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Demand Patterns of Newsprint with Special
Reference to Pakistan

By

M. Ashraf Janjua



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DEMAND PATTERNS OF NEWSPRINT WITH SPECIAL REFERENCE
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by

M. ASHRAF JANJUA*

INTRODUCTION

The purpose of this study is to assess the income elasticities of demand for newsprint in various countries and to utilize this information to estimate the domestic demand and exportable surplus of newsprint from Pakistan. East Pakistan is rich in the raw materials for the production of this commodity, which started in 1959. Production during 1962-63 was 31821 metric tons ^{1/} [107] and the Planning Commission of Pakistan now estimates that production in 1969/70 will be over 71000 tons [117]. Recent exports have been approximately 12,000 tons, but future exports depend heavily on the extent to which rising internal consumption will absorb the expansion in supply. This study examines the patterns of consumption in a large number of countries and draws some conclusions of predictive value which are used to estimate Pakistan's internal absorption, and which also yield a certain insight into the international demand for Pakistan's exports.

In any study of this kind, serious statistical problems exist, which are well known, but which are so important that they must be mentioned briefly at the outset. First, due to the absence of adequate data on stocks, there is no way of measuring

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^{1/} All figures on production, trade and availability are in metric tons, which is equal to 2204.6223 lbs.

actual newsprint consumption in any year. Therefore, this study focusses on newsprint "availability" defined as "production, plus imports, minus exports". Although in any particular year "consumption" will deviate from "availability", because of changes in inventories, over several years the trend of availability probably closely reflects the trend of underlying consumption. Consequently, single annual availability figures have not been utilized, but rather several observations have been grouped (and averaged) in all cases.

The second major problem area relates to the measurement and comparison of national income. There are weaknesses in the estimates even for the developed countries, but for the underdeveloped the range of error is much greater. The difficulties in estimating the current national income are compounded when real (constant price) income is calculated, and they are further accentuated in converting the figures into a common currency (usually the U.S. dollar). Since the data for the advanced countries are better and more comparable, they have been treated separately in Section II, with the analysis of underdeveloped countries following in Section III.

The third major data problem is with population estimates, which were utilized to convert newsprint availabilities and national incomes to per capita terms. For most countries several estimates exist which would yield slightly different figures for per capita income (PCI) and per capita availability of newsprint (PCA_n), two key variables in this study. The population estimates used are all from one source [12] for which, presumably, they were collected on some uniform and consistent basis.

The following two sections (II and III) deal with the income elasticity of demand for newsprint in developed and underdeveloped countries. In section IV, Pakistan's newsprint production, consumption and exports during the past decade are assessed, and the results of the earlier sections are used to estimate potential consumption and export surplus.

II. DEMAND FOR NEWSPRINT IN ADVANCED COUNTRIES

The basic data on PCI (per capita income) and per capita availability of newsprint and other varieties of paper for seventeen developed countries for the ten-year period, 1952-61, are given in the Appendix Table A-1. Using these data, several different methods were adopted to assess the per capita income elasticity of demand for newsprint (E_{y_n}) in these countries. First, the ten-year average PCI and PCA_n (per capita availability of newsprint) were calculated for each country. The results are shown in Table I, Columns (2) and (3), arranged according to increasing PCI, and they reveal a definitely positive relationship between income and newsprint availability. A regression equation relating PCA_n to PCI showed a good correlation (the r^2 was 0.65), and the E_{y_n} (per capita income elasticity of demand for newsprint) at the average PCI and PCA_n was 1.02.^{2/} A ten per cent increase in per capita income was associated with a 10.2 per cent increase in per capita newsprint demand (availability).

$$\begin{aligned} \frac{2/}{Y_n} &= -1.02 + 13.49 X; \\ n &= 17; r^2 = 0.65; \\ t &= 5.24 \text{ (significant at the 99 per cent confidence level);} \\ E_{y_n} &= 1.02; Y_n = 14.62; X = 1.11. \end{aligned}$$

where Y_n is the average PCA_n (in kilograms) for seventeen developed countries, 1952-61; X is the average PCI (in thousand of dollars) for these countries during the same period; E_{y_n} is the per capita income elasticity of demand (availability) for newsprint at the average values of the variables; n is the number of observations; r^2 is the coefficient of determination; the number (2.57) in the parenthesis under coefficient of the independent variable (the b coefficient) is the standard deviation of this coefficient; t is the coefficient divided by its standard deviation. The t test reveals the statistical significance of the regression equation which in this case is at the 99 per cent confidence level.

Y_n is the average PCA_n ; X is the average PCI. These definitions of n , r^2 , t , Y_n and X will be used throughout this article. This t used for the test of statistical significance should not be confused with the subscript t used for denoting total of newsprint and writing and printing paper. Similarly n denoting the number of observations should not be confused with subscript n used for denoting newsprint.

For certain countries, however, the average PCA_n is quite out of line with other countries of similar average PCI, as can be seen in Table I. For Ireland, Australia, and New Zealand, PCA_n (Column 3) is relatively high, about three times the per capita availability of writing and printing paper (Column 4); and for Israel, West Germany, and Norway the second category is relatively high, about sixty percent greater than PCA_n . This contrasts with the remaining twelve countries, in which the per capita availability of newsprint (PCA_n) and of writing and printing paper are approximately equal.

In the six exceptional cases, the deviations are probably due to differences in the definition or classification of newsprint and other varieties of paper, or due to substitution of one type of paper for another. This explanation is supported by the fact that when the per capita availabilities are totalled, as shown in Table I, Column 5, the deviations are reduced. Further, a regression equation relating the total per capita availabilities (PCA_t) to PCI revealed a much better correlation than that for PCA_n alone; the r^2 was 0.85, indicating that eighty-five per cent of the variations in PCA_t were "explained" by changes in PCI. (The income elasticity, Ey_t , however, was 1.08 about the same as Ey_n (1.02)^{3/}. In view of this possibility of differences in classification or substitution of one variety of paper for another, the total per capita availability of both newsprint and writing and printing paper (PCA_t) is also utilized in the analysis of this section.

$$\begin{aligned} 3/ \quad Y_t &= -2.00 + 25.00 X; \\ &\quad \quad \quad (2.72) \\ n &= 17; r^2 = 0.85; \\ t &= 9.20 \text{ (significant at the 99 per cent confidence level);} \\ Ey_t &= 1.08; \bar{Y}_t = 25.90; \bar{X} = 1.12; \end{aligned}$$

where Y_t is the average PCA_t (in kilograms) for seventeen developed countries, 1952-61; X is the average PCI (in thousand of dollars) for these countries during the same period; Ey_t is the per capita income elasticity of demand (availability) for newsprint and writing and printing paper. The data are from appendix Table A-1.

For each of the seventeen developed countries included above, PCI, PCA_n , and PCA_t increased during the period 1952-61. Therefore a simple method of deriving income elasticities (Ey_n and Ey_t) for each country individually was to divide the data into two five-year periods, and use the average PCI and PCA_t for each period.^{4/} The results are produced below in Table II, Columns (3) and (4), with the countries ranked by PCI. As can easily be seen, there is a wide range of elasticities which result from this rough calculation, but although there are exceptions the Ey tends to decline with rising income. To examine this decline in Ey more carefully, the countries listed in Table I were divided into two income groups and separate regressions were fitted to the data in each group. For the nine richest countries, with average PCI's ranging from \$ 1,106 to \$ 2,585, the Ey_t was quite low, 0.69,^{5/} whereas for the eight "poorer" countries, with PCI's ranging from \$ 522 to \$ 1,025, the Ey_t was 1.62.^{6/} In both cases, the correlations were quite good, lending support to the hypothesis that income elasticity of demand for newsprint and other paper varies inversely with the level of income.

$$4/ \quad Ey_t = \frac{Y_1 - Y_2}{X_1 - X_2} \times \frac{X_1 + X_2}{Y_1 + Y_2};$$

where Y_1 and Y_2 are the average PCA_t 's for each five year period, and X_1 and X_2 are the average PCI's for each period.

$$5/ \quad Y_t = 11.08 + 17.28 X; \quad (3.44)$$

$n = 9; r^2 = 0.78;$
 $t = 5.02$ (significant at the 99 per cent confidence level);

$Ey_t = 0.69; \bar{Y}_t = 36.04; \bar{X} = 1.44;$
 WHERE \bar{Y}_t is the average PCA_t (in kilograms) of the nine richest countries listed in Table I, and \bar{X} is the average PCI (in thousand of dollars) of these countries.

$$6/ \quad Y_t = -9.08 + 31.66 X; \quad (8.84)$$

$n = 8; R^2 = 0.68;$
 $t = 3.58$ (significant at the 98 per cent confidence level);

$Ey_t = 1.62; \bar{Y}_t = 14.48; \bar{X} = 0.74;$

WHERE \bar{Y}_t is the average PCA_t (in kilograms) of the eight "poorer" countries listed in Table I, and \bar{X} is their average PCI (in thousand dollars).

In addition to the cross-section analysis given above, in which each observation is one country's average PCA and PCI for the ten-year period, we calculated income elasticities with a slightly different method based on a combination of time series and cross-section data covering the 161 annual observations of all seventeen countries. These 161 observations, arranged according to increasing PCI, are given in appendix Table A-II, but because of the stocks and statistical problems mentioned above, these observations have been aggregated into the eighteen observations given in Table III (each of the eighteen being the average of nine basic annual observations from Table A-II)^{7/}. A regression equation based on the data in Table III relating PCA_n to PCI, revealed a very good correlation, with an Ey_n of 1.25^{8/}.

