THE EXEMPTION LIMIT AND THE PERSONAL INCOME TAX: AN INTERNATIONAL COMPARISON

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Abstract

This paper analyses the relationship between the exemption limit in the personal income tax and the per capita income for a group of 26 selected countries. Two alternative kinds of exemption limit are examined, viz., the actual exemption limit and the notional exemption limit, where the latter is defined to be the income level at which the marginal rate of 25 per cent becomes applicable. Norms for both the actual and notional exemption limits are devised using a determinants analysis on the basis of per capita income and the share of personal income tax in total revenue. It is seen that the actual exemption limit and the marginal tax rates at low levels of income are high in India, Pakistan, Jamaica and Spain and low in U.S.A. and Thailand.

The Exemption Limit and the Personal Income Tax: An International Comparison

The exemption limit and the marginal tax schedule comprise the two basic elements of any income tax system. In most countries of the world, personal income upto a certain limit is exempted from income tax. Two broad justifications may be provided to have income upto a certain level exempted from tax: (i) The capacity to pay income taxes may be regarded as being low for very low incomes. Individuals with low incomes up to a certain level may thus be exempted from paying income tax. This may be thought of as being an equity argument. (ii) On grounds of administrative cost it might be advantageous to exempt a large number of taxpayers with very low tax liability if it is felt that the ratio of cost of collection to the tax yield for such persons would be so high as to make the imposition of the tax uneconomical. This may be thought of as being an administrative argument.

A natural question arises as to whether the exemption limit in a country is high or low as compared to the limit in other countries. It is well known that as the level of well being of a country, judged in terms of, say, its per capita income, rises the share of direct taxes in total tax revenues is seen to be higher. With a per capita income of US $ 290, India raised about 18.96 per cent from direct taxes in the year 1986 whereas with per capita incomes of $ 8,870, $ 12,080 and $ 12,840 respectively, U.K., West Germany and Japan raised 66.15, 76.49 and 74.79 per cent of their tax revenue from direct taxes. It should also be remembered that direct taxes can be more readily used as a tool to promote equity as compared to indirect taxes. The arguments for this are quite well known but for a systematic review of it the reader is referred to Musgrave and Musgrave (1980). It may be expected that as the general level of well being of a country rises an increasing proportion of the population may be, with good justification, brought within the income tax net. In particular, as per capita income rises the ratio (R) of the exemption limit to per capita income may be expected to fall. This also means that the ability-to-pay of the bulk of the population rises. Beyond the recognition of this fact, however, it ought to be

stressed that any attempt at comparing the exemption limit across countries is in fact fraught with several methodological difficulties. Two countries may have the same per capita income levels, but the exemption limits of personal income taxes may well be different owing to, among others, three important factors: (i) The tax structures in the two countries, in terms of the mix of the direct and indirect taxes may well be significantly different. This might well be so due to the different structural features of the two economies. (ii) The structure of personal income taxes itself may be significantly different between the two countries in the sense that different combinations of exemption limits and marginal tax schedules may be chosen to yield a target level of income tax revenues. (iii) The distributions of income in the two countries may be different, giving rise to the need for instituting different exemption limits in the two countries.

In this paper however, we exclusively focus attention on per capita income and the mix of direct and indirect taxes as the key factors determining the level of the exemption limit.

A country with a large population size and high income inequality like India may adopt, ceteris paribus, a higher exemption limit as compared to other countries principally to avoid dealing with a large number of taxpayers for a meagre amount of tax revenue. From a perusal of the data for several countries it is observed that as per capita income rises the ratio R of the exemption limit to per capita income falls. Through a choice of suitable functional forms, we relate R to per capita income and the share of personal income taxes in total tax revenue, and estimate the relationships. The actual R is then compared to its predicted value of R for individual countries. We also posit that those countries that raise a relatively larger amount of tax revenues from direct taxes would be having a lower exemption limit in relation to their per capita incomes for the sake of a wider tax base.

It has long been felt that intercountry per capita GDP data available, for example, in the World Development Report, do not accurately reflect the real income levels across countries. In order to account for real income differentials not captured in the exchange rate adjustments Kravis and others (1982) have proposed a set of correction

factors to the per capita GDP figures. We attempt a [redacted] exercise linking the ratio R to per capita incomes corrected by the Kravis index.

For our exercise we consider a sample of 26 countries. These are Austria, Brazil, Colombia, Denmark, France, W. Germany, India, Ireland, Italy, Jamaica, Japan, Kenya, S. Korea, Luxembourg, Malawi, Malaysia, Mexico, The Netherlands, Pakistan, Philippines, Spain, Sri Lanka, Thailand, U.K., U.S.A and Zambia. The Kravis index is also available for all these countries.

We also examine an alternative notion of exemption limit, which we call the `notional exemption limit'. This is taken to be the level of income at which the marginal tax rate of 25 per cent becomes applicable. Accordingly, two exemption limit ratios, RA and RN, could be defined which refer to the ratios of actual and notional exemption limits to per capita income. RN avoids the misleading picture that we get from purely looking at RA for the countries that start with very low exemption limits associated, perhaps, with very low marginal tax rates as in France, W. Germany, Luxembourg and the Netherlands. Both these notions provide

different kinds of information and it should not be thought that one is necessarity superior to the other.

We find that Colombia has the highest actual exemption limit ratio (RA), followed by India, Pakistan, Kenya and Sri Lanka, in the descending order. USA has the lowest RA which is followed, in the aeconding order, by S. Korea, W. Germany, Austria, and Luxembourg. On the other hand Malawi has the highest notional exemption limit ratio (RN), followed in the descending order by Kenya Pakistan and Thailand. W. Germany has the lowest ratio which is followed, in the ascending order, by Austria, U.K. and Luxembourg.

In the following section we present a brief review of the literature. In section III a picture of the exemption limit and per capita incomes in various countries is presented. The fourth section of the paper outlines the methodology that we have adopted in this study. The results of our econometric exercise are presented in the fifth section. Since the exemption limit of the personal income tax is a matter of much interest and relevance in India we focus specifically on the Indian case in section VI. Section VII presents the conclusions of this study.

