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**By: Andres Võrk
Janek Saluse
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Out-of-pocket payments and health care utilization in Estonia, 2000–2012





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ABSTRACT

This paper analyses out-of-pocket payments, their impact on catastrophic expenditures and impoverishment in Estonia from 2000 to 2012. Microdata from the Estonian Household Surveys collected by Statistics Estonia were used, complemented by utilization data from other studies. Statistical and econometric methods were applied.

The results show that out-of-pocket expenditures peaked in 2006 and dropped thereafter. The decline is explained by the relative increase of pensions during the crisis years, promotion of generic drugs and reduced utilization of health care, especially dental care. Analysis of income-related inequalities in health care financing and utilization continues to show that for those services that are more dependent on out-of-pocket payments, there were either more inequalities in utilization, clearly demonstrated in adult dental care, or there was more risk of being pushed into poverty, such as in the case of spending on prescription and over-the-counter drugs by pensioners. Compared to previous studies, the impact of drug purchases on catastrophic expenditure has declined, which may be explained by both the changing attitudes towards cheaper drugs and increasing pensions relative to drug prices. Regarding the dental care, however, the picture is similar to earlier studies that high out-of-pocket payments cause low-income households to withdraw from the utilization of dental care services.

Keywords

HEALTH SERVICES ACCESSIBILITY – economics
INCOME
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OUT-OF-POCKET PAYMENTS
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List of abbreviations

COFOG	Classification of the Functions of Government
EEK	Estonian kroon (currency)
EHIF	Estonian Health Insurance Fund
ESA	European System of National and Regional Accounts
ESSPROS	European system of integrated social protection statistics
EU	European Union
GDP	gross domestic product
IVF	in vitro fertilization
NIHD	National Institute for Health Development
OOP	out-of-pocket
OTC	over-the-counter

1. Introduction

Over nearly 20 years Estonia has established a modern health system based on mandatory social insurance, whereby all insured individuals are formally guaranteed equal access to health care. Health insurance coverage is almost universal – 95% at the end of 2011 – with employees covered by their social tax payments and automatic entitlement for children and retired people. Individuals that are uninsured are more likely to be long-term unemployed people and inactive men aged 30–50 years. The health system is financed mainly by social tax levied on employment income, and pooled by the Estonian Health Insurance Fund (EHIF) to purchase services from private and public providers. Contributions are also made from the state budget on behalf of some socioeconomic groups, financed by other tax revenues. A few services are directly purchased from the state budget or paid by household out-of-pocket (OOP) payments.

OOP payments consist of user charges for EHIF benefits, direct payments to providers for services that fall outside the EHIF's benefits package or to non-EHIF providers, and informal payments. The EHIF benefits package covers primary care services free of charge for the patient (except home visits). The visits to specialists would require referral from the family doctor or other specialists, with a few exceptions (such as referral to ophthalmologists, dermato-venerologists, gynaecologists, psychiatrists, dentists), and certain conditions (HIV/AIDS, tuberculosis, injuries) where direct access is allowed). In the specialists visits also the visit fee applies. If patients go directly to specialists without referral, the EHIF does not cover any of the cost of consultation or treatment. In cases of daily treatment and hospitalization, a per diem co-payment is introduced with an upper ceiling for the number of days per episode of care (see Annex 1). Dental care has only limited coverage by the EHIF, whereby services are covered for children and adolescents up to the age of 18 years, but for adults, only limited monetary coverage was available until 2009 and most of the cost of care is covered by patients. Beyond the EHIF coverage, the state provides countrywide emergency ambulance services that are available for everybody free of charge, considered to be an extension of the primary care that is available to everybody. The state also covers emergency care for uninsured individuals, as well as care free of charge (both treatment and medicines) for individuals with certain conditions, such as HIV/AIDS or TB. For outpatient prescription drugs, there is a reference price system of differential user charges based on the nature of the illness and the drug price and effectiveness. The patient pays a flat rate plus a fixed percentage of the cost of a drug. Complex arrangements are in place to protect children, pensioners and heavy users of prescription drugs. However, there is no annual cap on OOP payments; rather, there are EHIF reimbursement limits for drugs subject to 50% co-insurance.

Inequalities in health care utilization and health care financing have been studied in Estonia since the start of the millennium. The first equity study was performed in 2002 to provide a comprehensive view of inequalities in health, health behaviour and health care (Kunst et al., 2002). Other studies include analyses of: OOP payments in 1996, 2000 and 2001 (Habicht et al., 2006); trends in health care financing (Couffinhal & Habicht, 2005); sustainability of health care financing (Vörk et al., 2005); health care access (Habicht & Kunst, 2005); and income-related inequality in health care financing and utilization (Vörk, Saluse & Habicht, 2009; Vörk et al., 2010). A major study of the health financing system's sustainability was completed in 2010 (Thomson et al., 2011) including proposals to address inequalities, and another in 2011 (Aaviksoo et al. 2011), which analysed various changes in the tax basis for health care revenues.

Various studies (Vörk, Saluse & Habicht, 2009; Vörk et al., 2010) have shown, using OOP payment data on 2000–2007, that health services that are more dependent on OOP payments either create more inequalities in utilization (if the services are more discretionary, clearly demonstrated in adult dental care), or increase risk of being pushed into poverty (if the services are necessities (such as prescription drugs). For those services with no or minimal co-payments, such as primary care and hospitalization, the objectives of financial protection and equity in utilization are well met.

Earlier studies have analysed OOP payments up to 2007; that is, before the recent economic crisis. This report complements the previous analyses, adding information about the years since the crisis (2010–2012), with the aim of analysing the possible impact of changes in socioeconomic situation and health policy on access to health care and impoverishment due to OOP payments. Unfortunately, the Estonian Household Budget Survey – the main source of information about OOP payments – was not carried out during 2008–2009. Furthermore, the methodology of the survey was changed in 2010, which means that there remains ambiguity what part of the changes we may observe before and after the recent economic crises are due to changes in methodology and what are due to economic crisis and health policy decisions.

For more information on the detailed methods and concepts used in this analysis, refer to Võrk, Saluse & Habicht (2009), and for further relevant reading consult Wagstaff et al. (1999), Wagstaff (2010), Allin, Hernández-Quevedo & Masseria (2010), van Doorslaer & Masseria (2004), and Xu (2005).

The rest of this report is structured as follows: section 2 gives a brief overview of trends in the economic environment and health care financing in Estonia, the role of taxes and OOP payments; section 3 analyses OOP payments and their impact on poverty and utilization, and section 4 concludes.

2. Economic development and health policy during the period 2000–2012

Estonian economic development during the period 2000–2012 was categorized by rapid growth until 2007, drastic decline in 2008–2009 and recovery since 2010 (see Table 2.1). The unemployment rate that had dropped to 5% before the crisis reached as high as 17.1% in 2010 and declined after that, reaching below 9% in 2013.

Before the crisis, during the period 2000–2007, Estonia was spending approximately 12–13% of its gross domestic product (GDP) on social protection according to the European system of integrated social protection statistics (ESSPROS) classification, and as such was one of the countries in the European Union (EU) that spent the least. In these better times, reserves were accumulated by the Estonian central Government, the EHIF and the Estonian Unemployment Insurance Fund. The overall level of government debt was very low, at only about 5% of GDP in 2008. Therefore, Estonia started from a low level of social expenditure, allowing scope for an additional increase in social expenditure during the crisis. Indeed, social expenditure increased in 2009–2010, nominally, as a share of GDP (to 19% in 2009 according to ESSPROS) and as a fraction of government expenditure. As expected, with increasing GDP and falling unemployment, the proportion of resources going to social expenditure decreased again. Overall health expenditure in Estonia, including both public and private expenditure, has been stable at around 5–6% of GDP, with small variations due to economic changes and fluctuations in OOP payments.

TABLE 2.1. TRENDS IN MAIN SOCIOECONOMIC VARIABLES AS A % OF GDP, 2000–2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
GDP growth	9.7	6.2	6.1	7.5	6.5	9.5	10.4	7.9	-5.3	-14.7	2.5	8.3	4.7
Unemployment rate (15–74 years)	14.6	13.0	11.2	10.3	10.1	8.0	5.9	4.6	5.5	13.5	16.7	12.3	10.0
General government expenditure^a	36.1	34.8	35.8	34.8	34.0	33.6	33.6	34.0	39.7	44.7	40.5	37.5	39.5
Total government expenditure on social protection and health (COFOG classification)^a	15.0	14.3	14.1	14.0	14.2	13.9	13.6	13.6	16.8	21.2	19.8	17.9	17.7
Social protection expenditure (ESSPROS methodology)	13.9	13.0	12.7	12.5	13.0	12.6	12.1	12.1	14.9	19.3	18.1	16.4	15.8
Total health expenditure^b	5.2	4.8	4.8	4.9	5.1	5.0	5.0	5.2	6.1	6.9	6.3	5.8	5.8

Sources: Statistics Estonia, 2013 (Table “NAA0012: Gross domestic product and gross national income (ESA 2010)”, Table “ML330: Labour status of population aged 15–74”, Table “SWK01: Expenditure on social protection”, accessed 14 September 2014); ^a Eurostat online database (European Commission, 2013) (Table “General government expenditure by function (COFOG)”, accessed 14 September 2014); ^b NIHD, 2013 (Table “KK20: Indicators of total expenditure on health care”, accessed 27 November 2013).

The role of OOP payments in Estonian health care financing was relatively stable during 2000–2012 at around one fifth, with the only exception in 2006, when the share of OOP payments reached a quarter. About two thirds of health care financing comes from earmarked social tax, via the EHIF. The central Government’s share is about 8–10% and local governments contribute about 1.5–2.0% (see Table 2.2). The share of private insurance and spending by private enterprises is very small.

TABLE 2.2. SOURCES OF HEALTH CARE FINANCING IN ESTONIA (%), 2000–2012

Source	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Public sector	78.0	79.2	77.7	76.7	75.5	76.7	73.3	75.6	77.8	75.3	78.9	79.3	78.7
Central government	10.9	11.0	10.9	10.4	9.8	10.5	11.2	11.4	13.0	10.0	10.7	10.8	10.6
Local governments	2.1	2.7	2.6	1.5	1.3	1.1	1.8	1.7	1.5	1.5	1.2	1.4	1.4
EHIF	67.1	68.2	66.8	66.4	65.7	66.2	62.1	64.2	64.8	65.2	68.2	68.6	68.1
Private sector	21.9	20.8	22.3	23.2	24.0	23.0	26.1	23.3	20.6	20.9	20.3	19.2	19.8
Private insurance	–	–	–	0.0	0.1	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3
Households	19.3	18.4	19.5	20.4	21.3	20.4	25.1	21.9	19.7	20.3	18.6	17.6	18.2
Non-profit sector	–	–	–	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private enterprises	2.6	2.4	2.8	2.8	2.6	2.3	0.7	1.1	0.7	0.3	1.4	1.4	1.4
Foreign sector	0.0	–	–	0.1	0.5	0.3	0.6	1.1	1.5	3.9	0.9	1.4	1.5
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Note. OOP payments for 2008 and 2009 are forecasts by the National Institute for Health Development (NIHD). Source: NIHD, 2013 (Table “KK20: Indicators of total expenditure on health care”, 28 October 2013 update).

Due to the economic crisis, starting in the second half of 2008, several policy measures were implemented in health insurance that directly affected OOP payments (Habicht, 2012):

- the abolition of dental care benefits (300 Estonian kroon (EEK) (€19.18)), for working-age adults from 1 January 2009;
- the introduction of a 15% co-payment rate for inpatient long-term nursing care from 1 January 2010;
- the requirement from March 2010 for pharmacies to provide patients with the drug with the lowest level of cost sharing;
- the increase in 2013 of the co-payment for outpatient specialist care and for home visits in primary care, from €3.2 to €5.0 per visit, and of the co-payment for inpatient care from €1.60 to €2.50 per day (see Annex 1).

Other changes that influenced access to health care services included those listed here.

- The maximum waiting lists in outpatient specialist care covered by the EHIF were increased from four to six weeks from 1 March 2009, which could potentially cause some patients to bypass EHIF waiting lists.
- A temporary 6% reduction in the prices agreed centrally between health care providers and the EHIF since 15 November 2009 – from 2011, the prices of health services were cut by 5%, with the exception of primary care, for which the reduction was lower (3%). This is expected to increase access to EHIF-funded services.
- In 2010, a new e-prescription system was launched, which made active ingredient-based prescribing easier.
- From April 2010, price agreements and reference pricing for medicines were extended to the lowest (50%) reimbursement category. Price agreements previously only applied to drugs reimbursed at higher rates.
- In Autumn 2010, the EHIF launched a generic drug promotion campaign on television and billboards.
- Regular changes in the list of prescription medicines compensated partly by the EHIF took also place in 2008–2012.

