Medical care expenditures of farm-operator families have increased sharply in the past 20 years, with a decrease in the farm-urban disparity, improvement in the relative position of southern families, and changes in the distribution of the medical care dollar.

Farm Medical Care Expenditures

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FARM-OPERATOR families in 1955 spent, on the average, $240 per family for medical care. Spending per person in these families amounted to $63. Comparison of this figure with per person expenditures of $10 by farm families and $19 by urban families in 1935–36 (*1*), $15 by farm families and $32 by urban families in 1941 (*2*), and $65 by urban families in 1950 (*3*) reveals a tremendous increase in the level of expenditures in the past two decades and indicates that farm and urban families are becoming more similar in spending for medical care.

Part of this increase in medical care expenditures is due to the change in price level (*4*). But when this is taken into account, a tripling in medical expenditures for members of farm families since 1935–36 and a doubling since 1941 remain (table 1).

Beyond the rise in prices, it is difficult to pinpoint factors that explain the change in medical care expenditures. It is easier to point out some of the things that are not responsible.

Only part of the change can be attributed to an increase in the income of the farm population; although the real income of farmers rose rapidly during the early years of the war and remained relatively constant at a high level from 1943 through 1946, it then began a slow decline that, with interruptions, continued through 1955 and brought it in that year to a point only about 20 percent above the 1941 figures (*5*). Only fragmentary data are available on the movement of farm-family expenditures for medical care between 1941 and 1955, but indications are that in dollars of constant purchasing power they have risen more or less continuously throughout the period. An estimate for the farm population in 1945, derived from a survey in the North Central region and in the South, would indicate that at that time medical care expenditures were far short of the 1955 level. Home accounts of a group of farm families submitting their records to State universities show that the medical care expenditures of this group rose steadily throughout the period (*6*). These account-keeping families are not typical of all farm families, but it is assumed that their accounts reflect the trend in farm spending.

Our aging population might be expected to push medical costs upward, but on examination the effect of the change in the age distribution of the farm population is found to be negligible. Increases in the proportion of children, the age group with the lowest average expenditures, appear to cancel out increases at the other end of the age range, where expenditures tend to be high. This conclusion assumes the relationships in expenditures by age found by Mushkin in the 1950 urban data (*7*).

The explanation for the increase in farm expenditures for medical care must be sought

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in part in the wide complex of factors determining the general living expenses among farm families, for the medical care situation is not an isolated phenomenon. Expenditures for all categories of consumption combined have risen almost as much proportionally as have medical care expenditures, and a few categories have shown even sharper increases. In spite of the very large increase in medical care expenditures, this category accounted for only 1 percent more of the total consumption expenditures in 1955 than it did in 1941.

Gains Since 1941

For the same array of goods and services included under medical care in the 1941 study, farm families were spending $235, on the average, in 1955, as compared with $60 in 1941 (table 1). When this is converted to 1941 dollars to eliminate the effect of the price change since that year, they are found to be buying a little more than twice as much in 1955 as in 1941. Moreover, this comparison of data for families understates the change in per capita expenditure since average size of farm families decreased from 4.0 to 3.8 persons in this period.

Table 1. Main categories of medical care expenditures in current dollars and in dollars of constant purchasing power, farm-operator families and single farm operators

Expenditure category	1955		1941	1955 as a percent of 1941 computed in 1941 dollars
	In 1955 dollars	In 1941 dollars [1]		
All medical care [2]	$235	$126	$60	210
Health insurance and prepayment plans	42	13	3	433
Direct expenditures	193	113	57	198
Physicians' services [3]	63	39	22	177
Dental care [3]	29	17	9	189
Eye tests and glasses [3]	13	10	5	200
Hospital care	36	11	7	157
Medicines and drugs [2 3]	39	29	10	290
Other [3 4]	13	7	5	140

[1] Adjusted by the consumer price index (*4*). The most suitable component of the index has been applied to the individual categories of medical care expense and the total obtained by addition. Since health insurance was not included in the index in 1941, hospital care, the major component of health insurance, was used for that year.

