

Alcohol use has been identified as a major risk factor for global mortality and burden of disease (Rehm & Imtiaz, 2016). Europe is no exception, and in fact the proportion of alcohol-attributable health burden is highest in this region (World Health Organization, 2018a), due to its high level of consumption (Manthey et al., 2019). Spain is one of the largest countries in Europe, and alcohol consumption is socially very accepted and integrated into daily life (Calafat, 2002). In 2017, 91.2% of the Spanish population between 15 to 64 years of age reported that they have consumed alcohol at least once in their lifetime, 75.2% had had alcohol at least once in the last 12 months, 62.1% at least once in the last month, and 7.4% every day in the last 30 days (Plan Nacional sobre Drogas, 2017). Alcohol and tobacco are the most used drugs in Spain and are the ones that have generated the greatest public health problems (Institute for Health Metrics and Evaluation, 2017). However, as indicated above, for alcohol there are inherent conflicts between public health concerns and the cultural integration of alcohol.

Worldwide, total per capita consumption of alcohol has increased from 5.9 liters (95% CI 5.8-6.1) in 1990 to 6.5 liters (95% CI 6.0-6.9) in 2017 (Manthey et al., 2019). However, in the European Region, it has decreased from 12.2 liters (95% CI 12.0-12.4) in 1990 to 9.8 liters (95% CI 9.3-10.4) in 2017. Spain is one of the European countries where alcohol consumption decreased over the past decades (Galán, González & Valencia-Martín, 2014; Matrai et al., 2014), from 14.2 liters (95% CI 13.8-14.6) in 1990 to 10.0 liters (95% CI 9.1-11.0) in 2017. However, these general trends since 1990 are composed of differing short-term trends of increases or decreases.

It is the aim of this paper to distinguish different phases of level of alcohol consumption since 1990. Moreover, we will try to understand the mechanisms which led to these developments. More specifically, we will try to answer the following questions:

- Which periods for Spain are notable for changes in trends and can be distinguished with respect to level of alcohol use since 1990?
- What characterized the trends of alcohol use within these periods, which factors are responsible for these trends, and which factors for changes in trends, i.e., the transition between periods?

Methods

Data

Adult alcohol consumption *per capita* data between 1990 and 2019 were taken from Manthey et al. (2019). These data are comprised of both recorded and unrecorded consumption, and the time period was selected because

comparable data for adult consumption only exists since 1990. The beverage specific adult *per capita* data and total recorded were taken from Matrai et al. (2014) up to 1989, and then from the Global Information System on Alcohol and Health (GISAH) (World Health Organization, 2016). Manthey and colleagues also based their estimates on this report from the WHO. Data from the annual survey on alcohol and other drugs in Spain (EDADES) (Plan Nacional sobre Drogas, 2017), carried out since 1995, was collected. This survey is an initiative by the Government Delegation for the National Drug Plan and is conducted every two years. It targets those between 15 and 64 years of age, living in household, with the aim of understanding the trends regarding drug use. The results are representative for the general population.

Data on alcohol control policy and other determinants were obtained from the National Drug Plan, a government initiative created in 1985 with the aim of coordinating and strengthening policies in the area of legal and illegal drugs, and carried out by the different governmental agencies and social entities in Spain (available at <http://www.pnsd.mscbs.gob.es/pnsd/Introduccion/home.htm>).

Methodology for determining periods

The temporal trend was evaluated using the Joinpoint regression model, a statistical modelling technique useful in identifying and describing the occurrence of temporary changes and providing a clearer picture of the trend over long periods of time (Fay, Kim, Feuer & Midthune, 2000; Rea et al. 2017). This model identifies the time points where a given trend changes, called “Joinpoints”. The final number of Joinpoints given is established based on a set of a statistical criteria. Using a Monte Carlo Permutation method, the p-value under the null hypothesis is calculated. The annual percentage of change within the period studied is also obtained.

Sensitivity analyses for determining periods

We tried to cross-validate the analyses of Joinpoint with more traditional interrupted time-series analyses for the time between 1962 and 2016 (the last year in GISAH (World Health Organization, 2016) without estimated values). Moreover, we used only adult recorded consumption to check to what degree shifts in beverage preference were responsible for the changes in overall level in consumption, and whether the periods in the main analyses were mainly determined by unrecorded alcohol consumption. Finally, we tested WHO data against the detailed data from Sordo and colleagues (Sordo et al., 2016) for the period between 2001 and 2011; these data have been considered the gold standard for Spanish consumption.