II. The Exemption Limit : A Brief Review of the Literature

The literature on the comparative picture of personal income taxes across countries is meagre, presumably because of the inherent difficulties associated with attempting such an exercise. Some of the best known works in the area are due to Chelliah, Bass and Kelly (1975) and Tait, Grats and Eichengreen (1979), both of which work out some measures of the average tax rate relative to the base. Dilnot and Morris (1984), in an important paper, study the income tax structure of U.K., and consider the consequences of choosing alternate tax scenarios, but they do not provide a comparative picture of other countries. In the Indian context, Chawla (1972), Gupta and Aggarwal (1982) and Kothari (1987), among many others, have considered the question of the exemption limit and the marginal tax schedule. None of these works, however, has considered the international picture.

Bicat and Virmani (1988) develop a methodology to compare marginal official tax rates across a sample of fifty developing countries. They caution against trying to link disincentive effects of a tax system purely in terms of the

higheet merginal rate. For their analyeis they relete the income level which the tax reaches the higheet marginal rate to per family GDP (FGDP), and examine the proportion of tax payers to which the higheet retes apply. The analyeis is based on the ebove threehold income level end four other income levels (3/4 of mean FGDP, meen FGDP, 2 timee FGDP end 3 timee FGDP).

In analysing the impect of inflation on personel incose tex in India Begchi (1982) arguas thet it is not the cese that income tax hee totally igaored the effectsof inflation. In fact he ehows that tha exemption limit has moved up more than was neceasery to nautrelise the inflationary impect. He aleo looks at the ratio of tha exemption limit to per capita incoma for 21 eelected countries and finds that the ratio ie the higheet for India, followed by Pakistan, end lowest for Australia, W. Gerneny end Isreal. Begchi aleo recognisee that tha exemption limit of personel income tex must depend upon the mix between directand indirect tuxes amongst countries.

III. The Exemption Limit : Concepts Adopted and the International Picture

Table 1 presents data on both the actual and notional exemption limits along with per capita incomes of the sample countries. The data on exemption limits have been obtained from the Investing Licensing and Trading Conditions Abroad which have been compiled by the Business International Corporation, and the per capita income figures have been obtained from the World Development Report (1987). The data on the exemption limits correspond to the year 1987 and the figures for the per capita gross domestic product (PCGDP) are for the year 1986. The latest year for which the Kravis index of real income comparisons of different countries is available with us is 1975 and the same have been used in the current study to make a correction for real PCGDP.

For the purpose of determining actual and notional exemption limits, we focus exclusively on the basic[1]

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1. This excludes deductions specifically allowed for dependent children or parents, marriage allowance, etc.

exemption limit and the tax rate schedule applicable to a country. It is possible to think in terms of adding the standard deduction to the basic exemption limit to get an idea of the zero tax limit {(See, for example, Sicat and Virmani (1988)}. We have resisted this temptation because in most countries the standard deduction is a variable with an upper limit and we see no obvious justification in merely adding on the upper limit of the standard deduction to the exemption limit. Moreover, the standard deduction is not applicable to income from all sources and is allowed only with respect to salary income in lieu of the expense of earning income just as deductions for expenses are allowed in computing profit or loss from business or other sources of income. Therefore, to the extent that the standard deduction represents the expense of earning salary income alone, it would not seem appropriate to add it to the basic exemption limit to cover all sources of income. Variation in the standard deduction across countries may thus be presumed to principally reflect variations in the expense of earning salary income.

It is of course true that income earners in different countries may have families of different average sizes to support but we make no adjustments to the exemption limit

on this score. The picture would be further complicated by the fact that average family size would generally vary across income classes as well as across countries. Our analysis also does not take into account personal allowances specifically allowed for old age marriage etc.

From Table 1 (Column 7), it would be noted that the ratio (RA) of actual exemption limit to per capita gross domestic product (PCGDP) in the country's own currency varies from as low as 0.1087 to as high as 5.0222 across the 26 countries covered here. Colombia has the highest RA which is followed in the descending order by India, Pakistan, Kenya, Sri Lanka, Denmark, Jamaica, Mexico and Malaysia. On the other hand, USA has the lowest RA which is followed, in the ascending order, by Korea, W. Germany, Austria, Luxembourg, France and Italy. The ratio is found to decline as PCGDP rises across the countries (Chart 1) as well as with rise in PCGDPA[2] (Chart 2).

It would also be noted from Table 1 (Column 8) that the ratio (RN) of notional exemption limit to per capita gross domestic product varies from as low as 0.1729 to as

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2. PCGDPA is PCGDP adjusted for purchasing power parity by the Kravis index.

high as 20.1494 across the countries. Malawi has the highest RN which is followed, in the descending order, by Kenya, Pakistan, Thailand, Philippines, Colombia and Malaysia. On the other hand, W. Germany has the lowest RN which is followed, in the ascending order by Austria U.K. Luxembourg, Ireland, France, and the Netherlands. As in the case of RA, the ratio RN is also found to decline with increases in PCGDP across the countries (Chart 3) as well as with increases in PCGDPA (Chart 4).

The rankings of different countries in terms of RA differ substantially from those in terms of RN (Table 1, columns 10 and 11). Colombia and India which are ranked first and second in terms of RA are found to be ranked sixth and ninth in terms of RN. On the other hand Malawi and Philippines which are ranked eleventh and twelvth in terms of RA are found to get respectively the first and fifth rankings in terms of Similarly Kor and USA which are found to have the lowest exemption limit ratio RA are not found to have the lowest ratio RN-instead they are placed among countries with middle rankings.

The relationship between exemption limit ratios and per capita incomes are analysed subsequently.

IV. The Methodology

The ratio (R) of the exemption limit to per capita income can be expressed as a function of per capita income (PCI) and the ratio of personal income taxes (and social security contributions, wherever applicable) to the total tax revenue (ITR), as:

(1) $R = f(PCI, ITR)$

The higher the PCI of a country the lower is likely to be the exemption limit ratio (R). Countries relying more on direct taxes and specifically more on personal income taxes may adopt lower exemption limits to have a broad base of individuals' taxes. So the high r the ITR of a country it may be expected that t s lower ought to be the exemption limit ratio (R).

For the purpose of studying the relationship of R with PCI and ITR, we have chosen the following alternative functional forms of relation (1):

(2) $R = \beta_1 PCI + \gamma_1 (1/PCI) + \delta_1 ITR$

(3) $LR = \beta_2 LPCI + \gamma_2 (1/PCI) + \delta_2 LITR$

(4) $LR = \beta_3 LPCI + \gamma_3 (1/LPCI) + \delta_3 LITR$

where LR, LPCI and LITR denote the log values of R, PCI and ITR respectively. $\beta_1, \beta_2, \beta_3, \gamma_1, \gamma_2, \gamma_3$ and δ_1, δ_2 and δ_3 are the parameters to be estimated.

