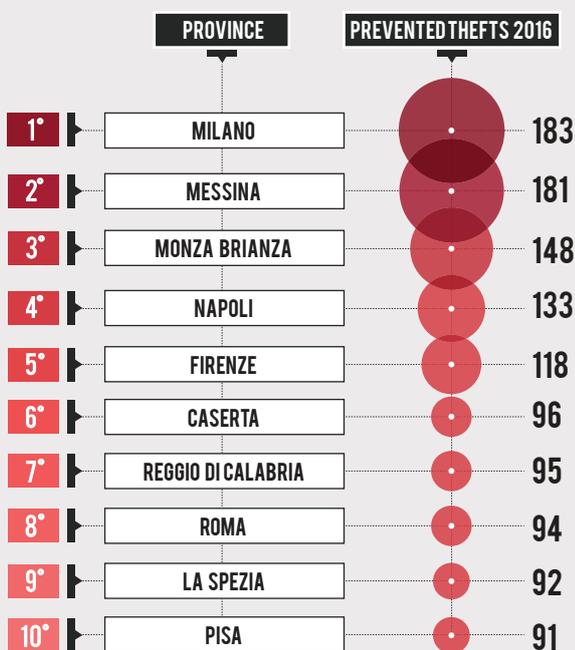
Figure C - Top 3 most stolen items by incidence on the economic value of shrinkage. Year 2016



Counter measures and loss prevention system

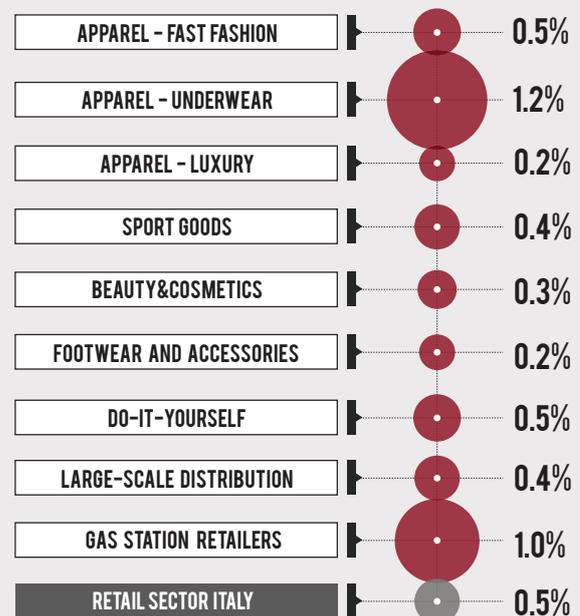
- ▶ In 2016 Italian retail companies scored **83 prevented thefts per shop on average**.
- ▶ The North-West of Italy scored the highest mean of prevented thefts. Among regions, **Lombardy** is at the first place (134 prevented thefts per shop) and among provinces **Milan** registered the highest figure (183) (Figure D).

Figure D – Prevented thefts in the retail sector by province. Mean value per store. Year 2016



- ▶ Different from the pattern observed for shrinkage, prevented thefts are more numerous in shops located in larger and richer municipalities **close to bigger urban areas**: it seems that those shops concentrate the majority of investments for security and loss prevention solutions.
- ▶ There are **more prevented thefts in shops located in commercial streets of cities** (104 every year on average) than in those located in shopping malls (67).
- ▶ Italian retail companies spend about the **0.5% of the turnover** on security and loss prevention solutions. There are remarkable differences among business sectors (Figure E).

Figure E – Total expenditure on security and loss prevention by business sector. Mean % of turnover. Year 2016



- ▶ According to the responding security managers, only a **combination of different security solutions** in the same shop can provide a more effective protection.
- ▶ Among the most widely used solutions there are **CCTV** (100% of respondents), followed by **third-party alarm monitoring** (89%), anti-shoplifting **hard tags and labels – EAS** (83%) and unarmed security guards (83%).
- ▶ If anti-shoplifting solutions favour the deterrence mainly against **occasional thieves** and are quite cheap compared to other solutions, security guards have a higher **detering effect** but also maintenance costs. CCTV is very useful to trace thefts after the event but entails higher costs and difficulties in terms of privacy and data confidentiality.
- ▶ New **innovative solutions** are emerging, such as anti-shoplifting devices able to detect booster bags, 'selling guards' and predictive software to detect, in real time, which are the shops most exposed to risk.

The economic impact on companies and citizens

- ▶ The total economic cost of losses (obtained as the sum of shrinkage cost and security and loss prevention cost) for the retail sector in Italy is equal to **1.6% of the turnover** (Figure F).
- ▶ It can be estimated at **3.4 billion euros**. If this value indicated company revenues, it would rank fifth among those of Italian retail companies.
- ▶ This figure corresponds to **26 million euros** per each of the top 50 Italian retail companies considering turnover and **56 euros per capita** for Italian citizens (Figure G).

The implications for research and private and public sector

- ▶ This study is only the first step towards a deeper understanding of the **risks** of losses in the Italian retail sector and **countermeasures**.
- ▶ In order to improve the analysis, it would be useful to have data with the **highest level of detail** and **better quality** (for instance information on shop characteristics, visitors, staff and security solutions adopted in each store).
- ▶ On the other hand, it would be necessary to set a **continuous collaboration** among universities, retailers, providers of security solutions and the public sector: a **shared knowledge** about security.

Figure F – Total cost of losses by sector, Mean % of turnover. Year 2016

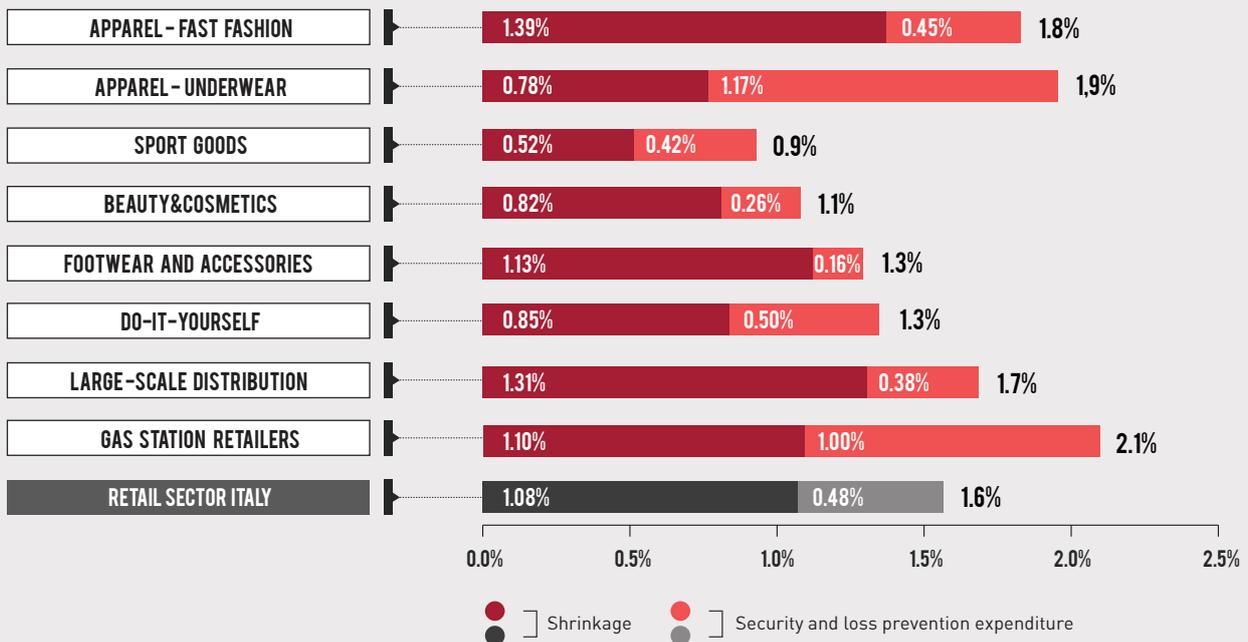


Figure G – Total economic cost of losses in the retail sector in Italy



GLOSSARY

Apparel – Fast fashion = Apparel companies specialised in the production of collections to be sold at low prices and rapidly renewed.

Apparel – Underwear = Apparel companies specialised in the sale of underwear products.

Apparel – Luxury = Apparel and accessories companies specialised in the sale of products of high quality and cost.

C&T = Crime&tech, spin-off company of Università Cattolica del Sacro Cuore – Transcrime.

Conversion rate = Ratio between the number of buyers and a store's number of visitors.

EAS = Electronic Article Surveillance. Anti-shoplifting system consisting of antennas and related accessories (e.g. hard tags and labels) used to protect items inside stores.

External theft = Theft committed by one or more persons not employed by the company. External theft may be due to shoplifting, burglary or robbery.

GRTB = Global Retail Theft Barometer. The study carried out from 2001 to 2015 sponsored by Checkpoint Systems (<http://www.globalretailtheftbarometer.com/>).

Internal theft = Theft committed by one or more employees of the company. Internal theft may be distinguished among theft of goods, misappropriation of money from the cash register, total or partial annulment of receipts, fraudulent returned goods.

Large-scale distribution = This business sector comprises supermarkets, superstores and cash-and-carry stores.

OSSIF = Physical security observatory. Research centre on security issues of ABI (Italian Banking Association).

Prevented thefts = Number of persons apprehended in a store during opening hours.

Retail = NACE division G.47 - *Retail trade, except for motor vehicles and motorcycles*. This division includes the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilization.

RFID = Radio Frequency Identification. Technology for the identification and/or automatic storage of object-related information, based on the ability to store data from electronic labels (tags) and their ability to respond to remote queries by dedicated readers.

SDI = *Sistema Di Indagine*. Interforce database of the Italian Ministry of Interior that collects, among other information, data on crimes reported by police forces to the judicial authorities.

Security and loss prevention expenditure = Amount of the investments in security and prevention solutions (e.g. costs for surveillance, CCTV, systems maintenance, etc.) calculated as a percentage of turnover.

Shrinkage = Difference between the book/financial values of goods and the physical count value. In this study, shrinkage is calculated at sale price, without taking insurance reimbursements into account, and it is presented as a percentage of the turnover.

TAPA = Transported Asset Protection Association for the fight against cargo crime. (<http://www.tapaonline.org/>).

1. THE STUDY

Compared to previous studies in this field in Italy and Europe, this report adopts an **innovative methodology** developed by Crime&tech (C&T) in collaboration with *Laboratorio per la sicurezza* and several Italian retail companies. The methodology combined two different but complementary sources of information and two methods of data collection.

The **first method** was based on the collection of quantitative and qualitative information at company level through an online questionnaire administered to 20 retail groups, corresponding to 30 companies with independent brands and stores. It achieved an estimated coverage of about 8,150 stores¹ and a **total turnover of € 24.9 billion**² for the last fiscal year in Italy, equal to 11.5% of total turnover of the Italian retail sector. The questionnaire gathered information on shrinkage, security expenditure, seasonality, *modi operandi* of thefts and loss prevention solutions.

The **second method** was based on the collection of quantitative data referred to a single point of sale shared directly by a sample of 7 retail groups, corresponding to 12 companies with independent brands and stores. Data covered 1,088 stores located in 20 regions and 94 Italian provinces. These companies had registered a **total estimated turnover of about € 6.3 billion** in the last fiscal year, accounting for 2.9% of total turnover in the Italian retail sector.³ The data collected referred to shrinkage and the number of prevented thefts for each store along with other qualitative information (e.g. address, type and location).

Although the two samples differed in terms of number of companies and sector coverage, it was decided that only the **combination** of these two methods could provide a complete overview of security in the retail industry in Italy.

The analysis was followed by a **workshop** with 30 security managers and several **interviews** with selected representatives, who contributed to the interpretation of the results and the definition of best practices and relevant case studies.

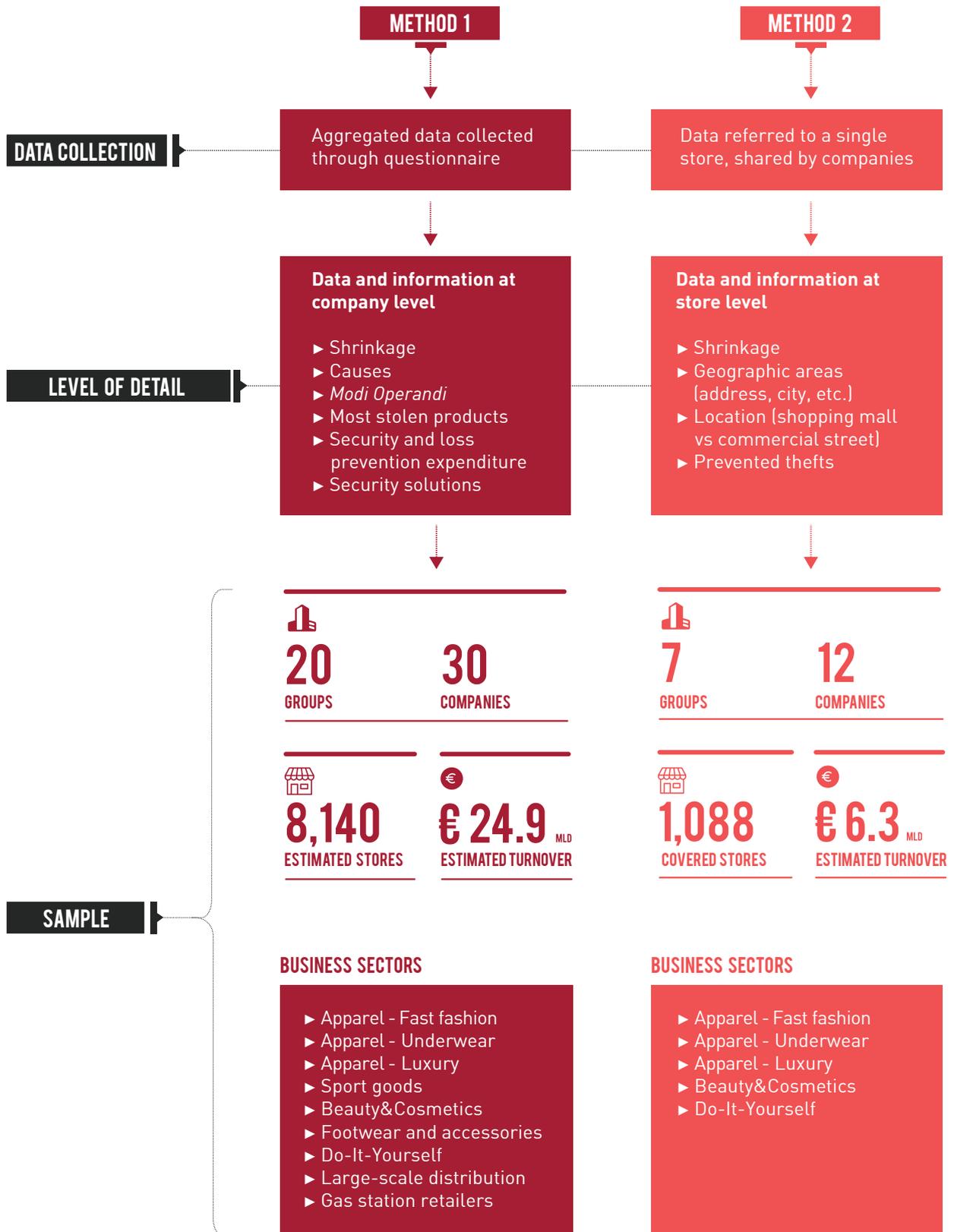
1. The estimate was obtained by adding the average values of intervals indicated by companies in the questionnaire (<50, 51-200, 201-500, 501-1000, 1001-5000, >5000) and rounding off the result.

2. The amount of € 24.9 billion was obtained by adding the turnover of the last financial year for the companies participating in the study. This value represents a conservative estimate of the entire sample, because some questionnaires were compiled anonymously and, thus,

excluded from the estimate. The total turnover of the retail sector in Italy, estimated at € 216 billion, is the total turnover of the registered and active capital companies in Italy for the NACE division G.47 (excluding G.47.8 and G.47.9) with at least 300,000 euros of turnover (total: 47,194 companies). Source: Crime&tech's elaboration of data from Bureau van Dijk - ORBIS.

3. The methodology used to calculate the total turnover was the same as that used in the first method.

Figure 1 – The study: methodology



The information collected by means of the two methods made it possible to produce, for the first time in Italy, a very detailed **geographic analysis** and an exploratory assessment of the differences

between shops in **commercial streets and shopping malls**. Moreover, it made it possible to provide new **interpretative keys**, identify emerging trends, and put forward considerations on how to improve loss prevention in the retail industry.

