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**Private Expenditure on Healthcare,  
Income Distribution, and Poverty in Israel**

**Guy Navon\* and Dov Chernichovsky\*\***

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Bank of Israel, <http://www.boi.gov.il>

\* Research Department, Guy Navon: E-mail: [navong@gmail.com](mailto:navong@gmail.com)

\*\* Ben-Gurion University of the Negev, Health Systems Management Department,  
Dov Chernichovsky: E-mail: [dov@som.bgu.ac.il](mailto:dov@som.bgu.ac.il)

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חטיבת המחקר, בנק ישראל ת"ד 780 ירושלים 91007

Research Department, Bank of Israel, POB 780, 91007 Jerusalem, Israel

## **ההוצאה הפרטית לשירותי רפואה, התפלגות ההכנסות ועוני בישראל**

**גיא נבון ודב צ'רניחובסקי**

### **תקציר**

המחקר בודק את השפעת ההוצאה הפרטית לשירותי רפואה בישראל על התפלגות ההכנסות, עוני, והוצאה קטסטרופלית לשירותי רפואה. המחקר מאיר גם על תפקוד מערכת הבריאות – בהיבט של משקי הבית – באמצעות בחינה של הוצאה פרטית לטיפולים מקבילים לאלה שהם בזכאות ציבורית. כן דן המחקר בשינויים בהתפלגות ההוצאה הפרטית בתקופה 2003-2009 ובהשלכות המגמה על נושאי העבודה. ברקע המחקר העלייה בחלקו של המימון הפרטי של שירותי הרפואה בישראל לכדי 40 אחוזים מסך הוצאות המערכת. אחוז זה הוא הגבוה ביותר בקרב מדינות מפותחות המעניקות ביטוח בריאות אוניברסאלי. המחקר מתבסס בעיקר על סקר הוצאות משק הבית לשנת 2009 הכולל מדגם של 6,270 משקי בית אשר מייצגים 2.136 מיליוני משקי בית בכלל האוכלוסייה. כחמישית מהם מוגדרים עניים. המחקר הוא חדשני בכך שההוצאה הפרטית מחולקת למרכיבים לפי מידת אפיונם כהוצאה הכרחית לצורך בסיסי או כהוצאה דמוית מס שיש להתחשב בה בניתוח התפלגות ההכנסות. באשר לזו, הניתוח לוקח בחשבון כי, בניגוד למס, יש משקי בית המוותרים על טיפולים בשל משמעותם הכלכלית למשק הבית. כמעט כל משקי הבית בישראל, 93%, מדווחים על הוצאה פרטית על שירותי רפואה, 5.1 אחוזים מסך ההוצאה הממוצעת לתצרוכת של משקי הבית. ככלל, ההוצאה הפרטית לשירותי רפואה על מרכיביה השונים רגישה להכנסה ולא למאפיינים אחרים של משק הבית הקשורים לעוני בישראל כגון "חרדיות" או "ערביות". השתתפויות בתשלום (אשר בחלקן מותנו ב-2011), שהן בבחינת הוצאה הכרחית או דמוית מס, מדווחות על ידי 18 אחוזים ממשקי הבית. כעשירית ממשקי הבית מדווחים על הוצאה ישירה מהכיס פרטית על "מקבילים" – שירותים הכלולים בסל – וכ-4 אחוזים, כ-80 אלף בתי אב, מבטחים את עצמם באופן פרטי בגין שירותים כאלה. ההוצאה לטיפולים מקבילים גדלה יחסית להוצאות בריאות אחרות לפחות מאז 2003; מגמה זו מובלת על ידי קבוצות סוציו-אקונומיות גבוהות אשר נוטות לרכוש יותר ויותר שירותים הכלולים בסל מחוץ למערכת הציבורית. הנתונים מצביעים על עידוד ביקושים לטיפולים בסל אך במימון פרטי על ידי ספקי השירות. ההוצאה הפרטית על שירותי רפואה – במיוחד זו הנוגעת להשתתפויות ולהוצאה על משלימים – היא רגרסיבית. זאת למרות שקבוצות הכנסה חלשות נוטות לוותר על צריכת טיפולים אשר ניתן להגדיר הכרחיים. חישוב המפחית הוצאות אלה מהכנסות משקי הבית מגדיל את מספר משקי הבית העניים בישראל בכ-6,270, מהם כ-1,300 – בעיקר עם ילדים – בגין הוצאות פרטיות מהכיס על שירותים שהם בסל הציבורי. כ-68 אלף מהמשפחות בישראל נושאות ברמת הוצאה לשירותי רפואה העלולה לפגוע בחיננותו של משק הבית, לרבות פגיעה בבריאותו.

# **Private Expenditure on Healthcare, Income Distribution, and Poverty in Israel**

**Guy Navon and Dov Chernichovsky**

## **Abstract**

The study examines the impact of private expenditure on healthcare in Israel on income distribution, poverty, and catastrophic healthcare spending and discusses the functioning of the publicly supported system by studying private expenditure on entitled care. The study examines the trend in private spending during 2003–2009 for its implications on the various impact aspects. The context of the study is the high share of private funding of healthcare in Israel that reached about 40 percent of total healthcare expenditure in Israel in 2010, and is the highest among developed economies that provide universal healthcare coverage. The study is based mainly on the 2009 Household Expenditure Survey by Israel's Central Bureau of Statistics which includes a sample of 6,270 households, representing 2.136 million Israeli households, a fifth of which are classified as poor. The study is innovative in that it classifies into categories by their nearness to satisfying a basic need, to be included in the measurement of the poverty line, or by their nearness to a tax, to be included in the analysis of income distribution. Special attention is given to households which, unlike in the tax situation, forgo expenditure. Nearly all Israeli households, 93 percent, report private expenditure on medical care at 5.1 percent of average spending on consumption. The expenditure as a whole and by components is positively related to the level of income, and not to other common correlates of poverty in Israel such as being religious or Arab. Co-payments (partially mitigated since the end of 2011), which are considered closest to basic need or tax-like, are reported by about a fifth of total households. About a tenth of households report spending out of pocket on care that parallels care included in entitlement. Four percent of households, 80,000, insure privately for such care. The share of expenditure for parallel care in total private expenditure has been increasing with time. The trend is led by high education and high income groups that increasingly forgo publicly supported care. The data suggest supplier-induced demand for parallel care. Spending on co-payments and supplementary care, which is regarded as a need or tax-like but not included in entitlement, is regressive in spite of the evidence that low income households forgo such spending because of its economic implications. A calculation that subtracts these expenditures from the income of households increases the number of poor households by about 6,000 of which 1,300 households join the ranks of the poor because of private expenditure on entitled care. About 68,000 households incur spending that threatens the household's vitality, including its health.

## 1. Introduction

The National Health Insurance Law, enacted in 1995, grants every Israeli resident the right to a basket of healthcare services.<sup>1</sup> The basic objectives of the Law are twofold. First, reducing the connection between the ability to pay for medical treatment and access to treatment; and second, protecting household budgets from expenditures that could destabilize the household's consumption patterns to the extent of adversely affecting its functioning, its well-being, and even the family's health. In general, the Law is intended, among other things, to assist in breaking the vicious circle between poverty and inferior health, and in reducing consumption and health gaps in the population.

The share of public expenditure in the national expenditure on healthcare in Israel is currently the lowest among developed countries that provide universal health insurance. This share fell from 68.6 percent in 1996 to 60.1 percent in 2010. From 1995 to 2009, per capita public healthcare grew, in GDP prices, from NIS 3,700 to only NIS 4,000—most of the growth taking place since 2003. Private expenditure in these selfsame prices grew from NIS 1,600 to NIS 2,700 in the corresponding period. The trend indicates an average per capita annual increase of about NIS 11 in public expenditure, as against NIS 80 in private expenditure. These data are reflected in a rise in the proportion of private expenditure on healthcare in overall average household consumption from 4.1 percent in 1997 to 5.1 percent in 2010. The significance of this reality is not only numerical. It may represent a widespread conception that exempts the state from assisting in providing what could be defined as the population's basic needs, and from responsibility for narrowing social gaps.

Against the backdrop of these figures, and further to a previous study (Chernichovsky, 2007), the present study examines private expenditure on healthcare in Israel by means of the 2009 Household Expenditure Survey of the Central Bureau of Statistics (CBS), both from the aspect of income distribution and poverty in Israel, and from the aspect of expenditure that is regarded as catastrophic expenditure for the family. For the purpose of this examination, the study classifies private expenditure—using a pioneering approach—into components according to whether it is an essential expenditure worthy of being included in the definition

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<sup>1</sup> Healthcare services are defined in this study in the way that the Central Bureau of Statistics defines "health services." These include the Ministry of Health's services (including the government hospitals), those of the Health Maintenance Organizations, and the healthcare provided as part of the business sector (private hospitals, private visits to a doctor, dental care, tests, laboratory services, etc.). According to the Central Bureau of Statistics' accepted measure, this definition does not include healthcare provided in clinics and IDF bases. Also not included are nursing care services that are not regarded as complex care as part of the general healthcare services. For more details see Central Bureau of Statistics, 2008.

of the poverty line, or an expenditure nearer to a tax that should be considered in the definition of disposable income. Accordingly, the study identifies the contribution of different types of private expenditure with its different aspects – its effect on income distribution, poverty, and catastrophic healthcare spending. By the use of these means, the study also attests to the functioning of the public health system.

The study identifies the vulnerable households that are most exposed to falling into poverty and an increase in the depth of poverty, and to catastrophic spending—according to one type of spending or another. The study's findings are thus able to assist in shaping a corrective policy, one that would reduce or prevent the adverse effects of expenditure on healthcare in vulnerable populations.

The study is constructed as follows: Section 2 presents the issue of private expenditure on healthcare according to its components. Section 3 defines the characteristics of the households on which the research is based. Section 4 classifies private expenditure on healthcare into categories according to their nearness to expenditure that is worthy of being included in the definition of the poverty line. Based on these, expenditure in Israel is examined in terms of 2009 data. Sections 5, 6, and 7 deal with the effects of the different kinds of expenditure on income distribution, poverty, and catastrophic spending, respectively. Section 8 examines the trend of this spending since 2003. The conclusions of the study are presented in Section 9.

## **2. Private expenditure on healthcare**

Private expenditure on healthcare is perceived as representing failures and imperfections in the free market of health insurance and healthcare which, in addition to inefficiency, are also correlated with inequality, especially in light of the mutual connection between poor health and poverty (Arrow, 1963). At the same time, it is accepted that private expenditure is also a reflection of individual-democratic free choice of consumption that should not be of concern to the public.

It is thus accepted that only certain components of private healthcare expenditure—but not all—which adversely affect income distribution and contribute to the incidence of poverty, are "in the public interest". Even countries that have national health insurance, such as Germany, Japan and Australia, not to mention the United States, which does not have insurance of this kind, recognize various healthcare expenditures for the purpose of tax credits, health insurance and frail care being salient examples. In these cases—according to

the principles underlying this discussion—the state increases the family's disposable income in order to enable expenditure on healthcare. In this respect the state reduces the probability that inequality in income distribution will increase because of this expense, as well as the probability that the family will fall into poverty (Gottlieb & Fruman, 2011; Gottlieb & Manor, 2005). In these cases the state actually views "deductible" expenses for healthcare as a type of substitute for financing by means of taxation. The Market Based Measure (MBM) in Canada, and the National Research Council (NRC) measure in the United States incorporate part of private healthcare expenditure in the definition of the poverty line.<sup>2</sup> This implies that these countries view these expenditures as an essential need that the state should assist in providing. In this general context, and as a recommendation of appropriate policy, in this chapter we examine and define private expenditure on healthcare in Israel on the basis of the definition of the relevant income and the definition of the relative poverty line.

#### **a. The components of private expenditure**

Despite the public significance of private expenditure on healthcare, research dealing with private expenditure on healthcare usually ignores the composition and the distribution of the expenditure components and their size in the population. In general, the discussion views this expenditure as a homogeneous expenditure, despite the public interest in only part of it.

The discussion in this study sorts private expenditure into components, according to the nearness of each of them to an expense that we can assume is relatively easy to reach public consensus about regarding its definition as an expense for a basic need that is worthy of being included in the measure of poverty, or, alternatively, as a tax-like expense that should be included in the definition of disposable income. The two approaches are similar to some extent, at least from the taxation aspect, in that the measure of the poverty line affects public assistance of some kind, and the measure of disposable income is also a result of tax policy that is connected to poverty and income distribution. An exemption or a tax credit for a certain healthcare expense is a reflection of this idea. A similar approach can be seen, in this context, in exemptions from co-payments granted in Israel to those entitled.<sup>3</sup>

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<sup>2</sup> On the definition of the poverty line see Appendix 1.

