

Nunnenkamp, Peter

Article — Digitized Version

The impact of rising oil prices on economic growth in developing countries in the seventies

Kyklos

Provided in Cooperation with:

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

Suggested Citation: Nunnenkamp, Peter (1982) : The impact of rising oil prices on economic growth in developing countries in the seventies, *Kyklos*, ISSN 0023-5962, Blackwell Publ., Oxford, Vol. 35, Iss. 4, pp. 633-647

This Version is available at:

<https://hdl.handle.net/10419/3439>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

THE IMPACT OF RISING OIL PRICES ON ECONOMIC GROWTH IN DEVELOPING COUNTRIES IN THE SEVENTIES

PETER NUNNENKAMP*

I. INTRODUCTION

According to a widespread impression it is especially in the non-oil developing countries¹ where economic prospects have been negatively affected by the two oil price shocks of 1973/74 and 1979/80. Though the oil import bill, in absolute terms, is still considerably smaller for most *NOPECs* than for the developed world, the hypothesis of severe impediments to further growth in *NOPECs* caused by sharply increased oil prices seems plausible for the following reasons²:

- Within two years, the share of fuel imports in total imports doubled to more than 17 percent (1974). While energy conservation measures seem most promising in developed economies, the growth prospects of *NOPECs* heavily depend on increasing oil imports³.
- Apart from some newly industrializing *NOPECs* which could take advantage of their favourable credit standing on international capital markets, the Third World countries in many cases have faced strong balance of payments constraints. In case of cutting

*The Kiel Institute of World Economics, Germany

1. Non-oil developing countries (*NOPECs*) comprise those Third World economies which are either net oil importers or whose oil exports constitute only a minor share in their external trade.

2. In this paper, the emphasis lies on the effects of the first oil price shock because the period to analyse the second one is still too short. For a short qualification of the oil price rise in 1979/80 see the concluding remarks.

3. See World Bank [1980, p. 15].

imports, not only the foreign supply of consumer goods was threatened to be reduced but also imports of intermediates and capital goods, actually urgently requested for further economic development.

Although the situation of the early seventies was rather unfavourable for *NOPECs* confronted with quadrupling oil prices and other external shocks, their growth performance hardly worsened. For net oil importing *NOPECs* it was only in 1975 (4.3 percent) and 1979 (4.1 percent) that real *GDP* increases were considerably smaller than the average growth rate of nearly 6 percent in the 1967–1972 period⁴. For the industrial countries, on the contrary, the average *GDP* increase of 2.5 percent following the first oil price shock was only half the growth rate experienced in the sixties and early seventies.

On this background the question is raised whether the continuous growth record of *NOPECs* implies that – contrary to the above hypothesis – the impact of higher oil prices on economic growth was rather modest⁵ or whether growth performance would even have been more impressive without the first oil price shock. For this purpose a group of 31 *NOPECs* is analysed which covers quite different economies with regard to development level, dependency on energy imports and trade policies performed⁶. This group representing the variety of *NOPECs* is then split into different subgroups in order to identify some factors which may determine the growth effects of the oil price rise. For means of comparison additional estimates are run for the most important developed economies⁷.

II. A FIRST TEST

The hypothesis of significant negative growth effects caused by increasing oil prices may be tested applying trend analysis⁸. Two effects

4. See IMF [1980, Appendix C].

5. This view is to be found in World Bank [1981, p. 42].

6. The *NOPEC* group consists of Brazil, Bolivia, Cameroon, Chile, Colombia, Egypt, Greece, Haiti, Hongkong, India, Israel, Jordan, Kenya, Malawi, Malaysia, Mauritius, Pakistan, Panama, Peru, Philippines, Singapore, South Korea, Spain, Sri Lanka, Syria, Thailand, Trinidad and Tobago, Tunisia, Turkey, Yugoslavia and Zambia.

RISING OIL PRICES AND ECONOMIC GROWTH

of the oil price rise are to be expected: First, an once-for-all *GDP* loss in 1974 because of paying considerably more for oil imports than before and, second, a reduction in economic growth rates in the years following the oil shock. The estimated function runs as follows:

$$\ln GDP = A + a \cdot D + b \cdot T + c \cdot DT \quad (1)$$

where

GDP = Gross domestic product in constant prices of 54 *NOPECs* converted into \$⁹;

A = Constant term;

T = Time (the estimation period was 1962–1979);

D = Dummy variable (for 1962–1973 = 0; for 1974–1979 = 1).

