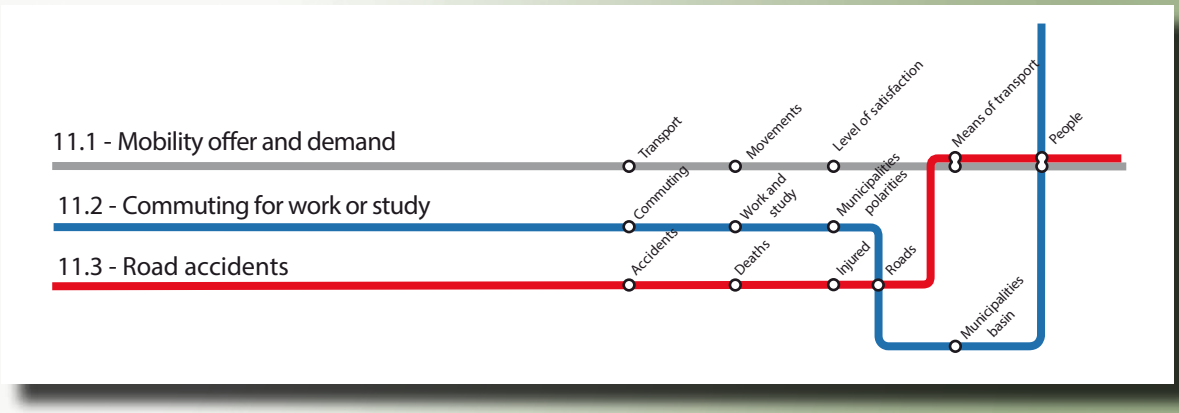
Data collected during the 15th Census provide the chance to examine in more detail certain aspects of systematic mobility and commuting.
In Veneto individuals travelling to reach their places of work or study everyday are 2,603,830, over half of the resident population, increased of 300,000 units over the past 10 years. 70% of these travel for work, while the remaining 30% for study.
In order to reach their place of work or study, 9 out of 10 people use a means of transport and cars are the most popular choice: over 2 people every 3 prefer it.
Among the consequences of travelling we must mention road accidents, a very relevant phenomenon since a quarter of violent deaths in the world can be attributed to it. For this reason, the European Union set reduction in road deaths by half as a target for the 2011 - 2020 decade. Between 2011 and 2013 Italy recorded a 52.3% decrease of deaths, while the value recorded for Veneto in the same time frame reached 56.9%.
Special focus should be set on vulnerable road users, such as pedestrians and cycle, moped and motorcycle riders, including their passengers, whose rate of death by accident reaches very high values.



πάντα ῥεῖ:
everything flows...

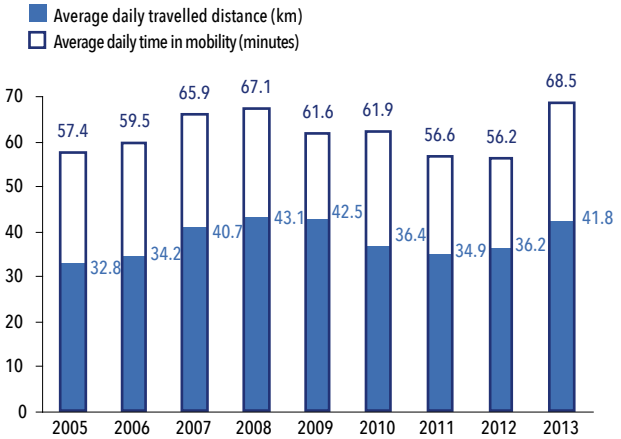
11. πάντα ῥεῖ: everything flows...

Movement and energy are two terms and concepts which are very often associated, even in totally different contexts.
Lively kids running and playing: what an energy!
The sprint of a sprinter, the spike of a volleyball player, the serve of a tennis player: what an energy!
The apparent matter inertia, on the atomic level, is actually a swirling motion: what an energy!
More simply, cars, motorbikes, trains, airplanes speeding in the sky: how much energy!
Transportation affect everyone's lives directly.
Whatever our age, whatever activity we carry out, transportation and mobility play a major role in our daily lives and in financial activities. The average annual budget for transportation of a European family is 4,530 Euros: this figure represents a significant investment considering a population of over 505 million individuals. The European Commission carried out a survey to gather information on the European citizens' transportation habits and their opinions.
The respondents were asked about the means of transportation they used most on a typical day. Cars are by far the most used daily means of transport (54%), followed by urban public transport (19%) while moving on foot ranked third (14%). The survey[1] underlined the strong preference of cars as means of transport, both for daily movements and long distance journeys in all Member States, especially in those belonging to the central Europe area.
Cars are chosen mainly for the convenience (61% of cases) and speed (31% of cases) it ensures. More frequent services (27% of cases), wider covering of the network (26% of cases) and cheaper tickets (25%) are factors that could stimulate the abandonment of cars and use of public transport (however, 21% of the respondents declared nothing could convince them to stop using their cars!).
Moreover, the survey[2] on "Europeans' satisfaction with urban transport" analyses the satisfaction of the EU citizens with eight features of urban public transport in their country.
While there are considerable differences among the Member States, Europeans who use public transport declared to be fully satisfied for aspects as punctuality and reliability (70%), frequency of service (69%), routes (69%) and cleanliness and maintenance (69%); they are rather less satisfied on factors as passenger security (66%), availability of through-tickets using several modes of transport (61%) and provision of information on connecting services (58%).
The price of urban public transport tickets is the only element that most of the respondents declared not to be satisfied with (39%).
The synthetic index underlines how more than half of Europeans showed a "high" or "good" level of satisfaction (54%). Italy is fourth last in the ranking, with only 40% users having a "high" or "good" level of satisfaction: such dissatisfaction is mainly related to factors as cleanliness, punctuality and security.

11.1 Mobility demand and offer

Between 2008 and 2012 the average number of daily movements and time spent for mobility for work, study, family and personal management, and leisure, decreased. However, it seems an increase of mobility occurred in 2013: an average of 41.8 km travelled (43 in 2008) in 68.5 minutes (67 in 2008).

Fig. 11.1.1 - Characteristics of movements: Veneto - Years 2005:2013

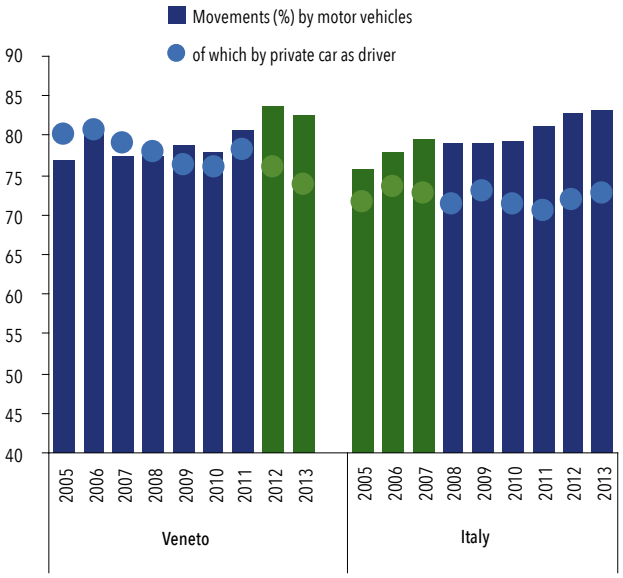


Source: Veneto Region Processing - Regional Statistical System on Isfort-Osservatorio Audimob data

[1] Special Eurobarometer 422a Quality of transport – December 2014.
[2] Special Eurobarometer 382b Europeans' satisfaction with urban transport, June 2014.

Movements by motor vehicle remain highly predominant, such option has been chosen in 80% of cases during the last three years.
The Veneto population's high preference for private means of transport is also demonstrated by the increasing number of vehicles circulating (3,903,220 in 2014), especially cars (2,983,814) and motorcycles (463,082).
Therefore, the number of cars circulating rises to 61.1 every 100 inhabitants and that of motorcycles to 95 every 1,000.