As in the earlier case, however, a second regression relating PCA_t to PCI revealed an even better fit, although again the income elasticity was about at the same level (1.15)^{9/}. The r² was 0.98, indicating a very close relationship between changes in income and changes in consumption of paper.

7/ The last row in Table III is based on only eight observations from Table A-II.

8/
$$Y_n = 3.82 + 16.61 X;$$

$$n = 18; r^2 = 0.91;$$

$$t = 1.247 \text{ (significant at the 99 per cent confidence level);}$$

$$Ey_n = 1.25; \bar{Y}_n = 15.26; \bar{X} = 1.15;$$

9/
$$Y_t = -4.04 + 27.63 X;$$

$$n = 18; r^2 = 0.98;$$

$$t = 26.27 \text{ (significant at the 99 per cent confidence level);}$$

$$Ey_t = 1.15; \bar{Y}_t = 27.67; \bar{X} = 1.15;$$

To test the hypothesis that the higher the PCI the lower the income elasticity of demand for paper, the eighteen aggregated observations in Table III were divided into two groups of nine each. In the lower income group, PCI varied from \$ 457 to \$ 1074; the corresponding range for PCA_t was from 8.1 to 25.7 kilograms. A regression equation based on these data showed a very high correlation ($r^2 = 0.97$) and the Ey_t was 1.48¹⁰

In the upper half of these observations, PCI varied from \$ 1,121 to \$ 2,639, and PCA_t varied from 28.1 to 64.4 kilograms. Again, there was an excellent correlation between the variables ($r^2 = 0.98$), and the Ey_t was 0.91^{11/}. The declining income elasticity hypothesis is supported by this cross-sectional and time series analysis.

This study of the demand for paper in seventeen developed countries has yielded the following conclusions. There is a high, positive correlation between PCI and the consumption (availability) of paper. Although the relationship between PCI and PCA_n is quite good, that between PCI and PCA_t is much better, indicating that there are probably some differences in classification of the paper varieties and/or some substitution of one type of paper for another. However, in both cases the income elasticities were almost the same. For all seventeen countries, Ey was slightly over one, being around 1.1 to 1.2. For the upper half of the income the average PCI was about \$ 1500 and the income elasticity was less than one (approximately 0.8). For the lower half, the average PCI was about \$ 750 and the Ey was approximately 1.5. This inverse relationship between per capita income and income elasticity of demand for paper has important implications, particularly for the demand of paper in underdeveloped countries. It is to these countries that we now turn.

10/ $Y_t = -7.99 + \frac{31.51 X}{(2.20)}$;
 $n = 9$; $r^2 = 0.97$;
 $t = 14.32$ (significant at the 99 per cent confidence level);

$Ey_t = 1.48$; $\bar{Y}_t = 16.41$; $\bar{X} = 0.77$;

11/ $Y_t = 3.45 + \frac{23.33 X}{(1.24)}$;
 $n = 9$; $r^2 = 0.98$;

III. DEMAND FOR NEWSPRINT IN UNDERDEVELOPED COUNTRIES

The conclusions from the analysis of data on economically developed countries support the hypothesis that lower the PCI the higher the income elasticity of demand for newsprint and writing and printing paper. As mentioned earlier similar data on underdeveloped countries are also available, but with the limitation that the time series data do not cover as long a period and data on the two varieties of paper are not available for the same period of years for all countries. There is, however, enough statistical information, both cross-sectional and on individual countries separately, to test the hypothesis yielded by the data on developed countries. (Certain other problems of the data on underdeveloped countries will be explained later.)

Table A-III in the Appendix lists PCI and PCA_n and PCA_t data on fourteen underdeveloped countries. Ey_n and Ey_t have been calculated for each of these countries, and the results are produced below in Table IV, where the countries are arranged by rising PCI.^{12/} The figures in Column (4) reveal an elasticity range from 0.26 (Columbia) to 11.68 (Chile), although there is tendency for elasticity coefficients to fall with an increase in PCI. Obvious exceptions exist, such as Brazil, Spain and Chile for which Ey_n is high despite high per capita income.

^{12/} This ranking is based on 1957 PCI's stated in U.S. dollars, as given by Usui and Hagen (147), and is subject to all the qualifications of such common currency comparisons. Because these qualifications are so great in the case of underdeveloped countries, the detailed data on PCI in Table A-III are given only in the national currencies.

This wide range and the exceptional cases are partly due to the time series data on these countries being available for only a relatively short period such that the addition or subtraction of a year or two changes the elasticity results. In Table IV, Column (4) the figures in the parenthesis are the elasticities when a longer period (available for only four countries) is used. As can be seen, the coefficients are considerably changed, and are more in line with the declining E_y hypothesis.

A more important factor explaining the range and exceptions seems to have been the substitution of one variety of paper for another or some arbitrary classification/definition of the various varieties of the product. At least, the results are more "reasonable" when the total availability of both newsprint and writing and printing paper is related to income, as was the case with the developed countries. Column (5) in Table IV shows the E_{y_t} for the twelve countries for which PCA_t data were available. All of the exceptional newsprint elasticity cases are modified: for Chile and Spain the E_{y_t} is substantially less; and for Columbia, Mexico, and Taiwan (with the lowest E_{y_n} , less than one) the E_{y_t} is much higher. The income elasticities in Column (5) Table IV lend greater support to the declining E_y hypothesis, but still the figures do not show a smooth, declining trend. While this is due in part to statistical difficulties, it is also caused by the existence of factors other than PCI, which affect the demand for newsprint (and other paper).

In any equation of demand for newsprint for newsprint determinants like level of literacy, urbanization have also to be included. In addition there are the degrees of political awakening and independence of press, the unquantifiable factors which are also important in determining the demand patterns of

newsprint.

Now we turn to the cross-section data on underdeveloped countries. Table A-IV in the appendix lists fifty three underdeveloped countries with their 1957 per capita income (as given in [147]) and PCA_n , averaged over 1957-59 (as worked out from data in [147]). The average of three years was taken to eliminate any distortion on account of non-adjustment of stocks; and these years were chosen because comparable data on PCI is available for 1957 in U.S. dollars [147]. A regression was run on these data which yielded a very high correlation: r^2 was 0.83 and Ey_n was 1.29 ^{13/}.

This value of elasticity coefficient is, on the average, near to quite a few observations given in Table IV above. Our fifty-three observation cover the countries ranging with PCI in U.S. \$ 57 to \$ 475. The elasticity coefficient represents the average of the whole range. The high correlation emerging from the regression can be attributed to several factors (1) the number of observation being very large which eliminates any lopsidedness; (2) PCA_n being the average of three years; hence distortions on account of non-adjustment of inventories are avoided; (3) PCA_n and PCI pertain to the same period (this is, however, not quite so in Table IV); (4) PCI as taken from [147] has been worked out by a uniform method for all the countries.

$$Y_n = -0.29 + 0.0069 X$$
$$n = 53$$
$$r^2 = 0.83$$
$$t = 3.004 \text{ (significant at 99 per cent confidence level)}$$
$$Ey_n = 1.29$$
$$\bar{X} = 189.55; \bar{Y}_n = 1.02512 \text{ (in kilogram).}$$

In this linear equation $a \geq 0$, and $0 \leq b \leq 1$ so that the elasticity will be positive if there is any consumption and elasticity coefficient will get smaller as the independent variable increases.

In the above analysis several of the countries border on the "developed" category. But an analysis of countries with relatively lower PCI in the range of 53 countries will be more relevant to Pakistan and other countries at similar stage of development. Therefore we attempted another regression on the same data of only such countries as have PCI of \$ 150 or less. The figures chosen is quite arbitrary except that it is felt that Pakistan and several other underdeveloped countries with comparable PCI will have PCI in the neighbourhood of this figure in the foreseeable future. Such a regression analysis covering a total of 24 countries also confirmed our hypothesis that the higher the level of PCI the lower the E_{yn} of paper.^{14/}

Against the average E_{yn} of 1.29 covering 53 countries the corresponding coefficient for 24 countries was 1.82, quite in line with the hypothesis mentioned above. These results can be used for the purposes of projecting demand for newsprint in underdeveloped countries.

Before concluding this section of the article it seems necessary to give a brief, critical review of the conclusions derived in this and the previous section.

$$\begin{aligned}
 \text{14/ } Y_n &= - 0.27839 + 0.006289 X \\
 &\quad (0.001678) \\
 n &= 24 \\
 r^2 &= 0.39 \\
 t &= 3.73 \text{ (significant at 99 per cent confidence level)} \\
 E_{yn} &= 1.82 \\
 \bar{X} &= 97.79; \text{ (in kilograms)} \\
 \bar{X}_n &= 0.338
 \end{aligned}$$

The r^2 of 0.39 is lower than in the 53-country case and in the case of the developed countries; it indicates that factors other than income are also important.

Here too, $a < 0$ and $0 < b < 1$, so that the elasticity will be positive if there is any consumption and elasticity will fall with a rise in independent variable.

A similar analysis has been done by F.A.O. [6].

Table V-A is reproduced verbatim. The table shows that in case of newsprints there is a clear, consistent fall in the elasticity coefficient with rise in PCI.

Table V-B, gives the results of our study. The elasticity coefficients, worked out from different data, also show the tendency to decline with rise in PCI; the absolute magnitude of the coefficients worked out by FAO is higher than ours at comparable level of PCI.

