



Safety and sustainability in a city in transition: The case of Vilnius, Lithuania

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ABSTRACT

Urban experts have long recognised crime and fear of crime as dominant challenges to sustainable cities. A sustainable community is a place free from the fear of crime, where a feeling of security underpins a wider sense of place attachment and place attractiveness. In this article, we follow the recent strand of Western research and suggest a framework for assessing safety, which includes the analysis of the geography of crime, fear of crime and crime prevention. Empirical evidence is based on Vilnius, Lithuania. Findings show that whilst Vilnius' geography of crime shows patterns similar to those found in Western cities, fear of crime shows a complex pattern, playing a minor role when citizens judge their residential quality. Crime prevention incorporates top-down features as well as approaches previously adopted by Western cities. The article concludes with an assessment of the proposed framework and directions for future work.

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Introduction

Safety is a central dimension for contemporary debate on urban sustainable development.¹ Safety refers to 'the condition of being safe from risk or danger' (Van den Berg, Pol, Mingardo, & Speller, 2006, p. 22). Being a safe city is part of having a good image, a quality that helps attract investments (Hall & Hubbard, 1998). Crime and fear of crime are clearly challenges to the goal of achieving sustainability because an 'unsustainable city' is commonly characterised by "images of poverty, physical deterioration, increasing levels of crime and perceived fear of crime" (Cozens, 2002, p. 131). How can safety be assessed as a dimension of urban sustainability? In Western Europe, analysis of safety has often been based on three different but sometimes overlapping approaches.

The most common one is analysing trends and spatial patterns of crime based on official statistics. Ecological studies have shown the effect of deprivation and social exclusion on the geographical distribution of offences and offenders in urban areas (e.g., Kornhauser, 1978; Shaw & McKay, 1942). More recent investigations suggested that social polarisation combined with the loss of social cohesion or collective efficacy have a significant effect on crime levels and the types of crime committed in different parts of a city (Ceccato & Haining, 2005; Sampson, Raudenbush, & Earls, 1997). The geography

of crime has also been highly dependent on city structure and the activities it creates. Crime will occur only where there is a convergence in space and time of motivated offenders, suitable targets and the absence of capable guardians (Cohen & Felson, 1979; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996; Sherman, Gartin, & Buerger, 1989). These studies are criticised for the limitations imposed by the police statistics and by the use of static and aggregated socio-economic data (see e.g., Wikström, Ceccato, Hardie, & Treiber, 2010).

Urban safety has also been analysed by the so-called fear of crime research (e.g., Box, Hale, & Andrews, 1988; Ferraro, 1995; Lee, 2007; Lewis & Maxfield, 1980). It often links fear (wide range of emotional and practical responses) to indirect victimisation, vulnerability, community concern and incivilities. Victimisation surveys and interviews often provide the empirical basis for this research, which has been criticised for offering a shallow picture of fear. As Smith & Pain (2009) suggest, "the concept (of fear of crime) has less meaning than is widely expected", reflecting a range of both personal (see Hollway & Jefferson 2000; Killias & Clerici, 2000) and more general factors (see Girling, Loader, & Sparks 2000; Jackson, 2004) that have little to do with crime (for a critical review, see Lee & Farrall, 2009). When fear of places is concerned, research has almost exclusively concentrated on public places and strangers, missing a large part of everyday life in private spaces. If interventions are made, they are limited by situational measures and public spaces (Gilling, 1997).

A third approach to assessing safety is by evaluating public engagement and participation in prevention of crime. In this case, sustainable development and the search for a safe urban environment are seen as much as a process as end-products. In Western European cities, the police are no longer the sole providers of

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¹ Sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UNHSP, 2007). The debate of sustainability in a urban context has been focused on the environmental dimension (Cozens, 2002), often failing to consider its interaction with economic and social dimensions.

security; a multiplicity of institutional forms are now involved in the delivery of policing and security services and technologies. Some of these initiatives do have an effect on crime and fear of crime, whilst others are criticised as being problematic and producing unwanted results (e.g., see Bennett, 1990; Ditton, 2000).

Based on these three approaches, we propose a framework for assessing safety as a dimension of urban sustainability. None of these approaches described above is problem-free. Individually, they are not sufficient to provide a comprehensive picture of safety but, when combined, the framework reveals hidden dimensions of safety and its underlying factors that would otherwise not be revealed (Cozens, 2002). This will require the use of different types of data to show where crime takes place, where people feel unsafe and what actions are taken towards improving safety. The objective of the article is to evaluate the potential of this framework for assessing safety in a city in transition, Vilnius, the capital of Lithuania.

Vilnius constitutes an interesting case study for theoretical and empirical reasons. Very little evidence exists on how the current structure of a city in transition generates criminogenic conditions that may lead to crime. Can the geography of crime be a good indicator of safety in cities in transition? So far, studies in the 1980s have shown that structural and social processes in socialist cities create crime geographies similar to those found in Western cities. Such evidence is outdated (Bartnicki, 1986; Dangschat, 1987; Smith, 1989) and insufficiently detailed to enable comparisons with patterns found in Western European cities. Vilnius has experienced not only the shift from a centrally planned to a market-led capitalist economy but also the impact of Lithuania's entry into the European Community in 2004. The effects of the transition are said to have created new and increasing inequalities and these have made more visible latent socio-spatial segregation, which is common in other post-socialist cities (Häussermann & Kapphan, 2005; Kliimask, 1997; Kulu, 2003; Musil, 2005a; Musil, 2005b; Pichler-Milanovic, 2005; Sailer-Fliege, 1999; Sýkora, 1999; Tosics, 2005; Weclawowicz, 2005; Åberg, 2005; for review, see Åberg & Peterson, 1997; Hamilton, Andrews, & Pichler-Milanovic, 2005).

Vilnius is also special because its residents feel the least safe in comparison with other cities in Europe (Del Frate & Van Kesteren, 2004). Do Vilnius residents feel unsafe because crime levels are relatively high? Do patterns of perceived safety reflect demographic, socio-economic or ethnic differences? In addition, there are indications that in transition countries fear of the state has quickly been transformed into fear of crime (see e.g., Los, 2002) and that corruption and lack of trust in society would make people feel unsafe (Transparency International, 2007). Are indicators of fear of crime appropriate for assessing safety in cities in transition?

The study starts with a characterisation of the criminogenic conditions of Vilnius using a selection of offences based on police-recorded data.² Patterns of selected crimes in Vilnius are then compared with those found in Western European cities. Although the identification of high-crime areas is valuable information in the context of urban sustainability, it does not necessarily mean that residents feel unsafe in these places. Thus, data from three independent surveys (by Viteikiene, 2006; Viteikiene & Zavadskas, 2007; Bardauskiene, 2007) are used to identify places in Vilnius that are perceived as unsafe. It is important here first to determine whether the perceived safety in a city such as Vilnius follows a pattern that can be related to its particular stage of transition and its geography of crime. The article also illustrates the ongoing initiatives of crime prevention in Vilnius and compares them with similar interventions in Western Europe. The paper concludes with a brief discussion on

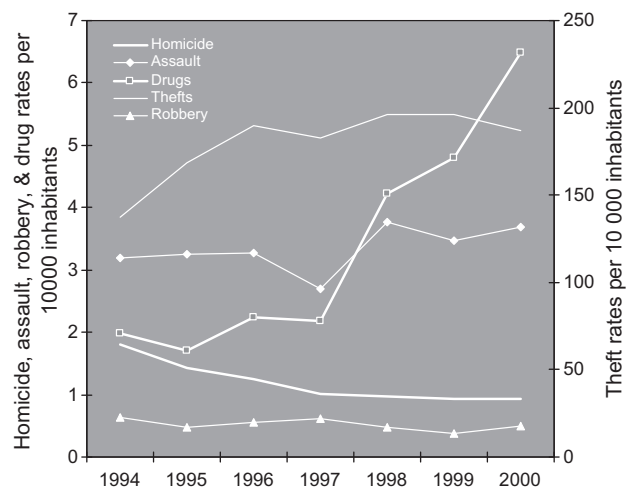


Fig. 1. Selected crime rates for Vilnius city – 1993–2000. Data source: Ministry of Interior, 2006.

how Western European approaches for assessing safety work when applied to a city in transition, such as Vilnius, and what are the remaining challenges.