<sup>3</sup> Guaranteed minimum income recipients are exempt from payments for child development treatments, and enjoy a 50 percent discount on the cost of prescription medicines; chronic illness sufferers and Holocaust survivors are also entitled to a 50 percent discount in the co-payments on prescription medicines. Chronic illness sufferers also enjoy a ceiling on co-payments for medicines. Elderly people above age 75 are entitled to a discount of 10 percent on the price of medicines. People with severe illnesses are exempt from most of the co-payments for medicines in the entitlement connected to their illness.

The basic approach that we adopt for examining private expenditure on healthcare rests on two foundations: (a) On a "public" as opposed to a private conception regarding the nature and the necessity of the expenditure; and (b) On its nearness to the essential minimum as defined objectively-technocratically by an expert. The two are connected, because around the technocratic definition of need it is easy to create social consensus for its public subsidy, or to transform the private expenditure on the need into a deductible expense in which the public has an interest.<sup>4</sup> Beyond employing this approach which, ultimately, is also normative, we empirically examine the validity of the classification.

Accordingly, we classify private healthcare expenditures into four main categories:

- a. **Co-payments** imposed on the household for exercising a public right or entitlement. These expenditures head the list of need for the purpose of defining the poverty line, because they meet the basic conditions of our approach, in that they are expenditures that are not dictated by the individual, but rather by the physician—the technocrat. These are expenditures from which weak groups are usually exempt, as indicated above.
- b. Expenditures on services and products that **supplement** the public basket of services, because the public has an interest in them, such as expenditures on dentistry, which for budgetary and other considerations are not included in the public entitlement. These are expenditures for which a tendency exists to recognize them or the insurance expenditures in relation to them, for the purpose of tax credit.
- c. Expenditures on services and products that are **parallel** to those that are eligible for full or partial public financing. The approach to these expenditures in this discussion is objective and stringent, that is to say, does not represent the citizen's subjective approach. The problem is liable to be acute when the citizen feels that the public service is bad, and he thus chooses a private service, which from his viewpoint is unavoidable. The problem is even more serious when the choice is based on the recommendation of the publicly financed service provider, who refers a patient for private treatment, a widespread occurrence in Israel.
- d. Expenditures on **consumption** services and products that the public has absolutely no interest in subsidizing.

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<sup>4</sup> A minimum of this kind can be considered in the relevant consumption distribution in the population.

The above approach expands that of Xu et al. (2003, 2007), as well as that of Wagstaff & Van Doorslar (2003), who maintain that in order to estimate the contribution of private expenditure on healthcare to the incidence of poverty, this has to be an essential expenditure that finances a relatively fixed basic need.

### **b. Voluntary insurance**

In general, in all categories except for co-payments, which by definition are not insurable, the public preference is for purchase by means of insurance and not by direct out-of-pocket (OOP) expenditure, because insurance is ultimately more egalitarian than direct expenditure when it includes the weaker population groups.<sup>5</sup> The general conception is that insurance protects the household's income and increases its access to service (Phelps, 2009). This idea underlies the health maintenance organizations' (HMOs) supplementary insurance arrangements in Israel: they are based on cross-subsidy between policy holders, and HMOs have to accept anyone, without a period of qualification or underwriting.

In this context the classification and definition of the various private insurance options are important. Israel has three types of health insurance: (a) Supplementary group insurance ("additional health services"), which the four HMOs offer; (b) Commercial insurance by the insurance companies, which in most cases requires a health declaration and a private underwriting process; and (c) Group dental insurance—usually in large workplaces.

In this discussion, commercial insurance is considered as expenditure insurance on parallel services and on consumption, because of the legal prohibition against double insurance. As opposed to this, the supplementary insurance that the HMOs offer is considered as a mixed product: in part it insures expenditure on supplementary care, and in part also expenditure on parallel care and on consumption. We therefore divided the premium paid for supplementary insurance into the different expenditure categories according to the cost of the financial claims in practice as reported by the HMO's (Appendix 2). This division is possible in the supplementary insurance by the HMOs because of their being collective insurance policies, and it is therefore not necessary to know which services each individual consumed in practice, but rather only the total expenditure and its aggregate distribution. The claims for surgical operations and the choice of surgeon were divided equally between the parallel and the supplementary categories. With regard to dental insurance, this was defined as insurance for supplementary care. In the wake of this division, we redefined two types of insurance for

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<sup>5</sup> For details, see Chernichovsky (2012).



the purpose of the discussion: "insurance for supplementary care", which is a type of substitute for public insurance, and "insurance for parallel care and for consumption", which are of no public concern.

Taking into account the social approach to insurance, private expenditure on healthcare was therefore divided into six areas, which are detailed below in descending order according to their nearness to need/necessity comparable to tax:

- Co-payments;
- Expenditure on supplementary care insurance;
- OOP expenditure for supplementary care;
- Expenditure on parallel care and consumption insurance;
- OOP expenditure on parallel care;
- OOP expenditure on consumption.

### **3. Households**

The data in this study are taken from the 2009 Household Expenditure Survey by the Central Bureau of Statistics (CBS). The survey encompasses 6,270 households, representing 2.136 million households in the overall population, excluding collective localities and Bedouins living outside recognized settlements. A household is defined in the survey as a group of people living most days of the year in the same apartment, and that has a joint expenditure budget for food.

#### **a. The relevant income**

Income data and compulsory payments are based on Income Survey data (the Integrated Income Survey). The income variable, or the household's budget, in this study is its disposable income from all sources—total gross current monetary income as well as non-monetary income, which is obtained by imputing housing and vehicle services owned by the household, and by deducting compulsory payments. The compulsory payments include direct taxes imposed on current monetary income—income tax and National Insurance Institute payments, including those for financing national health insurance.

This definition of household income is different from that of the National Insurance Institute for calculating poverty, which includes financial consideration from work, from capital, and from governmental and private support—after deducting compulsory payments.<sup>6</sup>

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<sup>6</sup> The data on income from capital is partial and not particularly reliable.

Income in kind—imputing income for residence in a self-owned apartment and for the provision of products by the government (for example, in the areas of education and health) and for various benefits and discounts—are not included in the National Insurance Institute's calculation.<sup>7</sup> The definition is consistent with the requirement that in calculating the expenditure on healthcare in the context of income distribution and poverty, the sources of the household's budget will be fixed sources (Xu et al., 2003, 2007; Wagstaff & Van Doorslar, 2003).

### **b. Poverty and income distribution**

About 20.5 percent of the households surveyed were poor in 2009 according to the accepted definition of relative poverty in Israel. Table 3.1 presents descriptive statistics of the survey according to household characteristics, and according to overall net income quintiles. The table shows a clear positive correlation between the household's needs, measured by the standardized number of people, and its low position in the income quintiles. Beyond the greater needs, households in the lower quintiles are characterized by fewer possibilities for creating income—small number of breadwinners and low educational level of the head of the household. Note that the relatively poor households are no more elderly than the relatively wealthy ones.

The discussion focuses on population groups according to their chances of being poor in terms of the definitions and the Poverty and Social Gaps Report published each year by the National Insurance Institute. These groups include Arabs and the ultra-Orthodox, and divide households into three groups according to the number of breadwinners (absence of a breadwinner of working age, a single breadwinner, and two or more breadwinners). A household is defined as ultra-Orthodox if at least one person studies in a *kollel* (yeshiva for married men).<sup>8</sup> In addition we considered two groups whose demand for healthcare is particularly high—households with adults aged 65 and older, and those with children up to age 4.

The data in Table 3.1 match the findings regarding the incidence of poverty in several populations at risk for falling into poverty (the National Insurance Institute, 2010):<sup>9</sup> Ultra-Orthodox and Arabs, households without working people, households with children, and

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<sup>7</sup> Disregarding this income in the official definition creates a bias in the measurement and affects the size and composition of the poor population.

<sup>8</sup> For details of the method, see Gotlieb & Kushnir, 2009.

<sup>9</sup> See Appendix 1.

households in which at least one spouse is aged 65 or older. We will therefore refer specifically to these populations later in the study.

**Table 3.1: Household Characteristics by Income Quintiles, Israel 2009**

Variable	Lowest Quintile	Fourth Quintile	Third Quintile	Second Quintile	Upper Quintile	Population Average
Disposable income (NIS 000s)	5.7	9.1	12.9	17.7	29.1	14.9
Number of standard individuals	3.2	2.8	2.7	2.6	2.4	2.7
Age of head of household (years)	45.8	48.8	50.0	51.3	52.6	49.7
Female head of household (percent)	40.0	44.0	49.0	46.0	45.0	45.0
Years of education of household head	11.7	12.1	12.9	13.7	15.4	13.2
Household with people aged 65+ (percent)	9.0	12.0	12.0	13.0	9.0	11.0
Household with children aged 0-18 (percent)	39.0	28.0	20.0	18.0	13.0	24.0
Ultra-Orthodox household (percent)	10.0	6.0	3.0	1.0	1.0	4.0
Arab household (percent)	38.0	20.0	8.0	3.0	1.0	14.0
Number of breadwinners	0.7	1.1	1.4	1.6	1.6	1.3

**Comment:** The division into income quintiles was done according to the household's disposable income from all sources, corrected to the number of standard individuals.

**Source:** 2009 Household Expenditure Survey, Central Bureau of Statistics and authors' compilations.

#### 4. Private expenditure on healthcare in Israel

Nearly all households, 93 percent, reported private expenditure on healthcare. The average expenditure for the survey period stood at NIS 646 per month, which is 5.1 percent of household consumption expenditure. This expenditure, as indicated above, does not include households' private expenditure on nursing care. The distribution of the private expenditure on healthcare by categories and items as defined above is presented in Table 4.1 and Figure 4.1.

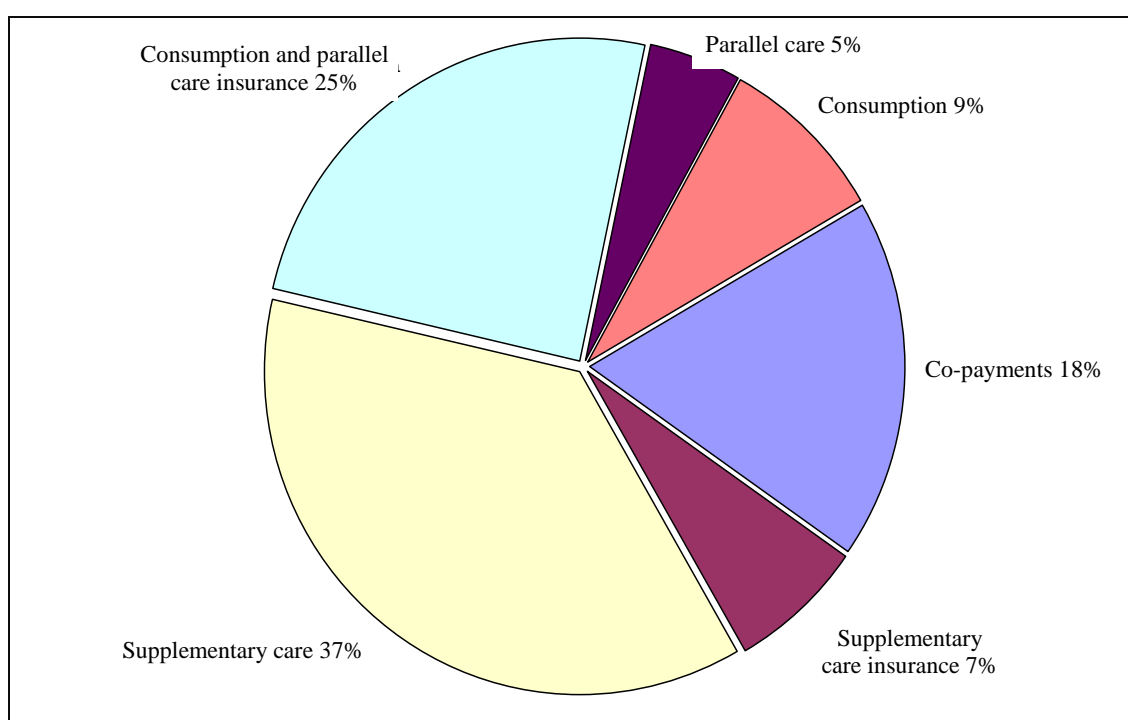
##### a. Expenditure distribution by components

**Co-payments** constitute 18 percent of overall private expenditure. Note in this context that since the survey on which this discussion is based, co-payments were abolished in 2011 for well-baby care, and were reduced for some of the weak population and for expensive prescription medicines. Co-payment expenditures for purchasing prescription medicines is the most significant expenditure item, both with respect to the percentage of households reporting (35 percent) and with respect to the amount of the average expenditure reported (NIS 289). 80 percent of households report **supplementary insurance**, with an average

outlay of NIS 56. The expenditure is not equal for the different insurance items, because of the different composition of the insurance plans, including those that belong to supplementary insurance. Therefore, even though the various types of insurance are based on the same number of households, the structure of the expenditure is different because of the different internal allocation of the insurance expenditure among households.