Section 3 analyses the changes in OOP payments using data from the Estonian Household Budget Survey 2000–2007 and 2010–2012.

3. OOP payments and health care utilization

3.1. Level and structure of OOP payments

Average OOP payments per household member increased 2.8 times from 2000 to 2012 (see Table 3.1), from €3.80 to €10.40 per month per household member. Between 2007 and 2012 there was practically no change. Taking the overall price level increase into account (changes in the consumer price index health expenditure component), real OOP expenditure increased by about 52% from 2000 to 2012. Table 3.1 also shows that, on average, health expenditure as a share of total household consumption expenditure increased from 2.7% in 2000 to 4.3% in 2006, then dropped to 3.9% in 2007 and slightly further in 2010–2012. However, this hides considerable variations among households, as analysed later in this chapter.

TABLE 3.1. HEALTH EXPENDITURE PER HOUSEHOLD MEMBER AND AS SHARE OF TOTAL EXPENDITURE, 2000–2012 (SELECTED YEARS)

Year	Health expenditure per household member (€ per month)	Health expenditure relative to total household consumption expenditure (%)
2000	3.8	2.7
2001	3.8	2.6
2002	4.2	2.8
2003	5.3	3.4
2004	6.1	3.6
2005	6.3	3.3
2006	9.7	4.3
2007	10.2	3.9
2010	9.7	3.7
2011	9.5	3.5
2012	10.4	3.7

Note. The expenditure figures are in current values (unadjusted for inflation). There is a very small difference between the average OOP payments for health expenditure as published by Statistics Estonia and that resulting from our microdata analysis. We have cleaned the data for our further analysis and there are minor differences in the calculation of actual household size during the survey month.

Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

The largest share of OOP expenditure was on both over-the-counter (OTC) and prescription drugs (see the subsection on structure of OOP payments later in this chapter). The second largest component was outpatient care (chiefly dental care), followed by various supplies (with spectacles, dentures and vitamins comprising the largest share). Expenditure on inpatient care was very small. Table 3.2 indicates that after the crisis, OOP payments on supplies (mainly spectacles) have declined more (about 50% drop relative to their previous level), whereas expenditure on dental care and medicines has remained relatively stable in nominal terms, and expenditure on outpatient care has increased.

The following subsection analyses OOP payments across expenditure quintiles and other socioeconomic groups.

TABLE 3.2. MEAN TOTAL AND MONETARY OOP PAYMENTS FOR HEALTH CARE PER HOUSEHOLD MEMBER, € PER MONTH, 2000–2012

Year	Total OOP payments	Household monetary OOP payments	Medicine	Inpatient care	Outpatient care	Supplies	Dental care*
2000	3.8	3.7	1.9	0.1	1.2	0.5	1.0
2001	3.8	3.7	2.0	0.1	1.0	0.5	1.0
2002	4.2	4.1	2.3	0.1	1.2	0.5	1.1
2003	5.3	5.2	2.9	0.1	1.6	0.6	1.4
2004	6.1	6.1	3.5	0.3	1.4	0.9	1.5
2005	6.3	6.2	3.9	0.3	1.3	0.7	1.2
2006	9.7	9.6	5.4	0.3	2.7	1.2	2.1
2007	10.2	10.1	5.8	0.4	2.1	1.8	2.2
2010	9.7	9.5	5.5	0.2	3.3	0.8	2.6
2011	9.5	9.2	5.7	0.2	2.9	0.7	2.2
2012	10.4	10.3	6.1	0.2	3.2	0.9	2.2
2012 vs 2000 (%)	277	277	323	180	270	177	225
2012 vs 2007 (%)	102	102	105	62	150	51	100

* Combines outpatient dental care and dental supplies.

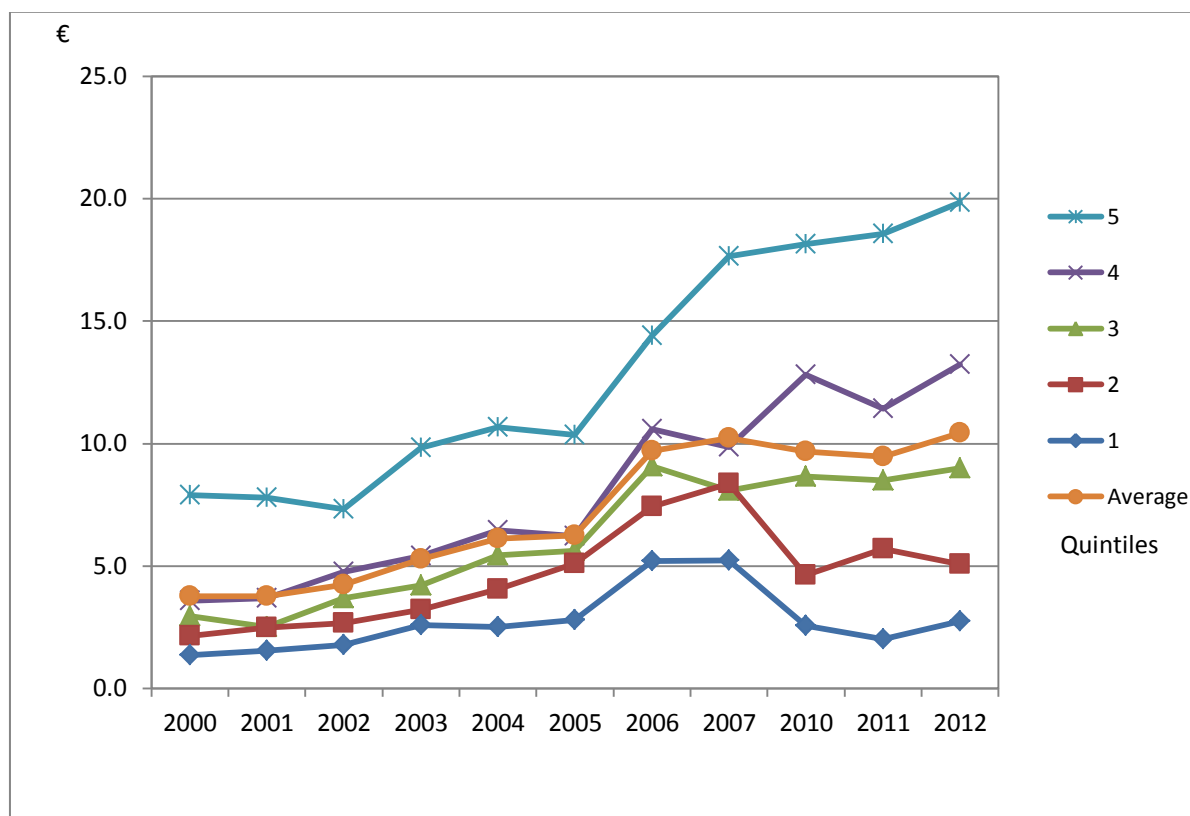
Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

3.2. Absolute and relative OOP payment sizes by quintile

In general, households with higher total expenditure also have higher expenditure on health care for all the years analysed (Fig. 3.1). Average expenditure increased steadily in 2000–2005 in all quintiles. In 2006 and 2007, during the boom years, there was a sharp increase in expenditure. After the crisis, OOP payments continued to increase in richer households; namely, the fourth and fifth quintiles. In the first two quintiles, OOP payments declined in 2010–2012, and in the third quintile, OOP payments have remained unchanged.

Significant differences can be observed in the proportion of total household consumption expenditure among poor households before and after the crisis (Fig. 3.2). Before the crisis (2005–2007) the poorest 20% of households spent about 5.6% of consumption expenditure on health, then after the crisis (2010–2012) it dropped to 2.6%. This indicates that poor households have not only spent less in absolute terms, but also in relative terms. At the same time, the richest 20% of households continued to spend on health at the same level in relative terms, after the crisis.

The reasons for the drop in OOP payments among the poorest households include the following factors: people have abstained from purchasing medical services, or they have started to use cheaper alternatives, such as generic drugs (which is supported by EHIF data), or they have encountered less need for health care services. Analysis indicates that there have indeed been changes in the quintile structures.

FIG. 3.1. OOP PAYMENTS PER HOUSEHOLD MEMBER BY QUINTILES, 2000–2012

Notes. The figures are in current values (unadjusted for inflation). Here (and throughout this section) each quintile includes an equal number of households. The quintiles are based on equivalized household consumption expenditure.

Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

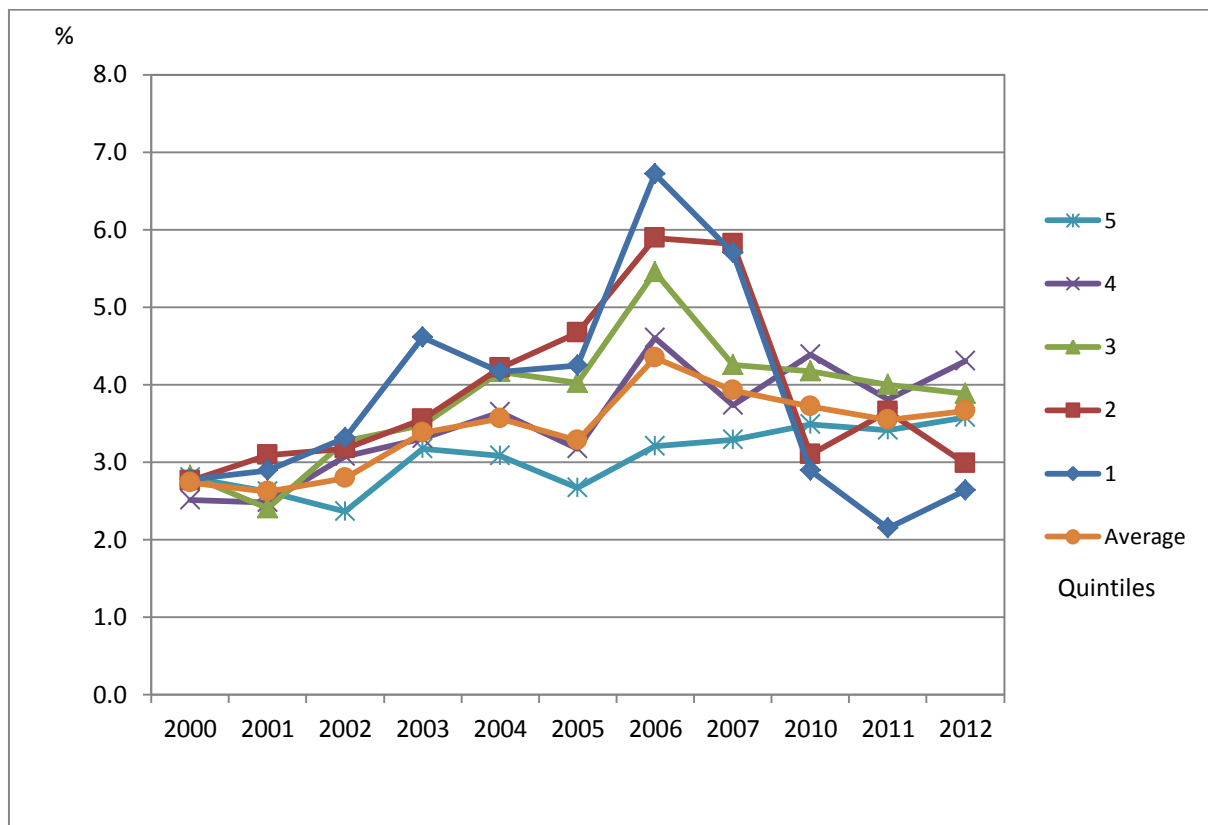
The declining share of OOP payments in the first and second quintiles in 2010–2012 compared to 2007 is partly due to changes in the household structure of the first two quintiles. The share of pensioners has declined considerably in the first quintile and they have shifted to higher quintiles, as pensions did not decline during the recent crisis, while labour earnings did. In 2007, single pensioners and pensioner couples made up 40% of the first quintile, but only 29% of it in 2011. As the relative income position of pensioners improved, OOP payments as a proportion of total household expenditure became more similar across the different quintiles (Fig. 3.3).

When analysing the proportion of expenditure on health by household type, it is evident that both single pensioners and pensioner couples face noticeably higher expenditure on health as a share of their total consumption. After the crisis, the proportion declined for elderly people.