We first examined the distribution of the main dependent variable —adult recorded *per capita* consumption—both visually and with Q-Q plots, and found that the assumption

of a normal distribution could not be refuted. Second, we fitted simple models to account for autocorrelation, as recommended by Beard and colleagues (Beard et al., 2019). We used general additive models from the ‘mgcv’ package of R (Wood, 2006), of normalized residuals to identify possible autocorrelation in the time series. If present, autocorrelation was corrected for by adding AR and MA terms in the correlation structure of the model. The best-fitting model was selected using likelihood-ratio tests comparing models adjusted for autocorrelation with non-adjusted models.

We evaluated level (immediate effects) and slope (sustained effects) changes of six distinct periods, which were defined *a priori* based on the joinpoint analysis. The models included both “level change” and “slope change” variables. The “level change” variable was entered as a dummy variable, coded with 1 within and with 0 outside the respective period. For the “slope change” variable, each month was coded with 0 if it fell outside the respective period, and with increasing integers if it fell within the respective period. These models included also a covariate for cumulative years since 1962.

As for the comparison with the data from Sordo and colleagues (Sordo et al., 2016), we conducted formal analyses for correlation and rank correlation, as well as compared the overall level with a paired t-test.

Methodology for determining factor underlying trends and changes in trends

A narrative review was conducted to identify possible reasons for the trends found. The search terms used were:

alcohol AND (public policy OR regulation) AND Spain, adding the year in which a point of change in the trend was identified. The search was performed in Spanish and English language and conducted through MEDLINE (PubMed), Web of Science and Google general index. For the Google general index, the search was continued until it reached 100 hits or relevancy for our analysis.

Software used

All statistical analyses were performed using Joinpoint v4.5.0.1 (National Cancer Institute, Bethesda, USA) and R v3.6.0 (University of Auckland, New Zealand) computer software programs.

Results

Determined periods

The Joinpoint model (Figure 1) showed that there were five different trends: a decrease of 3.2% per year from 1990 to 1995, an increase of 1.1% per year from 1995 to 2000, a period of stability from 2000 to 2006, a decrease of 4.5% per year from 2006 to 2011 and from 2011 onwards a period of stability. Sensitivity analyses corroborated the identified periods using a different methodology (see Figure A1 and Table A1, Appendix 1). Using this additional analysis we identified that the first trend on the Joinpoint model started in 1976. Finally, we assessed that data used (Manthey et al. 2019), based on WHO data, were highly correlated with the data of Sordo and colleagues (Sordo et al., 2016), both with respect to level (Pearson correlation of 0.913; 95% CI: 0.693-0.978; t=6.72; df=10; p<0.001) and