Framing Vilnius as a case study

After gaining independence from the Soviet Union, many Eastern European capital cities, including Vilnius, experienced a rise of drug-related offences and other illegal activities related to organised crime, such as human trafficking and prostitution (e.g., Aral, St Lawrence, & Uusküla 2006). In Vilnius, theft increased by more than 30% between 1994 and 2000 while violent crimes such as homicides, assault and robbery continued at the same level or even decreased in the same period (Fig. 1). These crime patterns in Vilnius follow the national crime trend (Ceccato, 2007, 2008). Since May 1, 2003, a new Penal Code came into force changing the way crimes were recorded, which makes difficult any type of temporal comparison of the data. Moreover, as suggested by Ceccato (2008), some activities (smuggling, for example) became classified as criminal in the 1990s, impacting crime statistics; the most affected crime classification is theft. It is also worth noting that crime reporting improved in the 1990s for certain types of crime in Lithuania, particularly those such as drug-related offences and vandalism, resulting in significant increases in recorded rates. Crime rates in Vilnius are not higher than those found in other Baltic capital cities (Ceccato, 2009). In this section, some background characteristics of Vilnius are presented.

Vilnius is the largest city and the capital of Lithuania, with a population of 553,904 (850,700 together with Vilnius County) (Statistics Lithuania, 2006) and an area of 402 km². Vilnius is located in the south-east of the country. Only a relatively small part of Vilnius (about 20%) is composed of built-up areas. As much as 60% of the housing in Vilnius was built between 1945 and 1970 and much of the housing possesses basic infrastructure, such as connections to public networks of water, sewage, telephone as well as hot water-supply and indoor shower/bath. During the post-war period the fast growth of Vilnius led to a rapid occupation of the land of the lower Neris terrace. According to Daunora (1995), not all areas constructed at that time are of high value in the current market either because of unattractive architecture or bad environment quality (for further details, see Daunora & Juskevicius, 2006). Most of the new housing areas built right after the Independence are found in Pilaite and Lazdynai while the central areas of Senamiestis and Snipiskes have the largest share of pre-war housing. According

² This analysis is made feasible through the crime data by co-ordinates (which, until recently, was not available) and by the use of analytical tools such as Geographic Information System (GIS) technology and spatial statistics techniques.

to Burneika (2003), from 1996 to 2003, Vilnius has been changing at a rapid but uneven pace. Areas with blocks of flats (e.g., Virsuliskes, Zirmunai, Karoliniskes) from the Soviet period changed very little whilst central areas (most of which were constructed before the Second World War) experienced the most intensive changes in their built environment (Naujamiestis, Senamiestis, Snipiskes and Zverynas).

Two new important structural features that relate to crime and perceived safety are present in Vilnius. One relates to Vilnius' city centre. These new inner-city dynamics also affect the city's crime geography in a number of ways. As with other post-socialist cities (Nuissl & Rink 2005; Rudolph & Brade 2005), new commercial and business services were established in Vilnius after Independence, making the inner central areas more dynamic. Governmental and private institutions and other businesses attract a large part of the labour force and temporary visitors. The city centre also shows the highest concentration of restaurants, nightclubs and bars, which attract people to the inner-city areas. Inhabitants of Vilnius' central areas share spaces with a flourishing service sector. Transport nodes and links bring people from the outskirts to the city centre on a daily basis. All these functions affect the number of

routine activities that take place in the inner-city areas, which are important for determining the convergence in space and time of motivated offenders, suitable targets and absence of capable guardians (Cohen & Felson, 1979). Crime will take place where people spend time and converge, so crime is likely to be concentrated in the most central areas of Vilnius (Schmid, 1960a; Schmid 1960b).

Another important change refers to the process of socio-spatial differentiation that is taking place, with clear concentrations of socio-economic disadvantage in some parts of the city. International literature shows that poverty and social exclusion impact the distribution of crimes and offenders in urban areas. (e.g., Kornhauser, 1978; Sampson et al., 1997; Shaw & McKay, 1942). It could be therefore expected that socio-economic disadvantage would affect similarly Vilnius' criminogenic conditions and people's perceived safety. As suggested by Juskevicius (2006, pp. 71–73), at one extreme there are the employed, highly educated, and well-off groups living in valued housing (either new buildings of less than 10 years or long-standing buildings more than 70 years old) located in central areas (with signs of gentrification), but also on the outskirts of Vilnius, within the avant-garde sector of the