Fig. 11.1.2 - Transports used for daily movements. Veneto and Italy - Years 2005:2013



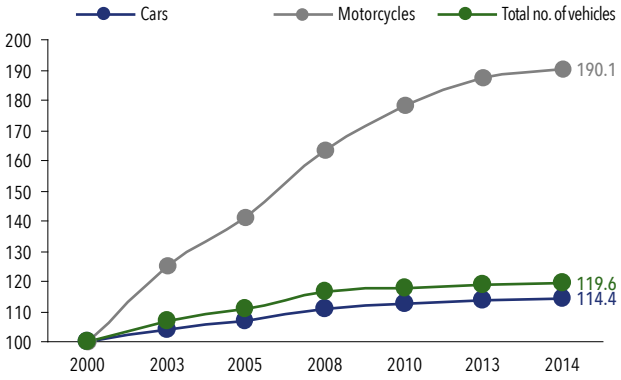
Source: Veneto Region Processing - Regional Statistical System on Isfort-Osservatorio Audimob data

The local public transport offer analysed through the offered seat-km indicator[3] recorded a stop. Indeed, after the flattering recovery that marked the 2008:2010 period, the last two or three years recorded a decline in both the urban and extra-urban service.

Growing demand, decreasing offer...

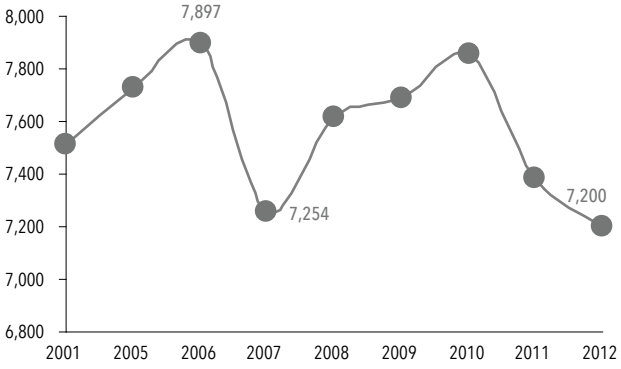
The weakening of the urban offer is certainly negative, considering the massive competitiveness of the use of private transport which seems to adapt better to the individual's mobility needs, especially of the so called city users (commuters, non-resident workers and students, tourists, etc...) not living in the cities but benefiting from their resources not living in the cities but benefiting from their resources, thus increasing pressure on urban services.

Fig. 11.1.3 - Total number of vehicles: cars and motorcycles circulating (index number). Veneto - Years 2000:2014



Source: Veneto Region Processing - Regional Statistical System on Istat data

Fig. 11.1.4 - Local public transport – Extra-urban service: Seats-km offered (*) (in million). Veneto – Years 2001 e 2005:2012



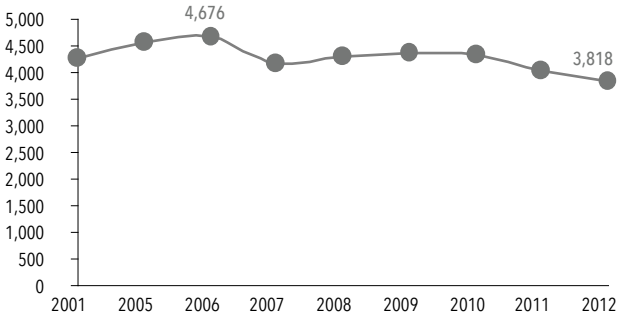
(*) Resulting from the sum of the capacities of each means of transport (number of seats offered and standing passengers) for the annual kilometres travelled. The indicator expresses the actual transportation offer.
Source: Veneto Region Processing - Regional Statistical System on Ministry of Infrastructure and Transport data

The extra-urban offer's stop seems even more negative, considering the "urban sprawl" that characterizes the Veneto territory causing an increasing demand of

[3] Resulting from the sum of the capacities of each means of transport (number of seats offered and standing passengers) for the annual kilometres travelled. The indicator expresses the actual transportation offer.

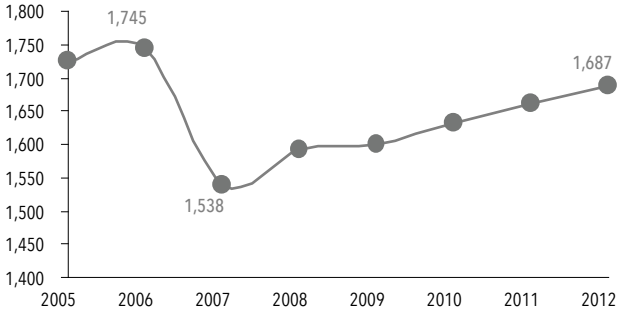
medium-long distance movements, especially from the outskirts to the major centres in which service production sites and consuming activities are concentrated. On the contrary, it should be noted that the trend of the number of passengers transported - expressing mobility demand - in terms of urban and extra urban services recorded a strong and constant increase in the past five years.

Fig. 11.1.5 - Local public transport - Urban service: Seats-km offered(*) (in millions). Veneto - Years 2001 e 2005:2012



(*) Resulting from the sum of the capacities of each means of transport (number of seats offered and standing passengers) for the annual kilometres travelled. The indicator expresses the actual transportation offer.
Source: Veneto Region Processing - Regional Statistical System on Ministry of Infrastructure and Transport data

Fig. 11.1.6 - Local public transport - Extra-urban service: Passengers-km transported(*) (in million). Veneto - Years 2005:2012

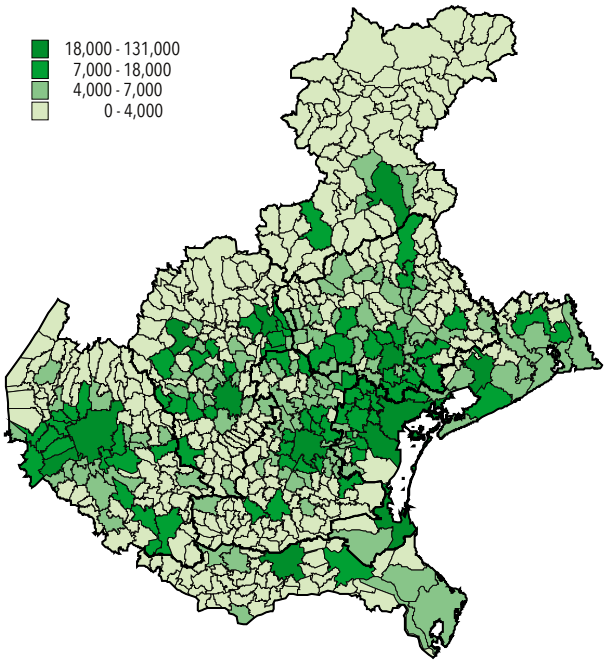


(*) Unit of measure corresponding to 1 km movement by a traveller
Source: Veneto Region Processing - Regional Statistical System on Ministry of Infrastructure and Transport data

11.2 Commuting for work or study. An in-depth analysis, 15th Census

Data collected during the 15th Census provide the chance to examine in more details certain aspects of systematic mobility or daily mobility for work or study. In Veneto, individuals travelling to reach their places of work or study everyday are 2,603,830, increasing of about 300,000 units over ten years (2,319,188 in 2001). 70% of these travel for work, while the remaining 30% for study.
Slightly more than half movement take place within the same municipality of residence, about 40% travel to a different municipality of the province.

Fig. 11.2.1 - Total commuting movements map by municipality. Veneto - Year 2011



Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

1,8 million people travel every day for work, increasing by 13.2% as compared to the previous Census. In 45% of cases, movements take place within the same municipality. Verona is the municipality that contributes most to such phenomenon: over 91,000 movements

- followed by Venice (90,437), Padua (72,852), Vicenza (39,930), Treviso (27,595) and Rovigo (18,916). Chioggia, Bassano del Grappa and San Donà di Piave are the only three municipalities that are not province capitals, which recorded over 15,000 movements. 86% of Veneto municipalities generate less than 5,000 movements.

Over 2.6 million daily movements for study or work

Over 790,000 people travel on the territory of the region for reasons of study, 10% more as compared to the previous Census. In 69% of cases movements take place within the same municipality. In this case also, Verona remains the municipality with the highest number of movements (39,140), followed by Venice and Padua (over 30,000), Vicenza (around 18,000) and Treviso (about 12,000). Veneto municipalities with a daily number of movements above 5,000 are only 15.