3.3. Structure of OOP payments

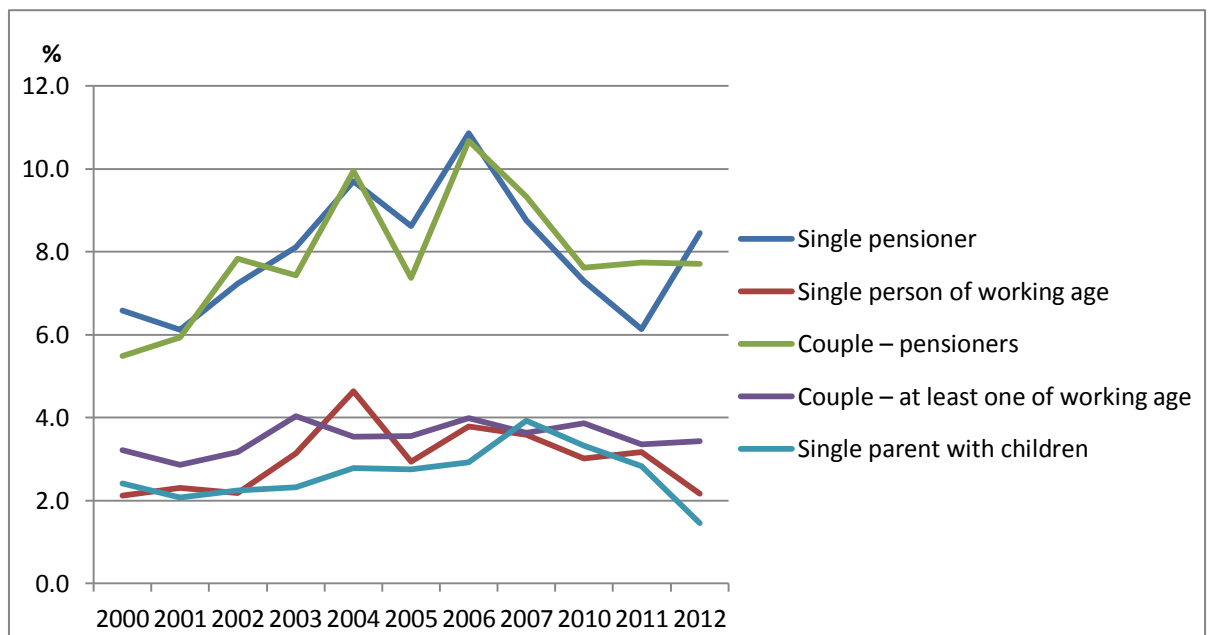
The share of medicine costs in OOP payments during the period 2000–2012 was around 50–60%; outpatient care comprised 22–34%; various other supplies comprised 7–13% and inpatient care constituted 2–5%. Compared to the average for 2000–2007, the share of outpatient care increased after the crisis, and the share of supplies decreased (Fig. 3.4).

FIG. 3.2. OOP PAYMENTS AS A PROPORTION OF TOTAL HOUSEHOLD CONSUMPTION EXPENDITURE BY QUINTILES, 2000–2012

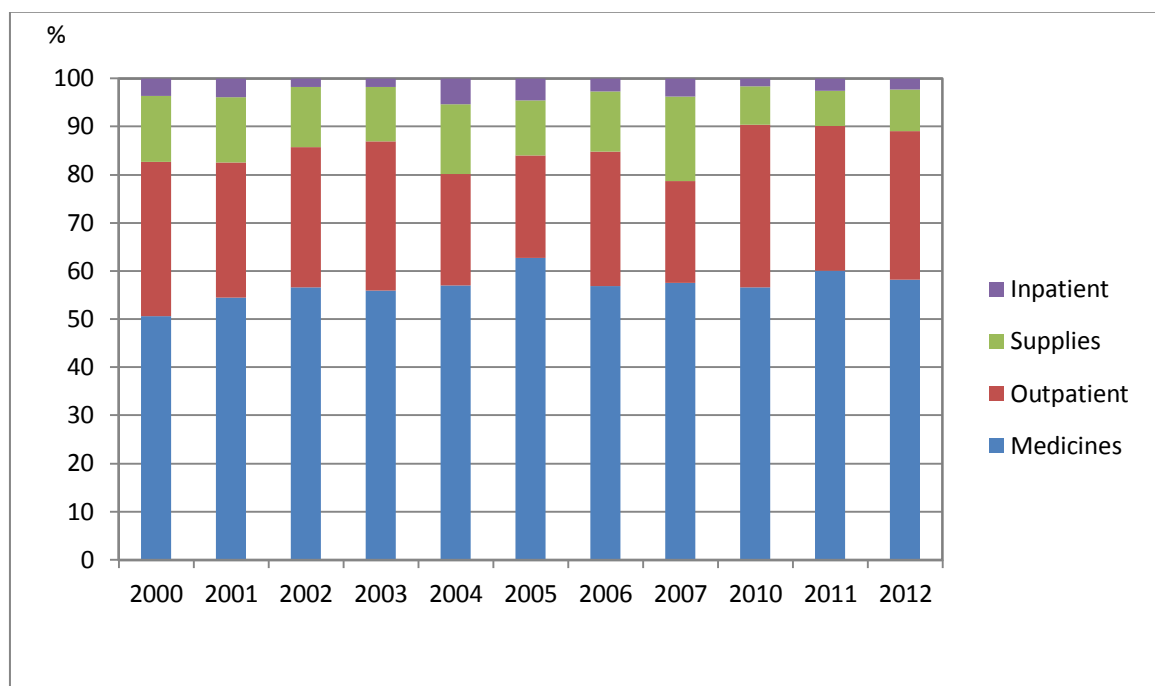


Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.3. OOP PAYMENTS AS A PROPORTION OF TOTAL HOUSEHOLD CONSUMPTION EXPENDITURE BY HOUSEHOLD TYPES, 2000–2012



Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.4. STRUCTURE OF OOP PAYMENTS, 2000–2012

Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

Households in the lowest, poorest quintile spent about 70% of OOP payments on medicines in 2010–2012 (85–90% in 2000–2007), about 7% on medical supplies (spectacles, dentures, vitamins) (5% in 2000–2007), and about 15–20% on outpatient care (mostly dental care) (10–15% in 2000–2007). The richer the households, the more they spent on outpatient care and supplies, and the less they spent on medicines (Fig. 3.5, Fig. 3.6).

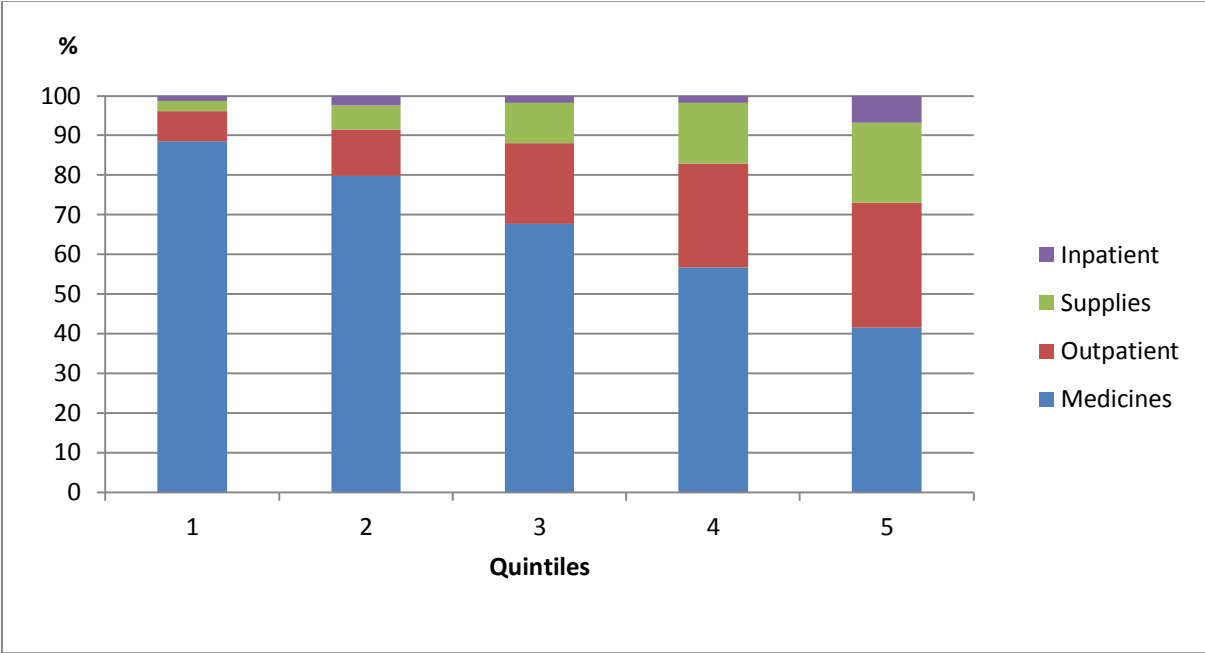
Outpatient care consists mainly of dental care, but dental care expenditure also includes dentures (included in “supplies” within the data depicted earlier). Dental care expenditure as a share of total OOP payments varied between 19% and 27% during the period 2000–2012. There is a clear tendency within households with higher incomes to spend proportionally more on dental care (Fig. 3.7). In absolute terms, households in the top quintile spent on average 10–20 times more on dental care than households in the bottom quintile in recent years (Fig. 3.8).

3.4. OOP payments relative to capacity to pay and poverty

Another way to measure the relative burden of OOP payments is to look at its size relative to household capacity to pay, defined as resources that are available after median or actual expenditure for food consumption (whichever was lower).¹ All figures indicate that high payments peaked in 2006 and have dropped since then. In 2010–2012 the situation is similar to that in the early 2000s (2000–2002). During the observed period the share of health expenditure relative to household capacity to pay increased. About 1–4% of households incurred health expenditures larger than 40% of their capacity to pay (in other words, catastrophic payments); 5–10% of households incurred health expenditure between 20% and 40% of their capacity to pay; and a further 8–13% between 10% and 20% of capacity. By 2012, about 8% of all households incurred health expenditures of more than 20% of their capacity to pay and another 8% between 10% and 20% of capacity, which means that about 82% of households had health expenditures of lower than 10% of their capacity to pay (Fig. 3.9).

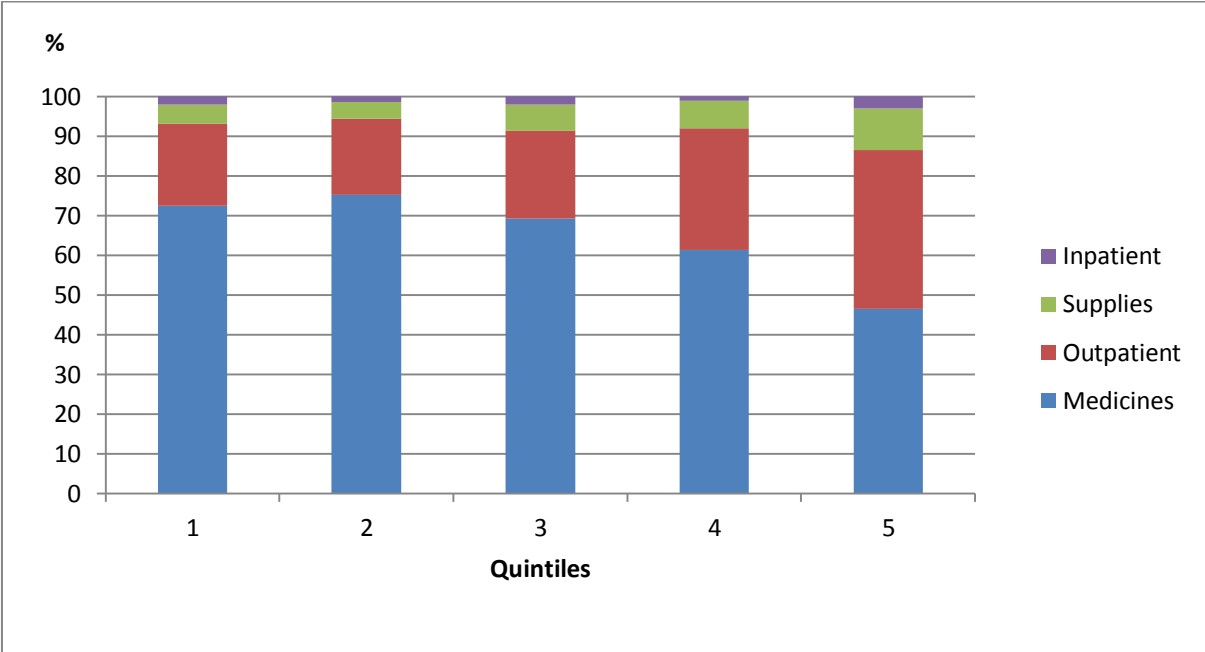
¹ See Xu (2005) for further details.