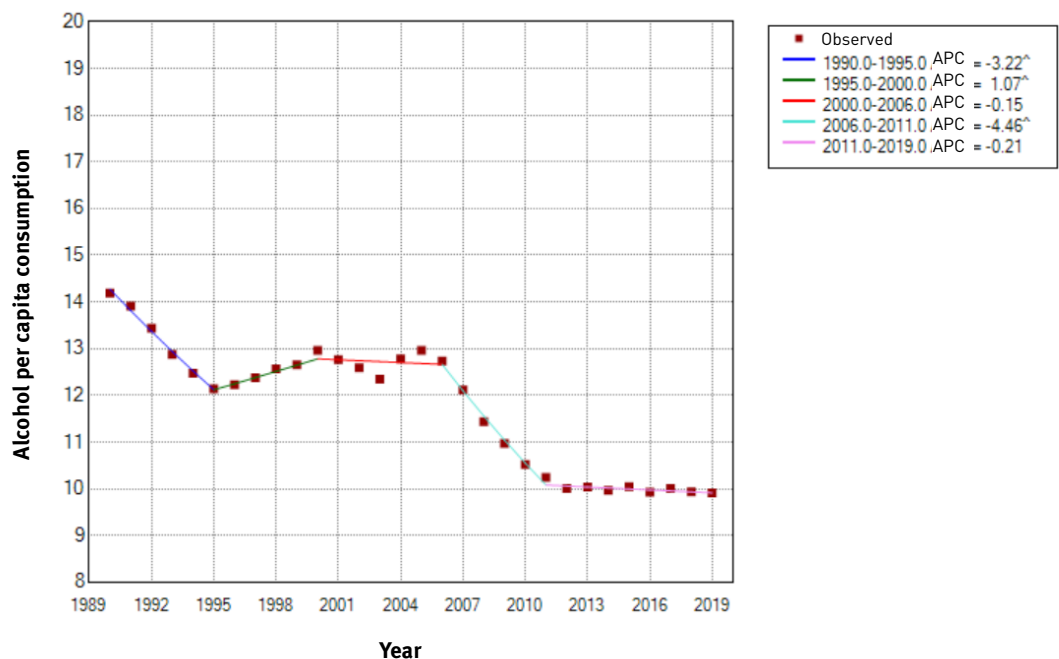


Figure 1. Alcohol per capita consumption in Spain between 1990 and 2019 plotted using a Joinpoint regression model.

^ Indicates that the Annual Percent Change (APC) is significantly different from zero at the Alpha = 0.05 level.

rank (Spearman correlation of 0.852; 95% CI: 0.398-1.000; $p < 0.05$). The WHO data were on average 1 liter higher, due to different estimates for unrecorded, i.e., not registered, alcohol (difference: 0.964; $t = 7.74$; $df = 10$; $p < 0.001$). Both sets of data also showed a more pronounced decline starting 2006.

Results of search

The narrative search resulted in a total of 1,222 articles in MEDLINE (PubMed), 58 articles in Web of Science and 60,800,000 results in Google's general index.

1990-1995

The first period identified (the decrease from 1990 to 1995) started back in 1976 and was due to a change in drinking preferences from wine to beer (see Figure A1, Appendix 1). Several factors can explain this shift: the emergence of new beverages (colas, sodas, light and low alcohol beer) changed the status of wine as the only drink on the market and there was more invested in advertising them. Spirits and beer had better marketing strategies due to the multi-national enterprises behind them, while wine was only occasionally advertised and its market was mainly comprised of small producers. The price of wine in Spain increased by 23% from 1985 to 1992 while the price of beer only increased by 14%. As far as the public was concerned, beer was considered to be less dangerous than drinking wine or spirits. Finally, the role of lunch as a family meal was lost which also reduced the wine consumption in households (Galán et al., 2014; Gual & Colom, 1997; Matrai et al., 2014).

Another factor that may have influenced this decrease were the public health measures taken due to the epidemic

of heroin use in the 80s (Sánchez-Niubò et al., 2009). Drug use became one of the main concerns for Spain, and the government created legislation to regulate alcohol consumption as well, especially among young people (Gual, 2006). In 1982, the minimum age to purchase alcoholic beverages was legislated to be 16 years old (Real Decreto 2816, 1982). The advertising of alcoholic beverages with more than 20% alcohol by volume was banned in 1988 (Ley 34, 1988) and the sale of alcoholic beverages was prohibited in public education centers in 1989 (Orden de 7 de noviembre, 1989) and at sport events in 1990 (Real Decreto 1045, 1990).

Up to 40% of traffic accidents were associated with the consumption of alcoholic beverages in the 90s (Del río, 2002; Pascual Pastor, 2002) which led to some measures related to road safety. In 1992, the minimum level of Blood Alcohol Concentration (BAC) was settled upon for the first time, at 0.8 g/l for drivers of motor vehicles, 0.5 g/l for transporters of goods and 0.3 g/l for transporters of passengers or hazardous material (Ley Orgánica 1, 1992).

Spain controls alcohol taxes by a set of indirect taxes called "the special taxes" regulated by Law 38 (1992). The tax rate applicable to alcohol beverages increased by 10% in 1993, by 5.9% in 1994 and by 3.5% in 1995 (Secretaría de Estado de Hacienda, 2013).

1995-2000 and period of stability

Between the end of 1992 and the end of 1993 there was a severe economic crisis in Spain («España sufrió en 1993 la peor recesión económica registrada en los últimos 30 años», 1994), but in late 1994, the economy began to recover with an increase of 2.4% of GDP, the creation of

Table 1. Evolution of alcohol consumption in the Spanish population aged 15-65 (1995-2017).