The expected values of $\beta_1, \beta_2, \beta_3$, δ_1, δ_2 and δ_3 are negative. γ_1, γ_2 and γ_3 can take any value. This is so because a country with a higher PCI is expected to have a lower R. Similarly a country that depends relatively more on individuals taxes is also expected to register a lower R. The inverse term '1/PCI' or '1/LPCI' allows the relation between R and PCI to vary among the countries with respect to their level of economic development judged in terms of PCI.

In equation (2), for $\beta_1 < 0$, $\gamma_1 < 0$ would mean that the decline (rise) in R following a unit rise in PCI is higher (lower) among the countries with higher PCI, whereas for $\beta_1 < 0$, $\gamma_1 > 0$ would mean that the rate of decline in R following a unit rise in PCI is lower among the countries with higher PCI, and insignificance of γ_1 would mean that R

falls by a constant value β_1 following a unit rise in PCI. A positive (negative) value of β_1 would mean that R rises (falls) by a constant value δ_1 following a unit rise in ITR.[3] Equations (3) and (4) may be interpreted in a similar manner.

The per capita income (PCI) of different countries can be defined in at least two ways. The first and the obvious one would be in terms of US dollars at the official exchange rate. The second would be in terms of US dollars at the official exchange rate adjusted by the Kravis index for parity in purchasing power among different countries. The latter concept of PCI seems to be preferable to the former though several researchers have questioned the Kravis approach (see, for example Isenman (1980)). We have obtained the estimates of equations (2) to (4) by using both

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3. From equations (2), (3) and (4) we have:

$$\frac{dR}{dPCI} = \beta_1 - \frac{\gamma_1}{PCI^2} \quad \text{and} \quad \frac{dR}{dITR} = \delta_1 \qquad (2')$$

$$\frac{dR/R}{dPCI/PCI} = \beta_2 - \frac{\gamma_2}{PCI} \quad \text{and} \quad \frac{dR/R}{dITR/ITR} = \delta_2 \qquad (3')$$

$$\frac{dR/R}{dPCI/PCI} = \beta_3 - \frac{\gamma_3}{LPCI^2} \quad \text{and} \quad \frac{dR/R}{dITR/ITR} = \delta_3 \qquad (4')$$

the concepts of PCI with a view to bringing out the implications of the above concepts.

As suggested above, the exemption limit ratio (R), like PCI, is defined in two ways. The first is in terms of the ratio (RA) of actual exemption limit to per capita income. The second is in terms of the ratio (RN) of the notional exemption limit (taken to be the level of income at which the 25 per cent marginal rate of tax becomes applicable) to per capita income. Estimates of equations (2) to (4) are obtained by using both the concepts of R, i.e., RA and RN.

The choice between equations (2) to (4) is dependent essentially on the econometric fit. The one which gives the statistically better fit is taken to be the preferred equation for our purposes. Different equations may be found to give better fits with different combinations of R and PCI, i.e., RA and PCGDP, RA and PCGDPA, RN and PCGDP, and RN and PCGDPA.

Countries with exemption limits above or below a norm can be identified by comparing the estimated values of R obtained by using a preferred estimated equation, with the actual values of R. Countries with the actual exemption

limit ratio greater (lower) than the estimated value can be identified as those with exemption limits that are higher (lower) than the norm. Different countries can be ranked according to an index of deviation of actual value of R from its estimated value, which can be defined as:

$$(5) \quad I = \frac{\text{actual } R - \text{estimated } R}{\text{actual } R}$$

This index may rank different countries in different ways depending on the concept of PCI (PCGDP or PCGDPA) and that of R (RA or RN) used in the estimated equations.

A positive (negative) value of the index I for a country would mean that the exemption limit in that country is greater (lower) than the norm. Values of I of 0.50 and 0.75 suggest that the actual exemption limit is respectively twofold and fourfold as that of the norm. Similarly, values of I of -0.50, -1.00 and -2.00 suggest that the exemption limit is respectively two-third, half and one-third of the norm.

V. The Results

Each of the equations (2) to (4) were estimated by ordinary least squares separately with each of the four combinations of R and PCI, i.e., (RA, PCGDP), (RA,PCGDPA), (RN, PCGDP) and (RN, PCGDPA). In all these cases, equations (3) or (4) gave better fits as compared to equation (2), evaluated in terms of the explanatory power of the equations (R^2), significance of the coefficients of the exogenous variables and the standard error of the estimates. Parameter estimates of equations (3) and (4) are given in Tables 2 and 3. Parameter estimates of these equations with dependent variable as log RA are reported in Table 2 and those with dependent variable as log RN are reported in Table 3. The explanatory power of the equations with dependent variable log RN is substantially higher than those with dependent variable log RA . This is in fact what one would have expected. Our analysis suggests that some of the countries rather than opting for a higher exemption limit have settled for a low exemption limit with very low marginal rates of tax at initial levels of incomes. These are France, W. Germany, Luxembourg and the Netherlands. The variation caused by this factor in RA could not be explained by the variables included in the functional

specifications, whereas RN is free from this variation and is thereby explained better by the variables included in the specifications

It would be noted from Tables 2 and 3 that the coefficients of the logs of PCI and ITR are significant with all the four combinations of (R and PCI), except that the coefficient of log ITR is not significant with the combination (RA, PCGDP). This seems to suggest that per capita income and the ratio of personal income tax to total taxes significantly affect the exemption limit ratio. The inverse of the log of PCI is significant only with the combination (RN, PCGDP) and the inverse of PCI is significant only with the combination (RA, PCGDPA). Depending on the explenatory power of the equations, the significance of the coefficients and the standard error of the estimates, the equation that gives the better fit differs with respect to different combinations of (R and PCI). For the combination (RA, PCGDP), equation 4 in Table 2 with the exclusion of the inverse of PGI and log ITR terms seems to give the bettar fit. With the combination (RA, PCGDPA), equation 6 in Table 2, with the inclusion of inverse of PCI and log ITR terms seems to give the better fit. With the combination (RN, PCGDP) equation 1 in Table

3, with the inclusion of the inverse of log PCI and log ITR terms seems to give the better fit. Lastly with the combination (RN, PCGDPA), equation 6 in table 3, with the exclusion of the inverse of PCI but inclusion of log ITR seems to give the better fit. The expected signs of the coefficients of the explanatory variables are obtained in these equations. These better fit equations with different combinations of (R and PCI) are chosen for setting exemption limit ratio norms for different countries. Exemption limit ratio norms are thus given by estimated values of the ratio by using these better fit equations. Based on the actual and estimated values of the exemption limit ratio the index of deviation of the actual value of the exemption limit from its estimated value 'I' is calculated with respect to each of the four combinations of (R and PCI). The values of index I with the combinations (RA and PCGDP) and (PC, PCGDPA) are given in table 4 and those with the combinations (RN and PCGDP) and (RN, PCGDPA) are reported in table 5.