FIG. 3.5. STRUCTURE OF OOP PAYMENTS BY QUINTILE, AVERAGES FOR 2005–2007



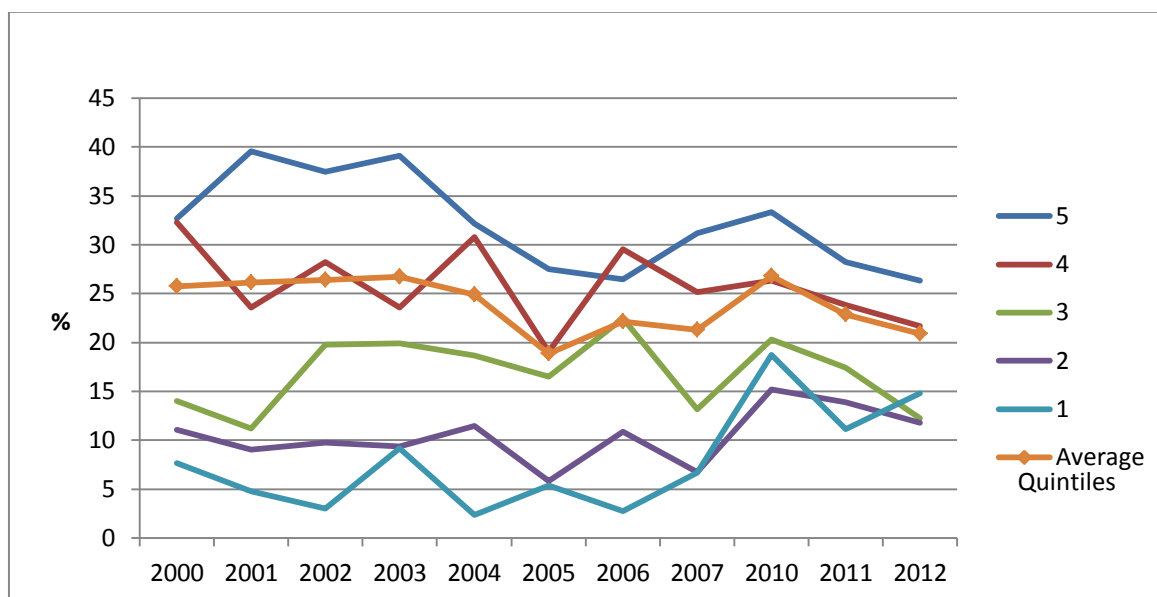
Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.6. STRUCTURE OF OOP PAYMENTS BY QUINTILE, AVERAGES FOR 2010–2012



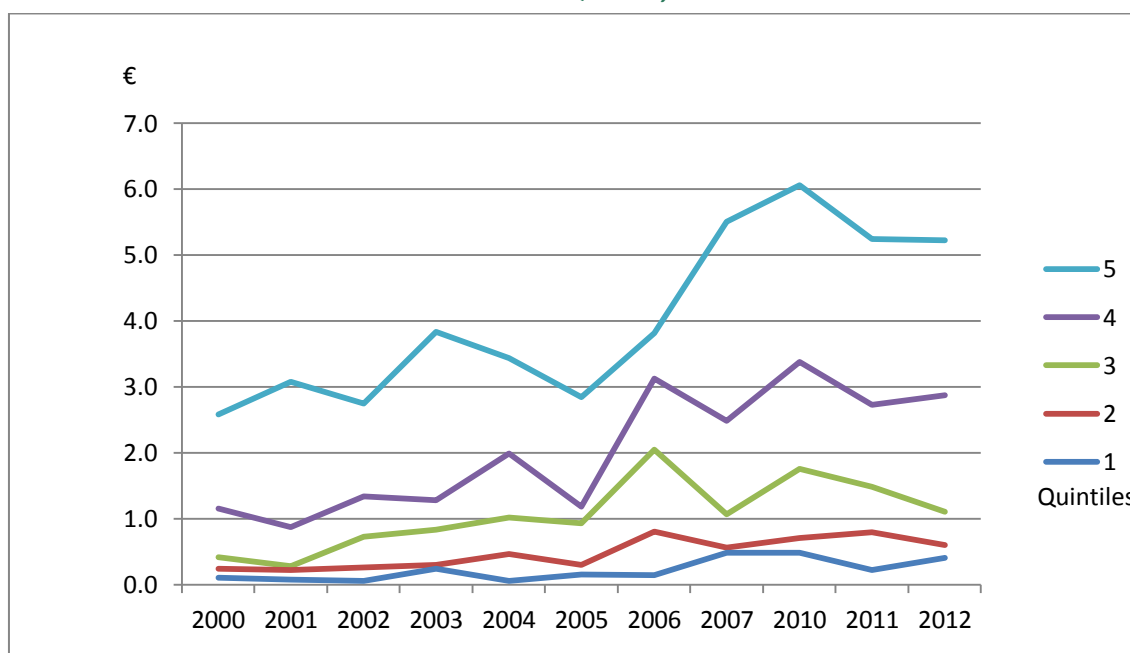
Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.7. DENTAL COSTS AS A PERCENTAGE OF OOP PAYMENTS BY QUINTILE, 2000–2012



Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.8. DENTAL COSTS PER HOUSEHOLD MEMBER BY QUINTILE, 2000–2012

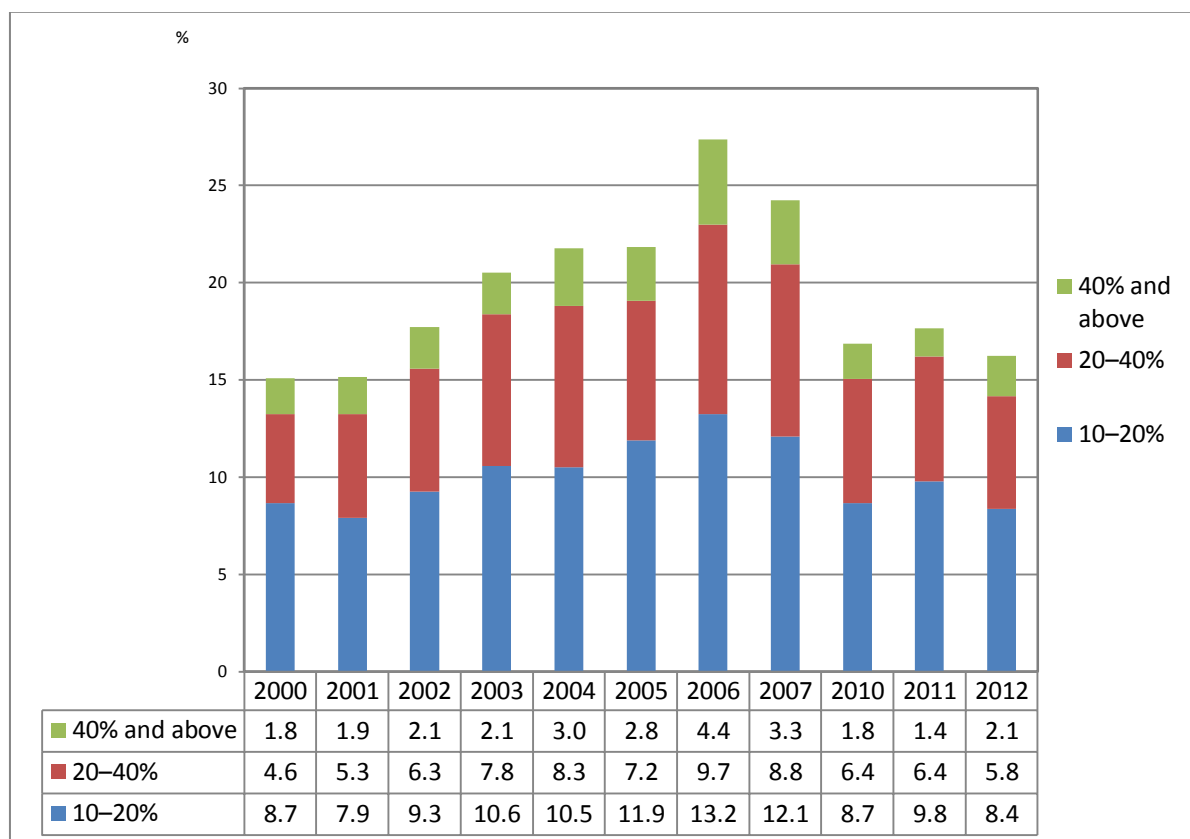


Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

The overall trend is surprising as it shows that the share of households with high OOP payments is lower during periods of high unemployment. This indicates that overall health is a luxury good and during periods of economic downturn people withdraw their spending on non-vital health care, such as dental care, drugs, and so on.

Comparison of the proportion of people with high OOP payments and the share of people who have not visited a doctor (see Fig. 3.10) suggests that in recent years these two sets of circumstances are moving in opposite directions. During the periods in which the proportion of people with high health payments is larger, fewer people avoided visiting the doctor. In recent years, the share of people who have not visited a doctor has started to increase again, and the number of people with high OOP payments has started to decline.

FIG. 3.9. PERCENTAGE OF HOUSEHOLDS WITH HIGH OOP PAYMENTS RELATIVE TO CAPACITY TO PAY, 2000–2012



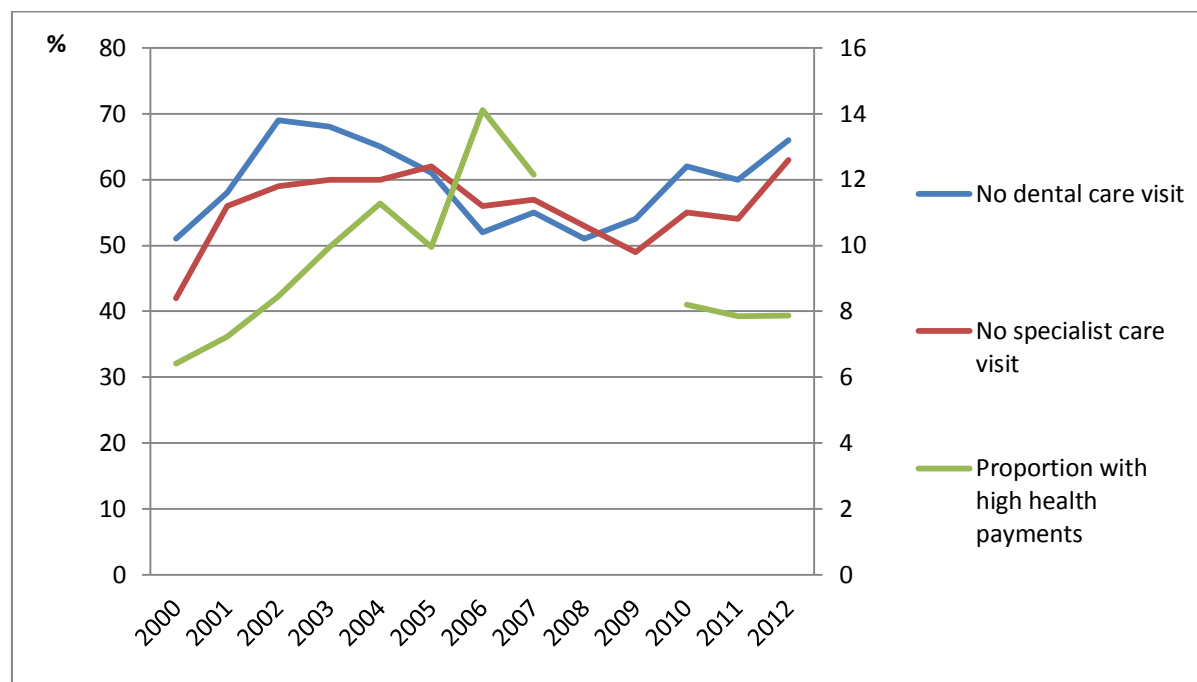
Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

In 2000–2007 the lowest quintile encompassed a higher share of households with high OOP payments relative to capacity to pay, but in 2010–2012, the second and the third quintiles had the highest share, at about 10% of households. This corresponds to changes in the quintile structure, as pensioners moved from the lowest quintile upwards. For the top quintile, the figure has dropped back to 4%, similar to the situation before the economic boom (Fig. 3.11).

It is also relevant to look at the development of the mean ratio of OOP payments to capacity to pay, and to distinguish between different categories of OOP payments. Fig. 3.12 shows that during the period 2000–2007 the mean ratios steadily increased, but have dropped in the period 2010–2012. Cost of drugs was by far the largest factor, especially for the poorest households.