Figure 2 – Method 1: sample

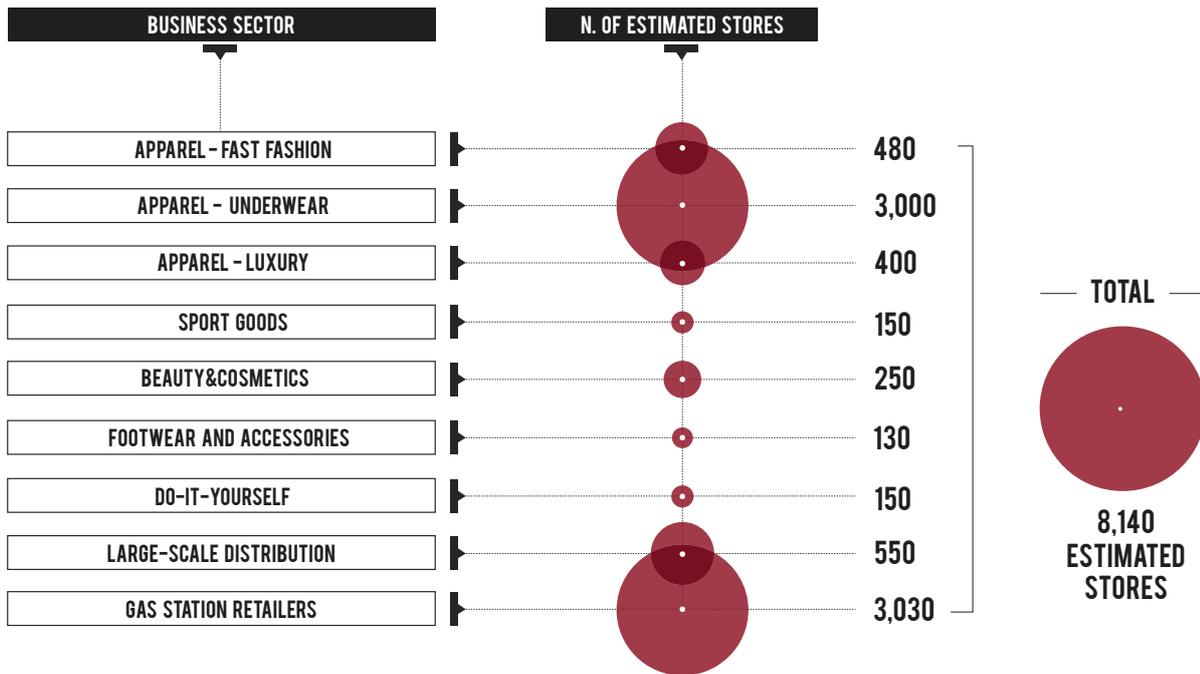
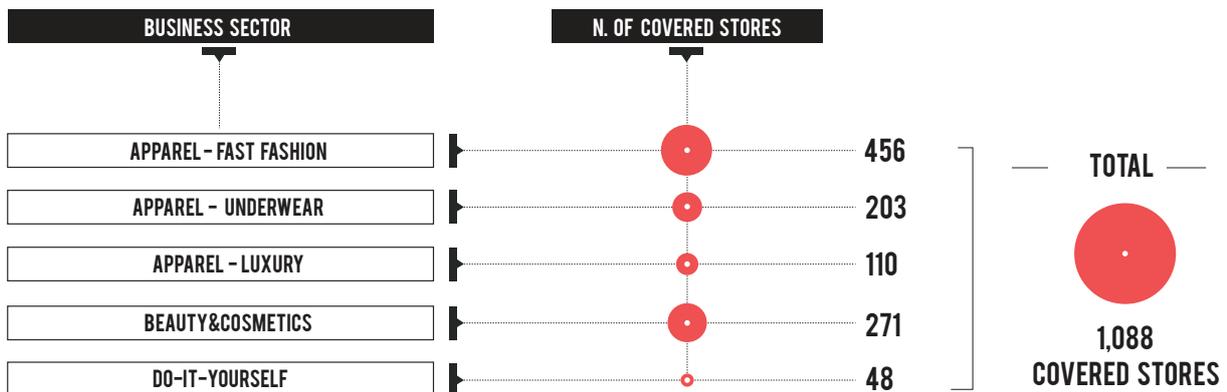


Figure 3 – Method 2: sample

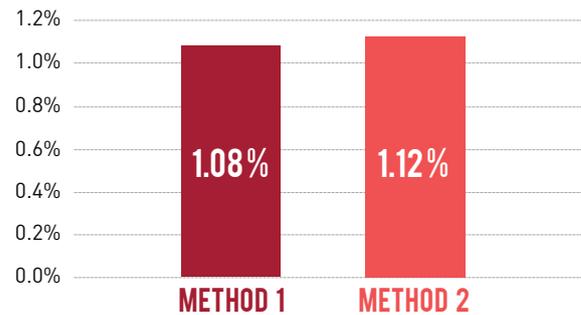


2. SHRINKAGE

In 2016, shrinkage accounted for **1.1% of turnover** for retail companies in Italy.

The two methods yielded very similar results: **1.08%** of turnover for shrinkage calculated according to Method 1 (questionnaire) and **1.12%** for shrinkage calculated through data referring to each store (Method 2) (Figure 4).

Figure 4 – Shrinkage as % of turnover, 2016⁴



Method 1: N= 4,780 estimated stores; Method 2: N=654 stores

MEASURING SHRINKAGE

Shrinkage can be defined as the difference between the book/financial values of goods and the physical count (The Smart Cube 2015). Measurement of shrinkage in the retail sector is challenging. Indeed, information collected from the security managers involved in the study revealed the lack of a **definition** shared by all companies.

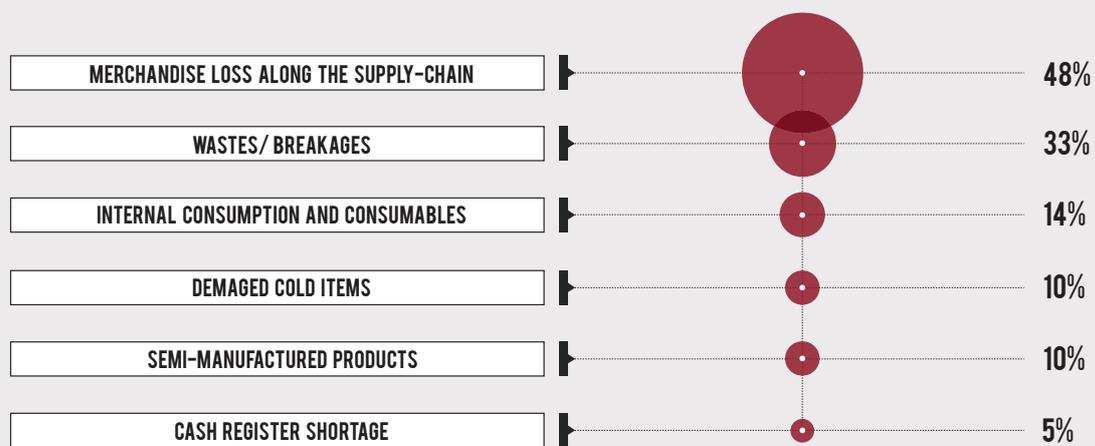
Shrinkage is composed of several items that may vary according to the **accounting practices** adopted by each company, which in turn result from the different types of **supply-chain, merchandise and internal management** (Beck 2016). Differences in recording methods make it difficult to collect and analyse information provided by different companies.

For instance, in the research reported here, all respondents were asked to provide data on shrinkage calculated at **sales price**. However, some companies use the **cost price**, and this entailed further data processing. Moreover, two companies reported a shrinkage rate including **insurance reimbursements**. Where possible, they were asked to provide figures without such reimbursements in order to guarantee comparability.

4. Data on shrinkage were not provided by all the responding companies, and they were not available for all stores in the sample.

In some cases, it was not possible to **break down the accounting items** of shrinkage in order to gain a measure homogeneous across the different business sectors. For instance, many companies measure shrinkage at store level, without considering **merchandise losses along the supply chain**. Ten of the responding companies (operating in large-scale distribution, Fast fashion, Beauty&Cosmetics and Sports goods) consider those losses for calculating shrinkage. Some companies in the large-scale distribution sector also include '**known**' losses, such as **semi-manufactured products** and **damaged cold items**, which are not included by companies of other sectors. **Wastes and breakages**, also recorded as 'known' losses, are included in the calculation of shrinkage by Beauty&Cosmetics companies and some companies engaged in large-scale distribution.

Figure 5 – Accounting items included in the calculation of shrinkage (N=20)

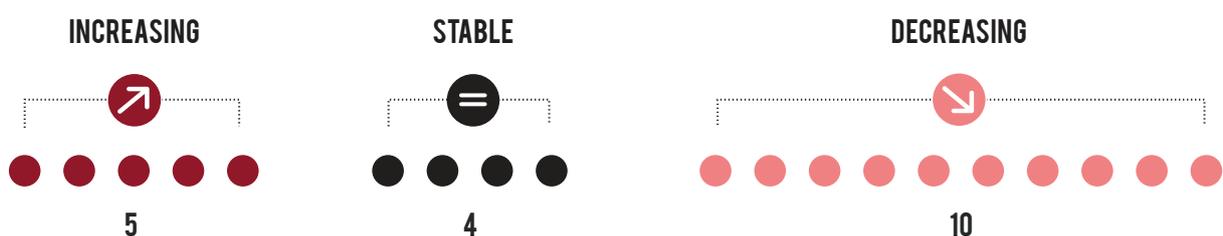


Trend

Despite some differences across business sectors (see 2.1. p.25), the results generally indicate a **decrease of shrinkage** in recent years.

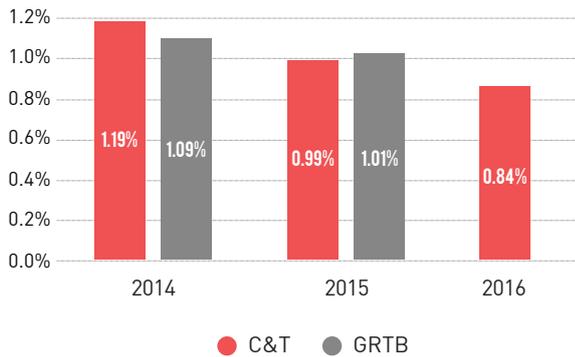
Information collected by means of the questionnaire reveals a **predominantly decreasing trend** for the years 2014-2016 (Figure 6). The majority of respondents (10 out of 19) reported a drop in shrinkage over the three-year period; whereas 5 companies registered an increasing trend. 4 groups reported a stable scenario.

Figure 6 – Trend of shrinkage, years 2014-2016 (N=19)



Also, data at store level show a **negative trend** for the years 2014-2016 (-30%) (Figure 7). This pattern follows the drop already highlighted by the Global Retail Theft Barometer (GRTB) 2015, confirming that shrinkage is generally falling in the retail industry.

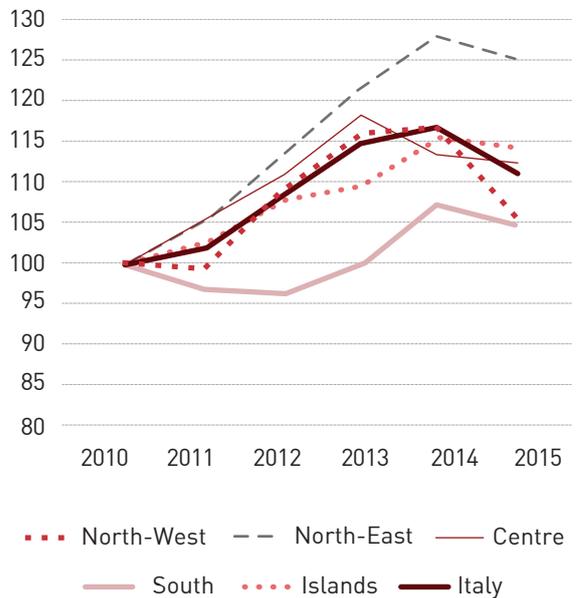
Figure 7 – Shrinkage, years 2014-2016. Comparison with GRTB*



*C&T's data refer to the average values calculated at store level. The elaboration includes only stores for which the three years data is available (N=436).

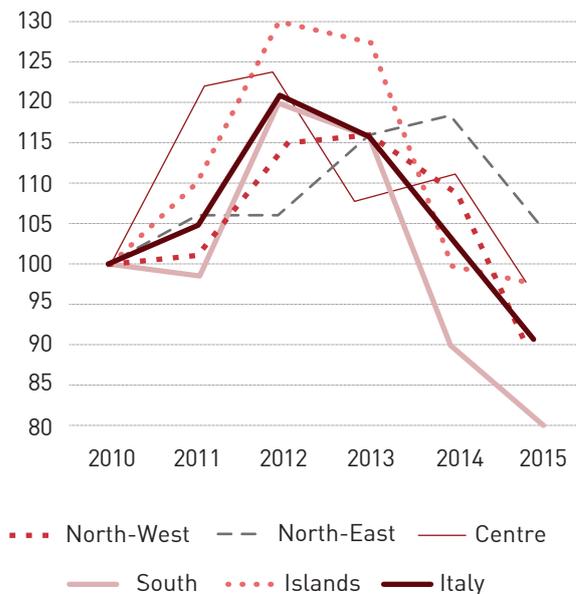
The decreasing trend observed after 2014 is in line with the commission of property crimes in Italy, and in particular with **offences committed against retail shops**. Although there was a general increase in thefts and robberies in the first years that followed the economic crisis of 2008, the trend reversed after 2015, with a moderate decrease for theft (-4%, Figure 8), and a remarkable drop for robberies (-16%, Figure 9), which fell to pre-crisis levels.

Figure 8 – Thefts against retail shops every 100,000 retail companies in Italy and by macro-area. Years 2010-2015. Index 2010=100



Source: C&T's elaboration of data by SDI – Ministry of the Interior

Figure 9 – Robberies against retail shops every 100,000 retail companies in Italy and by macro-area. Years 2010-2015. Index 2010=100



Source: C&T's elaboration of data by SDI – Ministry of the Interior

THE CRIME DROP IN ITALY

According to the SDI data of the Ministry of the Interior, in 2016, approximately 7,000 offences per day were reported (Finizio 2017): a **drop of 7.4% compared to 2015**, which consolidated the downturn already recorded in the previous two years. According to the Ministry of the Interior (2017), the drop continued in the first seven months of 2017.

The decrease concerned almost all types of crime - theft, robbery, violence - with the exception of fraud and computer fraud (+4.5%) and usury (+9%). In addition to a decline in reported offences, there was also a general **decline in the seriousness of crimes committed** (Dugato and Favarin 2016).

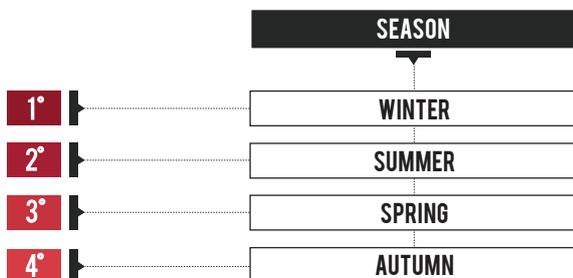
In the area of crimes against retail shops, **robberies have been decreasing since 2012**, after a sharp increase in the early years of the economic crisis. This increase is partly due to a **change in the strategy adopted by criminals**, as already reported in the latest OSSIF report (2016): the greater vulnerability of retail shops is the consequence of a sharp drop in bank robberies (-82% over the period 2007-2015) caused by the increase in electronic transactions (lower volume of cash in circulation) and the implementation of new security policies in banks. Robberies against retail shops peaked in 2012, with 7,090 offences reported nationwide. Since then, the drop has been constant across the country, with the exception of the North-East, and now the number of robberies is below the pre-crisis level.

Thefts against retail shops, on the contrary, showed a less marked growth during the years of the economic crisis, but they increased steadily until 2014. However, over the last two years, the trend has aligned with that of other types of crime, with a drop, albeit moderate (-4%), at a national level.

Seasonality

The majority of shrinkage occurs during winter, followed by summer, spring and autumn (Figure 10).

Figure 10 – Shrinkage by season (N=17)



The risk of retail theft in winter is higher for several reasons. First of all, **colder temperatures** enable thieves to conceal products under heavy clothes; jackets or coats can also be lined with aluminium foil to bypass anti-shoplifting devices. Secondly, **fewer hours of daylight** may allow thieves to run away from stores more easily. Finally, especially with regard to Apparel, winter is the season when merchandise has a **unit value higher** than in the other seasons, increasing its appeal.

Christmas holidays appear to be the most challenging period overall. Indeed, in addition to the concerns mentioned above, stores attract **large crowds of shoppers**, which complicates anti-shoplifting activities, and they have greater **staff turnover**. As regards large-scale distribution companies, Christmas holidays are particularly problematic for items such as *panettone*, *pandoro* and similar sweet goods.

Many of the security managers interviewed pointed out that the **release of new collections** is very vulnerable, especially with regard to thefts committed by organised gangs attracted by merchandise with wider public appeal and a ready market for resale. In the case of large-scale thefts, the stealing of an entire stock or a substantial part of it may cause serious economic and image damage to the affected company. For instance, Apparel retailers are vulnerable to the theft of an entire stock of a certain size, which is particularly damaging because it makes the product unavailable for a whole range of customers.