According to our hypothesis, both the coefficients of the shift dummy (*a*) and the slope dummy (*c*) are supposed to be significantly negative. Actually, however, the estimated parameters point to an only limited impact of the oil price shock¹⁰. The growth rate remained nearly unchanged as indicated by the extremely small negative coefficient of the slope dummy which, moreover, is significant at the 12.5 percent level only. The shift dummy, accounting for an once-for-all reduction in *GDP*, has even been dropped because of an insufficient tolerance level.

Nevertheless, the above hypothesis cannot be rejected as yet. In analysing trends different growth factors are treated as a whole. Only if all other influences would have remained unchanged after 1973, the impact of the oil price rise is reflected correctly. Since this assumption is rather restrictive, growth performance of *NOPECs* might have been significantly better without the oil price shock than actually experienced.

7. Included are Australia, Canada, the Federal Republic of Germany, France, Italy, Japan, Sweden, the United Kingdom and the United States.

8. See for example Institut für Weltwirtschaft, Forschungsgesellschaft für Alternative Technologien und Wirtschaftsanalysen [1981, pp. 77–88].

9. Because of data limitations this group later had to be reduced to the already mentioned 31 *NOPECs*.

10. The estimated parameters inserted, the trend function reads as:
 $\ln GDP = 4.52 + 0.0594 \cdot T - 0.00027 \cdot DT; R^2 = 0.99$
 (53.06) (−1.67)

III. THE MEASUREMENT OF OIL PRICE EFFECTS

In order to isolate the oil price effect on economic growth, production analysis may be applied adding the relative price of oil as an independent variable¹¹. Focussing on developing countries, some modifications are required because of data limitations¹². Pooling the data for 1967–1973 and 1973–1979 – that is, two observations for each country – the following regression was run for different country groups:

$$\ln Y = A + \alpha \ln L + \beta \ln C + \delta \ln EP \quad (2)$$

where

- Y = Growth rate of gross domestic product in constant prices¹³;
- L = Growth rate of employment;
- C = Growth rate of gross fixed capital formation in constant prices (C_1) or average share of gross fixed capital formation in gross domestic product (C_2) respectively¹⁴;
- EP = Average relative price of oil (1973 = 100)¹⁵.

According to the hypothesis that *GDP* growth is reduced if the relative price of oil increases, a significantly negative value of δ is to be expected.

Besides the direct growth impact of the oil price shock indicated by δ , indirect effects may occur if higher energy prices give rise to an intensified substitution between different factors of production. Capital and energy being rather complementary inputs, growth may be negatively influenced by a slackening capital formation; on the other hand, this may be offset, at least in part, by an extended use

11. See for example TATOM [1981]; RASCHE, TATOM [1981]; COOPER [1980].

12. Above all, the information on capital stocks is very limited for most developing countries.

13. All growth rates are expressed as annual average rates.

14. For using C_1 as a proxy of the increase in capital stocks see TYLER [1981], for the second variant see BALASSA [1978]. In the case of C_2 the second observation is calculated for the period 1974–1979.

15. Deflating nominal prices of oil in national currencies by the corresponding consumer price indices, average prices are calculated for 1967–1973 and 1974–1979.

of labour. In the following such indirect effects are left out of account. This seems appropriate without affecting results for the seventies too much as the process of substitution, probably, takes a rather long time¹⁶.

Concentrating on direct growth effects of oil price increases, a first type of the above equation is estimated where *GDP* growth rates in the post-oil shock period are calculated by using data for 1973–1979 (type I); in other words, no differentiation is made between the growth effect and the once-for-all reduction in national income resulting from the increase in oil import bills in 1974. In order to exclude the once-for-all effect at least approximately, a second type of the equation is estimated where the dependent variable *GDP* is calculated for the period 1974–1979 instead of 1973–1979. Finally, for type III the *GDP* growth rates of 1975–1979 are taken to distinguish between limited losses in economic growth which might be caused by short-term adjustment problems and longer lasting growth effects.

