

7 April 2000

ENGLISH ONLY

STATISTICAL COMMISSION and  
ECONOMIC COMMISSION FOR EUROPE

ORGANISATION FOR ECONOMIC  
CO-OPERATION AND DEVELOPMENT (OECD)

CONFERENCE OF EUROPEAN STATISTICIANS

COMMISSION OF THE EUROPEAN  
COMMUNITIES (EUROSTAT)

Joint ECE/Eurostat/OECD  
Meeting on National Accounts  
(Geneva, 26-28 April 2000)

APPLYING THE 93SNA TO MEASURE THE IMPACT OF SOCIAL TRANSFERS  
IN KIND ON INCOME AND CONSUMPTION DISTRIBUTION

Working paper submitted by the Central Bureau of Statistics, Israel\*

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# **APPLYING THE 93SNA TO MEASURE THE IMPACT OF SOCIAL TRANSFERS IN KIND ON INCOME AND CONSUMPTION DISTRIBUTION**

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## **Introduction**

1. Income and consumption are regarded as important components in analyzing households standard of living. The available data on households income and consumption are mainly based on monetary flows. Nevertheless, the effective consumption of households depends not only on their disposable income and consumption expenditure; it also depends on the amount of services (such as education and health services) provided to them free or at economically non-significant prices, by general government and non-profit institutions serving households (NPISH). Therefore, wider concepts of income and consumption are needed to analyze standard of living, especially when making inter-temporal or international comparisons.

2- The 93 SNA introduced new concepts of income and consumption-adjusted disposable income and actual consumption. The first is obtained by adding the value of social transfers in kind (STK) to households disposable income. To measure the value of goods and services provided to households as transfers in kind, the government's final consumption expenditure is divided into collective consumption expenditure (defense, justice, etc) and individual consumption expenditure (education, health, etc). NPISH are supposed to produce only individual services. STK consist of individual goods and services provided as transfers in kind to individual households by government units and NPISH.

3. The application of the adjusted disposable income concept enables the study of redistribution effects of STK in addition to the effects of taxes and other monetary transfers. These concepts are certainly not new and various papers have been published on the subject, especially in recent years. What is new is their inclusion in a coherent macroeconomic system of national accounts, which is accepted by almost all countries in the world, facilitating their application.

4. When applying the 93SNA, the effects of STK on households income and consumption have been estimated until now at the level of the household sector as a whole. Estimating these effects for groups of households, classified by income levels, enables us to analyze government's role in income redistribution processes in a wider framework. To do that, we have combined data from national accounts, satellite accounts on education and health, households expenditure and income survey, as well as other surveys and data sources.

5. It is important to note the different character of the effects of monetary transfers when compared to the effects of STK. Unlike STK, households

may use monetary transfers to purchase products and services as they wish. In addition, most STK are education and health services, which increase human capital quality and are expected to affect total households income from economic activities and its distribution in the future as well. Households may regard them more as a type of investment than as additional consumption.

6. The note contains two sections. Section 1 describes the main findings (shown in annexed table 1 and the diagrams) and their explaining factors. Section 2 comments on methods and sources used.

## **1. Findings**

7. To examine the impact of STK on income distribution, we concentrated on education and health services, for which more of the required data was available, and which represented more than 70 percent of total STK.

### **1.1 Effects of Monetary Transfers and Social Transfers in Kind on Income Distribution**

8. Table 1 presents households' income according to different income concepts. This enables the examination of the effects of monetary and STK of general government and non-profit institutions on households' income and on its redistribution. The traditional presentation of data in household surveys by the CBS was maintained, providing data on households income and adding pensions to primary income in the first stage.

9. Income distribution was examined in this context in each of the following stages:

- A. Households' income in the form of compensation of employees, property income and pensions
- B. Households' income after adding receivable current transfers (excluding pensions).
- C. Households' income after deduction of current transfers payable.
- D. Households' income after including STK supplied by general government and NPISH.

10. To show the effects of transfers on income distribution a very simple indicator was used- the income of the average household in the lowest income decile (first) with that of the highest income decile (tenth).

11. The primary income plus pensions of households in the lowest decile was 8% of that of households in the highest decile.

12. The inequality decreases as a result of net current transfers, between government and households. The disposable income of households in the lowest decile amounted to 19 percent of households disposable income in the highest decile.