The values of index I, based on the combination (RA, PCGDPA) given in table 4 (column 3), suggest that the actual exemption limit is greater than fourfold of the norm in Colombia and Denmark, greater than twice the norm in India and Spain, greater than one and a half times the norm in

Kenya, Pakistan and Jamaica, around the norm in Mexico, Brasil, U.K., Ireland, Sri Lanka, Netherlands, Malawi, Malaysia, Luxembourg, Japan and Italy, less than two-thirds of the norm in Germany, Austria and U.S.A., less than half the norm in Thailand, Philippines and Zambia, and less than one-fifth of the norm in Korea. Implications of the values of the index, based on the combination (RA, PCGDP), i.e., with unadjusted PCGDP, given in table 4 (column 2), however, would have been slightly different from those stated above with the combination (RA, PCCDPA). The extent of excessive exemption limit would have been over estimated in Pakistan, Mexico and Sri Lanka and under estimated in Kenya and Spain. The extent of short fall in the exemption limit would have been under estimated in Thailand, Philippines and Korea and over estimated in Malawi, Italy, U.S.A., and Zambia. The policy applications of the above findings would seem to be that the exemption limit ought to be lowered in Colombia, Denmark, India, Jamaica, Kenya, Pakistan and Spain.

The values of Index I, based on the combination (RM, PCGDPA), given in table 5 (column 3), suggest that the notional exemption limit is greater than fourfold the norm in Colombia, greater than twice the norm in Malawi, Brazil

and Japan, greater than one and a half the norm in Thailand, U.S.A., Mexico, Kenya, Denmark and Malaysia, around the norm in Korea, Italy, Spain, Philippines, Netherlands, Pakistan, France and Luxembourg, less than half the norm in India, Jamaica, Ireland, U.K., Austria and Sri Lanka, and less than one-third the norm in Zambia and W. Germany. However, the implications of the values of the index based on the combination (RN, PCGDP), i.e., with unadjusted PCGDP, given in table 5 (column 2) would have been slightly different from those stated above based on (RN, PCGDPA). The extent of excessive exemption limit would have been over estimated in Thailand and Denmark, and under estimated in Colombia, Malaysia and Korea. Further, this would have placed Jamaica among the countries with exemption limit close to the norm instead of among those with exemption limit less than half the norm. An implication of the above findings is that the level of income at which the marginal rate of 25 per cent is applicable is high in Brazil, Colombia, Denmark, Japan, Kenya, Malaysia, Malawi Mexico and U.S. ., and low in Austria, Germany, India, Ireland, Jamaica, Sri Lanka, U.K., and Zambie.

A comparison of column (3) in table 4 with that in table 5 reveals substantial variation in the comparative picture of different countries based on the actual and notional exemption limit ratios. Countries such as India, Pakistan, and Jamaica which were found to have the exemption limit substantially higher than the norm based on the former ratio are found to have the exemption limit substantially lower than the norm based on the latter ratio. On the other hand, countries such as U.S.A. and Thailand which were found to have the exemption limit substantially lower than the norm based on the former ratio are found to have the limit substantially higher than the norm based on the latter ratio. This is attributable to the low minimum marginal rate of tax and low exemption limit in the latter category of countries as compared to the former category of countries. An implication of these findings is that in the former category of countries a lowering of the actual exemption limit should be accompanied by a simultaneous lowering of the marginal tax rates at low levels of income, and in the latter category, a raising of the exemption limit should be accompanied by a simultaneous raising of the marginal tax rates at low levels of income. For example, the exemption limit in India based on RA is greater than twice the norm but when judged in terms of RN it is less

than half the norm. This suggests that the actual exemption limit in India should be reduced to half the present amount and simultaneously, the marginal tax rates at low income levels ought to be lowered such that the marginal rate of 25 per cent becomes applicable at an income level above twice the current actual exemption limit. The exemption limit in U.S.A. based on RA is less than half the norm and the one based on RN is greater than one and a half times the norm.

Our analysis reveals that the exemption limit in Spain based on RA is greater than twice the norm and the one based on RN is close to the norm. This suggests that the actual exemption limit in Spain should perhaps be reduced to less than one half by carving out a low rate bracket from the current exemption limit so that the marginal rate of 25 per cent continues to be applicable at an income level as per the existing rate schedule. The exemption limit in Mexico and Brazil based on RA is around the norm and the one based on RN is around twice the norm. This implies that the marginal rate of 25 per cent is applicable at a relatively high level of income. The rate structure in these two countries need to be adjusted to raise the marginal rates at low income levels. The exemption limit in West Germany and Austria, based on RA, is around three-fourths of the norm

and if based on RN is less than half the norm. This gives a signal for raising the exemption limit and lowering the tax rates at low income levels in these two countries.

VI. The Exemption Limit in India

The exemption limit in India currently stands at Rs. 18,000. In 1984-85 the limit was Rs. 15,000. With each passing year there is clamour in several quarters for increasing the exemption limit, principally on the ground that inflation cuts into the real incomes of households and business firms. The consequences of inflation also eventually show up in upward wage revisions which leads to what is known as "bracket creep", whereby tax payers move into higher tax brackets even though their real incomes may not have risen, or perhaps, even might have fallen. This will perhaps have some consequences for the notional exemption limit exercise we have carried out above. However, our presumption throughout has been that inflation would push up by a constant fraction both the per capita incomes on the one hand and the actual or notional exemption limit on the other.

Even so it might be useful to look at the exemption limit and the consumer price index (CPI) in India for some selected years from 1960-61.

Financial Year	Exemption Limit	Consumer Price Index
		1960=100
1960-61	Rs. 3,000	100
1974-75	Rs. 6,000	221
1975-76	Rs. 8,000	270
1977-78	Rs. 10,000	277
1980-81	Rs. 12,000	330
1981-82	Rs. 15,000	569
1986-87	Rs. 18,000	568

It should be quite apparent that the exemption limit as well as the consumer price index have more or less moved up in tandem. For some years, e.g., 1977-78 and 1981-82, the exemption limit appears to have been over corrected vis-a-vis inflation, whereas for some other years, eg. 1986-87, the exemption limit appears to have been under corrected.