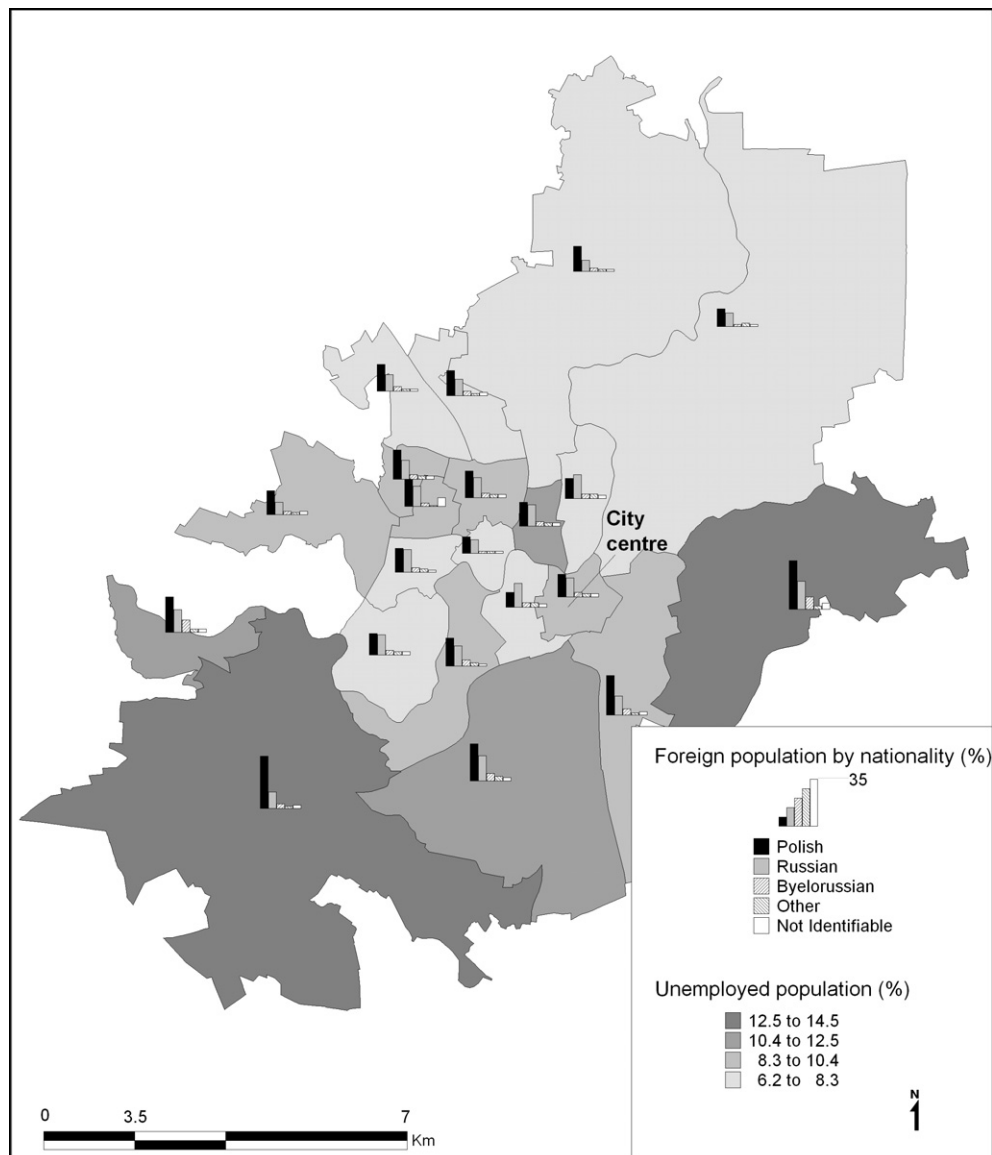


Fig. 2. Population by nationality (%) and Unemployed (% from 15 to 65 of age), Vilnius 2001. Data source: Statistics Lithuania, 2003.

current city development (a mix of rural and urban elements where the most mobile population group lives). These are privileged groups composed of white-collar professionals, foreigners, retirees and former emigrants from the West (Mitropolitski, 2006). At the other extreme, most of the population, but particularly the more disadvantaged groups, live in housing developments dating from the Soviet era. In the southern part of Vilnius, social disadvantage has an ethnic dimension. For instance, Gypsies live in the rather isolated residential area of Naujininkai, in poor living conditions together with other minority groups, such as Poleses, Russians, Byelorussians, Jews, Tartars, Latvian and Armenians. Fig. 2 shows the distribution of population by nationality in 2001 in Vilnius in relation to the unemployment rate by area. Some of the regions with high unemployment rates are also those with poor collective resources (older houses which lack basic urban infrastructure).

Intra-urban crime dynamics in Vilnius

A 'sustainable community' is "a place free from the fear of crime, where a feeling of security underpins a wider sense of place attachment and place attractiveness" (Raco, 2007, p. 306). Having detailed geographical knowledge of a city's criminogenic conditions is therefore of importance in the debate for urban sustainability. It provides a guide for targeting crime and disorder, which may vary from dispatching, community policing to offence analysis and resource planning. Each of these tends to operate on different geographical scales, involving different actors (e.g., police officers, planners, community experts), and has different requirements in terms of data quality. Fig. 3 illustrates the distribution of crime rates for selected crimes in Vilnius 2004–2005 by the smallest administrative division in Lithuania (21 *elderates*). This analysis makes use of a new crime database that is the result of the co-operation between the Vilnius Police and Vilnius municipality (Table 1). Despite the fact that this limited number of geographical units does not allow for modelling, we will discuss briefly the geography of each crime in relation to a set of socio-economic and land use indicators as presented in the Table 1. These indicators are suggested by international literature on urban criminology to be the underlying factors behind variations of urban crime.

Homicide in Vilnius has a dispersed pattern around the old town. Fig. 3a shows the most problematic neighbourhoods having more cases of violence resulting in fatalities: Naujamiestis, Snipiskes and Naujininkai as well as Senamiestis. Although little can be said about the spatial distribution of 35 cases of homicides between 2004 and 2005 (too short a time period), the highest rates tend to follow the patterns found for expressive crimes in Western European cities (criminal acts that serve to vent rage, anger, or frustration). International research has shown that expressive offences, such as homicide, are often linked to stress and social disorganisation. At the intra-urban level, homicides are concentrated in areas with a large percentage of young males (Fox & Piquero, 2003), weak informal social controls (Craglia, Haining, & Signoretta, 2001; Craglia, Haining, & Signoretta, 2005; Kornhauser, 1978; Shaw & McKay, 1942; Wilson 1987) and differences in norms and culture (Messner & Rosenfeld, 1999). Recent studies at regional levels in Russia and Eastern Europe suggest that social stress and disorganisation are related to increases in suicide, homicide, different types of violence, overall mortality (Ceccato, 2008; Gavrilova, Semyonova, Evdokushkina, & Gavrilov 2000; Pridemore & Spivak 2003) and to property crimes (Andresen, 2009).

In Vilnius, as in Western European cities (e.g., Andresen, 2006; Ceccato & Haining, 2005; Evans 1992), the daily routine activity of central areas often explains the concentration of thefts, robbery and to a certain extent, drug-related crimes. Thus, areas that concentrate both transport nodes and public entertainment (e.g.,

pubs and clubs) should be a particular target for crimes. Crime will be the result of interplay between supply of targets (goods/victims), and demand (motivated offenders) regulated by potential guardians in places of convergence of human activities. Robbery, although also regarded as an expressive crime, has a geography in Vilnius more similar to acquisitive crimes (offences where the perpetrator derives material gain from the crime), which is not a surprise since robbery is sometimes referred to as a violent property crime (Indermaur, 1995). A similar pattern for robbery was also found for Tallinn, Estonia (Ceccato & Oberwittler, 2008). Inner-city areas not only have a high concentration of crime such as in Vilnius but also other social deviations, such as problems associated with alcoholics, drug addicts, and homeless people (Juskevicius, 2006, pp. 76–77).

The geography of drug-related crimes tends to be similar to that of acquisitive crimes in Western European cities (e.g., Holloway, Bennett, & Lower, 2004), which has been shown to be true also for Vilnius. The central area of Vilnius is certainly a selling point, with easy access to buses and trains. The exception is the Naujininkai district, which is a known deprived area with a concentration of both drug users and drug dealers. Located on the boundary of Vilkpede and Naujamiestis is the Vilnius Centre for Addictive Disorders. This centre attracts drug addicts as well as drug suppliers to the area, which is believed to affect local levels of drug-related offences.

Thefts are associated with mixed land use also at street level. Fig. 4 illustrates the use of a cluster technique³ to identify a high concentration of thefts in Vilnius Old town. What is evident in this pattern is how hot spots of thefts follow main roads and areas with mixed land use, where there is a lack of natural surveillance (capable guardians) despite these being crowded places. These places mostly comprise transport links (such as main streets), areas where many people gather (close to museums, galleries, hotels, theatre, restaurants and hospitals) and also transport nodes (at least the lower part of the bigger ellipse partially covers an area with the bus and railway stations, places that are reported in literature to be good ground for thefts) (for similar results, see Brantingham & Brantingham, 1991).

