

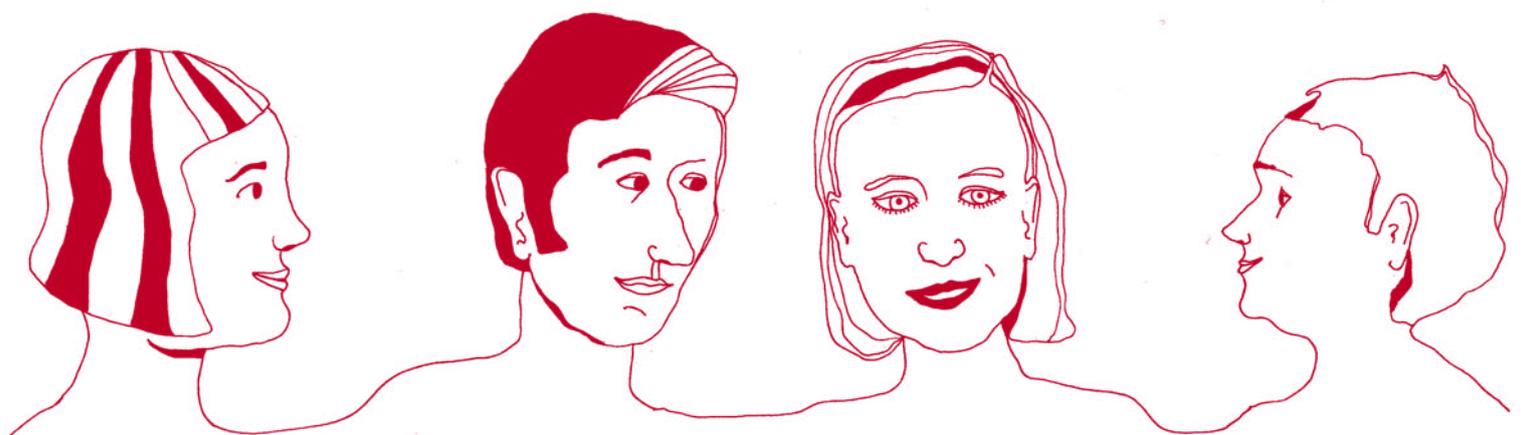
External causes of death in Estonia 1970 - 2002  
- a special reference to suicide, traffic accidents  
and alcohol poisoning

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# Master of Public Health

– Essay –

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EXTERNAL CAUSES OF DEATH IN ESTONIA 1970-2002 - a special reference to suicide, traffic accidents and alcohol poisoning.				
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Abstract : The study aims to describe the external causes of death (ECD) mortality, specifically suicide and traffic death in Estonia 1970-2002 in relation to the political and economic development with a special focus on the unemployment and alcohol use impact. This analyse bases on the Statistical Office of Estonia and other governmental institutions published information.

The highest mortality rates occurred for traffic accidents 1990-91 and for suicides 1994-95. Middle-age man excess ECD mortality occurred in early 1990s with the greatest politico-economic changes accompanied by high psychosocial stress before the population could acquire appropriate coping strategies. Impact of the first main reforms on the population health has been ascertained. Price liberalisation was followed by immense inflation and real wage fall in early 1990s. Privatisation and monetary reform influenced on the basic living security of the population. People faced unexpected living difficulties as work and dwelling insecurity, decreased real income, insufficiency to meet essential expenditures, declined living standard, social status loss, population stratification and inadequate social protection. Unemployment was just introduced and did not play a significant role for the high mortality.

Traffic accidents' fatal consequences decreased with growing GDP as cars and roads became safer however accidents' number did not decrease. Western cars appearance euphoria could influence more than alcohol consumption. It could plausibly increase accidents but the reason and role of alcohol consumption in the intentional actions needs more information.

Suicide could have been influenced mainly by social and traffic accidents mortality mainly by environmental factors. Earlier findings about the unemployment and alcohol consumption impact on the transition's high injury mortality have not been confirmed by the current study.

Current paper provides framework within population worsening health factors during politico-economic changes could be better understood. The strongest impact on Estonia's population health could come from transition's political and economic reforms influencing dwelling and income security. Low salary and low purchasing power could hurt a human dignity even more than possible unemployment.

Key words; external causes of death mortality, suicide, traffic accidents, unemployment, alcohol, psychosocial-stress, political and economic transition, Estonia

## ABBREVIATIONS

AP	Accidental alcohol poisoning mortality
APR	Accidental alcohol poisoning mortality rate per 100 000 population
DALY	Disability adjusted life years
DEM	Germany's currency - mark
ECD	External causes of death
ECDR	External causes of death rate per 100 000 population
EEK	Estonian currency - crown
ER	Employment rate (the share of employed to the 16 - retirement age population)
EU	European Union (15 member states)
GM	General mortality
GMR	General mortality rate per 100 000 population
GBD	Global burden of disease
GDP	Gross domestic product
GNP	Gross national product
HD	World Health Organisation "Health for all" database
ICD	International Classification of Diseases
IR	Incidence rate per 100 000 population
LE	Life expectancy (average life expectancy at birth)
MDC	Medical death certificate
MR	Mortality rate per 100 000 population
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing power parities
RD	Estonian Road Administration statistical database
RW	Real wage (index)
S	Suicide (death)
SA	Suicide attempts
SAR	Attempted suicide rate
SD	Statistical Office of Estonia public database
SI	Suicidal ideation
SOE	Statistical Office of Estonia
SR	Suicide (death) rate per 100 000 population
SSR	Soviet Socialist Republic
TA	Traffic accidents mortality
TAR	Traffic accidents death rate per 100 000 population
UNICEF	United Nations Child Fund
U	Unemployment
UR	Unemployment rate
USSR	Union of Soviet Socialist Republics
WHO	World Health Organisation
WHR	World health report

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# 1. INTRODUCTION

## 1. 1. External causes of death

External causes of death (ECD) include unintentional accidents as death due to transport and traffic accidents, falls, drowning, submersion, exposure to smoke and fire, accidental poisoning and intentional self-harm (suicide) and assault (homicide) (1). Intentional and unintentional injuries represent a major public health concern because of their increasing significance within the global burden of disease (GBD) (2). Injuries were responsible for 14,8%, while traffic injuries accounted for 2,2% and suicides for 1,3% of all disability adjusted life years (DALY) lost according to GBD 2000 (3).

Accidents and other cause of injuries and poisoning are responsible for about one tenth of overall mortality, around 6% and 12% on average, respectively in western and eastern parts of the European Region (according to WHO). External causes are the leading causes of mortality in younger age groups, and they therefore account for a larger proportion of premature deaths (2). According to WHO (4) dies annually worldwide 4.5 million adults due to ECD, as many become completely disabled and about ten times as many get health defect for lifetime. More than three million of these injury deaths (almost 70%) concern males (4). Men in some Eastern European countries die prematurely three-four times more likely than in other developed regions (4).

Several authors have been analysing the excess mortality in 1990s in the countries in transition (5-9). Injury has contributed the most to the widening health gap between Eastern and Western countries, especially in males (6,8). There were 3.26 million “excess” deaths, mostly among adult males, in 1990 – 99 in these countries (6). There is practically no precedent for changes of this magnitude in peacetime (6,9), and they coincided with the profound socio-economic changes in these countries.

## 1. 2. Transport and traffic accidents and suicide

A transport accident is any accident involving a device being used at the time primarily for conveying persons or goods from one place to the other (1).

A traffic accident (TA) is any vehicle accident occurring on the public highway (1). Transport accidents and suicide are the two leading causes of death of the population aged 15 – 34 (total and male) in selected European countries as Albania, Austria, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Israel, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Netherlands, Norway, Portugal, Republic of Moldova, Romania, Slovakia, Slovenia, Spain, United Kingdom (3).

Road traffic injuries in 15 – 44 aged men is the third leading cause of GBD, preceded only by HIV/AIDS and unipolar depression (4). According to the Murray-Lopez estimates 1 170 694 people died of traffic injury worldwide in 1998. Males sustained 73% of TA and the males’ traffic accidents death rate per 100 000 population (TAR) was 28,8 and females’ TAR 10,8. The GBD due to traffic injuries is expected to move from the ninth position in 1990 to the third position in 2020. This is mainly due to the increase of traffic accidents in the low- and middle-income countries. (10)

Suicide is the result of an act deliberately initiated and performed by a person in the full knowledge or expectation of its fatal outcome (1). Every year between ten and 20 million people attempt suicide. One million of them are very young (3). Intentional injuries account for an increasing share of GBD, especially among economically productive young adults. In the developed countries suicides account for the largest share of intentional injury burden whereas violence and war are the major causes in the developing regions (4).

Looking at the suicide rates (SR) the gender aspect is important as males have significantly higher SR than females (11-14). Between 1974 and 1992 male SR increased in most of the Western World, while female SR substantially decreased (15). The average male/female suicide ratio for Europe in 1989 – 93 was 3,2 (16). In the mid 1990s, SR in the World and male/female ratios differed significantly. The average ratio between the highest and lowest SR was 1:102,4 for males and 1: 35,8 for females. The highest males' SR 81,9 was observed in Lithuania. (17)

### **1. 3. Factors related to accidental death**

The impact of different structural factors on the injury rate might be considered as with a predominantly social genesis (as suicide, homicide and accidental alcohol poisoning) or with a primarily environmental causes (as fire, transport related and drowning) (18).

WHR 2002 (2) has been focusing on health risk factors as well as on social, cultural and economic interpretations. People identify risks differently depending on the wider social and political environment they belong to. Since an individual, as a member of a society, is not a free agent, a risk can best be understood as a social construct. The risks should not be treated only at the individual level, independently and separately from the complex social, cultural, economic and political circumstances in which people experience them (19). Population adaptation to unexpected circumstances arises psychosocial stress, a key factor for developing hypertension, alcoholic psychosis, neurosis, suicide, accidents, ulcers and cirrhosis of the liver in countries undergoing accelerated social and economic transitions not adequately supported by social policy (5). Transition's strong emotional changes could affect unstable mental health and personal capacity as by Durkheim any change could influence suicide.

The social aspects of suicidology have dominated in the field of suicide research for more than 100 years since the pioneering work of Emilie Durkheim in 1897 (20). He postulated that there are two main dimensions: the relationship between the individual and the society or group and the social integration and the social regulation. Based on this he classified suicides into egoistic (opposite - altruistic) and anomic (fatalistic). Anomic suicides occur when a society's public standards, values and regulations suddenly break down. Fatalistic suicides are generated by the societies with very extensive social regulation. Egoistic suicides arise from the individual's lack of integration in the society, but altruistic from the over-integrated society. He pointed out the significant influence of several social correlatives such as family life, unemployment, religion and geography, on suicide rates. Studies have been supporting (21), contradicting (22), questioning (23,24) and complementing (25) these findings.