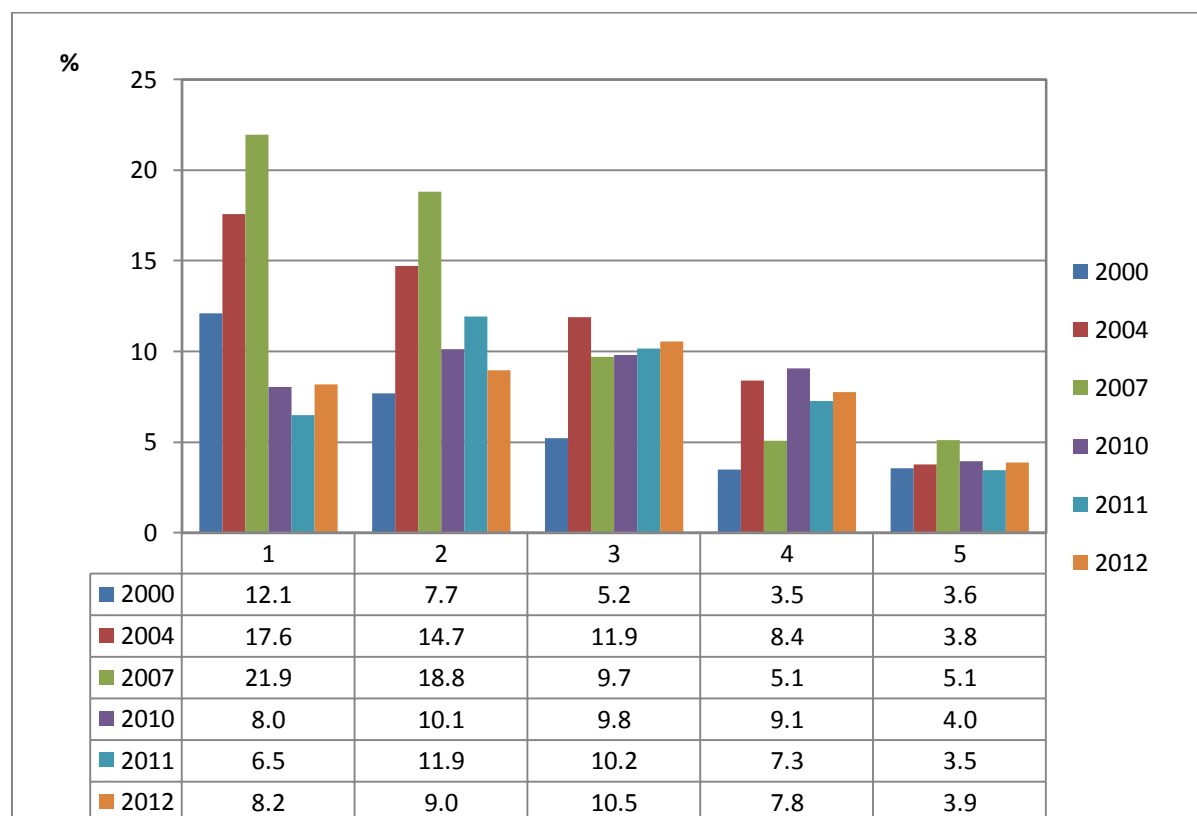
More detailed analysis of the proportion of households with high health expenditure (more than 20% of capacity to pay) by quintiles and years confirms that drug purchases are the main cause of high health expenditure; the share of other items is negligible. Outpatient care and supplies exceed 20% of capacity to pay for 1–2% of households, which even includes some households in the top quintile, but this may partly be explained by the irregular nature of the data, whereby one-off dental care costs or purchase of spectacles can constitute a large share of monthly expenditure (Fig. 3.13).

FIG. 3.10. PROPORTION OF HOUSEHOLDS WITH HIGH OOP PAYMENTS RELATIVE TO CAPACITY TO PAY AND PROPORTION OF HOUSEHOLDS WHO REPORTED NOT HAVING ACCESSED HEALTH CARE DURING THE LAST 12 MONTHS, 2000–2012



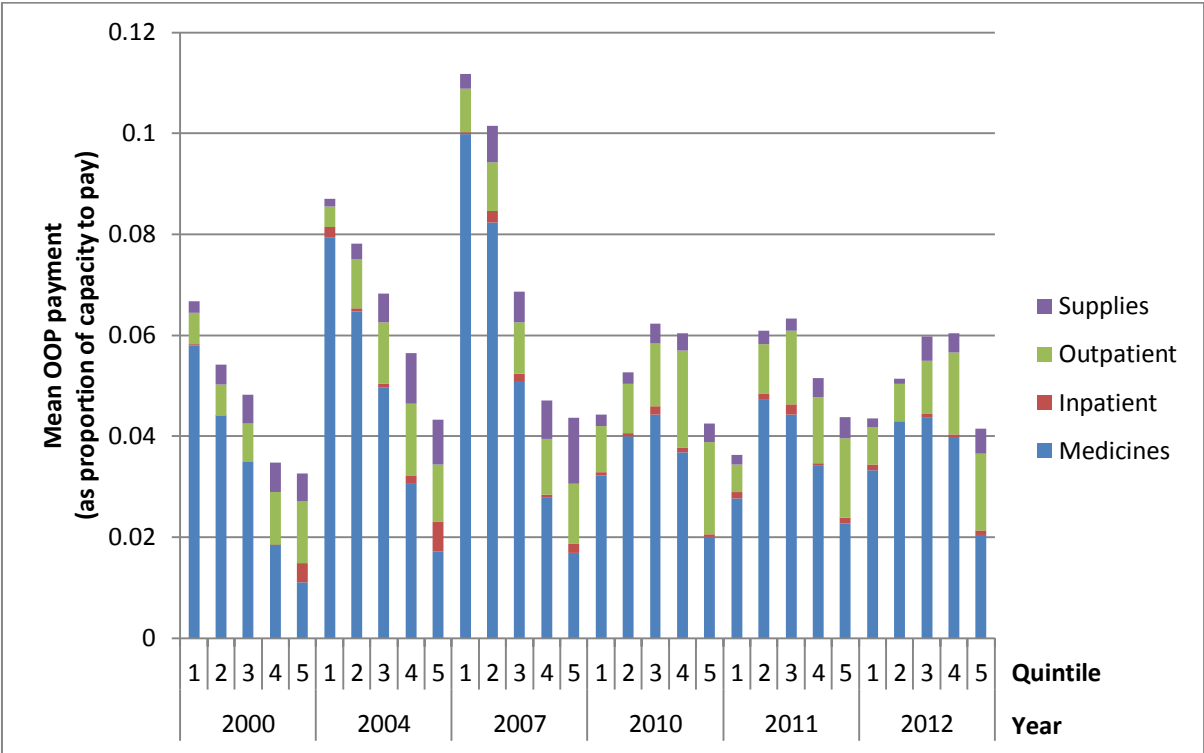
Sources: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata; EHIF, Estonian Ministry of Social Affairs & GfK Custom Research Baltic, 2013.

FIG. 3.11. PERCENTAGE OF HOUSEHOLDS WITH HIGH HEALTH PAYMENTS (> 20% OF CAPACITY) BY QUINTILE, 2000–2012



Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.12. HOUSEHOLD OOP PAYMENTS RELATIVE TO CAPACITY TO PAY BY TYPE OF EXPENDITURE, QUINTILE AND YEAR, 2000–2012 (SELECTED YEARS)



Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

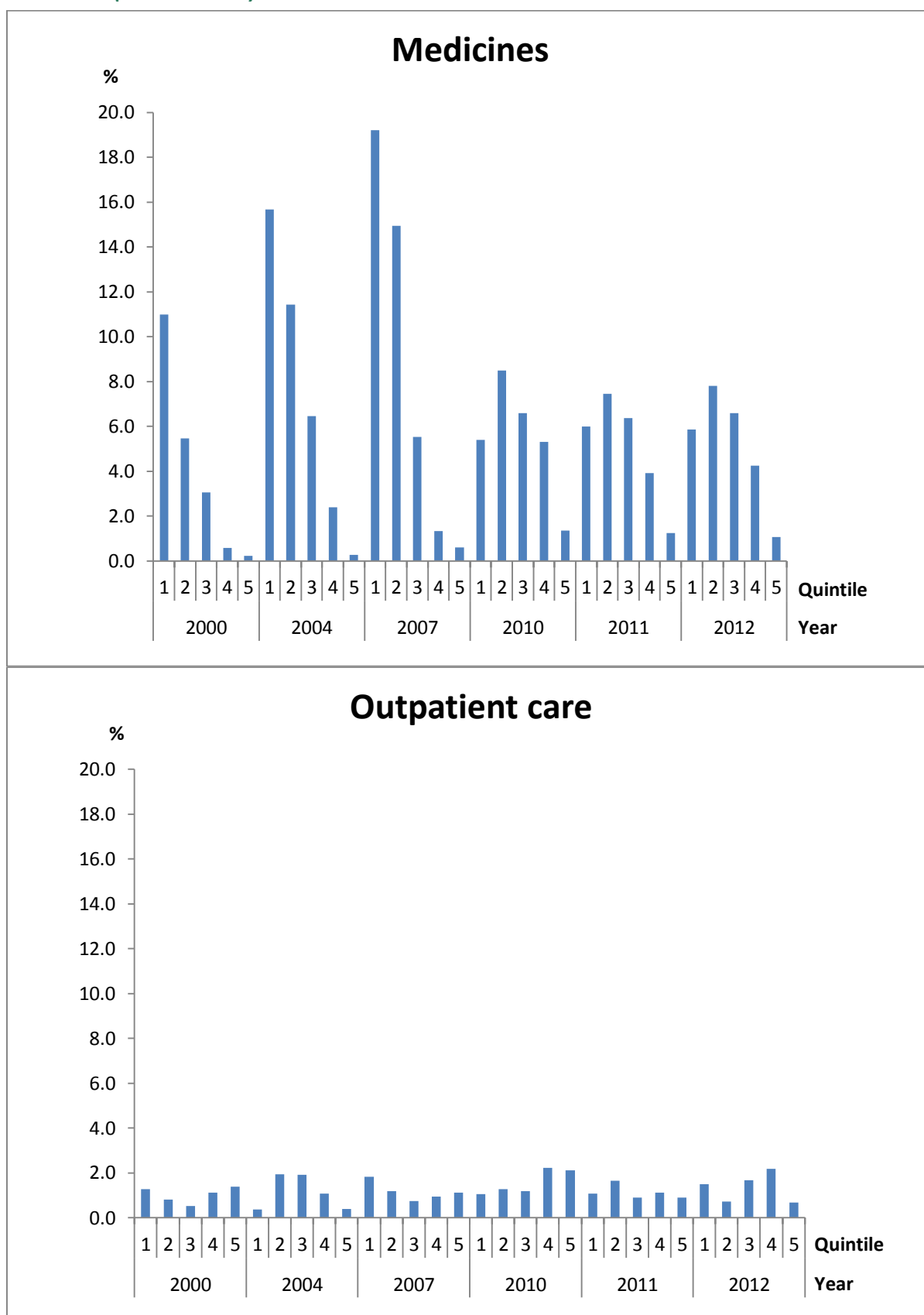
The declining share of people with high health spending on medicine is consistent with the trend related to the average co-payment per subscription, as derived from the EHIF data (Fig. 3.14). In 2012, however, about 30% of the population opted not to buy prescribed medicines (and this has been relatively stable over the years: 28% in 2009, 33% in 2010, and 31% in 2011).

While outpatient care did not have much impact on high health payments relative to their total expenditure, data on self-reported access barriers indicate that people from lower quintiles report that they encounter access barriers to dental care up to five times more often (Fig. 3.15). The main reason given for not having visited a dentist during the last 12 months is that dental care is too expensive. Surprisingly, the subjective barriers to dental health care were lower during the crisis years (2009–2010), and have increased since the crisis.

A similar pattern can be observed, both in terms of the time trend and differences between quintiles, in the case of barriers to other medical examinations (although the correlation between income quintile and access to care is less severe, especially during the crisis years) (Fig. 3.16). Co-payments are relatively small in the specialist care field, so the main reason that people cite as causing a barrier to access is long waiting times. This may also be interpreted as an economic problem, with several possible explanations. For example, people may not have enough money to visit doctors who have not contracted with the EHIF (which would bypass the waiting time), since all the cost for such doctors would need to be covered by the users directly. Another possibility is that they cannot afford to travel to see other health care providers in another part of Estonia, where waiting lists may be shorter.

