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THE IMPACT OF STATUTORY SUNDAY TRADING RESTRICTIONS ON THE CHOICES OF RESIDENTS OF A LARGE POLISH CITY WITH REGARD TO TRANSPORT BEHAVIOURS AND MOBILITY

Abstract: The main purpose of the paper is to recognise the impact of statutory Sunday trading restrictions on consumer behaviours (shopping time) and mobility (activeness, motivation, modal division) of residents in Łódź, one of the largest Polish cities. An additional aim is to determine the independence of the indicated elements for selected features of the surveyed residents and their households, for which purpose a two-stage questionnaire survey was conducted among the residents/dwellers of Łódź. The first stage was performed during a week following a non-trading Sunday, and the respondents were asked to refer specifically to the previous Sunday. The second phase was carried out during a week immediately following a trading Sunday, with the questions focused on that particular Sunday. The returned results showed that the main factor determining the time when people do their shopping to make up for a non-trading Sunday is their professional Sunday activity. The answers also revealed that the residents of Łódź chose an inactive and rather a “couch-potato” lifestyle on the analysed Sundays, whether trading or non-trading.

Key words: transport behaviours, mobility, trading restrictions, big city

WPLYW USTAWOWEGO OGRANICZENIA HANDLU W NIEDZIELE NA ZACHOWANIA TRANSPORTOWE MIESZKAŃCÓW DUŻEGO MIASTA W POLSCE

Streszczenie: Głównym celem artykułu jest identyfikacja wpływu ograniczeń w handlu w niedziele, wprowadzonych w Polsce na mocy ustawy, na wybrane zachowania nabywcze (okres realizacji zakupów) i komunikacyjne (ruchliwość, motywacja, podział modalny) ludności dużego miasta, na przykładzie Łodzi. Celem dodatkowym jest natomiast określenie niezależności wskazanych elementów względem wybranych cech ludności i gospodarstw domowych poddanych badaniu. W tym celu przeprowadzono wywiady kwestionariuszowe z mieszkańcami Łodzi. Badanie zostało podzielone na dwie tury. Pierwsza z nich realizowana była w tygodniu następującym po niedzieli objętej zakazem handlu, a respondenci w swoich odpowiedziach odnosili się wyłącznie do minionej niedzieli. Natomiast druga tura badania została przeprowadzona w tygodniu kolejnym, następującym po niedzieli handlowej, a pytania kierowane do ankietowanych dotyczyły tylko ostatniej niedzieli. Przeprowadzone badania wykazały, że głównym czynnikiem wpływającym na okres robienia zakupów w zastępstwie niedzieli z ograniczeniami handlu jest niedzielna aktywność zawodowa a ankietowani mieszkańcy Łodzi preferowali statyczny, raczej „kanapowy” tryb życia w analizowane niedziele, zarówno handlową, jak i niehandlową.

Słowa kluczowe: zachowania transportowe, mobilność, ograniczenia w handlu, duże miasto

Introduction

Mobility findings from trips taken to fulfil certain needs (Taylor 1999; Hannam, Sheller and Urry 2006; Hebel 2013) and numerous studies on transport behaviours have indicated a high position of shopping in the hierarchy of such needs (Carp 1988; Vilhelmson 1999; Gorter, Nijkamp and Klamer 2003; Nosal and Starowicz 2010; Kraft 2014). Consumer behaviours are shaped by cultural, social, personal and psychological factors (Jękot 2018). The appearance of shopping malls that offer a wide variety of stores and services have contributed to changes to our everyday habits and behaviours. The existing studies conducted by various experts, including economists (Szromnik 2017), sociologists (Szul 2015) and geographers (Rochmińska 2011; Heffner and Twardzik 2013) demonstrate that shopping and spending people's leisure time in trading facilities is an important and popular element of Sunday activity. However, the introduction of the Act on Sunday Trading Restrictions on 1 March 2018 in Poland forced people to alter their models of behaviour (Jękot 2018).

Sunday trading regulation indicators for the European market vary, as shown in the studies conducted by Genakos and Danchev (2015). Prior to the implementation of the trading ban, the said indicator in Poland had one of the lowest values across the continent, with relative liberty being recorded in such countries as the Czech Republic, Hungary, Ireland, Iceland, Italy (since 2012), Lithuania, Latvia, Romania, Sweden, Slovenia and Slovakia. During the first 15 years of the new millennium, deregulations in this area were observed in seven out of 30 researched states (Italy, Germany, Denmark, Spain, Finland, France and Portugal), and no inclinations were observed which aimed to increase the degree of statutory regulations. In view of the above, a question arises about the rationale behind such a regulatory solution in Poland. Public debate on the issue was ignited

on several occasions in the late 20th century, and yet it was not until 2016 when it reappeared with full force and led to the introduction of regulations in March 2018 that substantially restricted trading on Sundays and public holidays as well as some other specified days. Officially, the major premise for the implementation of these legal regulations was the protection of the employees' rights to a day off (with particular focus on the situation of women). Until the end of 2018 the shops were allowed to be open on only two Sundays per month, whereas in 2019 this number was limited to a single Sunday, and in 2020 the trading ban applied to all Sundays, with the exception of three Sundays preceding Christmas and Easter, respectively, as well as the last Sunday in January, April, June, and August.

Since such restrictions were implemented relatively recently, and the process of their introduction has not yet been completed, there have been no substantial studies on the scope of the changes in consumer behaviours and mobility related to the ban and, therefore, the issue remains a significant research topic. As a consequence, the authors of this paper have decided to identify the impact of the statutory Sunday trading restrictions in Poland on selected consumer behaviours (shopping time) and mobility (activeness, motivation, modal division) of residents in Łódź, one of the largest Polish cities. An additional aim of this article is to determine the independence of the aforementioned elements for selected features of the surveyed residents and their households.

Theoretical background

Travel behaviour research is about human movement patterns (Schönfelder and Axhausen 2016). Studies that include travel behaviour comprise choices made by individuals and households in regard to their everyday mobility. The application of qualitative methods for travel behaviour research enables experts to fill in the gaps left by quantitative approaches (Clifton and Handy 2003). Moreover, qualitative methods can also be utilised for a more effective interpretation of traditional studies (Clifton and Handy 2003), which makes such research techniques (questionnaires, interviews, surveys, etc.) indispensable in order to fully comprehend the complexity of transport behaviours which are customarily based on an individual's subjective choices and habits (Poulenez-Donovan and Ulberg 1994). Nevertheless, the techniques themselves can also constitute a well-founded research method (Clifton and Handy 2003). Problems posed by the conventional questionnaire type travel survey were discussed in Ettema, Timmermans and van Hegel (1996) and Axhausen (1998). Travel behaviours of individuals are clearly related to their socio-economic position, age, education, profession, car ownership, type of household and income (Dieleman, Dijst and Burghouwt 2002; de Witte, Hollevoet, Dobruszkes, Hubert and Macharis 2013). Another crucial factor is the urban form (Bagley and Mokhtarian 2002; Collantes and Mokhtarian 2007), which includes the size of the city, location of various objects within the urban fabric (places of residence, work, service facilities, etc.), population and employment densities, land use and development structures (Bartosiewicz and Piesiak 2019).