Polarities and mobility basins

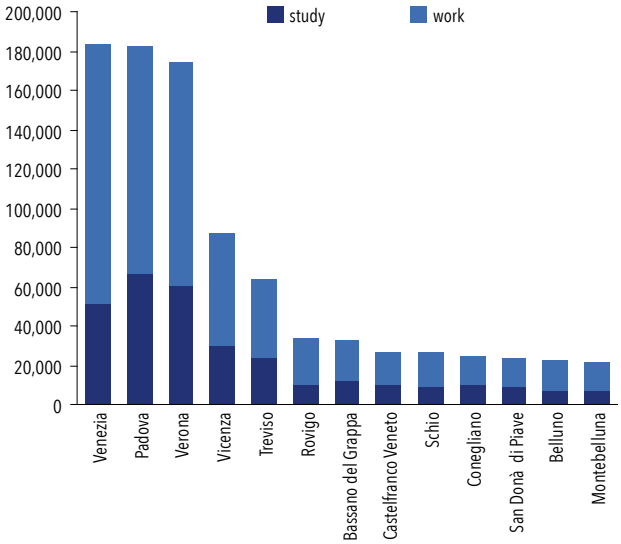
The data collected during the 15th Census allow us to identify the most attractive municipalities, namely, the "polarities" and the municipalities influenced by such attractiveness, the "basins". In particular, municipalities attracting above 20,000 movements a day are defined "polarities" and the set of municipalities, selected in descending order according to the contribution of mobility, which generates 85% of movements towards the corresponding polarity is defined "basin". In 2001 (during the previous Census), 12 polarity municipalities were recorded, in 2011 they increased to 13: these include the 7 province capital municipalities and other six, with Montebelluna as the new entry. Similarly, the 186 basin municipalities in 2001 increased to 223 in 2011. The ranking of the most attractive municipalities does not report any change during the inter-census decade thanks to their higher study and work opportunities: Venice remains the municipality with the highest attraction of people towards its territory, immediately followed by Padua and Verona.

Padua results as far the municipality with the widest basin: its basin includes as many as 53 municipalities. Followed by Vicenza with 34 municipalities and Treviso, 23.

Work is the most frequent reason generating these 13 polarities: for nearly all it is the reason of movement in above 60% of cases, with a certain polarity differentiation. Such percentage is above 72% in Venice, while it stops at 59.2% in Conegliano.

With reference to movements for work, Veneto municipalities with a daily number of movements above 40 thousand are only 5: all capitals of province with the exception of Rovigo and Belluno, together with the maximum of over 130 thousand daily movements recorded in the municipality of Venice. Movements towards the polarities for reasons of study are almost 800 thousand, with the clearest concentrations and number of daily entries above 30 thousand entries in the 4 province capital municipalities, where the main schools and universities are located: Verona, Vicenza, Venice and Padua (this latter recorded the highest number of arrivals with nearly 70 thousand entries).

Fig. 11.2.2 - Incoming commuting movements towards the main polarities by reason. Veneto - Year 2011



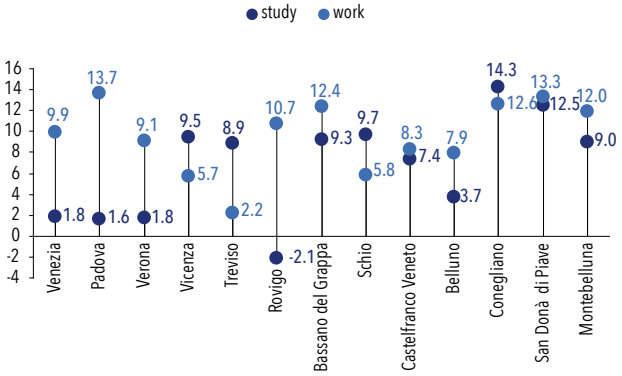
Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

As compared to the previous decade, all polarities reported an increase in the number of people attracted, both for reasons of work and study, with the exception of Rovigo, which recorded a slight reduction in the number of students (-2.1%).

Padua is the polarity with the highest increase in the number of workers (+13.7%), followed by San Donà di Piave (+13.3%) and Conegliano (+12.6%), this latter being the city that reports the highest increase in the

number of students (+14.3%) together with San Donà (+12.5%). On average, individuals travelling for work record higher increases as compared to those who move for study, except for the polarities of Vicenza, Schio, Treviso and Conegliano, where the opposite phenomenon was recorded.

Fig. 11.2.3 - Incoming commuting movements towards the main polarities by reason. Veneto - 2011/01



Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

The use of maps, one for each basin, facilitates observation and underlines the composition of the various mobility basins.

2 well-distinguished polarities are located in the municipality of Venice: the province capital municipality and San Donà di Piave.

Besides being in absolute the municipality with the highest number of arrivals (over 183,000, +7.5% as compared to 2001) Venice, as well as the municipalities around its belt, is among the few able to attract people from the basins of other provinces also (such as the province capital municipalities of Treviso and Padua).

San Dona, located in the eastern area of the province, attracts essentially residents of neighbouring municipalities and it is the polarity with the smallest basin in terms of number of municipalities (7), although strongly increasing from 2001 (+13%) for the number of arrivals, now over 23,000 people.

The province of Padua has a single attractive pole, namely its capital, which is not only the second municipality recording the highest number of arrivals (183,000, +8.9%), but covers a great number of the municipalities of its province (39) and the province of Venice also (13), attracting the capitals of neighbouring provinces (Verona, Rovigo and Venice).

In the province of Verona, the capital is the only municipality able to attract over 20 thousand people, configuring itself as the third attractive pole of the region thanks to its 175 thousand arrivals, increased by 6.5% in ten years. The 19 basin municipalities are all part of the province and position themselves on the polarity belt. Polarities in the province of Vicenza are 3: its capital, Bassano del Grappa and Schio.

Vicenza attracts over 86 thousand people, 7% more than 2011, coming mainly from the neighbouring municipalities of the province or from the two bordering provinces of Verona and Padua.

Bassano del Grappa, with its 17 basin municipalities which, besides Vicenza, rotate around the provinces of Treviso and Padua also, is one of the polarities with the highest growth rate, 11.2% with daily arrivals over 33 thousand.

With over 26 thousand daily arrivals, increasing of 7.1% Schio involves about 10 municipalities rotating geographically around its sphere of influence. The province of Treviso is characterized by its polycentrism: municipalities able to attract over 20 thousand people every day are 4: its capital, Castelfranco, Conegliano and Montebelluna.