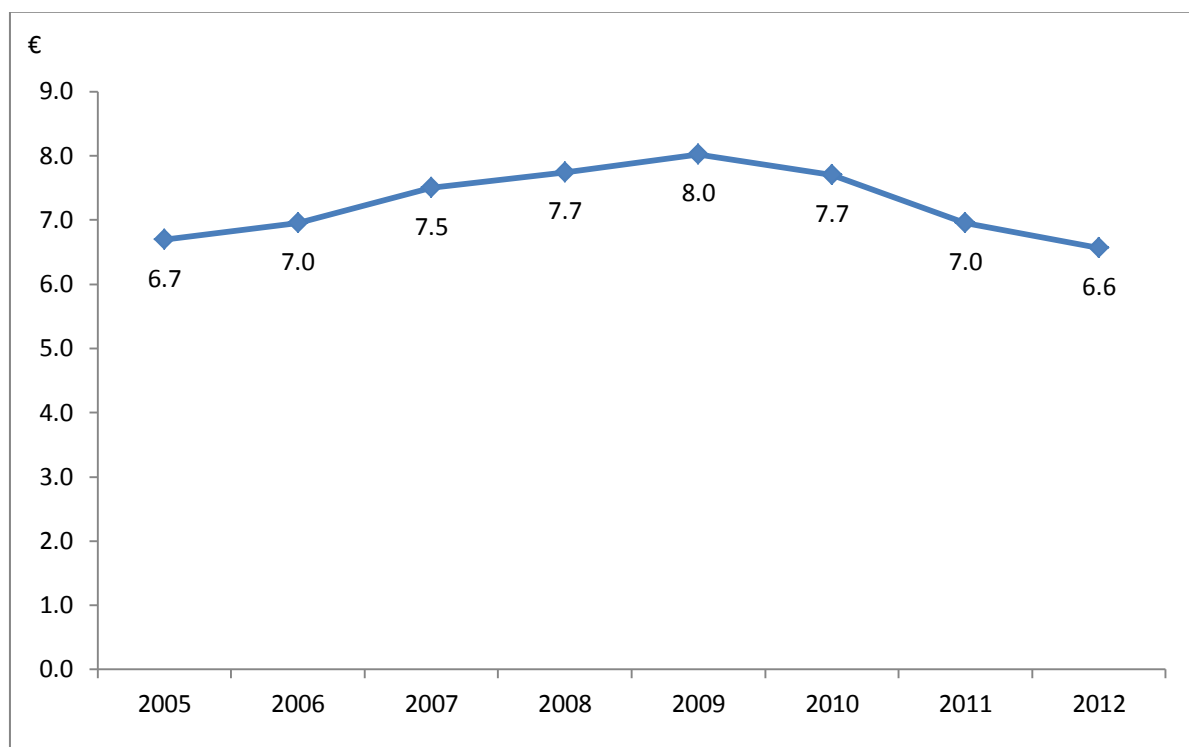
When considering socioeconomic groups, pensioners – both single individuals and couples – represent the highest proportion of households with high health expenditure relative to capacity to pay, at 27.4% over the period 2000–2007, and about 20% in 2010–2012. For all other household types the proportions are lower than average. Least affected are couples with children (Fig. 3.17).

FIG. 3.13. PERCENTAGE OF HOUSEHOLDS WITH HIGH (>20%) HEALTH PAYMENTS BY TYPE, QUINTILE AND YEAR, 2000–2012 (SELECTED YEARS)



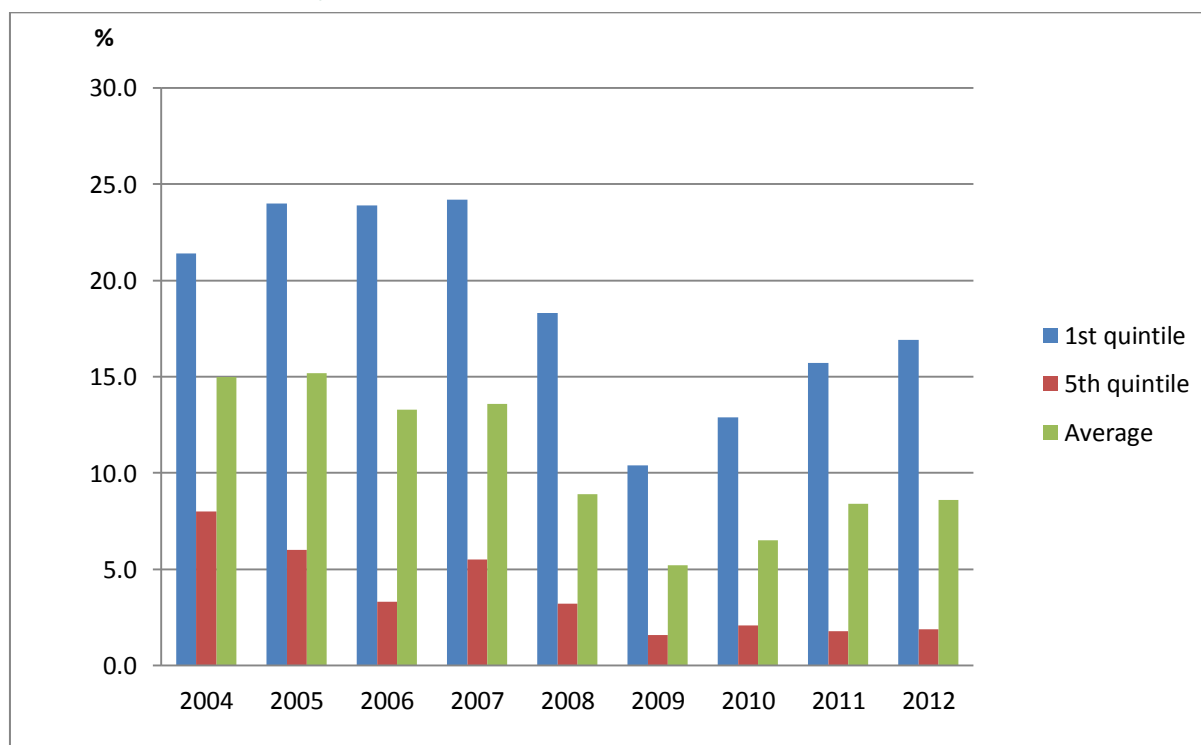
Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

FIG. 3.14. AVERAGE CO-PAYMENT OF INSURED INDIVIDUALS PER PRESCRIPTION, 2005–2012



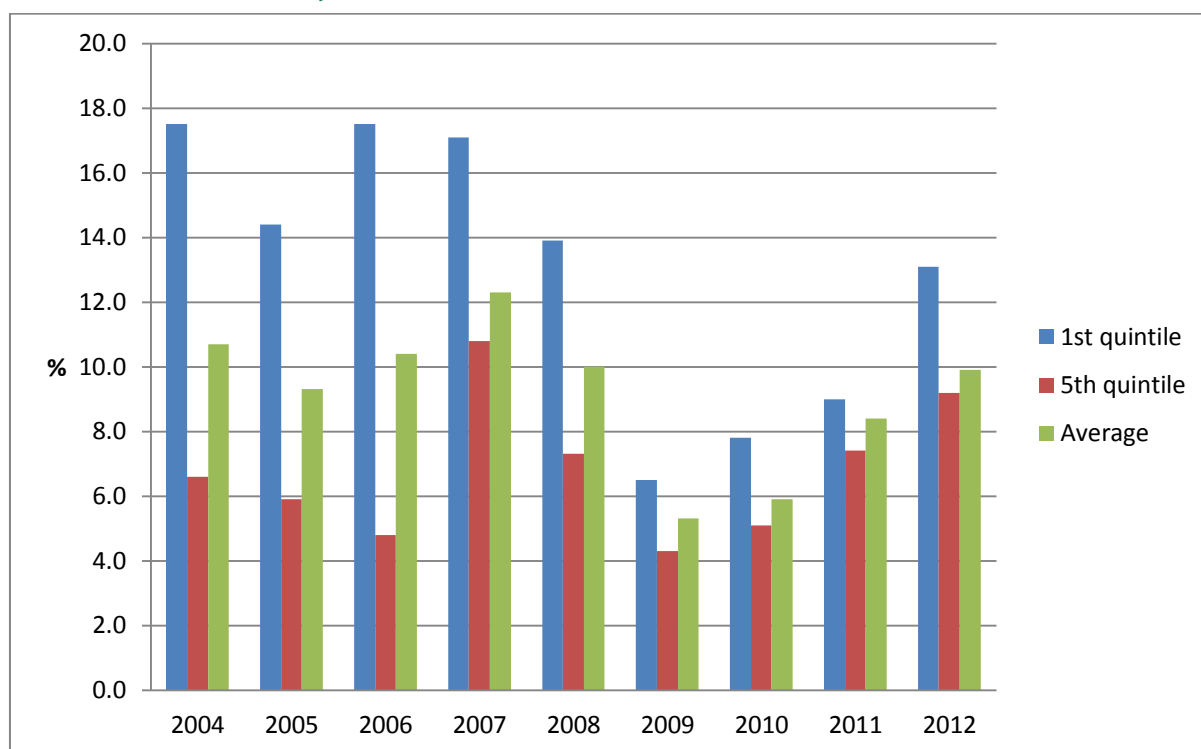
Source: EHIF, Estonian Ministry of Social Affairs & GfK Custom Research Baltic, 2013.

FIG. 3.15. PROPORTION OF PEOPLE WHO REPORT ACCESS BARRIERS TO DENTAL HEALTH CARE DURING THE LAST 12 MONTHS BY INCOME QUINTILE, 2004–2012



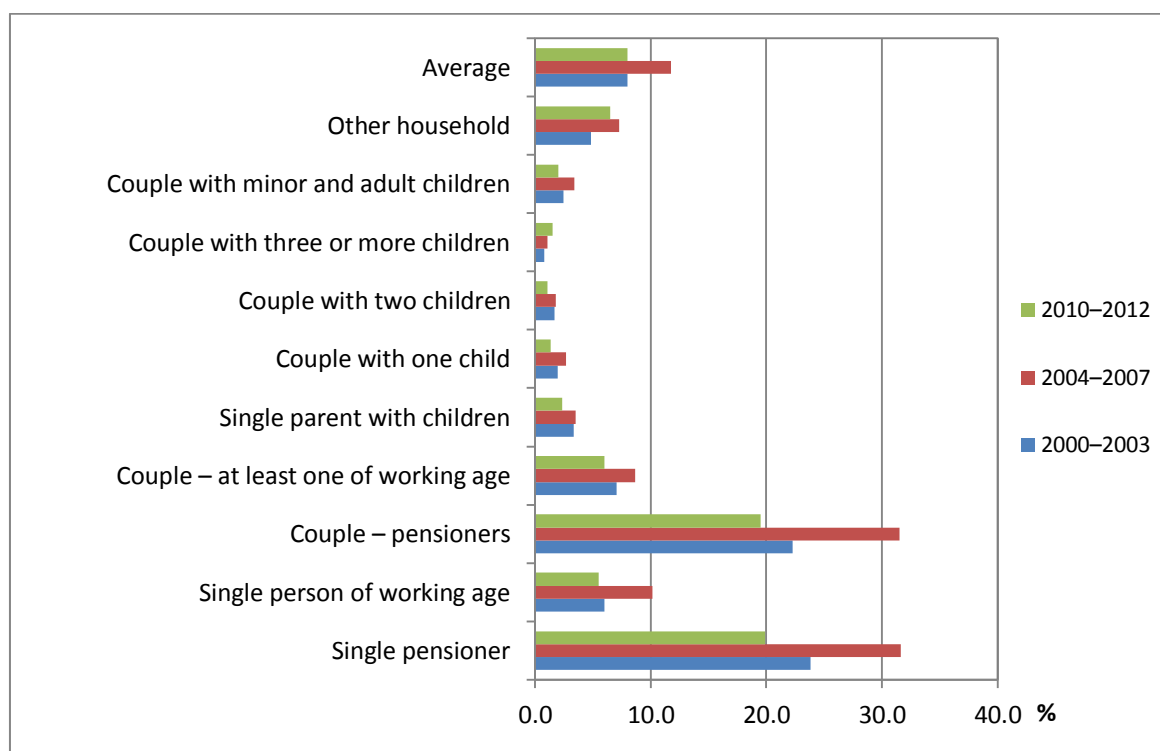
Source: Eurostat online database (European Commission, 2013) (Table “Self-reported unmet needs for dental examination by sex, age, detailed reason and income quintile (%)” [hlth_silc_09], accessed 13 December 2013).

FIG. 3.16. PROPORTION OF PEOPLE WHO REPORT ACCESS BARRIERS TO MEDICAL EXAMINATION DURING THE LAST 12 MONTHS BY INCOME QUINTILE, 2004–2012



Source: Eurostat online database (European Commission, 2013) (Table “Self-reported unmet needs for medical examination by sex, age, detailed reason and income quintile (%)” [hlth_silc_08], accessed 13 December 2013).