While analyses and modelling of travel demand have been performed for many years, initial studies only took into account data on one-day journeys (records of journeys taken by a household member on a given day). Recently, however, transport experts have begun to pay significantly more attention to multi-day travel data, since it can be used in a more versatile way (Jones, Kopplemann and Orfeil 1990). Hirsh, Prashke and Ben-Akiva (1986 a, b) have already proposed a dynamic model of weekly activity patterns focusing on the day-of-the-week for shopping activity. The empirical results demonstrate the potential biases that may arise from the omission of the interdependencies among the days of the week in a travel demand model. The literature has shown that shopping activities are highly discretionary. Accordingly, a dynamic approach to time (e.g. over seven days), would be more practical for the modelling of this activity (Sugie, Zhang and Sugiwara 2003, p. 335). Commuting to work and school occurs regularly, normally on a daily basis, but shopping-related mobility appears to be considerably more irregular. Some go to the shops daily, while others show a less uniform pattern of consumer behaviour, visiting stores every few days, which means that their purchasing decisions do not have to be taken daily, but weekly. Currently, such factors as the ownership of large home fridges, the steadily growing number of cars, and the increasing percentage of women in employment strengthen the trend where shopping is only done once a week. Therefore, any modern analysis of shopping behaviours should take into account multi-day data that covers a minimum period of one week (Sugie et al. 2003). Changes to our shopping habits are inextricably linked to transformations of lifestyles and social roles. An increase in women's professional activity and growth in their labour market share lead to transformations of the previously accepted family model, which has evolved into a model with two breadwinners and a shared responsibility for household chores (Sarmiento 2000; Adamiec and Grodzka 2017). It must be stated, however, that even though the labour market share for both sexes is dynamically equalising, changes in the responsibility for household duties are taking significantly more time to occur. It is women – including those employed full time – that still remain responsible for the majority of household chores (Firestone and Shelton 1988), as well as for looking after children and the elderly (Gibeau and Anastas 1989; Anastas, Gibeau and Larson 1990; Niemeier and Morita 1996). Moreover, the dynamic nature of the labour market and its instability translates into changes in the forms of employment and the way work is organised. This leads to fierce competition on the labour market, as a result of which candidates must meet ever higher requirements and expectations regarding their qualifications, mobility, availability and willingness for continuous professional development. In consequence, managing one's career is becoming more and more time-consuming. Moreover, the research conducted by Rochmińska (2011) proved that in the “consumption era”, citizens of large cities (e.g. Łódź) have a different perception of shopping as such. For many people – and young citizens (aged 33 or younger) in particular – a visit paid to a shopping mall is not only a shopping experience, but also a way of spending their leisure time. Unfortunately, the introduction of trading restrictions

is likely to change the model of behaviour related to cyclical weekly journeys. As a consequence the issue poses an exceptionally interesting research area for various experts, and studies in the matter are of utmost importance.

Characteristics of the study area

Being the fourth largest urban area in Poland (population: 690,422), Łódź is relatively densely populated and, according to the Polish Central Statistical Office (GUS), has a high old-age-dependency ratio of 34.2 (Fig. 1). A comparative analysis of the spatial structure of the road subsystem and the public transport system against populous areas (large housing estates, mainly: Retkinia, Widzew, Olechów, Teofilów, Radogoszcz, Dąbrowa, and Chojny) indicates the concentricity of the urban layout, i.e. relatively well-developed infrastructure along the axes that connect the suburban areas with the city centre (Śródmieście), and an underdeveloped frame-shaped system of connections between the suburban areas themselves (traffic between districts moves, to a large extent, along the overloaded inner ring road, which is formed by the national trunk roads running near or through Łódź) (Kowalski and Wiśniewski 2017a) (Fig. 2). Areas of marginally lower population density than the aforementioned districts – though still relatively high – include the city centre (Śródmieście) and the adjacent areas of Stare Bałuty, Stare Polesie, Widzew Fabryczna and Górniak. The city centre is not only characterised by a substantial demographic potential, but also by the highest concentration of services, including public utility services (Wolaniuk 2002), which makes it an attractive location for commercial investment (Marciniak and Jakóbczyk-Gryszkiewicz 2006) and an attractive destination for tourism (Liszewski 1999). As a result, the district can boast the largest number of

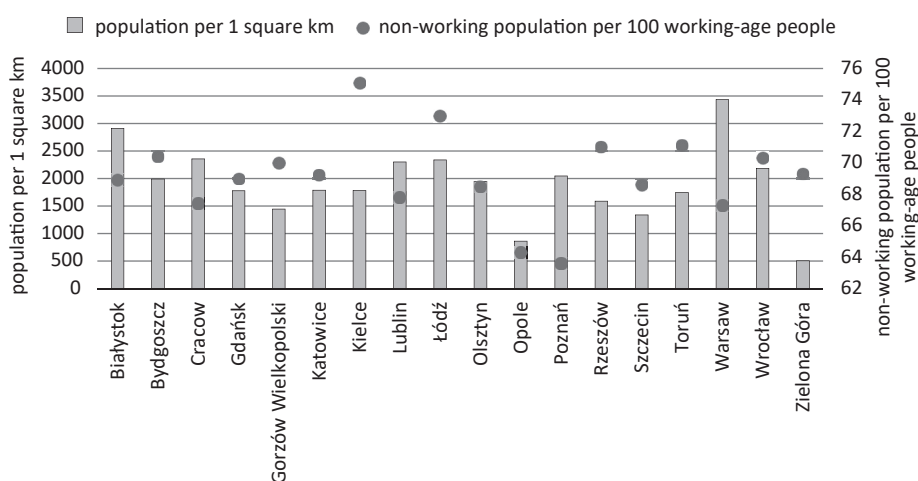
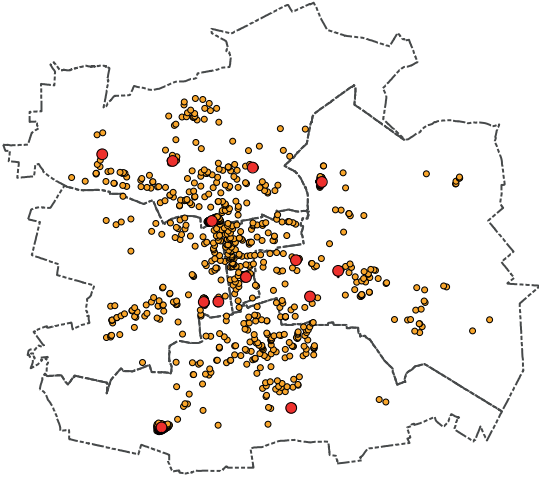


Fig. 1. Population density and old-age-dependency ratio for Polish voivodship capitals in 2018

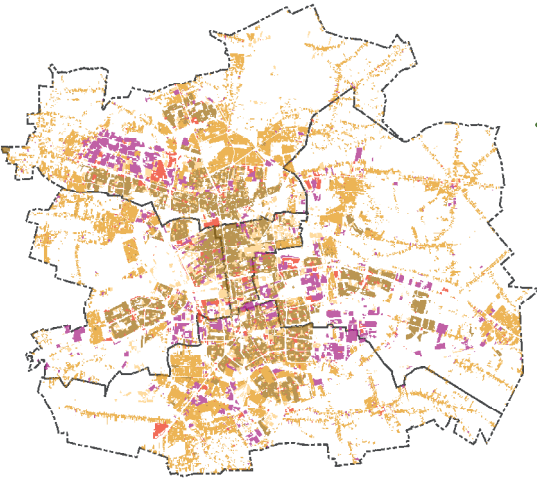
Source: own study based on the Local Data Bank of the Polish Central Statistical Office (GUS).