A comparison of PCIs and elasticity coefficients as given in Tables V-A and V-B shows that our results are not as smooth as FAO's. The elasticity coefficient derived from eight of the seventeen observations, with an average PCI of \$ 740 is higher than the coefficient derived from the analysis of fifty-three observations of underdeveloped countries with an average PCI of \$ 190.

The range of the FAO data [6] is relatively narrow.

In terms of PCI the data cover from \$ 83 to \$ 1182; in terms of time period data pertain to 1952-54 only. Our data are more comprehensive: in case of developed countries the PCI varies from \$ 364 to \$ 2824; in the case of underdeveloped countries it varies from \$ 57 to \$ 475. Time period in our analysis is ten years, 1952-61, with few exceptions. It is, however, interesting to note that whereas the elasticity coefficients in the Tables V-A and V-B differ the level of absolute PCI at a comparable level of PCI is almost the same in the two studies. It seems that the difference in elasticity coefficients is attributable to difference in amount of data and time period covered in both the studies.

15/ In the case of FAO study Table V-A above shows that elasticity coefficient for all levels of incomes have not been shown; in addition no mention has been made of the method used in working out the coefficients.

16/ Compare table A-I and A-2 with tables C1, C2 in [6], p.107-87

Most of our conclusions are based on cross-sectional data. In our analysis we have taken PCI to be the chief determinant of demand for PCA_n and PCA_t . There are other factors which unquestionably count in such an analysis. An important factor is the level of literacy. In the case of economically developed countries we have presumed - perhaps justifiably - that the level of literacy is quite high and it does not differ much in one country from another. This, however, is not the case with the group of underdeveloped countries where levels of literacy vary very much, and are also changing rapidly because of bold development programmes pursued by these countries; in these programmes education invariably gets a high priority.

Among other factors the degree of political awakening and freedom of press are very important. In underdeveloped countries there is substantially more political consciousness than there was, say, ten years back. Then there are industrialization and urbanization. It is in this context that we explain such widely varying elasticity coefficients in the case of underdeveloped countries. In India and Pakistan per capita income has increased very little during the past decade but owing to these other factors elasticity coefficients are quite high. The above-mentioned factors, rather qualitative in nature explain a part of our results. The FAO experts tried to correlate relative prices and level of literacy to level of per capita presumption but with no significant results, [6, p.2].

We can summarise the conclusions of this section. In the case of underdeveloped ^{countries} the high correlation yielded by the regression run on 53 observations adequately proves that even in underdeveloped countries, where we have counted several other factors to be important, PCI is the major

determinent of demand for newsprint.

The correlation is relatively low in the regression analysis of 24 observations indicating the importance of other factors. Similarly widely varying elasticities coefficients in individual cases of underdeveloped countries show the limitations on our analysis of PCI and PCA₁₁ only.

The hypothesis is confirmed that lower the income the higher the elasticity coefficient of demand for newsprint.

These results can be used to analyse situation in any individual country. In the following section we shall made use of these results to work out future requirements of newsprint in Pakistan.

IV: DEMAND FOR NEWSPRINT: PAKISTAN'S CASE

In the previous section we examined, in some detail, some aspects of demand for newsprint in underdeveloped countries. We can utilize the conclusions of the previous section for analysis of future absorption and export potential of the commodity in Pakistan.

Table VI below gives a complete picture of production, trade and consumption of newsprint in Pakistan. Per capita availability of the commodity in Pakistan has been very erratic, although one can see that, overall, there has been an increase in PCA_n . However, table A-III in the appendix shows that this erratic behaviour of PCA_n is a feature of a large number of underdeveloped countries. This seems to be mainly due to non-adjustment of stocks.

Table A-IV shows that PCA_n in Pakistan is among the lowest in the world; in 1957-59, countries with equal or lower PCA_n than Pakistan (0.099), are : Sudan (0.086) Belgium Congo(0.086) Haiti (0.091) Angola (0.091) Nigeria (0.099) and Jordan(0.099). On the average India consumed more than double the quantity (.0.204) consumed in Pakistan (0.099). PCA_n has been rapidly rising in Pakistan. The year 1962-63 shows PCA_n figures to be 0.211 kilograms compared with only 0.069 kilograms in 1957-58. PCI seems to have played some role in this rise in PCA_n . Period covering relatively high level of PCA_n , 1959-60 to 1962-63 also corresponds to an unprecedented increase in PCI. However, as shown in the previous section the analysis of the whole period shows a high elasticity of demand for newsprint in Pakistan (in excess of 8.0). Apart from PCI, political awakening, and increase in literacy percentage seem to be the factors behind this high elasticity coefficient. To some extent, this rise in PCA_n in later years may also be the accumulated effect of these factors in earlier years.

In the following paragraphs we will work out 1) probable absorption of newsprint in Pakistan by 1969-70 and ii) exportable surplus in the Third Five Year Plan.

1 The fact that the country is divide into two wings with different levels of PCI and PCA_n - at present as well as in foreseeable future - makes it necessary that we attempt this problem for East Pakistan and West Pakistan separately. As of 1962-63 three fourths of consumption was in West Pakistan: total and per capita consumption of newsprint in West Pakistan in 1962-63 was 14709 metric tons and 0.302 kilogram respectively compared with 5500 metric tons and 0.095 kilogram respectively for East Pakistan. PCA_n for East Pakistan and West Pakistan is given separately in Tables No. VII and VIII below.

Like any other underdeveloped country (as shown in Table 4-III) PCA_n in both the wings shows wide annual fluctuations. However, a definite trend emerges when we take three years' average, as shown in Column (9) of Table VII and Column (7) of Table VIII. This is so because non-adjustment of stocks is taken care of in such an average.

In our analysis of situation in both the wings of the country we need to have figures on population, PCA_n , PCI, including income disparity between the two wings, before we can make use of the analysis attempted in the previous section of this paper.

Estimates of disparity between the two wings vary from 30 per cent to 60 per cent [8, p.9]. Actual disparity between this range of 30 per cent and 60 per cent depends upon various assumptions and interpretations.^{17/}

^{17/} Dr Mahbubul Haq in his book uses figures on regional per capita income for 1959-60 showing a disparity of 30 per cent, and that by 1970 the disparity in regional per capita incomes will be reduced to 23 per cent [8, pp.120-21]. This is the boldest model regarding removing of the regional income disparities.

The subject of regional disparity in PCI has also been touched upon in the Outline for the Third Five Year Plan [11, p.11]. For the purpose of working out future absorption of newsprint in Pakistan figures on PCI, regional disparity and population, including its rate of growth have been taken from the Outline [11, p.1,24]:

Region	PCI (U.S. dollars)			Population (Millions)		
	1959-60	1964-65	1969-70	1959-60	1964-65	1969-70
East Pakistan	53	59	70	54.0	61.5	70.3
West Pakistan	71	78	88	45.0	51.4	58.7

Given these figures on PCI and population we approach the problem of working out demand for newsprint in Pakistan in 1969-70 by making use of elasticity coefficients calculated and analysed in the previous two sections. We have three sets of elasticity coefficients: i) those yielded by a regression analysis of fifty three observations and by twenty four of these observations ii) reported by the FAO study, on paper [6] iii) elasticity coefficients of individual cases of under-developed countries.

All these data clearly show that high level of income is accompanied by low-elasticity coefficients and vice versa. But the absolute magnitude of coefficients is varying in all cases.

The average elasticity coefficients based on time series data in individual countries are quite high in the case of India, 2.98, with a per capita income of dollars 73; in Egypt, 3.97, with a per capita income of 147 dollars. Lower than these magnitudes are the results of the FAO study showing coefficients of 2.86 at an income level of 86 dollars and 2.26 at an income level of 110 dollars. Coefficients derived from our regression analysis are even lower i.e., 1.82 at an average income level of 98 dollars and 1.29 at an average PCI of 190 dollars.

We shall use two sets of elasticity coefficients for our analysis of situation in Pakistan: (i) those determined by the results of the FAO study (ii) and those based on our own data. Column 2 in table V-4 suggests that in 1969-70 with PCI of 88 dollars in West Pakistan will have a coefficient of 2.80 and East Pakistan with a PCI of 70 dollars will have a coefficient of 3.00. The consumption of newsprint in 1969-70 in Pakistan, if we use the FAO elasticity coefficients will be:

In East Pakistan

Increase in demand on account of increase in PCI:

$$\frac{0.075 \times 1.99 \times 70,300,000}{1000} = 10492 \text{ tons}$$

On account of increase in population = 1222 tons

Total demand = 11714 tons

In West Pakistan

Increase in demand on account of increase in PCI:

$$\frac{.252 \times 1.67 \times 58,700,000}{1000} = 24703 \text{ tons}$$

On account of increase in population = 3452 tons

Total demand = 28155 tons

Total Pakistan = 39869

Keeping in view the level of income and various magnitudes of elasticity coefficient it is only reasonable to assume an elasticity coefficient of 3.00 for West Pakistan. This is slightly higher than the coefficient as shown in series of elasticity coefficients of FAO study (Table V-4 above). It is lower than the elasticity coefficients in Egypt and Brazil. (But it is almost the same as in the case of India, 2.98). It is higher than the coefficient derived from the regression analysis of fiftythree underdeveloped countries. Differences in the magnitudes of elasticity coefficients are attributed to factors other than income i.e., literacy, political awakening, relative prices, and the presence of other means of communication, i.e., radio, T.V. etc. Thus in countries like Brazil and Egypt high elasticity can be explained by further analysis of these factors. In Pakistan literacy is low; other means of communications are

very scarce. But people are becoming rapidly politically conscious. The fact of literacy level being low but changing rapidly and other two characteristics point to high elasticity coefficients. Moreover the PCI as expressed in U.S dollars underestimates the real purchasing power. The analysis of past data shows that it seems reasonable to assume a coefficient of 3.00 in West Pakistan.