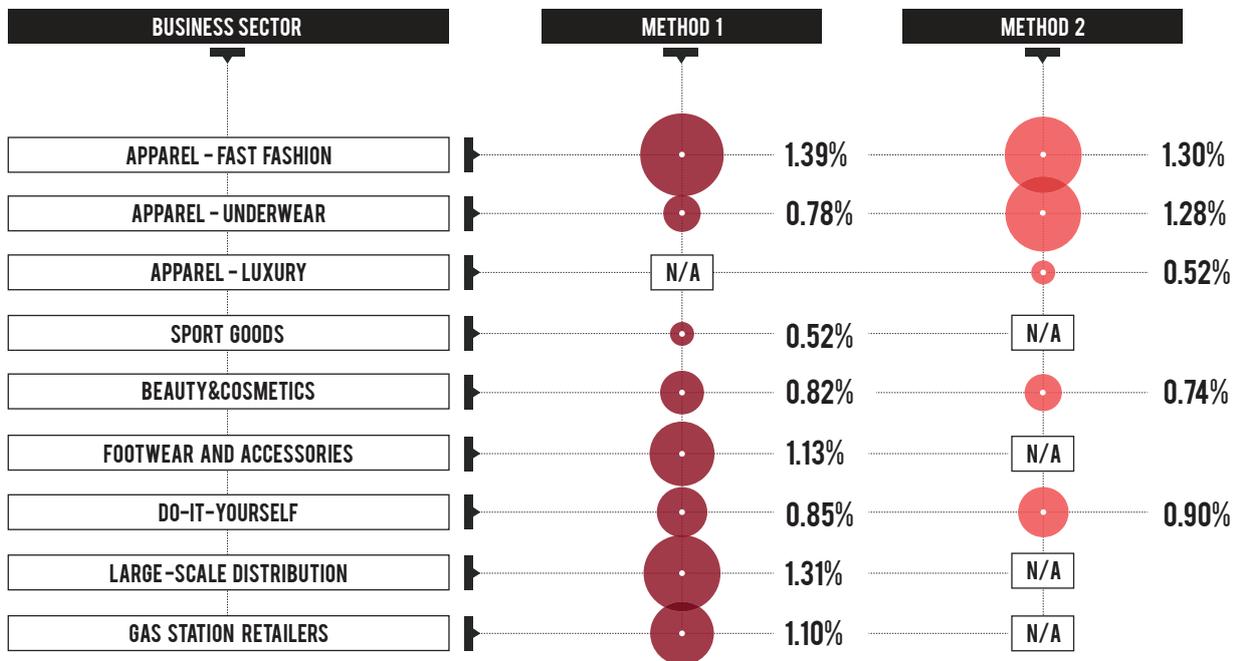
2.1 SHRINKAGE BY BUSINESS SECTOR

According to data collected by means of the questionnaire (Method 1), **Apparel – Fast fashion** recorded the highest shrinkage in 2016 (on average 1.39% of turnover), followed by **Large-scale distribution** (supermarkets, superstores, cash&carry) (1.31%), **Footwear and accessories** (1.13%) and **Gas station retailers** (1.10%) (Figure 11).

DIY (0.85%), Beauty&Cosmetics (0.82%), and Sport goods (0.52%) retailers recorded the lowest values of shrinkage in 2016. The Luxury sector (0.52%), represented only in the Method 2 sample, registered low levels of shrinkage as well.

Sectors covered by both methods show similar values for shrinkage, except for the Apparel – Underwear retailers, whose data at store level (Method 2) are significantly higher.⁵

Figure 11 - Shrinkage by business sector, mean % of turnover. Year 2016



Method 1: N= 4,780 estimated store; Method 2: N=654 stores

5. This difference may be due, in addition to the different sample composition of the two methods, to the small sizes in terms of turnover of Underwear stores. The average resulting

from Method 2, not weighted for stores turnover, tends to overrate shrinkage of smaller stores.

Differences across business sectors may be due to several factors. For instance:

► **Type of merchandise (price, volume, appeal).**

Retailers selling items easier to conceal, more difficult to protect (e.g. with traditional EAS solutions), more appealing for the resale market and with a higher volume per cubic centimetre are more exposed to theft (see section 3.2, p.37). Items with a low unit value, on the other hand, may be more subject to occasional theft. As stated by some studies in the field of behavioural economics (Mazar, Amir, and Ariely 2008; Shalvi, Eldar, and Bereby-Meyer 2012), low-value thefts are perceived as less serious and, therefore, more justifiable by those who commit the crime.

► **Type of sale (assisted or not assisted).** The risk of thefts in stores where staff attend to customers as soon as they enter the shop, as in Luxury or Beauty & Cosmetics shops, is lower than in stores with less customer care. On the one hand, assisting customers means more surveillance; on the other hand, less customer care can lead to client dissatisfaction, encouraging the commission of 'frustration' theft.

► **Conversion rate customers/visitors.** Sectors with greater customer loyalty, such as Luxury, record lower losses. This applies also to stores located in malls, which are more vulnerable than those in commercial streets, typically smaller and with greater customer loyalty (see section 2.3, p.29).

► **Customer characteristics.** Depending on the business sector, the type of customer changes (e.g. prevalence of women or men, age group, nationality). Analysis of contextual factors and offenders (see sections 2.2, p.27 and 3.1, p.33) seems to show that the most vulnerable items are those preferred by teenagers and related to essential goods. This may help to explain the higher shrinkage recorded by Fast Fashion, Footwear and Large-scale distribution.

► **Staff turnover and training.** The risk of losses caused either by external or internal thefts is higher in sectors with greater staff turnover. Conversely, where staff are more loyal, more involved in store management and better trained, vulnerabilities are less, so that losses tend to be lower.

► **Store characteristics.** Shrinkage also depends on the structural features of stores. For example, the risk of theft is higher in multi-level shops characterized by wider, less controllable spaces, with more 'blind spots' and more escape routes (e.g. security exits).

► **Security measures.** Lastly, shrinkage is influenced also by the security measures implemented and those that might be adopted. For instance, in some sectors, such as Underwear and Footwear, it is more difficult to use the traditional anti-shoplifting devices, given the type of goods sold. Also in Large-scale distribution some items are very difficult to protect unless they are displayed next to cash registers or in locked shelves/windows.

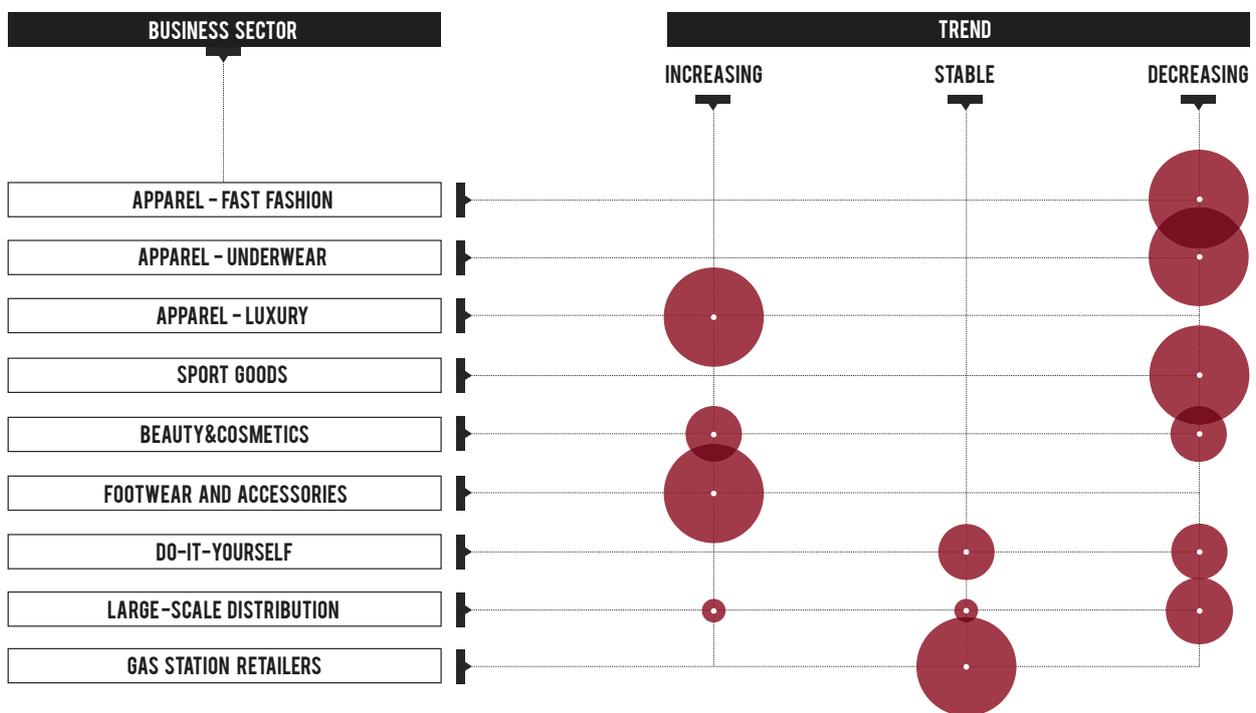
Trend by business sector

Although shrinkage generally decreased over the period 2014-2016, there are **differences among business sectors** (Figure 12).

For some sectors (Apparel – Fast fashion, Apparel – Underwear, Sport goods) the trend was mainly decreasing; for others (Apparel – Luxury, Footwear

and accessories) it was increasing. Gas station retailers showed no variation. Some Large-scale distribution and Beauty&Cosmetics retailers recorded an increasing trend, whereas other retailers in the same sectors recorded a stable scenario or a drop in 2016 compared to 2014.

Figure 12 – Shrinkage trend by business sectors as indicated by respondents, 2014-2016 (N=19)



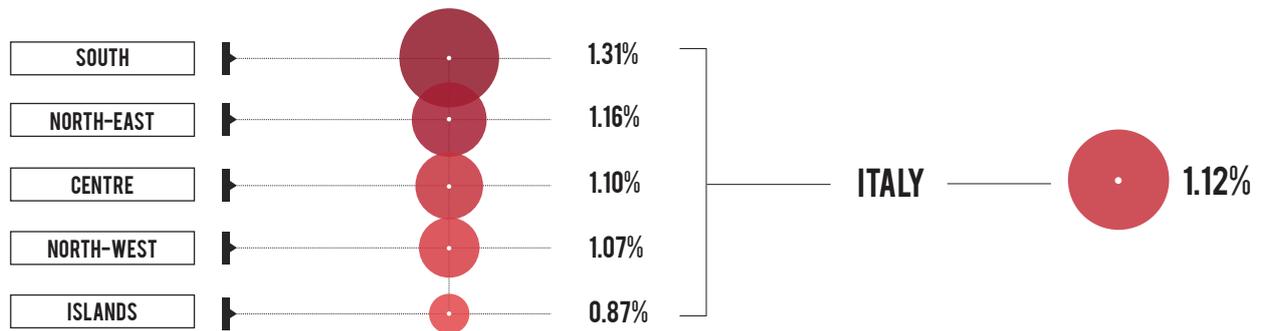
2.2 SHRINKAGE BY GEOGRAPHIC AREA

The new methodology, based on data at PoS level (Method 2), allowed to analyse for the first time in Italy how shrinkage varies among different **geographic areas**.

Macro-areas

The highest shrinkage rate is recorded in the South of Italy, followed by the North-East and Centre (Figure 13, p.28). Sardinia and Sicily scored the lowest values.

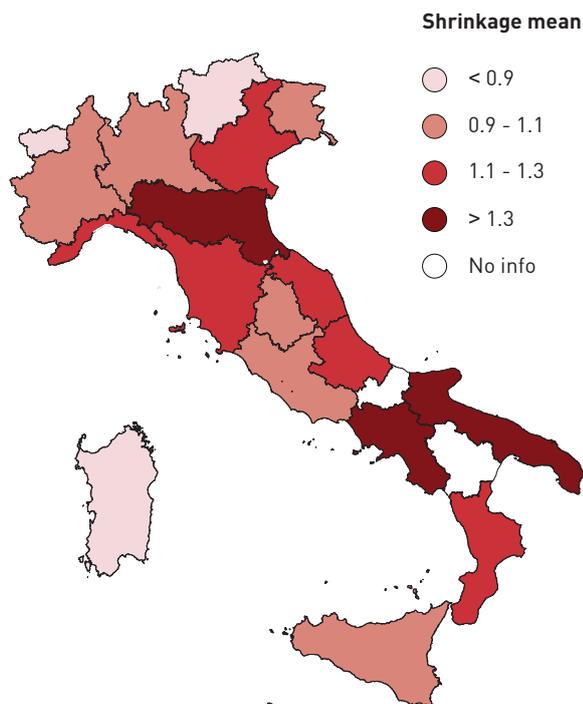
Figure 13 – Shrinkage by macro-area. Mean % of turnover. Year 2016



Regions

Among the regions with shrinkage above the national average (1.12%), **Campania** was the region with the highest value (1.38%), followed by Apulia (1.37%), Emilia Romagna (1.32%) and Calabria (1.24%). Sicily (0.98%), Trentino Alto Adige (0.87%), Valle d’Aosta (0.78%) and Sardinia (0.45%) scored the lowest values (Figure 14).

Figure 14 – Shrinkage by region. Mean % of turnover. Year 2016



Provinces

Agrigento (2.84%) scored the highest value for shrinkage, followed by Parma (2.43%), Como (2.33%), Siena (1.86%) and Brindisi (1.80%). All these provinces showed shrinkage rates significantly higher than the national average (1.12%) (Figure 15, p.29)⁶.

It seems that shrinkage tends to be higher in **peripheral and less populated provinces** and lower in larger metropolitan areas. Of the four largest Italian urban areas, only Naples (1.47%) recorded shrinkage above the national average, while Rome (1.10%), Milan (1.13%) and Turin (0.95%) are in line with or below it.

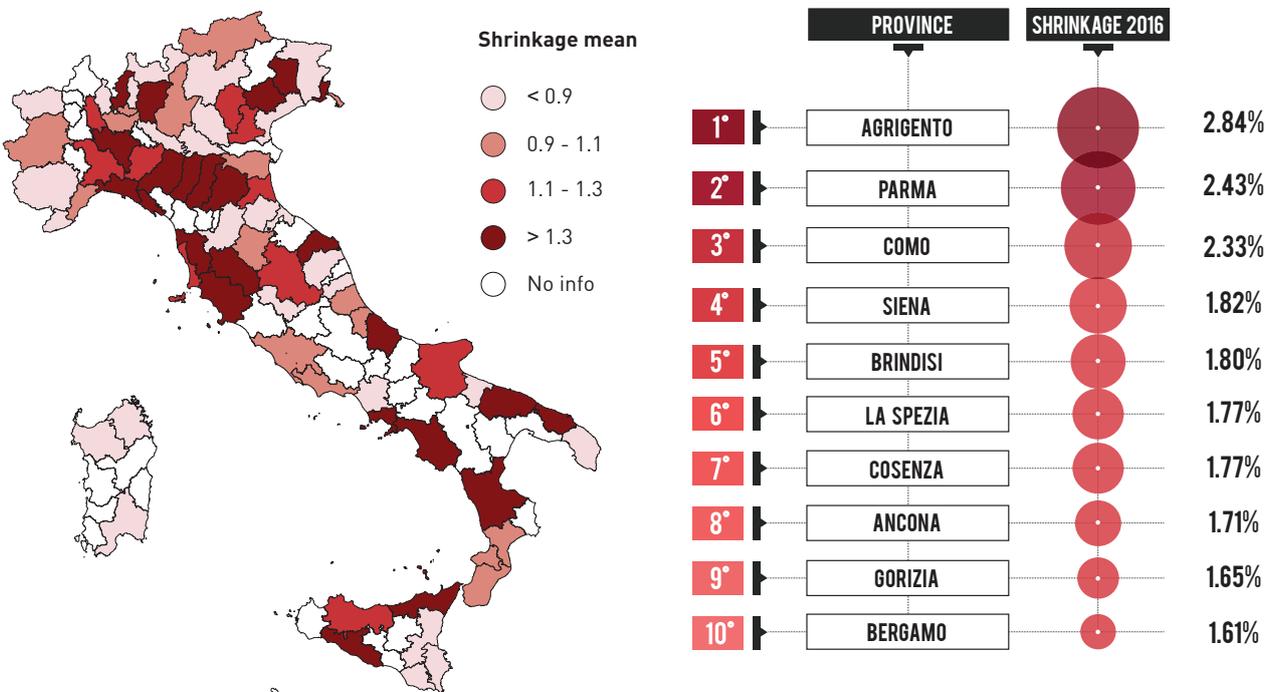
The map also shows some **territorial clusters**. These are large-scale interregional areas crossed by important roads and motorways. Five main clusters can be identified; they are listed below with invented names:

⁶. The analysis covers only provinces in the sample with at least two stores.