13. Adding STK to households' disposable income decreases further the inequality in income distribution. The income of households in the lowest decile, after adding STK of education and health services, reached 27 of the income of the highest decile's households.

14. STK of education and health services increased the households' disposable income in each decile. The lower the income the higher the relative importance of the increase: 47 percent in the first decile and only 3 percent in the tenth decile. The increase is more important on education than in health, for all deciles (graph 2).

### **1.2 Effects of STK on Households' Actual Consumption of Education and Health Services**

15. Actual consumption includes households' final consumption expenditure and STK. The relative importance of STK contribution to households' actual consumption of education and health services is shown in graph 3.

16. In lower incomes the percentage of actual consumption financed by STK is relatively high. In households in the first decile, STK covered 92 percent of the actual consumption of education services and 69 percent on health services. For households in the tenth decile, the percentages are 62 and 21 percent, respectively.

### **1.3 Social transfers in Kind - Education Services**

17. STK of education services decrease inequality in income distribution: the proportion of STK in disposable income of households with low income is high relative to their proportion in income of households with high income. The value of STK of education services amounts to 29 percent of the disposable income of households in the lowest decile and to 2 percent in the highest.

18. The following are the main factors that determine the distribution of STK of education services among different deciles:

- Distribution of pupils by household decile and by level and type of education.
- Total costs per pupil in each level and type of education.
- Households' payments, by decile, to general government and private non-profit institutions for education services.
- The number of households in each decile is the same, but not the number of persons. The average number of persons in the poorest households (first decile) was 4.1 and only 2.3 in the richest one (tenth decile). The age composition is also different. In the first decile, 42 percent of the population are 15 years old or less and 7 percent are 65+ years old. In the last decile the percentages were 10.2 and 15.2 percent, respectively

19. Since households in low deciles have a relatively high number of youngsters they use more education services. The distribution of pupils by level of education differs among different deciles. In lower deciles the number of pupils in low levels of education is relatively higher than their number in high deciles.

20. On the other hand, in general, the higher the level of education the higher the average cost per pupil as well as the costs covered by households payments and the resulting STK. Graph 4 shows that the proportion of STK of primary education in total STK is relatively high in low deciles: STK of primary education services amounted to a half of the STK of education services received by households in the lowest decile.

21. However, STK of universities services and other higher education institutions increase inequality - households of high deciles receive a relatively big part of these STK. This is due to the fact that there are relatively more students in households with high income than students in households with low income. In most cases payment per student does not depend on the households' income. Inequality may be actually higher than what the findings reveal, since students who do not live with their parents are regarded in household expenditure surveys as members of separate households with low income, and so they were assigned to low deciles.

#### **1.4 Social transfers in Kind - Health Services**

22. STK of health services benefit relatively more the low-income households: they amount to 17.7 percent of households disposable income in the lowest decile. The higher the disposable income of the households the lower is the STK as a percentage of disposable income, reaching only 1.1 percent in the highest decile.

23. The following are the main factors explaining the distribution of STK of health services by deciles according to the system applied

- Average size of households in the different deciles.
- Composition of households in the different deciles (e.g., regarding age and gender) and the differential cost coefficients applied to different groups of individuals.
- Value of households' payments to general government and private non-profit institutions for health services.

## **2. Methods and Sources of Data**

### **2.1 Calculating the Value of Social Transfers in Kind**

24. The STK includes two components: Social benefits in kind and transfers of individual non-market goods or services. The STK in this note covers only the last component. Social benefits in kind accounts 6 percent of government's total STK.

25. The value of transfers of individual services provided by non-market producers was obtained as the difference between production cost and households payments for these services

## **2.2 Calculating STK of Education Services**

26. Two main sources were used to calculate STK of education services: the satellite account on education and the household expenditure survey.

The satellite account supplied data on:

- Production cost of education services generated by general government and NPISH.
- Value of sales to households
- Breakdown of production costs by type of expenditure and level and type of education service.

27. The household expenditure survey and special processing generated for this study provided the following data:

- Net income of households classified into deciles per standard person.
- Number of students, by decile and type of education services.
- Households' payments for education services, by level and type of education.

28. Data on average current cost per student by level and type of education were obtained from the satellite account. These average costs were assigned to pupils classified by level, type of education and decile.

29. The use of an average value per pupil in each level of education does not take into account differences in the quality of education services.