The main burden of our analysis above suggests that with reference to an inter country comparison of per capita incomes the exemption limit is among the highest in the world. This conclusion is unaffected by inflation. However, the conclusion may well be affected by other significant features of the tax system, such as the share of direct to indirect taxes, the reliance on non tax revenues and public borrowing etc., and indeed it would also be affected by the structural features of the economy as a whole. The latter would include, among others, factors such as the level of development of the country, the share of agriculture, industry and the services in the national income[4], the share of the export sector etc.

When the analysis is carried out with respect to the notional exemption limit it emerges that India's exemption is, after all, not a mong the highest i the world. The starting marginal tax rate of 25 per cent appears too steep. There is perhaps a very good case for tempering the marginal tax rate applicable on the first slab. This could perhaps

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4. This factor is particularly crucial because countries such as India do not levy personal income taxes on agricultural income.

be set at around 15 par cent or so. There is however, no case whatsoever for increasing the exemption limit as such beyond the present level of Rs. 18,000. Our analysis suggests that this level itself is very high, and in keeping with the international comparison that we have worked out, it should, if anything, be lowered. But we also realise that contemplating any lowering of the exemption limit would perhaps be politically inexpedient. The limit should therefore be allowed to stay put, with inflation being gradually allowed to reduce the real value of this sum.

This would also be in keeping with the general thinking among tax theorists today, which seems to suggest that the base ought to be widened to bring one closer to the notion of a comprehensive income tax and there ought to be a few tax slabs with the top rate not being too high. Seminal work in the area of optimal income tax by Mirrlees (1971), Sheshinski (1972), Atkinson (1973), Sadka (1976) and others seems to suggest that the top marginal tax rates ought not to be in excess of 40 per cent or so for a wide variety of specifications of income profiles and individual utilities.

VII. Conclusions

Per capita income and the ratio of income tax to total tax revenue seem to have a significant effect on the ratio of exemption limit to the per capita income of a country.

The actual exemption limit is found to be high in Colombia, Denamark, India, Jamaica, Kenya, Pakistan and Spain, and low in Austria, Germany, Korea, Philippines, Thailand, U.S.A. and Zambia.

The notional exemption limit, defined in terms of the level of income at which the marginal rate of 25 per cent is applicable, is found to be high in Brazil, Colombia, Danmark, Japan, Kenya, Malaysia, Malawi, Mexico and U.S.A., and low in Austria, West Germany, India, Ireland, Jamaica, Sri Lanka, U.K. and Zambia.

Our study suggests that the actual exemption limit and the marginal tax rates at low levels of income should be lowered in India, Pakistan, Jamaica and Spain and raised in U.S.A. and Thailand. Signals are also noted for raising the exemption limit and lowering the tax rates at low income

levels in Austria and Germany, and for raising the marginal tax rates at low levels of income in Brasil and Mexico.