[2] In this table, vitamin and mineral preparations, a component of medicines and drugs in the 1955 data in tables 2, 3, and 4, have been excluded to achieve comparability with the 1941 data.

[3] To achieve comparability with the 1941 data, unitemized expenditures reported on the 1955 schedules have been allocated to these items proportionately.

[4] Includes nursing care, services of other practitioners (osteopaths, naturopaths, chiropractors, faith healers, midwives), laboratory tests and X-rays, medical appliances and supplies, and ambulance service.

All the items of medical care have not shared equally in this gain. Health insurance appears to have made the greatest gain, although premiums paid cannot be measured precisely in dollars of constant purchasing power because there is no measure of the change in price of this item over the whole period. Consumption of medicines and drugs appears to have tripled. This increase is of particular interest since it might be expected that as the amount of medical care increased, there would be a decline in self-medication and therefore no more than a moderate increase in the volume of drugs bought. At least two factors have operated to increase expenditures. Dispensing of drugs by physicians has been decreasing over the past several decades, with a resulting increase in purchases. Also, the period since 1941 has been marked by the introduction of a wide range of antibiotics and other new drugs that are in a completely different price range from the old drugs. It is also possible that there was over-reporting of this item in 1955, although there is no conclusive evidence on this point.

The relative increases for the other major components of medical care were less than that for the category as a whole. If, however, instead of considering health insurance as a separate component, one-third of the premiums are assigned to physicians' services and two-thirds to hospital care, the volume of physicians' care used is found to have increased in almost the same proportion as all medical care, and the volume of hospital care to have made a greater increase.

While health insurance and medicines and drugs, the items that made large individual gains, account for more than 40 percent of the total increase, some of the items that made smaller gains also contributed substantially. Direct expenditures for physicians' services ac-

Methodology and Definitions

Data on medical expenses in 1955 were obtained as part of a survey of farm-operators' farm and family expenditures conducted jointly by the U. S. Department of Agriculture and the U. S. Bureau of the Census to provide a set of weights reflecting expenditure patterns of a recent year for use in calculating the parity index, and to improve the basis for estimating farm-operator production expenses (8). Because of the large number of items for which data were required, two national samples were used, data on production expenses being obtained from one and data on family living expenses and income from the other. In the sample providing data on family living expenses there were 3,985 families and single individuals.

In this survey, expenditures for medical care include health insurance premiums and dues to prepayment plans paid by the family, and expenses for the treatment of illness and routine physical and dental examinations incurred by the family in the schedule year and not covered by insurance. Expenses were reported even though payment may not have been made within the schedule year.

The following differences in definitions relating to medical care exist between the various studies cited here:

In the 1950 and 1955 studies, vitamin and mineral preparations are classified as medicines and drugs, hence in medical care. In the earlier studies these items were considered to be food supplements and were classed with food. Inclusion of these preparations raises the average farm-family expenditures in 1955 from $37 to $43.

Expenditures for health insurance prepayment plans were not covered in the 1935–36 study. This disparity does not affect the comparability of the data materially since there was very little of this type of insurance at that time.

More detail on medical care expenditures from this survey will be available in forthcoming publications of the Department of Agriculture.

count for a fourth of the gain; although the relative increase in this item was below the average for medical care, the item was such a large component of the total in 1941 that even a moderate percentage increase resulted in a substantial increase in the total amount. Similarly, dental care, although showing a much less dramatic rise in expenditures than did health insurance, contributed almost as much as health insurance to the overall gain.

The prices of the components of medical care did not change equally over the period 1941–55. As measured by the consumer price index of the Bureau of Labor Statistics, the cost of services increased more than the cost of goods. The greatest price increase occurred in hospital rates.

As a result of price changes and differences in the volume of services and goods consumed, there have been changes in the distribution of the medical care dollar. Physicians' services, including those paid for directly and by insurance, are still the largest single component, but they have become somewhat less important, taking only 33 cents of the medical care dollar instead of 38 cents. Dental care and eye tests and glasses also showed small losses in importance. The greatest change occurred in hospital care; the proportion of the medical care dollar spent for this item, either directly or through insurance, almost doubled.