A great variety of causes of individual suicides as well as suicide rates could be divided into a individual physiology, a psychological property, and the environment in its physical, social, economic, societal and cultural aspects (26). The physiology of the individual may cause him to behave suicidally as the result of a brain dysfunction or some other somatic illness. The aspects of his personality outside his voluntary control may contribute the aggressions, depression, hopelessness, meaninglessness, neurosis, personality disorder, alcoholism, drug addiction etc. The physical environment considers geographical location, climate, light and also with the shortcomings in one's personal social environment: lack or loss of familial relations, role of expectations, changing or disintegrating social relations, harassment at work or elsewhere, moral and physical isolation etc. Economic causes include class position, income, unemployment and fluctuations in the economy.

The relations between unemployment and health problems were first recognised by Durkheim (20) and are not the simply identified ones. The studies of unemployment and suicide have different results at individual and aggregate levels and there are even greater discrepancies in the results between cross-sectional and time series analyses. Most individual level studies, both cross-sectional and longitudinal, point to an association between suicide and unemployment. However, cross-sectional aggregate studies do not show a higher incidence of suicide in the areas of high unemployment. People who become jobless in the low unemployment areas seem to display a poorer health-related behaviour than those in the high unemployment rate areas. (27,28)

Brenner (29) argued that unemployed health changes in recession times could be a result of any or all of three reasons: a psychosocial stress, an increased consumption of alcohol, tobacco and/or other harmful substances induced by the stress, and a drop in the expenditure on health beneficial items in the household budget due to the reduced income.

The analysis of life expectancy decline up to 1994 in European countries in transition has shown that this decrease was mainly due to an increase in ECD and a sudden occurrence of cardiovascular diseases among the middle-aged adults (30). The further excess mortality studies indicated the significant role of alcohol use in these countries. Each year over 55 000 young Europeans die from the effects of alcohol abuse; one in four deaths in European men aged 15 – 29 years is related to alcohol. In addition between 40% and 60% of all deaths from injuries are attributable to alcohol. Alcohol consumption seems to explain a considerable proportion of the differences between western and eastern regions of Europe as well as between males and females. (5)

Globally, 70 million people suffer from alcohol dependency. The GBD project (10) estimated alcohol, including the physical disorders and injuries attributable for alcohol, to be responsible for 1,7% of all deaths and 3,5% of the total DALY. The rates are 2,8% for men and 0.5% for women. The prevalence of alcohol use disorders varies widely across the different regions of the World, ranging highest in North America and in some parts of Eastern Europe. An alcohol imposed economic burden is estimated to be between 1– 3% of a country's GDP. (3)

The alcohol consumption such as in the Baltic States and in the Russian Federation seems to be positively correlated with the suicide rates as noticed by WHR 2001 (3). The alcohol consumption and the alcoholism per se have been shown to be in correlation with the completed suicides (31-37) while this relation for females is weaker than for males (38). However, there are contradictory findings from the studies considering the differences in “dry” and “wet” cultures (39), as well as the protective role of alcohol for the suicide compliance had been detected (40). The relation between the use of alcohol and the suicidality is complex (41).

The factors behind the sudden excess mortality, especially in the middle-aged males, in the countries in transition have been analysed by the different authors, leading to the wide variety of contradictory findings. Cornia (7) has pointed out that most of the studies consider the mortality crisis due to the sudden availability of real data, the economic recession and the unemployment appearance, the weaknesses of health care systems and the alcohol consumption. Some of these reasons are grossly misplaced, others, however relevant, fail to identify the true underlying causes of the crisis (7). He had found with Paniccia (9) that none of the traditional risk factors (environmental degradation, smoking, diet and alcohol consumption) explain much of the recent rise in the mortality in the post communist countries. He has set forward the theory that the main cause of the dramatic negative changes in death rates has been the growing psychosocial stress resulting from the acute, transition related dislocations in the labour market, the economic instability, the income distribution, the family structure, increasingly unfavourable future expectations, incomplete and inadequate policy responses to social emergencies (7,9).

Traffic accidents were previously regarded as a problem of the industrialised countries but there is now a clear negative relation between a country's economic status and TA, particularly when the number of motor vehicles is taken into account (42).

#### **1. 4. The country of Estonia**

Estonia with 1.36 million populations (in 2002) is the smallest of the three Baltic countries, where 67,9% of the population are Estonians and 25,6% Russians (43). Due to Estonia's strategic location as a link between the East and the West, it has been highly coveted through the ages by the different conquerors. Estonia was forcibly annexed and occupied by the Soviet Union in 1940.

The National Awakening led to the regaining of independence in 1991 and to the heavy period of radical changes - from the totalitarian regime to the democracy and the free market economy. The privatisation of enterprises and the orientations towards the new markets led to the restructuring of economy and the uselessness of some prevailing traditional specialities. Real GDP had been falling significantly during 1990s with the lowest value in 1994 (61,8% of the 1989 year level)(6). The annual inflation rate reached the level of 1076 in 1992 with real wage less than half of the 1989-year level (6). The high tension in the society was followed by the dramatic deterioration in the population health and the excess mortality crisis.

An insurance-based health care system was established in 1992 by the Health Insurance Law adoption, while 5–8% of the population became with the right for emergency care

only (44). The number of physicians has been above the average of the new EU member states, but clearly below the EU average (45). The health care system has gone through the significant reforming: the primary health care based system has replaced an over-expanded hospital care based system.

Injury became the leading reason for the contacting physician and for the hospitalisation among the people up to 45 years of age in 1994 (46). The incidence rate per 100 000 population (IR) of injury was 9323 (higher was only the respiratory diseases IR), while the cardiovascular disease IR was 2732 in 1994 (46).

The main cause of death has been the disease of the circulatory system, followed by the malignant neoplasm and ECD in 1994. The females died more frequently from the disease of circulatory system and the males from the malignant neoplasm. The male ECD exceeded the deaths caused by the malignant neoplasm in 1993 – 95 (47). Estonian ECDR exceeded the EU average five times in 1994 (HD) with rate 242,7 (SD).

The increasing male life expectancy (LE) in the mid-1980s ceased in the late 1980s. The lowest figure was reached in the 1994, when the LE for men was even shorter than in the mid-1960s (44) and 13,3 years shorter than the EU males average (HD). ECD impact on the LE decrease between 1989 and 1994 has doubled for both: men and women (48). The Estonian average LE was 65,2 years for the males and 77 years for females in 2002 (SD), what was about 11 years for the men and five years for the women shorter than the EU average (HD).

## 2. THE AIM OF THE STUDY

The aim of the study is to describe the development of ECD, specifically suicide and traffic death in Estonia for the period 1970 – 2002 in relation to the political and economic development with a special focus on the possible role of unemployment and alcohol use.

## 3. MATERIAL AND METHODS

This ecological study is based on mortality and socio-economic indicators published by the Statistical Office of Estonia (SOE), other governmental institutions and UNICEF. The figures in the chapter 4.1 have been calculated by using SOE open electronic database [www.stat.ee](http://www.stat.ee) (SD). The age distribution data for earlier years 1968 – 92 calculations have been taken from the Atlas of Mortality in Estonia (49). Statistics about the alcohol used drivers' involvement in the traffic accidents have been taken from the Estonian Road Administration statistical database [www.mnt.ee](http://www.mnt.ee) (RD). The Figure 6 in the chapter 4.1 has been calculated by using the mortality and the employment data of SOE (SD), while the data of real wage index is from the UNICEF Regional Monitoring Report (6). The aggregate level retrospective longitudinal trends of the injury mortality and some selected socio-economic indicators have been analysed using descriptive statistics and the Microsoft Excel. The data of the population all ages have been

included into the mortality rates analyses. The traffic accidents' data has been preferred to the transport accidents' data in the current analyse to avoid the influence of the random large accidents as the "Estonia" shipwreck in 1994. The accidental alcohol poisoning APR data is used in the alcohol studies to get the comparing picture of the excessive alcohol consumption consequences, as the reliable alcohol consumption data is not available. The main historical, political and economic developments description, with the intention to provide as real as possible variety of the factors affecting directly and indirectly the population during the transition time, is in the large deal based on the information published in the Estonian Institute fact sheet in 1999 on [www.esis.ee/](http://www.esis.ee/) 05.11.2003.

### **The registration and reliability of the mortality data**

The Estonian vital statistics is based on the censuses and on the official registration of the vital events as births, deaths and the migration. The population account until the 2000 was based on the Population Census 1989 data, which was supplemented each year by the data of registered vital events. However, there was found 12,5% less than expected by account of the population by the census in 2000. This was caused by the natural increase, the net migration, the discrepancy between the methodologies of censuses and the undercounting during the censuses. It is important to know that the migration data did not reflect the whole population movement in the period between the censuses. Mostly for this reason the population data of the nineties were revised and adjusted in 2003. The difference between the population numbers by age groups calculated on the basis of the two different censuses were redistributed between the years between the censuses. At the same time, the net migration dynamics of the other European countries and Estonia was taken into account.

In revising the population numbers for the years between the censuses, also the data on births and deaths were adjusted. The adjustment was based on the new processing of births and deaths for the years 1989 – 91 and the reorganisation of the data of the later years. This allowed taking into account those deaths between the censuses where the person was unknown at the moment of the death registration, and births that were registered with a big delay. The revision in 2003 was supposed to eliminate the shortages in mortality database indicated by Leinsalu's earlier validity study (50). The causes of death were coded according to the International Classification of Diseases ICD-9 until 1997. ICD-10 is used since 1997. Since 2000 the population accounting is based on the results of the Population and Housing Census 2000. The annual data processing is based on the date of the event.

The Medical Death Certificate (MDC) has to be completed for any death case in Estonia and by Estonian citizen's death abroad. Health and social care or forensic institution issues MDC. Any death has to be registered in a local civil registration office and local authorities had to send the documents to the county Family Bureau for completion of the monthly report, which copy goes to SOE. The county death registration documents have to reach the National Civil Registration Office at the Ministry of Interior Affairs and finally to the SOE.

Registration of ECD in Estonia involves the next main authorities. The Police usually do the first registration of an incidence with all related circumstances. The Police are

issuing the special degree for further medical autopsy at the Forensic Medico-Legal Bureau for the final expertise and defining whether the case belongs to suicide, homicide or accident.

The medical autopsy is performed in all cases where death occurred as a result of violence. The ECD autopsy rate during 1989 – 2002 has been in average 96,5% according to SOE database. The autopsy rate in average has been 98% for suicide and 98,4% for transport accidents since 1989. Homicide average autopsy rate is 99,5%. The lowest autopsy rate has been 83% for falls.

The certainty of case identification in the Forensic Medico-Legal Bureau has been suffering most in 1993 – 2000 due to the insufficient information collected on the accident place. The unclear cases rate compounding with SR, should increase the SR in average 20% during that period however without changing the overall direction of SR significantly. The unclear cases rate share of ECDR has been highest, 7%, in 2000. (SD)

The Traffic Security Department of the Estonian National Road Administration is responsible for the traffic accidents related data collection, management of the database and provision of data to the SOE on the monthly basis.

The Soviet period Estonian suicide data published in the State Statistical Committee of the USSR in Moscow in the 1989 statistical annual report resembled those collected by the Estonian Statistical Committee (31). The procedure of reporting and the registration of death has remained the same since 1970 (51). Estonian reporting practice for vital statistics has been considered to be relatively good by local and international experts (8). The quality of mortality statistics over the observation period (however with minor methodological flaws in collecting information) is considered to be reliable by different authors (31,48, 50-53).