## **2.3 Calculating STK of Health Services**

30. STK of health services were calculated using the risk-related insurance-policy approach. This approach is convenient for Israel, where all individuals are covered for specified health services. According to this approach, it is not necessary to know who receives health services; instead it is assumed that the use of health services depends on risk factors like age, gender, etc. If the health system would charge the consumers, insurance premiums equal to the production costs of the services they are expected to consume, their payments would cover the total costs.

31. Households payments to the health system do not cover total cost of the system, but only a part of it. The difference is covered mainly by government and private transfers. STK of health services for each household were estimated as the difference between the imputed "premiums" that households should have paid in order to cover the production costs of the health services, and the payments already made by them.

32. The main sources used were: satellite accounts on health, household expenditure survey and the Ministry of Health.

33. Satellite account on Health: the cost of health services provided by general government and private non-profit institutions, and the value of their sales to households were based on the following data:

- Costs of the production of health services by general government and NPISH, by type of expenditure.
- Sales to households.

34. Data from households expenditure survey:

- Disposable income of households, classified into deciles
- Payments made by households for health services detailed by item. These payments were classified into payments to market producers and payments to general government and private non-profit institutions by type of payment, based on additional information from various sources.
- Size of households and age composition of the population in each household decile.

35. The Ministry of Health provided the differential premiums coefficients that were used to allocate total production costs of health services covered by non-market producers, among the population in each decile. The Ministry of Health calculated these coefficients by classifying the production costs of the health system by age and gender of individuals effectively attended. On the basis of these coefficients the ministry pays the Sick Funds premiums according with age and gender characteristics of their insured population. It is assumed that the cost of a person of a given age and gender is the same, independently of the income level of the household to which he belongs. This assumption may undervalue the STK received by persons with low income, if their effective cost to the system is higher than that of persons at the same age with high income, provided that the last one uses relatively more services of market producers.

**TABLE 1. HOUSEHOLDS DISPOSABLE INCOME AND SOCIAL TRANSFERS IN KIND OF EDUCATION AND HEALTH SERVICES, BY DECILES\*, 1992**

At average june 1992/ may1993 prices

	Decile										
	Average	1	2	3	4	5	6	7	8	9	10
	<b>Monthly household's income, NIS</b>										
<b>(1) Primary income and pensions</b>	<b>5440</b>	<b>1020</b>	<b>2051</b>	<b>2703</b>	<b>3514</b>	<b>3996</b>	<b>5097</b>	<b>6186</b>	<b>7654</b>	<b>9628</b>	<b>12541</b>
<b>(2) Current transfers, receivable**</b>	<b>685</b>	<b>919</b>	<b>913</b>	<b>829</b>	<b>748</b>	<b>678</b>	<b>610</b>	<b>523</b>	<b>489</b>	<b>516</b>	<b>625</b>
<b>(3) Current transfers, payable</b>	<b>1033</b>	<b>58</b>	<b>178</b>	<b>270</b>	<b>464</b>	<b>531</b>	<b>766</b>	<b>1077</b>	<b>1514</b>	<b>2243</b>	<b>3223</b>
<b>(4)=(1)+(2)-(3) Disposable income</b>	<b>5092</b>	<b>1881</b>	<b>2786</b>	<b>3262</b>	<b>3798</b>	<b>4143</b>	<b>4941</b>	<b>5632</b>	<b>6629</b>	<b>7901</b>	<b>9943</b>
<b>(5) Social transfers in kind on education and health services</b>	<b>652</b>	<b>880</b>	<b>868</b>	<b>798</b>	<b>715</b>	<b>653</b>	<b>626</b>	<b>578</b>	<b>569</b>	<b>525</b>	<b>306</b>
<b>(6) Household's adjusted disposable income</b>	<b>5744</b>	<b>2761</b>	<b>3654</b>	<b>4060</b>	<b>4513</b>	<b>4796</b>	<b>5567</b>	<b>6210</b>	<b>7198</b>	<b>8426</b>	<b>10249</b>

\* Of disposable income per standard person

\*\* Excluding pensions



**TABLE 1. HOUSEHOLDS DISPOSABLE INCOME AND SOCIAL TRANSFERS IN KIND OF EDUCATION AND HEALTH SERVICES, BY DECILES\*, 1992**

(continued)