Although the identification of high-crime areas is valuable information in the context of urban sustainability, it does not necessarily mean that residents feel unsafe in these places. There are other aspects that may result in fear of crime. In the next section, we assess how the perception of safety can be incorporated into the analysis of urban sustainability.

Perception of safety in Vilnius

It would be easy to assume that fear of crime was a perfect fit with the geography of crime. Instead, there is a general consensus that fear is more than a function of risk of and actual experiences with victimisation. Jackson (2004) suggests that fear of crime is often exaggerated because surveys reflect both 'experience fear' (summation of frequency of emotions) and 'expressive fear', which involves individuals' perceived vulnerability and broader social

³ The NNH technique uses a nearest neighbour method that defines a threshold distance and compares the threshold to the distances for all pair of points. Only points that are closer to one or more points than the threshold distance are selected for clustering. Areas of concentrated crime are often referred to as hot spots. In this first criterion, we have chosen 100 m for the threshold distance. However, the number of clusters is dependent on the threshold distance and the minimum number of points in each cluster. Since we wanted to detect clusters that would reveal highly vulnerable microenvironments in the old town for thefts, we used the default of 50 events as the minimum cluster size. The first order clusters are tested for second order clustering (big ellipse). The procedure is similar to first order clustering except that the cluster centres are now treated as points which themselves are clustered. The process is repeated until no further clustering can be found. For this example, CrimeStat III was utilised (Levine, 2002).

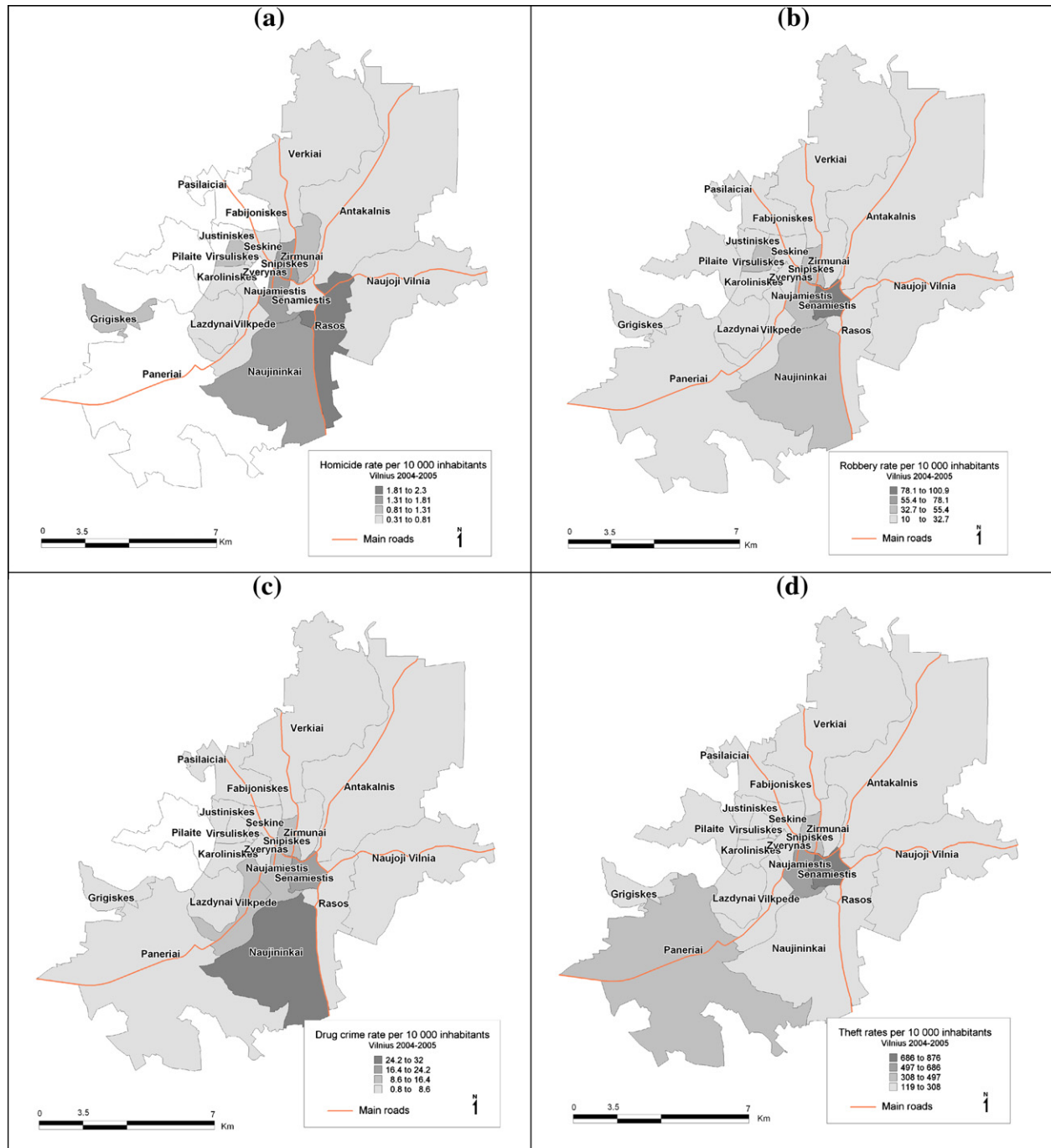


Fig. 3. Offence rates per 10,000 inhabitants in Vilnius 2004–2005, (a) homicide, (b) robbery, (c) drug-related crimes and (d) thefts (ranges: equal interval).

attitudes and values. Research has shown that signs of disorder (such as rubbish and litter lying around, graffiti on walls, teenagers hanging around street corners, noisy neighbours, unkempt lots, abandoned storefronts and lack of illumination) may be more conducive to producing fear than serious crimes do since such signs of disorder indicate that people and authorities have lost control (Hope & Hough, 1988; Hunter, 1978; Innes, 2004; Jackson, 2008; McGarrel, Giacomazzi, & Thurman, 1997); new evidence shows that perception of disorder and fear relates also to confidence in policing (Jackson & Bradford, 2009). In other words, fear goes beyond emotional response to material risks. Some critics have also argued that naming and specifying fear of crime is necessary (of which crime and who fears) but this is not completely unproblematic since focusing on differences in fear by gender, race and age

may increase the risk of group stigmatisation. Fear is also influenced by other more multi-scale factors (national, global) that reach individuals in their daily life through, for instance, the media (Day, 2009; Smith & Pain, 2009). For a complete review of these criticisms, see Lee (2007) and Lee & Farrall (2009). What can be said then about fear of crime in a city in transition, such as Vilnius?

Compared with other European countries, former socialist states often top the rank of fear of crime in victimisation surveys, corruption and lack of trust in social institutions (Del Frate & Van Kesteren, 2004; Transparency International, 2007) which is (contrary to the official police statistics) quite stable over time (Ceccato & Haining, 2008). Vilnius is at the top of the rank, having as many as 67% of the residents declaring that they feel unsafe where they live, according to 2000's ICVS (Fig. 5). In all Central-Eastern

Table 1
Characteristics of the dataset.