## 4. RESULTS

### 4. 1. The time series in Estonia in 1970 – 2002

#### General mortality

The general mortality rate (GMR) was rather stable in the beginning of 1970s (Figure 1). The sudden fall in GMR during 1986 – 89 was the only time during the observation period when males' GMR was lower than females'. Since 1990 a steep ascend took place with peak in 1994 for males 1,5 times and females 1,25 times, leaving GMR for the 2000s 20% higher than in 1970.

Analysing the age groups' situation over the period of 1970 – 2002 we can notice the similarity to GMR trend in the active adult age population. GMR level was increasing from age 20 – 24 regularly by age with similar slopes up to age group 60 – 64. Males' GMR have stronger fluctuations in time than females' in all active adult age groups except 35 – 39. The highest GMR in 1994 was found for males' age group 40 – 44. The largest decrease during 1986 – 90 was for the age group 25 – 29.

## External causes of death rates

ECDR fluctuations were with the strongest ascent between 1988 and 1994, when males' ECDR increased 2,6 times from 153 to 395 (Figure 1). Males' ECDR was about four times higher females' ECDR. The total ECD share has been in GM around 10 – 12%, but three times higher among males than among females. The males ECD share in GM have been fluctuating from the minimum 13% in 1986 – 88 to the maximum 24% in 1994.

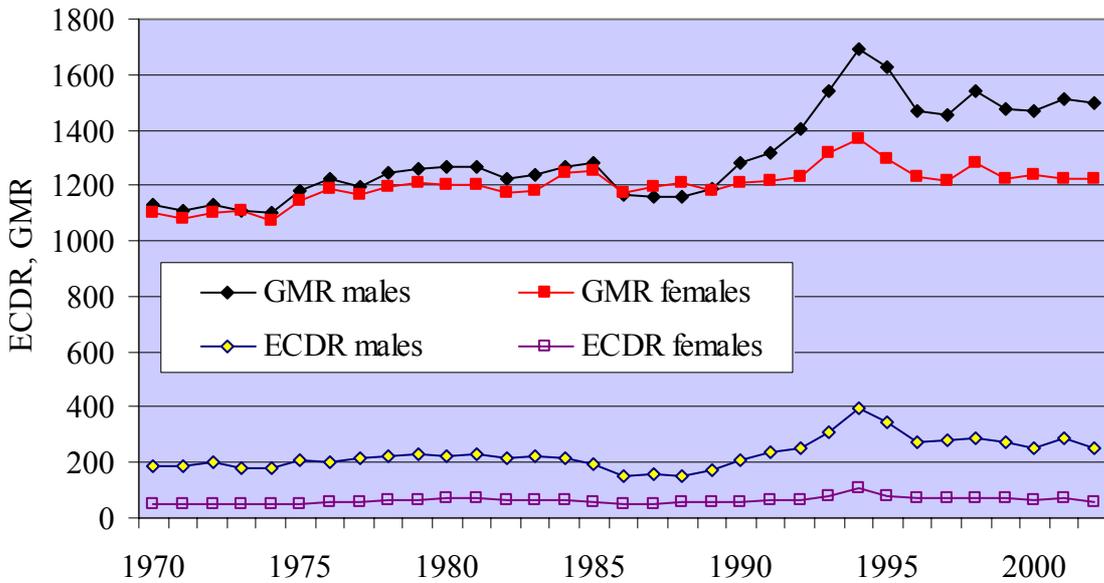


Figure 1. General mortality and external causes mortality rates per 100 000 population in Estonia in 1970 – 2002

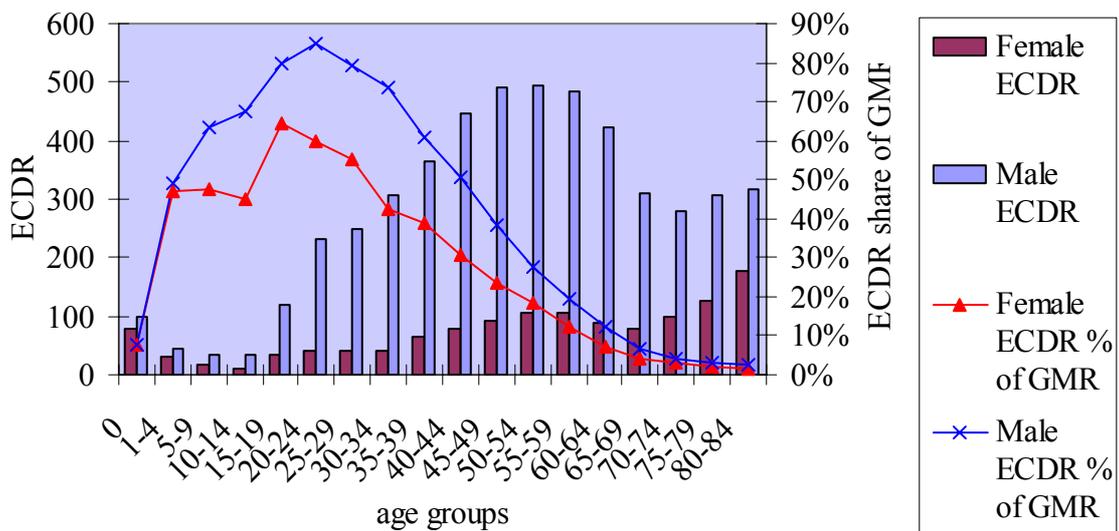


Figure 2. ECDR and ECDR share of GMR per 100 000 population over ages by 1989 – 2002 averages

ECD age distribution was significantly different from most of the other death causes age distribution. Deaths in younger ages happened mostly due to accidents (Figure 2). Death in 15 – 29 age young male group were caused to around 80% by accidents and poisoning and 70% in 5 – 14 and 30 – 34 age groups. The highest number of ECD occurred in 40 – 49 males' age group, however the ECDR was higher in 50 – 64 age groups, where the population size was smaller than in 40 – 49. Females' ECD age distribution, differently from males', was growing with age while males' was falling (Figure 2).

Suicide had the biggest share in ECD over the period 1970 – 2002 (Figure 3). Traffic accidents took the second place with around 20 % up to 1994 and a slight decrease afterwards. Homicide and alcohol poisoning role grew over the period from rather stable share of 5% to 10 – 12% since 1992.

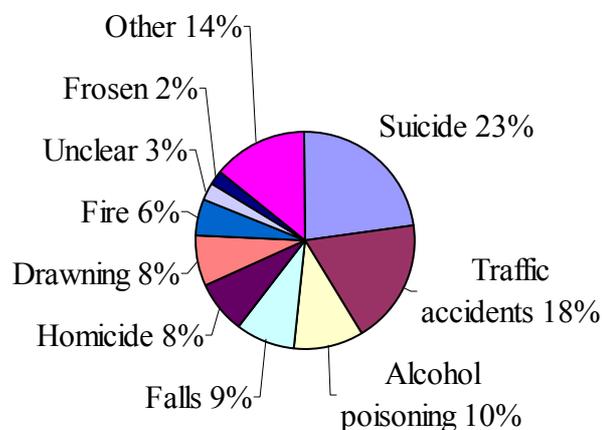


Figure 3. External causes of death structure in 1970 – 2002.

### Suicide

SR was relatively high already in 1970 (Figure 4). The total SR was mostly influenced by the male SR, at average four times higher than the females'. Males' SR fluctuations were significant; a slight slope in 1975 – 81 followed by a downfall in 1986 – 88 and a sharp rise from 1988 to 1994 with SR growth from 37,2 to 73,2. The males' SR moderate fall after 1994 has reached the same SR level for 2002 as in 1985 – 86 and 1991 – 92. Suicide has been most common for the active working age male. The biggest number of suicides took place in the males' 40 – 44 age group but the highest SR in males' 55 – 59 age group. Females' suicide risk increased with age becoming highest in 50 – 54 age group. SR fluctuations in the most suicidal age groups (males 35 – 49) were similar, just the increases and decreases were more intensive in the younger groups. Suicide as an unnatural death occupied a relatively high position in GMR. Suicides caused around 17 % of all death in males' 15 – 34 age groups and 14% in females' 15 – 19 age group.

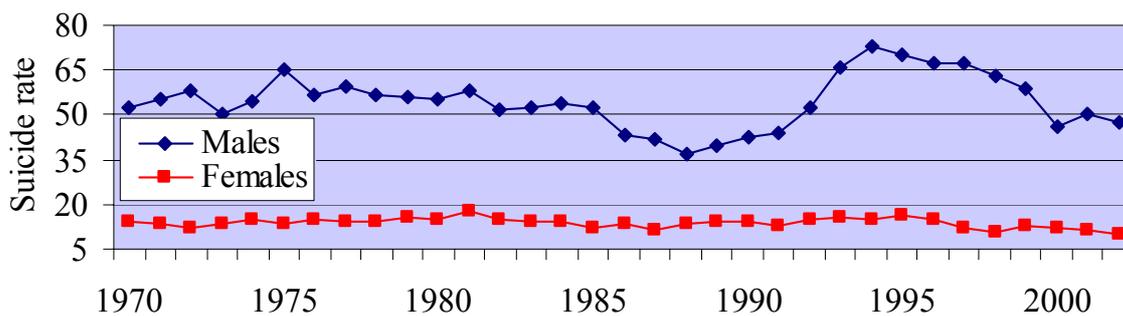


Figure 4. Suicide rates per 100 000 population in Estonia in 1970 – 2002

### Traffic accidents

Traffic accidents mortality trend had relatively high and stable level in the first part of the observation period (Figure 5). The low period in 1985 – 88 was followed by sharp rise-fall cycles. The top rate years were 1990 – 91 and 1994 – 95 followed by the downfalls in 1992 and 1996. The males' TAR (56,3 in 1991) trend was more pronounced than females'. The difference in males' and females' TAR was four times. TAR occurred most frequently in male's younger age groups. Male 20 – 29 age groups had since late 1980s TAR near 60. TAR was falling by every next age group. Females had rather homogeneous TAR age distribution. In 1970 – 90 the higher risk has been discernable in females 15 – 19 age group and a significant risk increase since age 65.

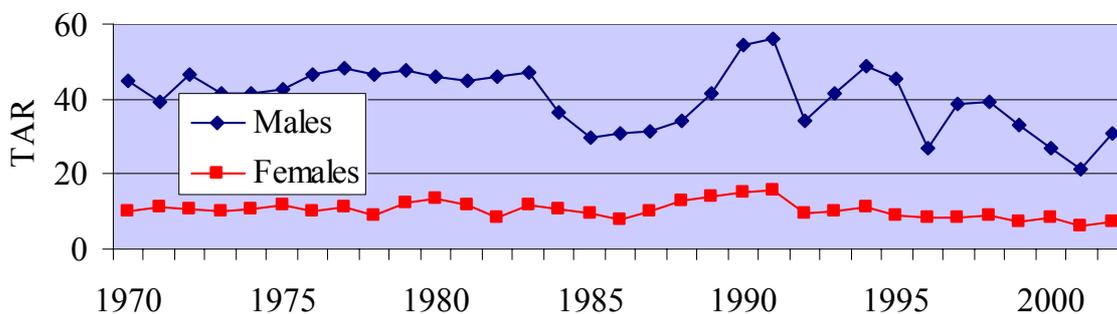


Figure 5. Traffic accidents death rates per 100 000 population in Estonia in 1970 – 2002.