FIG. 3.17. PERCENTAGE OF HOUSEHOLDS WITH HIGH HEALTH PAYMENTS (> 20% OF CAPACITY TO PAY) BY TYPE, 2000–2012

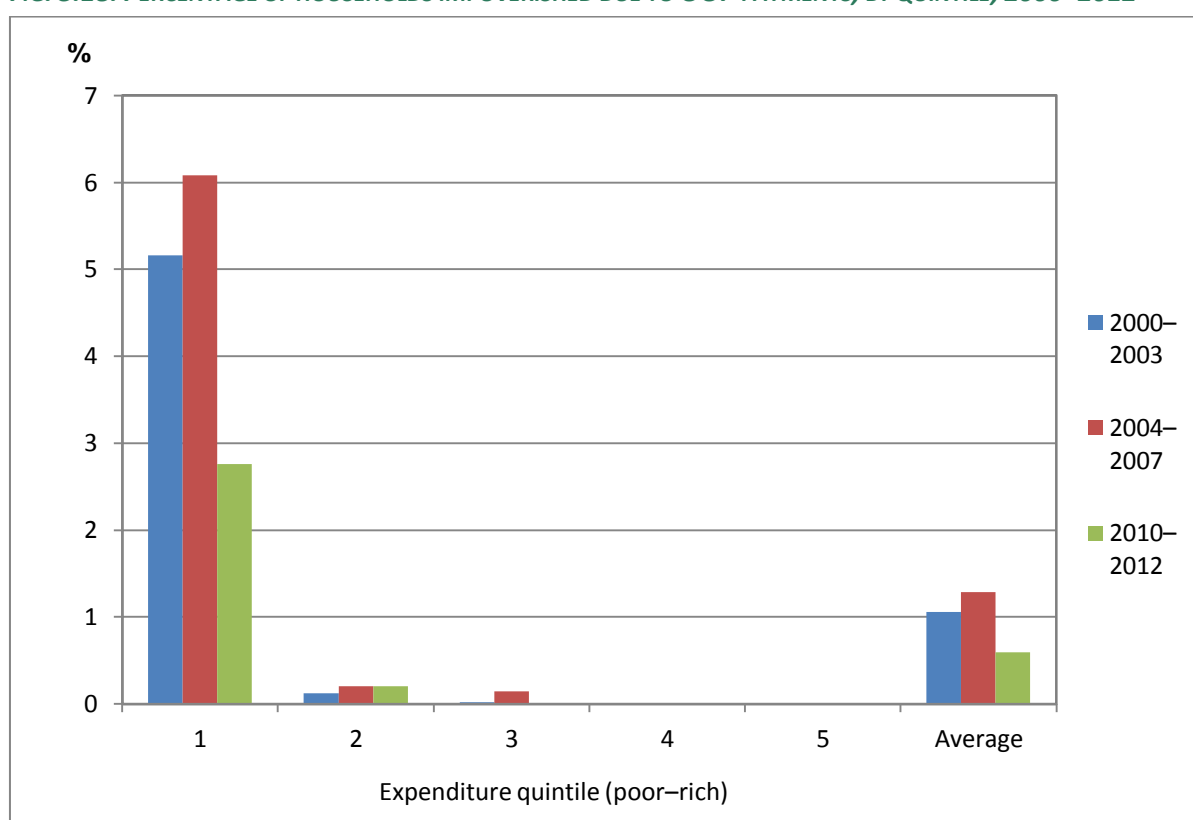


Source: Authors’ calculations using Statistics Estonia’s Estonian Household Budget Survey microdata.

Another way to analyse the impact of OOP payments on households is to directly quantify their effect on poverty rates, defined before and after OOP payments. As the impact of OOP payments on the poverty rate depends on income distribution (or in this case expenditure distribution), distribution of OOP payments and the position of the poverty line, this method is more useful for comparing the impact of OOP payments on different socioeconomic groups or following a trend.

OOP payments for health would be seen as increasing poverty rates by 0.3–0.8% in 2010–2012 if they were subtracted from household consumption expenditure (as if these payments constituted unavoidable expenditure). Hence, OOP payments increased the poverty rate in 2010–2012 considerably less than in 2000–2007 (0.8–1.8%). The effect occurred nearly exclusively in the bottom quintile, in which it was on average 2.8% in 2010–2012, again two times less than in 2000–2007 (5.6% on average). When using the official absolute poverty line, the OOP payments increased poverty by 2.2% in 2010–2012, which again is lower than in 2000–2007 (when the average was 3.0%) (Fig. 3.18).

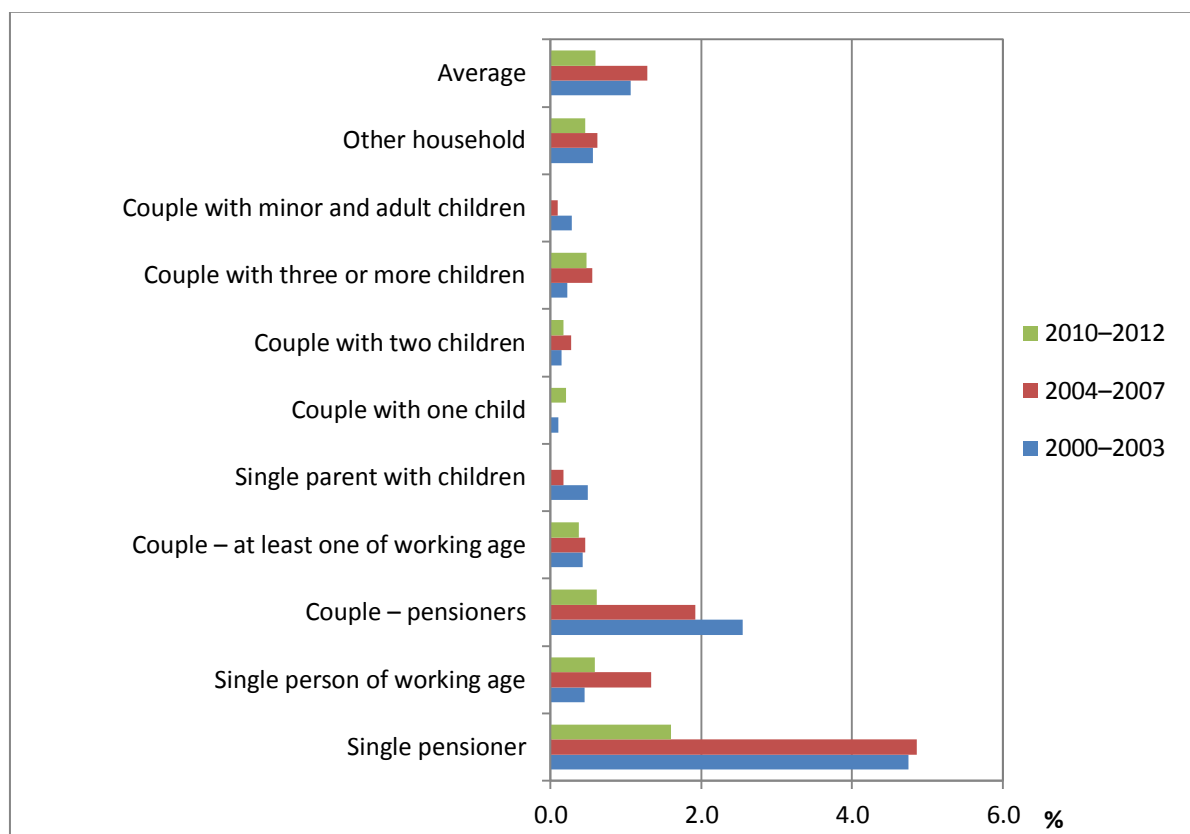
FIG. 3.18. PERCENTAGE OF HOUSEHOLDS IMPOVERISHED DUE TO OOP PAYMENTS, BY QUINTILE, 2000–2012



Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

Single pensioners are the most affected, but the effect on them has declined considerably. In 2000–2007 about 5% of single pensioners were pushed below the poverty line because of OOP payments, whereas in 2010–2012 this figure dropped to about 1%. Another household type to be most affected is single individuals of working age (0.9%) (Fig. 3.19).

FIG. 3.19. PERCENTAGE OF HOUSEHOLDS IMPOVERISHED DUE TO OOP PAYMENTS, BY TYPE, 2000–2012



Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

To summarize the main determinants of high health expenditure, a multivariate logistic regression model was used. The dependent variable is coded 1 if the household has high health expenditure (OOP payments > 20% of capacity to pay), and 0 otherwise. Odds ratios are given, together with significance levels. There are separate models for pooled data (Annex 2) and for each year (see Annex 3).

Logistic regression models show that high health expenditure relative to capacity to pay can be explained by determinants describing household material resources, measured by the quintiles of consumption expenditure, along with health status, which is measured with the indicator variable of the number of people with disability or chronic disease in the household.

First, a positive point to consider is that the risk of high health expenditure is not significantly affected by ethnicity (proxied by the main household language) and that risk is even lower in households with children. This suggests that children are protected from high health expenditure, and that there is no ethnic inequality.

The risk of high health expenditure is greater when there are senior members (aged 65 years or older), those with disabilities or chronic illnesses in the household. The risk of high expenditure on health was affected by quintile indicators monotonically in 2000–2007; that is, lower quintiles encountered higher risk. However, in 2010–2012 there was an inverse U-shaped relationship. The risk was highest in the second and third quintiles, but smallest in the first and the fifth quintiles. This latter feature suggests that the individuals in the first quintile no longer accessed services or bought goods.

4. Conclusions

Recent developments in OOP payments on health and health care utilization have been affected by households' economic situations and the health policy measures adopted during the recent economic downturn. Due to the economic crisis, starting in the second half of 2008, several policy measures were implemented in health insurance that directly affected OOP payments. Increasing unemployment and declining labour earnings put additional pressure on households' capacity to finance health care expenditure.

The general trend of increasing OOP expenditures – as a share of both household expenditure and total health care financing – peaked in 2006 and dropped thereafter. In 2010–2012, OOP payments as a proportion of total household consumption expenditure were at 3.5–3.7%. Although part of the reason for these new figures may be the result of the different methodology applied for the Estonian Household Budget Survey in 2010, other changes in Estonian social policy (relative increase of pensions) and drug policy (promotion of generic drugs) may have contributed to the decline. Nevertheless, analysis suggests that part of the reduction in OOP payments can be explained by a reduction in health care utilization, especially dental care.

Household budget data show that spending on drugs and on dental care continue to form the largest categories of OOP payments. Medicine costs as a proportion of OOP payments during the period 2010–2012 were around 55%; outpatient care comprised 30%; various other supplies 11%; and inpatient care 2–3%. Compared to the average for 2000–2007, the share of OOP payments for outpatient care has increased, and the share for supplies has decreased.

In relative terms, poorer households spend considerably more on drugs than richer households. Richer households spend relatively more on dental care. Households in the lowest, poorest quintile spent 70% of their OOP payments on medicines in 2010–2012 (in the period 2000–2007 this figure was even higher at 85–90%), about 7% on medical supplies (spectacles, dentures, vitamins) (5% in 2000–2007), and about 15–20% on outpatient care, mostly dental care (10–15% in 2000–2007). The richer the households, the more they spend on outpatient care and supplies, and relatively less on medicines as a share of the total expenditure.

Dental care as a share of total OOP payments declined slightly from 26% in 2000 to 22% in 2007 and remained similar in 2010–2012. There is a clear tendency of households with higher income to spend proportionally more on dental care: for the highest quintile it constituted about one third of their OOP payments, but for the lowest quintile it was around 15%.

All figures indicate that catastrophic payments peaked in 2006 and have dropped since then. In 2010–2012 the situation was similar to that a decade previously. By 2011, about 7.8% of all households incurred health expenditures of more than 20% of their capacity to pay and another 9.8% between 10–20% of capacity. This means that about 82% of households incurred health expenditures of lower than 10% of their capacity to pay. At the same time, in the period 2010–2012 the share of people who have not visited a doctor started to increase again.

Analysis shows that drug purchases are the main cause of high health expenditure; the share of other items is negligible. However, the effect of drug purchases on high health expenditure has begun to decline in recent years. This is consistent with the declining average co-payment per subscription, as derived from EHIF data. Nevertheless, about one third of patients do not purchase their subscription drugs, of which half due to economic reasons.

When considering socioeconomic groups, pensioners – both single individuals and couples – represent the highest proportion of households with high health expenditure relative to capacity to pay, at 20% in the period 2010–2012 (averaging 27.4% in 2000–2007). Econometric analysis confirms that the risk of high health expenditure is greater when there are senior members (aged 65 years or older) in the household, or those with disabilities or chronic illnesses.

The risk of relatively high expenditure on health is affected by household income: an inverse U-shape relationship existed in 2010–2012. The risk is highest in the second and third quintiles, but smallest in the first and the fifth quintiles.

The declining share of OOP payments in the first and second quintiles in 2012 – compared to 2007 – is partly due to changes in the household structure of the first two quintiles. The share of pensioners declined in the first quintile. As the relative income position of pensioners has improved, the level of OOP payments as a proportion of total household expenditure has become more similar across the different quintiles.

OOP payments for health increased poverty rates by 0.3–0.8% in 2010–2012 (0.8–1.8% in 2000–2007). The effect occurs nearly exclusively in the bottom quintile, in which it was on average 2.8% in 2010–2012 (again almost two times less than in 2000–2007). When using the official absolute poverty line, the OOP payments increased poverty by 2.2%, which again is lower than in 2000–2007 (when the average was 3.0%).