- ▶ **Padana road** cluster: this is the area lying among three crucial main roads, i.e. SS Padana Inferiore, Emilia and SS della Cisa, and crossed by the A1 – Autostrada del Sole motorway. It includes the following provinces: La Spezia, Genova, Alessandria, Pavia, Parma, Reggio Emilia, Modena and Bologna.
- ▶ **Tuscan Maremma** cluster: this area includes the Tuscan provinces of Pisa, Siena, Grosseto and, to a lesser extent, Livorno.

- ▶ **Vesuvius-Sila** cluster: area that includes the provinces of Naples, Salerno and Cosenza, and is crossed by the A2 – Autostrada del Mediterraneo motorway.
- ▶ **Bottom Apulia** cluster: area that includes the provinces of Bari and Brindisi, and is crossed by the A14 – Autostrada Adriatica motorway.
- ▶ **Sicily coast-to-coast** cluster: area that includes the northern part of Sicily (from Messina to Palermo) and the Agrigento province.

Figure 15 – Shrinkage by province. Mean % of turnover. Year 2016. Top 10 provinces



2.3 SHRINKAGE AND CONTEXTUAL FACTORS

Besides analysis across different geographic areas (i.e. macro-areas, regions and provinces), it is useful to study how shrinkage relates with some **socio-demographic, economic and criminal contextual factors**. This analysis makes it possible to determine, for instance, if it is true, as shown in the previous map, that the less urban areas are more vulnerable to retail theft and losses.

Figure 16 (p.30) shows the correlation between shrinkage at store level (as % of turnover) and some **contextual variables at municipality level**.

Figure 16 – Correlation between shrinkage and contextual factors. Year 2016

CONTEXTUAL VARIABLES	CORRELATION WITH SHRINKAGE
SOCIO-DEMOGRAPHIC CHARACTERISTICS	
RESIDENT POPULATION	SIGNIFICANT (-)
POPULATION DENSITY	SIGNIFICANT (-)
RATE OF POPULATION BETWEEN 11 AND 20 Y.O.	SIGNIFICANT (+)
RATE OF FOREIGNER POPULATION	NOT SIGNIFICANT
UNEMPLOYMENT RATE	SIGNIFICANT (+)
GDP PER CAPITA	SIGNIFICANT (-)
REPORTED CRIMES (PER CAPITA)	
THEFTS IN RETAIL SHOPS	NOT SIGNIFICANT
ROBBERIES IN RETAIL SHOPS	NOT SIGNIFICANT
ARRESTS FOR MAFIA-RELATED CRIMES	NOT SIGNIFICANT
HOMICIDES (ATTEMPTED AND COMMITTED)	NOT SIGNIFICANT
STORE CHARACTERISTICS	
LOCATION IN A SHOPPING MALL	SIGNIFICANT (+)
PREVENTED THEFTS IN THE STORE	NOT SIGNIFICANT

Shrinkage is higher in stores located in **smaller and less densely populated municipalities**. This may also be a direct consequence of what many security managers reported: that is, the allocation of a lower budget for prevention and security to smaller shops and less important in terms of turnover, which are usually located in small municipalities.

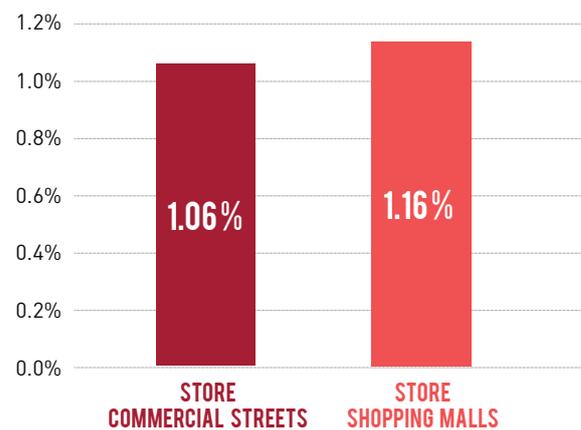
Municipalities with **lower GDP per capita** and a **higher unemployment rate** record higher shrinkage. In addition, the most critical areas are those with a **higher incidence of young people aged between 11 and 20 years**. It can be assumed that areas with more socio-economic difficulties and a larger youth population are more exposed to thefts by necessity, occasional thefts, or to the activities of organised gangs.

Finally, shrinkage tends to be higher in stores within **shopping malls**. The relationship with thefts, robberies, homicides and other crimes, as well as the rate of foreign population, is not significant.

2.4 SHRINKAGE AND SHOPPING MALLS

Data at store level, collected by means of Method 2, make it possible to analyse how shrinkage changes according to the point of sale location (Figure 17).

Figure 17 – Shrinkage scored by stores located in commercial streets and stores located in shopping malls*. Mean % of turnover. Year 2016



Stores in commercial streets: N=266; stores in shopping malls: N=388

Shrinkage is higher in stores located in **shopping malls** (1.16%) than in those located in commercial streets of cities (1.06%), although it would be necessary to analyse a larger sample of stores to have more robust and statistically significant results.

This emerging pattern may depend on certain characteristics of shopping malls, for instance:

- ▶ Greater crowding;
- ▶ Lower customers/visitors conversion rate;
- ▶ More complex surveillance activities.

Data make it possible to list shopping malls by shrinkage, according to stores sampled by Method 2. Data cover 50 shopping malls over more than 1,000. The mean value of all stores in a given shopping mall was calculated, considering only those with at least 2 stores for which data were available. Figure 18 shows the first and the last 10 shopping malls according to shrinkage.

Figure 18 – Shrinkage by shopping malls. Year 2016 and trend 2014-2016. Top 10 and bottom 10 shopping malls

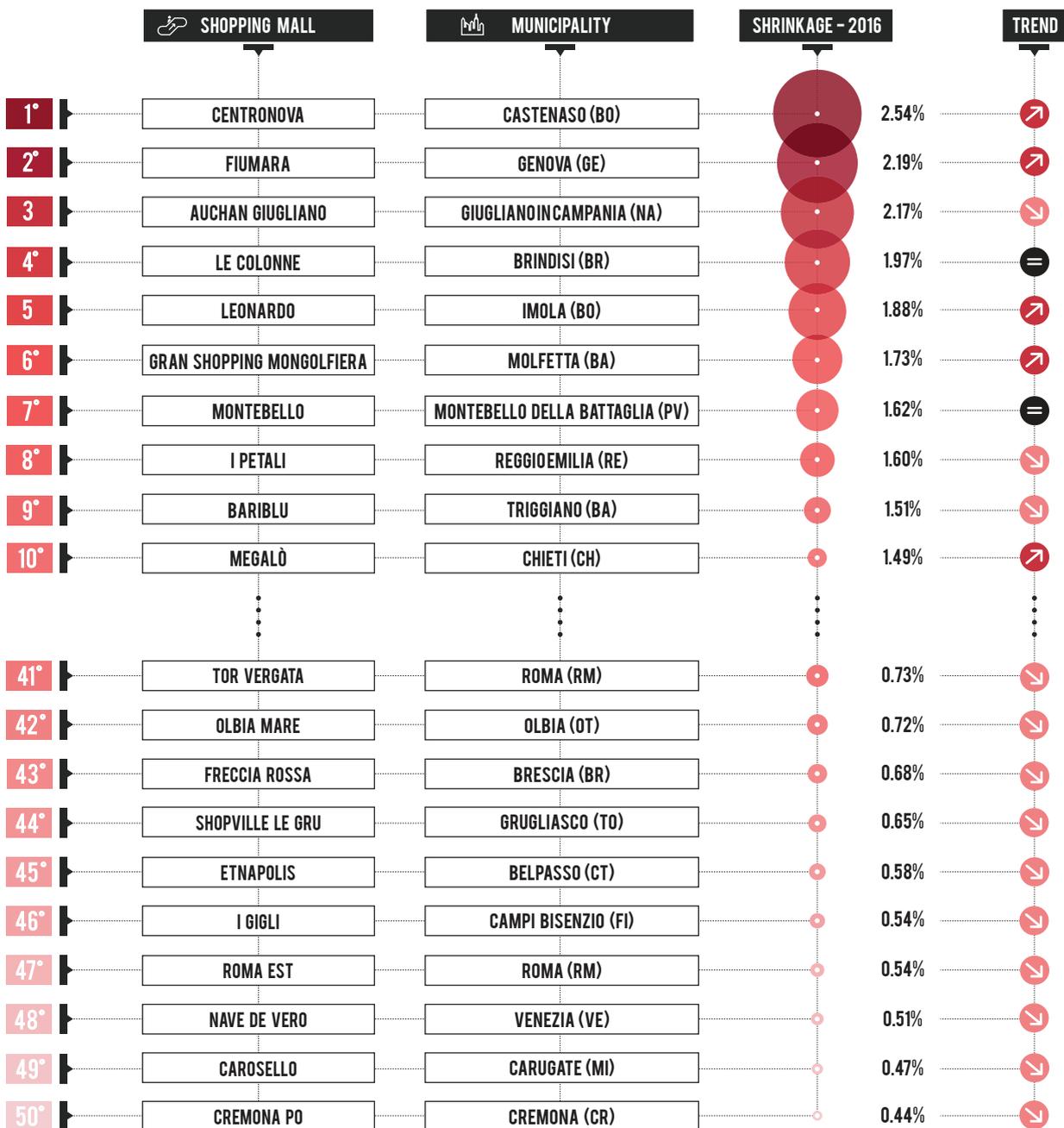
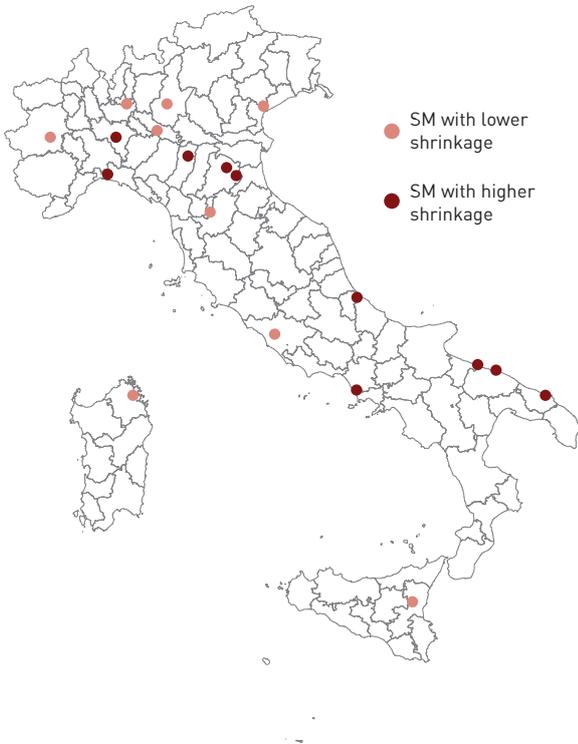


Figure 19 - Shrinkage by shopping malls, year 2016.
Top 10 and bottom 10 shopping malls (SM)



The outcomes of the correlation between shrinkage and some features of the shopping malls (Figure 20) show that **facilities with smaller surface and fewer visitors** are more exposed to losses. According to security managers participating in the study, this may be due to lower investments for security measures in smaller malls than for the larger ones, and thus, more important in terms of turnover.

Figure 20 – Correlation between shrinkage and features of shopping malls, year 2016

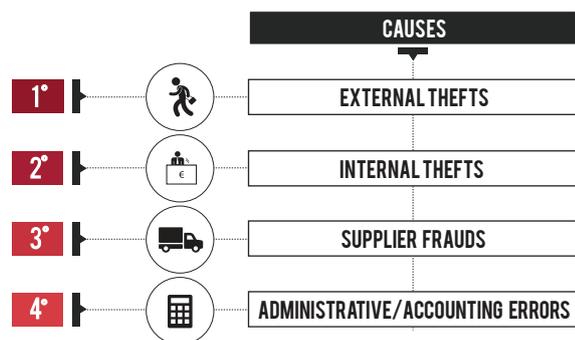


3. MODI OPERANDI AND MOST STOLEN ITEMS

3.1 CAUSES AND MODI OPERANDI

Almost all the companies participating in the study agree that the **main cause** of shrinkage is **external theft**, followed by **internal theft** by dishonest employees and **supplier fraud** along the supply chain (Figure 21). The least relevant cause is **administrative/accounting errors**.

Figure 21 – Shrinkage and causes



There are exceptions. Some retailers specialised in **Apparel – Luxury** reported that the prevalent cause of shrinkage is **internal theft committed by dishonest employees**. Their stores are often characterised by assisted sale, strong customer care and a higher conversion rate. For these reasons, external thefts and shoplifting are very risky and difficult to accomplish. This might explain the relatively greater proportion of internal thefts.

Some companies operating in **Large-scale distribution** state that **administrative/accounting errors** affect shrinkage more than supplier fraud. The reason may be the greater complexity of managing warehouses; they need to be restocked daily with fresh products, leading to a higher probability of management errors.

THE RISKS OF THE SUPPLY CHAIN

A security manager of the *Laboratorio per la sicurezza* reported a distinctive type of theft in the supply chain committed by carriers. Suppliers involved in freight transport force the **anti-tamper strip** used to seal packages of goods to be dispatched to warehouses or stores. Once the most expensive items have been removed, the supplier distributes the cheapest items among all the packages so that their weights are homogeneous. Finally, the packages are closed again reusing the same anti-tamper strip. This makes it very difficult to detect theft, which may be discovered only during inventory.

Thefts committed by carriers are a critical issue, especially for retailers that move items with a high value per unit volume (e.g. electronics, medicines, high-quality apparel, leather goods). As already pointed out by TAPA, Italy is one of the European countries with the **supply chain most vulnerable** to predatory crime, especially in some regions and economic sectors.

In addition, the transport sector in Italy is one of those most **infiltrated by organised crime**, both mafia-type and not mafia-type (Riccardi, Soriani, and Giampietri 2016). There are many cases of transport companies, linked to criminal organisations, involved directly in the stealing and trafficking of illicit goods (e.g. drugs, weapons, counterfeited or

stolen goods). In addition to thefts, there are several other risks of dealing with companies connected to organised crime: risk of money laundering, risk of credit, reputational risk, risk of compromising business continuity (Garofalo 2016).

Infiltrated companies, however, often have distinctive features, such as geographical origin, ownership structure, and irregularities in the balance sheet. There are **tools and indicators** that combine financial, geographical, and ownership data and allow the systematic monitoring of the supply chain by identifying the most vulnerable suppliers so that the risk of infiltration can be prevented (Crime&tech 2017).

External thefts

Shoplifting is the main form of external theft for almost all the companies participating in the study. It is so both for number of events and impact on the economic value of shrinkage. It is followed by **burglary** and **robbery**.

According to data collected by means of the questionnaire, the majority of external thefts occurs from **Monday to Friday**. However, some companies record shopliftings and burglaries also during weekends. Most of the **robberies** takes place just **before the closing time** of stores, that is, at the end of the day when there is much more cash in the register and staff may be lower.

For some retailers specialised in **Apparel - Luxury, Beauty&Cosmetics, DIY** and **Large-scale distribution, burglaries** have a greater impact on the economic value of shrinkage than shoplifting. These are companies that sell large quantities of goods and items with a high value per volume unit. Therefore, experiencing burglary (especially night-time intrusions by organised gangs) results in significant losses.

EXTERNAL THEFTS: EXCEPTIONS

Footwear and accessories retailers recorded more **robberies** than burglaries. Often these are cases of improper robberies, that is, when the thief is stopped and reacts with violence against staff.

External thefts may be committed by **individuals** who carry out small occasional thefts when an opportunity arises in the store or by **organised criminal gangs**. All the companies involved in the study reported that thefts committed by individuals represented the majority of the events suffered, while thefts perpetrated by organised gangs impacted more on shrinkage due to the high value of the stolen items.

The interviewed companies underlined a decrease in occasional thefts, but an increase in other more sophisticated criminal acts. Among these, **organised micro-gangs** (consisting of two or at most three persons), **improper robberies** and **night-time intrusions**. The drop in occasional thefts may depend on the security solutions implemented in stores, which, however, seem to be less effective in countering more organised thefts.

SHOPLIFTING AND BOOSTER BAGS

Interviews with security managers involved in the study highlighted a distinctive type of theft recurring for Large-scale distribution and Apparel retailers: the **concealment of items in booster bags** lined with double foil. Coverings, usually crafted with **aluminium foil, packing cellophane and adhesive strip**, make it possible to circumvent anti-shoplifting barriers, especially the traditional ones. In addition to bags, metal shielding is used for backpacks, clothes, and in some cases even for strollers.

In response to the increased use of booster bags, a growing number of retailers are adopting EAS technologies specifically designed to detect foil-lined items when they are brought into the store.

ORGANISED THEFTS. BETWEEN MICRO-GANGS AND ORGANISED GANGS

The growth of organised thefts depends on two main factors: firstly, there is an **increase** in so-called **micro-gangs**, i.e. couples or groups of up to three persons with a very low level of organisation; secondly, **organised criminal gangs specialised in predatory crime**, with high levels of organisation and violence, which cause significant losses to retail companies.