### Comparisons

Comparing SR and TAR with accidental alcohol poisoning mortality rate (APR) similarities could be noticed: a slight rise in late 1970s and early 1980s followed by the downfall by mid-1980s (Figure 6). APR and SR had similar dynamics in 1990s. TAR fall-rise-fall occurred some years earlier with male TAR increase from 29.7 in 1985 to 56.3 in 1991. TAR second peak was already less pronounced in 1994, when SR and APR had the excess increase. The typical age was lower for traffic accidents victims than for persons committing suicide. There were some differences in age distribution. The male suicide risk was growing with age, peaking in age groups 40 – 59

and then falling significantly while for traffic accidents the risk was highest in age groups 20 – 29 and falling slightly with age. The female suicide risk was increasing slightly with age as by traffic accidents. The males APR and SR age distribution was similar, peaking in the age group 40 – 55. The females' risk to die due to alcohol poisoning was highest in 45 – 59 age groups. SR, TAR, APR as ECDR was mostly influenced by males' mortality exceeding females' four times. The male/female rate was similar for both SR and TAR trends. AP male/female rate has been falling over time as females' APR had an increasing tendency during the 1990s.

Traffic accidents' total level has remained unchanged, highest fatality 23 – 25%, occurred 1991 – 94 and lowest 10%, 2002 according to the RD. Highest drunk-driver accidents share, 29%, including 34% of all traffic accidents victims, occurred 1994 – 95. Drunk-driver accidents share decreased to 20 – 22% but the victims' share varied: 19% in 2000, 30% in 2002.

### **Economic indicators**

The annual inflation rate was 23% in 1990, 210% in 1991 and reached the level of 1076% in 1992. Real GDP started to fall significantly since 1992 (80,8% of the 1989 year level)(6) and reached the lowest value in 1994 (61,8%)(6). However, real wage index fell more dramatically than real GDP. Real wage index was 68 in 1991, 45 – 46 in 1992 – 93 and 50,9 in 1994 (Figure 6) (6). Employment rate decreased 18% during 1990s with perceptible decrease in 1992 – 93 and in 1999 (SD).

## **4. 2. The main political and economic developments in Estonia**

### **Historical background**

Since the 12th century Estonia has been under the rule of the Teutonic Knights, Danes and Germans (in 1227), Swedes (in 1561) and Russians (in 1721). The time of national reawakening of Estonian people began in the 1860s (54). Estonia achieved its independence declaration on 24 February 1918. Estonia was forcibly occupied and annexed by the Soviet Union in 1940. A large proportion of the population fled abroad. Many others were arrested and deported to Siberia. Estonia lost about one quarter of its indigenous population in the course of political changes.

### **Stagnation period**

Political, economic and cultural stagnation in the Soviet Union began in 1964. The political reaction strengthened, freedom of mind was severely restricted and censorship increased, direct control and central planning from Moscow replaced local economic management. Economy was focussed on grand-scale industry. Setting up huge state enterprises destroyed the historical settlements (villages) and the rural infrastructure.

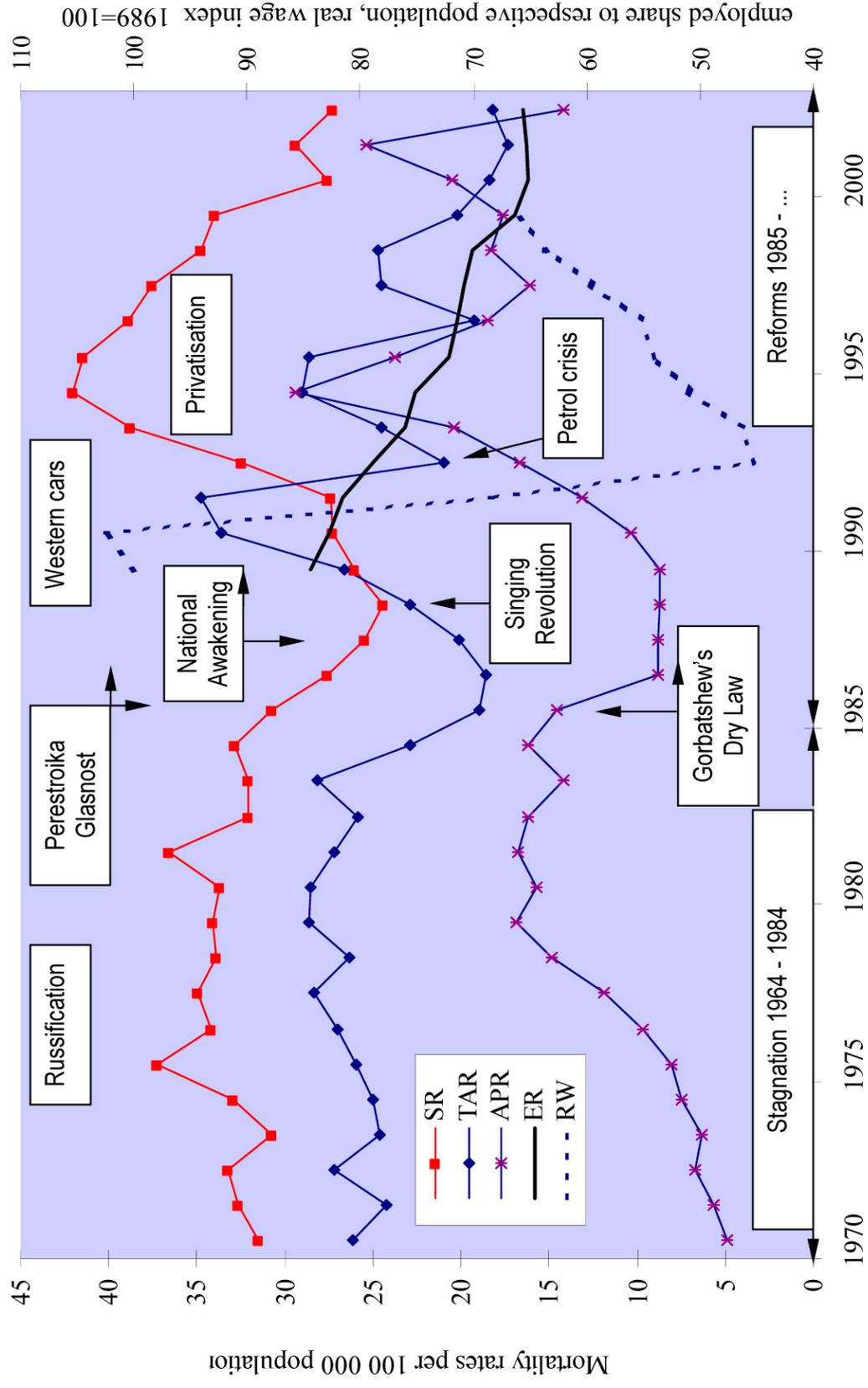


Figure 6. Suicide (SR), traffic accidents (TAR) and accidental alcohol poisoning (APR) mortality rates, employment rate (ER), real wage (RW) and major developments in Estonia in 1970 – 2002

## **Russification**

In the second half of the 1970s, the pressure of Russification intensified with the aim to destroy the basis of Estonian national identity. The Russian language and its speakers were very much favoured. The local leadership and administration were exchanged for those even more loyal to the Kremlin. The continuous immigrant workers inflow from the Soviet Union served the same purpose. During 1945 – 89 the proportion of Estonians in the population fell from 97,3% to 61,5%. This naturally brought protests and hidden opposition.

## **Economic situation and social norms during soviet period**

The soviet centrally planned economy was the policy and tool of the leading politics. Political values were established by artificially changed social norms and values: forced equalization according to communist regime preferences, where some contingents became “more equal” than the others. The single-party system represented the interest of workers and farmers. Support by the privilege access for limited services (flat for rent, telephone lines) and consumer goods (refrigerators, TVs, cars) as well to universities the social status (worker, veteran of war) became the deterrent factor. The common salary standard was established: the high-educated specialist (teacher, physician, engineer) could earn for a month around 150 roubles and worker 300 – 500 roubles.

Soviet economy was mostly oriented towards heavy industry and there was a chronic deficit of essential consumer goods. To get access to necessary goods, one had to have in trade system the “good contacts”, information, or just luck to be in right time in right place, and after standing in the long queue could sometimes buy something necessary for use maybe after some years. In some cases access could become more costly than good itself. The shop assistant became the “very important person” as she could decide who will go in shoes and who will go without. Due to the high deficit of essential consumer goods, most of them became durable goods, carefully used up to the complete physical amortization. Reparation was one of the most common service types.

The state role and amount of Public Goods was large. Most of the resources belonged to the state and were provided for private consumption at highly subsidized price to ensure affordable access to essential goods and services (rent of flat, water, heating, electricity, public transport). A safe but a low standard of life was ensured universally for all. People had rather similar living standard and even by some exceptions (nomenclature), the general population did not have it relatively worse. Human factor was not very highly valued in the USSR: investments for safety and security at working places or on roads were not the priority, as investments in convenience in living or acting of human beings.

There was always higher supply of working places than working force due to low working efficiency. Some people could have even several working places. The unemployment and homelessness was almost unknown in the USSR.

## **Economic and ecologic crisis**

By the end of the 1970s, the crisis in social and economic life in Estonia deepened. The wasteful use of natural resources and the pollution of environment, the decline in living standard, and the growing shortage of consumer goods and food products became even more obvious. Social apathy deepened, more people turned to alcoholism and crime. The Soviet Union economic collapse, hastened by the costs of the colonial war in Afghanistan and the sharp fall in oil prices on the world market, left the power in 1985 to Mikhail Gorbachev and the new political period began.

## **Reforms period**

The new policy which could be characterised by the key words “Perestroika” (reforms) and “Glasnost” (openness), aimed to decrease the inner tensions within Soviet society, by liberalising political and economic life. Perestroika had to create the new creative attitudes for life, behaviour and work introducing in 1.06.1985 strong restrictions on alcohol supply, access and consumption – called “the Dry Law”.

The controversies that had been suppressed for several got out of hands and the Soviet leadership lost control over the situation. Democratic revolutions in the Soviet satellite countries all over Eastern and Central Europe forced the Moscow authorities to relax censorship and secret police power and a period of new awakening started in Estonia as well in the other Baltic countries.

## **National Awakening and independence restoration**

The first large-scale protest demonstration was in 1987 “the Phosphor War” – a mass campaign against establishing phosphor mines in the northeast Estonia, which would have caused a dramatic worsening of the ecological situation and a new inflow of immigrant workers. The rally on the anniversary of the Hitler-Stalin pact signing, on August 23, 1987 demanded the public condemnation of pact’s secret protocols and stopping of the USSR occupation. In September 1987 the Self Managing Estonia project was presented and the German privatisation model introduced.

The civil society restoration started in 1988 with a massive opposition movement the Popular Front formation accompanied by the establishment of various societies and political parties. In June 1988, spontaneous night song-festivals run on the Tallinn Song Festival Field. “The Singing Revolution” culminated on September 11, 1988 at “the Estonian Song” where around 1/5 of population demanded the independence restoration.