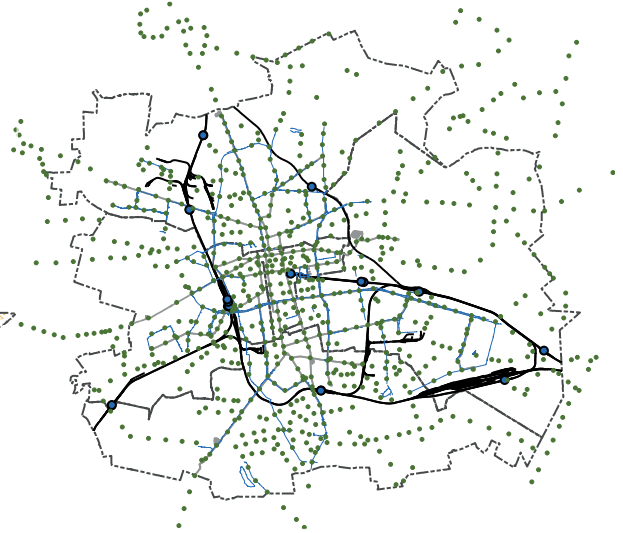
a) Stores and shopping centres



b) Roads and highways



c) Housing



d) Public transport

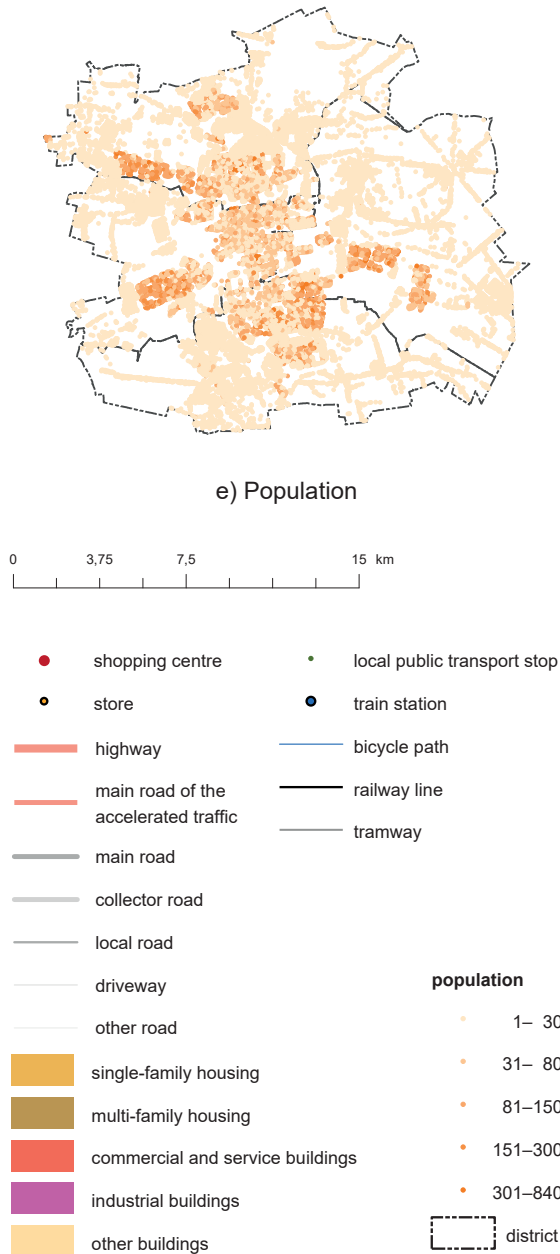


Fig. 2. Location of trade facilities, individual and public transport infrastructure, public amenities and housing developments (arranged by purpose) in relation to the residents of Łódź

Source: own study.

commercial units (Fig. 2). An analysis of the distribution of commercial outlets outside Śródmieście shows that the greatest number of shops are located within densely populated housing estates. This trend was noted by Dzieciuchowicz (2013), whose research returned a positive ratio for the relationship between the density of trade facilities and population ($R^2 = 0.81$).

Trade in Łódź is undergoing a process of concentration, as evidenced by a relatively low number of registered retail businesses when compared to other urban centres of a similar demographic potential (Cracow, Wrocław, Poznań) (Fig. 3). The retail chains boasting the largest numbers of facilities on the Łódź market consist of stores (including franchises) that sell fast-moving consumer goods (FMCG): Żabka (242 stores), Społem (all shops and entities owned by the group: 105), and Livio (31), including such supermarket chains as Biedronka (50), Carrefour (all types of stores in total: 22), Lidl (17), and the drug store chain Rossmann (46). Łódź has 13 shopping centres, whose transport accessibility is determined by the combination of factors related to the distribution of population and the shape of the transport system. One can find these malls located in the city centre, along the axis between the city centre and the large housing estates, within individual housing estates, and in the suburbs (Kowalski and Wiśniewski 2017b).

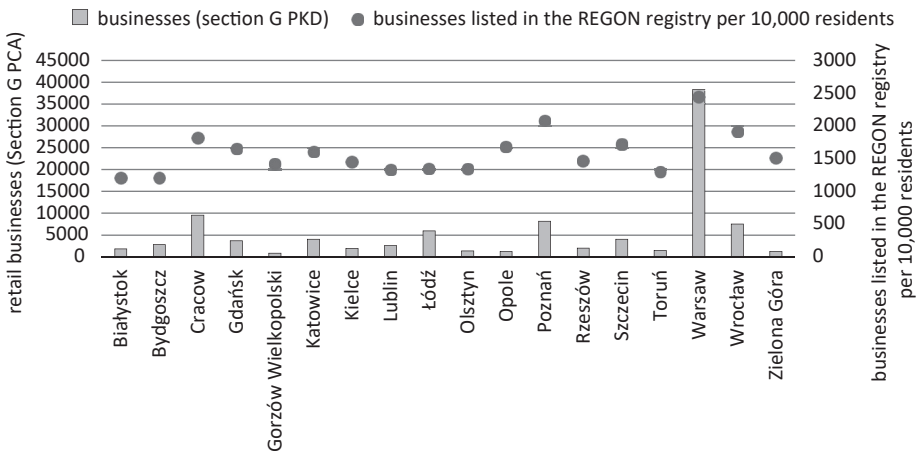


Fig. 3. Number of retail businesses (as defined in Section G of the Polish Classification of Activity) and total number of businesses listed in the REGON register (the National Business Register) per 10,000 residents of voivodship capitals in Poland in 2018

Source: own study based on the Local Data Bank of the Polish Central Statistical Office (GUS).

Despite the recently recorded drop in unemployment in Łódź (part of the national trend in Poland), the rate still remains relatively high in comparison to other major Polish cities; when combined with the comparatively low entrepreneurial rate (Fig. 3) and the high old-age-dependency ratio, it translates into one of the lowest income rates per person among the voivodship capitals (Fig. 4). However, the low base effect and the improving conditions on the labour

market have resulted in a growth of retail trade in Łódź that has been higher than the Polish average in the recent years (GUS).