As regards micro-gangs, a security manager working in Beauty&Cosmetics described a recurrent event. Protagonists are usually a **couple of well-dressed persons** who may look like husband and wife, **supported by a third actor**. The couple enters the store shortly before closing time, when staff coverage is low, goes to the shop assistant in the store and asks for more information about cosmetics. Shortly thereafter, a well-dressed man with a bulky bag comes into the store. This person is not noticed by the **shop assistance** because she is **distracted by the couple**. The man hides a large number of perfumes (even more than 50) in the **booster bag** and leaves the store.

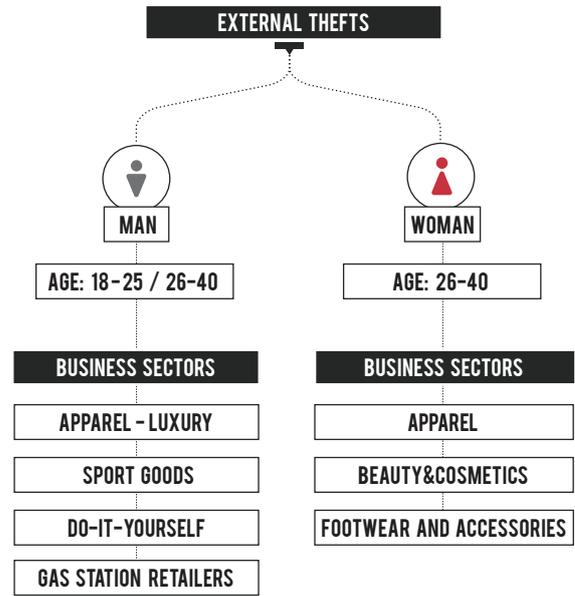
As regards organised gangs, what happened in the night of 8 August 2017 in a shopping mall near Reggio Emilia is exemplary. A group of thieves stole a batch of smartphones from an electronics store thanks to a **well-defined plan**. The thieves smashed the entrance door with a stolen car, triggering the alarm. The police intervention was delayed because the thieves **blocked all the access roads to the mall** with two vans and a stolen SUV parked sideways. After taking the smartphones, the thieves fled along a secondary road (Il Resto del Carlino 2017).

The majority of thefts is committed by people with the following characteristics (Figure 22):

- ▶ **Men aged 18-25 and 26-40**, especially for Gas station retailers and those specialised in DIY, Sport goods and Apparel – Luxury;
- ▶ **Female aged 26-40**, mainly in stores of companies belonging to the Beauty&Cosmetics, Footwear and accessories and Apparel sectors.

There are exceptions: some **Large-scale distribution** companies, where thieves are mainly **male aged 35-45**, and retailers specialised in **Apparel – Fast fashion**, which reported **young women** between **18 and 25 years old**.

Figure 22 – External thefts and characteristics of offenders by business sector



RETAIL THEFT AND FOREIGNERS

- According to the yearly crime statistics issued by the Ministry of the Interior, the incidence of reported **offences against foreigners** differs greatly among geographic areas. The highest values are recorded in the North (42%) and in the Centre (39%), while the South and Islands score much lower figures (15%).
- As regards reported crimes against retail shops, approximately **60% of thefts** and **40% of robberies** are committed by foreigners. According to the Ministry of the Interior’s data on property crimes, the most frequent countries of origin are **Albania, Croatia, Montenegro, Romania and Serbia**.
- Many security managers involved in the study, also, observed the prevalence of foreigners from Eastern Europe and the Balkan countries.

Internal thefts

Theft of goods committed by dishonest employees is the **main form of internal theft** for all the companies participating in the study, as regards both the number of events and impact on the economic value of shrinkage. It is followed by misappropriation of **money from the cash register**, total or partial **annulment of receipts**, and **fraudulent returned goods**.

INTERNAL THEFT: EXCEPTIONS

- Apparel – Fast fashion, DIY and Footwear and accessories** retailers reported **fraudulent returned goods** as the second most frequent type of internal theft, followed by total or partial annulment of receipts and misappropriation of money from the cash register.
- The last is the most frequent type of internal theft for retailers specialised in **Apparel – Underwear**, followed by total or partial annulment of receipts.

3.2 MOST STOLEN GOODS

Both external and internal thefts mainly concern small products with a high value per volume, which have a single size and greater popularity among consumers (see box).⁷

Figure 23 and 24 (p.38-39) show, for each business sector covered by the study, the top five categories of shoplifted products by number of items and by impact on the economic value of shrinkage.

HOT PRODUCTS

Some products, because of their characteristics, are more exposed to shoplifting and theft risk. The criminological literature defines them as *hot products* (Clarke 1999; Clarke and Eck 2003); their main features are summarized by the acronym CRAVED.

Concealable. Products that can be hidden in a pocket or a purse are at higher risk of theft. Also objects that are difficult to identify after a theft are at greater risk.

Removable. Products that can be easily moved and carried are easier to steal, and hence show a higher risk.

Available. Objects that are widely available and easy to find present a higher risk of being stolen. Increasing numbers of thefts can arise from the availability of trendy new products (such as new smartphones or articles in a new collection) that quickly create their own illegal market.

Valuable. Most expensive products are more appealing, especially when theft is committed in order to resell the item.

Enjoyable. Hot products tend to be fun objects to possess or consume (e.g. liquors, tobacco, DVDs). Fashionable items, like sneakers or designer jeans are much more exposed to theft risk than normal shoes or diapers.

Disposable. Products with a high demand on the illegal market are easier to resell and therefore more appealing to thieves.

7. For example, leather goods (handbags, wallets, belts, etc.) which have all the above-mentioned characteristics,

were called 'circular cheques' by one of the security managers interviewed.

Figure 23 – Top 5 stolen goods by number of items. Year 2016 (N=17)

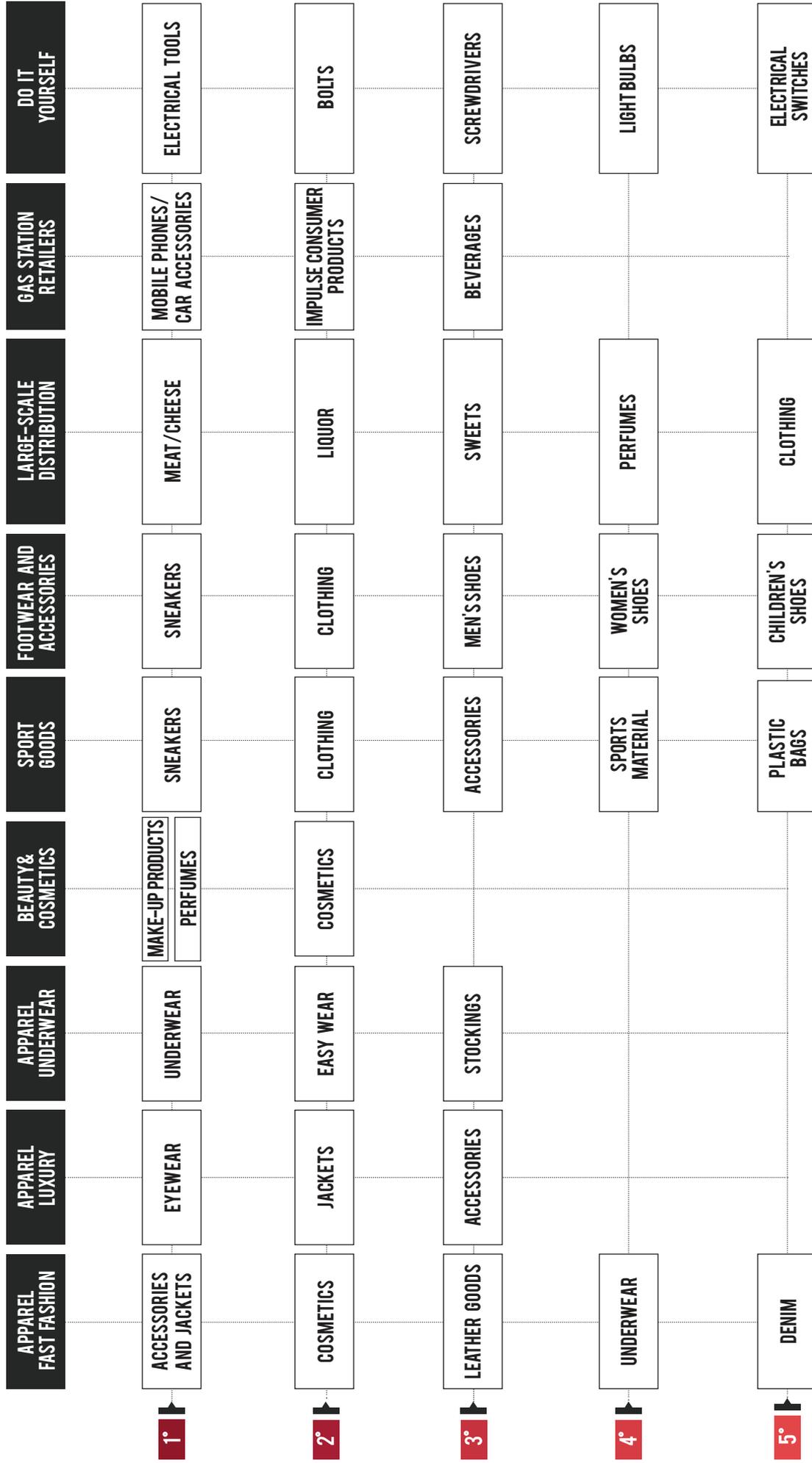
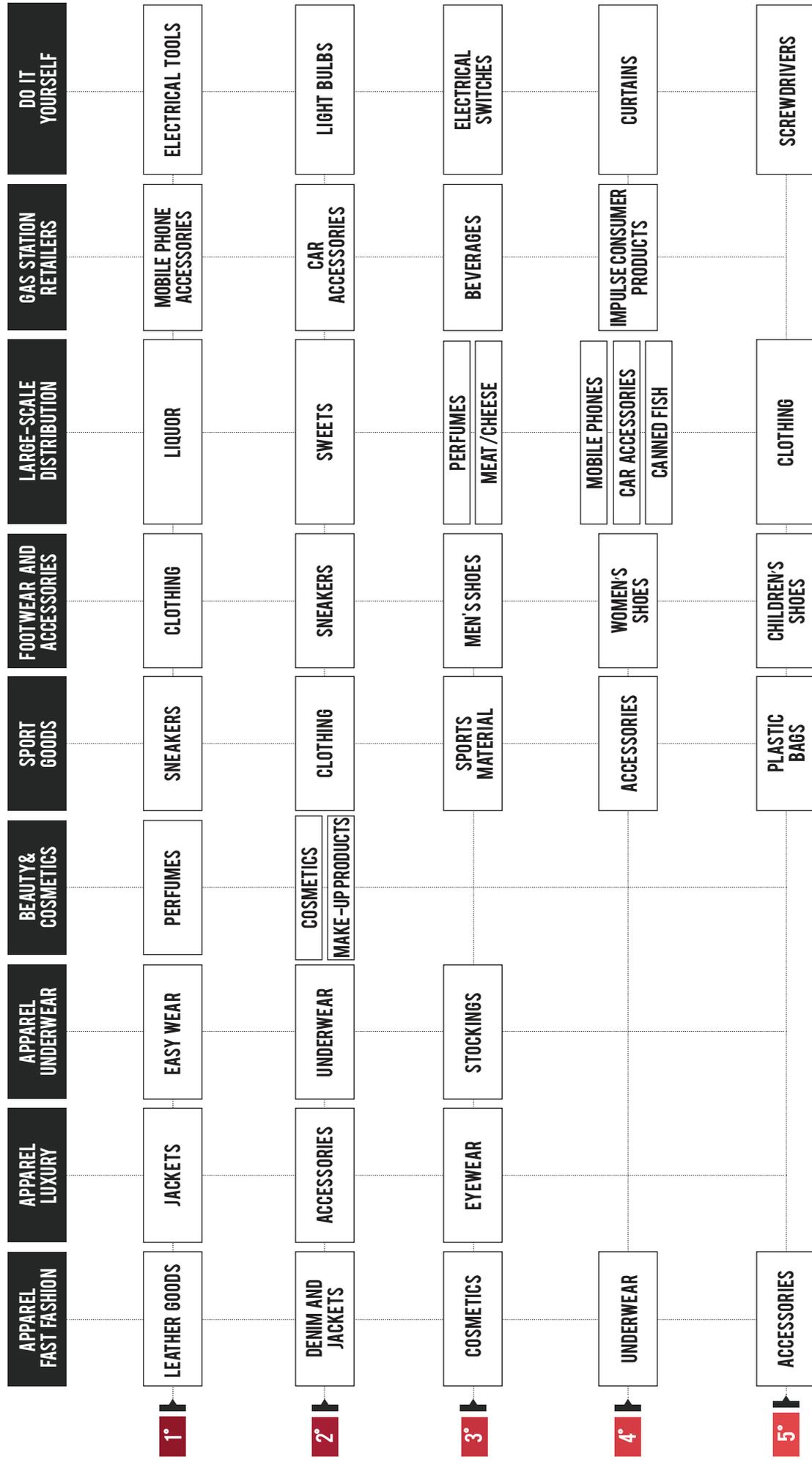


Figure 24 – Top 5 stolen goods by incidence on the economic value of shrinkage. Year 2016 (N=17)



4. COUNTER MEASURES AND LOSS PREVENTION SYSTEM

How effective are Italian retail companies in **preventing thefts and losses**? How does this change across different geographic areas? And between the shops located in commercial streets and those located in shopping malls? What are the most common security measures adopted? And how much do companies spend on security and loss prevention?

This section seeks to answer these questions. First, data on **prevented thefts** at the shop level are analysed. Then, the **security systems** adopted by Italian retailers are examined.

4.1 PREVENTED THEFTS

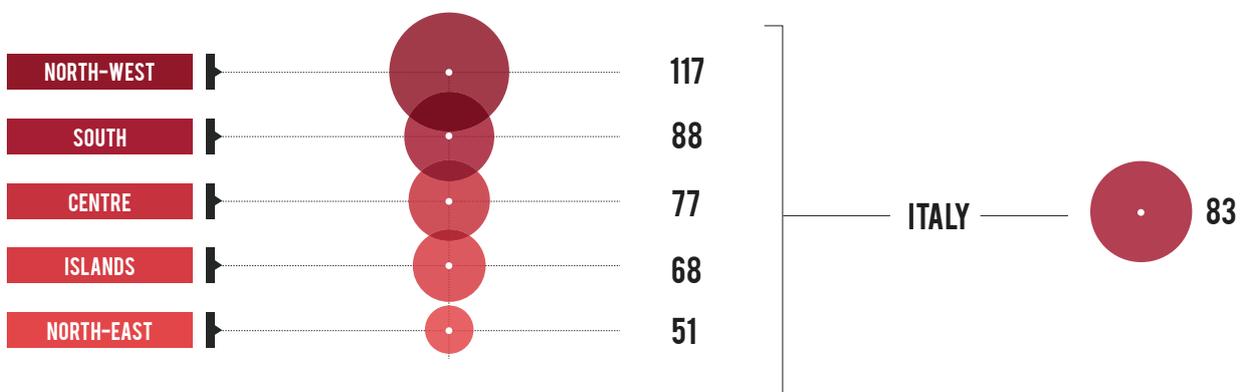
Data on prevented thefts in stores can be interpreted as proxying for the effectiveness of the security and prevention measures undertaken. Based on the data collected, Italian companies in the retail sector scored, in 2016, **83 prevented thefts per shop on average** (Figure 25).⁸

Prevented thefts by geographic area

The highest number of prevented thefts is registered, on average, in stores located in the North-West of Italy. Southern stores record lower values, followed by Central Italy and the Islands. The North-East appears to be the macro-area with the lowest recorded number of prevented thefts.

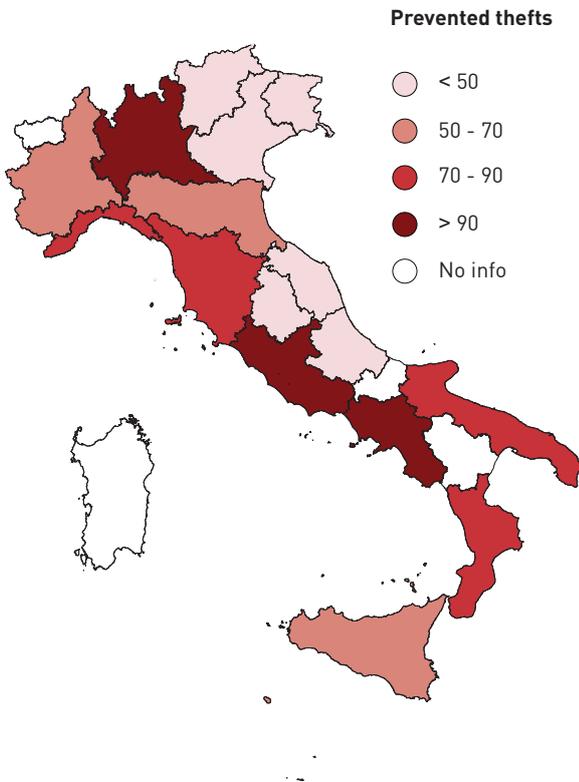
Lombardy is the region with the highest number of prevented thefts (134), followed by Campania (115), Lazio (92) and Calabria (82) (Figure 26, p.41). Regions with higher values are also the ones characterised by high levels of property crime, according to the statistics published by the Ministry of the Interior. Only the first three regions score values above the national average (83), showing that, compared to shrinkage, prevented thefts appear to be more concentrated. The lowest values are found in Marche (42), Veneto (41), Umbria (41) and Friuli Venezia Giulia (39).