Regarding the relative size of the item and the number of households reporting on it, the largest expenditure item is **OOP supplementary care**. This item, which constitutes 37 percent of expenditure, includes expenditures on dental care for which insurance options are relatively limited (Chernichovsky & Navon, 2010). Even though the surgical operations included in the parallel care item reflect a particularly high expenditure, these encompass only one percent of the population. In general, the above three items, which are a kind of tax substitute or a basis for necessity, as defined above, affect from 44 to 80 percent of households in Israel.

**Figure 4.1: The distribution of private expenditure on healthcare by category, Israel 2009**



**Table 4.1: Monthly Private Expenditure on Healthcare by Category  
and Expenditure Item, 2009**

Category	Item in Household Expenditure Survey	Reporting Households' Average Monthly Expenditure in NIS	Percentage of Households Reporting	Average Monthly Expenditure of All Households in NIS
1. Co-payments	Child development treatment	349	1	4
	Prescription medicines	289	35	100
	Well-baby care	92	1	1
	Specialist physician at HMO	90	3	3
	Laboratory tests and medical equipment	68	11	8
	Total for category	265	44	117
2. Insurance for supplementary care	Operations and choice of surgeon	69	80	55
	Dentistry	20	80	16
	Operations and professional opinions abroad	2	80	1
	Total for category	56	80	45
3. Supplementary care	Dentistry	620	26	161
	Repairing vision (spectacles, etc.)	389	11	43
	Psychological or psychiatric treatment	347	2	8
	Medical aids	247	2	4
	Non-prescription medicines	170	14	24
	Total for category	551	44	240
4. Insurance for parallel care and consumption	Commercial private insurance	255	32	81
	Operations and choice of surgeon	69	80	55
	Consultation (second opinion)	25	80	20
	Medicines and inoculations	20	80	16
	Pregnancy and birth	16	80	13
	Child services	5	80	4
	Total for category	196	82	161
5. Parallel care	Operations	1,557	1	17
	Private doctor	175	6	11
	Private nurse, ambulance and emergency room	116	2	3
	Total for category	345	9	31
6. Consumption	Psychological or psychiatric treatment	347	2	8
	Alternative medicine	273	5	15
	Non-prescription preparations	174	5	9
	Contact lenses, spectacles, and sunglasses	158	8	12
	Female hygiene	64	17	11
	Total for category	180	30	54
Healthcare		695	93	646

**Note:** The premium for supplementary insurance from the HMOs (Section 3611 in the survey) was divided among supplementary care (36 percent) and parallel care (64 percent). Similarly, the expenditure for psychological and psychiatric treatment (Section 363077 in the survey) was divided evenly among consumption services and supplementary services.

**Source:** The Central Bureau of Statistics, 2009 Household Expenditure Survey.

## b. Multivariable analysis

In order to examine the effect of the household's characteristics on the size of private healthcare expenditure, in general and by its components, we estimated the equation:

$$(1) \quad y_{i,j} = \alpha_j + \beta x_{i,j} + \gamma z_j + \varepsilon_{i,j}$$

Where  $y_{ij}$  is the monetary expenditure (in shekels) of a household  $i$  on an expenditure category  $j$  for healthcare, and  $x_{ij}$  is a vector of variables characterizing the household and that explain the expenditure. This vector includes the (logarithm) disposable income of the household, the head of the household's education in years of study, the number of people in the household, a dummy variable for a household that has adults aged 65+, a dummy variable for a household with children aged 0-4, the number of breadwinners, a dummy variable for an Arab household, and a dummy variable for an ultra-Orthodox household.  $z_{ij}$  is a vector that includes six dummy variables of districts for the purpose of general statistical control of the supply of services that is not dependent on the household's characteristics. The Tel Aviv district was defined as the base group. In order to deal with possible biases, all the equations were examined by the Tobit method and the seemingly unrelated regression method (Zellner, 1962).<sup>10</sup>

Dealing with expenditure on insurance is a challenge for estimating the effect on private expenditure. On the one hand, insurance is affected by the state of health and socioeconomic variables; on the other, insurance affects the consumption of healthcare and the expenditure on it, in addition to the effect of these variables. In order to examine the specific effect of the insurance, we estimated the effect of the socioeconomic variables on the purchase of insurance using the Tobit method, following which we introduced a dummy variable with the value "1" for holding insurance, and "0" if not. The aim of this is to control

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<sup>10</sup> Estimating Equation (1) by the least squares method could result in bias, because the explained variable is truncated. This problem is known in the literature as censoring. The reason for the bias is that households could spend some positive sum of money, or not spend at all, in which case the distribution of the residuals in the regression is not normal. Thus, for example, while the percentage of households that reported some private expenditure on healthcare in 2009 stood at 93 percent, the percentage of households that laid out a positive expenditure on parallel services stood at only 9 percent, and on co-payments—40 percent. Estimating the equations for each expenditure area separately could also cause a bias of variance of the coefficients, and, therefore, inefficient estimators. This is because the expenditure on healthcare in one area could be coordinated with expenditure in another expenditure area, from which it follows that the random disturbance in the regression on one expenditure area could be coordinated with the random disturbance in other expenditure areas. The correlation of the residuals is generally a result of the household's unobserved characteristics. These could be socio-demographic characteristics of the household (for example, access to healthcare), or other economic characteristics connected to the household's distribution of expenditure. For this purpose we allowed a correlation in residuals. This problem is, of course, not relevant for estimating the equations of the overall expenditure on healthcare without division into different areas.

the effect of the insurance on the expenditure. The results of the statistical estimation are detailed in Table 4.2.

**Insurance.** Columns 1 and 2 show the results of the estimation of the expenditure equations on voluntary insurance. The effect of income on insurance expenditure is, as expected, positive, high and significant, particularly the effect on insurance for parallel care and for consumption. This finding, in conjunction with the finding of the negative effect of household size, implies that per capita household income has a positive effect on insurance expenditure. In other words, the insurance could exacerbate societal gaps by providing better access to treatment and better protection of income for affluent groups. Note in this context that without insurance the situation could well be worse, at least from the point of view of incomes in the intermediate groups. Bear in mind, however, that insurance is inferior to progressive public financing that was replaced by private insurance in Israel (Chernichovsky, 2011a).

Likewise, educated and relatively older people, as well as the ultra-Orthodox, have a greater tendency to insure themselves. The significance of the findings is that insurance is rational: those purchasing it are those with a relatively greater demand or need (the elderly), those who know how to exploit it (educated people), and those who are relatively better able to exploit it (ultra-Orthodox). At the same time, Arab women do not have a measured effect on the purchase of insurance, other things being equal. This may reflect a cultural issue, as well as relatively less potential to exploit the insurance. The positive effect of the number of breadwinners on the level of insurance is consistent with the possibility that the various insurance options are more available at workplaces.

The effect of residential location on the level of insurance is unclear. The effect is positive in the center—with its plethora of services—and negative in the northern peripheral areas. These are reasonable effects, taking into account the probability of actualizing the insurance. There is, however, a negative effect on the level of insurance relative to Tel Aviv in an area with an abundance of services, such as Jerusalem. Possibly this estimate is connected to the positive influence already estimated with regard to the ultra-Orthodox.

**Direct out-of-pocket expenditure.** Columns 3-6 present the estimation results of the OOP private expenditure equation. As mentioned above, we added an explanatory dummy variable for households that have insurance for a specific expenditure. As expected, we found in all the estimates that income has a significant positive effect on OOP expenditure on healthcare. At the same time, the elasticity of the expenditure relative to income is not

uniform; it is relatively low for expenditure on co-payments, and particularly high for expenditure on parallel services. These results support the above classification of the components of private expenditure. As indicated, we defined an essential expense as one that the public is interested in and that is the minimum necessary, or one that is determined objectively. In both cases we expect the expenditure elasticity to be relatively low. We see from the estimation results that the lowest elasticity of expenditure relative to disposable income is indeed found in expenditure on co-payments (0.67), followed by insurance expenditure on supplementary care (0.74).<sup>11</sup>

The holding of insurance raises the OOP expenditure in all the relevant categories. It is however possible that without insurance, expenditures would be greater, so it cannot be concluded from the finding that insurance is irrational. At the same time, there is evidence here of a certain failure in the insurance market and possible supplier-induced demand. Insurance is liable to serve as a base for leveraging private OOP expenditure.

As expected, the presence of small children and elderly people in the home, as well as the number of household members in general—a reflection of need—has a positive effect on co-payment expenditure, other things being equal. A similar explanation can be given for the negative effect of the number of breadwinners on co-payment expenditure. It can be assumed that—controlling for the effect of income—a large number of breadwinners indicates a higher level of health and fewer medical needs.

Educational level has a positive effect on OOP expenditure for all items, except for co-payments. Particularly salient is the finding that educated people spend more on parallel care and supplementary care, other things being equal. That is to say, people with better judgment, ostensibly at least, make more private use of available medical services that are not publicly financed.

The ultra-Orthodox, who insure themselves more, spend less OOP. This fact is compatible with the rationality of insurance in this group, and also with the possibility that, for reasons that are unclear (taking into account that income is controlled in the equation), the group is relatively less exposed to supplier-induced demand. Interestingly, when all other

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<sup>11</sup> Expenditure elasticity relative to income does not in itself attest to the essential nature of the expenditure, at least from a public perspective. Thus for example, many services defined as consumption services have a low expenditure elasticity relative to income, because they are not expensive or "significant" even at low income levels. Examples include mouthwash and toothbrushes, expenditure on which is expected to be similar at all income levels, but which, from the viewpoint of an interest in public financing we would not define them as an essential expense. And indeed, the expenditure elasticity on consumption is less than that of parallel care and even supplementary care. See Chernichovsky (2012).



factors are constant, "Arabness" has no particular effect on private expenditure on healthcare. In other words, the effects for this group are socio-economic and not ethnic.

Regarding the effect of place of residence on OOP expenditure, in general the effect is negative in other areas relative to the Tel Aviv area. This finding supports the hypothesis that the availability of services—particularly parallel services—encourages spending on them, when all other things—including income—are equal.

**Table 4.2: Estimation output—Private Expenditure on Healthcare According to Categories as a Dependent Variable  
Tobit Model with Zellner Method Correction (columns 1-6)**

Dependent Variable	Insurance Expenditure		Direct Out-Of-Pocket Expenditure				Total Expenditure
	Supplem-entary	Parallel	Co-payments	Supplem-entary	Parallel	Con-sumption	
	(1)	(2)	(3)	(4)	(5)	(6)	
Insurance for supplementary care				1.29** (0.22)			0.10 (0.14)
Insurance for parallel care					1.57* (0.68)	1.86** (0.28)	2.66** (0.15)
Number of individuals	-0.04* (-0.02)	-0.10** (-0.02)	0.14** (0.05)	0.36** (0.05)	0.00 (0.14)	0.05 (0.06)	0.12** (0.01)
Children aged 0-4	-0.00 (-0.07)	0.05 (0.08)	0.50** (0.19)	-0.07 (-0.21)	1.91** (0.53)	0.19 (0.22)	-0.17** (-0.06)
Elderly 65+	0.76** (0.07)	0.89** (0.08)	2.41** (0.19)	0.40 (0.22)	1.50** (0.55)	-1.49** (-0.25)	0.73** (0.06)
Log of disposable income	0.74** (0.04)	1.10** (0.04)	0.67** (0.12)	1.46** (0.15)	2.22** (0.39)	1.14** (0.16)	0.50** (0.03)
Number of breadwinners	0.21** (0.03)	0.23** (0.04)	-0.40** (-0.10)	-0.16 (-0.11)	-0.46 (-0.28)	0.27* (0.12)	-0.01 (-0.03)
Years of education of household head	0.07** (0.01)	0.09** (0.01)	-0.03 (-0.02)	0.14** (0.02)	0.11* (0.05)	0.21** (0.02)	0.01** (0.01)
Arab	-0.04 (-0.20)	-0.08 (-0.23)	0.19 (0.58)	1.39* (0.61)	1.92 (1.65)	-1.26 (-0.85)	-0.04 (-0.17)
Ultra-Orthodox	0.39** (0.14)	0.32* (0.16)	-0.47 (-0.40)	-0.95* (-0.44)	-2.44* (-1.17)	-0.91 (-0.47)	-0.26* (-0.12)
Jerusalem district	-0.81** (-0.09)	-0.86** (-0.11)	0.72** (0.27)	0.65* (0.30)	-0.20 (-0.73)	-0.17 (-0.33)	0.02 (0.08)
Northern district	-0.36** (-0.09)	-0.40** (-0.10)	-0.13 (-0.25)	0.53 (0.28)	-2.06** (-0.73)	-1.18** (-0.32)	0.03 (0.07)
Haifa district	-0.13 (-0.09)	-0.18 (-0.10)	-0.19 (-0.25)	-0.38 (-0.28)	-2.53** (-0.71)	-0.59* (-0.30)	-0.16* (-0.07)
Central district	0.22** (0.07)	0.29** (0.08)	0.48* (0.21)	-0.41 (-0.23)	-1.33* (-0.55)	-0.22 (-0.25)	-0.02 (-0.06)
Southern district	-0.00 (-0.09)	-0.01 (-0.10)	0.63* (0.25)	0.31 (0.28)	-1.88** (-0.71)	0.11 (0.30)	0.04 (0.07)
Judea and Samaria district	0.09 (0.15)	0.24 (0.17)	0.29 (0.42)	-0.60 (0.46)	-4.28** (-1.36)	-0.94 (-0.49)	-0.17 (-0.13)
The constant	-5.31** (-0.33)	-7.82** (-0.38)	-6.79** (-1.06)	-17.65** (-1.25)	-34.21** (-3.47)	-17.28** (-1.34)	-2.13** (-0.27)
Number of observations	6,270	6,270	6,270	6,270	6,270	6,270	6,270
Pseudo R <sup>2</sup>	0.0521	0.0630	0.0139	0.0219	0.0212	0.0373	0.112

**Comments:** The dependent variable in all the estimations is the log of private expenditure. Standard deviation in parentheses. The data are weighted according to the weights of the households in the population.