	Decile										
	Average	1	2	3	4	5	6	7	8	9	10
	Percentages, each decile compared to the tenth decile										
(1) Primary income and pensions	43.4	8.1	16.4	21.6	28.0	31.9	40.6	49.3	61.0	76.8	100.0
(2) Current transfers, receivable**	109.6	147.0	146.1	132.6	119.7	108.5	97.6	83.7	78.2	82.6	100.0
(3) Current transfers, payable	32.1	1.8	5.5	8.4	14.4	16.5	23.8	33.4	47.0	69.6	100.0
(4)=(1)+(2)-(3) Disposable income	51.2	18.9	28.0	32.8	38.2	41.7	49.7	56.6	66.7	79.5	100.0
(5) Social transfers in kind on education and health services	213.1	287.6	283.7	260.8	233.7	213.4	204.6	188.9	185.9	171.6	100.0
(6) Household's adjusted disposable income	56.0	26.9	35.7	39.6	44.0	46.8	54.3	60.6	70.2	82.2	100.0

\* Of disposable income per standard person

\*\* Excluding pensions

**TABLE 1. HOUSEHOLDS DISPOSABLE INCOME AND SOCIAL TRANSFERS IN KIND OF EDUCATION AND HEALTH SERVICES, BY DECILES\*, 1992**

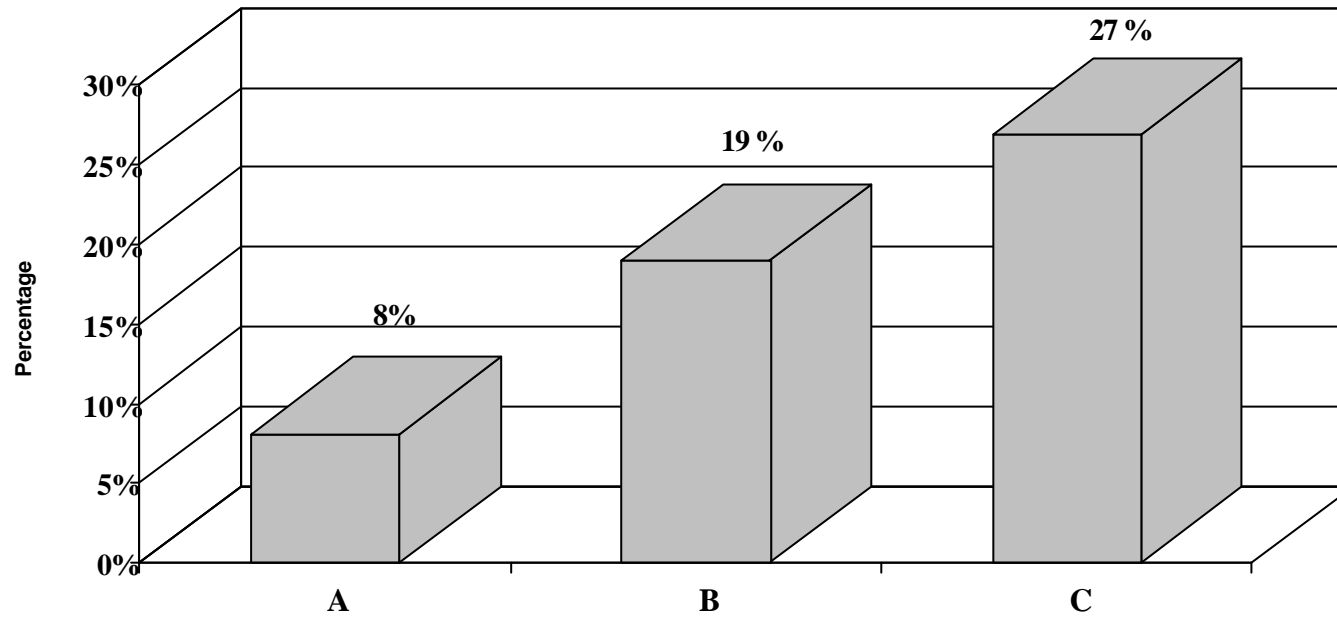
(continued)

	Decile										
	Average	1	2	3	4	5	6	7	8	9	10
	Percentages, each component's share compared to primary and pension income										
(1) Primary income and pensions	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(2) Current transfers, receivable**	12.6	90.1	44.5	30.7	21.3	17.0	12.0	8.5	6.4	5.4	5.0
(3) Current transfers, payable	19.0	5.7	8.7	10.0	13.2	13.3	15.0	17.4	19.8	23.3	25.7
(4)=(1)+(2)-(3) Disposable income	93.6	184.4	135.8	120.7	108.1	103.7	96.9	91.0	86.6	82.1	79.3
(5) Social transfers in kind on education and health services	12.0	86.3	42.3	29.5	20.3	16.3	12.3	9.3	7.4	5.5	2.4
(6) Household's adjusted disposable income	105.6	270.7	178.2	150.2	128.4	120.0	109.2	100.4	94.0	87.5	81.7