In East Pakistan per capita income will increase from 53 dollars in 1959-60 to 70 dollars in 1969/70. Keeping all the above-mentioned considerations in view we assume an elasticity coefficient of 4.0 in East Pakistan. During 1959/60 to 1969/70 per capita income in West Pakistan will increase by about 24 per cent and in East Pakistan about 32.00 per cent. Thus increase in per capita demand for newsprint in East Pakistan during the next decade will be $33 \times 4.0 = 132$ per cent and in West Pakistan $24 \times 3 = 72$ per cent. Consumption in the base year 1959-60 is .075 kilogram and 0.253 kilogram per capita in East Pakistan and West Pakistan respectively.

The elasticity coefficients based on our data give us the following results:

East Pakistan:

On account of increase in income = $\frac{0.075 \times 228 \times 70,300,000}{1000}$
= 12021 tons
Increase on account of population = 1222 tons
Total = 13243 tons

West Pakistan

On account of increase in income = $\frac{0.253 \times 172 \times 53,700,000}{1000}$
= 25544 tons
On account of increase in population = 3452 tons
Total demand = 28996
Total Pakistan = 42239 tons

We have attempted yet another approach to the problem of future absorption of newsprint in Pakistan (and other

underdeveloped countries). Annual rate of growth in the demand for newsprint of eleven countries during the past decade was compared with their respective levels of PCI. It shows that, generally speaking, lower the level of per capita income the higher the rate of growth in demand. This is very consistent in the case of countries with relatively low level of PCI in the range. This is indicated in Table IX-A below.

In countries with a per capita income of less than 150 dollars the annual growth rate in demand has been between 10.4 to 16.00 per cent.

Annual-rate-of-growth approach shows definitely predictive value when we compare these annual rates of growth with the absolute level of per capita consumption of newsprint in the respective countries. This is shown in table IX-B.

There is however a clear tendency for the rate of growth in demand to fall with a rise in PCI. Chile and Taiwan, particularly the latter, are the only exceptions to this trend. Keeping in view of the level of per capita incomes and West Pakistan we assume an annual growth rate in per capita demand of newsprint of the order of 10 per cent in East Pakistan and 8 per cent in West Pakistan.

This approach is somewhat crude to the extent that it assumes rate of growth of income and literacy to be the same as in the countries in our observation in the past decade. Also, it assumes constant prices. Use of this annual-rate-of-increase method gives us demand for newsprint, in East Pakistan and West Pakistan of 13708 and 31933 tons respectively (total Pakistan 45641 tons). This is slightly higher than the figures arrived through the use of elasticity coefficients.

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In East Pakistan per capita income will increase from 53 dollars in 1959-60 to 70 dollars in 1969/70. Keeping all the above-mentioned considerations in view we assume an elasticity coefficient of 4.00 in East Pakistan. During 1959/60 to 1969/70 per capita income in West Pakistan will increase by about 24 per cent and in East Pakistan about 32.00 per cent. Thus increase in per capita demand for newsprint in East Pakistan during the next decade will be $33 \times 4.0 = 132$ per cent and in West Pakistan $24 \times 3 = 72$ per cent. Consumption in the base year 1959-60 is .075 kilogram and 0.253 kilogram per capita in East Pakistan and West Pakistan respectively.

The elasticity coefficients based on our data give us the following results:

East Pakistan:

On account of increase in income = $\frac{0.075 \times 223 \times 70,300,000}{1000}$
 = 12021 tons
 Increase on account of population = 1222 tons
 Total = 13243 tons

West Pakistan

On account of increase in income = $\frac{0.253 \times 172 \times 58,700,000}{1000}$
 = 25544 tons
 On account of increase in population = 3452 tons
 Total demand = 28996
Total Pakistan = 42239 tons

We have attempted yet another approach to the problem of future absorption of newsprint in Pakistan (and other

underdeveloped countries). Annual rate of growth in the demand for newsprint of eleven countries during the past decade was compared with their respective levels of PCI. It shows that, generally speaking, lower the level of per capita income the higher the rate of growth in demand. This is very consistent in the case of countries with relatively low level of PCI in the range. This is indicated in Table IX-A below.

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This approach is somewhat crude to the extent that it assumes rate of growth of income and literacy to be the same as in the countries in our observation in the past decade. Also, it assumes constant prices. Use of this annual-rate-of-increase method gives us demand for newsprint, in East Pakistan and West Pakistan of 13708 and 31933 tons respectively (total Pakistan 45641 tons). This is slightly higher than the figures arrived through the use of elasticity coefficients.

SOME QUALIFICATIONS OF ANALYSIS

The whole of newsprint consumed in Pakistan was imported till 1958-59. From 1959-60 onward imports formed a very small part of total net availability. Controls like licensing, tariffs etc., have been in force in varying degrees at various stages in this period. These market imperfections do not permit us to arrive at a reliable estimate of absorption capacity. The latest year for which figures on consumption are available shows a substantial increase in consumption over the preceding years. But, for some time there have been signs of shortage of newsprint in Pakistan. Growing domestic demand does not seem to have been estimated correctly. Production of newsprint of Khulna Newsprint was 31821 tons a year and total consumption was 20269 tons in 1962-63. Exports have been of the order of 11633 tons. The only conclusion that can be drawn from the current state of affairs is that domestic demand for newsprint is rising very rapidly. Unless production rises at a rate of increase higher than consumption, exports are liable to be affected.

The prospective level of absorption in Pakistan is based on international comparisons, and may be termed as "normal". Changes in the degrees of physical controls will certainly effect variation in consumption from the level worked out.

Production of newsprint started in Pakistan in 1958/59 and from then onward consumption of newsprint in Pakistan has increased substantially, from 0.064 kilogram per capita in 1958/59 to 0.189 kilogram in 1962/63. This seems to have been the result of the production of newsprint having started at home. Thus any big changes in physical controls, including prices, or changes in production will definitely mean variation in the actual demand from the projected figures. We are,

therefore, working on the assumptions that no drastic changes will be made in these physical controls and that the production and prices will not vary substantially enough to effect unexpectedly large variation in demand for newsprint. Lastly international comparisons have another flaw; equal level of per capita incomes in two countries at different times may not mean equal level of demand for newsprint. PCI expressed in a uniform currency (dollar in our case) does not correctly indicate the level of real per capita income in country which, in our case, would be the major determinant of demand for newsprint.

In the context of these qualifying remarks our study is only an attempt which points to the direction of the future course of demand for newsprint, given certain assumptions regarding future economic growth. There are quite a few limitations on harzarding a precise figure on future consumption of the commodity.

EXPORTABLE SURPLUS AND EXPORT PROSPECTS

Exportable surplus in foreseeable future will depend upon performance on production front. Keeping in view our calculations, analysis and the limitations mentioned above we may safely assume the consumption of newsprint in Pakistan in 1969/70 will be around 46000 tons.

East Pakistan 14000 tons

West Pakistan 32000 tons

Total Pakistan 46000 tons

This is the minimum demand by 1969/70 given the validity of our assumptions about increase in population, per capita income and reduction in regional income disparities. In the context of various sets of ^{coefficients these} figures are on the higher side of the range. This is because (i) present shortage of newsprint in the country indicates that demand is rising at quite a rapid rate and

(13) these figures are nearer to the estimates worked out by using elasticity coefficients comparable with other under developed countries at similar stage of development and the annual-rate-of-growth criterion which has shown a good predictive value when seen with level of per capita income (table IX-B above).

The Outline for the Third Five Year Plan puts the physical targets of newsprint production capacity at 71123 tons by 1969-70. Scheduled increase in production may be possible by the end of Third Five - Year Plan.

Present margin of export can be widened only by increase in production at a rate high than the rate of increase in consumption.

If production schedule is stuck to, twenty five thousand tons of newsprint may be available for exports by 1969/70. Exportable surplus from 1962/63 onward entirely depends upon the rate of increase in production.

Table X below shows the prices of newsprint in three major centers of production and consumption. In all the three cases absolute prices are slightly different, but the trend is the same, and is rising.

So is the case with import prices and export prices of newsprint in Pakistan as shown in Table X. As we shall see later there is likely to be shortage of newsprint in the world (table XI below). Therefore prices of newsprint in the world market are likely to rise. In view of this an average price of Rs. 700.00 per metric ton is assumed for exports in the Third Five Year Plan. Thus foreign exchange earning in 1969/70 may be about Rs. 17.50 million.

Production and productive capacity of newsprint in North American and Western Europe has been rising in the recent past [6, p.152]. North America is the only region showing exportable surplus of newsprint at present as well as in foreseeable future [6, p.154]. Near and Middle East is breaking even. In all other parts of the world-Latin America, Africa, Far East and Oceania-there is shortage of the commodity at present as well as in foreseeable future [6, p.154]. Table XI below shows the world situation about the availability of newsprint.

(PLACE FOR TABLE XI)

Deficit is likely to rise in Oceania and the Far East; it is likely to remain constant in Africa, and will decline in Latin America.