\* Significant at the 5 percent level; \*\* Significant at the 1 percent level.

### **c. Conclusions**

Income has a positive effect on all items of essential expenditure, as well as expenditure on insurance and OOP payment for parallel care. The relatively high expenditure of high-income earners, and especially those with a high level of education, on supplementary treatments and especially on parallel treatments, both by means of insurance and directly OOP, support the hypothesis that the public system is not functioning well from their perspective. Furthermore, these groups "invite" supplier-induced demand. Alternatively, it is reasonable to assume that the findings reinforce a reality in which separate medical systems already exist—for those who are able to pay and for those who are not.

Voluntary insurance, which is also conditional on income level, is liable to increase the inequality in the system, particularly in view of the fact that it also raises OOP expenditure. In general, the findings reflect a possible failure of the insurance market that increases spending, when income is held constant, and does not provide protection for weaker groups.

Those people who need more services—households with children and elderly people—spend more than others on co-payments and on parallel services when income is held constant. This finding is consistent with the hypothesis of a failure in the private insurance market in the sense that those who most need it, for services that are also included in the entitlement, lack access to insurance. This finding as well attests to defects in the public system.

The particularly great and significantly positive effect of parallel insurance on overall health expenditure is consistent with the hypothesis that insurance for parallel services is used by service providers from the public system as a lever for private supplier-induced demand.

It was also found that place of residence has a significant effect on expenditure. OOP expenditure on parallel services is particularly high—when income is held constant—in the Tel Aviv and Jerusalem districts, and low in the northern and southern peripheries. This finding could attest to the lack of availability of public health system resources in the periphery, or to accessibility barriers (language or distance). This finding is in line with the gaps in availability of services to the detriment of the periphery in Israel (Chernichovsky, 2011b).

## 5. Income distribution and private expenditure on healthcare

Private expenditure on various kinds of healthcare by income quintiles is detailed in Table 5.1. In line with the previous findings, the upper quintile spends 3 times more than the lower:  $(0.99 \times 1,051) = \text{NIS } 1,040$ , as against  $(0.84 \times 409) = \text{NIS } 344$ . Nonetheless, overall private expenditure on healthcare is regressive: the poorer households spend a higher percentage of their disposable income on health services, 6.03 percent in the bottom quintile as opposed to 3.57 percent in the upper quintile.

Co-payments and OOP expenditure on supplementary care, mainly dentistry, contribute largely to the situation, since the above averages are obtained despite the fact that expenditure on parallel care and on consumption, as well as insurance for supplementary care, is progressive: high income earners spend a higher percentage of their income on these items than low income earners (Table 5.1).

The expenditure variance (even corrected to the mean) for co-payments of all households is a result of variance in the spenders' level of expenditure, and not from variance of the participation in the expenditure. The result indicates that the way poor people deal with the co-payments could be more in the form of partial fulfillment of the co-payments (prescriptions).<sup>12</sup>

The opposite situation prevails with insurance—as defined here. The variance in expenditure (also corrected to the mean) of all households arises, relatively, from the variance in participation in expenditure, and not from variance in the expenditure of the payers. About sixty percent of households in the lowest quintile report expenditure on the holding of insurance, as opposed to almost total insurance coverage in the upper quintile. In other words, households in the lowest quintiles choose, relatively, not to insure themselves in light of the significance of the insurance expenditure for their needs. This is despite the group premium in supplementary insurance, and despite the possible severe implications of an absence of insurance when treatment is required.

In general, the source of the variance in OOP expenditure for parallel services and consumption lies in the relatively high variance both in participation and in the participants' expenditure.

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<sup>12</sup> For details see Chernichovsky (2012).

**Table 5.1: Distribution of Private Expenditure on Healthcare According to Expenditure Groups and Income Quintiles**

Income Quintile	Insurance		Out-Of-Pocket Expenditure				Total Healthcare
	Supple- mentary	Parallel & Consump-tion	Co-payments	Supple- mentary	Parallel	Consump- tion	
	[1]	[2]	[3]	[4]	[5]	[6]	
Average Expenditure of Reporting Households (NIS per month)							
1 - Lower	43	90	203	428	169	95	409
2	51	131	223	441	366	119	486
3	56	169	272	513	296	140	631
4	59	217	303	655	306	196	834
5	65	312	317	639	469	265	1,051
Average	56	196	265	551	345	180	695
<u>Variance</u> Average	1.24	37.43	9.24	20.86	34.70	25.81	98.85
Percentage of Households Reporting on Expenditure							
1	57	59	43.0	36	6	18	84
2	71	73	43.7	36	6	22	89
3	86	88	42.8	43	9	30	95
4	92	94	44.2	48	11	36	98
5	95	97	47.0	55	14	42	99
Average	80	82	44	44	9	30	93
<u>Variance</u> Average	3.17	3.09	0.07	1.51	1.30	3.23	0.44
Percentage of Average Expenditure of All Households from Disposable Income							
1	0.93%	0.42%	1.53%	2.68%	0.18%	0.30%	6.03%
2	1.05%	0.40%	1.07%	1.71%	0.23%	0.28%	4.74%
3	1.16%	0.37%	0.90%	1.71%	0.20%	0.33%	4.67%
4	1.15%	0.30%	0.76%	1.79%	0.19%	0.40%	4.59%
5	1.04%	0.21%	0.51%	1.21%	0.22%	0.38%	3.57%
Average	1.08%	0.30%	0.78%	1.61%	0.21%	0.36%	4.34%
Expenditure ratio between the upper and lower quintile	5.72	2.58	1.70	2.29	6.50	6.53	3.02

**Source:** Central Bureau of Statistics, 2009 Household Expenditure Survey

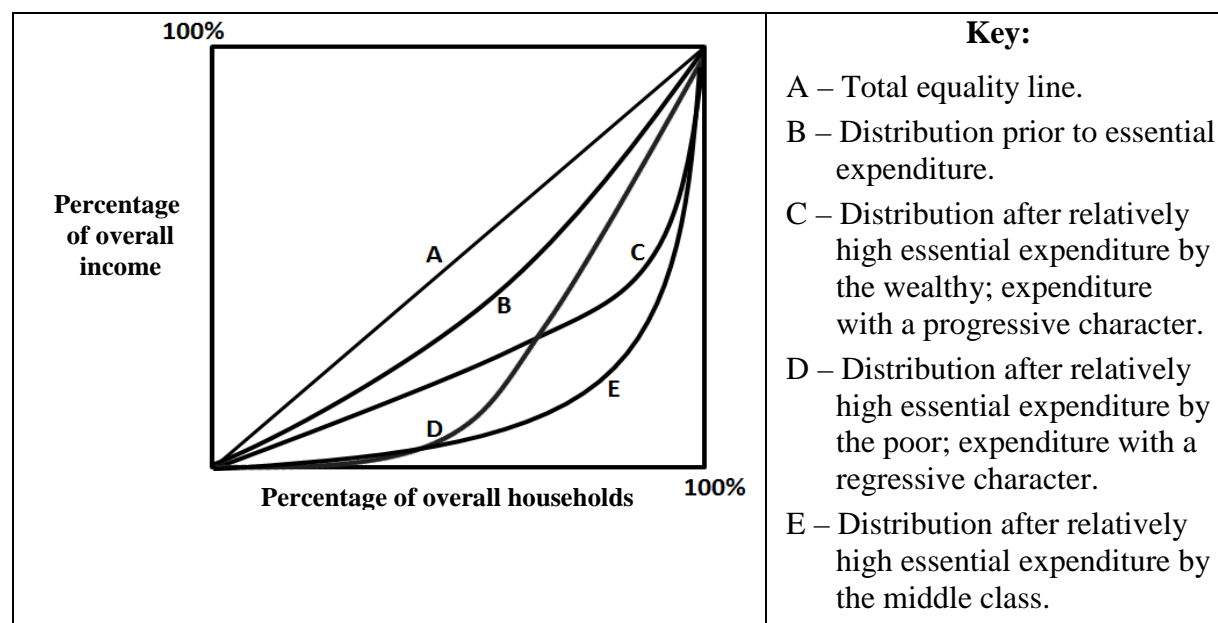
#### **a. The effect on the distribution of disposable income**

The effect of the different types of private expenditure on the distribution of disposable income—after tax-like health expenditure—is examined more precisely by means of the effect of the expenditure on the "Lorenz curve", which examines inequality in the after-tax disposable income distribution, including transfers and subsidies (Figure 5.1).

Curve B presents the effect of the general tax system, which in essence is progressive, or the disposable income distribution prior to essential or tax-like expenditure on healthcare. Regressive expenditure, such as the overall expenditure on healthcare presented in Table 5.1,

will be reflected in curves of the E, D, C type, each of which has a different significance in terms of our discussion.

**Figure 5.1: Changes in the Lorenz curves in the wake of tax-like expenditure**



Initially it should be said that that this discussion is somewhat problematic on the issue of tax-like essential expenditure, because the private expenditure, even if considered essential from an objective-technocratic perspective, such as co-payments, is not obligatory in the way tax is. That is to say, low income earners and income earners in general could decide not to incur the expenditure as a whole, or to spend only a small part of their disposable income on some kind of medical treatment. In other words, we will observe a progressive effect of expenditure on medical treatment (on expenditure prior to expenditure on service) in that low income earners forgo the treatment.

We are therefore likely to observe expenditure with a regressive effect (relative to B), whose burden is greater on relatively poor families (curve D), and expenditure whose relative burden is greater on relatively wealthy families (curve C). That is to say, in given health situations, the effect of expenditure reflected in direction C relative to D implies that poor families forgo expenditure on treatment to a greater extent.<sup>13</sup> Accordingly, we can observe an effect that is reflected in curve E where the "expenditure burden" is relatively greater on the middle class, since both the relatively poor and the relatively rich spend low percentages on

<sup>13</sup> This approach contains a strong basic assumption that treatment costs are not dependent on income level.

essentials, relative to this class, but with a likelihood of adversely affecting the health levels of the poor.