Data	Description	Source
Offences ^a	Homicide, robbery, theft, drug-related crimes	Vilnius police commissariat Vilnius plan
Socio-economic indicators ^b	Proportions of Young male population Inhabitants per nationality Inhabitants with university degree or higher Population received social allowance Unemployed population Population density Building by year of construction Dwelling type and ownership Dwelling by type of basic infrastructure	Census 2000 (Vilnius miesto savivaldybės gyventojai ir bustai)
Land use indicators ^b	City centre Main roads Key land use landmarks (e.g., transport nodes, inner city culture, big supermarkets)	Vilnius miesto planas (1:10,000) Internet
Spatial units	21 units	Vilnius plan

^a Vilnius crime data at coordinate level used in this analysis was unavailable until a short time ago. The database (June 2004–May 2005, total of 25,347 recorded offences) was only made possible by the active input of Gintaras Baguzis (the head of the organizational department at Vilnius chief police commissariat), his colleague Renata Ulpiene, and all those from the police commissariat who helped with the data. To make the data map able, addresses had to be geocoded using Geographic Information System (GIS), which was performed by the municipal enterprise “Vilniaus planas” (Vilnius plan). Addresses had to be improved, geocoded several times and data quality tested. The end result of the matching geocoding rate was around 95% but it varied by crime type (e.g., 100% for homicides, 95% for robbery and thefts). After 2 years, the database was ready for use. The database used in this analysis would not be possible without the good will and collaboration of all the above-mentioned parties.

^b On an exploratory basis, offence rates were modelled by the available demographic and socio-economic data of the area (population density, unemployment, divorce, state allowance receivers, detached houses, young male population, foreign population, basic urban infrastructure and a dummy for city centre). Although very little can be said with this limited number of geographical units (21), results suggests that the covariate divorce (as an indicator of broken families), was significant in all models and positively related to offence rates. The dummy for central areas came out significant to explain the variation of thefts rates, flagging for the importance of routine activities to this type of offence. For homicides and robbery rates, the proportion of detached houses was significant and with negative sign.

European cities, the majority of respondents more frequently felt unsafe rather than safe despite the fact that victimisation levels observed in the Western and Central-Eastern cities were almost identical. Similar findings were found by [Clark & Wildner \(2000\)](#) when

victimisation and fear of crime were compared in West and East Germany. It is unclear why Vilnius tops the rank, but findings show that perceived lack of safety was correlated to the likelihood of burglary in the 12 months prior to the survey, and also with the

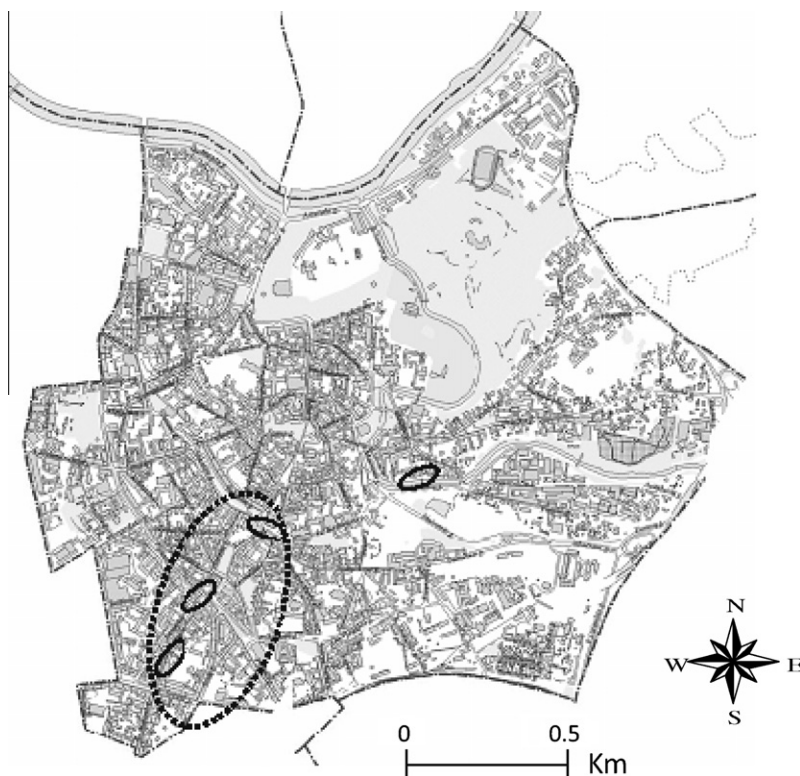


Fig. 4. Cluster of thefts in Vilnius' old town ('Senamiestis') – 2004–2005 using Nearest Neighbour Hierarchical Cluster. Criteria for Small ellipses: Fixed distance: 100 m, minimum number of points per cluster: 50.

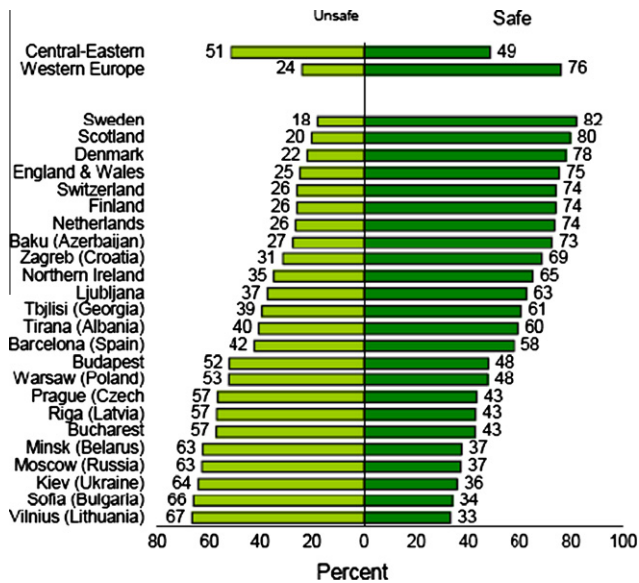


Fig. 5. Fear of crime in 2000 ICVS (How safe do you feel walking alone in your area after dark? Do you feel very safe, fairly safe, a bit unsafe, or very unsafe?). Source: Del Frate and Van Kesteren (2004), p.19.

experience of corruption and overall dissatisfaction with the police. From 1998 to 2006, the Corruption perception index score of Lithuania has improved but still ranks relatively low (4.8, where 10 is highly clean and 0 is highly corrupt) in comparison with Estonia, 6.7 (Transparency International, 2007).

Despite no significant increase in statistics of fear, it is known that there has been a change in the nature of fear in countries in transition. According to Los (2002), after Communism fell, crime not only become prominent in the media but also began to expose failures of the crime control systems, such as the police. The rapid social changes (e.g., a perception of general disorder, awareness of the state's powerlessness) led to insecurity, which in turn transformed the 'fear of state' into 'fear of crime'. In this process, the media had two important roles to play: it showed the shift from 'good' news state propaganda to a market-based 'bad' news and created a market for security to control 'new risks and fears' and ensure private property. Although 'fear of crime may hide many underlying anxieties' that go beyond the risk of being victimised (Los, 2002, p. 179), it is uncertain how fear at the local scale interacts with and is affected by these more general processes. It might be that a street perceived as dangerous for many people is more important in determining levels of fear in one part of the city than the actual place where an individual was victimised.