The Language Act, declaring the Estonian as the official language was adopted in January 1989. The Estonian Independence Day on February 24, 1989 with hoisting the national flag to the main tower was celebrated for the first time during the Soviet occupation. On August 23, 1989 the 600-kilometre “Baltic Human Chain” from Tallinn to Vilnius with one million Estonians, Latvians and Lithuanians holding hands was encouraged by the collapse of the communist systems in Eastern and Central Europe.

“The Berlin Wall fall” in September 1989 opened the borders and people could travel out from behind “the Iron Curtains”.

In 1990, Estonia held its first free elections and a referendum of Estonia’s independence. Estonia gradually moved away from the Soviet Union: the legislative, executive and court power were separated from the corresponding Soviet institutions, a pluralist political system was established. During the failed August *coup d’etat* in the Moscow, on August 20, 1991 the Supreme Soviet of the Republic of Estonia passed the decision on Estonian independence.

### **Towards a market economy**

Political and economic liberalisation lead first to rapid development of business activities accompanied by a deficit of essential goods and a magnificent inflation due to price liberation where prices could follow the real supply-demand situation. Already in 1989 there were more than 700 new farmers and 80 joint ventures registered and 12 commercial banks created in Estonia (55).

The property reform about returnable properties and compensations began by privatisation of retail outlets and small service companies. The Land Reform Act and the Bankrupts Law were adopted in 1991. The government approved the procedures for the privatisation of dwelling units, large-scale privatisation and the use of privatisation bonds (used as artificial money according to work-years) in 1992.

### **The price liberalisation**

Estonia still remained after restoration of independence in the Soviet rouble zone. At the end of October 1989 the rouble was opened for free converting and rouble’s purchasing power parity was falling ten times. To ensure some essential goods for the local population, the government had issued in 1990 food stamps and rationed petrol to persons who had a registered place of residence in the Estonian SSR.

The USSR stopped export of fuel to Estonia, which caused a serious petrol crisis in 1991 autumn (cold homes, standing cars). The liberalisation of petrol price by Estonian government did not solve the crises. The rouble lost 3% value daily and the USSR liberation of the raw materials prizes at the beginning of 1992 grew prices for petrol during a month ten times. As Estonia imported the bulk of its raw materials for industry from Russia, this brought along a forced liberalisation of most prices and a high price jump. Then Estonian food shops got empty and the government had to establish quota for private export. The Government introduced coupons for bread, milk and cheese and stopped subsidising the heating energy and buying milk from local farmers. Inflation was 1076% mainly due to previous public goods price increase. (55)

The price hike in the hidden sector in 1993 was twice as great, in 1994 four times and during the first eight months in 1995 almost three times as great as in the public sector. The consumer price index was growing mainly due to services, because of the increased prices of bus tickets, communal tax for living expenses, gas and public utilities. (54)

## **Privatisation**

Immediately after the restoration of independence the Estonian government made an explicit commitment to privatise virtually all state-owned enterprises as quickly as possible. Almost all smaller enterprises were sold by auction to the highest bidders for cash by the end of 1994. For an auction, contrary to the tender method, no specific conditions were set in regards to employment guarantees or production. The complicated initial procedures hindered the start of sale of medium to large enterprises. The privatisation through the tender peaked in 1994 when the speed could be described as a "one agreement per day".

About 70% of enterprises were sold to outsiders (foreign investors were taking advantage of Estonia's relatively low-cost labour). The sale of state enterprises often resulted in a decrease of employment. Although many enterprises were sold with employment guarantees, these guarantees ensured jobs together for 56 154 people, which made about 8,4% of the working population.

The Estonian privatisation programme has been among the most ambitious of those adopted in the Eastern Central Europe. More than 80% of the formerly state owned enterprises have been privatised and almost 70% of the GDP came from the private sector in Estonia already in 1999.

## **The property reform**

The property reform chocked society with appearance of a new class – the owners – an unusual and forgotten status in 50 years. The dwelling reform created more tension in society than the land reform. The immigrant workers had received by arrival for their use from the state the flats in the new-built houses. The local population often had to survive in the old physically worn nationalized houses, which were returned to their legal owners during the property reform. The state and municipal living space was privatised to the tenants for the privatisation bonds, what means – they did not have to buy it for the market price. Mass returning of once nationalized houses to its legal owners caused the conflict between the owners and the tenants. Although the state regulation had fixed the current rent contracts' validity for three more years, it left about 70-80 thousand households in an unsafe situation without knowing whether and on which conditions they can continue living in their homes after the deadline. Since 1994 the state subsidies to dwelling were stopped altogether.

“There is no hope, however, that families forced into the situation against their own will would manage to come out of it independently” (cited in 54, p.33).

About 10% of the Tallinn population has had the long-term debt in paying for the accommodation and living expenses and a number of homeless people had been growing up to 0.3% of population for 2003 according to the Praxis study (56).

## **The monetary reform as an important determinant of changes**

The monetary reform, which introduced the convertible Estonian crown EEK, was a major turning point in economic reform as it enabled to distance Estonia from the rouble zone hyperinflation. The fixed exchange rate of 1 DEM = 8 EEK,

introduced in June 1992, has still the same value. The undervalued crown, as measured by purchasing power parity PPP, had to avoid the devaluation in the nearest future and to contribute by the introduction to lower production costs and to stimulate the foreign investments - which were expected to become the source of economic growth. Estonia had a relatively high level of inflation also after the monetary reform.

### **Economic crisis and changed structure**

The cumulative decline of the GDP during the period 1990 – 94 was 36%. Estonia was overcoming the economic crisis with a notably changed economic structure. The share of manufacturing was falling from 35,1% of the GDP in 1989 to 14,8% in 1996 and of the agriculture from 22,0% to 5,2%. At the same time, the trade increased two times. The structural changes became as a result of a deep economic decline and a foreign trade shock (57).

The economic growth began in 1995. The Russian financial crisis in 1998 had an effect on the industries which main target for export was Russia. The Estonian food industry had to lay-off the employees and to introduce mandatory holidays. The GDP declined in 1999 by 0,7%, but started growing again in 2000 (57).

### **Unemployment**

The development of unemployment (U) could be observed in three stages (58):

- 1989 – 95 - the primary market economic rapid restructuring, the labour force relocation;
- 1995 – 98 - the period of relative stability;
- after 1998 - the cyclic factors impact increase on the labour trends.

The UR increase (10%) and the decrease of employment and labour force participation rate in relative and absolute indicators began in 1989 – 95. The short time U was dominating up to 1993. The long term U (over 12 months) increased sharply in 1992 – 95 (39,6% of UR) due to; the relocation of labour force from the old sectors to the new and more productive, from the old traditional jobs to the new ones, from the public to the private sector on the significantly lower number of working places. Agriculture and industry decreased most. UR has been growing faster among the youth (15 – 24) and men. (59)

The restructuring in Estonia was the largest among the transition countries however mostly due to the biggest loss of the working places exceeding the number of the new ones created according to the OECD analytics (58).

After 1995 the intensiveness of relocation decreased however there was the relocation of employment between the public and private sector up to 1997. At the end of 1998 began due to Russian and Asian crisis the new UR increase with peak in 2000. The employer-initiated layoffs had been highest in 1998 – 2000. ER was falling even in the services sector. Since 2001 UR started to fall again.

According to the 1993 family survey was job insecurity higher than UR. Only 34% of respondents were confident in their workplace stability (60).

Social protection for the unemployed people was so little that could hardly provide any support. The officially registered unemployed people could receive in six month the unemployment monthly benefit 10 EUR (= 160 EEK) in 1992 and 11,5 EUR in 1993 – 1996 (64,3 % of the official estimated poverty level stated in October 1992) and was changed to 15 EUR just in July 1996 (61). In the countries with a stable system could the unemployed people manage for some period with the savings but negligibly in the country in such a transition while all the savings have been absorbed by the hyperinflation and monetary reform.

### **Living standard**

The population subjective evaluation on their economic living conditions in 1994 as well as in five years earlier according to the study (54) indicates that only one tenth (11,6%) of the population can be said to manage conveniently. While five years earlier 60,9% of the respondents considered to manage easily. The difference between the present and the past evaluations is more than five times.

The aliens' evaluation about their present situation was somewhat better than the Estonians' – 14,6% of the aliens and 10,2% of the Estonians managed conveniently while respectively 18,4% and 20,3% poorly. The evaluations of the past are remarkably different. 71,3 % of the aliens consider themselves to have been economically well off five years ago against 55,5 % of the Estonians. 28,3% of the aliens and 43,2% of the Estonians express worse opinion of the past. The differences of the evaluations are not only caused by the declining economic situation, but also by the loss of privileges. (54)

According to Narusk (62) at that time every tenth Estonian woman declared the insufficient resources for everyday food, every second had spent all the income on rent and food and every third could sometimes afford also some cloths.

The share of food in household spending was growing from 34% to 62% in 1993 (63). The share of the population who supported own family food table by growing vegetables themselves increased from 50% in 1985 to 70% in 1993 (64). Only 2% of the population had some recognizable savings (60).

### **Stratification of the population and poverty**

The creative people started by opening of the Iron Curtains quickly to make foreign business: import the deficit second hand goods, export (officially and unofficially, by any price) goods and work for any possible salary or conditions abroad. Compared to the local low salary with very low PPP, any foreign income from abroad had a significant impact on the new winners appearance. According to the calculations (58), the external PPP of Estonian average salary has been increasing 40 times during the last decade.

The largest group of losers were pensioners as their lifelong savings and retirement insurance lost its value and they became totally dependent of the state benefits. The retirement age was postponed for five more years. Already ten years before the pension age it became difficult to find a new job as training for those people was not considered to be cost-effective.

The segmentation of the population began rapidly and was not easy to accept. The relative economic position improved for 20% and deteriorated for 70% of households during 1989 – 95 (65). There was 13 times difference in the first and last deciles of income groups in 1993 (60). 40% of families spent less money for food than was calculated as the minimum physiological norm (60).

The minimum salary has been growing somewhat faster than the average salary, except 1992 – 1994, as the first level of minimum was established very low. The minimum salary was on the level of 12,8 EUR (= 200 EEK) in 1992 and on 19,3 EUR in 1993 (61). The average salary became 35 EUR in 1992 and 68,5 EUR in 1993 (61). The average gross wage growth became somewhat recognisable in 1996 and the average old age pension in 1997 (59). The local inflation has been developing together with the average salary and the internal PPP did not change as significantly as external PPP (58).

### **Social protection**

The rapid reform process focused on the economic development first while the possible impact on the population living conditions was not considered carefully. The rapid introduction of re-nationalisation of the private property and the privatisation of enterprises lead to the growing insecurity of the dwelling, job and income as the security measures and compensations were not enforced at the same time. Income inequalities growth was accompanied by appearance of the poverty and homelessness. Responsibility of the population social protection was set on the local governments, which did not have the necessary capacity for duties foreseen.