	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015	2017
Sample size	8888	12 304	12 234	14 113	12 033	27 934	23 715	20 109	22 128	23 136	22 541	21 249
Mean age to start drinking	NA	16.8	16.9	16.9	16.7	16.7	16.8	16.7	16.7	16.7	16.6	16.6
Life-time alcohol consumption* (percentage)	NA	90.6	87.3	89.0	88.6	93.7	88.0	94.2	90.9	93.1	93.5	91.2
Alcohol consumption in the last 12 months* (percentage)	68.5	78.5	75.2	78.1	76.6	76.7	72.9	78.7	76.7	78.3	77.6	75.2
Alcohol consumption. last 30 days* (percentage)	NA	64.0	61.8	63.7	64.1	64.6	60.0	63.3	62.3	64.4	62.1	62.7
Daily alcohol consumption, last 30 days* (percentage)	18.4	12.7	13.7	15.7	14.1	14.9	10.2	11.0	10.2	9.8	9.3	7.4
Binge drinking**, last 30 days (percentage)	NA	NA	NA	NA	5.3	4.9	12.6	14.9	15.2	15.5	17.9	15.1
Individuals that perceive risks associated with alcohol consumption (percentage)												
Having 5-6 drinks daily	NA	89.2	90.7	86.1	83.3	87.3	89.2	91.4	91.7	90.7	90.0	90.0
Having 5-6 drinks on weekend	NA	45.6	49.2	44.2	41.8	43.6	46.6	45.0	49.3	43.5	45.8	49.1

Note.*at least one drink; **5 or more drinks for men, 4 or more drinks for women.
Source: OEDA Survey on Alcohol and Drugs in Spain (EADDES).

nearly 400,000 jobs and a decline in unemployment rates from 22.4% to 22%. This economic improvement might explain the point change in 1995 in our Joinpoint model.

Among the safety road traffic measures, BAC was modified in 1998, reducing the amount allowed to 0.5 g/l for drivers of motor vehicles and 0.3 g/l for transporters of goods, passengers or hazardous material (Real Decreto 116, 1998).

Another tax increase by 3.5% at the beginning of 1996 and by 25.58% at the end of July of that year occurred, and remained stable until January 1, 2002, when it increased by 8%. In 2005, there are two increases: the first of 2%, in effect until September 16th, and the second of 10% in effect since September 17th (Secretaría de Estado de Hacienda, 2013).

2006-2011

In December 2005, tobacco-control legislation was approved and enacted in January 2006, which regulated the sale and place of its consumption (Ley 28, 2005). In September 2006 a proposal to regulate alcohol consumption was presented to the Council of Ministers whose relevant aspects were two: regulation of the sale (banning street sales, regulation of the license to sell in stores, time limit of sale and limitation of age for purchase) and limitation of advertising (in press, television and radio from 6h to 22h) (Ministerio de Sanidad y Consumo, 2006). This unleashed a major media and social debate against the proposed law. The non-supporters were the political opposition and also some Ministries and Autonomous Governments of the government itself, organizations of farmers and winemakers, along with other organizations (Villalbí, Granero & Brugal, 2008). In February of 2007, the Minister of Health announced the withdrawal of the proposed law. But among the supporters of the law were scientific societies, consumer organizations, parents and mothers' organizations, and associations representing alcohol victims or their families. This debate may have triggered widespread public awareness and account for the decrease in alcohol consumption that began in 2006.

Also, between 2005 and 2007, an increase of 7.7% in reports of binge drinking in the past 30 days (4.9% in 2005 vs 12.6% in 2007) was identified by EDADES (Table 1). In Spain, a phenomenon called "botellón", which is defined as a group of mostly young people consuming alcohol in open public places, became widespread and it has been associated with binge drinking (Soler-Vila et al., 2014; Teixidó-Compañó et al., 2019). Between the years mentioned there were massive gatherings of more than 25,000 people in several cities in Spain, mostly in the southern part of the country, to participate in the so-called "macrobotellones" («Más de 25.000 jóvenes se reúnen en el "macrobotellón" de Granada», 2006). In response to this problem, the Autonomic Government of Andalucía approved a law that regulated this phenomenon (Ley

7, 2006). The law banned the gathering of people who consuming drinks in open public places, except in those areas predetermined by municipalities. It also banned the sale of alcoholic beverages after 10pm and the ban on hotel and nightlife establishments serving drinks for consumption outside the premises, including the authorized spaces (i.e., terraces).

