Why does socioeconomic inequality of alcohol consumption change as the population ages? Some evidence using Swedish panel data and decomposition analysis

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Introduction

Aging influence many aspects of society including health. For example, aging, or more accurately retirement, influence health-related behaviour (Slingerland *et al*. 2007). Some studies showed that aging influence health inequalities. On one hand the Whitehall II study showed that relative social inequalities in perceived health increase between middle age and early old age (Chandola *et al*. 2007). On the other hand some other studies have showed converging relative health inequalities in later life (Marmot, Shipley 1996). But the latter focus on mortality while Chandola and colleagues uses perceived health. House & Robbins (1983) showed that there is no difference in health between social classes neither for younger adults or the elderly. However, socioeconomic differences in health have been shown to exist between people in middle and early old age. House *et al*. (1994) makes the hypothesis that the differences in socioeconomic status may be at its higher point in middle and early old age, because the effect becomes more fixed and more cumulative in these age groups. Socioeconomic differences become thinner for the eldest people because more people from the lower classes would have died earlier and also as our western societies have until the recent years invested a lot in health concerning the old people (Preston (1984), Duncan, Smith (1989)).

According to this hypothesis, socioeconomic differences in health should be reduced to gain life years. Moreover, Woolf et al. (2004) argue that mortality rates would have decreased more by reducing inequalities between African-American and Whites than what has be done by medical advances. A wide range of hypothesis has been made to understand socioeconomic differences. According to Pearce & Davey Smith (2003), there is a vigorous debate between the proponents of the "social capital" and the "neomaterialist" interpretation. The former interpretation is based on psychosocial factors, while the latter emphasize the material and structural effect of life. Our study goes beyond those two categories. We do not claim that alcohol consumption is a matter of psychosocial factor; that you would drink more because there is an hidden psychological factors that makes you do so ("social capital" point of view). Neither are we going to assess the fact that drinking alcohol has macro structural patterns based on the Swedish society and living conditions ("neomaterialist" approach). Instead are we focusing on a behavioural approach aiming to catch the living conditions leading to alcohol consumption and inequality in alcohol consumption. Panel data will allow us to take into account individual heterogeneity and psychology factors.

Some studies have investigated the relationship between health-related behaviours and income or social hierarchy. {{17 Casswell,S. 2003;}} showed, on one hand, that people with higher income drink more often (men and women). On the other hand, educational or occupational activity has less impact on frequency. Then the other strong result of the study is that better educated people consumed smaller amount of alcohol (Casswell, Pledger & Hooper 2003). Lantz *et al*. (1998) showed that risky behaviours are more prevalent in lower levels of income and that lower income leads to a significance increase in mortality risk although health-related behaviours at the same time explain only a small proportion of this relation. A study in Spain reports that men and women of upper social class (compared to lower social class) were more likely to report light alcohol consumption while upper class women at the same time were more likely to report excessive consumption. There were no significant differences between social classes for men regarding excessive consumption (Borrell et al. 2000). In UK, a study showed that for men, one found more heavy drinkers among manuals workers while for women it was always the higher classes who drank more (Townsend, Davidson & Whitehead 1988).

The aim of the study is to measure and explain the inequality in alcohol consumption in Sweden in 1988/89 and its changes over an eight year period.

Data

Data from the Survey of Living Conditions (the ULF survey) from Statistics Sweden were used, which are linked to income data from the National Income Tax Statistics. Statistics Sweden has conducted an annual systematic survey of living conditions in the form of 1-hour personal interviews with randomly selected adults aged 16–84 years since 1975. In the current study, we used data from individuals included in the 1980/81 wave (W1) and responding in the 1988/89 wave (W2) to analyse the effect of aging on socioeconomic inequality in alcohol consumption between W2 and the 1996/97 wave (W3). Data on alcohol consumption is available only for W2 and W3. The panel methods only use individuals who answered at least twice to allow an individual's heterogeneity to be taken into account. As attrition occurs between W2 and W3, the sample used to make the panel estimation is smaller than the sample used to calculate the C in W2. In W2, we use as many observations ass we can to calculate the C.

In total 5,106 individuals answered the questionnaire in 1988/89 and were included in 1980/81. There were 3,780 individuals responding to all three waves. We deleted individuals too young (less than 20 years old at inclusion) because young people have different behaviour and need a proper analysis. We also delete people too old (more than 68 years old at inclusion) to allow an aging effect over the three waves. The final sample constitutes of 4,163 (2,115 women) individuals in W1 and W2 and 3,419 (1,796 women) individuals in W3. Only the variable for income had missing values, 43 observations missing in W1, 33 in W2 and 26 in W3. The other variables had very few missing values, so we recoded them in the biggest group.