The Law on Social Benefits was adopted in Estonia in 1993 but the social security benefits had been for a long time so low that did not have any impact on poverty release. (66) The Child Benefits Act enforced in 1992 a monthly child benefit level of six euros, which has been increased to ten euros since 1997 finally. The single parent benefit has been first around four euros and became 20 euros per month since 1999 (59).

The unemployed registration started officially in June 1991. The unemployed status lasted six month, after which a person had the right to register himself as a job seeker. Health insurance was only for the officially registered unemployed. The Law on Social Protection of Unemployed has been adopted in 1994 with the continuous amendments every year. However it could not provide he efficient protection and these unemployment benefits did not motivate for getting employed again (66). The provided courses did not ensure new employment for most of the participants. The start-support for the new entrepreneurs was 2x10 EUR in 18 months (61). The active labour market services became more common only in late 1990s. The job finding through the social networks has been increasing since 1992 up to 40% compared to 10% of finding by advertisement, and only 1–2% through the labour market services (58).

The Law on Unemployment Insurance came into force in 2002. The Law on Occupational Health was adopted in 1999 and the Law on Work Accident and Occupational Disease Insurance have not been adopted yet.

The experts concluded by ratifying of the Social Charta the insufficient level of benefits by the unemployment and work accidents (67). The government expenditures have been during 1990s around 40% of GDP. The expenditures on the unemployed social protection have been around 0.7% and expenditures on the active labour market measures 0.08% of GDP. (68)

The entire 1990s has been the first government priority the economic development. As the strong fiscal policy excluded the possibility to the state budget debt, the social sector has been under-financed. Only 0.2% of GDP has been spent on the labour market policy in 1993, UR was underestimated for 1994 as well the seriousness of the whole social problem by the government (60).

According to the Social Inclusion Report 2003 (68), the poverty risk in Estonia is considered highest in the families with an unemployed, a single parent and the large families with three and more children as well as for the low salaried persons. The salaries are very low in the high-unemployment areas and the expenditures to get to the work (transport, food, childcare) influence on the motivation to become employed. The females' salaries are significantly lower than the males' ones. The unemployment is considered as the main cause of poverty and social exclusion. Economically less ensured people have more often health problems and health damaging behaviour.

### **Liberal alcohol policy**

The access to alcohol in Estonia is very good and easy. The price of strong alcohol and beer is compared to food very low and alcohol has been sold in 24 hours in many places countrywide, even at the "Statoil" gasoline stations.

Alcohol has in the Estonian traditions the significant role as most of the celebrations have been accompanied or even driven by alcohol: the toasts and songs. Alcohol has a positive and significant role in the natural healing process as the traditional medicine used in a small dose in tea or in compresses. The rhythmic phrase "In case it is not the fatal disease, you will get always help from vodka" has becoming a common folklore. Indeed, creative persons have made a useful reason from this knowledge for any drinking.

Imperceptibly, the society has becoming rather used with alcohol and according to the survey (69) every third adult, two of three men drink the strong alcohol, while 1% does it every day. Beer and wine is drunken by every second adult. Every tenth men drink beer every day.

10,3 litres absolute alcohol per capita (12,4 litres per the adult population) was consumed according to estimates (69) in 2002.

By the population estimates in 2003 is the alcohol consumption too high and causes several problems like the drunk driving and suggested the more rigorous penalties. The main reasons behind the excess alcohol consumption have seen the too easy access (price and wide supply) and aggressive advertisements in TV, radio and press. 2/3 noticed that 24 hours access should be limited. 72% noticed the alcohol sales limiting in the gasoline stations and 86% on the sport competitions (69).

Tartu University academics initiated the Temperance Association “Alcohol Free Estonia” AVE in 2000. The first restrictions were introduced on alcohol sales from the small (newspaper) kiosks in 2001. The restrictions on alcohol sales during the night hours were introduced in some Estonian municipalities in 2003 and in Tallinn in 2004 summer.

### **Some significant years and events**

The 1994 have been a hard year for the local population to carry. All tensions resulting from the inflation and privatisation were high up, the last troops of the Russian army left Estonia in the summer, the parliament hold non-confidence vote to the prime minister, the second banking crisis liquidated the Social Bank and in the “Estonia” shipwreck 245 Estonians perished.

The 1996 started with a “*Force major*” – the huge snow was covering roads and streets at least a month. The new Traffic Regulation enforced the mandatory use of lights on vehicles during the daytime, the wearing reflectors in the darkness on roads and the safety seats for the children in the cars in 1996. The National Injury Prevention program and the traffic education for children became active. The Estonian Road Administration distributed to the schoolchildren glittering reflectors.

The death of 68 Pärnu county inhabitants in an accidental methanol poisoning in 2001 shocked the publics’ tolerance to excessive legal and illegal alcohol use.

## **5. DISCUSSION**

### **5.1. The impact of main political and economic developments on mortality rates**

The Estonian population has had during the last three decades the great number of events and processes oriented on the radical change of basic values in relatively short time. The injury mortality trends have been reflecting on these intensive “experiments” by the significant amplitudes differentiating immediately in international statistics. The mortality rates represented in the Figure 6 have all some common trends as well as the different reflections to some specific processes and developments. The dynamics of the trends’ during the stagnation and the reflections to the reforms start is similar. The suicide rate (SR) and traffic accidents rate (TAR) are reflecting to some reforms’ period events with the opposite results while the accidental alcohol poisoning mortality rate (APR) has in large more similarities with SR.

The SR has been relatively high during the stagnation, with the specific accent to the Russification intention to damage the nationality-carrying values and strengthen the privilege position of immigrants. It had a harmful effect on the cultural values oriented population receiving anyway less subsistence while also their main existential and professional expression possibility was restricted. There was stated in a law that “everybody in the USSR has a word freedom ... to glorify the achievements of communism”. On the other way thinking people could be given violently the psychiatric diagnoses and referral to the closed department of a psychiatric hospital. As SR has

been rather sensitive already to the stagnation period poor moral climate, it has reflected significantly to the opposite process – the Glasnost appearance too. Opening of the Iron Curtains had the immediate deepening positive effect on the individuals' moral and psychological freedom. Only by the new Glasnost created conditions could people openly start to fight against the excess pollution, immigration and illegal annexation without a fear for castigation. SR has been the lowest during the National Awakening period in 1987 – 91 with the highest mobilization and integration in the society, with the democratic changes and the growing hope for the better future.

The significant decrease in SR and TAR could be also influenced by the Dry Law restrictions on alcohol sales and consumption, however the impact on SR probably did not have the same immediate and stabilizing effect as on APR. Also TAR decrease could have been influenced by some more factors (petrol crises) as TAR trend started to fall already in 1984 and to increase already since 1987. The National Awakening and the Singing Revolution have contributed to the reforms influence lasting on SR and APR, with the strongest effect on SR. TAR has been “awaked up” earlier and has run on it's own way by some stronger hazards than the national freedom euphoria.

The introduction of market economy brought as well as a possibility for a new business as well as a difficulty to survive. The price liberalization was supposed to eliminate the illegal “transaction costs for access to goods”, to ensure the population with the necessary amount of goods and to avoid the unnecessary purchasing. Instead it lead to the enormous inflation as the amount of roubles printed was out of the control in the USSR. The impact of the most radical decisions made in 1991 (property reform, land reform, privatisation of enterprises and dwelling) appeared with the implementation consequences during the following years. Every next year has been adding even more serious decisions, cancelling the previous living patterns and values without commonly provided coping mechanisms. SR has been in 1993 – 96 higher than ever before as the accumulation of all the changes and insecurities had raised the population psychosocial stress extremely up.

While the high inflation and monetary reform had been eating up most of the savings then the growing inequalities eat up the hope of universally better future for all. The own currency convertibility was expected to strengthen national dignity and freedom but due to the strong under-valuation it made the population dignity vulnerable. The large deal of families could hardly manage with the essential expenditures on food and housing only and met every other expenditure as the catastrophic payment as salaries and their purchasing parity were very low. At the same time the people used with stress of deficit of all kind of consumption goods could not find so quickly the new coping mechanisms by the situation with excess supply of goods but the unusual deficit of money. Working for the very low salaries could hurt the human dignity even more than the unemployment.

Disappointment was the highest in the elderly, who could feel the total dependence from the low and hopeless state subsidy system. As health care in the market economy got the price, was the acknowledgement of a possible expenditure by a disease appearance stressful to bear.

The property reform was introduced with the good will to bring back unjustly nationalized property in case it should not create the further unjust. The last was not so easy to ensure by the regulation and implementation. The feeling of injustice and insecurity was frustrating. Loosing home in Nordic climate equals with death-fear. Paying for rent on time had been the absolute priority of most vulnerable groups (pensioners, single mothers) even, there was nothing left for anything else (70).

The break point of the public-private employment balance in 1993 was accompanied by the increase of the new demands on labour force skills. The orientation on the new markets brought some cessation between the break down of old and the build up of the new production. The large deal of population was left in the uncertain conditions. Many traditionally valuable specialist groups became redundant without commonly provided alternative or coping models. The shortage in dwelling hindered the mobility of labour force and seeking work far from the living place.

The unemployment by appearance could have the additional effect of insecurity as the possible loss of the health insurance stressed even more than the loss of insufficient income. Only the emergency care could be provided for the uninsured people. This was hurting the basic security feeling of the population, used in 50 years with a free hospital-based health care. The soviet regime did not provide a sustainable knowledge and a coping tool for the people to manage themselves with their health problems. Only the hygiene, the prophylactic control and the primary clinical prevention had been functioning. The new Public Health System creation started in 1993. Also the newly created labour market and social protection services could not protect the people from the unemployment, health damage, poverty and homelessness. As there were several complexities of unexpected problems, the single tools without a strong and comprehensive social policy, could not improve the population situation.

In 1993 – 95 the SR was highest among the middle-aged males. Estonian traditionally patriarchal society has been mostly oriented on men as the breadwinners and they could have suffering most by the families growing expectations for the better future in their living standard. The middle-age crisis could also be very difficult to meet under the circumstances, where suddenly all the previous life achievements seem to be worthless by the new values appearance. At that high economic and political dissatisfactions and institutional exclusion period, could the family be the best coping entity (71), as the male premature mortality concentration was detected in the growing non-married population sector. However, while a domestic stress was getting high, could it have also an opposite impact, especially by the appearance of additional stressors as alcohol.

APR appeared on the Estonian ECDR map with the significant growth (three times) during 1970s. APR has with SR almost the same dynamics since late 1970s. The Soviet Union worsening economy and the widening gap between Eastern and Western countries living standard could lead to the growing unsatisfaction, disappointment and alcohol consumption as well as to suicide. The alcohol consumption has been significantly higher in the native cultures of the immigrant population (30,31) what could be the contributing factor of the growing APR.