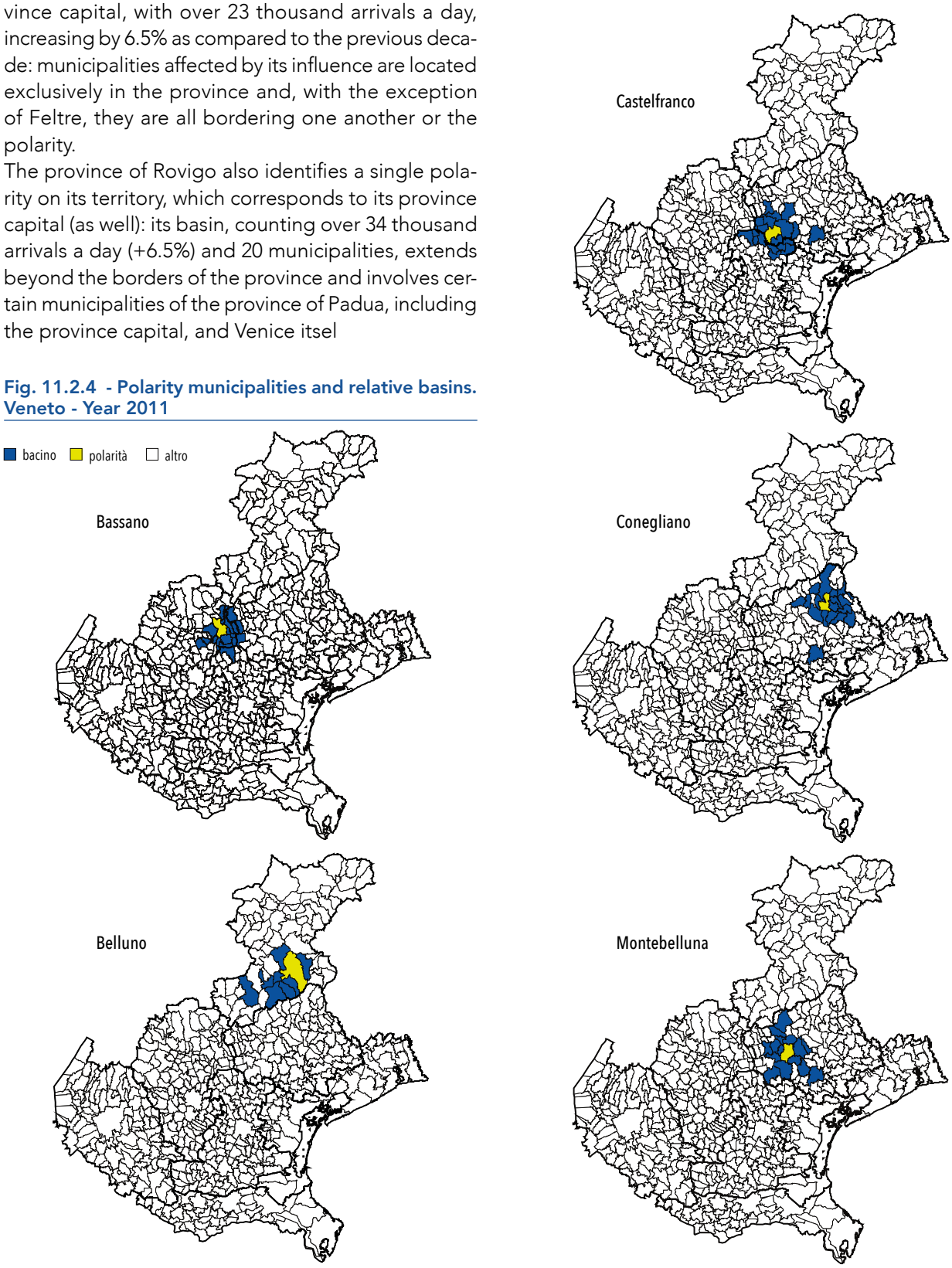
Among the 4, the province capital is absolutely the one with the highest number of arrivals: 64 thousand people, with an increase by 4.6% as compared to 2001, coming from 23 different municipalities, all located in the provincial territory, with the only exception of Venice and Scorzè.

With over 27 thousand arrivals (+7.9%) and 18 municipalities involved due to its location between 2 provinces, Castelfranco extends its basin to Padua also, with nearly half of its arrivals coming from a municipality of the latter's province.

Conegliano is a polarity of nearly 25 thousand people residing in 20 different municipalities, as well as the municipality with the highest growth rate (+13.3%) among the polarities under consideration. Related municipalities belong exclusively to the province of Treviso and, besides the province capital, they are all part of the belt of the Montebelluna polarity, being the latter a 2011 new entry: with a +10.9% as compared to the previous decade it exceeds 21,500 daily arrivals coming from 15 municipalities located in the province of Treviso and all placed around the polarity.

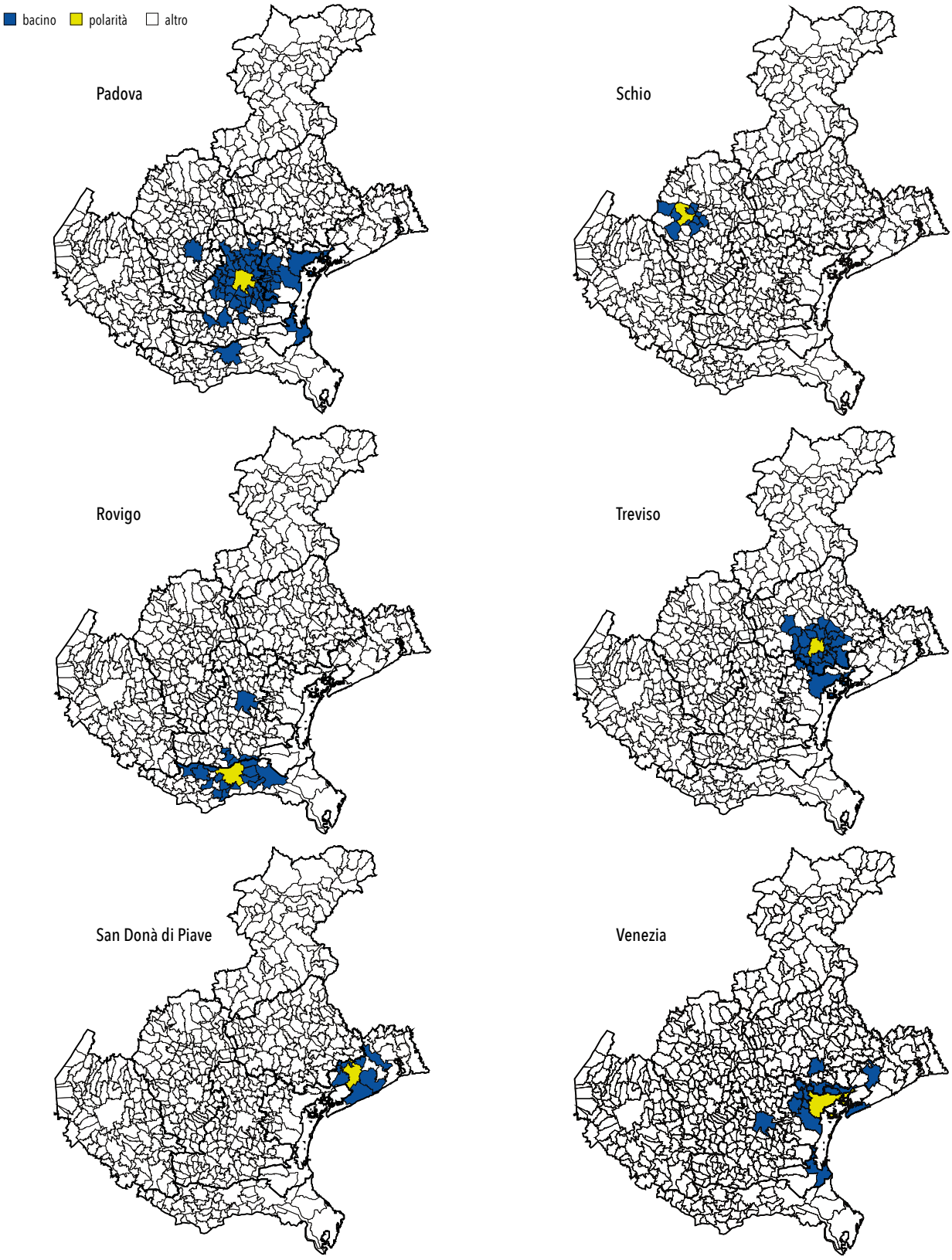
In the province of Belluno the only polarity is the province capital, with over 23 thousand arrivals a day, increasing by 6.5% as compared to the previous decade: municipalities affected by its influence are located exclusively in the province and, with the exception of Feltre, they are all bordering one another or the polarity.
The province of Rovigo also identifies a single polarity on its territory, which corresponds to its province capital (as well): its basin, counting over 34 thousand arrivals a day (+6.5%) and 20 municipalities, extends beyond the borders of the province and involves certain municipalities of the province of Padua, including the province capital, and Venice itsel