Alcohol

Several different questions about alcohol consumptions were included in the survey. The main question regarding level of alcohol consumption was phrased differently in W2 and W3. In W2 the question was "How many drinks of <type of beverage> do you drink during a normal week?" while in W3 the question was "How many drinks of <type of beverage> did you drink last week?". A supplementary question was used in W3 to asses whether the previous week was a normal week; if not, the same questions as in W2 were asked. If the previous week was not a normal week, we used the answers of the supplementary question. The included types of beverage were: low alcohol beers (available in any shop in Sweden, asses in average 2.8% of alcohol per 100 centilitre), strong beers (available at the monopoly or in bars and pubs, 5.25%), wine (monopoly, bars and pubs, 12.5%), strong wines (monopoly, bars and pubs, 20%), strong alcohols (monopoly, bars and pubs, 40%). A total consumption of 100% pure alcohol were calculated and divided by 7 to have a daily consumption. In Table 1, we present basic descriptive analysis of alcohol consumption, proportion of alcohol consumers (first line) and between consumers we use cut-off points from the World Health Organization (second line). We combined the two groups "hazardous consumers" and "harmful consumers" into a group of "heavy consumers" as we have few observations in those groups separately and the distinction was not relevant for this study. The limit of alcohol for a heavy drinker that we use reflects levels at which the risk of overall mortality increases (Anderson et al. (1993)).

We are using two alcohol variables, one is a continuous variable on the total amount of consumption, providing that the individual consume alcohol and the other one is a binary variable on whether or not the individual consume alcohol.

Full income

The full income variable consists of two components, annual disposable income and the annuity of net wealth. The dataset contains information regarding disposable income net of taxes (income from capital, employment and business, and all income transfers). National Income Tax Statistics in Sweden supplies information regarding taxable net wealth. This was converted to net wealth at market value, following the method described in Gerdtham & Johannesson (2002). The annuity of net wealth is based on life expectancy in Sweden, differentiated for gender and age, and a 3% interest rate (Statistics Sweden 1998). For W3, information on property was missing for a few individuals. These missing values were replaced with overall mean property values. Both income measures were converted into 1997 prices using the consumer price index, and added together to obtain full income. In order to transform the household income into individual (adult) income, we applied the Organisation for Economic Co-operation and Development (OECD) equivalence scale, which takes an intermediate position between full and no economies of scale.

Health

The health variable is based on the modified EuroQoL-five dimension (EQ-5D) questionnaire. Burström et al. (2001) (Burström, Johannesson & Diderichsen 2001) obtained mean quality of life (QoL) weights for Sweden by mapping the ULF survey data to the EQ-

5D measure. By using questions in the ULF data that are similar (but not identical) to those of the EQ-5D questionnaire, the authors were able to arrive at QoL scores that were both feasible and valid ((Burström, Johannesson & Diderichsen 2001)). As no social tariff figures are available for Sweden, the social tariff for the UK (Dolan 1997) was used in the original article and will also be used in the current study. The method of mapping survey data to the EQ-5D measure results in modified EQ-5D dimensions, which are not true EQ-5D dimensions. In addition, the mapping was limited by the fact that no questions were available that could be used to determine whether an individual had severe problems in the self-care dimension. Negative scores, i.e. health states considered worse than death, were set equal to zero. The variable has been divided in 3 groups (bad health, moderate and good health), and we included only the W1 health to avoid any endogenous effect of health on alcohol consumption or income.

Other variables

Age was divided in 6 groups (<35 years old, 35<=age<45, 45<=age<55, 55<=age<65, 65<=age<75, >=75) and we create a cohort variable (born after 1947, 1932<=cohort<1947, 1924<=cohort<1932, 1916<=cohort<1924, <1916). To proxy the period effect, we include a macro-indicator "Notification Rate" which is the proportion of people that have been notified that they are going to be dismissed. Period effect is the results of lifetime exposure to macro factors, so we included a macro factor to avoid the well-known problem of identification when one included age, period and cohort variables (Portrait, Alessie & Deeg). The interpretation of the effect of such a variable is spurious because the period effect may not be captured by the macro indicator, as a consequence the macro-factor can be seen as an adjustment variable and we will not interpret its significance.