Alcohol has been often used for escaping the reality. It could be used as well as the indicator for identifying the hard times of individuals. The power of alcohol to reduce the reaction, control and coordination ability could cause the large deal of the accidents and injury mortality in Estonia (72-75). There have been found the alcohol in 40 – 50% of the suicides blood by the autopsy (76). The more cases have been detected with the higher alcohol concentration in urine than in blood what indicates the occurrence of death at later phase – in the crapulence. The heavy intoxication level has becoming more prevailing during the last years. However there is not enough evidence on the permanent heavy alcohol consumption among suicides before the suicide deliberation (2% seeking help with alcohol problem (77)) as well as among accidentally intoxicated. The intention to get out from the accumulated problems, excessive psychosocial stress and hopelessness with help of the alcohol could be assumed. Under alcohol empowerment people often create additional problems, which by sobering have tremendous affect, that could be stronger for people less experienced with alcohol. Difficult to identify when from problems escaping people accidentally or intentionally died from overdose. Evidence lacks on suicides and accidentally intoxicated permanent alcohol consumption.

The individuals have rather big difficulties to restrict themselves from unhealthy habits while there is no supportive environment. The society's role on alcohol consumption, alcohol driving and other risky behaviours is decisive. The strong rules and restrictions could support a weak personality from the self-destroying as happened by the Dry Law, however this kind of impact seems to be short while society's attitudes will not change and support the regulations. While APR increase in Stagnation could result of the immigration from higher alcohol consumption regions, then early 1990s increase resembles an epidemic not a health behaviour-disease pattern. Estonian APR intensive amplitudes are not simply similar to usual health behaviour and attitudes changes pattern, what usually take place in the societies on a more silent way. Here it rather indicates to an extraordinary causality. AP should not be the only result of long-term excessive alcohol consumption, but also the result of situation, where by some reason a control has been lost over own decisions and behaviour.

SR and APR sharp increasing speed resembles with the real wage RW decrease. An opposite effect has occurred in TAR, which has been falling with RW. TAR has been relatively high already during Stagnation. According to the State Road Board report (78) there have been more motorcycles, more vulnerable in the overall traffic. The safety regulations and means have not been common during the Soviet period as well as the investments into infrastructure safety. The Soviet type cars with the moderate power and poor roads did not usually provide even the possibility to achieve the speed limit.

Immediately, by the Iron Curtains opening the creative men started import of the second hand cars from the western countries. People waiting for a long time for own car and being used to use one car for the decades, were happy to buy any old car. Most cars were brought from Germany and as built for the highways they exceeded several times the capacity of the local cars. The local infrastructure, streets and roads could not ensure a safe traffic neither for a drivers nor a pedestrian by the growing speedy car owners

euphoria. The state did not have the resources to invest into the roads safety to meet the new standard. The accidents in 1990-91 had the most fatal consequences. By the decline of local purchasing power, a large deal of cars imported, could be received even free of charge as useless for the traffic. It could add much risk for the traffic too.

The break-neck ride was broken by the petrol crises. Either lack of petrol or unaffordable price saved a significant number of lives. Year by year more individual safety regulations have been enforced as well as invested into the roads quality and safety. The number of accidents has not fallen by the last years as much as the fatal consequences (78).

Fatality of the accidents has been the highest in 1991 – 1994 (25%) and falling considerably after 1995-96 reaching 10% for 2002. The number of cars has been growing continuously with the living standard and external PPP improvement. Also by the development of the rental possibilities (leasing since 1994) more new and safe cars have appeared on the streets and roads. The traffic safety campaigns have been using a wide variety of tools and methods getting the drivers and passengers to use the seatbelts. The seatbelts use has been improving in times.

The number of traffic accidents did not fall in general but has been reflecting to the certain years (1992, 1996), falling deeply for one year and restoring immediately the logical position for the next year. So strong impact could have two types of the forces: strong powerful regulations and a *Force major*. In 1992 the petrol crisis had an impact similar to *Force major* – a standing car cannot cause an accident. The next low accident year was the 1996 with huge snow and few vehicles in January-February, the most fatal time in traffic usually. In 1996 a significant amount of new safety measures were enforced simultaneously. Mass media campaign was supporting the public information and awareness. As a result, the number of passengers-victims decreased.

The drunk driving has not been followed in the long time by the too serious consequences (except bans by the fatal consequences). The accidents involving alcohol accounted for 30% of all the traffic accidents and 39% of all people killed in the traffic accidents in 2001 (78). Almost every sixth driver of a motor vehicle involved in an accident had consumed some alcohol prior to the accident. The significant decrease in death caused by the alcohol involved accidents in 2000 could be explained by the very strong bans (almost annual minimum salary for drunk driving) enforcement in the regulations. The significant restructuring and reductions in the Police Services in 2001 could be a factor in the explanations, why the positive effect was so short.

An alcohol-friendly environment with an easy access and a public tolerance may balance in a short time any attempt to regulate alcohol use in traffic. A drunken bicyclist and a pedestrian are not responsible by any local law. According to the Figure 6 is plausible, that behind the TAR first high peak in 1990-91 is rather the influence of other strong factors than the alcohol: an euphoria of unusual powerfulness of car, an inexperienced driver, a risky-behaviour not balanced by the safety measures.

The differences between SR – APR and TAR indicate on the sensitivity of different factors. “A car-owners’ stress” has been starting earlier and has been stopped by an

economic and an environmental factor. The low salary did not hinder as much from the getting cars as from the buying fuel in 1992 – 93. As opposite, SR –APR by the economic hardship increased, and plausibly, both have been influenced by the high psychosocial stress from all appeared insecurities, hopelessness and disappointment. The following years brought more new safe cars and more investments into the public safety measures by the RW and GDP increase and have saved the lives although the traffic behaviour had not changed. The SR has been decreasing since 1995 by the social protection regulations enforcement and real response to the population needs.

## **5.2. The findings applicable to the earlier studies**

Differences in Estonian ECDR trends indicate on the different causalities due to the different structural factors consistent with Melinder (18). The increase of injuries of mainly a social (S, AP) and an environmental (TA) genesis has been influenced by the changes in economic conditions and living standard of the population.

According to the Durkheim's theory of the fatalistic and the anomic suicide (20), SRs are higher in the populations characterized by the too strong or the too little social regulation.

Analysing the indicators of totalitarianism of 45 nations, Stack (79) found in his study on the fatalistic suicide (resulting from the overregulation) that 1% government sanctions increase was associated with 0.13% increase in the suicide. Communist nations hold the top positions on the list in the rank order of the nations on the totalitarianism index. The SR during the Stagnation in Estonia has been relatively high and reflected to the additional sanctions enforced.

Perestroika was actually a well-designed and philosophically balanced reform considering the baseline situation in the country and following the idea of suicide by the Durkheim. While Glasnost opened the Iron Curtains and let a light on a personal freedom and a development after a totalitarian depression and an overregulation, the Dry Law established the strict and powerful restrictions. Strong regulations for a good purpose may have better impact than normlessness in society, especially, if people have for a long time been used to overregulation. A sudden loss of "frames" may easily turn into the feeling of chaos and helplessness after the initial euphoria. An interesting balancing combination of a relaxing Glasnost and the strict restrictive Dry Law imposed simultaneously, could have possibly avoided another Durkheim's suicide type, anomic suicide that results from a lack of regulation. The period of National Awakening with the highest social mobilisation and integration showed the lowest suicide rates over the 30-years period. Social environment, people's trust in each other are closely correlated ( $r = - 0.8$ ) with mortality (80).

For Durkheim, suicide was not to be understood as an individual phenomena, it was related to the features of social organisation and structure (24). An association found in the individual studies do not have to apply at aggregate level and vice versa (81). Most individual level studies, both cross-sectional and longitudinal, have revealed, that unemployed people commit suicide more often than other people, however, the countries with high UR do not show higher SR than the other countries by spatial,

cross-sectional aggregate studies (27,28). Caution has been expressed by the different authors about the different results from cross-sectional and longitudinal studies (27,28), by using qualitative or quantitative analyse methods (81), by drawing causalities from the correlations at aggregate level data (82,83) and for the possibility, that the association found in correlation analyse is no longer statistically significant in regression analysis (84). Cross-sectional or longitudinal studies based on aggregated data (29,85) have difficulties to draw the conclusions about individual circumstances and fail to give the unequivocal results when they are repeated (86,87). Follow-ups of large individual data sources are criticized due to the insufficient validity in their definition of unemployed and insufficient numbers in subgroups followed up for several years (87). Reverse causation may occur in the person-based observational studies, where the pre-existing personality or mental health problems leading to suicide could cause the unemployment, rather than unemployment causing the suicide (88-90). "It is well-known, however, that it is possible in time series analysis to obtain results that suggest the existence of a causal relationship when in fact none exists". (83, by A.Wagstaff, p.994)

Several authors have found in their studies a clear association between unemployment and mortality (29,87,90-92) and/or suicide (24,84,88,92-104) that could be also negative (24, 100,105,106). However, the other studies (100,107-111) have concluded that the unemployment and both serious attempts and completed suicides relations are weak or noncausal and instead reflect on the factors that contribute to the risks of both: unemployment and suicidal behaviours (18,100,102,107-111). Several studies have shown that the relationship between unemployment and suicide is very complex (21,23,37,94,96,102,107,109,112-117).

Most individual level studies have noted higher levels of unemployment among both completed suicides and suicide attempts (23,77,88,98,118,119) as well as higher MR and SR (87,120), attempted suicides (SA) (98) and suicidal ideations (SI) (97) among unemployed. However, higher UR were reported by serious suicide attempters but when antecedent family and childhood factors and also psychiatric morbidity were taken into account, unemployment was not significantly related to the risks of serious SA (107). Also the findings of a prospective longitudinal study did not support U and SI association in young adults however, there was an association between dissatisfaction with employment and SI (115). Suicidal behaviour depends as well as on financial independence (121,122) and deprivation (116).

The precise unemployment and suicide aggregated data relationship remains unclear. Prichard has found in his study statistically significant correlation between SR and UR for both genders in 1974 – 86 by the high UR, and non-significant for 1964 – 73 by the low UR in 23 Western countries (93). While a comparison of UR and SR for 1973 – 83 in the 16 industrialised countries suggested that increases in UR accounted for only a small component of SR increases, although this varied among those countries studied (110). In Finland was found significant UR and MR increase association at the beginning of UR increase and weakened by the general UR increase (90). In Denmark the higher UR areas have the lower unemployed MR (120). The aggregate-level studies in Italy attribute a higher risk of S to places with the low UR (100).

The absolute economic changes do not correlate significantly with changes in SR (37). Interpreted in Durkheim's terms (20), this could also mean that all kinds of change may lead to more suicide (37). For countries not in transition could be applicable the findings, that economic instability rather than U has impact on health (29,83). A large individual level follow-up cause-specific mortality study found that unemployment significantly increases the suicide risk but has no significant effect on motor vehicle accidents (92).

There are findings claiming that S is more influenced by the domestic stress than economic factors (84,109,123). Divorce rate impact on SR has been studied most. Review of 134 studies and 795 findings concluded that nine out of every ten findings from individual level analyses support a link between divorce and suicide, while longitudinal aggregate research typically fails to support this linkage (81). Divorce rate in Estonia has been increasing rapidly during the transition period since the impact of marriage rate fall. Family integration, although not studied in current paper, could have a significant role on high SR also due to increasing domestic stress caused by low relative income and life insecurity.

Relative incomes fall dramatically in Estonia, reaching in 1992 the 45% level of real wage in 1989. The real income on a per capita basis increases by a 1%, could decrease the SR by a 0.16% (94). The causal protective effect of income on health has been relatively well established (94,124-131) and finding that income loss has a much stronger effect on health than increases in income (124,132,133). There are many studies both internationally and within individual countries that find the relative income hypothesis to be valid (134).