Fig. 11.2.4 - Polarity municipalities and relative basins. Veneto - Year 2011



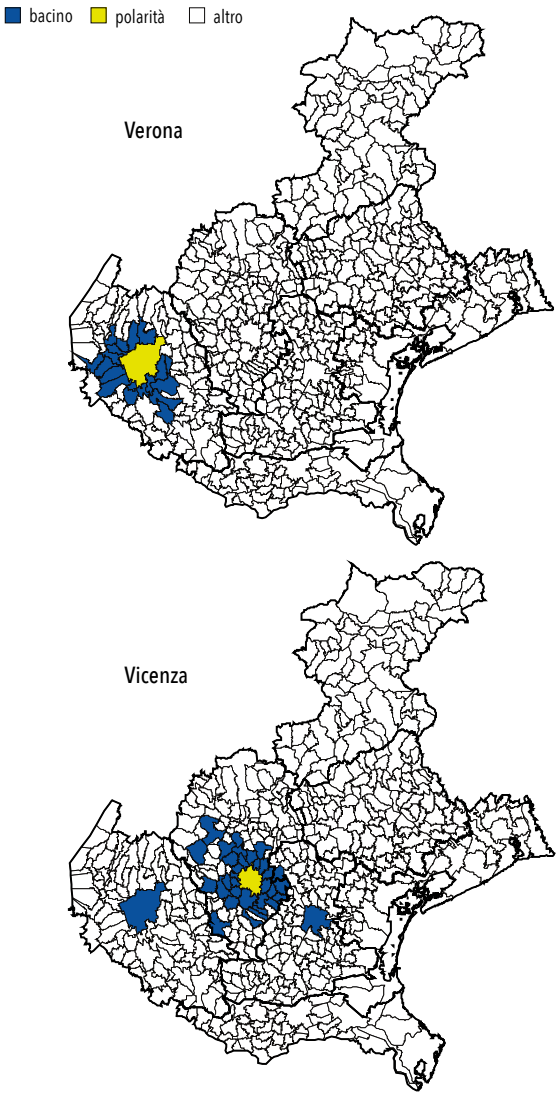
Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

Fig. 11.2.4 - Polarity municipalities and relative basins. Veneto - Year 2011



Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

Fig. 11.2.4 (segue) - Polarity municipalities and relative basins. Veneto - Year 2011

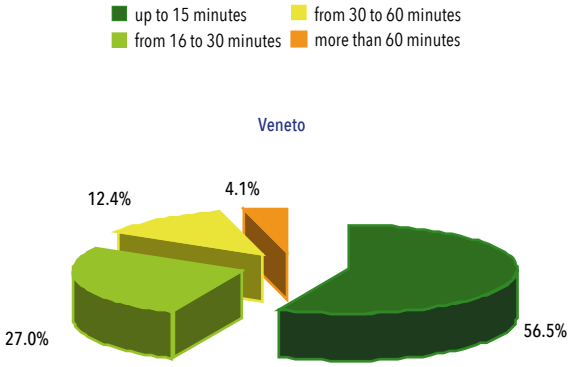


Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

Characteristics of the movements

Between 2001 and 2011 the number of "privileged" people able to reach their place of work or study in less than 15 minutes decreased (61.4% in 2001, 56.5% in 2011), while the number of those taking over an hour increased (2.7% in 2001, 4.1% in 2011).
Considering the province capital municipalities, the "quickest" people reside in Rovigo, indeed 62.3% take less than 15 minutes to reach their place of interest, while the "slowest" are in the municipality of Venice, since over 30% spends more than half an hour and a sub-group of 6.6% more than an hour. Such trends are confirmed for those who arrive in these municipalities also: Rovigo is the most quickly-accessible province capital municipality, indeed 54.2% people take less than 15 minutes to arrive, while Venice people takes more time, with 41% people declaring to take over half an hour and 14.2% over an hour.

Fig. 11.2.4 - Commuting movements' distribution % by duration. Veneto – Year 2011

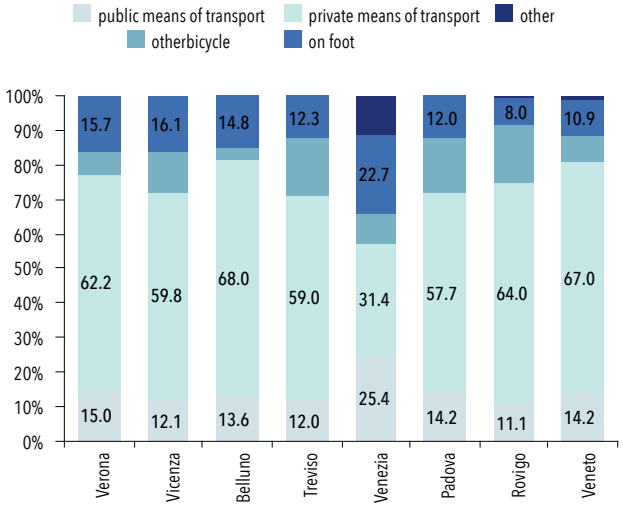


Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

On average, students take less to reach their destinations, since 63.2% take about 15 minutes, while such percentage drops of about 10 points to 53.6% for workers, and that of movements of up to 30 minutes rises to 30.6%.
In order to reach their places of work or study, 9 people out of then (89%) use means of transport with similar preferences as those recorded in the previous Census. Cars remain the most popular choice: used in 50% of cases as driver and in 14% cases as passenger. Only 14.2% of movements take place by collective public (or private) means of transport as train, underground, bus, 3% by two-wheeled motor vehicles (motorcycles, mopeds and scooters) and another 7% by bicycle.
Workers are more willing to use private means, motors or cars, much more (78.3 of cases), therefore reaching their destinations preferably in an autonomous

way, 8.3% on foot, 6.8% by bike and only 5.4 by a collective means of transport.
Although still preferring private means of transport (41.2%), those moving for reasons of study show more different choices: 34% use collective means, 17% move on foot and 7.4% by bike.
The municipality of Venice stands out among all provincial capitals thanks to its particular geographical conformation and types of means of transport used: indeed, over a quarter of movements are made by public means of transport, 22.7% on foot, while only 31.4% by a private means of transport. Instead, Belluno is the municipality where private means of transport are more used (68%), Treviso that where bikes are used most (16.5%) while Rovigo that in which less people (8%) move on foot and more by train (5.8%).

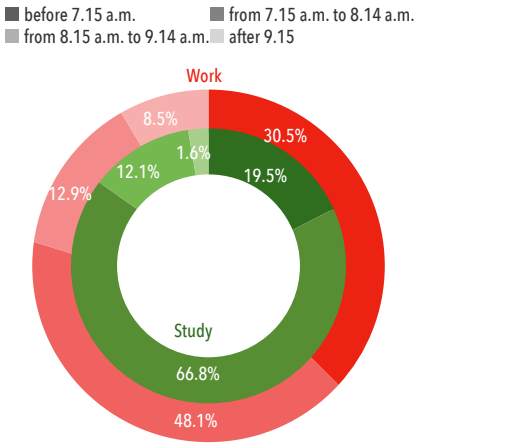
Fig. 11.2.5 - Commuters' use of means of transport by capital province municipality. Veneto - Year 2011



Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

81% people leave home before 8:15 a.m., with the most crowded hours between 7:15 and 8:15 (53.8%); only 6.4% leave after 9:15.
The earliest rising provincial capital is Belluno, where 26.7% of residents leave home before 7.15, while during this time Treviso and Padua count 17.9% and 17.7% of residents respectively. In Venice instead, almost a person out of ten leave home after 9:15 (9.3%).
Between workers and students, the first are more willing to travel in the earlier morning hours (30.5% against 19.5%), while two students out of three leave home between 7:15 and 8:15. Moreover, workers differentiate their choice of mobility hours more, due to the possibility they have to manage work start hours with more flexibility.

Fig. 11.2.6 - Commuters' distribution % by time of leaving home and reason. Veneto - Year 2011before



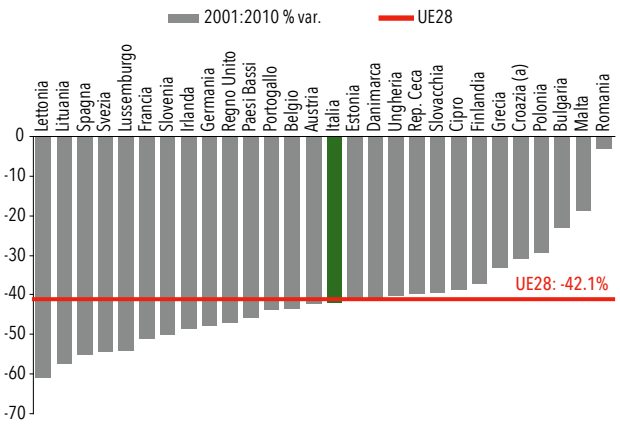
Source: Veneto Region Processing - Regional Statistical System on Istat data – 15th Census

11.3 Road accidents

EU targets on road accidents with injuries to people

Mobility and traffic are closely related to road accidents. Aspects related to traffic and infrastructure, which constitute the scenario of the phenomenon, should be considered together with those related to road users' behaviour. The relevance of the phenomenon of road accidents, is confirmed by the fact that about a quarter of violent deaths in the world can be attributed to it. Considering that, it is necessary to adopt a series of preventive measures in order to reduce and mitigate the number of accidents and their impacts on health and on the society.