Socioeconomic status was also described by an education and an occupation variable. Four education groups were used, no education or primary school, professional high school studies, high school level, university level. Occupation status was described by a 6 outcome variable; employed, self-employed, student, unemployed, retired, and house working. We also used parent's socio economic status in 3 groups, white collar, self-employed, and blue collar. We used father's socioeconomic group first and when it was not available we used the mother's. Regarding the last variable we construct a missing group variable as 4 percent of the population has not answered this question in W2 and 2 percent has not answered in W3 (data not shown). The marital status was included as a dummy variable. The number of children in the household is included by three dummies variables (no child or 1 child, 2 children, 3 or more children).

Methods

Our analyses are gender-specific because the effect of alcohol consumption differs between genders (see (Nolen-Hoeksema, (2004)) for an example) and we found differences in gender in alcohol consumption in our sample.

Measuring Inequalities

Inequalities are widely measured with the concentration curve and the concentration index. Both are related to the Lorenz curve and the Gini coefficient methods. The concentration curve is a plot of the individuals, ranked by a socioeconomic variable from the lowest to the highest rank with a cumulative health variable distribution. For a complete description see the World Bank report (O'Donnell et al. 2008).

We calculate concentration indices (C) to measure income-related inequalities in alcohol consumption using the covariance formula. This formula makes the C easy to understand, it is just the covariance between the socioeconomic rank and the health variable. For a complete description of the evolution of the Gini coefficient, from which the C is branch off see Xu (2003) and the World Bank report (O'Donnell et al. 2008). The C's can be computed on a continuous variable or a binary variable. For a binary variable, Wagstaff (2005) proposes to normalize the C by either dividing it by the reciprocal of the mean or the bounds of the C. The bounds are $1-\mu$ and $1+\mu$ (Wagstaff 2005), where μ is the mean of the variable (which in the case of a binary variable is a proportion). We normalized the C's using the latter method.

Decomposing inequalities

We decompose the C to analyze which factors impact the C of alcohol consumption (Wagstaff, van Doorslaer & Watanabe (2003)). The decomposition is based on the formula given in Wagstaff (Wagstaff, van Doorslaer & Watanabe (2003)).

$$C = \frac{2}{n\mu}\sum_{i=1}^{n} R_i y_i - 1 \qquad (1)$$

and from a linear regression model:

$$y_i = \alpha + \sum_k \beta_k x_{ki} + \varepsilon_i \qquad (2)$$

where y_i is the health-related behaviour variable (alcohol consumption), x_{ki} are a set of co-variables, and ε_i is the error-term. By substituting (2) in (1), we obtain:

$$C = \sum_k \frac{\beta_k \bar{x}_k}{\mu} C_k + \frac{GC_\varepsilon}{\mu} \qquad (3)$$

where μ is the mean of the health variable, $\bar{x}_k$ is the mean of x_k and C_k is the concentration index for x_k defined analogously to (C). $\frac{\beta_k \bar{x}_k}{\mu}$ is the elasticity of the health variable with respects to the explaining variable x_k. The last term can be computed as a residual. The decomposition result in (3) relies on the fact that the health variable is additive in its component x.

We are making a decomposition analysis on two variables, one is continuous and one is binary, and as a consequence we are going to make two panel regression models. The decomposition using the linear random effect model is straightforward. The probit random effect model does not allow decomposing of the observed categorical measure of health. It is only the explained variation in the health measure that can be decomposed (Van Doorslaer, Jones (2003)). As a consequence the error term is equal to 0 and the percentage of explained inequalities cannot be computed.