Per capita consumption of newsprint in Far East and Africa is very low; with the impact of economic development and political consciousness demand for newsprint is certain to rise. As we have seen both elasticity coefficients and annual-rate-of-growth-criterion show a rapid increase in demand for newsprint in the areas with relatively low per capita - income.

Pakistan has been exporting newsprint to Ceylon, Burma, Malaysia, Vietnam and Thailand. Thus the prospects of exporting newsprint to the countries of Asia and Africa are promising.

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TABLE I

Per Capita Availability of Newsprint and Writing
and Printing Paper in Seventeen Countries
(Averages, 1952 - 61)

Country	Per Capita Income (U.S. Dollars)	Per capita availability of		Total
		Newsprint (Metric Tons)	Writing & Printing paper (in Kilograms)	
(1)	(2)	(3)	(4)	(5)
Italy	522	4.1	5.2	9.3
Ireland ^{a,b}	595	10.6	3.4	14.1
Venezuela ^c	619	3.1	2.6	5.6
Israel ^{a,d}	644	2.3	3.7	6.0
Austria	681	6.5	7.5	14.0
Netherlands	869	11.0	14.0	25.0
West Germany ^a	996	8.0	12.6	20.5
France	1025	11.3	10.0	21.3
Denmark	1106	15.8	14.6	29.1
Norway ^a	1129	9.9	17.1	28.8
Belgium-Luxemburg ^b	1143	11.0	12.7	23.9
United Kingdom	1208	19.7	16.4	36.1
Australia ^a	1299	27.3	10.7	37.9
New Zealand ^a	1406	25.0	7.5	32.4
Sweden	1428	22.6	19.1	41.8
Canada	1695	25.0	16.3	40.7
U.S.A.	2585	35.3	28.6	63.5

Notes:

- a. Difference between columns (3) and (4)
exceeds 50% of P.C.A. 1952-61 availability of Newsprint
b. 1952-61 only
c. 1952-55 only
d. 1952-60 only

Source: Table A - I

TABLE II
 INCOME ELASTICITY OF DEMAND FOR NEWSPRINT AND
 WRITING AND PRINTING PAPER IN SEVENTEEN ADVANCED
 COUNTRIES

Country (1)	PCI (U.S.Dollars) (2)	Ey Newsprint (3)	Ey Newsprint and Writing and Printing paper (4)
Italy	522	1.40	1.46
Ireland	595	3.07	3.18
Venezuela	619	2.07	0.67
Israel	644	0.23	1.29
Austria	681	1.04	0.73
Netherlands	869	2.05	2.26
West Germany	996	1.01	1.06
France	1025	1.09	1.49
Denmark	1106	1.82	1.53
Norway	1129	2.37	0.46
Belgium-Luxemberg	1143	0.67	1.71
United Kingdom	1208	1.04	1.67
Australia	1299	2.20	1.51
New Zealand	1406	9.22	6.84
Sweden	1428	1.51	1.61
Canada	1695	0.28	0.29
U.S.A.	2585	0.23	0.61

Source: Table A-I. Calculation of Col.(3) and Col.(4) explained
 in the text.

T A B L E 1

PER CAPITA AVAILABILITY OF NEWSPRINT & OTHER PAPER
IN ADVANCED COUNTRIES

(Ranked by per capita income)

(Per capita income in U.S. dollars at 1958 prices
Per capita availability in Kilograms)

Per capita income	PER CAPITA AVAILABILITY		
	Newsprint	Writing & Printing	Total
457	3.2	4.9	8.1
559	5.6	4.2	9.7
604	5.8	3.9	9.7
673	6.7	5.9	12.7
753	6.3	7.4	13.7
867	9.3	11.3	20.6
965	11.5	12.3	24.0
1026	11.0	12.6	23.5
1074	12.5	13.2	25.7
1121	13.0	15.0	28.1
1189	14.6	14.7	29.3
1246	17.5	14.6	32.1
1297	20.5	13.9	34.4
1350	22.4	13.9	36.4
1417	27.8	11.6	39.3
1530	24.4	15.0	39.4
1895	26.8	20.2	47.1
2639	35.7	28.9	64.6

SOURCE : Table A-11; each row is the average of nine rows in Table A-11.

TABLE IV
INCOME ELASTICITIES FOR SELECTED
UNDERDEVELOPED COUNTRIES

Country	Period Covered	Per Capita Income (U.S. Dollars 1957)	Income Elasticity of Demand:	
			Newsprint	Newsprint Writing and Printing paper
(1)	(2)	(3)	(4)	(5)
Pakistan	1952-61	70	8.83	8.47
India	1950-61	73	2.98	2.68
Egypt	1953-58	147	3.97	-
Taiwan	1953-60	161	0.80	5.78
Peru	1948-55	179	1.92 (6.23) ^a	1.13
Turkey	1952-61	220	1.08	1.44
Portugal	1952-61	224	1.57	1.32
Mexico	1950-55	262	0.97	4.59
Colombia	1950-55	263	0.26 (3.04) ^a	2.20
Yugoslavia	1952-61	265	1.32	1.37
Brazil	1948-55	293	10.10 (9.00) ^a	-
Spain	1954-59	293	7.98	2.55
Greece	1952-61	340	1.90	1.44
Chile	1950-61	379	11.68 (6.91) ^a	6.90

Notes: * The Time Period shown has been divided in two halves. The average Per capita income, and per capita availabilities for each half were used in calculating elasticity:

$$E_y = \frac{\Delta Q}{\Delta Y} \times \frac{Y_1 + Y_2}{Q_1 + Q_2}$$

a. The figures in parenthesis are the elasticities when a longer period is used: Peru, 1949-58; Columbia, 1951-58; Chile, 1950-61; Brazil, 1948-60

Source: Col (2): [14], Col. 3 and Col 4: Table A - III.

TABLE V - A

DEMAND ELASTICITY COEFFICIENTS VARIATION WITH INCOME
 (Cross-sectional analysis of individual country
 data 1952-54)

Net National Product (Per Capita)	Newsprint	Writing and Printing
(1)	(2)	(3)
83	-	1.34
86	2.86	-
108	-	-
110	2.26	-
151	-	1.46
168	1.97	-
212	-	2.35
219	1.91	-
237	-	-
272	1.82	-
391	-	-
399	1.71	-
409	-	1.60
478	-	-
487	1.15	-
515	-	1.60
552	1.52	-
607	-	1.46
701	-	-
866	1.12	-
894	-	0.87
1010	-	-
1182	1.05	-

Dash (-) means not available

Source: [76]

TABLE V-B

INCOME ELASTICITY OF DEMAND FOR NEWSPRINT: A COMPARISON

<u>Group of Countries</u>	<u>Average PCI (in U.S. dollars)</u>	<u>Elasticity Coefficient</u>
i) Seventeen advanced countries with average PCI and PCA of one country as one observation:	1114	1.02
ii) Nine of the above seventeen observations with higher average PCI:	1440	0.69
iii) The rest of the eight observations:	740	1.62
iv) Underdeveloped countries covering fifty three observations:	190	1.29
v) Twenty four underdeveloped countries with PCI \$ 150 or less:	98	1.89

Sources: Footnotes 2, 5, 6, 13 and 14 above.

TABLE VI
PER CAPITA AVAILABILITY OF NEWSPRINT IN PAKISTAN

Year	Production (metric tons)	Imports (metric tons)	Exports (metric tons)	Total (metric tons)	Population (millions)	Per Capita Availability (kilograms)	
						Annual	3 years moving average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1951-52	-	3,620.5	-	3,620.5	82.6	0.044	0.050
1952-53	-	2,435.0	-	2,435.0	84.6	0.029	0.050
1953-54	-	6,638.6	-	6,638.6	86.5	0.077	0.066
1954-55	-	8,130.1	-	8,130.1	88.5	0.092	0.080
1955-56	-	6,502.9	-	6,502.9	90.5	0.072	0.070
1956-57	-	4,155.5	-	4,155.5	92.6	0.045	0.060
1957-58	-	5,895.9	-	5,895.9	94.6	0.062	0.057
1958-59	-	6,161.0	-	6,161.0	96.8	0.064	0.131
1959-60	12,280.0	14,532.3	325.2	26,487.1	99.0	0.268	0.166
1960-61	27,053.0	253.6	9,306.5	17,000.1	101.6	0.167	0.193
1961-62	30,207.9	133.3	15,304.3	15,026.9	104.3	0.144	0.167
1962-63	31,821.4	80.4	11,632.3	20,268.5	107.1	0.189	

Sources: Col. 2: [10]

Col. 3: [2] [4]

Col. 4: [4] [10]

Col. 6: Population figures are taken from [11] which are higher than the figures reported in Census of Pakistan.

All figures on production and trade were originally given in hundred weights and have been converted into metric tons.

TABLE VII
PER CAPITA AVAILABILITY OF NEWSPRINT IN EAST PAKISTAN

Year	Production	Imports	Exports	Exports to West Pakistan	Total net availability	Population	Per Capita Availability	
							Annual	3 year moving average
(1)	(2)	(3)	metric tons			(7)	(8)	(9)
			(4)	(5)	(6)		kilograms	
1955-56	-	1,142.0	-	-	1,142.0	49.8	0.023	-
1956-57	-	1,153.2	-	-	1,153.2	50.8	0.023	0.020
1957-58	-	744.8	-	-	744.8	51.8	0.014	0.020
1958-59	-	1,228.4	-	-	1,228.4	52.9	0.023	0.039
1959-60	12,280.0	1,575.9	325.2	9,159.2	4,371.5	54.0	0.081	0.075
1960-61	27,053.0	121.9	9,306.5	11,114.1	6,754.3	55.4	0.122	0.084
1961-62	30,207.9	-	15,304.3	12,194.2	2,709.4	56.9	0.048	0.088
1962-63	31,821.4	-	11,633.3	14,628.6	5,559.5	58.4	0.095	-

Sources: Column (2): [10]; Column (3): [1] [4]; Column (4): [10]; Column (7): [11].