Figure 25 – Prevented thefts by macro-area, year 2016. Mean value per store



8. The data at store level, provided by the companies participating in the study, only allowed investigation of prevented thefts in the Apparel sector.

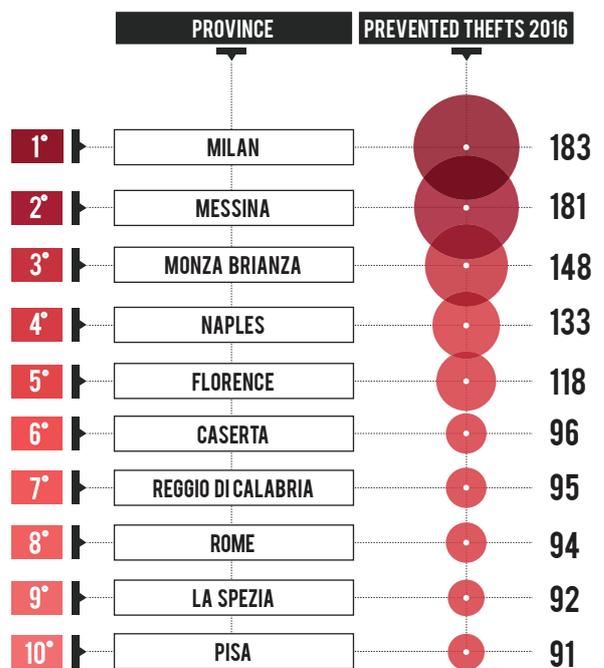
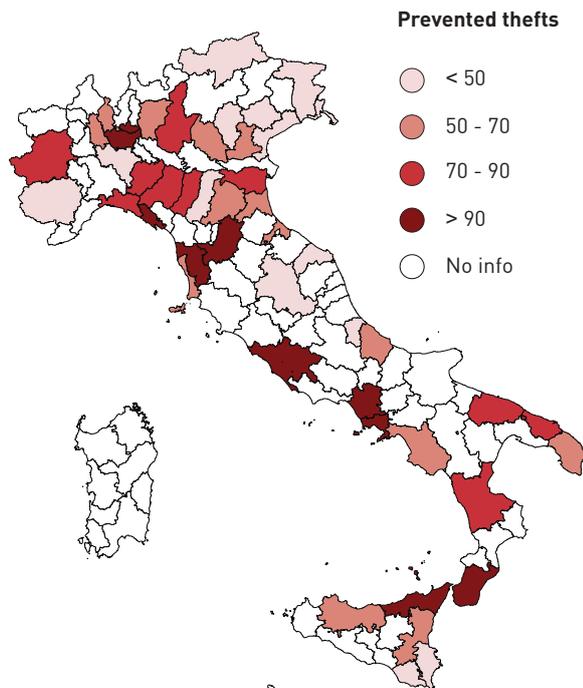
Figure 26 – Prevented thefts by region, year 2016.
Mean value per store



The province with the highest number of prevented thefts is **Milan (183)**, followed by Messina (181), Monza (148), Naples (133) and Florence (118) (Figure 27). All these provinces show values significantly above the national average (83). High values are also found in the provinces of Rome and Turin. Therefore, it seems that prevented thefts are higher in shops located in the main Italian metropolitan areas, which are indeed the ones with the **greater volume of visitors** and **higher retail turnover**, but also **greater rates of property crime** (e.g. thefts, residential burglaries, robberies).

These results must be interpreted with caution. In fact, since data on prevented thefts are expressed in absolute value, a higher figure may be due to a greater flow of visitors, and not to more effective security and loss prevention measures adopted in the store.

Figure 27 – Prevented thefts by province, year 2016. Mean value per store



Prevented thefts and contextual factors

The contextual factors analysed are the same as those considered for the analysis of shrinkage. These variables are related to the socio-demographic characteristics of the municipality, the registered crime rates, and the characteristics of the shops (Figure 28).

The results show that prevented thefts are more numerous in **larger municipalities**, with higher housing density, a higher youth population rate, and higher rates of property and violent crime. In addition, to be noted is that, contrary to shrinkage, **prevented thefts tend to be more frequent in commercial street-based stores** than in mall-based ones. The relationship with the rate of foreigners, unemployment and organised crime presence is not significant. Correlations remain significant even when the number of prevented thefts is standardized by the resident population of the given municipality.

The analysis of contextual factors shows a **pattern different from that observed for shrinkage**.

The highest losses are in fact recorded in shops located in smaller, more peripheral and poorer municipalities. In this case, it seems that shops proving to be more effective in preventing thefts are those located in larger and richer municipalities, and situated in the city centre. The results confirm what was reported by the security managers interviewed: the security budget is allocated **by privileging the largest shops in terms of revenue**, together with the most vulnerable ones (i.e. most exposed to property crime).

In this sense, a **negative relationship between prevented thefts and shrinkage** can be identified: where security and loss prevention efforts are higher, the number of prevented thefts is higher and losses are lower.

Figure 28 – Correlation between prevented thefts and contextual factors. Year 2016

VARIABLES	CORRELATION WITH PREVENTED THEFTS
SOCIO-DEMOGRAPHIC CHARACTERISTICS	
RESIDENT POPULATION	SIGNIFICANT (+)
POPULATION DENSITY	SIGNIFICANT (+)
RATE OF POPULATION BETWEEN 11 AND 20 YEARS OLD	SIGNIFICANT (+)
RATE OF FOREIGNER POPULATION	NOT SIGNIFICANT
UNEMPLOYMENT RATE	NOT SIGNIFICANT
GDP PER CAPITA	NOT SIGNIFICANT
CRIME RATES (PER CAPITA)	
THEFTS IN COMMERCIAL BUSINESSES	SIGNIFICANT (+)
BURGLARIES IN COMMERCIAL BUSINESSES	SIGNIFICANT (+)
ARRESTS FOR MAFIA-RELATED CRIMES	NOT SIGNIFICANT
HOMICIDES (ATTEMPTED AND EXECUTED)	SIGNIFICANT (+)
CHARACTERISTICS OF THE SHOP	
LOCATED IN SHOPPING MALL	SIGNIFICANT (-)
SHRINKAGE REGISTERED IN THE STORE	NOT SIGNIFICANT
SHRINKAGE REGISTERED IN THE STORE (T-1)	NOT SIGNIFICANT

Prevented thefts and shopping malls

As mentioned above, prevented thefts are more numerous in shops located in **commercial streets of cities** than in those located in shopping malls - a statistically significant difference of about 40 cases per store each year (Figure 29).

Figure 29 – Prevented thefts in stores located in commercial streets and in shopping malls*, year 2016. Mean value per store



Stores in commercial streets: N=115; stores in shopping malls: N=150

Even in the absence of data on sales, surface area, and security measures at shop level, some hypotheses can be put forward to explain this difference. First, city-based shops generally have a **higher level of customer care**, which in turn corresponds to a greater level of control and monitoring of customers. Second, the **conversion rate** is also generally higher in shops based in commercial streets, while in malls there may be more occasional visitors, who increase the crowding of stores and make it more difficult to identify criminals.

Figure 30 shows the ten shopping malls with the highest average of prevented thefts. With few exceptions, values are higher for shopping malls located near major metropolitan areas (Milan, Naples, Rome), in line with the finding of the previous analysis conducted for regions and provinces.

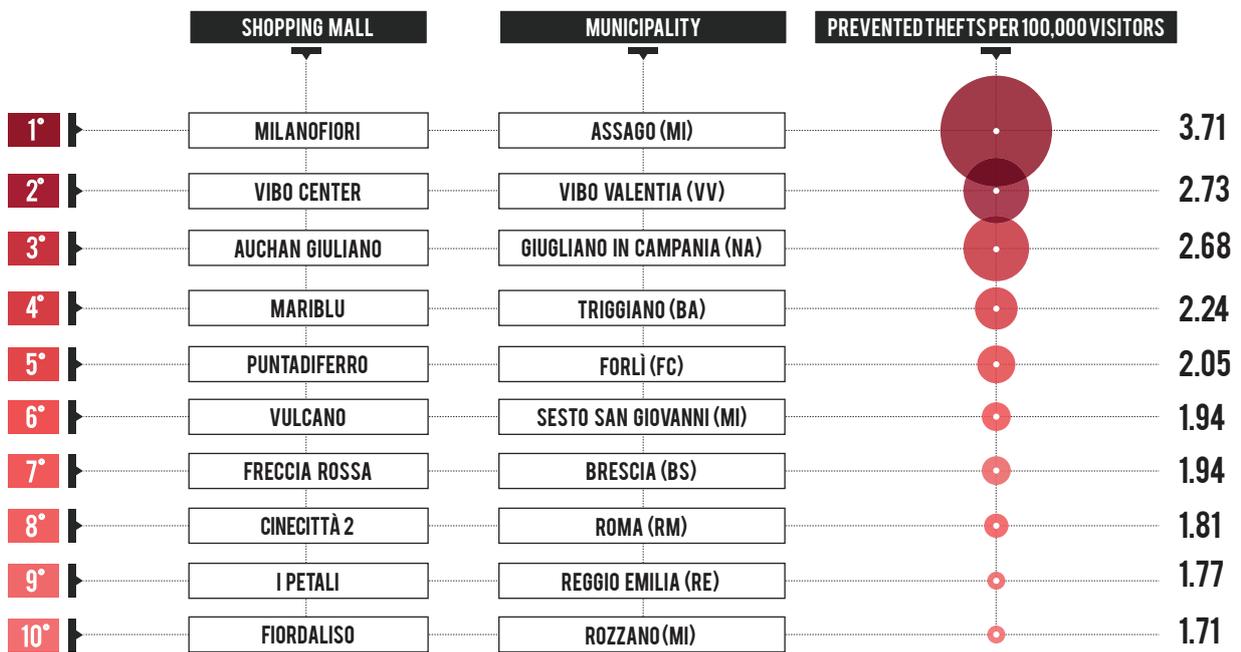
Figure 30 – Prevented thefts by shopping mall, year 2016. Top 10 shopping malls. Mean value per store



As said above, the data on prevented thefts only allow comparison between episodes recorded at the store level. Therefore, the differing numbers of visitors to each shop cannot be taken into account. A proxy for the **relative effectiveness of prevention and security measures** is obtained by calculating the **rate of prevented theft per 100,000 visitors** of the shopping mall.

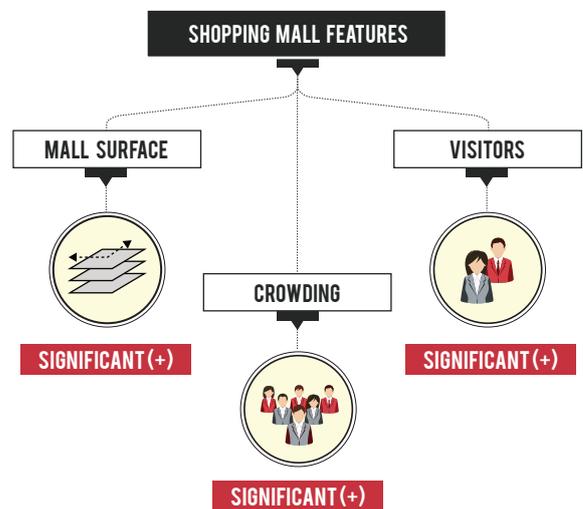
Figure 31 shows the average value per shop recorded in each mall in 2016. The results are similar to those shown in the previous table. However, the top 10 shopping malls include some sites located in smaller provinces (Forlì, Vibo Valentia, Reggio Emilia).

Figure 31 – Prevented thefts per 100,000 visitors, year 2016. Top 10 shopping malls. Mean value per store



The relationship between prevented thefts and certain features of shopping malls (surface area, number of visitors and density of visitors) was analysed (Figure 32). The correlation matrix shows that prevented thefts are more numerous in larger shopping malls, with more visitors per year, and with more visitors per square metre (measure of crowding).

Figure 32 – Correlation between prevented thefts and features of shopping malls, year 2016



SECURITY AND SHOPPING MALLS TODAY

Shopping malls are socio-economic phenomena in constant evolution, and they are increasingly popular in Italy. There are about **1,180 shopping malls in the country**, which attract 5 million visitors every day during the week and over 6 million visitors at the weekend (Cushman & Wakefield 2016; Dezza 2016; Pacifico 2016a).

Described by the French anthropologist Marc Augé as 'non-places', along with stations and airports (1992), today shopping malls have evolved into **aggregation and leisure facilities**. Together with this evolution, new needs arise in terms of security and safety.

These are places where huge numbers of people and goods (potential offenders and targets) come together. This constitutes a **major source of predatory crimes and terrorist threats**. Italian law enforcement agencies classify shopping malls as **soft targets**, i.e. places with a high concentration of people, easily accessible, located in non-urban areas, close to motorway junctions and not sufficiently equipped with the necessary expertise in terms of anti-terrorism practices (La Repubblica 2017; Pacifico 2016; Pisano and Polidori 2007).

A **holistic approach is needed for the safety and security of shopping malls**. The risks of diverse illicit activities (theft, robbery, terrorism and infiltration of organised crime) should be jointly taken into account so as to ensure the protection of people, goods and infrastructures according to a new perspective on 'urban security'.

4.2 TRADITIONAL SYSTEMS AND NEW TECHNOLOGIES

What are the security and loss prevention systems used by retail companies in Italy? What is the cost of these measures for Italian retail companies? This subsection addresses these questions. Information at the shop level (Method 2) was not available. Hence this subsection only takes into account data collected at company level through the questionnaire (Method 1). Therefore, it was not possible to perform an in-depth analysis of security measures by type of store and by territorial area, or to investigate the relationship between total expenditure and shrinkage or contextual factors.

Total expenditure on security and loss prevention

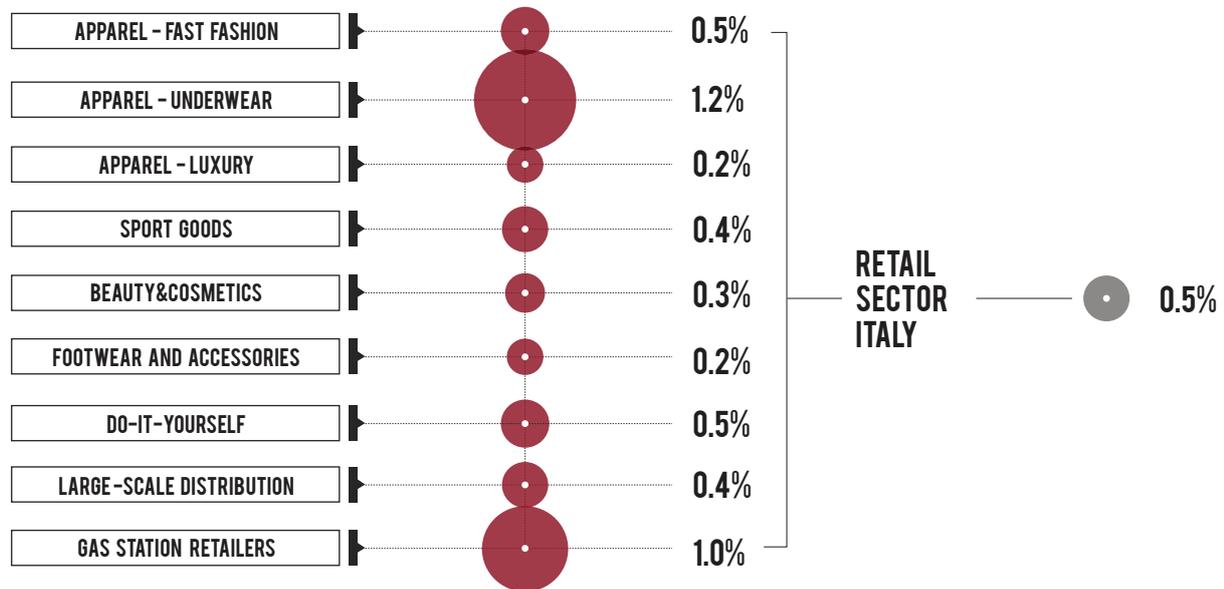
The total amount of money spent on security and loss prevention – surveillance, security services, system maintenance⁹, etc. – by the Italian companies participating in the study ranges **between 0.1% and 1.2%** of their turnover, with an **average value of 0.5%** (Figure 33, p.46).