The slope was maintained by the economic crisis that began in 2007-2008. In times of economic recession, it was observed that people gave priority to other expenses over alcohol beverages, as alcohol is a dispensable product (Blázquez-Fernández, Canterero-Prieto & Perez, 2019; de Goeij et al., 2015; Martin Bassols & Vall Castelló, 2016). In the United States and Eastern Europe another mechanism was suggested where drinking problems increased due to psychological distress often triggered by income reductions and unemployment (de Goeij et al., 2015). In the case of Spain and in most countries in the European Union, the first mechanism produced the decrease in alcohol consumption during the economic crisis: a regular pattern of heavy drinking decreased (maybe related with less available income) but a pattern of binge drinking increased (perhaps to cope with emotional distress related to unemployment and financial hardship) (Catalano, 1997).

Additional measures and final period of stability

Since the creation of the National Drug Plan different strategies have been approved by the Council of Ministers with the aim of establishing the framework for action for public health policies in Spain, as well as the lines of general execution. Campaigns for moderate consumption, education on drug consumption targeted to young people, policies on drinking and driving, detection and treatment of alcohol abuse and dependence, among others, have been some of the action plans gathered in the agenda (Plan Nacional sobre Drogas, 2015). Also the Autonomic Governments and municipalities have enacted regulations and norms towards the use and availability of alcohol and specific campaigns to reduce its consumption (Plan Nacional sobre Drogas, 2019).

And finally, in June 2013, taxes were raised by 10% and in 2016 there was another increase in tax of 5% (Secretaría de Estado de Hacienda, 2013).

Discussion

Alcohol consumption in Spain has varied over the years, presenting different trends and an overall decrease over the past three decades. Our main findings showed that Spain is a country in transition, where beer has replaced wine as the preferred alcohol beverage and binge drinking among younger people is replacing daily alcohol consumption still seen in adults. Our results are in line with other studies that analyzed epidemiologic aspects of alcohol consumption

(Galán et al., 2014; Gual, 2006; Sordo et al., 2016; Villalbí & Brugal, 2012).

This change in the trend can be explained by the different public health measures carried out by the Spanish government as well as the change in the pattern of consumption. Some of the policies mentioned in the results have been effective, such as increasing the minimum alcohol purchase age, advertising regulations, and the ban on the sale of alcoholic beverages in public education centers and at sporting events (Matrai et al., 2014).

The attempts by the government to legislate stricter control over alcohol sales and advertising in 2006 was a massive failure due to the strong influence of industry and others interested in its consumption, including the Spanish Wine Federation (FEV), Brewers of Spain and the Spanish Federation of Spirits (FEBE), which form part of the Spanish Confederation of Business Organizations (CEOE) through the Spanish Federation of Food Industries and Beverages (FIAB) (Villalbí et al., 2008; Villalbí & Pérez, 2006). These entities together form a strong alliance with well-defined strategies which are widely believed to encourage alcohol consumption. As in tobacco-control policies, it is necessary to define a strategy and priorities that regulate it (Villalbí, Rodríguez-Martos, Jansà & Guix, 2006). There are some effective measures like increase on taxes, restrictions on availability, control over advertising, interventions to prevent driving under the influence, and offering interventions in primary care (the first three are recommended as “best buys” as they are highly cost-effective and easy to implement (Chisholm et al., 2018); all five measures are subsumed in the SAFER initiative of WHO (World Health Organization, 2018b)). It is crucial to generate favorable public policies to prevent psychoactive substance use and reduce the burden they generate (Brugal, Rodríguez-Martos & Villalbí, 2006; Robledo de Dios, 2002; Villalbí, Bosque-Prous, Gili-Miner, Espelt & Brugal, 2014).

Previous studies have shown an association between binge drinking and the “botellón” phenomenon described above (Romo-Avilés, Marcos-Marcos, Marquina-Márquez & Gil-García, 2016; Soler-Vila et al. 2014; Tomás, Tort, del Río & Iñiguez, 2010). Some reasons that explain this association involve peer pressure, accessibility to cheap alcoholic beverages, the “positive” effects of alcohol consumption including the enhancement of social relationships and gaining admiration from other colleagues when drinking large amounts of alcohol (Espejo, Cortés, del Río, Giménez & Gómez, 2012). Public policies related to alcohol consumption should consider this emerging phenomenon and target interventions that control them, as in the case of Autonomous Community of Andalucía which enacted a law regulating it. “Botellon”-control should be widespread at a national level, focusing on legislating the accessibility and

availability of alcohol by young people (Dolz del Castellar & Martín Castro, 2010; Teixidó-Compañó et al., 2019).