Note: See footnotes to Table VI.

TABLE VIII
PER CAPITA AVAILABILITY OF NEWSPRINT IN WEST PAKISTAN

Year	Imports from Abroad	Imports from East Pakistan	Total Availability	Population (millions)	Per Capita Availability	
					Annual	3 year moving Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	metric tons				kilograms	
1955-56	5,360.7	-	5,360.7	40.7	0.132	-
1956-57	3,002.4	-	3,002.4	41.8	0.072	0.108
1957-58	5,151.4	-	5,151.4	42.8	0.120	0.101
1958-59	4,933.0	-	4,933.0	45.9	0.110	0.241
1959-60	12,956.8	5,159.2	18,116.0	45.0	0.403	0.253
1960-61	132.1	11,114.1	11,246.2	46.2	0.243	0.302
1961-62	133.1	12,194.2	12,327.3	47.4	0.260	0.268
1962-63	80.3	14,628.6	14,708.9	48.7	0.302	-

Sources: Column (2): [2] [4]; Column (3): [10]; Column (5): [11].

Note: See notes to Table VI.

TABLE IX-A

ANNUAL RATE OF GROWTH IN DEMAND FOR NEWSPRINT
IN SELECTED UNDERDEVELOPED COUNTRIES

Country	Period covered	Per Capita Income in 1957 in U.S. \$	Per Capita Availability of Newsprint (Kilograms)	Average Annual Rate of Growth (per cent)
(1)	(2)	(3)	(4)	(5)
India	1952-61	73	0.204	14.3
Thailand	1952-60	96	0.726	15.0
Ceylon	1952-61	129	0.998	13.3
Indonesia	1952-58	131	0.132	16.0
Egypt	1952-61	147	0.998	10.4
Taiwan	1952-61	161	0.953	4.8
Philippines	1952-58	220	1.406	10.0
Mexico	1952-58	292	2.041	7.0
Yugoslavia	1952-61	265	1.315	11.9
Brazil	1952-61	293	3.039	6.0
Chile	1952-61	879	8.25	9.8

Sources: Column (3): 147
 Column (4): Table III-A
 Column (5): This is the simple average of the year to year percentage changes.

TABLE - IX-B

ANNUAL RATE OF GROWTH IN DEMAND FOR NEWSPRINT
AND ITS RELATION TO ABSOLUTE LEVEL OF CONSUMPTION

Country	Period Covered	Per Capita Availability of Newsprint (Kilograms)	Average Annual Rate of Growth (Per cent)
(1)	(2)	(3)	(4)
Indonesia	1952-58	0.132	16.0
India	1952-61	0.204	14.3
Philippines	1952-60	0.726	15.0
Taiwan	1952-61	0.953	4.3
Ceylon	1952-61	0.993	13.3
Egypt	1952-61	0.993	10.4
Yugoslavia	1952-61	1.315	11.9
Philippines	1952-58	1,406	10.0
Mexico	1952-58	2,041	7.0
Brazil	1952-61	3,039	6.0
Chile	1952-61	3,357	9.8

Source: Column (3): Table A-III
 Column (4): See footnote to Table IX-A, p.1.(5).

TABLE I
PRICES OF NEWSPRINT
IN WORLD MARKET
(rupees per metric ton)

YEAR	PAKISTAN ^a	CANADA	FINLAND	U.K.
1952	526	563	747	738
1953	543	585	576	635
1954	547	585	599	690
1955	781	690	623	690
1956	652	604	647	718
1957	561	614	656	738
1958	760	609	623	747
1959	948	614	609	728
1960	616 ^a	614	604	728
1961	671 ^a	609	599	723
1962	734 ^a			

Note: a. For Pakistan, the figures are for fiscal years: 1952-53, 1953-54 etc.; from 1952-53 to 1959-60 prices are for imports, from 1960-61 to 1962-63 prices are for exports.

Sources: Pakistan [3]; Other Countries [5, p.361, table 1737]

TABLE XI

COMPARISON OF CURRENT AND FUTURE BALANCES FOR
NEWSPRINT IN VARIOUS REGIONS IN THE WORLD

(Million metric tons)

Region	Year	
	1957-58	1965
North America	-	+0.43
Western Europe	-	- 0.31
Africa	- 0.12	- 0.12
Near & Middle East	- 0.02	-
Far East	- 0.18	- 0.23
Oceania	- 0.18	- 0.23
Latin America	- 0.51	- 0.44

Sources: [6, pp 152-153]

APPENDIX: BASIC TABLES

TABLE A-I

PER CAPITA INCOME AND PER CAPITA AVAILABILITY OF PAPER
(NEWSPRINT, WRITING AND PRINTING) IN ADVANCED COUNTRIES
1952-1961.

- Per Capita income in constant U.S. dollars (1958 = 100)
- Per Capita availability in kilograms

Year	ITALY				IRELAND			
	Per capita income (1)	Newsprint (2)	Writing & printing paper (3)	Total (4)	Per capita income (1)	Newsprint (2)	Writing & printing paper (3)	Total (4)
1952	364	2.5	3.1	5.6	-	8.	2.7	-
1953	402	2.9	2.1	5.0	566	7.8	2.8	10.6
1954	431	3.1	4.4	7.5	572	8.5	2.8	11.3
1955	465	3.5	4.6	8.1	589	11.0	3.2	11.2
1956	488	3.6	5.1	8.6	577	10.9	3.5	14.4
1957	514	4.5	5.5	10.0	575	10.1	3.2	13.3
1958	562	4.5	5.6	10.1	574	9.8	3.2	12.0
1959	609	4.8	6.3	11.1	612	11.7	4.1	15.8
1960	659	5.4	7.1	12.5	648	12.3	4.2	16.5
1961	722	6.6	8.2	14.8	672	14.6	4.5	19.1
Average	522	4.1	5.2	9.3	596	10.6	3.4	14.1
		VENEZUELA			ISRAEL			
1952	588	2.6	2.7	5.3	57	1.9	2.8	4.7
1953	609	2.6	2.8	5.4	51	1.7	2.6	4.3
1954	665	2.7	2.9	5.6	42	2.3	2.2	4.5
1955	703	4.4	1.8	6.2	53	3.2	4.1	7.3
1956	752	-	-	-	09	2.1	3.0	5.1
1957	861	-	-	-	541	2.4	3.1	5.5
1958	864	-	-	-	676	2.2	4.5	6.7
1959	792	-	-	-	736	2.4	5.8	8.2
1960	738	-	-	-	804	2.6	5.5	8.1
1961	-	-	-	-	849	-	6.3	-
Average	641	3.1*	2.6*	5.6*	644	2.3*	3.7	6.0*

* Average for less than ten years

(Table A-I Continued) :- 2 -:

Year	Per capita income	Newsprint	Writing & printing paper	Total	Per capita income	Newsprint	Writing & printing paper	Total
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<u>A U S T R I A</u>								
1952	443	3.6	8.1	11.7	678	6.7	7.3	14.0
1953	510	2.6	8.8	11.4	752	8.2	10.8	19.0
1954	547	3.3	10.3	13.6	791	9.7	12.6	22.3
1955	605	4.3	6.6	10.9	864	10.4	12.7	23.1
1956	657	5.3	7.5	12.8	898	10.8	12.5	23.3
1957	698	6.6	8.2	14.8	902	12.1	14.5	26.6
1958	746	7.1	7.0	14.1	887	11.3	14.0	25.3
1959	758	10.2	5.5	15.7	925	12.3	16.3	28.6
1960	857	9.3	9.5	18.8	992	15.0	18.2	33.2
1961	992	12.9	3.4	16.3	1004	13.6	21.4	35.0
Average	681	6.5	7.5	14.00	869	11.0	14.0	25.0
<u>WEST GERMANY</u>								
1952	701	4.9	7.3	12.2	828	7.4	7.1	14.5
1953	766	5.8	9.2	15.0	857	8.3	7.0	15.3
1954	814	7.0	11.8	18.8	916	9.5	8.0	17.5
1955	900	7.2	12.7	14.4	961	11.7	8.4	20.1
1956	959	8.0	10.4	18.4	1028	13.0	9.5	22.5
1957	1008	8.4	12.5	20.9	1111	13.4	10.0	23.4
1958	1044	8.2	13.4	21.6	1089	12.9	10.6	23.5
1959	1107	9.0	14.7	23.7	1102	12.6	10.5	23.1
1960	1297	10.0	16.8	26.8	1156	13.1	12.3	25.4
1961	1363	10.9	17.9	27.9	1195	10.9	16.6	27.5
Average	996	8.0	12.6	20.5	1025	11.3	10.0	21.3
<u>N E T H E R L A N D S</u>								
<u>F R A N C E</u>								

(Table A-I Continued)