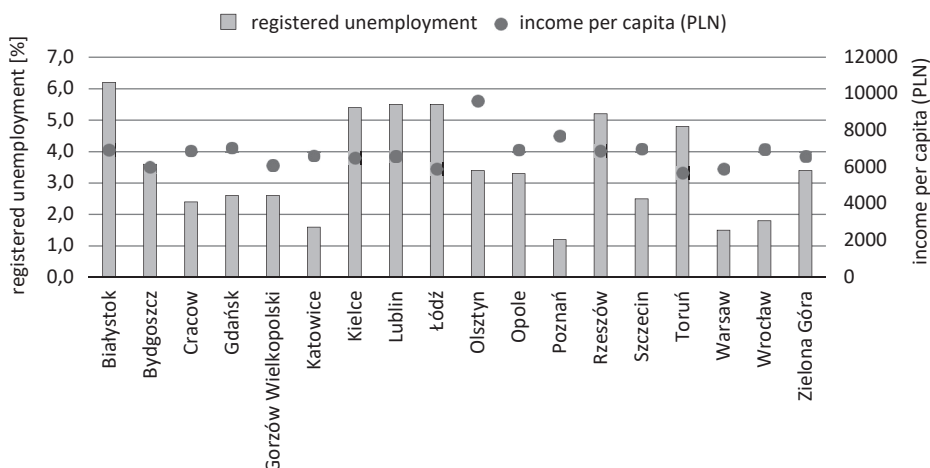


Fig. 4. Registered unemployment and per capita incomes for voivodship capitals in Poland in 2018

Source: own study based on the Local Data Bank of the Polish Central Statistical Office (GUS).

The mobility of Łódź residents is not a thoroughly analysed phenomenon, since no comprehensive research has been conducted in the city for many years. General patterns of residents' mobility can be seen from an interpretative analysis of the findings from a pilot study on transport behaviours in Poland conducted by the Polish Central Statistical Office (GUS). The survey shows that the average annual number of journeys taken by the residents of the Łódź Voivodship amounts to 411 (with an average distance of 13.2 km). 27.7% of trips taken by Łódź residents are related to commuting to work, 8.2% to shopping, 5.2% to leisure time, 3.6% to personal needs, and 3.2% to commuting to schools and universities (other journeys were classified as return trips). The average travel time by city public transport and by private car is 26 and 21 minutes, respectively. On average, journeys related to shopping last 15 minutes in the Łódź Voivodship. The total modal division of journeys in the region is as follows: 56.4% by car, 22.77% by non-motorised transport modes and 20.2% by public transport. The results of traffic measurements made by the intelligent transportation system in Łódź allow us to draw general conclusions concerning the highest traffic density in the vicinity of trade and service facilities (Kowalski and Wiśniewski, 2017a), and more precise ones in regard to values of car traffic generated by individual trade facilities (Kowalski and Wiśniewski, 2017c).

Research methods

The conducted questionnaire surveys referred to changes in the share of individual ways of travelling according to the means of transport in all passenger

Tab. 1. Basic characteristics of the respondents in the first and second round

| Characteristics | Total sample [%] | | Characteristics | Total sample [%] | |
|----------------------------|--------------------|---------------------|----------------------------------|------------------------|-------------------------|
| | I round N = 465 | II round N = 236 | | I round N = 465/390 | II round N = 236/198 |
| Sex | | | Business sector (N=390/198) | | |
| Female | 59.8 | 73.7 | working respondent | 20.6 | 22.7 |
| Male | 40.2 | 26.3 | other services | 20.3 | 25.8 |
| Education | | | administration | 14.6 | 12.6 |
| Primary | 0.9 | 0.8 | industry | 11 | 4.5 |
| Junior high school | 1.1 | 0.4 | architecture | 9 | 7.1 |
| Vocational | 15.5 | 10.7 | trade | 7.9 | 10.1 |
| Secondary | 44.7 | 41.8 | science | 7.4 | 6.1 |
| Post-secondary | 4.1 | 3.4 | transport | 4.6 | 6.1 |
| Higher | 33.7 | 42.8 | healthcare | 2.8 | 3 |
| | | | culture | 1.5 | 2 |
| | | | other | 0.3 | 0 |
| Age | | | agriculture | | |
| 17-25 | 12 | 10.2 | Doing work on Sunday | | |
| 26-35 | 22.4 | 23.7 | (N = 390/198) working respondent | | |
| 36-45 | 26.9 | 30.5 | work every Sunday | 0.5 | 0 |
| 46-55 | 17.4 | 14.9 | work on some Sundays | 23.1 | 24.2 |
| 56-65 | 15.1 | 14.8 | no work on Sundays | 76.4 | 75.8 |
| 66-75 | 6.2 | 5.9 | | | |
| Employment | | | net income per person in the | | |
| pupil | 1.3 | 0.4 | household | | |
| student | 3.9 | 4.1 | less than 230 EUR | 10.5 | 4.2 |
| student working / | 2.4 | 1.2 | 230-350 EUR | 22.6 | 21.6 |
| working casual | | | 350-460 EUR | 34.3 | 39 |
| working outside home | 79.5 | 78.5 | 460-580 EUR | 20.4 | 22.9 |
| working from home | 1.9 | 2.1 | 580-700 EUR | 6.9 | 8.1 |
| pensioner / retired person | 8.4 | 7.4 | 700-820 EUR | 1.9 | 2.1 |
| unemployed | 2.2 | 2.9 | 820-940 EUR | 1.3 | 0.4 |
| other | 0.4 | 3.3 | 940-1060 EUR | 0 | 0 |
| | | | 1060-1180 EUR | 0.4 | 0 |
| | | | more than 1180 EUR | 0.2 | 0 |
| | | | refusal to answer | 1.5 | 1.7 |

| Household size | | |
|----------------|------|------|
| 1 | 13.1 | 12.7 |
| 2 | 31.4 | 31.8 |
| 3 | 27.7 | 29.2 |
| 4 | 20 | 22.1 |
| 5 | 5.6 | 2.5 |
| 6 or more | 2.2 | 1.7 |

Source: own study.

transport as well as changeability in the transport behaviours of Łódź residents resulting from the introduction of the ban on trading under the Act on Trading Restrictions on Sundays and Public Holidays. The research also concerns the average travel time and travel destinations which follow the trading restrictions. The subject of observation in the research were single- or multi-member households as well as household members at the age of 16 or older living in the selected household. The research was carried out on the drawn sample of 465 dwellings on the area of whole Łódź. The survey was voluntary and anonymous. The main research tool was a questionnaire survey composed of two parts. The first one concerned questions for households, whereas the latter included questions for individuals. The sampling frame was created on the basis of data from the Head Office of Geodesy and Cartography (GUGiK). Sample drawing took place at two stages. The first one involved drawing of a 5% sample of primary sampling units which included census areas or groups of census areas (comprising at least 15 dwellings). The units of the second stage of the drawn were dwellings. Three dwellings were drawn for the main sample and three for the reserve sample from each previously drawn census areas; 155 census areas (from 3,107 areas whose number of dwellings is not smaller than 15), and then 465 dwellings were drawn in the research. The research was carried out in two rounds. The first one was to analyse transport behaviours typical of those Sundays when trading is restricted. The other one took place on Sundays with no trading restrictions. This allowed to select two consecutive Sundays, making sure that they were far away from any holiday periods as this could affect research results. Among other things, the questionnaire also accounted for the respondents' sex and age, their level of education, professional activity, job type and number of days off during the year. The information collected during the survey also concerned the destinations of Sunday travels, time and place of initiating the travel, its duration and destination, number of changes in the travel or way of travelling. In order to obtain credible and reliable data, it was assumed that both rounds of the research would be conducted on the same group of respondents. 465 people were surveyed as part of the first stage of the research, and 236 respondents gave again their consent to take part in the second round of the research. The analysed group was composed of Łódź inhabitants of different ages living in different city districts. The surveying sectors were established with the help of randomly selected census areas. The profiles of the respondents are shown in Tab. 1.