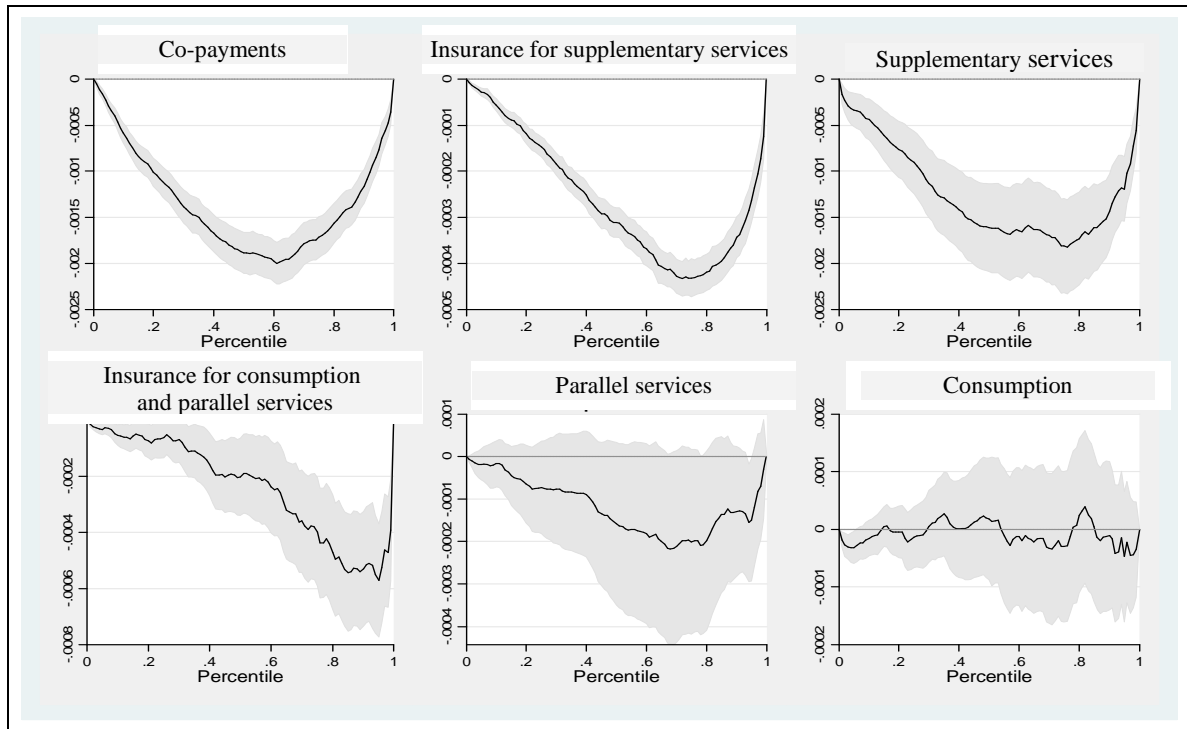
Based on this approach, we measured the Lorenz curve of households' disposable income (B) and the Lorenz curve that is obtained as a result of reducing—tax-like—the private expenditure on healthcare in the various categories. That is to say, we examined the vertical difference between curve B and the curve (one of the curves C, D, or E) that is obtained after the tax-like expenditure.<sup>14</sup> The differences are presented in Figures 5.2 and 5.3. The picture of the results regarding the effect of OOP expenditure on co-payments and on supplementary care—both in insurance and in OOP expenditure, the "inverse bells" (a result of vertical reduction of B from every other curve) have a very slight tendency in favor of wealthy groups. These are consistent with curves C and E in Figure 5.1, which implies that both relatively high and relatively low income earners spend lower percentages of their income on these items. In other words, low income groups forgo the purchase of relatively essential services, with the likelihood of an adverse affect on their health. In this context the deflection of the curve relating to insurance for supplementary care in favor of high income earners is particularly significant. This finding forcefully reflects the fact that weak groups forgo insurance and all that this implies regarding non-access to the service and the exposure of their income to unanticipated expenditure for healthcare.

Against this, consumption that is of no public concern behaves in a relative manner to the distribution of disposable income (curve B in Figure 5.1). OOP expenditure on parallel care also has a similar tendency, relatively, as can also be seen in the gray area around the curve, which indicates the high variance of the deviations of this expenditure relative to disposable income. Parallel and consumption insurance have a clear tendency in the shape of curve C (Figure 5.1). The situation is summarized according to the major groups in Figure 5.3. A progressive expenditure tendency is present in all the items, especially those connected to consumption and parallel care. Low income earners also forgo expenditure on essential issues, including co-payments.

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<sup>14</sup> Because in Israel there was a replacement of the relative share of public by private in overall financing in an almost one-to-one ratio, relative to GDP, it is easy to claim that the private replaced the public, and had it not done so, the Lorenz curve would today also be like B in Figure 5.1 (Chernichovsky, 2012b). It is important to emphasize that the study does not examine the correct or effective way to increase taxes and public expenditure in order to reach or return to the original situation. The calculation does not include imputing the income of the value of the services that the individual receives from public financing in the original situation.

**Figure 5.2: The change in "disposable income" resulting from expenditure on healthcare, by expenditure group**



## b. Conclusions

Overall private expenditure on healthcare is progressive in view of its relatively high sensitivity to income. However, the expenditure that is of public concern, that which is tax-like, which concerns co-payments and supplementary payments—both for insurance and for OOP expenditure—which clearly replaced public financing in the past decade, is regressive.

In general, from the regressiveness aspect or the burden on disposable income, the intermediate group bears a relatively greater expenditure burden for the three expenditure categories that are of public concern. In other words, the higher income quintiles spend a lower percentage of their disposable income on these categories, including expenditure on co-payments, while the lower income quintiles also spend a low percentage, but this is because they forgo consumption and access to treatment, even that which requires co-payments, among other things by forgoing insurance, even for supplementary care. From the perspective of its effect on health, the implication of the findings is even more severe if we assume that poor people need medical care more than wealthy people do.

The findings in this analysis of the data also support the claim made above that private insurance in Israel is liable to reinforce inequality by giving greater access and greater

protection on consumption to higher income earners. In other words, the advantages of insurance, even for supplementary care, which replaced public financing, are enjoyed by the higher income groups.

## **6. Private expenditure on healthcare and the incidence of poverty**

The view that part of private expenditure on healthcare is an essential, tax-like expenditure for financing a basic need affects, first, the incidence of poverty—the number of households whose income per standard individual is below the poverty line; and second, the depth of poverty (of poor people)—the average distance of poor families' disposable income from the income that defines the poverty line, divided by the disposable income (Sen, 1992, 1997; Foster, Greer & Thotbecke, 1984). We consider the level of these two in the original situation and the change in relation to it as a result of relevant expenditure on healthcare. We estimate below the connection between household characteristics and the number and rate of households falling into poverty as a result of private expenditure of one kind or another on healthcare, and finally—the conditional probabilities of falling into poverty as a result of these characteristics in the context of the different expenses.

### **a. The poverty line**

Underlying the definition of the poverty line—according to the absolute poverty approach—is the perception that in order to supply basic needs, objectively defined as far as possible, a household should have at its disposal a minimum income per standard individual in terms of consumption. Yet, according to the approach that leads to a relative definition of poverty, the form of supplying these needs—for example the daily quota of calories per standard individual—is not detached from the society's accepted form of supplying them. This form is connected to the standard of living and even to culture. Even the definition of basic need is changing. The result is a definition of relative poverty in financial terms, as is accepted in Israel. From the perspective of the household's overall disposable income, because the line is defined for a standard individual, each household has its own poverty line, according to its demographic structure (Cowell, 2000).

In this study we use the poverty line according to the accepted definition of relative poverty in Israel (Appendix 1). A household in Israel is considered poor if its disposable monetary income per standard individual (in consumption terms) is less than half the external disposable monetary income. According to the definition of disposable income in this study,



the poverty line in 2009 stood at NIS 1,890 per standard individual, higher than the poverty line defined by the National Insurance Institute of NIS 1,741 (National Insurance Institute, 2010, p. 15, Table 2). The gap, NIS 298 on average per household, reflects non-monetary income that is obtained by imputing household services and a vehicle owned by the household.

### **b. Measuring the effect of private expenditure on poverty and its depth**

The change in the incidence and depth of poverty as a result of tax-like essential expenditure can be presented by means of Figure 6.1. The curve L reflects the situation following a "deductible" expense that lowers the disposable income for the purpose of calculating the poverty line.<sup>15</sup>

Taking into account the accepted relative method of estimating poverty in Israel, a change in disposable income also necessitates a change in the household's poverty line wherever it changes relative to the median disposable income. Therefore, in order to calculate the effect of the healthcare expenditure on poverty and its depth, we defined the poverty line separately for each household according to the disposable income per standard individual and the expenditure item in question. The calculation was done in two stages: in the first we calculated the disposable income less the family poverty line in the original situation—prior to the essential expenditure on healthcare; in the second we calculated the disposable income after deducting the relevant expenditure on healthcare (the tax), and we corrected the new poverty line, which is the new median disposable income. Thus the household's disposable income changes, as well as the poverty line, which is relative. We therefore obtain a new poverty line, as demonstrated in Figure 6.1.

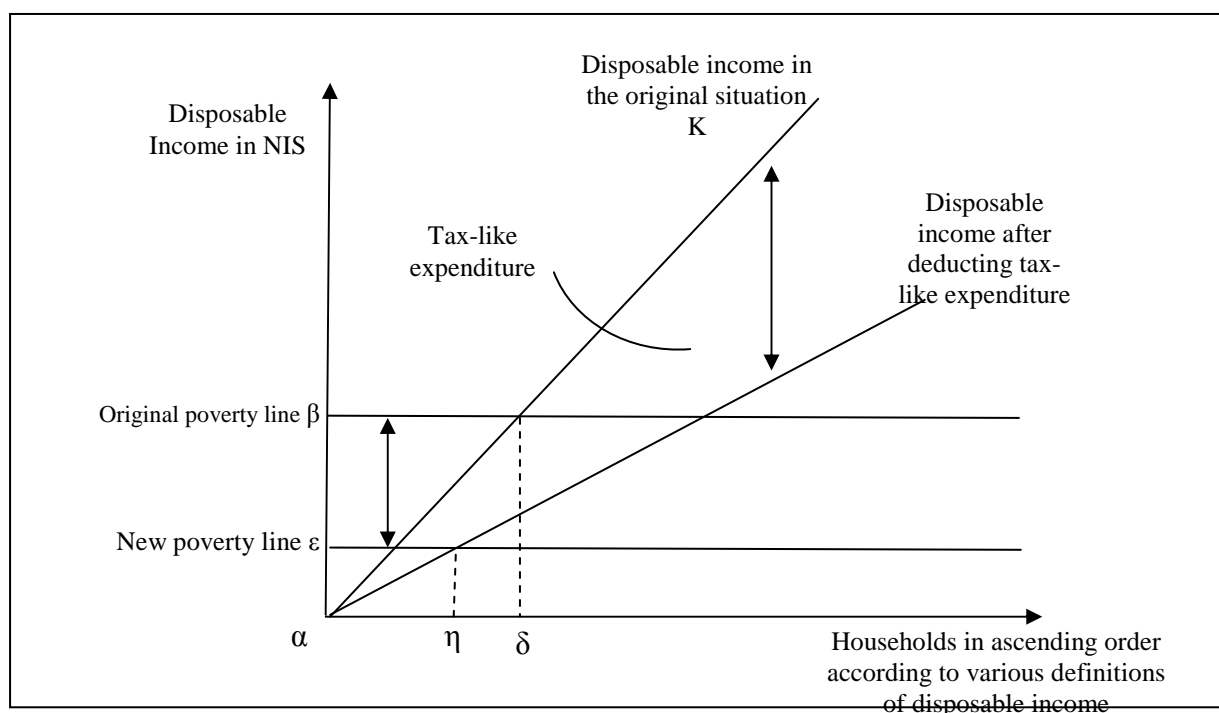
It is important to emphasize what on the surface seems to be counter-intuitive—namely that the use of a relative poverty measure could lead to a situation in which an increase in the household's expenditure could actually reduce the incidence and the depth of the poverty, as demonstrated in Figure 6.1. Here the chances of obtaining a result of this kind are greater to the extent that the same part of the essential expenditure that falls on higher income earners increases, because then the situation of poor people relative to the original situation improves (just as their situation worsens when their disposable income does not change and even increases, but the wealthy become wealthier relative to the poor). For example: If we assume that co-payments are based on the wealthy only, this could result in the incidence of poverty

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<sup>15</sup> The elasticity of curve L is not necessarily greater than that of curve K.

decreasing. This is the situation described in the diagram by the new poverty line  $\epsilon$  because of the number of poor households decreasing from  $\delta$  to  $\eta$ . According to these changes, it is clear that the depth of poverty of the average poor household changes as well.

**Figure 6.1: The definition of poverty and the change in poverty according to the relative poverty line**



From the Household Expenditure Survey it emerges that 22.7 percent of households in 2009 were poor according to the accepted relative poverty definition in Israel and in terms of overall disposable income. Furthermore, the National Insurance Institute's Annual Review on the dimensions of poverty shows that the major populations at risk for falling into poverty are the Arabs, the ultra-Orthodox, and households without breadwinners (some of which are Arab or ultra-Orthodox).

A calculation that assumes that the overall private expenditure on healthcare is tax-like, reduces by 3,500 the number of poor households (Table 6.1). This result is affected, as indicated above, by the fact that wealthy families spend relatively more than poor families, particularly on parallel care and on consumption. As explained above, these have the effect of shifting the poverty line so that the number of poor people even decreases.

However, as we have stressed, not all private expenditure on healthcare is essential or tax-like. According to the criteria and the findings formulated above, co-payments are most

worthy of being defined as essential, followed by supplementary-care insurance and OOP expenditure on these services. These raise the incidence of poverty by 879 households, 1,270 households and 6,273 households, respectively.<sup>16</sup>

The greatest contribution of expenditure on supplementary care to the incidence of poverty is actually among households with breadwinners and among the Arab population.<sup>17</sup> The expenditure on parallel care included in public entitlement contributes to increasing the incidence of poverty among families with children and with two or more breadwinners. These findings attest to a certain degree of dissatisfaction with the public system among working families with small children, which pushes them to spend privately on parallel care, even at the price of falling into poverty.