\* Of disposable income per standard person

\*\* Excluding pensions

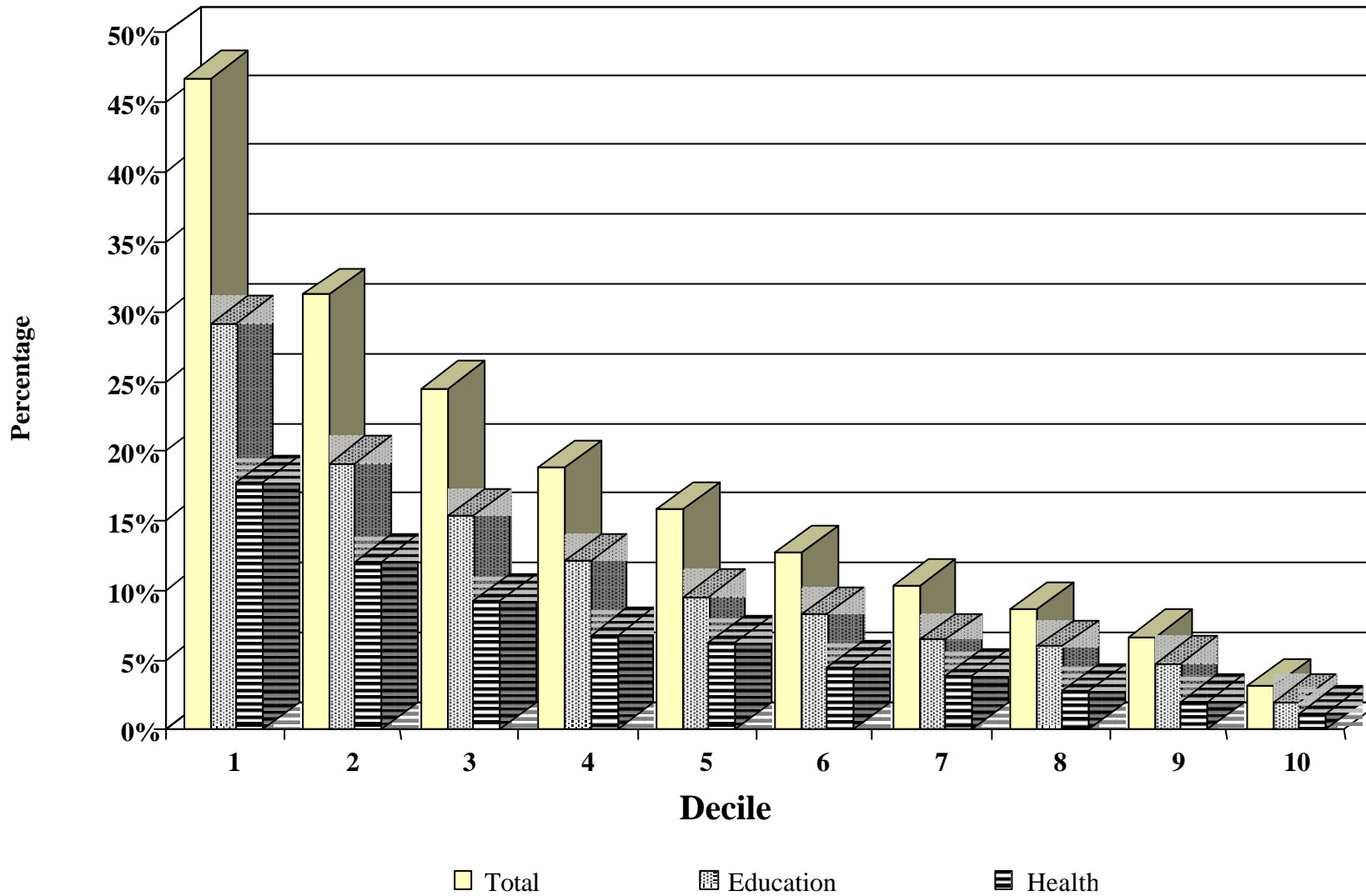
# 1. Income of Households in the First Decile\* as Percentage of Income of Households in the Tenth Decile\*, 1992



- A = Primary income and pensions
- B = Disposable income (A minus current transfers, excluding pensions, net)
- C = Adjusted disposable income (B plus social transfers in kind of education and health services)

\* Of disposable income per standard person.