Panel Estimation

Panel estimation is more accurate than a pooled regression when the unobserved effect is correlated with the explanatory variables, it allows us to control for individual heterogeneity which might be a confounding factor (Jones, Wildman 2008). If the unobserved effect contains an individual random variable c that is correlated to the observed variables then we cannot consistently estimate the parameters. In a cross section analysis, one solution could be to find a proxy variable that is plugged in for c, or use an instrumental variable method (Wooldridge 2002). In our case, we can take into account a constant characteristic of individuals over time using our panel structure (Wooldridge 2002). Two main techniques have been used to consistently estimate the parameters in the presence of the individual heterogeneity. The “Random Effect Estimation” (RE) and the “Fixed Effect Estimation” (FE). The former imposes c_i to be orthogonal to x_{it} and puts c_i in the error term. Those assumptions are stronger than those needed for a pooled regression but in using Generalized Least Squares (GLS) accounts for the implied serial correlation in the composite error term $v_{it} = c_i + u_{it}$. However the correlation between the individual effect and the explanatory variable is neglected by the RE approach (Mundlak 1978). The FE achieves to take into account the correlation explicitly (Wooldridge 2002). This method eliminates the individual heterogeneity and consistently estimates the parameters. However, it eliminates also all time invariant variables except if they are interacted with time-varying variables. Mundlak (1978) proposed to introduce an auxiliary regression to decompose the heterogeneity effect into a correlation effect with the explanatory variables and a term that have no correlations with the x_{it}. In practice, we introduce the mean of x_{it} in the regression analysis to account for the correlation between the individual heterogeneity and the explanatory variables and we estimate the model with the GLS method, the one that is used for RE (Hsiao 2003 and Sevestre 2002).

Total differential approach

When observing changes in contribution of the same explaining factor between two waves, we would like to explain this evolution to understand what happened (O'Donnell et al. 2008). This can be computed through the differences in means and in C’s and is very helpful in interpreting the results. Wagstaff and colleagues (2003) describe the methods to decompose the changes over time. One disadvantage of the well-known Oaxaca decomposition (Oaxaca 1973) is that it is difficult to disentangle changes in the elasticity, however the total differential approach allows for changes in turn in each component of (3). However this method is accurate only for small changes.

Results

We present the tables of results for the women only; the results take too much place to be able to put all of them in this paper. Tables and results for men and both genders are available from the authors.

The Table 2 gives the C's for women, for both waves. The table gives the C's for the "Consumers vs. Abstainers" inequality as well as the consumption of alcohol inequality given that one consumes alcohol. They are positive indicating that alcohol consumers are concentrated among the better-off people (i.e. pro-rich health inequality) and alcohol consumption is also concentrated among the better-off. Those inequalities are significant and increasing over time. Among people consuming alcohol, rich women are more likely to consume higher quantities and this inequality decreases over time.

Reading the results of a decomposition analysis is not straightforward, first we have to estimate the contribution and percentage contribution (last 2 columns of Table3 for each wave) to know how much of the concentration index is explained by the variable. Then, to understand the differences that we may observe between the waves, we have to focus on differences of the elasticity and differences of the C's, see equation (3). The differences in elasticity over two waves depend on means of the explaining variables and mean of the alcohol variable. The parameters are the same for both waves as we are working with panel estimation assuming fixed coefficients over time. We then consider the results of the total differential approach (Table 5) to ripen the differences observed between mean and elasticity.

<u>Probability of consuming alcohol</u>

Basic results

Table 3 shows the results of the women decomposition analysis of the binary variable separating Consumers vs. Abstainers for both waves. For women the explained inequality is 0.1932 which is bigger than the "true" normalised inequality (0.1162) in W2 and the explained inequality is 0.4732 in W3 which is also bigger than the "true" normalized inequality (0.1589).

Cohort and age effect

In W2 the cohort effect is negative (pro-poor inequality), while it is positive for the older cohorts and negative for the younger one (1932-1947) in W3. The difference is coming from the C of the cohort dummies with the rank in income. While the C for the 1932-1947 cohort dummy increased, meaning that the rich are more concentrated in this cohort in W3 than in W2, the C for the other dummies variables changed sign meaning that the rich are more concentrated in the younger cohort in W3 than in the older ones, while it was the opposite in W2.

In W2, rich are more concentrated among the four eldest groups compared to the baseline age group, and among the baseline age group compared to the “35-45” age group. However, in W3 poor people are more concentrated in the two eldest groups compared to the “20-35” age group. The eldest age groups (more than 65) are more likely to consume alcohol than the youngest group, and the “35-45” age group is also more likely to consume alcohol than the youngest one.

Socio-economic factors

If the parents are “working class” or “self employed” compared to employed, they are more unlikely to consume alcohol, while not knowing the parents’ socio-economic condition leads to being more likely to consume alcohol. The poor are more concentrated among the “working class” or “self employed” parents’ socio-economic condition, the rich are more concentrated among the individuals who do not know their parents socio economic condition except in W3. As a consequence, the three socio-economic groups contribute to a pro-rich inequality in W2 but for different reasons.