Chart 1

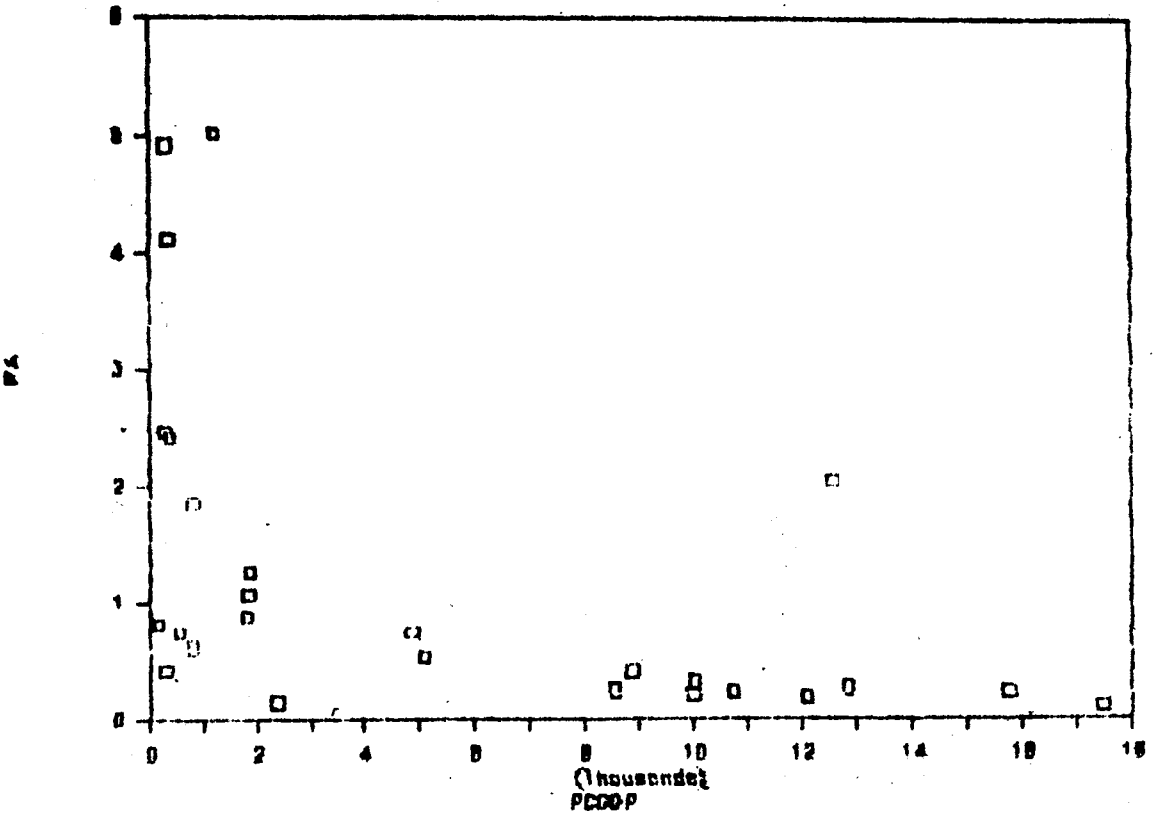


Chart 2

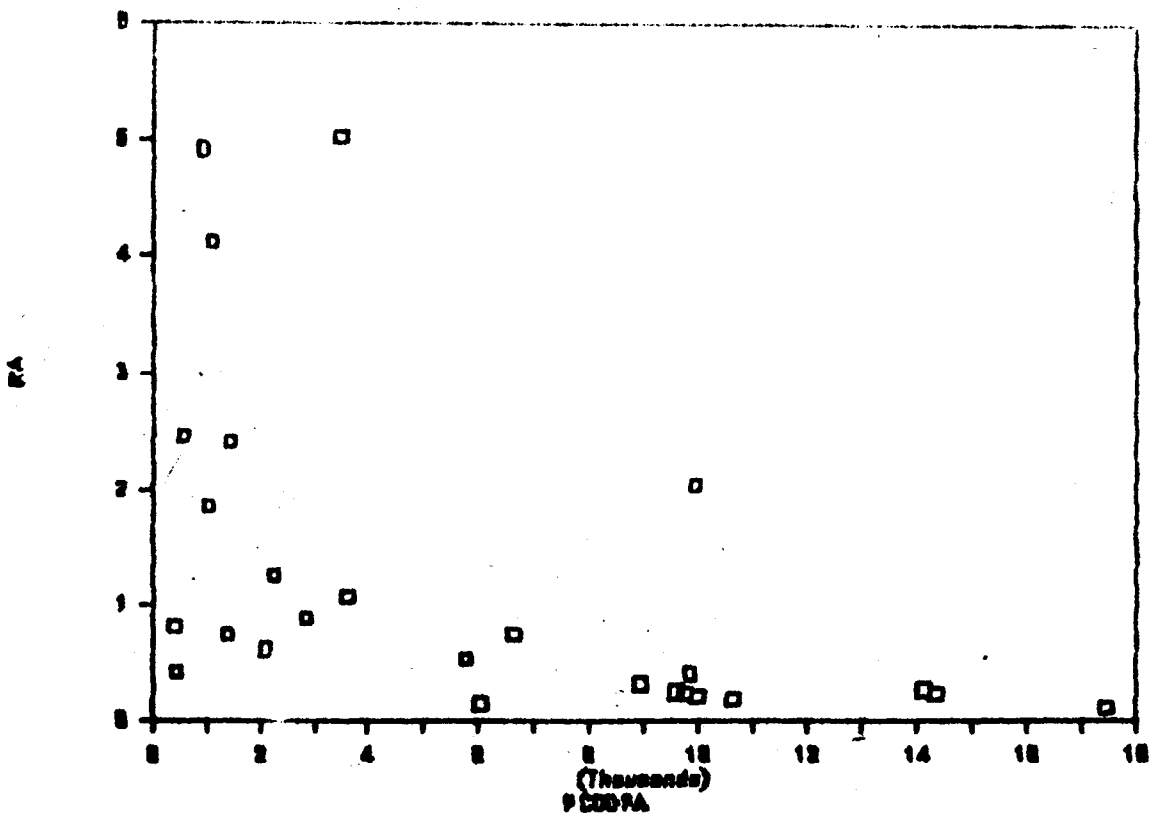


Chart 3

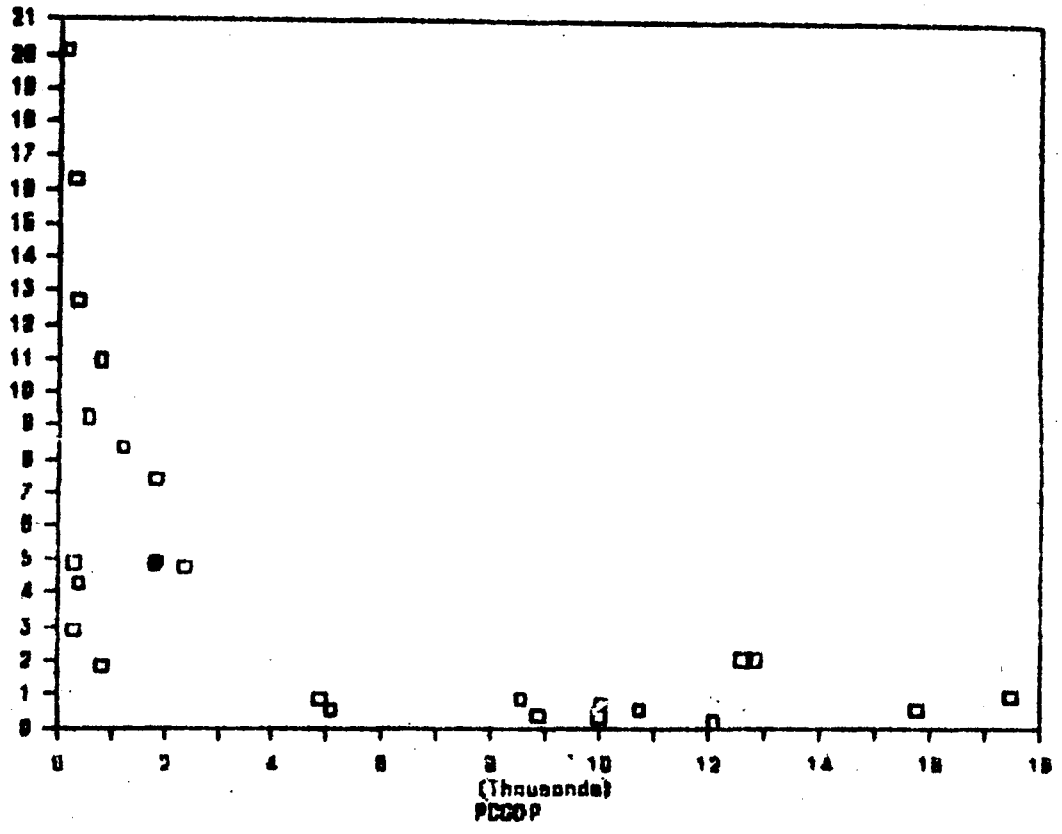
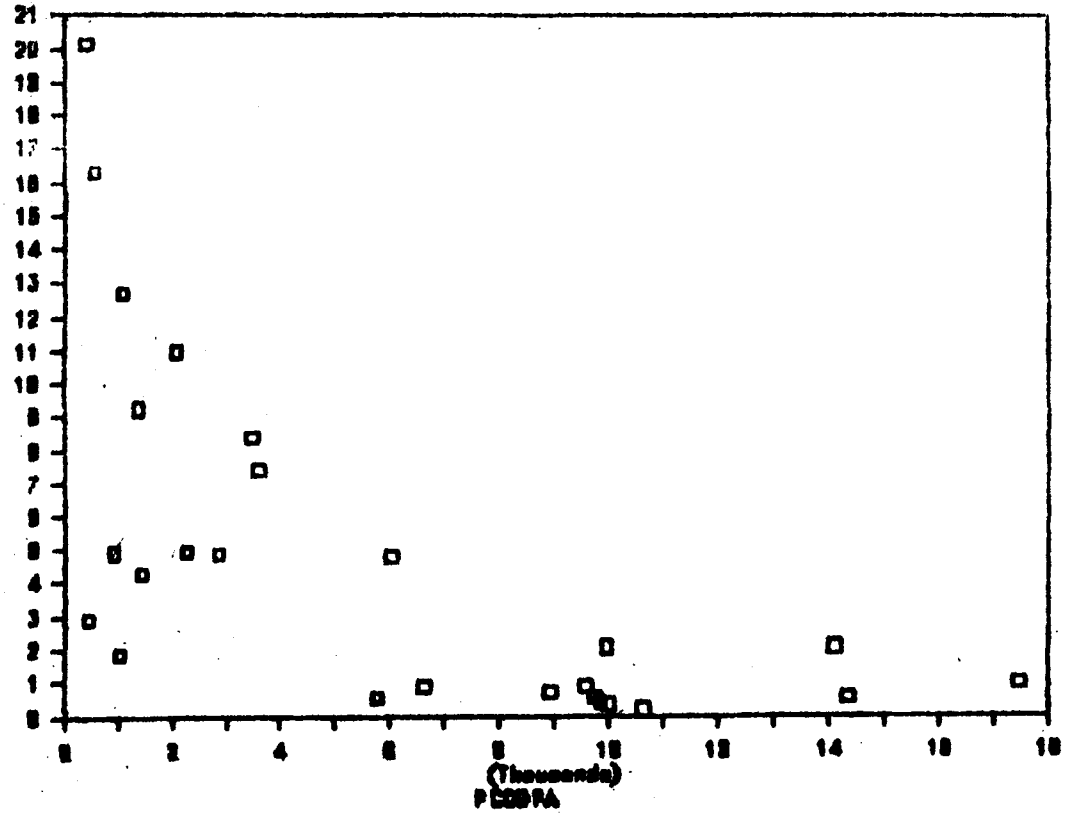