Year	Per capi- ta income	News- print	Writing & printing paper	Total	Per capi- ta income	News- print	Writing & printing paper	Total
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	<u>D E N M A R K</u>				<u>N O R W A Y</u>			
1952	952	11.1	16.8	27.9	1042	7.2	11.4	18.6
1953	1016	12.6	11.0	23.6	1015	8.9	20.5	29.4
1954	1055	14.1	12.6	26.7	1035	8.8	14.8	23.6
1955	1034	16.0	12.6	26.6	1076	9.9	19.2	29.1
1956	1043	13.9	12.8	26.7	1165	8.4	16.1	32.5
1957	1069	15.2	13.6	28.8	1196	10.3	16.9	27.2
1958	1100	15.8	15.3	31.1	1118	12.8	19.9	32.7
1959	1190	18.1	14.9	33.0	1150	9.8	18.0	27.8
1960	1265	20.1	16.5	26.6	1219	13.7	19.3	33.0
1961	1334	20.6	19.8	40.4	1272	9.5	15.0	24.5
Average	1106	15.8	14.6	29.1	1129	9.9	17.1	28.8
	<u>BELGIUM - LUXEMBERG</u>				<u>UNITED KINGDOM</u>			
1952	980	9.1	7.8	16.9	1082	14.5	11.7	26.2
1953	1014	10.0	8.0	18.0	1084	16.7	13.5	30.2
1954	1073	10.0	12.0	22.0	1117	16.1	16.2	32.3
1955	1098	11.0	12.1	23.1	1140	17.5	17.9	35.4
1956	1142	10.3	12.8	23.1	1207	19.5	16.7	36.2
1957	1187	12.0	17.7	29.7	1228	20.2	16.3	36.5
1958	1217	11.3	11.2	22.5	1238	20.4	17.1	37.5
1959	1257	11.5	13.8	25.3	1236	21.4	16.5	37.9
1960	1316	12.7	15.8	28.5	1335	25.4	19.5	44.9
1961	-	14.6	15.5	30.1	1360	24.9	19.1	44.0
Average	1143*	11.0	12.7	23.9	1208	19.7	16.4	36.1

* Average for less than ten years.

(Table A-I Continued)

Year	Per capi-	News-	Writing &	Total	Per capi-	News-	Writing &	Total
	ta income	print	printing	(4)	ta income	print	printing	(4)
	(1)	(2)	paper	(3)	(1)	(2)	paper	(3)
<u>A U S T R A L I A</u>					<u>N E W Z E A L A N D</u>			
1952	1203	23.0	13.8	36.8	1304	21.1	11.0	32.1
1953	1200	16.3	7.0	23.3	1341	15.9	2.9	18.8
1954	1257	25.0	9.2	34.2	1489	18.2	3.4	21.6
1955	1296	32.0	11.7	43.7	1404	26.1	7.5	33.6
1956	1295	28.8	12.4	41.2	1399	28.9	13.0	41.9
1957	1328	27.4	10.3	37.4	1418	30.1	6.3	36.4
1958	1284	27.4	9.3	36.7	1383	25.9	7.4	33.3
1959	1335	28.2	9.1	37.3	1401	22.7	7.7	30.4
1960	1392	30.1	11.3	41.4	1457	30.8	7.2	38.0
1961	1407	34.5	12.9	47.4	1459	30.0	8.3	38.3
Average	1299	27.3	10.7	37.9	1406	25.0	7.5	32.4
<u>S W E D E N</u>					<u>C A N A D A</u>			
1952	1263	17.1	14.2	31.3	1535	23.7	12.1	35.8
1953	1269	18.2	13.8	32.0	1578	21.2	13.3	34.5
1954	1326	21.2	16.9	38.1	1555	27.0	14.2	41.2
1955	1372	22.6	20.3	42.9	1637	24.7	19.8	44.5
1956	1437	23.1	19.2	42.3	1745	27.0	17.2	44.2
1957	1457	23.8	18.9	42.7	1748	27.1	16.6	43.7
1958	1435	23.6	19.1	42.7	1755	18.5	16.3	34.8
1959	1496	26.0	21.6	47.6	1795	25.2	17.3	42.5
1960	1563	25.1	23.2	48.3	1816	25.4	18.0	43.4
1961	1664	26.1	23.6	49.7	1799	24.0	18.0	42.0
Average	1428	22.6	19.1	41.8	1695	25.0	16.3	40.7
<u>UNITED STATES OF AMERICA</u>								
1952	2342	34.7	27.8	62.5	Sources: Col(1) Per capita income was derived by dividing the National Income in national currencies/9/ by mid-year population estimates /12/ and then converting into U.S. dollars at official exchange rates. These figures were deflated by wholesale price index of the respective countries to constant prices(1953=100). Col(2)+ (3) Per capita net availability of newsprint and writing and printing paper was derived by adjusting imports and exports to domestic production and dividing by			
1953	2478	34.1	27.5	61.6				
1954	2395	33.6	27.1	60.7				
1955	2576	35.0	28.9	63.9				
1956	2587	37.8	25.7	63.5				
1957	2602	36.1	24.1	60.2				
1958	2543	33.6	28.9	62.5				
1959	2714	36.0	31.6	67.6				
1960	2786	36.6	32.0	68.6				
1961	2824	36.3	32.8	69.1				

Table A-II

PER CAPITA AVAILABILITY OF NEWSPRINT AND OTHER PAPER IN ADVANCED COUNTRIES. TIME SERIES AND CROSS-SECTION DATA, RANKED BY PER CAPITA INCOME

(P.C.I. in US dollars at 1958 prices; Per capita availabilities in Kelograms)

Per Capita Income	Per Capita availability			Per Capita Income	Per Capita availability		
	Newsprint	Writing & printing.	Total		Newsprint	Writing & printing.	Total
1.	2.	3.	4.	1.	2.	3.	4.
364	2.5	3.1	5.6	659	5.4	7.1	12.5
402	2.9	2.1	5.0	665	2.7	2.9	5.6
431	3.1	4.4	7.5	672	14.6	4.5	19.1
443	3.6	8.1	11.7	676	2.2	4.5	6.7
465	3.5	4.6	8.1	678	6.7	7.3	14.0
488	3.6	5.1	8.7	698	6.6	8.2	14.8
492	2.3	2.2	4.5	701	4.9	7.3	12.2
510	2.6	8.8	11.4	703	4.4	1.8	6.2
514	4.5	5.5	10.0	722	6.6	8.2	14.8
527	1.7	2.6	4.3	736	2.4	5.8	8.2
547	3.3	10.3	13.6	746	7.1	7.0	14.1
553	3.2	4.1	7.3	752	8.2	10.8	19.0
557	1.9	2.8	4.7	758	10.2	5.5	15.7
562	4.5	5.6	10.1	766	5.8	9.2	15.0
566	7.8	2.8	10.6	791	9.7	12.6	22.3
572	8.5	2.8	11.3	804	2.6	5.5	8.1
574	9.8	3.2	12.0	814	7.0	11.8	18.8
575	10.1	3.2	13.3	828	7.4	7.1	14.5
577	10.9	3.5	14.4	857	8.3	7.0	15.3
588	2.6	2.7	5.3	857	9.3	9.5	18.8
589	11.0	3.2	14.2	864	10.4	12.7	23.1
605	4.3	6.6	10.9	887	11.3	14.0	25.3
609	2.6	2.8	5.4	898	10.8	12.5	23.3
609	4.8	6.3	11.1	900	7.2	12.7	19.9
609	2.1	3.0	5.1	902	12.1	14.5	26.6
612	11.7	4.1	15.8	916	9.5	8.0	17.5
641	2.4	3.1	5.5	925	12.3	16.3	28.6
648	12.3	4.2	16.5	952	11.1	16.8	27.9
	5.3	7.5	12.8	959	8.0	10.1	18.1

Table A-II (continued)

1.	2.	3.	4.	1.	2.	3.	4.
961	11.7	8.4	20.1	1187	12.0	17.7	29.7
980	9.1	7.8	16.9	1190	18.1	14.9	33.0
992	12.9	3.4	16.3	1195	10.9	16.6	27.5
992	15.0	18.2	33.2	1196	10.3	16.9	27.2
1004	13.6	21.4	35.0	1200	16.3	7.0	23.3
1003	8.4	12.5	20.9	1203	23.0	13.8	36.8
1014	10.0	8.0	18.0	1207	19.5	16.7	36.2
1015	8.9	20.5	29.4	1217	11.3	11.2	22.5
1016	12.6	11.0	23.6	1219	13.7	19.3	33.0
1028	13.0	9.5	22.5	1226	20.2	16.3	36.5
1034	16.0	12.6	28.6	1238	20.4	17.1	37.5
1035	8.8	14.8	23.6	1257	25.0	9.2	34.2
1042	7.2	11.4	18.6	1257	11.5	13.8	25.3
1043	13.9	12.8	26.7	1263	17.1	14.2	31.3
1044	8.2	13.4	21.6	1265	20.1	16.5	36.6
1055	14.1	12.6	26.7	1269	18.2	13.8	32.0
1069	15.2	13.6	28.8	1272	9.5	15.0	24.5
1073	10.0	12.0	22.0	1284	27.4	9.3	36.7
1076	9.9	19.2	29.1	1286	21.4	16.5	37.9
1082	14.5	11.7	26.2	1295	28.8	12.4	41.2
1084	16.7	13.5	30.2	1296	32.0	11.7	43.7
1089	12.9	10.6	23.5	1297	10.0	16.8	26.8
1098	11.0	12.1	23.1	1304	21.1	11.0	32.1
1100	15.8	15.3	31.1	1316	12.7	15.8	28.5
1102	12.6	10.5	23.1	1326	21.2	16.9	38.1
1107	9.0	14.7	23.7	1328	27.4	10.3	37.7
1111	13.4	10.0	23.4	1334	20.6	19.8	40.4
1117	16.1	16.2	32.3	1335	25.4	19.5	44.9
1118	12.8	19.9	32.7	1335	28.2	9.1	37.3
1140	17.5	17.9	35.4	1341	15.9	2.9	18.8
1142	10.3	12.8	23.1	1360	24.9	19.1	44.0
1150	9.8	18.0	27.8	1363	10.9	17.0	27.9
1156	13.1	12.3	25.4	1372	22.6	20.3	42.9
1165	8.4	16.1	24.5	1383	25.9	7.4	33.3