Total expenditure varies across the sectors, and also **within the same sector**. For instance, for Large-scale distribution companies, the average expenditure on security and loss prevention systems is about 0.4% of their turnover. However, within those distributors, small supermarkets record lower values, while hypermarkets can reach values above 1% (CERMES 2010).

Inter-sectoral differences may be due to the diversity of items sold, but also to the **different security policies adopted by each company**.

9. The accounting items registered as costs of security and loss prevention may vary according to the company's internal accounting practices. Even if the questionnaire asked to specify only operating costs (which account for most of the total expenditure on security and loss prevention), it was not always possible to distinguish and separate the various cost components. In particular, some retailers also include depreciation of investments in security systems.

Figure 33 – Total expenditure on security and loss prevention, by business sector. Year 2016. Mean % of turnover (N=4,750 estimated stores)



Security solutions

According to what the security managers stated in response to the questionnaire, retail companies in Italy adopt a **wide range of security and loss prevention solutions** in the same shop. Indeed, only a combination of different solutions can provide more effective protection.

Security and loss prevention measures can be divided into two categories (The Smart Cube 2015):

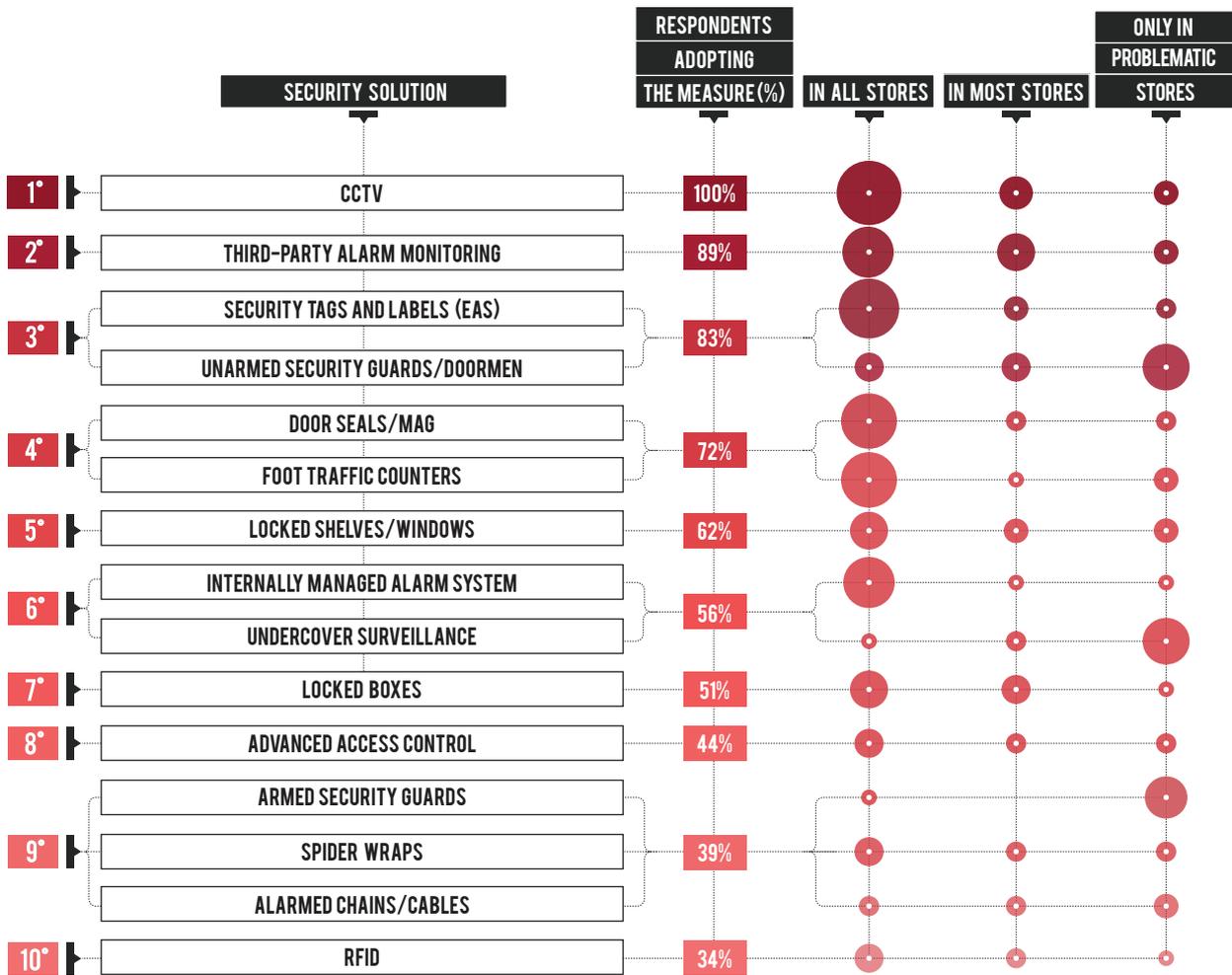
- a) Perimetrical *protection solutions*, for the security of stores;
- b) Specific *product protection devices*.

Video surveillance (CCTV) is the most widely used device: all respondents declared that they use it in their stores (Figure 34, p.47). Among them, 61% reported using CCTV in all the stores of the company, while 27% declared that it is adopted only in the most problematic shops.

Third-party alarm monitoring (law enforcement agencies, security providers, etc.) is used by 89% of the companies surveyed, while 83% of the respondents adopt anti-shoplifting hard tags or labels (EAS). In particular, about 50% of the companies surveyed declared that they use EAS technologies in all their stores. This security measure is particularly important for Apparel, Footwear, Beauty&Cosmetics and Large-scale distribution companies.

Among the companies surveyed, 72% adopt door seal systems as well as Foot Traffic Counters. With regard to **product protection**, the security measures most frequently adopted after anti-shoplifting tags are **locked shelves** and **locked boxes**.

Figure 34 – Top 10 security solutions adopted (N. of respondent companies=18; Estimated stores=8,060)



Some security measures are adopted especially when **protecting the most problematic shops**, i.e. those located in areas with high crime rates, or registering greater shrinkages. The measures most undertaken in these contexts are **security guards** (both armed and unarmed) and **undercover surveillance**. The former measure has a high deterrent effect on occasional thieves and organised gangs, but it may also have a negative effect on the store's image by diminishing the perception of customer care by the clients; the latter measure, although it generally has high costs, can be effective in blocking thefts in progress.

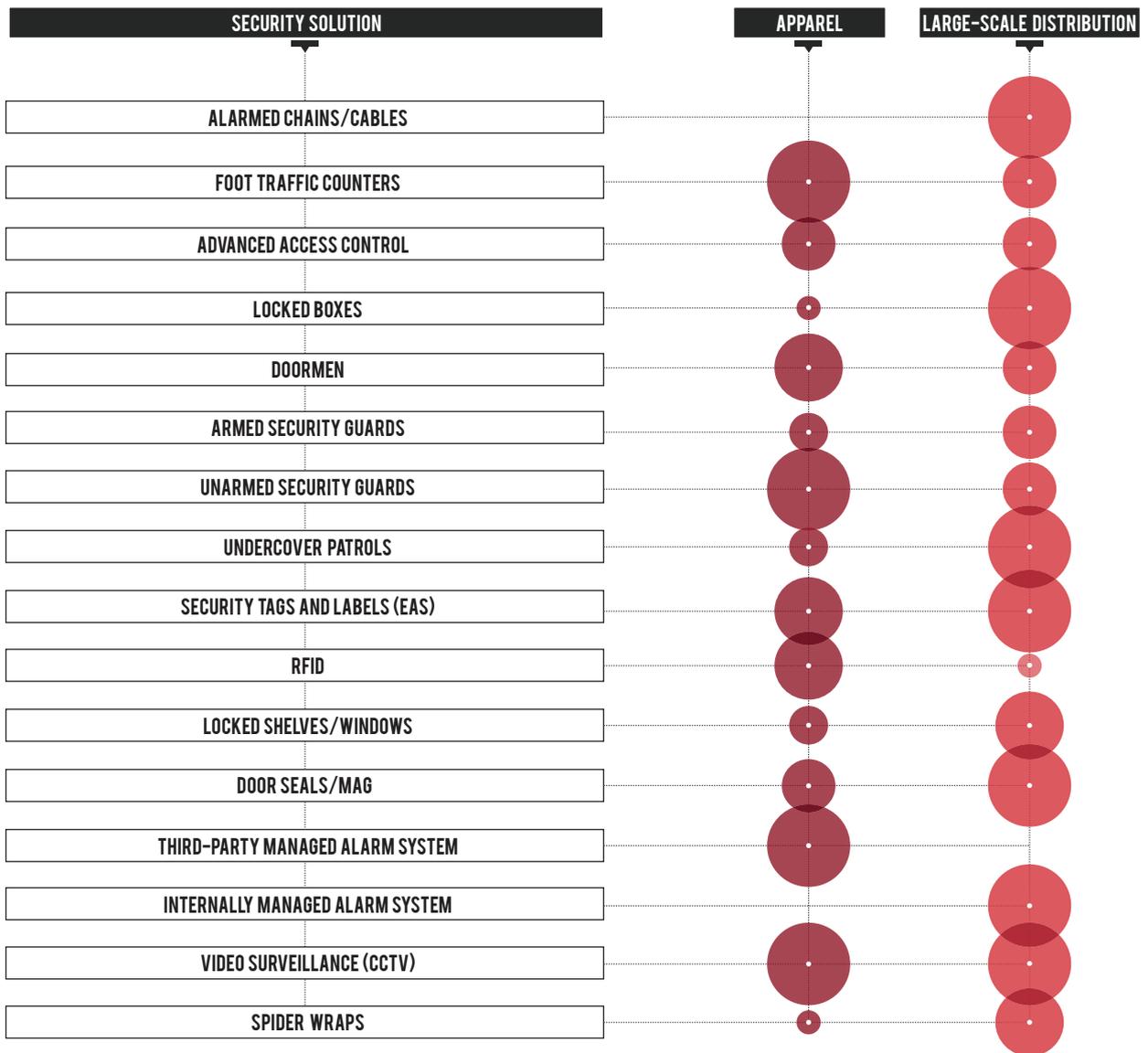
Between the two sectors most represented in the analysis - **Apparel and Large-scale distribution** - there are substantial differences partly attributable to the different nature of the items sold, partly

to different business strategies (Figure 35, p.48). Moreover, there is a trade-off between the protection of goods and *on-shelf availability*, i.e. the possibility for customers to access products freely. While, on the one hand, it is important to combat shoplifting, on the other, the primary objective of retailers is to facilitate access to products in order to promote sales.

In the Apparel sector, *on-shelf availability* is particularly important. For this reason, it is less common to use **alarmed cables** or **spider wraps**¹⁰, as opposed to what happens in Large-scale distribution. However, the use of unarmed guards is more frequent, while in Large-scale distribution, **armed guards** are more common. **EAS tags** and **labels** are more frequently used by Large-scale distributors, while RFID is currently more common in the Apparel shops.

10. Security wraps that envelop the product, used mainly for the protection of products of high value and high risk.

Figure 35 – Security solutions adopted by Apparel and Large-scale distribution companies



Apparel: N. respondent companies = 5; Estimated stores = 3,880

GDO: N. respondent companies = 5; Estimated stores = 550

Security managers were also asked to indicate the main benefits and costs of the most common loss-prevention solutions (Figure 36, p.50).

EAS hard tags and labels are described as indispensable for the deterrence of **theft**, removing opportunities for occasional thieves and making it more difficult for professional ones. EAS accessories are extensively used in all branches of Apparel, Footwear, DIY and Large-scale distribution. Compared to other measures adopted, they are effective and cost-efficient. However, they also have drawbacks. First, they can be removed

by more experienced thieves. Second, they can represent a cost for the company in terms of productivity loss, because of the time spent by the employees on tagging. Third, EAS tags may limit the customer’s ability to access the product and try it on (in case of wrong tagging). These issues may be overcome by source tagging, i.e. the attachment of hard tags and labels on goods during the production process. Finally, they can be useless when thieves are equipped with booster bags. However, this problem may be solved by adopting new-generation security barriers able to detect if customers’ bags are coated with aluminium or other metals.

EAS, BOOSTER BAGS AND SHOPPING CARTS

In order to limit losses caused by shoplifting committed with booster bags, an increasing number of retailers is adopting **EAS barriers with sensors** that can detect the presence of metal-coated containers. For Large-scale distributors, even though the problem of booster bags is as serious as in other sectors, these technologies are more difficult to adopt, because their alarms would go off every time a shopping trolley passed through barriers.

A security manager interviewed, member of *Laboratorio per la Sicurezza*, is working together with a provider of technology solutions for loss prevention in order to use **EAS barriers equipped with an internal alarm** specifically calibrated to small metal masses. These barriers would be able to detect booster bags without alarms going off when shopping trolleys passed through.

SALES AND SECURITY: THE 'SELLING GUARDS'

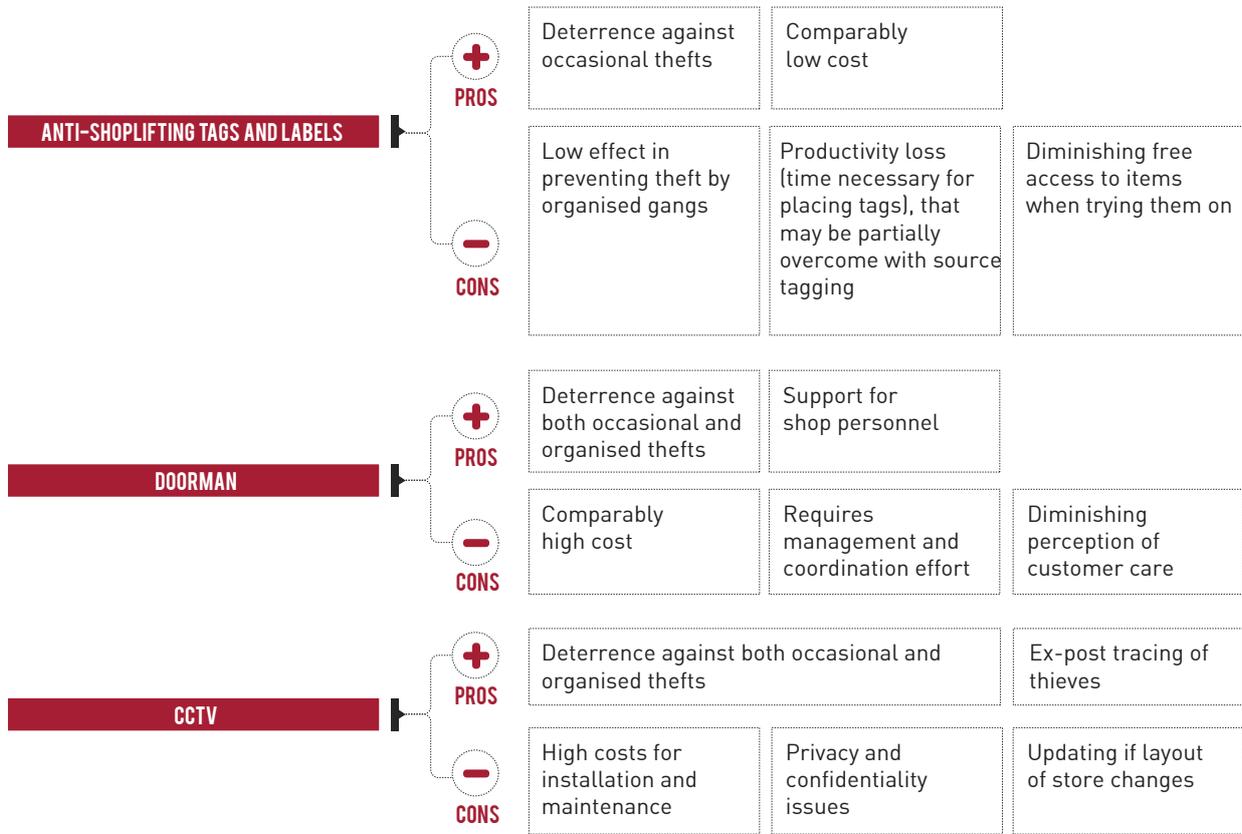
Doormen and security guards have proved to be effective in deterring external thefts, by both occasional offenders and organised gangs. For some retailers, however, especially in medium-to-small sized shops, they may have **excessive costs**, if compared to the benefits obtained (which are often difficult to quantify).

In order to overcome these issues, the security manager of a Footwear company, partner of *Laboratorio per la Sicurezza*, has introduced a **hybrid figure** into the company's personnel: a **shop assistant** specifically **trained to monitor security** within the shop. In this way, the security guard becomes an active resource, contributing to both sales activities and loss prevention ones, thus reducing the cost incurred by the company.