Fig. 11.3.1 - Road victims - EU28 – 2001:2010 % variation

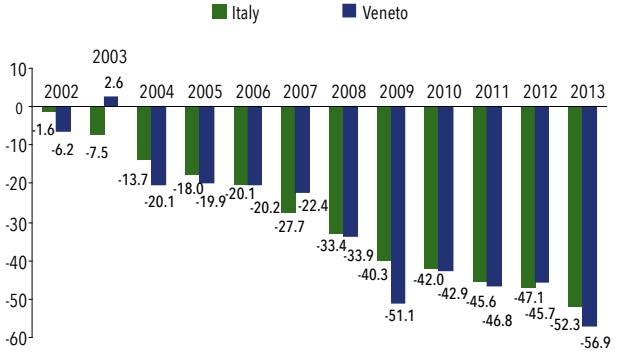


(a) The time series data for Croatia begins in 2007 Source: Veneto Region Processing - Regional Statistical System on Eurostat data – European Commission

Deaths by road accident in Veneto reduced of 56.9% between 2001 and 2013

Among the consequences of travelling we must mention road accidents, a very relevant phenomenon since a quarter of violent deaths in the world can be attributed to it. For this reason, the European Union set reduction in road deaths by half as a target for the 2011 - 2020 decade. Between 2011 and 2013 Italy recorded a 52.3% decrease of deaths, while the value recorded for Veneto in the same time frame reached 56.9%.
In order to fight the phenomenon of road accidents, the EU has set the target of reducing half of deaths by road accident in the 2001 - 2010 period. Such target was set again for the 2011 - 2020 decade. Between 2001 and 2010, Italy was able to achieve a reduction through interventions on infrastructure and training and awareness raising activities, achieving a 42% reduction of deaths, in line with the average European figure (42.1%). Veneto's figure for the same period is slightly better than that of Italy and Europe, recording a reduction of 42.9%.

Fig. 11.3.2 - Variation percentage of the number of deaths by road accidents. Veneto and Italy - Years 2002:2013 (2001=100)



Source: Veneto Region Processing - Regional Statistical System on Istat data

Tab.11.3.1 - Road accidents with harm to people. injured and dead. Italy. Veneto - Years 2012:2013

	Accidents			Injured			Dead		
	2012	2013	% var.	2012	2013	% var.	2012	2013	% var.
Italia	188.228	181.227	-3.7	266,864	257,421	-3.5	3,753	3,385	-9.8
Veneto	**14,365**	**13,792**	**-4.0**	**19,994**	**18,979**	**-5.1**	**376**	**299**	**-20.5**
Belluno	471	473	0.4	660	675	2.3	26	15	-42.3
Padova	2,831	2,887	2.0	3,812	3,888	2.0	80	60	-25.0
Rovigo	593	598	0.8	851	841	-1.2	26	13	-50.0
Treviso	2,415	2,365	-2.1	3,432	3,463	0.9	70	48	-31.4
Venezia	2,582	2,322	-10.1	3,747	3,222	-14.0	55	51	-7.3
Verona	3,082	2,857	-7.3	4,211	3,851	-8.5	65	59	-9.2
Vicenza	2,391	2,290	-4.2	3.281	3.039	-7.4	54	53	-1.9

Source: Veneto Region Processing - Regional Statistical System on Istat data

Extending the trend analysis until 2013, Italy recorded a reduction of as much as 52.3% in the number of deaths as compared to 2001, confirming the decreasing trend over the years. Veneto recorded a better value in 2013, with a 56.9% reduction as compared to 2001. However, the set of data is still too short to be able to provide sure information on the new target of half reduction set for 2020. Considering that the number of deaths in Italy in 2013 decreased of 17.7% as compared to 2010, the progression is compatible to the achievement of such target. Especially Veneto's data, which recorded a 24.5% reduction as well in the same period, is compatible with the target.

Figures of the phenomenon in Italy and Veneto

In 2013, Italy recorded 181,227 road accidents with injures, which caused 257,421 injured people and 3,385 deaths. As compared to the previous year, accidents reduced of 3.7%, injured people of 3.5% while deaths of 9.8%. Veneto's data report 13,792 accidents in 2013 also, with 18.979 injured people and 299 deaths, with the latter falling below 300 for the first time. Variation percentages as compared to 2012 are slightly better than those of Italy in terms of number of accidents, with -4%, and the injured people, with -5.1% improving more than twice in terms of deaths, with over -20%. Veneto affects 7,5% of the total national number of accidents. As regards the number of deaths, the region affects 9%, a decreasing value as compared to 2012 in which 10% was recorded.

In 2013 road accidents with injured people in Italy were 181,227. 13,792 in Veneto

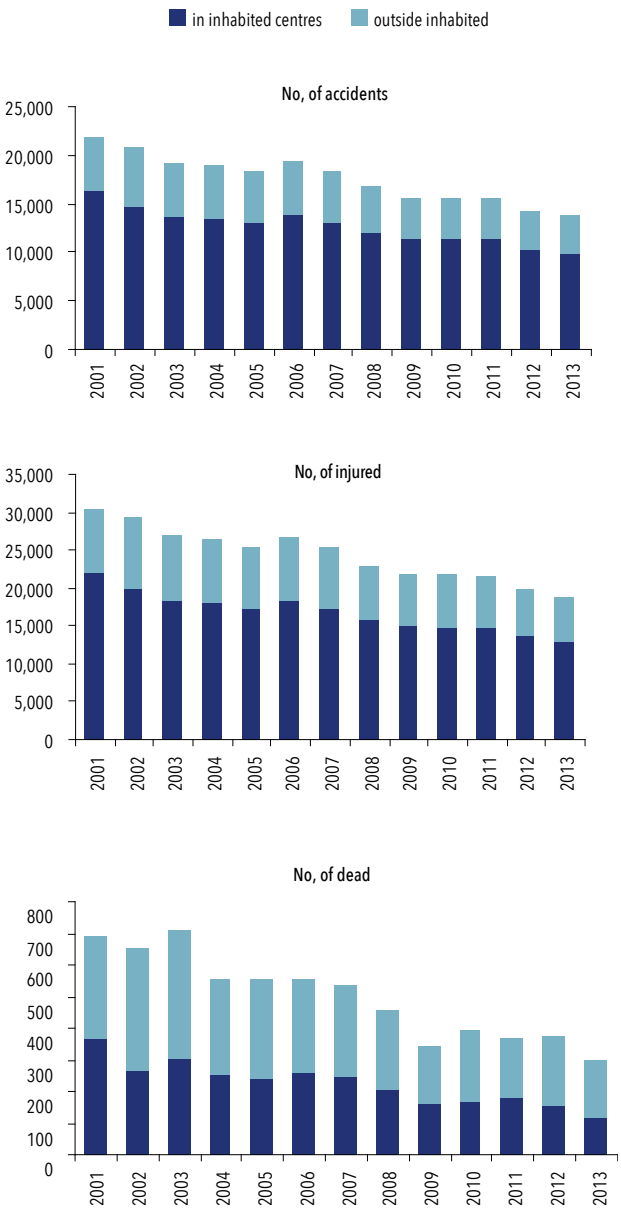
The absolute road accidents' figures related to 2013 show a different situation among the various provinces: from Belluno's 473 accidents to Padua's 2.887. The most significant reductions over the previous year were in the province of Venice (-10,1%) and of Verona (-7.3%), with more stable data for the other provinces. Instead, deaths decreased in all Veneto provinces, with the highest variation recorded in the provinces of Rovigo (-50.0%), Belluno (-42.3%) Treviso (-31.4%) and Padua (-25.0%).