For the used research methodology, two consecutive Sundays were selected to conduct questionnaire surveys. Sundays with no trading restrictions were represented by 25 November 2018, while Sundays when trading is restricted by 18 November 2018. The data obtained through the survey was used to determine the impact of the trading ban on the times (e.g. working days, Saturdays) when Łódź residents do their shopping. The returned results were juxtaposed with selected features of the respondents (e.g. age, gender, level of education) and their households (net income per household member). The analysis of their independence (chi-squared test) allowed us to indicate which features significantly (significance level of 99%) influenced the shopping decisions

made by the residents. The strength of the association was determined through the implementation of Cramér's V. The respondents were also asked to specify the way (positive, negative or neutral) in which the ban impacted the way they used this "extra" free time which they gained on non-trading Sundays. The returned results were then compared with the responses regarding how the free time was spent, and again, with the selected features of the respondents and their households. Here, the independence test was used once more, and the analysis of the modal division was conducted in order to identify changes in transport behaviours. All journeys made by the respondents on the analysed Sundays were taken into account to determine the scope of the modal transition. Next, the overall frequency of the changes was analysed in order to define their structure. A similar study was conducted for motivations behind the journeys taken on the specified Sundays, which allowed the authors to determine if travel motivations changed as a result of the trading ban, and if so, what the nature of the changes was. The accumulated research material also made it possible to scrutinise the relationship between mobility (total number of journeys) on the analysed Sundays and the motivation behind such journeys. The study also involved an analysis of the association between journey motivation and modal division. The usage structure for individual means of transport on trading and non-trading Sundays was determined for various specific purposes. A similar comparative analysis was conducted for motivations behind Sunday journeys in regard to the duration of the given activity that created the need for travelling, and the modal division and duration of the journey taken by a given mode of transport. All these associations were studied and juxtaposed in a manner that allowed the authors to identify the changes observed between the two Sundays. The analytical section of the paper closes with an independence test which focuses on the association between identified transport behaviours (mobility, modal division, journey motivation) and selected features of the respondents and their households. The test made it possible to determine which features (and to what degree) may impact transport behaviours during trading and non-trading Sundays.

Results and discussion

Nowadays, the majority of Poles devote over 40 hours per week to their professional duties, which must often be reconciled with their home-based obligations, e.g. taking care of children or elderly relatives. All these changes have given rise to the necessity to shop on Sunday, a manifestation not only of personal decisions regarding leisure time but also a result of people being burdened with other responsibilities, which – on numerous occasions – make it extremely difficult, if not virtually impossible, to shop on any other day (Adamiec and Grodzka 2017). A 2016 study conducted by CBOS (Centre for Public Opinion Research) on a cohort of 981 people shows that Sunday shopping is directly related to the respondents' age and position on the labour market. From the analyses performed by Jękot (Jękot 2018) we learn that the Sunday trading ban is not an issue for 50% of respondents, whereas 24% of interviewees

find is extremely problematic. Sunday shopping is most popular among people aged 25–44, residents of large cities, and those full-time employees who do not work shifts, while it is the elderly who are least likely to shop on Sundays (Appendix 1) (Adamiec and Grodzka 2017). What is more, our study shows that Sunday shopping is also gender dependent (Tab. 2). Broadly speaking, we observed differences in travel patterns among men and women, which is particularly noticeable in households with children. Women's trips are more often unrelated to professional activity, but such activities as shopping, taking care of children, etc. (Hanson and Hanson 1980; Rosenbloom 1987; Gordon, Kumar and Richardson 1989; Prevedouros and Schofer 1991; Sarmiento 2000). As far as the association between Sunday shopping and gender is concerned, our results show that more men (16.99%) than women (14.84%) declare that they do not do their shopping on Sundays. The analysis of standardised residues indicates that the largest impact of the analysed changes in retail trade had an impact on one- and three-person households. The first of them moved their shopping needs to the period from Monday to Friday, while the second – to Saturday.

Tab. 2. Occurrence and strength of the association between the impact of the trading ban on shopping time and the selected features of residents and households (significance level 0.01)

| | Critical area | Chi-squared test | Cramér's V |
|--|---------------|------------------|------------|
| Working on Sundays | 23.21 | 102.94 | 0.36 |
| Gender | 15.09 | 21.46 | 0.21 |
| Age | 50.89 | 100.31 | 0.21 |
| Education | 44.31 | 91.83 | 0.20 |
| Net income per household member | 37.57 | 55.49 | 0.17 |
| Driving licence | 15.09 | 22.14 | 0.15 |
| No. of employed members in the household | 44.31 | 48.01 | 0.14 |
| No. of people in the household | 50.89 | 32.05 | |
| No. of people aged 0-7 in the household | 37.57 | 19.44 | |

Source: own study.

The introduction of the trading ban and its impact on the way people organise their time on Sundays is mostly considered positively by households with two employed members, a net income of PLN 2,000, and where the respondents are aged 30–50. What is more, these changes are viewed favourably by people with secondary education who have not previously worked on Sundays (Appendix 2, Tab. 3).

Tab. 3. Occurrence and strength of the association between the impact of the trading ban on the organisation of leisure time and selected features of residents and households (significance level 0.01)

| | Critical area | Chi-squared test | Cramér's V |
|--|---------------|------------------|------------|
| Age | 26.22 | 28.62 | 0.18 |
| Gender | 9.21 | 13.40 | 0.17 |
| Education | 23.21 | 25.56 | 0.17 |
| Working on Sundays | 13.28 | 2.28 | |
| Net income per household member | 20.09 | 8.26 | |
| Driving licence | 9.21 | 2.66 | |
| No. of employed members in the household | 23.21 | 11.69 | |
| No. of people in the household | 26.22 | 14.85 | |
| No. of people aged 0-7 in the household | 20.09 | 14.70 | |

Source: own study.

The introduction of the trading ban has had a positive influence on the perception of the extra leisure time which is not spent on shopping (as confirmed by the chi-squared test and Cramér's V of 0.32) (Tab. 4). As a result, the respondents spend this time mainly with their relatives and friends, on tourism and recreation, entertainment and cultural activities, or in an eating establishment. This is also evidenced by a similar study conducted by Jękot (Jękot 2018), which shows that 74% of respondents spend their free Sunday with family and friends, 21% go for a walk or on an outing, 3% visit a restaurant or café, and 2% go to the theatre, museum or cinema. Based on the results presented in Tab. 4, it can be concluded that the impact of restricting trade on Sundays on the organisation of the respondents' free time (which would be intended for shopping) is rated particularly positively by those surveyed who decided to spend it on family gatherings (7.49%) as well as tourism and recreation (12.28%). Staying at home during the time otherwise spent in the store means that respondents perceive the restriction on trade as a factor disorganising their day (7.19%). Such a group of respondents spending such

Tab. 4. The impact of the trading ban on the organisation of leisure time

| Impact on time organisation | Type of activity [% of answers] | | | | | | | | |
|-----------------------------|---------------------------------|-----------|--------|-----------------------|-------|--------------------|-----------------|----------------|--------------|
| | Work | Education | Church | Entertainment/culture | Sport | Tourism/recreation | Staying at home | Friends/family | Eating place |
| Positive | 0.30 | 0.60 | 1.50 | 3.89 | 1.20 | 7.49 | 4.79 | 12.28 | 2.10 |
| Negative | 0.00 | 0.30 | 0.30 | 0.90 | 0.30 | 2.10 | 7.19 | 2.99 | 0.30 |
| Neutral | 3.89 | 0.90 | 3.29 | 0.90 | 0.30 | 7.19 | 25.45 | 7.49 | 2.10 |

Source: own study.