Chart 4



Actual and Notional Exemption Limits and Per Capita Incomes of Different Countries

Country	Per capita GDP in US$, 1986 (PCGDP	Country currency units per US$, 1986	Index of Purchasing power, 1975	Actual exemption limit	Notional exemption limit	Actual exemption limit as ratio of PCGDP (RA)	Notional exemption limit as ratio of PCGDP (RN)	Per capita GDP adjusted for purchasing power parity (PCGDPA)	Ranking in terms of RA
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Colombia	1230	104.2610	2.83	1200000	2000000	3.0222	8.3705	3480.9	1
India	290	12.8110	3.23	18000	18000	4.9218	4.9210	936.7	2
Pakistan	350	16.6480	3.12	24000	74000	4.1189	12.8999	1092.0	3
Kenya	300	14.2257	1.85	12800	79200	2.4652	16.2705	585.0	4
Sri Lanka	400	28.0170	3.63	27000	48000	2.4093	4.2831	1460.0	5
Denmark	12600	8.0910	0.79	208200	208200	2.0422	2.0422	9954.0	6
Jamaica	840	5.4778	1.23	8580	8580	1.8647	1.8647	1033.2	7
Mexico	1860	811.7730	1.23	1427400	5625800	1.2544	4.9460	2287.8	8
Malaysia	1830	2.5814	1.98	5000	35000	1.0584	7.4090	3623.4	9
Brazil	1010	13.6600	1.58	21600	120400	0.8736	4.8696	2859.8	10
Malawi	160	1.8611	2.55	240	6000	0.8060	20.1494	406.0	11
Philippine	560	20.5300	2.51	8500	106000	0.7393	9.2200	1405.6	12
Spain	4860	140.0500	1.36	500000	600000	0.7346	0.8815	6809.6	13
Thailand	810	26.2990	2.61	13000	233000	0.6103	10.9378	2114.1	14
Ireland	5070	0.7454	1.14	2000	2000	0.5292	0.5292	5779.6	15
Zambia	300	7.3046	1.49	900	6400	0.4107	2.9203	447.0	16
U K	8870	0.6817	1.11	2625	2625	0.4010	0.4010	9845.7	17
The Nether	10020	2.4500	0.89	7474	17233	0.3045	0.7020	8917.8	18
Japan	12840	168.3200	1.10	370000	4430000	0.2634	2.0473	14124.0	19
Italy	8550	1490.8000	1.12	3000000	11000000	0.2354	0.8630	9576.0	20
France	10720	6.9261	0.91	16560	41730	0.2230	0.5620	9755.2	21
Luxembourg	15770	44.6720	0.91	153600	369600	0.2180	0.5246	14350.7	22
Austria	9990	13.2670	1.00	30762	50000	0.2017	0.3278	9990.0	23
W. Germany	12080	2.1713	0.88	4538	6336	0.1729	0.1729	10630.4	24
S. Korea	2370	881.5400	2.54	300000	10000000	0.1436	4.7864	6019.8	25
U S A	17480	1.0000	1.00	1900	16800	0.1087	0.9611	17480.0	26

Table 1 (Contd.)

Actual and Notional Exemption Limits and Per Capita Incomes of Different Countries