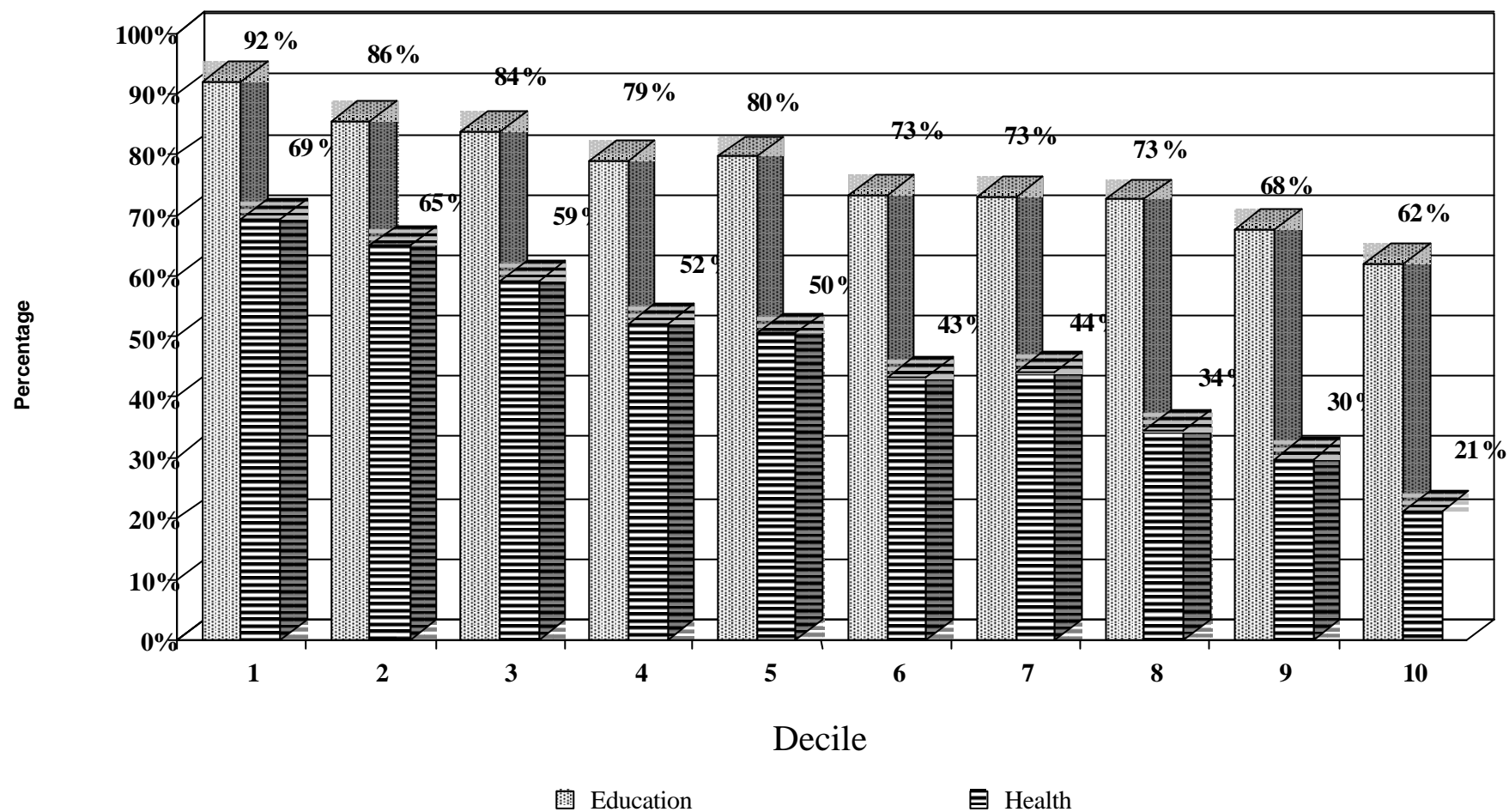
## 2. Social Transfers in Kind of Education and Health Services as Percentage of Households' Disposable Income, by Decile\*, 1992