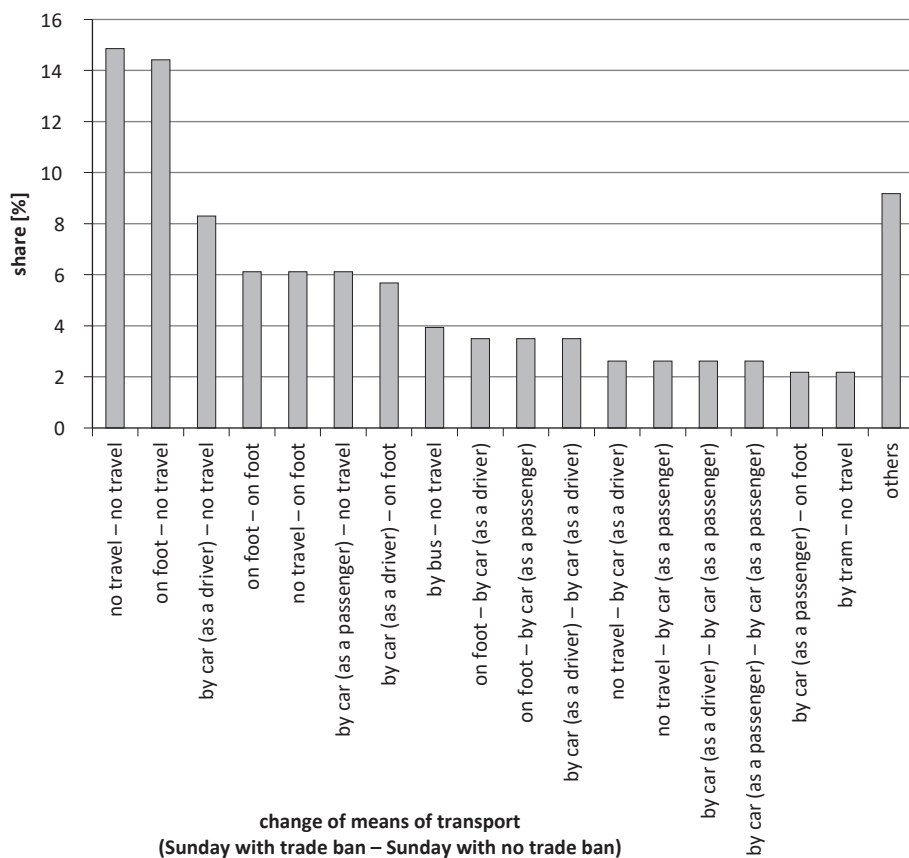


Fig. 5. Change of modes of transport used on trading and non-trading Sundays

Source: own study.

time very often did not feel any changes in the organisation of time on Sundays (22.45%), when the shops are closed.

Łódź residents are eager to go for a stroll on non-trading Sundays (and they were reluctant to leave home on trading Sundays) (Fig. 3).

On non-trading Sundays, the respondents were more physically active. This was, however, connected with the fact that people participated in a relatively large number of strolls, park runs and other sporting and recreational activities, which means the journey was the purpose itself. The interviewees also went on foot to facilities located within walking distance, i.e. churches, local corner shops and eating places. Longer journeys that required another mode of transport were mostly taken by car. There was a small difference in the car usage pattern, as it was men who most often sat behind the wheel, while women were more likely to take the passenger seat. With regard to urban public transport, the bus was marginally more popular than the tram.

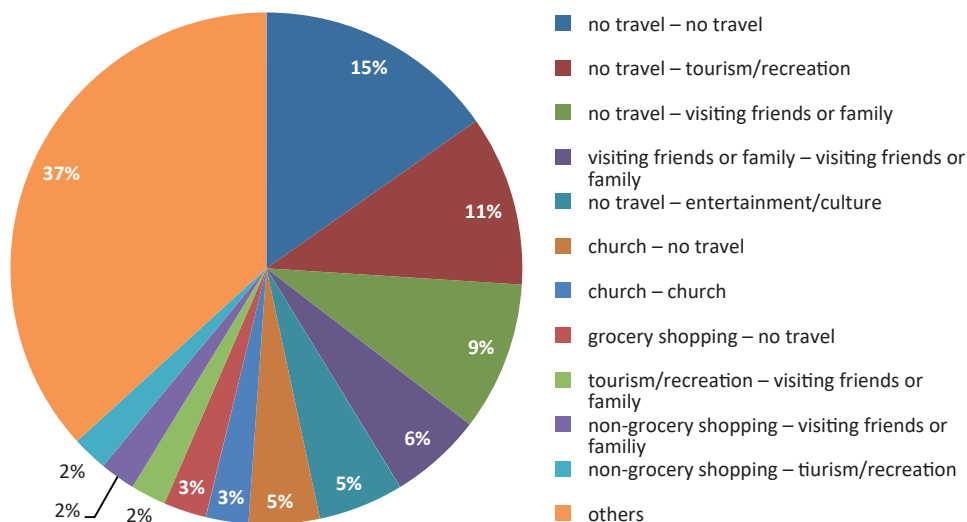
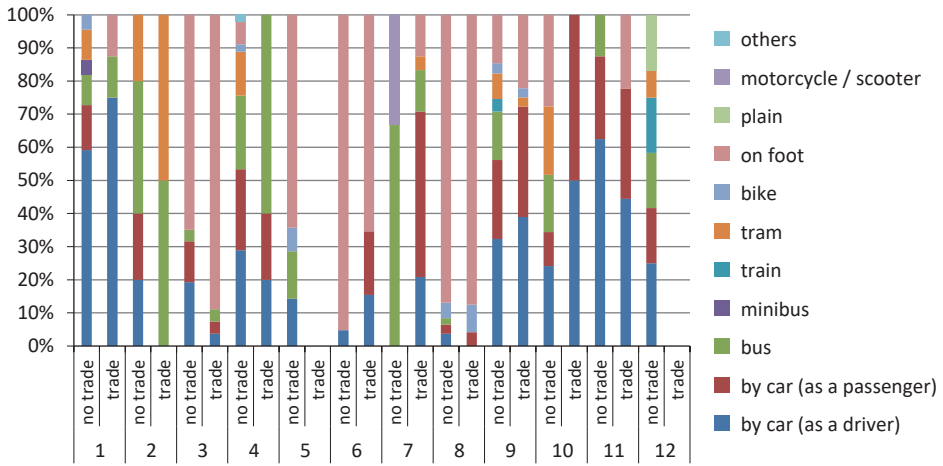


Fig. 6. Changes in motivation behind journeys taken on trading and non-trading Sundays
Source: own study.