Country	Ranking in terms of RN	Total tax revenue	Tax on income, profits & capital gains	Social security contribution	Tax on individuals	Tax on IPCG and SSC	Tax on individuals and SSC	DTR (18)/(12)	ITR (17)/(12)
(1)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Colombia	8	292393	78479	33033	48895	131312	98928	0.4498	0.3383
India	8	23470	4655	0	1920	4633	1920	0.1983	0.0821
Pakistan	3	31263	5253	0	1804	5233	1804	0.1680	0.0577
Kenya	2	15987	5023	0	1803	5023	1803	0.3142	0.1128
Sri Lanka	12	30334	5480	0	1760	5480	1760	0.1803	0.0580
Denmark	13	188028	77671	10447	62339	88118	72806	0.4686	0.3872
Jamaica	16	15861	3193	690	2745	5883	3433	0.3709	0.2164
Mexico	8	43383	11766	3780	5388	17548	11168	0.4044	0.2374
Malaysia	7	17131	7982	106	1875	8088	2081	0.4721	0.1215
Brazil	10	60733	16135	20966	736	37101	21702	0.0109	0.3373
Malawi	1	29626	11724	0	6501	11724	6501	0.3957	0.1319
Philippine	5	49974	12166	0	4308	12166	4308	0.2434	0.0862
Spain	18	58739	14910	29440	11766	44350	41206	0.7550	0.7015
Thailand	4	459385	31101	0	16718	31101	16718	0.2231	0.1199
Ireland	22	6427	2215	933	1978	3148	2913	0.4898	0.4532
Zambia	13	10174	3218	0	1089	3215	1089	0.3163	0.1070
U K	24	108056	46931	21987	32343	68918	54330	0.6378	0.5046
The Nether	20	17395	4778	8283	3736	13063	12021	0.7423	0.6853
Japan	14	34854	24523	0	13068	38523	13068	0.7036	0.3979
Italy	18	243724	98838	85499	72615	173338	155114	0.7112	0.6364
France	21	170920	31480	80860	29230	111460	103290	0.6521	0.6043
Luxembourg	23	86070	35615	22225	25201	57840	47426	0.6720	0.5510
Austria	25	41984	9223	16127	7877	25350	24004	0.6047	0.5726
W. Germany	26	48358	8718	28478	6915	37189	35385	0.7690	0.7317
S. Korea	11	11078	2867	158	1522	3825	1680	0.2731	0.1517
U S A	17	64300	33593	23479	29044	39802	33927	0.9152	0.8268

TABLE 2

Parameter Estimates of Equation of Actual Exemption Limit Ratio (RA)

Eq.No.	Per capita income(PCI)	R^2	SEE	Coefficient of			
				log PCI	1/log PCI	1/PCI	log ITR
1	PCGDP	0.48	0.85	-0.5256*	0.1054		-0.0504
				(5.16)	(1.13)		(0.46)
2	PCGDP	0.48	0.85	-0.5622*		-0.2104	-0.2289
				(4.94)		(1.20)	(1.13)
3	PCGDP	0.45	0.86	-0.4902*			-0.0214
				(5.03)			(0.20)
4	PCGDP	0.45	0.84	-0.4901*			
				(5.13)			
5	PCGDPA	0.43	0.90	-0.5154*	0.0055		-0.2041*
				(4.72)	(0.22)		(1.70)
6	PCGDPA	0.51	0.83	-0.6149*		-0.6907***	-0.5393*
				(5.42)		(1.95)	(2.68)
7	PCGDPA	0.42	0.88	-0.5151*			-0.2089*
				(4.81)			(1.80)

Notes: PCGDP — Per Capita gross domestic product
PCGDPA — Per capta gross momestic product adjusted by Kravis iodex of parity in purchasing power a different countries.
ITR — Individual tax ratio, i.e., the ratio of tax rev from personal income tax to total tax revenue of Central Government.
* — Significant at 99 per cent level of confidence
** — Significant at 95 per cent level of confidence
*** — Significant at 90 per cent level of confidence
SEE — Standard error of the estimates

Dependent variable in the equations is log of actual exemp limit ratio (RA), i.e., log RA.

TABLE 3

Parameter Estimates of Equation of Notional Exemption Limit Ratio (RN)

Eq. No.	Per Capita income (PCI)	R^2	SEE	Coefficient of Log PCI	1/Log PCI	1/PCI	Log ITR
1	PCGDP	0.73	0.73	-0.3604* (4.15)	0.1417*** (1.79)		-0.8453* (9.10)
2	PCGDP	0.70	0.78	-0.3054* (2.94)		0.0216 (0.13)	-0.785* (4.24)
3	PCGDP	0.69	0.76	-0.3128* (3.62)			-0.8063* (8.35)
4	PCGDPA	0.67	0.80	-0.3111* (3.18)	-0.0104 (0.47)		-0.9289* (8.63)
5	PCGDPA	0.67	0.81	-0.3194* (2.90)		0.0525 (0.15)	-0.9449* (4.83)
6	PCGDPA	0.67	0.79	-0.3118* (3.24)			-0.9197* (8.84)

Notes: Same as in Table 2 excepting that the dependent variable in the equations is log of notional exemption limit ratio (RN), i.e, log RN

Table 4

Index of Deviation of Actual Exemption Limit Ratio (RA) from the Norm

Country	With RA and PCGDP	With RA and PCGDPA
(1)	(2)	(3)
Colombia	0.82	0.86
Denmark	0.86	0.81
India	0.63	0.61
Spain	0.37	0.54
Kenya	0.27	0.44
Pakistan	0.59	0.43
Jamaica	0.42	0.39
Mexico	0.41	0.26
Brazil	0.14	0.18
U.K	0.14	0.18
Ireland	0.15	0.13
Sri Lanka	0.35	0.05
The Netherlands	-0.06	0.03
Malawi	-2.05	-0.09
Malaysia	0.30	-0.10
Luxembourg	-0.19	-0.17
Japan	-0.09	-0.17
Italy	-0.48	-0.26
France	-0.40	-0.35
W. Germany	-0.71	-0.50
Austria	-0.60	-0.52
U.S.A	-1.26	-0.69
Thailand	-0.82	-1.34
Philippines	-0.80	-1.52
Zambia	-3.39	-1.84
S. Korea	-3.56	-4.69

Table 5

Index of Deviation of Actual Exemption Limit of Ratio (RN) from the Norm

Country	With RN and PCGDP	With RN and PCGDPA
Colombia	0.45	0.78
Malawi	0.56	0.63
Brazil	0.50	0.62
Japan	0.55	0.50
Thailand	0.70	0.49
U.S.A.	0.54	0.49
Mexico	0.36	0.46
Kenya	0.47	0.46
Denmark	0.54	0.43
Malaysia	0.18	0.37
S. Korea	0.11	0.32
Italy	0.16	0.13
Spain	0.05	0.12
Philippines	0.17	0.07
The Netherlands	0.09	-0.02
Pakistan	-0.12	-0.06
France	-0.23	-0.39
Luxembourg	-0.22	-0.44
India	-1.34	-1.07
Jamaica	0.08	-1.17
Ireland	-1.24	-1.26
U.K.	-1.16	-1.29
Austria	-1.27	-1.49
Sri Lanka	-2.09	-1.85
Zambia	-2.11	-2.44
W. Germany	-2.25	-2.69

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