Being alone is a pro-poor alcohol inequality variable, singles are less likely to consume alcohol and they are more concentrated among the rich. People who did professional high school studies are more concentrated among the poor and they are less likely to consume alcohol than the lowest educated group, as a consequence they contribute to a pro-poor inequality. People having three or more children are more concentrated among the poorest and they are less likely to consume alcohol than individuals without children, so it contributes to a pro-rich inequality. Ln of full income and mean of Ln of full income (individual heterogeneity) are major contributors to a pro-rich alcohol inequality in W2 and W3.

Poor are more concentrated among the “self employed”, “student”, “unemployed” and “house working”, for both waves. A change in C for the “retired” are observed between waves; in W2 they are more concentrated among the rich while in W3 they are more concentrated among the poorest. Moreover, the percentage of “retired” increases by 11 percentage points over the two waves. “Retired” explains 23% of the change in alcohol C according to the total differential approach.

The parameters of health variables are all negative and strongly significant. The worst health you had in W1, the more unlikely you are to drink alcohol. However, while all other groups contribute to a pro-rich inequality, women in a very bad health in W1 are concentrated among the rich in W2 which leads to a pro-poor inequality contribution.

Alcohol consumption

Basic results

We can compute, for continuous variables, a percentage of unexplained inequality. In W2, more than 23% of the C in alcohol consumption is unexplained and only around 11% in W3.

Cohort and age effect

The age parameters (Table 4) show that in average, individuals older than 35 years of age, consume more alcohol than the baseline age group, until 65 years of age. However, the difference decreases and becomes negative at 65 years of age, so the eldest groups (more than 65 years old) consume less alcohol than the youngest and the negative difference becomes even larger as the individual gets older. As already noted, the “35-45” age group is more concentrated among the poor and as they consume more alcohol they contribute to a pro-poor inequality. However, the eldest groups contribute to a pro-poor inequality in W2 because they are more concentrated among the rich in that wave and they consume less alcohol than the younger. Their contribution change in W3 because of the change in C as explained above. The cohort parameters are all negative, which means that the eldest cohort consume, in average, less than the younger cohort (1947 and above). As explained above, the eldest cohorts are more concentrated among the rich in W2 so they contribute to a pro-poor inequality, while in W3, cohorts born before 1932 are more concentrated among the poor and as a consequence contribute to a pro-rich inequality.

The contribution of being a first generation immigrant is very small, and none of the parameters are significant. Singles are more concentrated among the rich and the single women consume less alcohol than the women in couples. We find similar results for parents’ socioeconomic status as in the probability of consumption model. Individuals with parents in the self-employed or blue collar socioeconomic condition consume in average less than those with parents in the white collar socioeconomic condition (baseline). However, only one parameter is significant and those who do not know the parents’ socioeconomic condition consume more than the baseline. We find similar results for the children variables on the probability of consuming alcohol and on the level of alcohol consumption. Women with three or more children consume in average less alcohol than women with no or two children, and as they are more concentrated among the poor they contribute to a pro-rich inequality.

Women with a university education consume significantly more alcohol than women with non or primary school education. As a consequence, women with professional high school studies contribute to a pro-poor inequality because they are more concentrated among the poor, and the other levels of education contribute to a pro-rich inequality. Self-employed women contribute to nearly 10% of the concentration index in W2 (pro-poor contribution), while they only contribute to 1% in W3. The change represents 59% of the total change in the C of women between the two waves. This change is mainly due to the increase in the absolute value of the C of self-employed women, they are more concentrated among the poor in W3 compared with W2 and it is enough to annihilate the effect of the positive parameter. Health status in W1 does not have any influence on the contribution of the alcohol consumption inequality.

Discussion

The mean of Ln of full income has a strong significance in women RE between consumers and abstainers which shows that the individual heterogeneity is correlated to the explanatory variables. As a consequence the RE estimation without the Mundlak technique would have been a poor specification. However, the mean of Ln of full income in men RE between consumers and abstainers is not significant, so the classical specification of a RE estimation (without the Mundlak technique) would have been a good specification. However, as this variable (Mean of Ln of full income) has a major contribution in the decomposition analysis in W2 and in W3, we can conclude that for both gender the individual heterogeneity contributes to the inequality decomposition and that a panel technique leads to better estimation of the decomposition. We find similar results for the model of level of alcohol consumption.

The differences between genders for the “house working” effect on inequality might be mainly due to the fact that there is only a few observations of men declaring that they do "house working" (only four men in W2 and 85 in W3, compared to 111 women in W2 and 98 in W3). Women are less likely to consume alcohol when they are at the baseline age group (<35), while for men, the baseline age group is more likely to consume alcohol than any other group. A possible explanation could be that there is a popular compliance in Sweden and in many other European countries that women should abstain from alcohol while pregnant.