In regard to the economic crisis, the recession has been associated with less alcohol consumption, which was noted in Spain which supported the pro-cyclical theory of alcohol consumption (Martin Bassols et al., 2016). This theory claims that due to their reduced budget, people invest less money in alcoholic beverages, which explains the decrease in daily alcohol consumption, but may bring about an increase in binge drinking. This phenomenon has been observed and analyzed in other countries as well (Bosque-Prous, Kunst, Brugal & Espelt, 2017; Colell, Sánchez-Niubò, Delclos, Benavides & Domingo-Salvany, 2015; de Goeij et al., 2015; Pacula, 2011). Some vulnerable groups with a predisposition to increasing their alcohol consumption—such as the unemployed—were identified (Blázquez-Fernández et al., 2019; Bosque-Prous et al., 2015; Dom et al., 2016). Economic fluctuation and instability are triggers to mental health disorders such as alcohol dependence and alcohol abuse in determinate subgroups (Gili, García Campayo & Roca, 2014; Gili, Basu, McKee & Stuckler, 2013). Therefore some public health policies should be directed at these subgroups in order to prevent and treat alcohol-related problems.

Even though there have been several increases on alcohol taxes through the years studied, Spain is still the country with the lowest taxes in all ranges of alcoholic beverages among the European Union. For example, in contrast to there being a tax exemption on wine in Spain, there is one in the United Kingdom of more than 2 Euros per liter (Antoñanzas Villar, Martínez-Zárate & Pradas Velasco, 2008). It has been shown, that heavy drinkers and people with alcohol use disorders as well as young people tend to consume cheaper alcoholic beverages (Meier, Purshouse & Brennan, 2010; Purshouse, Meier, Brennan, Taylor & Rafia, 2010). Pricing policies should take such factors into account as a way to reduce alcohol consumption (Wagenaar, Salois & Komro, 2009).

A limitation of this study is that we did not perform an analysis to verify if our possible explanations represent causation, but we refer to them as correlations in the results. We also cannot exclude other influencing factors, such as other contextual factors and long-term social and economic trends as illustrated by Allamani and colleagues for Italy (Allamani et al., 2014), a country with partly similar trends. Another limitation is that the interpretations above refer to the use of EDADES, a survey with the weakness of any general population survey in the fields of alcohol: considerable degree of non-response, under-coverage, and potential biases due to self-report (Rehm, Klotsh & Patra, 2007; Shield & Rehm, 2012; Sordo et al., 2016). Despite these limitations, the strength of this study lies in following: a homogeneous, continuous and standardized methodology over time that allows us to study the temporal

trend on alcohol consumption over a span of almost 30 years. Several hypothesis explaining why this decrease happened in the past years have arisen in this article, and further studies should analyze these possible reasons to see if the measures taken have been effective and, if so, then be used to set an example for other countries.

In conclusion, Spain is a country in transition where the trend on alcohol consumption has changed. The alcohol policy measures undertaken, the change in the lifestyle, the rise in beer consumption and binge drinking may explain the decrease observed and so far there has been an improvement on reducing consumption, but stricter public health policies and legislation should be taken into account in regulating alcohol consumption even more.

Conflict of interests

The authors declare no conflicts of interest.