Despite the fact that residents declare to feel unsafe in Vilnius, intra-urban data show that this fear is not equally distributed in space. Surprisingly, Vilnius' city centre is perceived as a relatively safe place. Patterns of perceived safety in Vilnius seem to have more in common with its geography of declared victimisation than with patterns of police-recorded data. Every fifth resident affirmed that they had suffered at least once from car-related thefts in the year prior to the survey. Declared victimisation seems to happen often close to home and, contrary to what police statistics show, is not concentrated in the inner-city areas (see Fig. 6a and b). As many as 8.5% of residents indicated that they were victimised by burglary, 8.2% were mugged, 3% were physically or sexually abused and 2.7% indicated other kinds of property crime (RAIT, 2005, p. 104).⁴ The fact that the spatial distribution of reported crime differs

from victimisation reports is very interesting from a theoretical and practical point of view. It calls much of the geography of crime literature into question: there is a risk that inferences might be wrong if we are making use of police reported crime alone to test theory and develop policy when data are not representative of the actual distribution of offences.

In addition, during the preparation of Vilnius' general plan, when residents were asked to identify areas with problems, including safety, they indicated surprisingly mostly districts in the outskirts of the city, where most people live, and did not indicate neighbourhoods in the city centre, where most offences take place (Fig. 6a). The same divergent pattern was found when maps of crime rates (Fig. 3) were compared with the rank of the 'most sustainable residential areas in Vilnius' (Bardauskiene, 2007; Viteikiene & Zavadskas, 2007, p. 154). Central areas were ranked by far 'the most sustainable areas' in Vilnius. Safety was not even mentioned as the motivation for why Žvėrynas was regarded as the most sustainable residential area.⁵

One possible reason for the mismatch could be that safety, despite being one of the dimensions assessed, played only a small role in people's perception of problems. People moving into a new housing area are often more dissatisfied with the availability of basic infrastructure than with safety; which pulls the score of these relatively safe areas down in relation to the city's overall rank. Local conflicts may also be a source of discontentment in the outskirts, contributing negatively to the residents' overall quality of life. As suggested by Burneika (2003), there have been cases in Vilnius when new real estate investments were a concern for locals since these were perceived to be a threat to local real estate prices and/or their current commercial activities. In addition, social cohesion, which certainly affects residents' judgments of safety, takes time to build up in these new residential developments.

Some areas show less crime because residents do not bother reporting crime to the police. If social cohesion is poor, residents will not bother to make a call. This is not a problem exclusive to cities in transition (for a review, Hirschfield & Bowers, 2001), but could help explain at least partially the high concentration of crime events in certain areas of Vilnius. Underreporting is worse in countries in which the police and justice systems are unreliable, the level of education is low, and inequality is high (Fajnzylber, Lederman, & Lloayza, 2002). Overall, reporting rates are consistently lower in Central-Eastern European cities than in Western Europe. On average, half of the incidents were reported in Western Europe and only one-third in Central-Eastern Europe, property crime being more frequently reported than other offences (Del Frate & Van Kesteren, 2004, p. 16).

It might also be that lack of safety in Vilnius reflects crimes and disorder that happen in neighbourhoods, where most people live (e.g., burglary, littering) but are not typical of city centres (such as problems with alcoholics, drug addicts, and homeless people, see e.g., Juskevicius, 2006, pp. 76–77).

Population heterogeneity has, according to the international literature, an effect on the way individuals define their minimum and maximum thresholds of satisfaction and perceived safety, and judge their overall quality of life (see, e.g., Hale, 1996; Rogerson, Findlay, Morris, & Coombes, 1989; Schnell & Kipnis, 1989). Some minority groups and their offspring may feel not integrated into Lithuanian society (unemployment is relatively high in some ethnic groups), which may affect the way they assess risks and overall fear. Social isolation might lead to fear but also the other way around. For those who can afford it, safety is a commodity to be purchased, grounded on the idea

⁴ The survey conducted by RAIT (2005) asked 2575 permanent residents of Vilnius city, aged from 16 to 74, about victimisation.

⁵ Žvėrynas is "close to the centre of Vilnius, nice looking architecture, lovely surrounding, lot of green zones and well, organised infrastructure solutions".

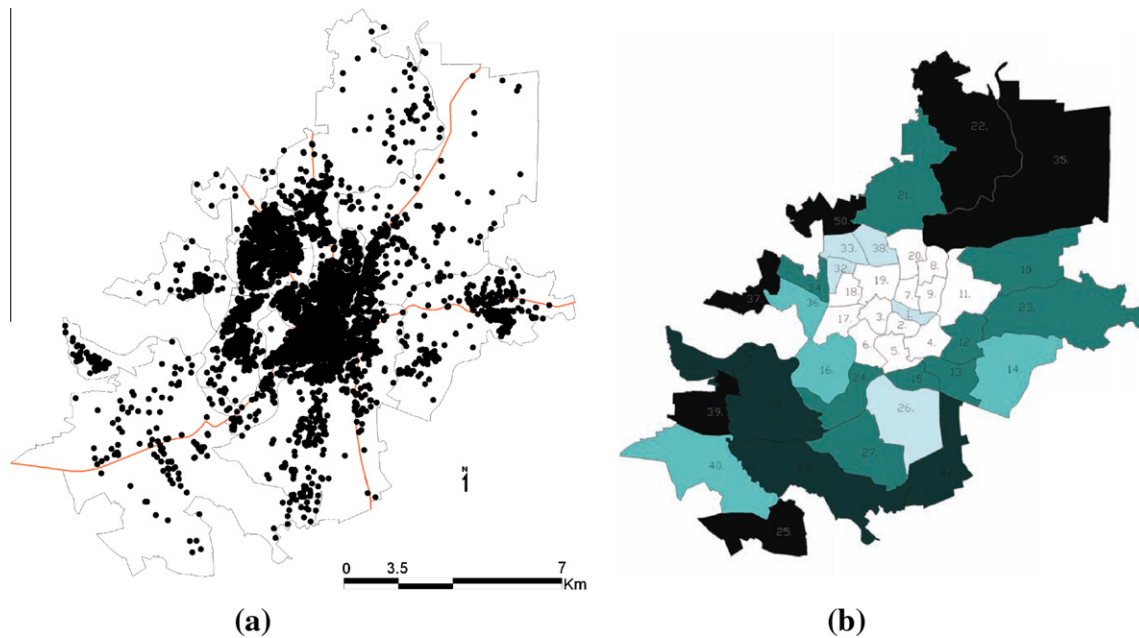


Fig. 6. (a) Total offences recorded in Vilnius 2004–2005. Data Source: Vilnius Police, 2007. (b) Vilnius key problem-areas according to the citizen's perception, 2005. Darkest shades: More problems. Source: Bardauskiene (2007).

of fear that determines not only where one lives but one's daily whereabouts (from residential communities to schools, hermetic shopping malls and guarded private clubs). As suggested by Pain (2001, p. 902), policies that aim to improve the safety of some groups may do so at the expense of others. This emerging new pattern of individuals' movements in Vilnius constitutes a direct challenge to the ideal of social sustainability, since the sense of *urbis* as a place of co-existence in space is threatened by people's fear of crime and their selective access to security commodities.

Enhancing urban safety through crime prevention

In western European cities, particularly in the UK, crime prevention has been shifting from design-based interventions to more holistic approaches, which emphasise the role of neighbourhood communities in ensuring safety. In Vilnius, these trends are taking place nearly simultaneously. On the one hand, crime prevention is synonymous with the implementation of technological surveillance devices that have become part of the inner-city landscape. This process is carried out by implementing closed-circuit televi-

Table 2
Assessing safety: strengths and weakness of the framework.