The proportion of eldest people increases over the two waves which is due to a mechanical effect of aging (only people aged 75 and 76 are in this group in W2). The explanation could therefore be that when people are getting very old they may transfer wealth to their heirs due to altruistic behaviour across generation. However the depreciation of the C is also observed for the age group 65-75, so we cannot explain the change in C only by a willingness transfer of money from the eldest to the youngest. We may also observe depreciation in full income for the eldest people. However this pattern shows a change in wealth from the eldest to the youngest group. Nevertheless, the 35-45 age group remain less concentrated among the rich than the 20-35 one. It may be explained by a life cycle pattern, the 35-45 age group may be more concerned by having a family with dependant children.

The effect of having children on the probability of consuming alcohol is different across genders, for men the probability is reduced when they have the second child while the probability for women is only reduced when they have the third child. We should however keep in mind that those results are only for probability of consuming, it says nothing about the level of alcohol consumption. The level of alcohol consumption is very gender specific when it comes to the marital status. Women consume more alcohol when in couple, while it is the opposite for men, and it turns out to be that being in a relationship averages the total consumption of alcohol of men and women.

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Table 1 Alcohol consumption according to the modified World Health Organization cuts

	1988/89		**1996/97**	
	Women	**Men**	**Women**	**Men**
Consumers	1,694 (80.1%)	1,807 (88.2%)	1,435 (79.9%)	1,431 (88.2%)
Heavy consumers (> 20 g/l for women, > 40 g/l for men)	16 (0.94%)	36 (2%)	45 (3.4%)	55 (3.84%)

Table 2: Concentration indexes for women for the two analyses

	Consumers vs. Abstainers	**Inequalities among consumers**
	Women (Normalized value; p-value)	**Women (Value; p-value)**
W2	0.1162 (<0.001)	0.1902 (<0.001)
W3	0.1589 (<0.001)	0.1273 (<0.001)

Table 3: Results of the decomposition analysis Consumers vs. Abstainers

Women		**W2**				**W3**			
Varname:	**coefficient**	**elasticity**	**(C)**	**contrib**	**%contrib**	**elasticity**	**(C)**	**contrib**	**%contrib**
Age									
35<=age<45	0.314	0.096421	-0.139879	-0.013487	-6.806148	0.080616	-0.141361	-0.011396	-2.408072
45<=age<55	-0.0383	-0.008832	0.127737	-0.001128	-0.569314	-0.012932	0.122585	-0.001585	-0.334995
55<=age<65	-0.260	-0.058538	0.108628	-0.006358	-3.208920	-0.060035	0.116471	-0.006992	-1.477543
65<=age<75	0.236	0.056982	0.094477	0.005383	2.716707	0.053122	-0.089295	-0.004743	-1.002362
75<=age<=84	0.0121	0.000691	0.177953	0.000122	0.062064	0.002422	-0.059031	-0.000143	-0.030216
Cohort									
1932<=cohort<1947	-1.282***	-0.474561	0.088150	-0.041832	-21.11022	-0.502138	0.125357	-0.062946	-13.30109
1924<=cohort<1932	-1.795***	-0.317883	0.142042	-0.045153	-22.78565	-0.318969	-0.064409	0.020544	4.341247
1916<=cohort<1924	-2.869***	-0.565740	0.073136	-0.041376	-20.87980	-0.483890	-0.108808	0.052651	11.12559
Cohort>1916	-3.779***	-0.348049	0.148079	-0.051539	-26.00828	-0.255475	-0.030494	0.007790	1.646188
Immigrant									
First generation immigrant	-0.0266	-0.002496	0.020255	-0.000050	-0.025514	-0.002427	-0.041798	0.000101	0.021443
Parents socio economic condition									
working class	-0.476	-0.256159	-0.072329	0.018527	9.349752	-0.261564	-0.057434	0.015022	3.174437
self employed	-0.904***	-0.375039	-0.007136	0.002676	1.350640	-0.383531	-0.015537	0.005959	1.259200
Do not know	3.476***	0.215438	0.154328	0.033248	16.77815	0.108995	-0.093724	-0.010215	-2.158620
Marital Status									
Alone	-0.611***	-0.208610	0.502503	-0.104827	-52.89929	-0.244132	0.302616	-0.073878	-15.61105
Children									