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<sup>16</sup> The elderly, the chronically ill, and recipients of guaranteed minimal income obtain discounts on co-payments. It is unclear how these are reflected in the data. The data relate to the expenditure at the time of receiving the service/product. Therefore, if there were a discount or an exemption at the time of receiving the service, it is supposed to be reflected in the data as non-expenditure. Nevertheless, it is known that part of the discounts and the exemptions are granted retroactively, and are not taken into account as a discount. In this case the effect of the exemptions is not taken into account, and the effect of the co-payments on poverty is biased upward, especially when the retroactive reimbursements are not also reported as income in kind.

<sup>17</sup> It is important to emphasize in this context that the measurement of income, particularly among the Arab population, is liable to be biased downward, in relative terms, and therefore to increase the incidence of poverty in this population.

**Table 6.1: The effect of private expenditure on healthcare on the number of poor households, according to expenditure categories and household characteristics (2009)**

	Overall Population	Arabs	Ultra-Orthodox	Families with Adults (65+)	Families with Children (0-18)	Without Bread-winners	Single Bread-winner	Two or More Breadwinners
<b>Original situation without taking into account expenditure on healthcare</b>								
Number of households in the group	2,123,122	297,084	80,406	331,658	975,401	532,317	709,947	880,858
Number of poor households in the original situation	482,070	158,135	39,886	46,182	279,856	279,872	238,232	52,624
% of poor in the original situation	22.7%	53.2%	49.6%	13.9%	28.7%	52.6%	33.6%	6.0%
(1)	<b>Effect of the expenditure on healthcare</b>							
Growth in % of poor	-0.2%	-0.5%	-1.1%	1.1%	-0.5%	0.7%	-0.7%	-0.1%
Number of households added to the poor, net	-3,290	-1,412	-877	3,556	-5,330	3,531	-5,058	-660
(2)	<b>Effect of co-payments</b>							
Growth in % of poor	0.0%	0.3%	-1.1%	1.5%	-0.2%	0.8%	-0.4%	0.0%
Number of households added to the poor, net	879	878	-877	4,982	-1,998	4,322	-2,540	332
(3)	<b>Effect on expenditure on supplementary-care insurance</b>							
Growth in % of poor	0.1%	-0.1%	1.0%	0.1%	0.1%	0.0%	0.2%	0.0%
Number of households added to the poor, net	1,270	-200	807	366	728	-205	1,229	186
(4)	<b>Effect of direct out-of-pocket expenditure on supplementary care</b>							
Growth in % of poor	0.3%	1.3%	-0.8%	-0.4%	0.3%	0.1%	0.5%	0.2%
Number of households added to the poor, net	6,273	3,828	-609	-1,217	2,931	671	3,366	2,105
(5)	<b>Effect of expenditure on insurance for parallel care and consumption</b>							
Growth in % of poor	-0.2%	-0.9%	-0.7%	0.2%	-0.3%	-0.1%	-0.5%	-0.1%
Number of households added to the poor, net	-4,986	-2,604	-564	774	-3,076	-437	-3,491	-1,089
(6)	<b>Effect of direct out-of-pocket expenditure on parallel care</b>							
Growth in % of poor	0.1%	0.3%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.1%
Number of households added to the poor, net	1,272	874	-	-	1,055	-383	-	1,245
(7)	<b>Effect of direct out-of-pocket expenditure on consumption</b>							
Growth in % of poor	-0.1%	-0.2%	0.0%	0.1%	-0.1%	-0.2%	-0.2%	0.0%
Number of households added to the poor, net	-1,538	-692	15	195	-661	-1,138	-1,169	286
(8)	<b>Effect of expenditure on co-payments + supplementary insurance</b>							
Growth in % of poor	0.0%	0.0%	-1.1%	1.4%	-0.3%	0.9%	-0.3%	-0.1%
Number of households added to the poor, net	-299	-140	-877	4,611	-2,834	4,635	-2,393	-913
(9)	<b>Effect of overall expenditure on co-payments + insurance + OOP for supplementary care</b>							
Growth in % of poor	0.2%	1.2%	-1.3%	1.2%	0.0%	0.7%	0.0%	0.1%
Number of households added to the poor, net	3,714	3,471	-1,016	3,958	-388	3,676	215	838

Source: 2009 Household Expenditure Survey, Central Bureau of Statistics.

### c. Estimate of the conditional probability of falling into poverty

Households have characteristics that are liable to match the probability of falling below the poverty line in the wake of a particular expenditure on healthcare. Accordingly, we assume that the probability [ $prob(NP_{ij})$ ] that the expenditure of household  $i$  on category  $j$  will push the household below the appropriate poverty line is:

$$(2) \quad prob(NP_{i,j} > 0) = \alpha_j + \beta x_{i,j} + \gamma z_j + \varepsilon_{i,j}$$

Where  $NP_{ij}$  is a dummy variable that obtains the value 1 with regard to a household that was not poor prior to the expenditure, overall or with regard to one category or another, and fell below the poverty line as a result of it. The other explanatory variables are identical to those described in Equation (1).<sup>18</sup> The family poverty line was recalculated for each type of expenditure and each household. Hence, in areas in which the expenditure on healthcare is progressive, it is highly likely that the rate of poverty declined as a result of this expenditure.

Table 6.2 presents the results of the estimation of Equation (2). As expected, the level of income has a negative effect on the probability of falling into poverty because of the expenditure on healthcare, and in particular—both with regard to the extent of the effect and the statistical significance—with co-payments.<sup>19</sup> Furthermore, in light of the fact that relatively poor people do not hold insurance, it neither contributes to nor saves them from poverty. Household size in terms of standard individuals does affect the probability of sinking into poverty when overall expenditure is examined. The effect, however, lies in expenditure on supplementary and parallel care. This finding is consistent with the hypothesis that families with high-level needs, not necessarily identified with children and the elderly, are liable to fall into poverty also because of expenditure on entitlement treatments. In the wake of the relative absence of services, the probability of falling into poverty is probably higher in the northern district, other things being equal.

A large number of breadwinners and residence in districts with many doctors—Haifa, Jerusalem and the Center—contribute to the probability of falling into poverty, particularly because of expenditure on parallel care. This finding is consistent with the hypothesis of supplier-induced demand for parallel care, to the extent of pushing families into poverty.

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<sup>18</sup> Specifically, a sub-sample of households was chosen that spend on a certain category or overall, and we examine which of these fall into poverty as a result of the expenditure.

<sup>19</sup> Recall that at the end of 2011 the discounts and the exemptions for co-payments were broadened.

#### d. Conclusions

Being ultra-Orthodox, Arab, or even elderly, does not specifically affect the probability of falling into poverty, when income is held constant. Low income is the most significant predictor of a fall into poverty as a result of private expenditure on healthcare, particularly co-payments. Particularly serious is the finding, consistent with previous findings, that families fall into poverty because of expenditure on parallel services that they are supposed to receive as part of entitled care. The findings match the supplier-induced demand for privately financed parallel care.

**Table 6.2: Estimation output— the probability of becoming a poor household  
Logit Model with Zellner Method Correction (columns 1-6)**

Variable	Insurance Expenditure		Direct Out-Of-Pocket Expenditure				Total Expenditure
	Supplementary	Parallel	Co-payments	Supplementary	Parallel	Consumption	
	(1)	(2)	(3)	(4)	(5)	(6)	
Insurance for supplementary care				-0.58 (-0.40)			-0.10 (-0.93)
Insurance for parallel care					0.27 (1.29)	0.28 (1.41)	0.02 (0.91)
Number of individuals	(0.46) (0.39)	(0.01) (0.23)	0.18 (0.23)	**0.26 (0.08)	**0.82 (0.15)	-0.18 (-0.33)	**0.27 (0.10)
Children aged 0-4	0.16 (1.43)	0.55 (0.70)	0.28 (1.04)	-0.95 (-0.49)	-2.35 (-2.58)	**0.82 (0.19)	-0.68 (0.55)
Elderly 65+	-1.95 (-1.51)	-1.19 (-1.12)	0.83 (0.92)	-0.42 (-0.48)	1.14 (1.03)		0.47 (0.42)
Log of disposable income	-0.66 (-0.38)	-0.52 (-0.28)	*-0.80 (-0.31)	*-0.59 (-0.21)	-0.58 (-0.49)	*-0.90 (-0.42)	** -0.81 (-0.20)
Number of breadwinners	-0.42 (-0.85)	*-1.98 (-0.89)	-0.96 (-0.63)	-0.36 (-0.27)	*-2.04 (-0.84)	-0.72 (-0.56)	*-0.67 (-0.27)
Years of education of household head	-0.06 (-0.09)	0.1 (0.09)	0.04 (0.06)	0.02 (0.04)	0.23 (0.18)	0.09 (0.11)	0.06 (0.03)
Arab				0.68 (0.83)			0.24 (1.06)
Ultra-Orthodox			-0.76 (-1.95)	-0.85 (-1.08)	-6.67 (-6.27)		-1.78 (-1.21)
Jerusalem district			-0.10 (-1.2)	1.83 (0.97)	**16.42 (4.16)	0.42 (1.67)	0.23 (0.66)
Northern district	1.86 (1.61)	1.33 (1.69)	0.99 (0.74)	**2.55 (0.77)		-0.37 (-1.65)	*0.94 (0.46)
Haifa district	0.43 (1.47)	0.25 (1.45)	0.72 (0.67)	*1.89 (0.80)	**15.32 (4.98)		0.6 (0.45)
Central district	0.65 (1.43)	1.33 (1.22)	-0.42 (-0.92)	0.74 (0.91)	**16.33 (4)		-0.22 (-0.51)
Southern district	0.37 (1.57)	0.12 (1.48)	0.08 (0.96)	-1.01 (-1.04)			-0.30 (-0.62)
Judea and Samaria district		1.78 (1.81)		1.58 (1.24)			-0.17 (-1.09)
Constant	1.15 (3.35)	-2.38 (-3.07)	0.88 (2.19)	-1.08 (-1.83)	-21.94 (20.10)	1.55 (3.59)	1.67 (1.54)
Number of observations	5.227	5.408	5.968	6.264	4.335	1.906	6.264
Pseudo R <sup>2</sup>	0.17	0.204	0.147	0.16	0.446	0.145	0.133

**Comments:** Standard deviation in parentheses. The data are according to weights in the population.

\* Significant at the 5 percent level; \*\* Significant at the 1 percent level.

## **7. Catastrophic expenditure**

"Catastrophic expenditure" on healthcare could adversely affect the household's vitality as well as the family's health. An expenditure of this kind is defined as one whose proportion is greater than a specific threshold value of the total relevant income (Pradhan & Prescott, 2002). The World Health Organization determined that this income is the annual disposable income of the household from fixed sources after deducting expenditure on food (Xu et. al., 2003, 2007). This difference is meant to estimate the family's ability to absorb the expenditure, up to adversely affecting basic expenditures, such as on food.

There is no agreement in the literature on the threshold value, because it depends on characteristics of the economy, such as the general standard of living. The characteristics are generally taken into account, as in this study, by determining a household size in standard consumption units. With regard to the standard of living or the level of income, the basic assumption is that the higher it is, or the lower the expenditure of income on food, a higher percentage of the difference can be regarded as catastrophic expenditure. Berki (1986) uses a threshold value of 5 percent as appropriate for poor countries. Waters et al. (2004) uses 10 percent, while Xu et al. (2003, 2007) claim a threshold of 40 percent as more suitable for rich countries.

We therefore chose in this study to use an arbitrary threshold of 30 percent of net annual income, after deducting expenditure on food, and we attempt to identify the most vulnerable households from the perspective of catastrophic expenditure, as well as those that do not report expenditure because of its economic implications.

### **a. The effect of private spending on catastrophic expenditures**

Table 7.1 shows that 3.2 percent or 68,350 households had catastrophic healthcare expenditures in 2009. This is a high rate relative to the average in developed countries and is similar to the average in developing countries that do not have universal national health insurance (Xu et al., 2003, 2007).

The percentage of households with catastrophic spending is particularly high among households without breadwinners of working age (9.7 percent of these households), among Arabs (6.1 percent), and among families with adults aged 65 and older (5.9 percent).