	Strength	Weakness
Crime geography	<p>Relatively easy access to data (police records)</p> <p>Maps indicates where crime takes place (alternatively, crime rates), by crime type</p> <p>Visualisation at detailed level of areas with high concentration of crimes</p> <p>Easy to establish link between crime and its underlying factors in urban space</p> <p>Time-space dimension provides a background for safety improvements</p> <p>Provides measures of risk that can be split in groups, e.g., gender, age</p>	<p>Police records may vary in quality and their reliability depends on high reporting rates and police practices (problems arise where trust in public authorities is low)</p> <p>Crime place is limited information, and must be combined with data on offenders and victims</p> <p>Aggregated socio-economic conditions provide a static and partial view of the urban dynamics</p> <p>Maps may differ based on the way rates are calculated</p>
Patterns of perceived safety	<p>Mental maps shed light on the relation between a place's vulnerability and perceived levels of insecurity</p> <p>Identification of underlying factors that affect perceived safety (e.g. street illumination, security patrols, NWS)</p> <p>Evaluation of differentiated levels of perceived safety by crime types and by types of individuals, e.g., by gender</p> <p>Perceived safety can be assessed in both space and time</p>	<p>Data are highly dependent on the way the questions were framed</p> <p>'Fear of crime may hide many underlying anxieties' (Los, 2002, p. 179)</p> <p>Questions on fear of crime must take into consideration the differences of crime types</p> <p>Breaking up fear of crime by groups may lead to stigmatisation</p> <p>Perceptions of safety may vary over time (day night, seasonally, before and after an event)</p>
Crime prevention initiatives	<p>Relatively easy access to information</p> <p>Takes advantage of existing knowledge on where crime takes place and where people feel unsafe</p> <p>Richness of perspectives on crime and fear of crime when different actors are involved</p> <p>It can be an indirect measure of social cohesion of the area</p> <p>Provides a potential basis for assessing gender equality initiatives in safety</p>	<p>Information may be limited or incomplete (lack of transparency in less democratic societies)</p> <p>It is time and context dependent</p> <p>Neighbourhoods may vary in their degree of engagement (resources); problems may be tackled differently in different neighbourhoods (e.g., top down police actions)</p> <p>It depends on economic resources</p>

sion (CCTV) systems in parts of the city centre and also at the entrances to residential areas. The need to control fear creates an ‘in and out-development’ that has potentially enormous implications for the nature of relations between individuals and different kinds of social groups (Maguire, 2003). With this kind of development, the role of the state and the police as traditional security providers is changing in Lithuania as it did in Western European countries (see e.g., Loader, 1999). Thus, besides the police, there are new providers of guardianship, such as private security police. As in Poland, some of the state policing and networks of crime intelligence from socialist era have been transformed into private security industry (Los, 2002). In the US and UK, and increasingly in a city such as Vilnius, privatisation of the control of public and semi-public areas has become more common, with reduced freedom of access to outsiders. Although there are similarities between what is happening in Vilnius and Western European cities, comparisons should be made carefully since the historical background in which these cities evolved is different.

Community crime prevention has become part of residents’ daily practices in Vilnius, which is not necessarily representative of all city neighbourhoods. The first step towards community crime prevention in Vilnius was under the name “Saugi kaimynystė” (safe neighbourhood), which started in 1997, when the non-governmental organisation “Crime stoppers” (Stabdyk nusikalstamumą) was established, and the first ideas of Neighbourhood Watch Schemes (NWS) were first introduced in Lithuania. This initiative was first supported by the Conservative party, which had a majority in parliament. After the elections, the party lost its majority and the movement “Crime stoppers” lost political and financial support. In 2007, there were eighteen groups of NWS operating in Vilnius city. It was thought then that the numbers of NWS were too few within the scope of Vilnius city and thus the initiative was renewed by the Vilnius City Chief Police Commissariat. In theory, the project aimed at stimulating more public participation and collaboration of community members with police officers and neighbourhood administrators in crime prevention initiatives, with the ultimate goal of passing on the programme for developing a safe environment to active members of the community (Vilnius City Police Headquarters, 2007a). In practice, this new wave of NWS has kept the police as the main actor, and there are indications that non-governmental organisations and communities have reduced their involvement. According to police reports, NWS in Lithuania are effective in preventing theft and other property crimes.

In addition, crime prevention programmes are targeted at children or juveniles, and schools are closely involved in these programmes together with the police. “Nepilnametis” (Juvenile), “Temidė” (Themis), “Vasara” (summer) are only a few initiatives to illustrate ongoing prevention in this sphere. The initiatives mostly focus on educating children and juveniles as well as involving them in activities such as sports or summer camps that prevent them from being drawn into criminal activities.

There are also crime prevention initiatives directed at specific types of crimes. As borders opened up, drug-related crimes increased not only in the country as a whole, but also in Vilnius. This raised the need for drug prevention to the level of national importance, and the Drug Prevention Department was made responsible for the implementation of preventive programmes. Nevertheless, drug-related crimes are also a concern of Vilnius city police as several drug-related crime hot spots can be pinpointed in the city. For example, within the “Safe city programme” (Vilnius City Police Headquarters, 2007a), drug prevention is targeted at the Gypsy community and surrounding areas which police reports show as ‘being indicated as imposing threat to the peace and safety of society’. The police together with the municipality collaborate in ensuring safety in the area as well as reducing segregation of the Gypsy community.

The crime prevention initiatives described above seek to be inclusive, promoting social cohesion and quality of life for different socio-economic and ethnic groups in Vilnius. Their legitimacy is tested by having some actors involved in these initiatives rather than the police alone. Although little is known so far about the impact of these initiatives on overall crime levels and/or fear of crime, there are reasons to believe that they function better in areas that are less problematic and where residents are not frequently considering relocation to another area. Problematic areas in Vilnius seem, however, to be targeted in a different way. This is done, for instance, by putting more police patrols in such areas as well as more regular checks for suspects (Vilnius City Police Headquarters, 2007b). It is true that drug-related crimes are concentrated in certain areas but we wonder why crime prevention would not follow the same ‘inclusive’ and ‘cohesive’ approach as in other parts of the city. The approach towards the Gypsy community in Naujininkai is an example of this top-down approach that is perceived by residents in the area as potentially repressive and which impedes any current or future goals of social sustainability.

Another challenge for the city’s social sustainability is to make issues of risk for crime and fear of crime relevant in crime prevention and urban planning for both men and women. Gender equality in safety has not yet been discussed and/or implemented in the same way in Vilnius as it has been done in Scandinavian countries, Germany or the UK (see, for instance, Dymen, 2009).

Conclusions and looking ahead

This article illustrates how an analysis based on the geography of crime, the perceived safety and the initiatives of crime prevention provide a general framework for assessing urban safety in a city in transition. This framework is based on current Western literature of urban criminology, fear of crime and crime prevention research. Data permitting, future research should devote time to test theories that are not considered in this paper to check their relevance to the geography of crime in Vilnius. Table 2 summarises the main strengths and constraints of such a framework applied to Vilnius, the capital of Lithuania. This section concludes with suggestions for improving this model of analysis.