The vast majority of men and women left home at least once on a non-trading Sunday, while approximately half of the respondents decided against it on a trading Sunday. During a non-trading Sunday, all respondents were eager to visit friends and undertake tourism or recreational activities (Fig. 6). Women were marginally more likely to go to church, while men opted for restaurants, and activities connected with sports, entertainment and culture. Broadly speaking, however, the behavioural pattern remained similar. On a non-trading Sunday, transport behaviours and activities chosen by both genders were quite similar, while some differences were observed on a trading Sunday, as men were more likely to do grocery shopping, and then visit a church or friends and family. Another relatively common choice among men was tourism and recreation, as well as entertainment and culture. At the same time, women preferred to spend a trading Sunday visiting family and close friends or doing non-grocery shopping to going to church, tourism and recreation.

No journeys were taken by one third and nearly half of the respondents on non-trading and trading Sundays respectively, which was a result of the lack of necessity to leave home. On both Sundays, people who left home took only one journey and, for most, it was just a visit paid to friends or relatives, which took three hours on average. Generally speaking, the vast majority of respondents declared that they spent over 10 hours at their own home during both trading and non-trading Sundays, trends which do not vary substantially in terms of gender and age.

On a non-trading Sunday, besides visiting friends and family, the respondents were also eager to pursue sports and recreational activities that required walking or running, lasted approximately half an hour, and started and ended in the



1 – work, 2 – education, 3 – church, 4 – entertainment/culture, 5 – sport, 6 – grocery shopping, 7 – non-grocery shopping, 8 – tourism / recreation / walk, 9 – visiting friends or family, 10 – restaurant, 11 – others, 12 – return home (from another trip)

Fig. 7. Modal division of motivations behind journeys taken on trading and non-trading Sundays

Source: own study.

vicinity of their home. This reveals that during a non-trading Sunday a relatively common relaxation activity was at least one stroll or jog around the neighbourhood (which the respondents classified either as recreation or as sport). Such “journeys” were relatively short, but repeated on numerous occasions, i.e. two 30–minute walks were taken on one Sunday. The use of various means of transport for various travel motivations is presented in Fig. 7.

The possibility of going to a shop or a mall was chosen mainly at the expense of sports and recreational activities. Even though local walks still remain one of the most frequently declared activities (slightly rarer on a non-trading Sunday), sport has completely disappeared from the list of motivations behind journeys taken on a trading Sunday. For this day, however, we recorded a marginal increase in the percentage of people who stated that they attended church, which might be related to the fact that the respondents were more eager to devote some of their Sunday to the morning service since they had to leave home anyway on their way to the shops (however, attending church was indicated as a separate destination, and not as a stopover *en route* to another location). On neither Sunday did eating establishments constitute a frequently mentioned destination, and yet they were visibly more often mentioned in reference to a non-trading Sunday. In all probability, deprived of the possibility of grocery shopping, the respondents tended to decide to eat out at places which were quite often located in the vicinity of their home. During a trading Sunday, eating houses were mentioned only sporadically as the main motivation, and they were most often described

as a “collateral” destination, visited on their way to pursuing other activities – especially during a longer shopping trips to a mall.

For the purpose of doing their grocery shopping – on both a trading and a non-trading Sunday – the majority of respondents used local stores within walking distance of their home. Thus, corner shops (non-trading Sundays), discount stores and smaller supermarkets available in most housing estates are most popular with the respondents. The limited amount of time devoted to shopping would also imply that people more willingly visited discount stores and smaller shops rather than hypermarkets, which would entail a greater amount of time. On the other hand, it is shopping centres and malls that became an important destination during a trading Sunday. Non-grocery shopping trips were mainly taken by car, which indicates the necessity to cover greater distances to reach such places. What is more, this experience also took significantly more time than regular grocery shopping. The respondents would spend approximately 30 minutes in a discount store, while a visit to a shopping mall would take them between two and three hours on average. The occurrence and strength of the association (significant level 0.01) between the selected elements of transport behaviours and the selected features of residents and households on trading and non-trading Sundays applies primarily to the modal division on a non-trading Sunday. The strongest relations concerning this issue relate to possession of a driving licence (Cramér’s $V = 0.39$), gender (0.30) and rate of motorisation (0.26). As for the diversity of travel motivation, it is mainly associated with the necessity of work on Sunday (0.41), age (0.23 – on Sunday without trade, 0.36 – on Sunday without trade restrictions) and activity in the labour market (0.30).

Transport behaviours are influenced by various features of the respondents and their households. A considerably larger number of statistically significant associations between them is observed on non-trading Sundays, while there are only two statistically important relationships on trading Sundays. The associations between them are rather moderate.

Conclusions

Our study shows that working on Sundays is the main factor determining the time when shopping is done to make up for a non-trading Sunday (the strength of this association can be described as moderate). Other features of the residents and their households demonstrate weak (age, gender, education), very weak (income, number of employed members in the household, etc.) association in that matter, or show no association whatsoever. A subjective evaluation of the impact of the statutory solution depends – to an extremely limited extent – on age, gender and education.

The analysis of Sunday transport behaviours allows us to observe a much larger number of considerably stronger association between the characteristics of the respondents and the number of journeys and their motivations on a non-trading Sunday when compared to the analogical day of the week without trading restrictions.

The returned results indicate that on Sundays Łódź residents tend to lead a relatively inactive, “couch-potato” lifestyle. Nevertheless, on non-trading Sundays, the respondents were often motivated by tourism/recreation/walking and sport, entertainment and cultural activities, as well as being more likely to visit eating places. When analysing marginal differences between the genders, one can also state that women were more eager to choose activities related to tourism and recreations, meeting friends and family and going to church, while men preferred entertainment, culture, sport and eating houses. Understandably, on a trading Sunday there was a considerable increase in the percentage of people who travelled to facilities for grocery and non-grocery shopping. Even though shopping did not completely dominate Sundays, the vast majority of residents of Łódź who chose to do their shopping at that time opted out of any other activity.

The results obtained in the study have a great potential and can form the basis for further in-depth analyses. One of the possible methods of their use is the development of an econometric model.