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Appendix 1

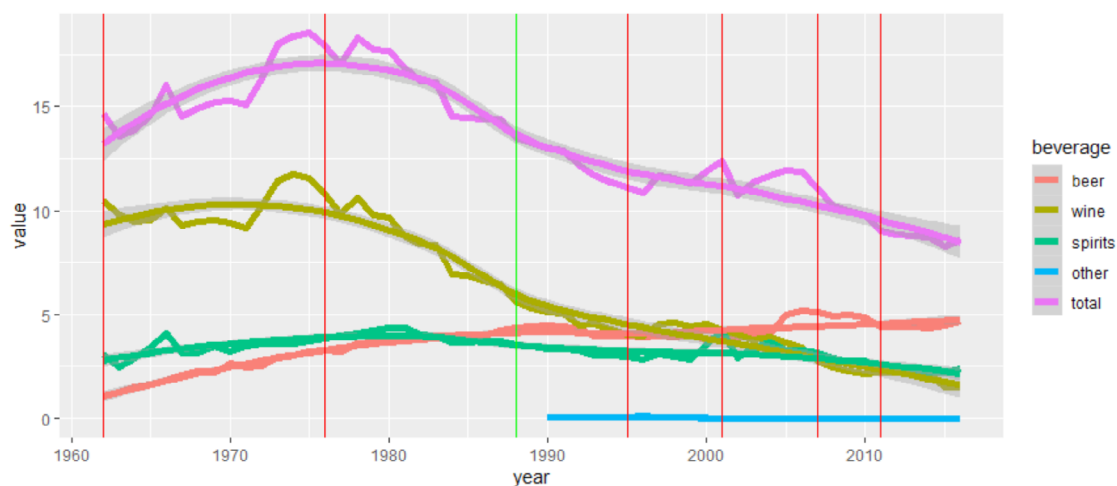


Figure A1. Alcoholic beverage trends and periods of changes identified by sensitive analysis.

Table A1. Data on alcohol per capita consumption by year, type of alcoholic beverage and source.

Year	Wine	Beer	Spirits	Other	Total	Source	Year	Wine	Beer	Spirits	Other	Total	Source
1962	10.49	1.05	3.10		14.64	Matrai	1991	5.07	4.39	3.34	0.08	13.91	GISAH
1963	9.81	1.27	2.48		13.56	Matrai	1992	4.49	4.32	3.31	0.07	13.43	GISAH
1964	9.50	1.49	2.89		13.88	Matrai	1993	4.56	4.00	3.04	0.07	12.88	GISAH
1965	9.54	1.61	3.44		14.59	Matrai	1994	4.27	3.99	3.02	0.08	12.47	GISAH
1966	10.08	1.82	4.13		16.03	Matrai	1995	4.03	3.99	2.99	0.08	12.14	GISAH
1967	9.26	2.10	3.18		14.54	Matrai	1996	3.97	3.93	2.86	0.10	12.23	GISAH
1968	9.45	2.28	3.18		14.91	Matrai	1997	4.57	3.95	3.08	0.09	12.38	GISAH
1969	9.53	2.22	3.47		15.22	Matrai	1998	4.62	3.94	2.95	0.07	12.57	GISAH
1970	9.39	2.67	3.19		15.25	Matrai	1999	4.39	4.06	2.82	0.06	12.66	GISAH
1971	9.16	2.48	3.47		15.11	Matrai	2000	4.53	3.79	3.52		12.96	GISAH
1972	10.22	2.50	3.61		16.33	Matrai	2001	4.20	3.91	4.23		12.77	GISAH
1973	11.43	2.95	3.60		17.98	Matrai	2002	4.02	3.83	2.89		12.59	GISAH
1974	11.72	3.06	3.60		18.38	Matrai	2003	3.82	4.11	3.42		12.35	GISAH
1975	11.55	3.25	3.73		18.53	Matrai	2004	3.89	4.10	3.69		12.78	GISAH
1976	10.77	3.30	3.86		17.93	Matrai	2005	3.67	4.98	3.27		12.96	GISAH
1977	9.85	3.23	3.99		17.07	Matrai	2006	3.43	5.15	3.28		12.73	GISAH
1978	10.58	3.58	4.12		18.28	Matrai	2007	2.78	5.09	3.18		12.12	GISAH
1979	9.79	3.68	4.24		17.71	Matrai	2008	2.44	4.92	2.88		11.43	GISAH
1980	9.69	3.64	4.36		17.69	Matrai	2009	2.28	4.98	2.73		10.97	GISAH
1981	8.78	3.73	4.33		16.84	Matrai	2010	2.15	4.87	2.76		10.52	GISAH
1982	8.40	3.81	4.02		16.23	Matrai	2011	2.20	4.40	2.42		10.24	GISAH
1983	8.32	3.88	3.98		16.18	Matrai	2012	2.21	4.41	2.20		10.01	GISAH
1984	6.94	3.87	3.68		14.49	Matrai	2013	2.15	4.42	2.20		10.04	GISAH
1985	6.86	3.97	3.64		14.47	Matrai	2014	2.16	4.35	2.18		9.97	GISAH
1986	6.65	3.99	3.73		14.37	Matrai	2015	1.55	4.51	2.21		10.04	GISAH
1987	6.45	4.26	3.70		14.41	Matrai	2016	1.55	4.64	2.39		9.93	GISAH
1988	5.64	4.34	3.54		13.52	Matrai	2017					10.00	Manthey
1989	5.33	4.45	3.50		13.28	Matrai	2018					9.93	Manthey
1990	5.10	4.46	3.35	0.07	14.18	GISAH	2019					9.91	Manthey