2	0.155	0.031195	-0.301287	-0.009398	-4.742978	0.017763	-0.193963	-0.003445	-0.728041
3 or more	-0.682	-0.067206	-0.568903	0.038234	19.29408	-0.028504	-0.543182	0.015482	3.271655
Education									
professional high school studies	0.395*	0.164246	-0.061453	-0.010093	-5.093526	0.171339	-0.051001	-0.008738	-1.846509
high school level	0.165	0.011418	0.045394	0.000518	0.261570	0.010714	0.047498	0.000508	0.107540
university level	0.652**	0.178497	0.173554	0.030979	15.63298	0.197090	0.240972	0.047493	10.03569
Income									
Ln Full income	0.319	4.496072	0.019929	0.089602	45.21623	4.545360	0.025229	0.114676	24.23185
Mean of Ln of full income	1.239***	17.52813	0.017724	0.310683	156.7806	17.57370	0.018258	0.320877	67.80378
Occupation									
Self employed	-0.361	-0.014905	-0.348370	0.005192	2.620287	-0.001256	-0.739622	0.000929	0.196422
Student	1.274	0.012032	-0.149494	-0.001798	-0.907690	0.013315	-0.368170	-0.004902	-1.035943
Unemployed	-0.142	-0.002590	-0.132167	0.000342	0.172750	-0.005917	-0.155582	0.000920	0.194558
Retired	-0.979***	-0.350878	0.077051	-0.027035	-13.64312	-0.491999	-0.074945	0.036872	7.791522
Houseworking	-0.775**	-0.050791	-0.523466	0.026587	13.41704	-0.052936	-0.190954	0.010108	2.136004
Economic indicator									
Notification Rate	0.0116	0.006503	-0.002808	-0.000018	-0.009219	0.016681	0.005395	0.00009	0.019017
Health									
Bad	-0.798***	-0.173308	0.058199	-0.010086	-5.089923	-0.150106	-0.036699	0.005508	1.164044
Moderate	-0.446*	-0.123994	-0.002024	0.000250	0.126657	-0.124930	-0.053572	0.006692	1.414246
				0.198164	100			0.473244	100

Table 4: Results of the decomposition analysis, Consumption of alcohol

Women		**W2**				**W3**			
Varname:	**coefficient**	**elasticity**	**(C)**	**contrib**	**%contrib**	**elasticity**	**(C)**	**contrib**	**%contrib**
Age									
35<=age<45	9.956***	0.214232	-0.139877	-0.029966	-16.08484	0.066589	-0.141355	-0.009412	-7.404870
45<=age<55	7.684**	0.124089	0.127737	0.015850	8.508240	0.067551	0.122580	0.008280	6.514106
55<=age<65	2.054	0.032328	0.108628	0.003511	1.885002	0.012325	0.116471	0.001435	1.129376
65<=age<75	-5.605	-0.094683	0.094477	-0.008945	-4.801650	-0.032816	-0.089295	0.002930	2.305247
75<=age<=84	-17.59**	-0.070458	0.177953	-0.012538	-6.730134	-0.091808	-0.059031	0.005419	4.263531
Cohort									
1932<=cohort<1947	-6.328***	-0.163876	0.088150	-0.014445	-7.754048	-0.064464	0.125353	-0.008080	-6.357040
1924<=cohort<1932	-7.249*	-0.089819	0.142042	-0.012758	-6.848211	-0.033506	-0.064409	0.002158	1.697758
1916<=cohort<1924	-0.368	-0.005075	0.073136	-0.000371	-0.199232	-0.001613	-0.108808	0.000175	0.138134
Cohort>1916	-3.909	-0.025186	0.148079	-0.003729	-2.001909	-0.006872	-0.030505	0.000209	0.164939
Immigrant									
First generation immigrant	-1.749	-0.011485	0.020255	-0.000232	-0.124870	-0.004152	-0.041781	0.000173	0.136498
Parents socio economic condition									
working class	-2.475	-0.093125	-0.072328	0.006735	3.615462	-0.035351	-0.057430	0.002030	1.597166
self employed	-3.486*	-0.101219	-0.007136	0.000722	0.387737	-0.038482	-0.015543	0.000598	0.470536
Do not know	3.696	0.016030	0.154328	0.002473	1.327925	0.003015	-0.093749	-0.000282	-0.222365
Marital Status									
Alone	-5.028***	-0.120020	0.502503	-0.060310	-32.37280	-0.052217	0.302616	-0.015801	-12.43107
Children									