Direct OOP expenditure on supplementary services contributes most to the situation, followed by expenditure for co-payments. Expenditure on supplementary services imposes a catastrophic expenditure on 1.7 percent of households, particularly those without a breadwinner of working age (4.9 percent) and Arabs (3.6 percent). Households that are

vulnerable in this regard from the point of view of co-payments are, again, those without a breadwinner of working age (4.1 percent), and Arabs (1.9 percent).<sup>20</sup>

**Table 7.1: The percentage of households with catastrophic expenditure, by characteristics of the households that constitute a risk for poverty and by expenditure category (percentages)**

Expenditure Category		Overall Population	Arabs	Ultra-Orthodox	Families with Adults (65+)	Families with Children (0-4)	Without a Breadwinner of Working Age	One Breadwinner	Two or More Bread-Winners
Overall expenditure on healthcare		3.2	6.1	1.8	5.9	2.6	9.7	2.6	1.4
Insurance	Insurance for supplementary care	0.5	0.8	0.4	0.0	0.4	1.9	0.4	0.2
	Insurance for parallel care and consumption	0.6	0.8	0.4	0.0	0.5	2.0	0.5	0.2
OOP Expenditure	Co-payments	0.9	1.9	0.6	1.2	0.7	4.1	0.5	0.2
	Parallel care	0.7	1.0	0.4	0.1	0.5	2.1	0.4	0.3
	Supplementary care	1.7	3.6	0.7	1.6	1.7	4.9	1.2	1.0
	Consumption	0.6	0.8	0.4	0.1	0.5	2.2	0.4	0.2
Essential Expenditure	Co-payments and supplementary-care insurance	1.0	1.9	0.6	1.4	0.7	4.2	0.5	0.2
	Co-payments, supplementary-and parallel-care insurance	2.4	5.1	1.0	3.6	2.1	7.9	1.5	1.0

The overall essential or tax-like expenditure does not change the vulnerability of households without a breadwinner of working age, Arabs, and households with elderly people. Possibly surprising is that ultra-Orthodox households have a relatively low catastrophic expenditure (1.0 percent). A possible explanation for this is that a high proportion of ultra-Orthodox households insure themselves (both with supplementary insurance of the HMOs as well as commercial insurance). This population is also assisted in many cases by mutual community insurance (charity)—income in kind that cannot be identified in the survey data.

Note that the expenditure on supplementary insurance does not lead to significant catastrophic expenditure among any of the types of household, except for those without a breadwinner of working age (1.9 percent), despite it being an essential expenditure. The reason is that it is still not a high expenditure, thanks to the insurance structure: mutual

<sup>20</sup> Bear in mind the correlation between different characteristics; in other words, the same households could appear in different classification categories.



insurance that distributes the risks between households independent of the specific risk for each household.

### **b. The conditional probability of catastrophic expenditure**

The probability of a household being faced with catastrophic expenditure is estimated by means of logistic regression in which the explanatory variables are those presented in Equation (1).  $CAT_{ij}$  is a dummy variable that obtains the value 1 for every household with catastrophic expenditure and otherwise 0:

$$(3) \quad prob(CAT_{i,j} > 0) = \alpha_j + \beta x_{i,j} + \gamma z_j + \varepsilon_{i,j}$$

The results of the estimates are detailed in Table 7.2. It should be emphasized at the start that the results show that both types of private insurance (supplementary and parallel)—whose basic function is to prevent catastrophic expenditure—do not affect the probability that the household will be faced with this expenditure.

What is important is the positive effect of income on the probability of catastrophic expenditure for insurance for parallel care and the non-effect of income on this probability in OOP expenditure on parallel care. This finding is consistent with the hypothesis that when households need to spend privately on treatment that is included in the entitlement, they are likely to take out insurance at the time of the event (what is known as an anecdote) with the encouragement and on the advice of the service providers and the insurance companies.

Excluding this finding, as expected, when other things are held constant, low income and a small number of breadwinners are the most significant predictors of catastrophic expenditure. At the same time, the effects of these on the probability of having to face catastrophic expenditure are not uniform. High income and a large number of breadwinners, as well as high educational level, are relatively important particularly for expenditure on co-payments. Other things being equal, Arab origin and residence in the northern district raise the probability of catastrophic expenditure on consumption and on supplementary care, respectively. These, particularly the supplementary care, indicate a relative scarcity in the supply of services.

The presence of small children in the household has a negative effect on the probability of catastrophic expenditure in the supplementary category, the major component of this expenditure being dental treatment. This finding matches the possibility that households with children protect themselves from poverty by avoiding expenditure, even when it is essential.

### c. Conclusions

About 68,350 households in Israel spend more than a third of their disposable income, after expenditure on food, on healthcare that in the main leads to tax-like expenditure: co-payments and expenditure on supplementary care, both in insurance premiums and in direct out-of-pocket expenditure. These families, particularly those without breadwinners and elderly people, probably bear the most regressive "tax burden".

**Table 7.2: Regression coefficients—household with catastrophic expenditure (=1) or not (=0) as a dependent variable of the regression  
Logit Model with Zellner Method Correction (columns 1-6)**

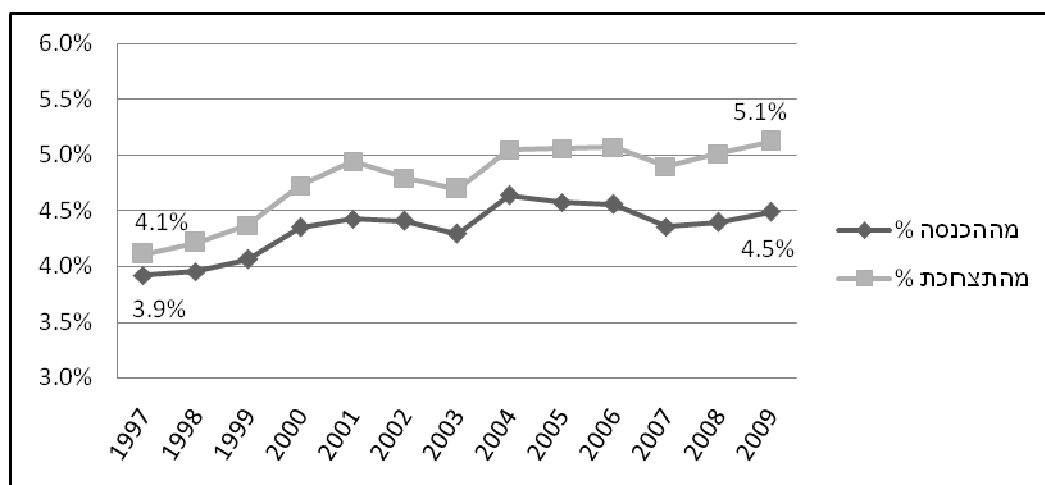
Dependent Variable	Insurance Expenditure		Direct out-of-pocket expenditure				Total Expenditure
	Supple- mentary	Parallel	Co-payments	Supple- mentary	Parallel	Con- sumption	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Insurance for supplementary care				-0.28 (0.31)			0.04 (0.46)
Insurance for parallel care					-0.24 (0.96)	0.60 (1.33)	0.25 (0.49)
Number of individuals	0.37 (0.23)	0.40 (0.36)	0.08 (0.11)	0.10 (0.08)	-0.18 (0.17)	0.06 (0.19)	0.08 (0.05)
Children aged 0-4		0.17 (1.26)	-0.95 (0.68)	-0.75 (0.39)		-1.28 (1.10)	-0.78** (0.29)
Elderly 65+			0.04 (0.48)	0.04 (0.37)	0.29 (0.85)	-0.46 (0.92)	0.19 (0.21)
Log of disposable income	-0.42** (0.10)	0.58* (0.22)	-0.51** (0.13)	0.32** (0.07)	0.05 (0.42)	-0.42** (0.08)	-0.42** (0.09)
Number of breadwinners		-0.06 (0.47)	-2.59** (0.62)	-0.54** (0.20)	0.09 (0.74)	-1.61* (0.73)	-0.71** (0.15)
Years of education of household head	-0.01 (0.05)	0.00 (0.03)	-0.07* (0.03)	0.04 (0.03)	0.01 (0.06)	0.13* (0.06)	-0.01 (0.02)
Arab			-0.28 (1.12)	-0.27 (0.82)	3.13** (0.87)		0.14 (0.59)
Ultra-Orthodox			-0.33 (1.09)	-1.89 (1.07)			-0.50 (0.46)
Jerusalem district		0.31 (1.55)	1.30 (0.82)	0.59 (0.48)		1.85 (1.23)	0.33 (0.32)
Northern district		-0.27 (1.58)	0.96 (0.76)	0.92** (0.35)	-0.98 (0.99)	0.63 (1.43)	0.58* (0.26)
Haifa district		-0.20 (1.38)	0.58 (0.81)	0.31 (0.41)	-1.25 (1.20)		0.22 (0.27)
Central district		-1.10 (1.59)	0.56 (0.81)	-1.30* (0.55)	-1.32 (1.19)	-0.18 (1.47)	-0.49 (0.30)
Southern district			1.36 (0.78)	-0.37 (0.55)	-0.91 (1.13)	0.74 (1.47)	0.10 (0.30)
Judea and Samaria district		1.84 (1.38)	1.79 (1.22)	-0.99 (1.05)	0.66 (1.22)	1.57 (1.54)	-0.43 (0.63)
Intercept	-2.95* (1.39)	-3.85** (1.22)	0.43 (1.25)	-1.49* (0.72)	-5.53 (3.59)	-4.33* (1.71)	0.64 (0.78)
Number of observations	80	4557	6270	6270	4411	5068	6270
Pseudo R <sup>2</sup>	0.320	0.0965	0.247	0.0973	0.0801	0.190	0.108

**Comments:** \* Significant at the 5 percent level; \*\* Significant at the 1 percent level.

## 8. Trends over time

Since 1997 private expenditure on healthcare as a percentage of the household budget has grown (Figure 8.1). The increase in expenditure as a percentage of overall consumption expenditure is greater than the overall increase in disposable income. This implies that in relative terms households have had to increasingly forgo general consumption (that is not healthcare) in favor of healthcare. The situation is even more serious than what the data reveal, because the price increases of healthcare are greater than the rest of the basket of products that the household consumes.<sup>21</sup>

**Figure 8.1: Expenditure on healthcare as a percentage of disposable income and of overall consumption expenditure, 1997-2009**



**Source:** Central Bureau of Statistics, Household Expenditure Survey for various years.

Top: As a percentage of income; Bottom: As a percentage of consumption

In this chapter we examine the structure of the growth of private expenditure on healthcare in the household budget according to expenditure groups. The definitions of the private consumption components of healthcare in the Household Surveys prior to 2003 do not match the definitions in this study, which are based on 2009 data. The comparison was thus undertaken from 2003 onward only. The changes in the distribution of overall expenditure on healthcare during the period are presented in Table 8.1. The percentage of households reporting on expenditure and their average expenditure are presented in Table 8.2.

Regarding insurance, there is a systematic increase in the proportion of insurance expenditure over the period from 27 percent to 32 percent (Table 8.1), which reflects a

<sup>21</sup> Chernichovsky, Navon and Gamzu (2010).

growth in the percentage of households insured, mainly through supplementary insurance, from 70 to 80 percent and the doubling of premiums for this insurance from NIS 28 to NIS 56 (Table 8.2). There is also a more moderate increase in the percentage of households insured with insurance defined as parallel and consumption, from 74 percent to 82 percent, and in the cost of the insurance from NIS 129 to NIS 196.

Regarding OOP expenditure, there is relative constancy in the percentage of households reporting expenditure, but particularly salient is the doubling of average expenditure on parallel care, from NIS 174 to NIS 345 (Table 8.2). We see in the two tables a rising trend in the percentage of households insured and the expenditure on insurance, together with a decrease in the percentage of households paying OOP.

These changes ultimately lead to a relative increase in overall expenditure on items relating to parallel care and to this consumption, by definition at the expense of the other items (Table 8.1). In other words, in general there is a decrease in the percentage of expenditure on essential items or those that are of public concern—co-payments, and insurance and OOP expenditure on supplementary care—from 70 percent in 2003 to 62 percent in 2009.

Thus, from the perspective of the households, the insurance fulfills its function: in view of the consistent rise in private OOP expenditure—both as a result of an increase in income and a policy of a relative reduction in government support for the system—households insure in order to reduce the significance of potential OOP expenditure on consumption. Likewise, with a rise in income, we can predict with some confidence the data regarding co-payments and expenditure on supplementary services and on consumption, because the essential treatments have a low income elasticity, as opposed to the high income elasticity of consumption.

The problematic data, from the system's perspective, is the growing trend in expenditure over time on parallel care for treatments included in entitlement, both by means of private insurance and through direct OOP. This constitutes evidence that the public system is decreasingly fulfilling its function from the public's perspective.

**Table 8.1: The distribution of private expenditure by item, in 2003, 2006, and 2009**

Expenditure Item		2009	2006	2003
Insurance	For supplementary care	7%	6%	6%
	For parallel care and consumption	25%	24%	21%
Direct Out-Of-Pocket Expenditure	For co-payments	18%	20%	22%
	For supplementary care	37%	38%	42%
	For parallel care	5%	3%	3%
	For consumption	8%	9%	6%

Sources: Central Bureau of Statistics, Household Expenditure Surveys, 2003, 2006, 2009.