In 2013 in Veneto, 71.2% of road accidents occurred on urban roads

The most risky roads

Most road accidents take place in urban areas, and their distribution has remained relatively stable from 2001. In 2013, in Veneto 71.2% of accidents took place on urban roads, while out of the remaining 28.8% only 4,1% on motorways. The number of injured people reflects proportionally the number of accidents, moving to 3.2% against extra-urban traffic.

Fig. 11.3.3 - Accidents, injured and dead in and outside inhabited centres. Veneto. Years 2000:2013

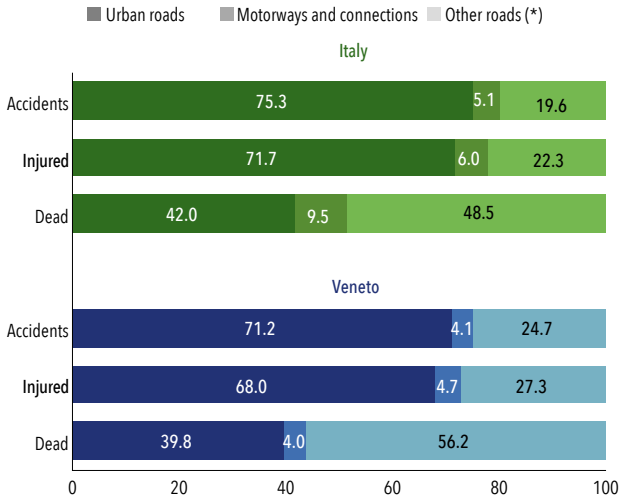


Source: Veneto Region Processing - Regional Statistical System on Istat data

Analyses on the number of deaths show a clearly different composition: since 2001, deaths in and out the urban centres have a more even distribution and in 2013 39.8% were recorded in urban centres. Given that, we can clearly deduce that extra-urban circulation is noticeably more dangerous than the urban one. Indeed, considering the lower percentage of accidents out of the urban centres, about 30%, most of deaths occur here, equal to 60.2% and 52% for Veneto and Italy respectively.

Most deaths occur on extra-urban roads

Fig. 11.3.4 - Road accidents affecting people, injured and dead by type of road (% values). Italia, Veneto - Year 2013



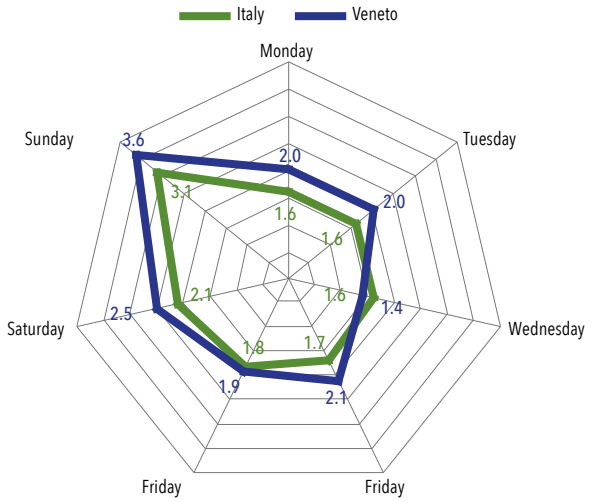
Source: Processing by Veneto Region - Regional Statistical System on Istat data

The percentage of deaths recorded on motorways, in Veneto, in 2013 is below half of the national percentage. Such roads are less dangerous than extra-urban roads. In summary, mortality, as an indicator of the number of deaths out of every hundred, is higher in extra-urban roads, followed by motorways and urban roads. As regards harm, as an indicator of the number of individuals injured in every hundred accidents, motorways have higher values than extra-urban roads.

Temporal analysis of road accidents in Veneto

2013 maintained the seasonal characteristics of the previous years in terms of road accidents; such seasonality is connected to the region's high tourist vocation. As a matter of fact, July is the month with the highest number of road accidents, both injured and dead, 1,368, 1,835 and 31 respectively. The entire summer season, from May to October included, and except August, which counts 1,130, shows a number of deaths above 1,200. Deaths follow the same trend but are more concentrated in June, 30 deaths, July and August, both with 31 deaths.

Fig. 11.3.5 - Mortality index (*) by day of the week. Italy and Veneto - Year 2013



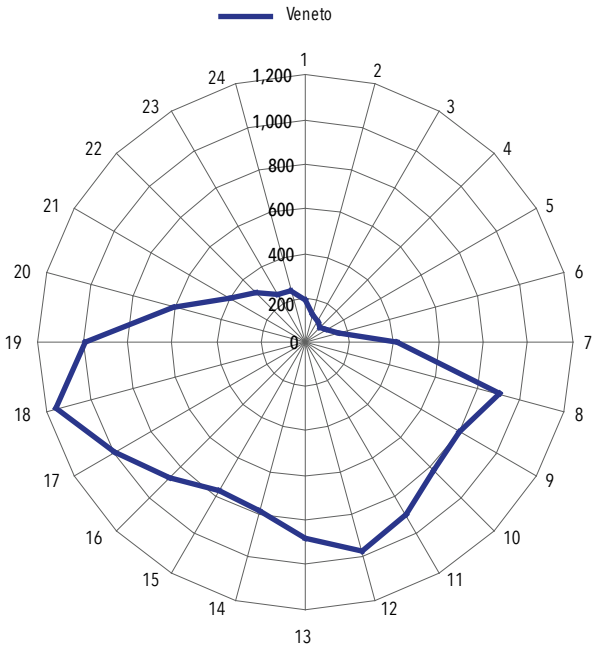
(*) The mortality index is the ratio of the number of deaths and the number of accidents multiplied by 100
Source: Veneto Region Processing - Regional Statistical System on Istat and Veneto Region data

The number of accidents occurring in Veneto during working days' varies from 2,022 of Wednesdays to 2,185 of Fridays, reducing in the weekends to 1,867 on Saturdays and 1,513 on Sundays. However, the frequency of deaths is higher during the weekends with a peak of 55 on Sundays. The mortality index has its maximum figures on Sundays, with 3.6 deaths every hundred accidents, followed by

La giornata con la mortalità più elevata è la domenica seguita dal sabato

Saturdays' 2.5. The graphical representation of the mortality rate for weekday clearly highlights the increased Veneto mortality by accident as compared to that of Italy. The general mortality index's differential between Veneto and Italy is 0.1, with the Italian index recording 1.86 deaths every hundred accidents.

Fig. 11.3.6 - Road accidents by day hour in Veneto - Year 2013 Veneto

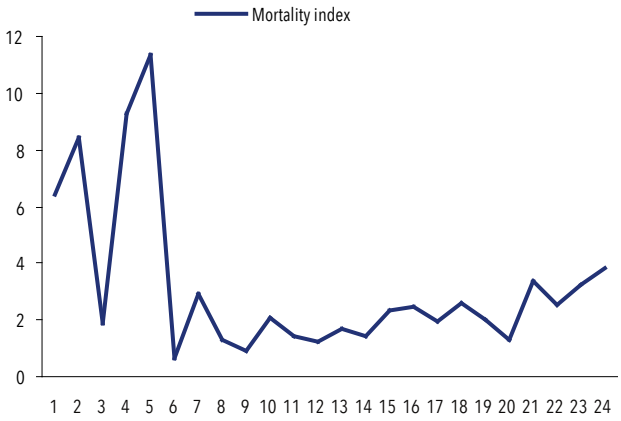


Source: Veneto Region Processing - Regional Statistical System on Istat data

Most road accidents occur between 8 a.m. and 8 p.m., over 11,409 of the total 13,792. Peak values are recorded around 6 p.m. during movements from work to home. Two other relative peaks are recorded between 8 a.m. and 12 p.m. in connection to work/school-home, home-work/school movements. The mortality index in connection with hours clearly indicates the high mortality rate of night accidents, which, although less frequent, result as more dangerous, reaching peak values sometimes over 10 deaths every 100 accidents occurred between 4 a.m. and 5 a.m. In any case the seriousness of accidents starts to increase already from 9 p.m. and moderates around 6 a.m.