Farm-Urban Comparisons

As was pointed out earlier, in 1950 urban families spent, on the average, $65 per person for medical care. If between 1950 and 1955 they increased their spending in proportion to the increase shown by all United States consumers (and this is a reasonable assumption since they constituted almost two-thirds of all consumers in 1950), by 1955 they were spending $81 per person. If this is so, in that year the level of spending of rural families ($63 per person) was about 80 percent of that of urban families, whereas in 1941 it was less than 50 percent. The amount of money spent is not a precise measure of the volume of services received, since there may be a price differential between urban and rural areas.

The division of the medical care dollar between health insurance and prepayment plans on the one hand and direct expenditures on the other seems to be much the same in urban and farm families, but fewer farm families have the protection of insurance. In 1950, 64 percent of urban families reported premium payments and presumably in the 5 years between surveys this proportion increased somewhat, but in 1955 only 51 percent of farm families were making such payments. The average premium paid in 1955 by farm families carrying insurance was considerably larger than the average premium paid in 1950 by urban families with insurance: $82 as contrasted with $53. Although no direct comparison of coverage obtained is possible, it is readily apparent that the covered farm family has considerably less protection than the covered urban family. The difference in premiums is barely enough to offset the price rise in the intervening years. Additional considerations are that fewer farm than urban families obtain their insurance in connection with employment and therefore fewer benefit from the contributions of employers, and that many farm families are not in a position to take advantage of group insurance plans and the savings they make possible.

Effect of Income and Other Factors

Income is an important determinant of expenditures since families cannot continuously spend beyond their resources. The expenditure data classified by income must be interpreted

Table 2. Medical care expenditures, by family income, farm-operator families and single farm operators, 1955

Region and income class [1]	All medical care		Health insurance		Direct expenditures		Percent of families having expenditures for—		Average family size	Number of families represented by sample
	Per family	Per person	Per family	Per person	Per family	Per person	Health insurance	Direct expenditures		
United States	**$240**	**$63**	**$42**	**$11**	**$198**	**$52**	**51**	**99**	**3.8**	**4,760,050**
Under $250	252	74	33	10	219	64	40	97	3.4	429,233
$250–$499	152	45	25	7	128	38	32	96	3.4	211,320
$500–$999	145	45	17	5	129	40	27	96	3.2	583,147
$1,000–$1,499	186	53	30	9	156	45	42	99	3.5	519,675
$1,500–$1,999	209	55	34	9	174	46	45	100	3.8	484,019
$2,000–$2,999	249	61	46	11	202	49	58	99	4.1	840,136
$3,000–$3,999	271	65	56	13	215	51	66	99	4.2	605,229
$4,000–$4,999	277	62	65	14	212	47	68	99	4.5	322,408
$5,000–$7,499	360	86	64	15	296	70	69	100	4.2	350,072
$7,500 and over	431	100	79	18	352	82	69	100	4.3	176,385
North Central	**241**	**65**	**48**	**13**	**193**	**52**	**56**	**100**	**3.7**	**1,686,776**
Under $1,000	214	67	28	9	187	58	37	99	3.2	383,642
$1,000–$1,499	191	62	39	13	152	49	53	99	3.1	168,071
$1,500–$1,999	205	62	40	12	165	50	49	100	3.3	192,436
$2,000–$2,999	238	63	52	14	186	49	61	100	3.8	349,944
$3,000–$4,999	264	60	64	15	200	45	68	100	4.4	364,568
$5,000–$7,499	327	73	60	13	267	59	72	100	4.5	118,045
$7,500 and over	295	72	68	17	227	55	73	100	4.1	50,502
South	**222**	**57**	**34**	**9**	**188**	**48**	**45**	**98**	**3.9**	**2,275,320**
Under $500	183	52	24	7	159	45	32	96	3.5	334,087
$500–$999	142	44	15	5	127	40	24	95	3.2	372,517
$1,000–$1,499	176	46	24	6	153	40	35	100	3.8	298,873
$1,500–$1,999	204	47	27	6	176	41	41	100	4.3	224,636
$2,000–$2,999	263	58	40	9	223	50	54	99	4.5	372,353
$3,000–$7,499	288	69	54	13	234	56	65	99	4.2	486,292
$7,500 and over	487	116	88	21	399	95	74	100	4.2	60,054