Table A. II (continued)

1.	2.	3.	4.
1392	30.1	11.3	41.4
1399	28.9	13.0	41.9
1401	22.7	7.7	30.4
1404	26.1	7.5	33.6
1407	34.5	12.9	47.4
1418	30.1	6.3	36.4
1435	23.6	19.1	42.7
1437	23.1	19.2	42.3
1457	30.8	7.2	38.0
1457	23.8	18.9	42.7
1459	30.0	8.3	38.3
1489	18.2	3.4	21.6
1496	26.0	21.6	47.6
1535	23.7	12.1	35.8
1555	27.0	14.2	41.2
1563	25.1	23.2	48.3
1578	21.2	13.3	34.5
1637	24.7	19.8	44.5
1664	26.1	23.6	49.7
1745	27.0	17.2	44.2
1748	27.1	16.6	43.7
1755	18.5	16.3	34.8
1795	25.2	17.3	42.5
1799	24.0	18.0	42.0
1816	25.4	18.0	43.4
2342	34.7	27.8	62.5
2395	33.6	27.1	60.7
2478	34.1	27.5	61.6
2543	33.6	28.9	62.5
2576	35.0	28.9	63.9
2587	37.8	25.7	63.5
2602	36.1	24.1	60.2
2714	36.0	31.6	67.6
2786	36.6	32.0	68.6
2824	36.3	32.8	69.1

TABLE A-III

PER CAPITA INCOME & PER CAPITA AVAILABILITY OF
NEWSPRINT, WRITING & PRINTING PAPER IN UNDEVELOPED
COUNTRIES.

Per capita income in constant
price (1958 = 100)

Per capita availability in
kilograms.

Year	Per capita income	Per capita availability of newsprint.	Per capita availability of writing & Printing paper.	Total.	Per capita income	Per capita availability of newsprint.	Per capita availability of writing & Printing paper.	Total.
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	(Rs.)	PAKISTAN			(Rs.)	INDIA		
1948								
1949								
1950					271	0.209	0.227	0.96
1951	311	0.045	0.077	0.122	254	0.196	0.259	0.87
1952	298	0.027	0.091	0.118	280	0.145	0.299	0.97
1953	256	0.082	0.036	0.118	295	0.186	0.333	1.10
1954	276	0.100	0.018	0.118	277	0.240	0.388	1.23
1955	276	0.077	0.191	0.268	309	0.218	0.303	1.28
1956	306	0.050	0.263	0.313	306	0.209	0.18	1.16
1957	297	0.068	0.204	0.272	283	0.195	0.313	1.12
1958	279	0.068	0.240	0.308	302	0.191	0.376	1.25
1959	316	0.272	0.213	0.485	293	0.227	0.422	1.43
1960	312	0.195	0.263	0.458	296	0.227	0.490	1.58
1961	329	0.136	0.313	0.449	296	0.281	0.513	1.75
	(£ &)	EGYPT			(N.T.\$)	TAIWAN		
1948								
1949								
1950								
1951								
1952								
1953	37.6	0.862			296	0.798	0.726	1.524
1954	43.5	1.000			3031	0.901	0.767	1.674
1955	42.5	0.862			3089	0.603	0.875	1.478
1956	41.0	1.043			3063	0.93	0.980	1.933
1957	40.1	0.816			3186	0.62	1.447	2.059
1958	44.6	1.179			3332	0.71	3.311	4.082
1959		1.133			3391	1.75	3.157	4.232
1960		1.315			3590	1.07	0.929	2.036
1961		1.860						

TABLE A-III (contd..2)

Year	Per capita income	Per capita availability of news-print.	Per capita availability of writing & printing paper.	Total	Per capita income	Per capita availability of news-print.	Per capita availability of writing & printing paper.	Total
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
(Soles) PERU								
1948	1966	0.708	0.608	1.316				
1949	2203	1.184	0.635	1.819				
1950	2441	0.975	0.500	1.475				
1951	2612	1.266	0.542	1.606				
1952	2614	1.129	0.331	1.460	126	0.410	0.720	1.130
1953	2568	1.107	0.259	1.366	141	0.610	0.310	0.920
1954	2605	1.415	0.331	1.746	127	0.690	0.530	1.220
1955	2693	1.597	1.020	1.617	139	0.700	0.480	1.180
1956	2653	1.660			138	0.680	0.480	1.160
1957	2560	1.828			149	0.800	0.670	1.470
1958	2654	1.624			163	0.560	0.640	1.200
1959					154	0.680	0.890	1.570
1960					153	0.750	0.460	1.210
1961					152	0.810	0.610	1.420
(U.S.Dol.) PORTUGAL								
1948								
1949								
1950					2793	1.538	1.370	2.908
1951					2981	2.141	1.297	3.438
1952	193	0.620	0.390	1.010	2789	2.953	1.261	4.214
1953	199	0.530	0.340	0.870	2710	2.549	1.438	3.987
1954	206	0.530	0.370	0.900	2904	3.000	1.778	4.778
1955	215	0.410	0.480	0.890	3077	1.687	1.701	3.388
1956	224	0.870	0.310	1.180	3232	2.041		
1957	231	1.100	0.270	1.270	3240	1.724		
	278	0.710	0.320	1.030	3095	2.336	2.164	4.500
(Pesos) MEXICO								

TABLE A-III(contd...4)

Year	Per capita income	Per capita availability of newsprint.	Per capita availability of writing & printing paper.	Total	Per capita income	Per capita availability of newsprint.	Per capita availability of writing & printing paper.	Total
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	GREECE (U.S. \$)				CHILE (Escudos)			
1948								
1949								
1950					288	4.940	2.141	7.081
1951					294	3.878	2.200	6.078
1952	227	1.700	2.100	3.800	308	3.493	3.062	6.555
1953	274	1.500	2.000	3.500	363	3.479	2.722	6.201
1954	285	1.600	1.800	3.400	340	3.488	2.404	5.892
1955	296	1.100	2.100	3.200	321	3.697	2.586	6.283
1956	317	2.000	1.900	3.900	327	3.556		
1957	335	2.600	1.900	4.500	349	3.565	2.132	5.697
1958	356	2.500	2.500	5.000	344	6.164	1.678	7.842
1959	360	2.200	1.500	3.700	333	7.502	2.177	9.679
1960	375	2.700	3.100	5.800	335	5.860	2.495	8.355
1961	411	3.300	4.000	7.300	341	7.820	3.039	10.859

Dash (-) means not available

Sources:

Col(1) Note: Per capita income was derived by dividing the National Income in National currencies [2] by midyear population (12); and then the figures were deflated by the whole-sale price index of the respective countries (1958-100) [9]

Col(2) and (3):

Per capita availability of newsprint & writing & printing was derived by adjusting imports and exports to domestic production [7] and dividing it by mid-year population estimates [5].

Col(4): - Cols(2) plus (3)

TABLE A-IV

PER CAPITA INCOME AND PER CAPITA NET AVAILABILITY OF NEWSPRINT
IN UNDERDEVELOPED COUNTRIES

Country	Per capita income in \$ U.S. 1957	Per capita availability of news- print	Country	Per capita income in \$ U.S. 1957	Per capita availability of news- print. (avg. 1957-1959 in kilogrammes)
(1)	(2)	(3)	(1)	(2)	(3)
Burma	57	0.349	Algeria	176	0.544
Angola	60	0.091	Peru	179	1.542
Libya	60	0.154	Guatemala	189	0.816
Sudan	60	0.086	Ecuador	189	1.542
Pakistan	70	0.099	Br. Honduras	194	1.224
Mozambique	70	0.204	El Salvador	219	1.633
India	73	0.204	Turkey	220	0.544
China	73	0.191	Philippines	220	1.406
Nigeria	78	0.099	Portugal	224	2.631
Kenya	87	0.272	Mauritius	225	0.408
Madagascar	88	0.236	Mexico	262	2.041
Belgian Congo	92	0.086	Colombia	263	1.814
Thailand	96	0.726	Yugoslavia	265	1.315
Cambodia	99	0.204			
Haiti	105	0.091	Spain	293	1.542
Iran	108	0.408	Brazil	293	3.039
Paraguay	114	0.408	Panama	329	2.131
Ceylon	129	1.000	Greece	340	1.950
Jordan	129	0.099	Costafrica	357	2.722
Indonesia	131	0.132	Rumania	360	2.359
Fed. of Rohd- esia & N. Land	135	0.590	Lebanon	362	3.855
Morocco	142	0.376	Bulgaria	365	2.041
Korea, South	144	1.000	Chile	379	3.357
Egypt	147	1.000	Cypres	467	1.225
Iraq	156	0.172	Poland	475	1.814
Nicargua	160	1.000			
Taiwan	161	0.953			
	172	0.336			

Sources: Col.(2): [14]

Col.(3): [7] [12]

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