Road accidents' peak time is recorded around 6 p.m.

Fig. 11.3.7 - Mortality index (*) by day hour in Veneto. Year 2013



Source: Veneto Region Processing - Regional Statistical System on Istat data

Individuals involved and vulnerable road users

As anticipated before, the number of injured by accident in Veneto in 2013 was 18,979.

The most affected category of individuals involved were "drivers" of the vehicle, recording 220 dead and 13,460 injured. Passengers who lost their lives are 36, while injured 3,956. Still for 2013, pedestrians involved reported 43 deaths and 1,342 injured.

Nearly 82% of 299 dead people are males.

The latter category represents 14.4% of total deaths and 7.1% of total injured, with the highest value related to road users.

Indeed, in the majority of cases, pedestrians without the assistance of any active or passive protection device, are the most vulnerable users of the road infrastructure. The definition of vulnerable road user includes all people who get in physical contact with the road, whenever involved in an accident. They include pedestrians and cycle, moped, and motorcycle - and related passengers - riders. In 2013, accidents involving vulnerable users were 6,942, decreasing of about 29% as compared to 2001. The number of injured in such accidents was 7,662, while 152 individuals lost their lives. Since 2001, the percentage reductions of accidents, injured and deaths involving vulnerable

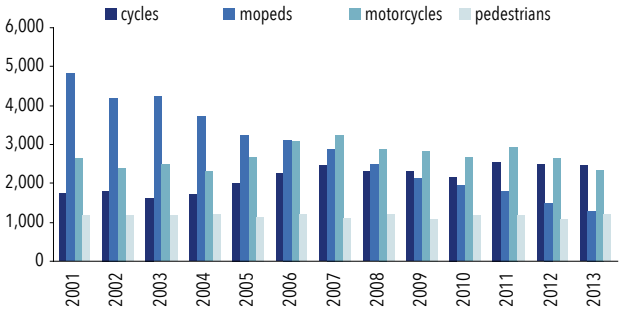
Tab.11.3.2 - Accidents, injured and dead in road accidents involving vulnerable road users in Veneto – 2013 absolute values and % variation over 2001

2013	Cycles	Mopeds	Motorcycle	Pedestrians	Tot. vulnerable users	Tot. Accidents
Accidents	2452	1289	2332	1203	6942	13792
2001/13 % var.	40,8	-73,4	-12,1	3,4	-28,8	-36,7
Injured	2605	1469	2755	1342	7662	18979
2001/13 % var.	38,7	-72,6	-15,0	-2,5	-29,7	-37,8
Dead	38	10	63	43	152	299
2001/13 % var.	-44,9	-86,5	-42,2	-24,6	-47,9	-56,9

Source: Veneto Region Processing - Regional Statistical System on Istat data

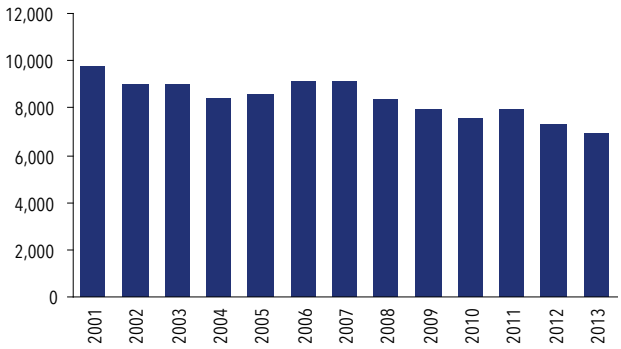
users are significant, although below those corresponding on the general total.

Fig. 11.3.8 - Road accidents involving vulnerable users in Veneto per type of user - Years 2001:2013



Source: Veneto Region Processing - Regional Statistical System on Istat data

Fig. 11.3.9 - Road accidents involving vulnerable users in Veneto - Years 2001:2013



Source: Veneto Region Processing - Regional Statistical System on Istat data

The time series of the category of "vulnerable users" sees huge increase of accidents involving them, over 40%, between 2001 and 2013, and a sharp reduction of accidents involving mopeds. Motorcycle accident present an uneven trend over time, 2,332 recorded in 2013, while the situation for pedestrians is more stable.

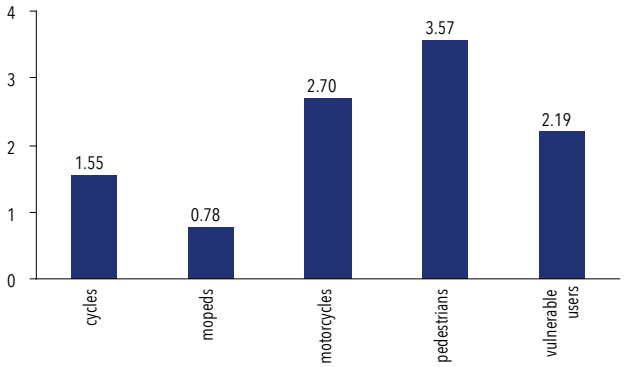
Pedestrians are the most vulnerable category of road users

Mortality's time series also reports a positive trend over the years. The peak mortality value regards accidents involving pedestrians, with a figure of 3.57 deaths every hundred accidents in 2013.

Coming down we have the death rate of accidents involving motorcycles, 2.70, cycles, 1.55, and mopeds 0.78, always with reference to 2013.

Road criticalities that apply to the category of vulnerable users can be managed through interventions on both infrastructure and road users' behaviour. If, with regard to the cycles, the solution is the isolation of cycle routes from the roads, for pedestrians, using road infrastructure against their will, the solution should be at least comparable, limiting as much as possible the number of unassisted pedestrian road crossings. Ideally, pedestrians should not interact with the road. With regards to motorcycles the question

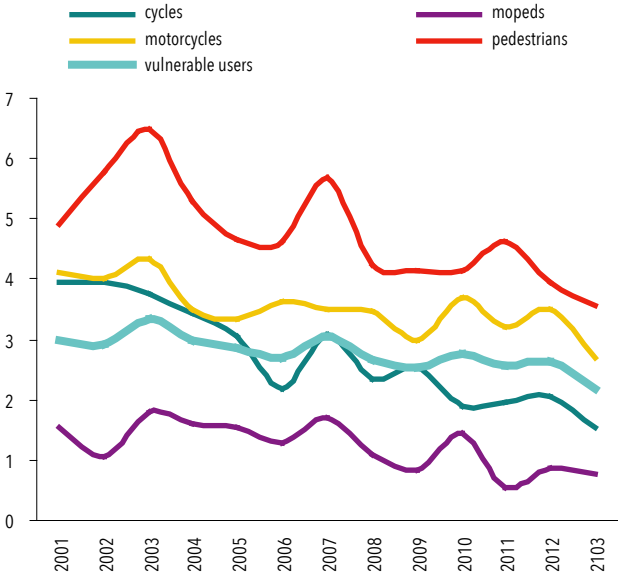
Fig. 11.3.10 - Mortality index (*) in road accidents involving vulnerable users in Veneto - Year 2013



(*) The mortality index is the ratio of the number of deaths and the number of accidents multiplied by 100
Source: Veneto Region Processing - Regional Statistical System on Istat and Veneto Region data

is more articulated. Indeed, the implementation of modernization works on road barriers in order to make them less harmful for motorcyclists in case of accident, is not sufficient. In this case, behavioural aspects and the need for the motor vehicle rider to use maximum caution and appropriate speed on the road are more relevant. Such factor can be stimulated through awareness raising campaigns and adequate training. Moreover, cases of riders using parts of the road network as improvised runways and, therefore, with high speed are well-known and common. Such behaviours, although mitigated by prevention activities carried out by the local police institutions of the Veneto Region, the Traffic Police and Carabinieri, are not directly verifiable through the data. However, certain features of such accidents allow us to estimate that, each year, these are responsible for about a dozen victims and several hundred injured, some of which are very serious.

Fig. 11.3.11 - Mortality index (*) in road accidents involving vulnerable users in Veneto - Years 2001:2013



(*)The mortality index is the ratio of the number of deaths and the number of accidents multiplied by 100
Source: Veneto Region Processing - Regional Statistical System on Istat data and Veneto Region