[1] Total money income as collected in this survey was subject to under-reporting, particularly for income from operation of the farm. The income distributions given here are not corrected for this under-reporting, but should nevertheless be useful for classifying families into homogeneous groups (with respect to 1955 income), for the presentation of expenditure data.

with the knowledge, however, that there was substantial under-reporting of income in this as in most surveys. Estimates of aggregate net farm income derived from the 1955 survey are as much as a third below estimates based on other data, but nonfarm income is in line with other estimates. Since the degree of under-reporting probably was not constant among all respondents, there is undoubtedly some error both in the absolute level at which some families are classified and in their relative positions in the income scale.

Average expenditures per person ranged from $45 among families reporting incomes of $250 to $1,000 to $100 among families with incomes of $7,500 and over (table 2). Families in the lowest income class (under $250) reported larger expenditures than those with somewhat higher incomes. Although it can be assumed that some of these families are misclassed as a result of under-reporting of income, it is also probable that some of them are in the lowest class because of temporary fluctuations in income. For the latter group, ill health may partly explain both their income position and the size of their medical care expenditures, but this can be only a minor factor as the same relationships can be observed in the total consumption expenditures and in those for other categories.

In the group with reported incomes under $2,000, which included almost half of all farm families, medical care expenditures averaged $55 per person or less. Those with reported incomes between $2,000 and $5,000, slightly more than a third, had per person expenditures averaging between $60 and $65. Expenditures rose rapidly among families with incomes of $5,000 or more.

At all income levels, the proportion of families reporting some direct medical care expenditures was high, with only a slight tendency to increase with income. The proportion of families reporting expenditures for health insurance was considerably lower and was more closely related to reported income, rising with it. There was less variation with income in per person expenditures in the North Central region than in the South (table 2). Average per person expenditures in families with incomes below $3,000 were lower in the South than in the North Central States, but when incomes were $3,000 or more southern families spent more per person.

Other characteristics than income are also of importance in determining expenditures. Frequently, however, these characteristics have systematic relationships among themselves and with income that make it difficult to show by means of simple tabulations such as those presented here which characteristics are most closely related to the variation. In table 3 expenditures by race, tenure, education of the operator, and family size are shown for all farm families and for families in a relatively narrow income band. In the latter group, much of the effect of variation in income is eliminated, but other internal relationships are not controlled. For example, nonwhite families are less likely to be in the owner class, they have lower educational attainment as a rule, and the families tend to be larger.

In the South, where 19 percent of all respondents were nonwhite, medical expenditures show a difference by race. In families with incomes below $3,000, who constitute 85 percent of the nonwhite and 67 percent of the white respondents, medical care expenditures of nonwhite families tended to be about half those of white families of comparable income. Since nonwhite families are larger on the average than white families, the difference was even greater on a per person basis. Interestingly enough, white and nonwhite families carried some type of health insurance in about the same proportions, but the average premium or dues payment was smaller among nonwhite families. Race had a greater effect on expenditures for medical care than on total consumption expenditures. This may result from differences in facilities available to the two groups. It may also be the indirect effect of education, for in this study medical care expenditures tended to rise with an increase in the education of the farm operator.

Two different regional patterns appear when medical care expenditures are classified by income and tenure. In the North Central region, tenants consistently spent more than owners with comparable incomes. In the South, however, owners spent more than cash-and-share

Table 3. Medical care expenditures, by selected family characteristics, farm-operator families and single farm operators, 1955