More important than absolute income is relationship between income inequality and health (80,133,135) with impact on the psychosocial conditions of people's lives. The absence of self-respect sources that are considered essential for full participation in society, damage even more than an absolute lack of income and essential goods. Privatisation of production has been accompanied by all kinds of adaptation problems in Eastern European countries (37). Estonia had in addition to most rapid privatisation success also a leading position in lowest number of new jobs introduced. Attractiveness for foreign capital included very low (close to minimum) salaries, which became most evident and dignity hurting by monetary reform. Employment by such conditions did not carry more confidence than unemployment (115), also disappointment from growing inequalities.

The relationship between economy and injury death is different by intentional and unintentional injuries. A clear negative correlation between unintentional injury mortality rates and GNP per capita in high-income countries has been found in 1993 (136,137). Estonian TAR could be considered to decline by a slight economic growth since 1995 and does not correspond with the pattern for suicide rates as found by different comparative studies (18,138).

Traffic-related accidents were previously regarded as a problem of industrialised countries, but a clear negative relation between a country's economic status and

accident incidence has been shown (42). The incidence of traffic fatalities and injuries has reduced significantly during the last three decades in the high-income countries, but not in the low- and middle –income countries. Traffic in low-income countries comprises a much higher share of vulnerable road users and so vehicles, roads and the environment have to be designed for their safety (149).

With GDP growth and relative income recovery in Estonia, the share of new safer cars has increased and the state investments have improved the safety of roads. The impact of environmental factors improvement on traffic accidents fatality in Estonia is obvious, as the number of traffic accidents have not decreased.

In his classic work on suicide, Durkheim (20) discarded the notion of any linkage between alcohol and suicide. His attempt to find an association between suicide and alcohol consumption has been much debated (140) as, most studies of alcohol and suicide relationship have been performed at individual level (35,141-144) while no association or causality have been detected in aggregate level studies (18,145). The role of alcohol consumption in suicides has been identified by many authors (31,34,35,142-144,146,147) and confirmed for a larger group of countries as well as in Mäkinen's study (37). However, he did not deem it the main factor among the highly intertwined predictors. Alcohol consumption retaining its position also in including economic and political changes in the model is the most interesting finding in casual terms and it doesn't seem to be simply a reflection.

Importance of the factors other than alcohol consumption on suicide has been pointed out more in the number of articles (140,141,145,148-151). The factors that contribute to the alcohol abuse or the heavy drinking can be divided into the individual and the cultural (39). People who score high on aggression and anti-social behaviour have the higher risk of developing alcohol abuse early in their lives (152).

Alcohol is expected to release the psychosocial stress (153). The psychosocial stress has been found to be in the correlation from the moderate (154) and the heavy alcohol consumption (155) to the alcohol dependency (156). The expected stress release effect is just an illusion as alcohol increases the level of stress hormones (72). The dependency development by the moderate alcohol consumption depends on the strength of individual personality (72).

The likelihood that a strong individual disposition is manifested in actual behaviour depends much on cultural factors (39,148). The most important is the general level of alcohol consumption of the environment. The concepts of "wet" and "dry" cultures have been developed: defined as those with a high consumption of alcohol integrated into everyday living and those with a relatively low and sporadic consumption only on special occasions (141). An individual with a weak disposition to abuse may well become a heavy drinker in a wet culture, while an individual with a strong disposition may escape such a fate in a dry culture where the exposure to alcohol is less (39). This means that the composition of alcohol abusers should differ between wet and dry cultures; pre-alcoholic psychiatric disorders are fairly uncommon in France (157) but more prevalent in dry cultures (158).

The clear associations have been found in the USA. The alcohol consumption has predicted the suicide rates and changes in the alcohol consumption predicted changes in the suicide (34). Alcohol abusers have high rates of attempted and completed suicide and in turn suicidal individuals have higher rates of alcohol abuse (35). The alcohol use disorders are strongly related to the aggression and the suicide (144). The association of violence and suicide is stronger among the individuals without a history of alcohol misuse. (151). Time series analyses showed that both: the alcohol consumption and divorce were independently and statistically significantly associated with the male suicide rate, but not with the female suicide rate (147).

Social stress caused by loss of work, the important social identity for males, might push individuals to increase their consumption of alcohol and thereby further increase their vulnerability to suicide (159,160).

Dry Law impact study (31) applied SR decrease (34,5%) in 1984-88 explaining 50% of suicides for most republics; however, the Perestroika impact is more extensively described in the cited study (161). Latvia's findings (23) did not support alcohol's main impact on SR changes same time and following Durkheim and "wet&dry" cultures concept, application seems difficult to adapt also for Estonia.

According to Durkheim, the suicide rate is inversely related to the degree of integration (20,39). Several studies consider the loss of social relations and tie with the society an outcome of a heavy drinking (162,163). The Estonian psychological autopsy of 427 suicides (77) detected that about a half of suicidents (70% of them in young age) had had a reliable close friend and 39% of women and 53% of men had had close friendship societies. Social drinking had been a common interest of this friendship society, more usual among young and middle-aged men and non-Estonian men. The attitudes of a rather different Slavic "wet" culture have significantly been assimilating into the local culture as highly approved part of social communication. Drinking without a company is not generally accepted, even considered a serious (mental health) problem. Refusing drinking together could have problems in future relationship or business.

The Estonian society has been very tolerant to the alcohol related problems at macro level. The main argument against limiting access has been the avoidance of illegal alcohol expansion. During a transition period, at micro-level, in families, alcohol consumption could probably add much to the already high domestic stress. Strict restrictive regulations on alcohol sales and consumption, like the Dry Law, could be possible to introduce in "wet" cultures only by the totalitarian regime or in societies with high supportive public awareness and commitment, and state monopoly on alcohol. Weaker personalities and lower (uneducated) social class manual workers (164) could have significant support from a strongly regulated environment leaving no freedom for choices and doubts. Strong regulation effect does not last long without touching society's basic values, attitudes and habits. Transition's lawlessness has influenced' readiness follow regulations by adoption again. Alcohol sales in the gasoline stations create hazards: exposure in the most vulnerable place and time for night-fun-riders.

Relationship between alcohol consumption and traffic accidents mortality is strong at the individual level (27). There is a vast number of studies in alcohol and traffic safety

showing – at individual level particularly – that people who drive after having used alcohol are more likely to be involved into road accidents (165). Many countries have generated various traffic safety and prevention strategies according to that knowledge. Drunk driving was seen as a problem at a very early stage in the Nordic countries, and legislation enforced almost with the arrival of the motor vehicle (18).

A too liberal national alcohol policy has become an open issue during recent years in Estonia. With growing GNP and living standard, life gets a new value. Higher safety standards have already saved many lives from traffic accidents and here the globally found associations may appear in reality quite early. However, we lack information about alcohol consumption not speaking of dependency among drunk-drivers who have caused accidents as well as among suicides or accidentally poisoned ones. The real role of alcohol in different causalities may be overestimated and emotion-based due to lack of reliable data and methodologically valid studies in this field. Suicide and accidental alcohol poisoning both belong to mainly social genesis factors influenced injury mortality group. Looking for common causalities may help to save more lives in the future.

## THE LIMITS OF THE STUDY

The statistical analyses in the countries in transition are complicated to perform for a longer period and for comparisons with the other countries and the other studies. Due to the large changes in political and economic systems, some data does not exist and some data is not comparable due to a low or artificial meaningless value. The comparisons became complicated even between the country's different time periods. Most economic indicators are not possible to be used for a longer observation period like GDP, income and the money related indicators and the unemployment rate. GDP in the single republics of the USSR could have rather symbolic value as a result of the Planning Committee commitment.

The ecological study design seems to be the most appropriate for such a study by the limiting opportunities to use desirable socio-economic data for analyses. This ecological study has the certain limits according to the limited value of the ecological studies, which have been considered in the generation and verification of etiologic hypotheses and in the evaluation of interventions. Most of the suicide studies use ecological data, as was the intention of Durkheim. The macro level processes influence on injury mortality at aggregated level could be successfully analysed by a bigger variety of relevant and valid data availability.

Public databases do not provide the possibility to get additional socio-economic characteristics about observed samples as well as the accompanied causalities on the death certificates. Data about the education, the social status etc is accessible about the population in general. There is no interest in the Statistical Office of Estonia to calculate PPP values for the international comparisons. This is done by the OECD or the other international organisations.

The different state institutions do not publish adequately the unemployment data as different methodologies have been applied. The registered unemployment has always been significantly lower than according to the labour force surveys. Opposite to that, the alcohol consumption is usually underestimated in the self-evaluation surveys. The alcohol consumption data is not reliable in Estonia due to a relatively high share of illegal spirits and the high consumption by tourists. The accidental alcohol poisoning data cannot provide the necessary information about possible causality as the phenomena may have some common causes with suicides.

## CONCLUSIONS

Political and economic changes accompanied by high psychosocial stress from basic values change and living insecurity coincided the middle-age male excess external causes of death (ECD) mortality in Estonia. Appropriate coping strategies and social protection were not acquired. People faced unexpected difficulties as work and dwelling insecurity, real income insufficiency to meet essential expenditures, living standard decline, population stratification, social status and life perspective loss. This has affected people's health both through physical and mental pathways. Economic insecurity has weakened individuals' capability to cope psychologically. Stress arises when individuals find themselves confronted with an increased pressure to adapt themselves to new and unexpected circumstances. Mental illness plays an important role in suicidal behaviours. A significant amount of strong emotional and economic changes of the transition period could affect individuals with less stable mental health and personal capacity as by Durkheim any change might influence on suicide. Estonia's lowest and highest suicide rates coincided with society's integration and regulation level, consistent with Durkheim, as transition lacks changes supportive regulations.

In consistent with the other findings traffic accidents' mortality in Estonia is sensitive to the economy: accidents' fatality decrease by increasing GDP. Cars and roads have become safer but traffic behaviour not, as the accidents number did not decrease.

Alcohol involvement in accidents could plausibly accelerate the accidents but alcohol consumption reason and impact on ECD remains unclear. The accidental alcohol poisoning rate as a possible indicator of an excessive consumption consequences follows in large the same trend as suicide rate but has an opposite direction with traffic accidents. Behind the traffic accidents mortality highest peak are rather other factors than alcohol: speedy-car euphoria, inexperienced drivers, risky-behaviour unbalanced by safety measures.

Earlier findings about the unemployment and alcohol consumption impact on the transition's high injury mortality have not been confirmed by the current study consistent with Cornia.

Injury mortality has becoming an indicator in politico-economic changes. Any new regulation adoption, cancellation or "decision-lessness" is for the population like an

intervention, which has desirable and undesirable effects. By several complexities of unexpected problems single tools without strong and comprehensive social policy, could not improve the Estonia's population situation. Current paper provides framework within population worsening health factors during politico-economic changes could be better understood. Strongest impact on Estonia's population health could come from transition's political and economic reforms influencing dwelling and income. Low salary and low purchasing power could hurt a human dignity even more than possible unemployment.

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