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Appendix 1. The impact of the trading ban on shopping habits in regard to selected features of residents and households [%]

| | | On the whole, I have not shopped on Sundays | On the whole, I have shopped in stores unaffected by the ban | Nowadays, I do my shopping on Saturdays | Nowadays, I do my shopping on weekdays | I do not go shopping at all | Others |
|--|----------|---|--|---|--|-----------------------------|--------|
| No. of people in the household | 1 | 3.87 | 0.86 | 4.09 | 3.44 | 0.22 | 0.65 |
| | 2 | 10.97 | 2.58 | 11.18 | 5.59 | 1.08 | 0.00 |
| | 3 | 7.74 | 1.29 | 11.61 | 5.81 | 1.08 | 0.22 |
| | 4 | 6.45 | 1.51 | 7.10 | 3.66 | 1.08 | 0.22 |
| | 5 | 1.94 | 0.86 | 0.86 | 1.29 | 0.65 | 0.00 |
| | 6 | 0.65 | 0.22 | 0.00 | 0.43 | 0.00 | 0.00 |
| | 7 | 0.22 | 0.00 | 0.43 | 0.22 | 0.00 | 0.00 |
| No. of people aged 0-7 in the household | 0 | 26.88 | 5.81 | 26.45 | 15.70 | 3.44 | 0.86 |
| | 1 | 3.66 | 0.43 | 6.24 | 2.37 | 0.43 | 0.22 |
| | 2 | 0.86 | 0.86 | 2.58 | 2.15 | 0.22 | 0.00 |
| | 3 | 0.22 | 0.22 | 0.00 | 0.22 | 0.00 | 0.00 |
| | 4 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| No. of employed members in the household | 0 | 4.52 | 0.65 | 1.08 | 1.29 | 0.00 | 0.00 |
| | 1 | 6.45 | 1.08 | 5.38 | 4.52 | 1.08 | 0.86 |
| | 2 | 15.70 | 4.09 | 25.38 | 12.47 | 2.80 | 0.22 |
| | 3 | 4.52 | 1.08 | 2.37 | 1.29 | 0.22 | 0.00 |
| | 4 | 0.65 | 0.43 | 0.86 | 0.86 | 0.00 | 0.00 |
| | 5 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 |
| Net income per household member | 1000 | 3.49 | 0.66 | 3.49 | 1.75 | 1.31 | 0.00 |
| | 2000 | 20.74 | 5.02 | 18.78 | 11.79 | 1.53 | 0.00 |
| | 3000 | 5.68 | 1.53 | 12.23 | 6.33 | 1.31 | 0.66 |
| | 4000 | 1.75 | 0.22 | 0.87 | 0.00 | 0.00 | 0.44 |
| | > 4000 | 0.22 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 |
| Age | up to 20 | 1.72 | 0.86 | 0.22 | 0.22 | 1.51 | 0.00 |
| | 21-30 | 5.38 | 0.65 | 7.10 | 4.52 | 0.65 | 0.43 |
| | 31-40 | 5.59 | 1.51 | 12.47 | 4.73 | 0.43 | 0.43 |
| | 41-50 | 6.67 | 1.51 | 8.17 | 5.59 | 1.08 | 0.00 |
| | 51-60 | 6.24 | 2.15 | 4.73 | 2.80 | 0.43 | 0.00 |
| | 61-70 | 5.38 | 0.65 | 2.58 | 2.58 | 0.00 | 0.22 |
| | 70+ | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gender | male | 16.99 | 3.01 | 10.11 | 7.53 | 2.15 | 0.43 |
| | female | 14.84 | 4.30 | 25.16 | 12.90 | 1.94 | 0.65 |

Appendix 1 – cont.

| | | On the whole, I have not shopped on Sundays | On the whole, I have shopped in stores unaffected by the ban | Nowadays, I do my shopping on Saturdays | Nowadays, I do my shopping on weekdays | I do not go shopping at all | Others |
|--------------------|---------------------|---|--|---|--|-----------------------------|--------|
| Education | primary sch. | 0.43 | 0.00 | 0.00 | 0.00 | 0.22 | 0.22 |
| | middle sch. | 0.65 | 0.00 | 0.00 | 0.00 | 0.43 | 0.00 |
| | vocational sch. | 7.10 | 1.94 | 3.44 | 3.01 | 0.00 | 0.00 |
| | secondary sch. | 15.91 | 3.01 | 14.19 | 8.82 | 2.37 | 0.43 |
| | post-secondary sch. | 0.65 | 0.86 | 1.29 | 0.86 | 0.43 | 0.00 |
| | college/ university | 7.10 | 1.51 | 16.34 | 7.74 | 0.65 | 0.43 |
| Working on Sundays | all | 0.26 | 0.00 | 0.26 | 0.00 | 0.00 | 0.51 |
| | some | 6.41 | 1.54 | 7.69 | 6.41 | 0.51 | 0.51 |
| | none | 22.31 | 5.90 | 31.03 | 14.62 | 2.05 | 0.00 |
| Driving licence | yes | 22.15 | 6.24 | 28.39 | 18.06 | 2.37 | 0.43 |
| | no | 9.68 | 1.08 | 6.88 | 2.37 | 1.72 | 0.65 |

Source: own study.

Appendix 2. The impact of the trading ban on the organisation of leisure time in regard to selected features of residents and households [%]

| | | Positive | Negative | Neutral |
|--|----------|----------|----------|---------|
| No. of people in the household | 1 | 2.15 | 1.51 | 9.46 |
| | 2 | 6.02 | 3.23 | 22.15 |
| | 3 | 7.96 | 2.80 | 16.99 |
| | 4 | 5.59 | 3.44 | 10.97 |
| | 5 | 1.29 | 0.86 | 3.44 |
| | 6 | 0.00 | 0.00 | 1.29 |
| | 7 | 0.22 | 0.22 | 0.43 |
| No. of people aged 0-7 in the household | 0 | 16.56 | 8.82 | 53.76 |
| | 1 | 3.87 | 1.72 | 7.74 |
| | 2 | 2.80 | 1.29 | 2.58 |
| | 3 | 0.00 | 0.22 | 0.43 |
| | 4 | 0.00 | 0.00 | 0.22 |
| No. of employed members in the household | 0 | 1.29 | 0.22 | 6.02 |
| | 1 | 3.44 | 2.80 | 13.12 |
| | 2 | 16.34 | 7.10 | 37.20 |
| | 3 | 1.94 | 1.29 | 6.24 |
| | 4 | 0.22 | 0.65 | 1.94 |
| | 5 | 0.00 | 0.00 | 0.22 |
| Net income per household member | 1000 | 3.06 | 1.53 | 6.13 |
| | 2000 | 14.22 | 7.00 | 36.76 |
| | 3000 | 5.91 | 2.84 | 19.04 |
| | 4000 | 0.22 | 0.66 | 2.41 |
| | > 4000 | 0.22 | 0.00 | 0.00 |
| Age | up to 20 | 0.65 | 1.08 | 2.37 |
| | 21-30 | 3.66 | 3.01 | 12.04 |
| | 31-40 | 8.17 | 3.01 | 13.98 |
| | 41-50 | 6.67 | 3.44 | 12.90 |
| | 51-60 | 1.94 | 1.08 | 13.33 |
| | 61-70 | 2.15 | 0.86 | 8.82 |
| | 70+ | 0.00 | 0.00 | 0.86 |
| Gender | male | 6.24 | 4.09 | 29.89 |
| | female | 16.99 | 7.96 | 34.84 |

Appendix 2 – cont.

| | | Positive | Negative | Neutral |
|-----------------------|------------------------|----------|----------|---------|
| Education | primary sch. | 0.22 | 0.00 | 0.65 |
| | middle sch. | 0.00 | 0.22 | 0.86 |
| | vocational sch. | 0.65 | 1.72 | 13.12 |
| | secondary sch. | 12.69 | 4.09 | 27.96 |
| | post-secondary sch. | 1.08 | 0.65 | 2.37 |
| | college/ university | 8.60 | 5.38 | 19.78 |
| Working on Sundays | all | 0.00 | 0.00 | 0.51 |
| | some | 4.87 | 3.08 | 15.13 |
| | none | 20.26 | 9.23 | 46.92 |
| Driving licence | yes | 18.71 | 10.11 | 48.82 |
| | no | 4.52 | 1.94 | 15.91 |

Source: own study.