Family characteristics	United States			North Central			South		
	Total medical care	Health insurance	Direct expenditures	Total medical care	Health insurance	Direct expenditures	Total medical care	Health insurance	Direct expenditures
	All incomes								
All families	$240	$42	$198	$241	$48	$193	$222	$34	$188
Race:									
White	253	44	209	(1)	(1)	(1)	247	37	210
Nonwhite	118	23	95	(1)	(1)	(1)	117	23	95
Tenure:									
Owners and part owners	250	44	206	236	46	191	246	38	208
Tenants other than croppers	221	39	183	260	54	206	158	20	138
Sharecroppers	78	18	59	(2)	(2)	(2)	78	18	59
Education of operator (years):									
Less than 9	211	36	175	230	44	186	189	28	161
9–12	279	50	229	245	51	195	297	44	252
13 or more	323	64	259	(2)	(2)	(2)	(2)	(2)	(2)
Family size (persons):									
Less than 1.5	79	17	62	80	20	60	63	15	48
1.5–2.4	221	33	187	204	34	169	211	27	184
2.5–3.4	260	44	216	254	48	206	264	36	228
3.5–4.4	263	51	212	251	55	196	256	47	209
4.5–5.4	269	55	213	278	62	217	246	44	202
5.5–6.4	258	43	215	279	50	229	201	30	170
6.5 or more	250	44	206	311	71	240	197	30	167
	Incomes of $1,000–$1,999								
All families	$197	$32	$165	$199	$140	$159	$188	$25	$163
Race:									
White	209	33	175	(1)	(1)	(1)	210	26	184
Nonwhite	100	23	77	(1)	(1)	(1)	100	23	77
Tenure:									
Owners and part owners	207	32	174	197	35	163	206	29	177
Tenants other than croppers	177	35	142	205	56	149	141	13	128
Sharecroppers	79	13	66	(2)	(2)	(2)	79	13	66
Education of operator (years):									
Less than 9	187	29	158	181	38	143	183	22	161
9–12	214	38	176	218	40	177	206	35	171
13 or more	274	54	220	(2)	(2)	(2)	(2)	(2)	(2)
Family size (persons):									
Less than 1.5	71	19	51	55	22	33	66	15	51
1.5–2.4	194	32	161	182	36	146	195	28	168
2.5–3.4	205	34	171	219	48	171	193	20	173
3.5–4.4	253	40	213	238	45	193	263	35	228
4.5–5.4	222	42	180	218	42	176	190	32	158
5.5–6.4	183	24	159	219	35	184	161	20	141
6.5 or more	157	21	136	234	41	193	133	18	115

[1] Data not tabulated because the percentage of nonwhite operators is small. [2] Data not shown because of small number of cases.

tenants with the same incomes, and the latter in turn spent more than sharecroppers. The pattern in the North Central region seems to represent a break with the past. It may be related to the higher educational attainment of tenants in this region; they tend to be considerably younger than owners and therefore to have progressed further before they left school. It may, however, reflect current attitudes toward farm ownership and the choice between saving to invest in the farm and spending for current consumption. It is possible that the higher expenditures of tenants represent a choice on their part of higher consumption and postponement of farm ownership, and a choice on the part of the owners to build up their investment in the farm. In the South, it must be recognized that the pattern by tenure is strongly influenced by the racial pattern. The proportion of nonwhite operators is largest among sharecroppers and smallest among owners. The pattern of educational attainment is also the reverse of that in the North Central region; the higher the position on the tenure ladder, the further the group has gone in school.

For the farm population as a whole, expenditures per family increased with family size until the 3-person family was reached; they remained at a fairly constant level until the 6-person family was reached and then decreased among the largest families. This pattern, however, conceals sharp regional variation. In the North Central States the average expenditure tended to rise more or less consistently with family size throughout the entire range, while in the South it rose only until the three-person family was reached and dropped thereafter. In both regions there was a sharp increase in per person expenditures between the single individual and the two-person family; thereafter per person expenditures decreased with increase in family size.

Regional Comparisons

In 1955, medical care expenditures were lower among southern farm families than among those in the North Central region. This difference is due in part to lower income, lower educational attainment, and a higher proportion of nonwhites among the population in the South. That this is not the entire explanation, however, can be seen by comparing the expenditures of comparable groups in the two regions. At most income levels, southern families spent less than those in the North Central region (table 2). Furthermore, groups comparable as to tenure, education, or family size, in addition

Table 4. Detail of medical care expenditures, by region, farm-operator families and single farm operators, 1955