Data on self-reported access barriers indicate that people from lower quintiles report that they encounter access barriers to dental care up to five times more often. The main reason given for not having visited a dentist during the last 12 months is that dental care is too expensive. Surprisingly, the subjective barriers to dental health care were lower during the crisis years (2009–2010), and have increased since the crisis.

The analysis of income-related inequalities in health care financing and utilization continues to show that for those services that are more dependent on OOP payments, there were either more inequalities in utilization (clearly demonstrated in adult dental care), or there was more risk of being pushed into poverty (for example in the case of spending on prescription and OTC drugs by pensioners). Compared to previous studies (Vörk, Saluse & Habicht, 2009; Vörk et al., 2010), the analysis suggests that the impact of drug purchases on catastrophic expenditure has declined, which may be explained by both the changing behaviour towards cheaper drugs, and increasing pensions compared to drug prices. Regarding dental care, however, the picture is similar to that shown by earlier studies; namely, that high OOP payments cause low-income households to withdraw from the utilization of dental care services.

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Annex 1. Cost sharing by type of care, 2001–2002, 2009, 2013

	2001/2002	2009	2013
Primary care	Co-payment for visits (€0.32); retirees, the disabled and children are exempt	<ul style="list-style-type: none"> No co-payment for office visits Home visit fee (€3.2); children under 2 years old and pregnant women are exempt 	<ul style="list-style-type: none"> No co-payment for office visits Home visit fee (up to €5); children under 2 years old and pregnant women are exempt
Outpatient specialist care	<p>Outpatient* specialists (contracted by health insurance) In addition to co-payment under health insurance rules, some providers have additional fees</p> <p>Outpatient specialists (not contracted by health insurance) All patients charged according to provider-established price list</p>	Co-payment of up to €3.2; children under 2 years old and pregnant women are exempt	Co-payment of up to €5; children under 2 years old and pregnant women are exempt
Dental care	Partially covered by health insurance, but additional fees established and charged by private providers	<ul style="list-style-type: none"> No co-payment for children’s dental care covered by health insurance Adult dental care not covered by health insurance, except limited cash benefits for pregnant women and pensioners 	<ul style="list-style-type: none"> No co-payment for children’s dental care covered by health insurance Adult dental care not covered by health insurance, except limited cash benefits for pregnant women and pensioners
Inpatient care	<ul style="list-style-type: none"> No co-payment for hospital stays Co-payment established by providers for above-standard accommodation Co-insurance for specific services (e.g. in vitro fertilization (IVF), rehabilitation, voluntary termination of pregnancy) as set out by health insurance 	<ul style="list-style-type: none"> Co-payment of up to €1.6 per day, for up to 10 days per episode of illness; children, pregnant women and patients in intensive care units are exempt Co-payment established by providers for above-standard accommodation Co-insurance for specific services (e.g. inpatient rehabilitation in non-acute cases, voluntary termination of pregnancy) as set out by health insurance 	<ul style="list-style-type: none"> Co-payment of up to €2.5 per day, for up to 10 days per episode of illness; children, pregnant women and patients in intensive care units are exempt Co-payment established by providers for above-standard accommodation Co-insurance for specific services (e.g. inpatient rehabilitation in non-acute cases, voluntary termination of pregnancy) as set out by health insurance Co-insurance of 15% for nursing care

<p>Medicines (only outpatient prescription medicines as inpatient medicines are covered by health insurance)</p>	<ul style="list-style-type: none"> • Prescription medicines for chronic diseases (by condition and for certain population groups) require a co-payment of €1.30, plus 0% or 10% co-insurance • General prescription medicines require a co-payment of €3.20 per prescription, plus 50% co-insurance, when health insurance will not reimburse more than €12.00 per prescription 	<ul style="list-style-type: none"> • Prescription medicines for chronic diseases require a co-payment of €1.30 plus co-insurance for 0% or 25% of the drug price (or 10% for those aged 4–16, years, those receiving disability allowance or old age pensions, or those older than 63 years) • Prescription medicines for those younger than 4 years require a co-payment of €1.3 • General prescription medicines require a co-payment of €3.20 per prescription, plus co-insurance of at least 50% of the drug price, when health will not reimburse more than €12.0 per prescription • Annual spending on outpatient prescription medicines is eligible for additional reimbursements: 50% (on annual expenditure of €383–639); 75% (on €639–1278); no reimbursement above €1278 	<ul style="list-style-type: none"> • Prescription medicines for chronic diseases require a co-payment of €1.27 plus co-insurance for 0% or 25% of the drug price (or 10% for those aged 4–16 years, those receiving disability allowance or old age pensions, or those older than 63 years) • Prescription medicines for those younger than 4 years require a only co-payment of €1.17 • General prescription medicines require a co-payment of €3.19 per prescription, plus co-insurance of at least 50% of the drug price • Annual spending on outpatient prescription medicines is eligible for additional reimbursements: 50% (of annual expenditure of €384–640); 75% (€640–1300); none (above €1300)
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Source: Lai et al. 2013.

Annex 2. Pooled logistic regression models: determinants of high health expenditures

	Model 1	Model 2	Model 3
Quintile 2	0.825 ^c (0.047)	0.854 ^c (0.049)	0.893 ^a (0.052)
Quintile 3	0.644 ^c (0.040)	0.690 ^c (0.044)	0.741 ^c (0.047)
Quintile 4	0.470 ^c (0.033)	0.509 ^c (0.036)	0.555 ^c (0.040)
Quintile 5	0.330 ^c (0.029)	0.363 ^c (0.032)	0.401 ^c (0.037)
Urban	1.064 (0.052)	1.091 ^a (0.053)	1.140 ^c (0.056)
Minors in household (<16 years)	0.310 ^c (0.025)	0.316 ^c (0.026)	0.325 ^c (0.026)
Seniors in household (>65 years)	1.895 ^c (0.055)	1.861 ^c (0.055)	1.794 ^c (0.054)
Male head of household	0.604 ^c (0.027)	0.616 ^c (0.028)	0.627 ^c (0.029)
Main language is not Estonian	0.921 (0.049)	0.937 (0.050)	0.944 (0.050)
Member(s) of household with disabilities or chronic diseases	1.683 ^c (0.050)		
Member(s) of household with bad or very bad levels of self-assessed health		2.005 ^c (0.067)	1.968 ^c (0.066)
Household head's education – level 2			0.703 ^c (0.036)
Household head's education – level 3			0.723 ^c (0.047)
Year 2001	1.139 (0.103)	1.119 (0.102)	1.126 (0.103)
Year 2002	1.324 ^c (0.117)	1.322 ^c (0.118)	1.324 ^c (0.119)
Year 2003	1.519 ^c (0.154)	1.568 ^c (0.161)	1.595 ^c (0.164)
Year 2004	1.761 ^c (0.175)	1.861 ^c (0.186)	1.901 ^c (0.190)
Year 2005	1.482 ^c (0.146)	1.587 ^c (0.158)	1.631 ^c (0.163)
Year 2006	2.229 ^c (0.203)	2.461 ^c (0.226)	2.541 ^c (0.233)
Year 2007	1.801 ^c (0.174)	2.028 ^c (0.197)	2.091 ^c (0.204)

	Model 1	Model 2	Model 3
Year 2010	1.013 (0.106)	1.229 ^b (0.129)	1.254 ^b (0.132)
Year 2011	1.001 (0.107)	1.231 ^b (0.130)	1.266 ^b (0.134)
Year 2012	0.971 (0.098)	1.182 ^a (0.120)	1.229 ^b (0.125)
Constant	0.079 ^c (0.007)	0.074 ^c (0.007)	0.087 ^c (0.008)
Pseudo R²	0.146	0.152	0.155
Observations	45474	45474	45474

Notes. The dependent variable is 1 if health expenditures are more than 20% of the capacity to pay and 0 otherwise. Significance levels: ^a p<0.01, ^b p<0.05, ^c p<0.10. The pooled model does not take into account the influence of repeated households in different years on standard errors.

Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

Annex 3. Logistic regression models: determinants of high health expenditures, 2000–2012 (various years)

	2000	2001	2002	2003	2004	2005	2006	2007	2010	2011	2012
Quintile 2	0.561 ^c (0.096)	0.720 ^b (0.112)	0.718 ^b (0.109)	0.560 ^c (0.116)	0.755 (0.155)	0.791 (0.149)	0.572 ^c (0.094)	0.855 (0.153)	1.361 (0.295)	2.091 ^c (0.471)	1.291 (0.298)
Quintile 3	0.394 ^c (0.078)	0.376 ^c (0.068)	0.496 ^c (0.084)	0.418 ^c (0.095)	0.680 ^a (0.143)	0.616 ^b (0.138)	0.402 ^c (0.074)	0.460 ^c (0.098)	1.380 (0.310)	1.765 ^b (0.407)	1.653 ^b (0.368)
Quintile 4	0.322 ^c (0.074)	0.298 ^c (0.063)	0.291 ^c (0.066)	0.358 ^c (0.088)	0.625 ^b (0.149)	0.215 ^c (0.053)	0.272 ^c (0.055)	0.259 ^c (0.062)	1.462 (0.351)	1.320 (0.310)	1.260 (0.304)
Quintile 5	0.397 ^c (0.093)	0.257 ^c (0.066)	0.231 ^c (0.057)	0.294 ^c (0.085)	0.301 ^c (0.092)	0.240 ^c (0.069)	0.124 ^c (0.035)	0.306 ^c (0.092)	0.755 (0.259)	0.718 (0.209)	0.841 (0.246)
Urban	1.227 (0.181)	0.881 (0.122)	0.824 (0.110)	0.917 (0.158)	1.108 (0.194)	0.694 ^b (0.114)	1.091 (0.157)	1.417 ^b (0.229)	1.402 ^b (0.231)	1.458 ^b (0.258)	1.155 (0.194)
Minors in household (<16 years)	0.558 ^c (0.101)	0.343 ^c (0.073)	0.283 ^c (0.058)	0.318 ^c (0.089)	0.308 ^c (0.075)	0.268 ^c (0.075)	0.317 ^c (0.082)	0.344 ^c (0.109)	0.247 ^c (0.077)	0.210 ^c (0.069)	0.379 ^c (0.114)
Seniors in household (>65 years)	1.869 ^c (0.159)	1.833 ^c (0.141)	2.048 ^c (0.173)	1.811 ^c (0.192)	2.236 ^c (0.227)	1.909 ^c (0.191)	1.838 ^c (0.157)	1.874 ^c (0.178)	1.862 ^c (0.194)	1.612 ^c (0.172)	2.296 ^c (0.232)
Male head of household	0.570 ^c (0.079)	0.616 ^c (0.081)	0.618 ^c (0.080)	0.779 (0.125)	0.539 ^c (0.083)	0.538 ^c (0.083)	0.668 ^c (0.087)	0.654 ^c (0.097)	0.555 ^c (0.093)	0.641 ^c (0.103)	0.477 ^c (0.076)
Main language is not Estonian	0.645 ^c (0.106)	0.688 ^b (0.114)	0.774 (0.121)	0.826 (0.153)	0.995 (0.178)	1.244 (0.217)	0.996 (0.155)	1.124 (0.197)	0.866 (0.175)	0.961 (0.179)	0.969 (0.173)

	2000	2001	2002	2003	2004	2005	2006	2007	2010	2011	2012
Member(s) of household with disabilities or chronic diseases	1.784 ^c (0.154)	1.853 ^c (0.148)	1.722 ^c (0.134)	2.008 ^c (0.202)	1.703 ^c (0.172)	1.636 ^c (0.151)	1.771 ^c (0.153)	2.039 ^c (0.200)	1.450 ^c (0.165)	1.338 ^c (0.142)	1.465 ^c (0.154)
Constant	0.092 ^c (0.015)	0.130 ^c (0.020)	0.144 ^c (0.022)	0.139 ^c (0.028)	0.117 ^c (0.024)	0.173 ^c (0.034)	0.224 ^c (0.037)	0.101 ^c (0.020)	0.047 ^c (0.011)	0.043 ^c (0.010)	0.042 ^c (0.011)
Pseudo R²	0.118	0.154	0.170	0.160	0.164	0.174	0.183	0.182	0.106	0.100	0.132
Observations	6141	5916	5579	3303	3152	3522	3726	3359	3619	3583	3574

Notes. The dependent variable is 1 if health expenditures are more than 20% of the capacity to pay and 0 otherwise. Significance levels ^a p<0.01, ^b p<0.05, ^c p<0.10. The pooled model does not take into account the influence of repeated households in different years on standard errors.

Source: Authors' calculations using Statistics Estonia's Estonian Household Budget Survey microdata.

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