**Table 8.2: The percentage of respondents on expenditure and the average monthly expenditure in shekels of households reporting on expenditure, in 2003, 2006 and 2009**

Expenditure Item		2009		2006		2003	
		% of respondents	Average Expenditure in NIS	% of respondents	Average Expenditure in NIS	% of respondents	Average Expenditure in NIS
Insurance	For supplementary care	80	56	77	33	70	28
	For parallel care and consumption	82	196	80	161	74	129
OOP Expenditure	For co-payments	44	265	44	240	46	211
	For supplementary care	44	551	42	448	43	425
	For parallel care	9	345	8	225	7	174
	For consumption	30	180	34	170	33	134

## 9. Summation

Against the backdrop of the decrease in the share of public financing in the Israeli healthcare system to a level unparalleled in developed countries that provide national health insurance, the research examines the significance of private healthcare expenditure on income distribution and poverty in Israel, including the households' need to deal with "catastrophic expenditure". The examination, undertaken mainly on the basis of the 2009 Household Expenditure Survey, is innovative in its division of private expenditure into its components, and examining the extent to which expenditure on them is tax-like according to approaches concerned with defining the poverty line. The following are the major findings of the study:

- Nearly all households in Israel, 93 percent, report private expenditure on healthcare. This expenditure is around 5.1 percent of households' overall average expenditure on consumption (2009).
- Between 44 and 80 percent of households report expenditure that is of "public concern" in the sense that it is a type of tax on the households, according to the definition of poverty in Israel. This includes expenditure on co-payments, insurance premiums, and direct out-of-pocket expenditure on "supplementary" care—particularly dental care—that is not included in entitlement.<sup>22</sup>
- Co-payments are an essential expenditure or the most tax-like. These are reported by 18 percent of households, which spend on average about NIS 290 a month on them.
- In general, private expenditure on the various components of healthcare are sensitive to income and not to other characteristics of the economy connected to poverty in Israel, such as being ultra-Orthodox or Arab.
- At a given income, factors that can be attributed to deficient health and medical needs—the presence of children and elderly in the home, and a lack of breadwinners of working age—contribute to a growth in private expenditure on healthcare.
- About a tenth of households report OOP expenditure on "parallel" services—services that are included in entitlement—and about 80 thousand households are insured for them. Expenditure for these is estimated at about NIS 400 a month for families that make these payments. Expenditure on parallel care rose relative to the other expenses, at least since 2003, and is particularly sensitive to income and education. In other words, upper socioeconomic groups tend to purchase an increasing amount of services included in entitlement outside the public system.
- Private expenditure on healthcare—particularly regarding co-payments and OOP expenditure for supplementary care—is regressive; it contributes to worsening the income distribution or consumption in Israel.
- In general, in terms of expenditure, the intermediate groups bear the relatively greatest burden of expenditure on the three expenditure categories that are of "direct concern to the public". The upper income quintiles spend a low percentage of their disposable income on these categories, including expenditure on co-payments, while the lower income quintiles also spend a low percentage, but this is because they forgo

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<sup>22</sup> Bear in mind that since the survey was undertaken, dentistry for children up to age 12 has been added to the entitlement.

consumption and access to treatment in both the short and the long term, as well as insurance on supplementary care. This is also done to protect the household budget against catastrophic healthcare expenditures.

- The significance of the findings regarding the effect on health is even more severe if we assume—in wider expenditure categories that are defined in this study—that the poor require medical treatment more than the rich.
- Even though the overall expenditure on healthcare—with the appropriate corrections for defining the relative poverty line—reduces the number of poor people in Israel, the expenditure on co-payments, insurance for supplementary care, as well as OOP expenditure on these and direct expenditure on treatments that are included in the entitlement, add 879, 1,270, 6,273, and 1,272 households, respectively, to the circle of poor households. Interestingly, the largest contribution to the number of poor in "supplementary care" is in fact among households with breadwinners.
- Poverty deepens particularly because of expenditure on healthcare in households with elderly adults.
- 68,350 families in Israel, particularly those without breadwinners and elderly people, bear the expenditure of healthcare at a level that threatens the household's vitality, including its health.
- The importance of private expenditure on "parallel care"—which is included in entitlement—is gaining momentum among people with relatively high incomes and education. In other words, the public system is losing its importance over time, especially for those who can afford not to rely on it. Moreover, expenditure on parallel treatment increases with needs and the presence of children and elderly adults in the home, and is liable to even add families with breadwinners to the ranks of the poor.
- The positive connection between direct spending on parallel treatments and the positive effect of insurance on OOP spending for these treatments, in addition to the positive effect of the presence of services, indicate the possibility of supplier-induced demand outside the public system for services included in entitlement.
- About 1,300 households in Israel—especially those with children—join the ranks of the poor because of private OOP spending on services that are included in the public entitlement. This is despite the fact that most of these households have two or more breadwinners.

# Appendices

## Appendix 1: Poverty—perception, definition and measurement

Poverty is multi-dimensional. While its immediate manifestation will probably be that of low income and consumption according to one definition or another, it is also reflected in poor health, educational deficits and a feeling of economic and social distress. There are two approaches to the issue: one from the viewpoint of the society or the public—the objective approach; and the other from the perspective of the individual with regard to himself—the subjective approach. The perceptions, and any measurement based on them, are clearly different. Furthermore, the way people relate to poverty, the reasons for it and its implications are affected by the values people hold, so that the measurement of poverty is complex and raises conceptual, ethical and practical questions (Central Bureau of Statistics, 2008).

Generally speaking, the measurement of poverty attempts to be objective and to focus on indices that can be expressed in financial-monetary terms.<sup>23</sup> This measurement encompasses a basic distinction between measuring "relative poverty", in which poverty is determined relative to the general standard of living, and measuring "absolute poverty", in which poverty is determined by the ability to provide "basic essential needs" as variously defined, mainly food.

The integrated approach focuses on the household's ability to provide essential needs, similar to the absolute-poverty approach. However, the essential level of the essential consumption components is determined according to the relative approach, that is to say, an approach that is not totally technocratic (for example, in terms of minimum calorie consumption), but rather in terms of the distribution of consumption of relevant items in the community (for example, the source of calories by food groups). The relevant minimum could thus increase with a rise in the standard of living beyond the technocratic minimum.

A poverty index includes several parameters: first, the poverty line is a numerical value that expresses—also in monetary terms—society's attitude to the question of what poverty is; second, the level and the sources of income at the household's disposal in relation to the

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<sup>23</sup> A theoretical approach that does not confine itself to the monetary view of poverty is the capabilities approach, which examines the extent to which a person is capable of integrating into society. According to this approach the poverty line is derived from an appropriate level of consumption of a basket of products that reflects an estimate of a suitable standard of living (Citro & Michael, 1995).



poverty line;<sup>24</sup> and third, the size and composition of the family, the matching of which is designed to facilitate comparison of the standard of living of families of various sizes and compositions. Matching of this kind could also take into account economies of scale in consumption. We will consider these below.

#### **a. Relative poverty**

The measurement of relative poverty reflects an approach that also has an element of subjective feeling, according to which the individual's welfare is dependent not only on supplying his basic needs, but also on his relative place in society regarding the supply of these needs. Moreover, feelings regarding their non-supply are liable to constitute a physical-actual risk factor in the sense of an adverse effect on the individual's state of mental and physical health (Marmot & Wilkinson, 2003, 2006).

The relative approach contains two basic options for selecting the variable that represents the community's standard of living: level of income or level of expenditure on consumption. For each variable the question is whether to consider, for the purpose of measurement, the average of the variable in the population or its median.

The European Union defines a poor person as one whose income is lower than 60 percent of the median monetary income. This choice of a relatively high percentage of income is designed to include in the index not only the poor, but also those who are at a relatively high risk for falling into poverty. In the Scandinavian countries there are no official poverty indices. However, there as well reporting on an index of relative poverty usually takes into account 60 percent of the median income. Canada too publishes an index of the incidence of relative poverty, according to 50 percent of the median income (European Commission, 2007).

In the emerging countries, particularly those from the former Communist bloc, and in the developing countries, the relative approach is less accepted. More acceptable in these countries is an index of **relative poverty according to consumption**, in terms of which a family is defined as poor if its consumption is less than 60 percent of the median expenditure on consumption.<sup>25</sup> This poverty index reflects more permanent poverty than relative indices based on current income, because a family's consumption is determined mainly according to its permanent income, more than its current income, which is volatile. This index, however,

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<sup>24</sup> There is also an approach that considers potential income as a source of income. This approach estimates the family's earning capacity instead of concentrating only on its actual income (Coudouel, Hentschel & Wodon, 2009; David & Maligalig, 2001).

<sup>25</sup> For details see Ravallion, 1992; Chaudhuri & Ravallion, 1994; Deaton, 1997.

ignores the problematic nature of temporary poverty, which sometimes also necessitates intervention.

### **b. Absolute poverty**

The measure of absolute poverty reflects an objective approach, which, as mentioned, has a technocratic element according to which society has to ensure "essential needs" and nothing more. In order to measure absolute poverty it is necessary to determine what these needs are—food, clothing and housing, or perhaps also expenses on health, education, etc. It is also necessary to decide with regard to each of these needs what level would define the poverty line. The definition of how essential the different needs are alters from one society to the next according to its standard of living (Alfandari, 2005).

The use of the measurement of absolute poverty is accepted mainly in the poor countries, which struggle against conditions of a deficiency in basic and essential subsistence needs. For these countries a discussion based on the distribution of income and consumption is a luxury. The poor countries, which are struggling against poverty with the help of the World Bank, focus mainly on extreme poverty, which is measured by a daily per capita income of less than a dollar or two. The UN also chose a poverty index based on a dollar a day as the measure based on which the goal was determined of reducing the incidence of poverty worldwide.

Measurement of this kind, however, is also accepted in principle in the United States where, for ideological reasons of a relative disregard for issues of distribution, they chose an absolute poverty index as part of their anti-poverty program since 1964. The poverty line in the United States is calculated by the cost of a minimal food basket multiplied by 3. The food basket chosen was determined by the American Department of Agriculture on the basis of medical considerations, and is updated each year according to the CPI. The matching of the poverty line to family size takes into consideration economies of scale and the family's composition. A family is identified as poor if its gross monetary income is less than the poverty line.

### **c. Mixed poverty indices**

The relative and absolute measurements of poverty have both advantages and disadvantages. The major disadvantage of the relative approach is that it is difficult to distinguish a change in poverty in a way that will be considered objective and non-controversial. The very process

of economic growth increases the median income in many cases (and therefore the half of it), and thus the rate of relative poverty will rise almost automatically even when the income of the poor increases, but slower than the poverty-line income. It is also difficult, in the relative approach, to consider more specifically the family's characteristics beyond age and gender (Gottlieb & Kushnir, 2005; Achdut, 2009; Gottlieb & Fruman, 2011).

The basic basket of needs or the minimal approach answers this need by building a separate basket of needs for each population group. Thus, for example, the basket of needs of a young, secular Jewish couple in which both spouses work, is different from the basket of needs of an ultra-Orthodox family, which in turn is different from the basket of needs of a single-parent mother.

The measurement of poverty using the basic basket of needs approach has disadvantages arising from the definition of the basket of products included in the definition of poverty, and the fact that a change in the basket according to the relative standard of living is made administratively—and is exposed to political pressures. Thus, for example, the food basket in terms of which the American poverty line is calculated, has not been updated since its calculation was instituted. This reduces the number of poor American people that is measured, relative to the number that would be obtained had the basket been updated from time to time.

The disadvantages of the relative and the absolute approach, relative to one another, led to the development of mixed poverty measures. These have become accepted in the United States (NRC—National Research Council) and in Canada (MBM—Market Base Measure). Similar to the absolute indices, the poverty line according to the mixed approach is also determined on the basis of ability to supply essential needs (Citro & Michael, 1995). Nevertheless, the mixed approach adds, by means of a multiplier (weights), additional consumption items, which are determined relatively according to each one's consumption distribution in the population. In the United States the mixed basket includes expenditure on transportation and leisure, and the Canadian basket includes household expenditure on education and health.

## Appendix 2: Distribution of Supplementary Insurance Claims

**Table A-1: Distribution of the cost of major supplementary insurance claims of the HMOs, after deducting co-payments, by type of coverage, Israel 2005 and 2009**

Type of Coverage	Expenditure Category	2005	2009
Operations and choice of surgeon	½ parallel, ½ supplementary	52.7%	43.7%
Medications and inoculations	Parallel	14.9%	12.7%
Consultation (second opinion)	Parallel	16.0%	16.0%
Pregnancy and birth	Parallel	10.8%	10.5%
Dentistry	Supplementary	-	12.7%
Child services	Parallel	3.2%	3.3%
Operations and professional opinions abroad	Supplementary	2.4%	1.0%

**Source:** Summary Public Report on the HMOs' Additional Health Services (AHS) programs, Ministry of Health, various years.

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