2	0.395	0.005540	-0.301287	-0.001669	-0.896075	0.001172	-0.193963	-0.000227	-0.178976
3 or more	-6.321**	-0.043597	-0.568903	0.024802	13.3132	-0.006874	-0.543182	0.003733	2.937458
Education									
professional high school studies	2.148	0.062552	-0.061452	-0.003844	-2.063326	0.024259	-0.051003	-0.001237	-0.973356
high school level	4.636	0.022405	0.045394	0.001017	0.545925	0.007815	0.047486	0.000371	0.291974
university level	5.610***	0.107515	0.173552	0.018659	10.01584	0.044134	0.240965	0.010634	8.366240
Income									
Ln Full income	5.504***	5.428429	0.019929	0.108183	58.06926	2.040237	0.025229	0.051473	40.49341
Mean of Ln of full income	8.021***	7.940451	0.017724	0.140743	75.54624	2.959676	0.018258	0.054040	42.51286
Occupation									
Self employed	19.25***	0.055642	-0.348370	-0.019384	-10.40473	0.001744	-0.739622	-0.001290	-1.014891
Student	-4.529	-0.002992	-0.149494	0.000447	0.240167	-0.001231	-0.368170	0.000453	0.356662
Unemployed	0.437	0.000558	-0.132167	-0.000073	-0.039652	0.000474	-0.155601	-0.000073	-0.058117
Retired	0.327	0.008188	0.077051	0.000630	0.338650	0.004268	-0.074948	-0.000319	-0.251665
Houseworking	3.708	0.017000	-0.523466	-0.008898	-4.776679	0.006587	-0.190931	-0.001257	-0.989383
Economic indicator									
Notification Rate	28.70***	1.123295	-0.002808	-0.003155	-1.693547	1.071178	0.005395	0.005779	4.546527
Health									
Bad	-0.700	-0.010644	0.058199	-0.000619	-0.332532	-0.003427	-0.036703	0.000125	0.098966
Moderate	-1.411	-0.027444	-0.002024	0.000055	0.029819	-0.010280	-0.053578	0.000550	0.433300
					76.69923				88.57296

Table 5: Total differential approach (Probability of consumption)

Variables	**dmean**	**d(C)**	**dtotal**	**Percent**
35<=age<45	-0.040879	-0.001482	0.002091	0.760246
45<=age<55	0.085174	-0.005152	-0.000457	-0.166195
55<=age<65	0.004156	0.007843	-0.000633	-0.230281
65<=age<75	-0.013536	-0.183773	-0.010127	-3.681535
75<=age<=84	0.114493	-0.236985	-0.000265	-0.096695
1932<=cohort<1947	0.016463	0.037206	-0.021113	-7.675499
1924<=cohort<1932	0.000138	-0.206452	0.065697	23.88313
1916<=cohort<1924	-0.023175	-0.181944	0.094027	34.18188
Cohort<1916	-0.019749	-0.178574	0.059329	21.56813
First generation immigrant	-0.002237	-0.062053	0.000152	0.055271
Parents with a working class condition	0.008019	0.014895	-0.003505	-1.274184
Parents with a self employed condition	0.006699	-0.008400	0.003282	1.193327
Do not know parents socio economic condition	-0.024589	-0.248053	-0.043463	-15.80044
Alone	0.045756	-0.199886	0.030949	11.25092
2 children	-0.069442	0.107324	0.005953	2.164269
3 children or more	-0.045552	0.025720	-0.022751	-8.270703
professional high school studies	0.013548	0.010452	0.001355	0.492601
high school level	-0.003537	0.002104	-9.41000E	-0.003420
university level	0.022262	0.067418	0.016514	6.003485
Ln of full income	0.096008	0.005300	0.025073	9.114969
Mean of Ln of full income	0.001829	5.34130E	0.010194	3.705917
Self employed	-0.030312	-0.391252	-0.004262	-1.549699
Student	7.86880E	-0.218676	-0.003103	-1.128335
Unemployed	0.018750	-0.023415	0.000578	0.210269
Retired	0.114450	-0.151997	0.063908	23.23277
House working	0.002083	0.332512	-0.016479	-5.990715
Notification Rate	0.698334	0.008204	0.000108	0.039359
Bad health	-0.023661	-0.094898	0.015595	5.669325
Moderate Health	0.001135	-0.051548	0.006441	2.341810
	0	0	0.275080	100