The analysis of the geography of crime is, for instance, dependent on the quality of police-recorded data. A city in a country in transition has inevitably more challenges to overcome with regard to police data quality than do most Western European cities. This study is based on a detailed and extensive geo-referenced crime database for Vilnius recently made available by the police authorities in co-operation with Vilnius municipality. This is of great importance since data of this type in post-socialist cities were, until recently, rare or of poor quality. Before Independence, police data were often filtered by the authorities because a rise in crime was interpreted as a threat to the former political system (see e.g. Gruszczynska & Gruszczynski, 2004). Nowadays, underreporting remains one of the most important challenges (Del Frate & Van Kesteren 2004). Data permitting, future analysis should look for relationships between crime and Vilnius land use structure, its socio-economic and demographic make-up at more detailed geographical level (as suggested for thefts, in Fig. 4) and over a longer period of time. Thus far, because socio-economic data are limited to large units only, comparisons should be made cautiously between crime and Vilnius’ socio-economic and land use characteristics. Findings show that spatial patterns of crime in Vilnius are similar to those identified in Western European cities. Theft, robbery and to certain extent, drug-related crimes in the inner-city areas are expected to be related to the daily routine activity of these central areas. Findings also show that the fact that the spatial distribution of reported crime differs from victimisation reports. This finding is very interesting from a theoretical and practical

point of view. There is a risk that inferences might be wrong if we are making use of police reported crime alone to test theory and develop policy when data are not representative of the actual distribution of offences.

Patterns of perceived safety can be a complement to the geography of crime, but must be more detailed than those available in this case study and must be disentangled from contextual factors (e.g., the interplay of local/global relationships), particularly in a city in transition as Vilnius. If the perceived pattern of safety does not correspond to the actual pattern of crime, as was the case for certain areas in Vilnius, then an important lesson can be learned about the perceived and actual environmental instigators and inhibitors to criminal events (Smith & Patterson, 1980, Ratcliffe & McCullagh, 2001). It is important to remember, however, that fear is a multifaceted phenomenon that often requires an assessment that goes beyond the scale of a study (e.g., Pain, 2009). The present case study is based on surveys that are too general, and so interpreting the meaning of respondents' answers using fine critical lens is problematic. Given this mismatch, an ideal framework would be a search for the meaning of fear of crime for different groups of people and backgrounds, for crimes that take place in both private and public spaces. The time dimension of fear is also relevant since the experience of fear is related to the current situation that one is in, and its change over time. In cities like Vilnius, assessing fear means understanding how fear rhetoric tries to individualize people by promoting commodification of security, something that did not exist before the market economy (Los, 2002). Often, discourses of fear are related to the exercise of power. Those who have control over it help shape policies, crime reducing measures and urban environments according to certain interests. So far, there are indications that uneven access to crime reducing security measures has benefitted those who are economically better off more than those who are poorer, and therefore contributed to uneven levels of crime and fear of crime across different parts of Vilnius. There is a clear need for knowledge of why and how one relates certain urban spaces with fear and how this is transformed in planning practices, urban developments and measures of crime prevention.

Crime prevention initiatives and safety interventions are all part of the strategies for making a city safer. A safe city cannot be taken for granted; it is an on-going process that must be evaluated as context- and time-dependent. Whether the current strategies of crime prevention enhance safety and make Vilnius a more sustainable city in the future, only time will be able to show. Little is known about the impact of different types of crime prevention initiatives. Regardless of the results so far, crime prevention needs to be built up gradually and requires constant involvement of agencies as well as the city's inhabitants in order to successfully enhance and maintain safety. So far, we know that crime prevention in Vilnius has been following approaches previously adapted by North American and Western European cities. Although there are similarities, comparisons between Vilnius and processes going on in cities in the US or the UK should carefully be made since their historical background is different. At the same time, crime prevention has kept and/or incorporated some traditional, top-down features by those involved in the prevention and fear of crime. Therefore, we believe that the role of crime prevention to achieve social sustainability goals must go beyond tackling crime and fear of crime at local level. Safety, as a dimension of urban sustainability, must be framed as being dependent on society's overall development. This should embrace issues on whether people's long-term demand for resources will be addressed by all groups of society – a challenge for countries such as Lithuania that are coping with the transition from a planned to a market-oriented economy. It should also include whether people's levels of trust in societal institutions, such as the police, are rising when com-

pared to post-independence levels – and how those levels relate to people's willingness to report crime and declare how safe they are in their neighbourhood. Looking ahead, we believe that the proposed framework of analysis of a city in transition would profit from having more knowledge about the long-term impact of social exclusion on individuals' life chances and overall quality of life (access to housing, schools, jobs, leisure, and daily mobility). One of the main challenges is to elucidate the processes through which socio-economic conditions interact and influence levels of crimes and fear in different neighbourhoods. The issue of high-crime areas as a path-dependency phenomenon could be explored using long-term data series. In a more practical account, another challenge is to implement safety measures that work for everybody. For instance, gender equality issues have not yet been a priority in crime prevention or in urban planning in Vilnius but should play a bigger role in the future if social sustainability is the goal.

In future research, the intertwined links between social, environmental and economic dimensions of Vilnius sustainability have to be discussed, taking into account its socialist past. A deeper knowledge of the conditions experienced in Soviet times in Vilnius would be needed to better understand the quality of life of those living there today. Disadvantaged, minority or other vulnerable groups may suffer from living in areas with poor environmental quality but also from social and economic constraints, such as being chronically unemployed, excluded from participation in local arenas or being exposed to an environment of violence and crime. Moreover, there is a need for knowledge on the relationship between economic resources, spatial differentiation and safety. When only a small share of the population can afford security commodities, we should ask ourselves: A safe city for whom? How can we plan both economic and social sustainable cities? A focus on more inclusive forms of sustainability, including gender initiatives, could open up new ways of thinking about safety and city development.

Future studies should look upon impact of societal changes on overall fear and fear of crime in cities of states in transition. Fear of crime is also affected by overall insecurity in society triggered by socio-economic, political and institutional instabilities (e.g., corruption, lack of trust in authorities). In cities in transition, in particular, more evidence is needed on how these structural aspects affect people's willingness to report crime and declare fear. In addition, future research in cities in transition should search for evidence between fear of crime, vulnerability and victimisation by groups to identify the most relevant factors affecting urban fear. Surveys must go beyond general questions of fear of crime and search for reasons why and how one relates certain spaces with fear and how it may impair ones mobility.

The role of local actors in the community and as agents of crime prevention must be better understood. For instance, there are indications that some of the most criminogenic areas in Vilnius are also some of the most ethnically segregated neighbourhoods. Little is known about the nature of social links between residents of these segregated areas and those living in other parts of Vilnius (e.g., job/commuting outflows). There is also a lack of knowledge about the type of social interactions that take place locally by non-residents (such as professionals working in schools, police departments, and non-governmental organisations) and how these actors are perceived by the local population and vice versa. Moreover, the role of the police in organising local actors around crime prevention initiatives should, for instance, be further studied. In this context, it is important to understand whether the multicultural component of these neighbourhoods affects crime prevention practices, and whether these processes differ in Vilnius, compared to cities of Western Europe. Finally, the low priority given to gender issues and safety in Vilnius should also be further investigated in the future. Actions in crime prevention as well as planning of new built

environments should consciously incorporate a gender perspective aiming at creating safe environments for all.

Despite the above limitations, the study makes a contribution to the way safety can be assessed in the context of urban sustainability. The attempt to integrate three approaches under a common framework shows advantages as illustrated in this study but also limitations that may be tackled in future empirical research. In this context, it is important to be able to report on the experience of applying this framework in a city in transition, as has been done in this study.

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