Expenditure category	Average expenditures per family			Percent of families having expenditures		
	United States	North Central	South	United States	North Central	South
All medical care	$240	$241	$222	[1]	[1]	[1]
Health insurance and prepayment plans	42	48	34	51	56	45
Direct expenditures	198	193	188	99	100	98
Hospital care	31	27	32	21	23	20
Surgeons' care	11	11	7	9	10	7
Other physicians' (M.D.) care	49	50	47	74	74	73
Osteopaths	3	5	1	6	11	2
Other practitioners	3	4	2	8	12	4
Dental care	28	30	20	54	62	46
Eye tests and glasses	12	13	10	34	39	29
Nursing care	2	1	2	2	1	2
Laboratory tests and X-rays	3	3	2	12	14	9
Medicines and drugs	43	37	46	[1]	[1]	[1]
Medical appliances and supplies	2	1	1	13	14	10
Other and unitemized medical expenses	13	11	16	[1]	[1]	[1]

[1] Not available.

to income, show a similar regional disparity (table 3). It is encouraging to note, therefore, that since 1945 expenditures have increased more in the South than in the North Central region. This can be attributed at least in part to a greater increase in income in the South and to a more than proportionate loss from the population of those groups whose expenditures are lowest—sharecroppers, other tenants, and nonwhite operators.

For most categories of medical care southern families spent less than North Central families (table 4). Only for medicines and drugs do they appear to spend substantially more. Direct expenditures for hospital care are somewhat higher, but when that proportion of insurance premiums assignable to hospital care is added to direct expenses, the total for northern families is higher. The higher expenditures of southern families for medicines and drugs, especially when occurring in conjunction with lower expenditures for physicians' care, seem to indicate a greater degree of self-medication.

The general patterns of expenditures in the two regions were similar. Such differences as were found, in line with the difference in amount of expenditures, indicate less care in the South. Fewer southern families had expenditures for dental and eye care, and smaller proportions of the medical dollar were spent on these items. Fewer southern families had direct expenditures for hospital care, and it probably follows that there were fewer hospital admissions. If health insurance premiums are assigned to the categories of care, expenditures for both hospital care and physicians' services were of greater importance in the North Central region than in the South. Since total medical expenditures were lower in the South than in the North Central region and expenditures for medicines and drugs were greater, it follows that a considerably larger proportion of the medical dollar went for medicines and drugs in the South.

This regional disparity is not confined to the farm segment of the population. In fact, per person expenditures for medical care show that the relative position of the rural South is higher than that of the urban South:

	United States	*South*
Farm operators, 1955	$63	$57
Urban population, 1950	65	55

The urban South, however, has considerably less effect on the national average for the urban population than does the rural South on the national rural figure, since less than one-fourth of all urban families live in that region as compared with almost one-half of all rural families. If the South carried the same weight in both the urban and farm populations, much of the present difference between urban and rural expenditures would disappear.

REFERENCES

(1) U. S. National Resources Planning Board: Family expenditures in the United States. Washington, D. C., U. S. Government Printing Office, 1941.

(2) Hollingsworth, H., and Klem, M. C.: Medical care and costs in relation to family income. U. S. Social Security Board, Bureau of Research and Statistics, Memorandum No. 51. Washington, D. C., 1943.

(3) University of Pennsylvania. Wharton School of Finance and Commerce: Study of consumer expenditures, incomes, and savings. II. Summary of family expenditures for current consumption. Philadelphia, 1956.

(4) U. S. Bureau of Labor Statistics: Consumer price index, price indexes for selected items and groups, annual indexes, 1935–55, and quarterly indexes, December 1952–March 1956. Washington, D. C., July 1956, 12 pp. Processed.

(5) U. S. Agricultural Marketing Service: The farm income situation, July 1957. Washington, D. C. Processed.

(6) U. S. Department of Agriculture: Agricultural statistics, 1955. Washington, D. C., U. S. Government Printing Office, 1956.

(7) Mushkin, S.: Age differential in medical spending. Pub. Health Rep. 72: 115–120, February 1957.

(8) U. S. Bureau of the Census: Census of agriculture: 1954. Vol. III, Special reports. Pt. 11, Farmers' expenditures. Washington, D. C., U. S. Government Printing Office, 1956.