Doorman is frequently used, especially by Footwear and Apparel retailers (particularly in Fast fashion), and Large-scale distributors. This measure is most common in shops located in commercial streets of city centres. Exceptions are Gas station retailers and Apparel-Luxury, sectors where other loss prevention methods are often preferred. Compared to other measures, doorman can also be effective in deterring thefts by **organised gangs**. Moreover, this solution may facilitate the work of sale personnel, especially in areas with high crime rates, where staff perceive themselves as being at risk. In these cases, doorman tends to have a short or medium-term effect, and it becomes crucial to support their work with other security solutions. However, compared to EAS technologies, doorman generally costs more, requires more coordination and management engagement. Finally, it can sometimes be difficult to measure their effectiveness in terms of theft prevention and deterrence.

Video surveillance (CCTV) is also widely adopted by the companies surveyed, often in combination with EAS tags and Doormen. Video surveillance has a twofold advantage: on the one hand, it has a deterrent effect; on the other, it can be used to trace thieves after the event, by guaranteeing adequate support to law enforcement agencies. Nevertheless, CCTV entails high costs for both installation and management, together with some regulatory burdens (for instance, *Law 300/1970*, *Statuto dei Lavoratori*) in terms of privacy and data confidentiality. Moreover, for CCTV to be effective, it is necessary to make timely updates whenever the layout of the store changes, in order to avoid the presence of blind spots.

Figure 36 – Anti-shoplifting tags/labels, Doorman, CCTV: pros and cons



PREDICTIVE SYSTEMS

Some companies of *Laboratorio per la Sicurezza* adopt an **innovative solution** to prevent thefts, shoplifting and robberies in their shops.

This instrument is a risk management IT application with which all events observed or perceived by the shop employees can be registered. This application is available with a user-friendly interface, and it can be opened by PC, smartphone or tablet. An algorithm processes all the uploaded information, and it generates forecasts by indicating the day, place, and target most likely to be victimised in the future.

This strategy makes it possible to reduce criminal events by **involving shop employees**, and by encouraging them consciously to participate in security and loss prevention activities by adopting deterrence measures. This in turn favours a greater attention by sales personnel, who feel more empowered.

Moreover, thanks to these systems, it is possible to monitor future risk at each of the company's points of sale, thus enabling the security manager to put in place prevention measures in order to deter possible thefts.

5. TOTAL COST OF LOSSES

It is possible to calculate the overall total cost of losses for the Italian retail sector by drawing on the literature on measuring the **costs of crime** (Brand and Price 2000; Kleiman, Caulkins, and Gehred 2014).

The underlying idea is to derive the **total economic cost of losses** by summing the **direct economic cost** of losses (i.e. the impact of shrinkage on the company's turnover) and the **indirect economic cost** of losses (i.e. the impact of expenditure on security and loss prevention measures on the company's turnover). Based on the available data, the total cost of losses can be calculated as follows:

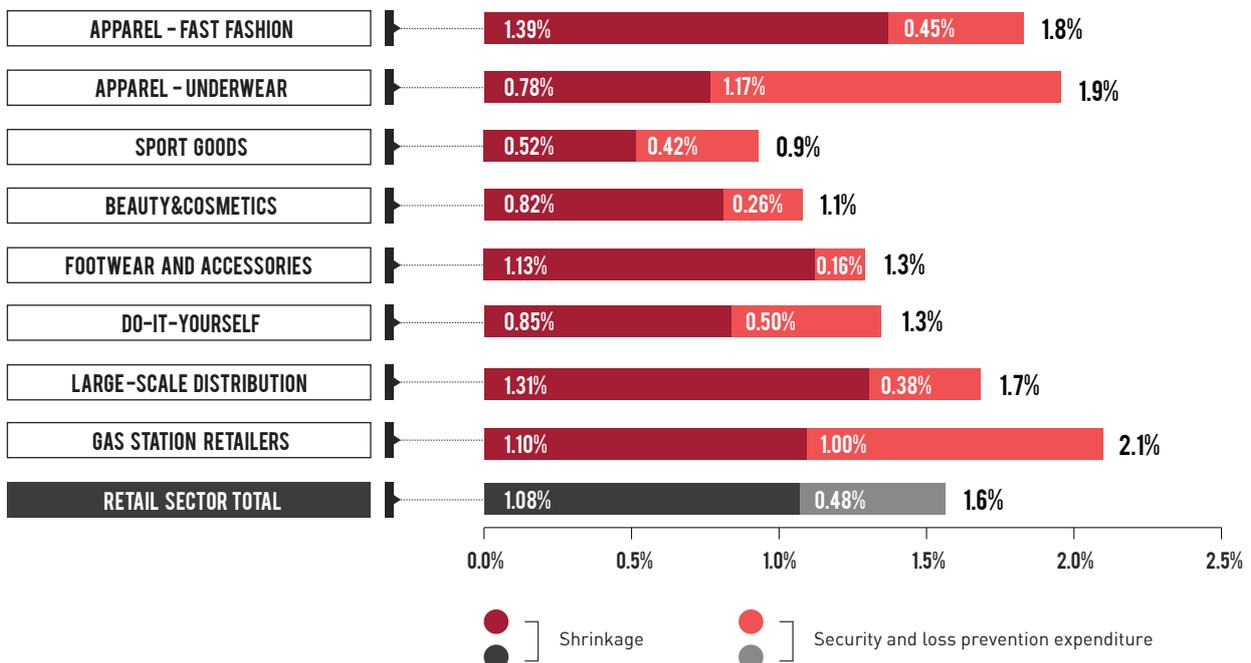
Total economic cost of losses
=
Shrinkage + Security and loss prevention expenditure

According to the information provided by the retail companies surveyed, the total economic cost is equal to **1.6% of turnover**, obtained as the sum of shrinkage cost (**1.1% of turnover**) and security and loss prevention expenditure (**0.5%**).

It is interesting that there are significant differences among sectors (Figure 37). According to the data, the sectors with higher total cost of losses are **Gas station retailers, Underwear, Fast Fashion and Large-scale distributors**, all above the retail mean value (1.6% of turnover).

While for most sectors the direct cost of shrinkage is much higher than the cost of security and loss prevention, in some cases (e.g. Underwear and Gas Station retailers) the two values are similar. Nevertheless, without time series data of the two values at the shop level, it is not possible to draw conclusions on the return of security spending in terms of avoided losses.

Figure 37 – Total economic cost of losses by sector, mean % of turnover. Year 2016 (N=4,620 estimated stores)



5.1. THE ECONOMIC IMPACT ON COMPANIES AND CITIZENS

Considering that the total turnover of the Italian retail companies in 2016 amounted to about 216 billion euros¹¹, the total monetary cost of losses (1.6% of turnover) for retail companies in Italy can be estimated at **3.4 billion euro**. If this value indicated company revenues, it would rank **fifth among the Italian retail companies**.

It has to be said that this is a conservative estimate, which only takes into account the turnover of major Italian companies (turnover above 300,000 euro, i.e. about 50,000 companies), without considering the totality of registered companies, which would include a great number of small enterprises distributed throughout the country.

The economic impact of losses on the Italian economy would correspond to:

- ▶ About **26 million euro** per each of the top 50 Italian retail companies considering turnover;¹²
- ▶ **56 euro** per capita for Italian citizens.

Figure 38 – Total economic cost of retail losses in Italy



11. Total revenues of active companies registered in Italy within ATECO G.47 division (excluding ATECO groups G.47.8 and G.47.9) above 300,000 euro of annual revenues (47,194 companies). Source: Crime&tech elaboration of Bureau van Dijk – ORBIS data.

12. The figure is calculated considering the turnover of the first 50 limited companies registered in Italy within ATECO G.47 division (excluding ATECO groups G.47.8 e G.47.9). Source: Crime&tech elaboration of Bureau van Dijk – ORBIS data.

CONCLUSIONS

This study has conducted in-depth analysis of security and loss prevention in the Italian retail sector. In particular, it has provided:

- ▶ an analysis of shrinkage by **sector** and **geographic area**;
- ▶ an exploration of the different vulnerabilities of shops located in **commercial streets** or in **shopping malls**;
- ▶ an analysis of the **main causes** of shrinkage, and the most frequent *modi operandi*;
- ▶ an overview of the **most common offender profiles**, both occasional and organised;
- ▶ an analysis of the effectiveness of **security measures**, in particular through study of prevented thefts by geographic area;
- ▶ a descriptive overview of the most common **security and loss prevention systems**, their pros and their cons;
- ▶ an estimate of the **total cost of losses** in the Italian retail sector, given by the sum of the **direct cost of shrinkage** and the total expenditure on security and loss prevention.

This study has implications in regard to both research and security technologies and policies. The major challenges in these two areas are discussed below.

The implications for research

Thanks to the collection of shop-level data shared by the retailers of *Laboratorio della sicurezza*, this study is the first analysis ever conducted in Italy on the distribution of shrinkage and prevented thefts by geographic area and by type of shop location. However, this is only the first step towards a deeper understanding of the dynamics and risks of losses in the Italian retail sector. In order to improve the detail of the analysis, and its utility for stakeholders, it is necessary:

- ▶ to collect and share data with the **highest level of detail** (for instance, information on all the events recorded at shop-level and linked to shrinkage);
- ▶ to understand more precisely what elements are included by companies in the reported figures for shrinkage. Differences in administrative and accounting practices do not guarantee complete uniformity and comparability among different sectors and companies;
- ▶ to collect relevant data on **shop characteristics**: for instance, surface area, number of visitors, number of floors, access doors, security measures adopted and their location, etc;
- ▶ to collect detailed **data on staff** for each store. If possible, to obtain data on staff education, age, turnover level, and training in security measures.

The availability of **better data** in terms of both detail and number of stores (or companies) covered would enable researchers to:

- ▶ systematically identify **dynamics and trends** of predatory crime in the retail sector;
- ▶ precisely measure the **impact of different security measures** in terms of prevented losses;
- ▶ better understand the **effect of contextual factors** on shrinkage;
- ▶ develop **predictive models** in order to improve prevention activities and identify the most problematic point of sales.
- ▶ **synthesise shrinkage data and integrate them into KPI for business processes**, thus turning the analysis of security managers into useful tools to improve profitability and business performances.

The implications for security technologies and policies

Only the collaboration of retailers and shop employees can help in collecting better data in order to develop more effective analysis and tools for security and loss prevention. To this end, it is essential to:

- ▶ invest in **employees' training** in order to improve awareness in terms of security and loss prevention best practices;
- ▶ use **software programs designed to collect and analyse data** on thefts and shrinkage. The use of Apps and other user-friendly tools can facilitate real-time interaction between security managers and shop personnel;

- ▶ improve communication and collaboration between different **business functions** of companies. In particular, it is crucial to work in close collaboration with financial control and accounting units, in order to share valuable information on loss prevention and monitoring;
- ▶ collaborate with the security **managers of shopping malls** in order to identify systematic issues together with them, and gather more information on contextual factors.

The analysis conducted has highlighted strengths and weaknesses of the security measures adopted, supporting the decision-making of security managers, and future developments of technologies and services. The study has shown, in particular, that only the combination of different solutions for security and loss prevention can guarantee the effective protection of products:

- ▶ **Anti-shoplifting security tags and barriers (EAS)**, especially when able to detect booster bags and combat the emerging *modi operandi*;
- ▶ **Security guards and undercover patrols**, especially for the most problematic shops, and for those most targeted by organised gangs;
- ▶ **Video surveillance (CCTV)**, for ex-post analysis of thefts, and to provide support to law enforcement activities;
- ▶ **Software and IT tools**, to improve real-time monitoring of events and predictive capacity;
- ▶ **Risk indicators and maps**, to monitor more systematically all the subjects involved in the supply chain, especially for retailers with high value per volume products.

REFERENCES

- Augè, Marc. 1992. *Non-Lieux. Introduction à une anthropologie de la surmodernité*. Parigi: Éditions du Seuil.
- Beck, Adrian. 2016. 'Beyond Shrinkage: Introducing Total Retail Loss'. Retail Industry Leaders Association.
- Brand, Sam, and Richard Price. 2000. *The economic and social costs of crime*. Home Office Research Study 217. Londra: Home Office Research, Development and Statistics Directorate.
- CERMES. 2010. 'Il fenomeno delle differenze inventariali nella GDO'. Milano: Centro di Ricerca Marketing e Servizi - Università Bocconi.
- Clarke, Ronald V. 1999. 'Hot Products. Understanding, Anticipating and reducing the Demand for Stolen Goods'. Police Research Series. Londra: Home Office.
- Clarke, Ronald V., and John Eck. 2003. *Become a Problem Solving Crime Analyst*. Londra: Jill Dando Institute of Crime Science - University College.
- Crime&tech. 2017. 'Indicatori di rischio'. https://www.crimetech.it/media/IndicatoriDiRischio_Crime&tech.pdf.
- Cushman & Wakefield. 2016. 'Lo sviluppo dei centri commerciali in Europa'. Chicago, Illinois: Cushman & Wakefield.
- Dezza, Paola. 2016. 'Immobiliare, i numeri dei centri commerciali in Italia'. *Il Sole 24 Ore*, 2016. <http://www.infodata.ilsole24ore.com/2016/11/19/immobiliare-i-numeri-dei-centri-commerciali-in-italia/>.
- Dugato, Marco, and Serena Favarin. 2016. 'Il danno della criminalità comune'. Transcrime Research in Brief - Serie Italia. Milano: Transcrime - Università Cattolica del Sacro Cuore.
- Finizio, Michela. 2017. 'Ecco la mappa dei reati provincia per provincia: 284 denunce ogni ora'. *Il Sole 24 Ore*. <http://www.ilsole24ore.com/art/notizie/2017-10-06/ecco-mappa-reati-provincia-provincia-284-denunce-ogni-ora--185735.shtml?uuid=AEMKyvdC>
- Garofalo, Lorella. 2016. 'From the analysis of criminal infiltration to the assessment of its risk'. In *Organised Crime in European Businesses*, a cura di Ernesto U. Savona, Michele Riccardi, e Giulia Berlusconi, 189-210. New York: Routledge.
- Il Resto del Carlino. 2017. 'Bloccano le strade e rubano da MediaWorld ai Petali'. *Il Resto del Carlino*, 2017. <http://www.ilrestodelcarlino.it/reggio-emilia/cronaca/mediaworld-furt-strade-bloccate-1.3320433>.
- Kleiman, Mark, Jonathan P. Caulkins, and Peter Gehred. 2014. 'Measuring the costs of crime'. Washington D.C.: U.S. Department of Justice.
- La Repubblica. 2017. 'Sicurezza, indicazioni del Viminale per movida ed eventi: barriere anti-auto e steward'. *Repubblica.it*. http://www.repubblica.it/cronaca/2017/05/25/news/sicurezza_la_ricetta_del_viminale_barriere_anti-auto_e_aiuto_degli_organizzatori_eventi-166363912/.

- Mazar, Nina, On Amir, and Dan Ariely. 2008. 'The Dishonesty of Honest People: A Theory of Self-Concept Maintenance'. *Journal of Marketing Research* 45 (6):633–44.
- Ministero dell'Interno. 2017. 'Dossier Viminale - Ferragosto 2017'. Roma: Comitato Nazionale dell'Ordine e della Sicurezza Pubblica.
- OSSIF. 2016. 'Rapporto intersettoriale sulla Criminalità predatoria'. Roma: OSSIF - Divisione Progetti Speciali di ABIServizi SpA.
- Pacifico, Roberto. 2016a. 'Centri commerciali, Italia al 4° posto in Europa per aperture 2016'. *Mark Up* (blog). 2016. <https://www.mark-up.it/centri-commerciali-in-europa-raggiunti-i-160-milioni-di-mq/>.
- . 2016b. 'Larry Smith, focus sulla sicurezza nei centri commerciali'. *Mark Up* (blog). 2016. <https://www.mark-up.it/larry-smith-focus-sulla-sicurezza-nei-centri-commerciali/>.
- Pisano, Vittorfranco, and Claudio Maria Polidori. 2007. 'Minaccia Terroristica e Contromisure nell'Unione Europea'. *Centro Militare di Studi Strategici*, Osservatorio Strategico.
- Riccardi, Michele, Cristina Soriani, and Valentina Giampietri. 2016. 'Mafia infiltration in legitimate companies in Italy: from traditional sectors to emerging businesses'. In *Organised Crime in European Businesses*, a cura di Ernesto U. Savona, Michele Riccardi, e Giulia Berlusconi, 119–40. New York: Routledge.
- Shalvi, Shaul, Ori Eldar, and Yoella Bereby-Meyer. 2012. 'Honesty Requires Time (and Lack of Justifications)'. *Psychological Science* 23 (10):1264–70.
- The Smart Cube. 2015. 'Global Retail Theft Barometer 2014-2015'. Thorofare - NJ, USA: Checkpoint Systems, Inc.