\* Of disposable income per standard person

### 3. Social Transfers in Kind of Education and Health Services as Percentage of Households Actual

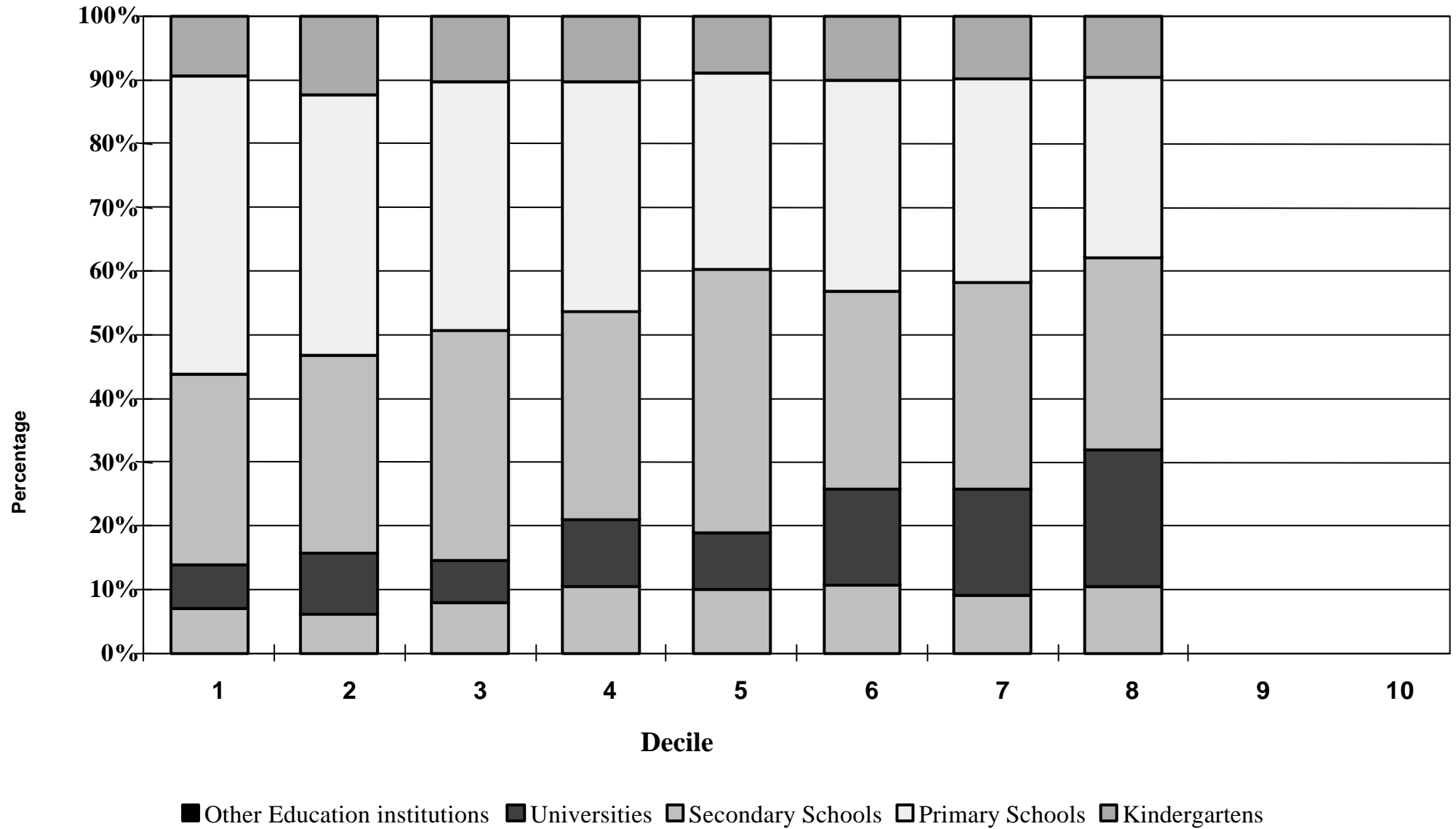
Consumption of Education (a) and Health Services, by Decile\*, 1992



(a) Actual consumption measures the value of goods and services by households, bought by them, or received as social transfers in kind from general government and private non-profit institutions.

\* Of disposable income per standard

#### 4. Social Transfers in Kind of Education Services to Households, by Decile\* and Level of Education, 1992



\* Of disposable income per standard person