To begin with, cross country estimates are run for both all 31 *NOPECs* and the reference group of 9 developed countries. In a second step the *NOPECs* are grouped according to five criteria which may be responsible for different degrees of being affected by the oil price shock.

- With respect to the deterioration in terms of trade for *NOPECs* caused by OPEC price policies the degree of dependency on energy imports expressed as the share of net imports of commercial energy in domestic energy consumption in 1973 is supposed to be important. Three groups were formed regarding energy import dependency, the first comprising countries with more than 50 percent import shares, the second with less than 50 percent shares; some net energy exporting *NOPECs* form a third group.
- Probably, the growth impact of higher oil prices will be most pronounced in relatively advanced *NOPECs* as commercial energy has already become a crucial factor in their economies having

16. This view is backed by regressions run for industrial sectors of seven *NOPECs* by the author. Applying time series analysis for the sixties and seventies it is only for two countries that capital input is negatively affected by higher oil prices. With respect to labour input the impact of oil prices varies very much from country to country.

PETER NUNNENKAMP

displaced traditional fuels to a great extent. Two criteria are considered: the level of per capita income (high if more than 800 \$, medium from 300 to 800 \$ and low if less than 300 \$¹⁷) and the degree of industrialization expressed as the share of industry in gross domestic product, regarded as high (low) if greater (less or equal) 30 percent.

- Finally, a high degree of world market orientation may help the *NOPECs* to adjust to the oil price shock, either by expanding export volumes or by taking advantage of higher world market prices for their products. For each of two criteria two subgroups of *NOPECs* are formed: A strong world market orientation is characterized by a share of exports in *GDP* greater than 25 percent and a share of manufactured goods in total exports greater than 30 percent respectively; a low degree of world market orientation is reflected by smaller shares.

IV. THE ESTIMATION RESULTS

Examining first the regression of type I run for the pooled data of all 31 *NOPECs*, the impact of rising oil prices on economic growth seems to be negative, though the level of significance is rather low (*Table 1*). No matter how capital inputs are specified, both estimates indicate a decrease in *GDP* growth rates of about 2 percent if relative oil prices go up by 10 percent. The years following the oil shock, *NOPECs* actually faced an increase in relative oil prices of 250 percent compared to the average price in the period 1967–1973. Consequently, economic growth would have been reduced by 50 percent, referred to the annual average growth rate of about 6 percent in 1967–1973, a loss of 3 percentage points; instead of 5 percent as experienced on an average in 1973–79, the annual increase in *GDP* could have reached 8 percent in the case of constant relative oil prices¹⁸.

17. As in the case of the following criteria the *NOPECs* are classified using data for the mid-seventies.

18. This reasoning is subject to the qualification that the elasticity of *EP* remains constant in the case of drastic changes in *EP* as experienced in 1973/74; the growth impact is overstated if the elasticity declines in case of changes greater than marginal.

RISING OIL PRICES AND ECONOMIC GROWTH

Table I
Regression results for developing and developed countries^a

Country group	Type ^b	A	L	C ₁	C ₂	EP	R ²	D.W.	Number of observations	
Developing countries	I	1.42	0.268***	0.406***		-0.185+	0.31	2.00	62	
			(2.38)	(4.30)		(-1.28)				
		1.19	0.309***		0.393+	-0.222+	0.11	1.94	62	
			(2.37)		(1.20)	(-1.33)				
	II	1.52	0.133*	0.327***		-0.134+	0.38	1.91	62	
			(1.87)	(5.48)		(-1.46)				
	0.26	0.125+		0.757***	-0.208**	0.24	1.97	62		
		(1.56)		(3.77)	(-2.02)					
III	1.11	0.151*	0.277***		-0.026	0.26	2.15	62		
		(1.91)	(4.19)		(-0.25)					
	0.16	0.149*		0.594***	-0.084	0.15	2.08	62		
		(1.72)		(2.74)	(-0.75)					
Developed countries	I	1.95	0.109*	0.283**		-0.179	0.61	1.51	18	
			(2.01)	(2.48)		(-0.84)				
		-0.93	0.071*		1.574***	-0.532***	0.79	2.05	18	
			(1.73)		(4.84)	(-5.45)				
	II	-2.23	0.087+	0.226+		-0.223	0.43	1.30	18	
			(1.31)	(1.62)		(-0.86)				
	-1.18	0.048		1.593***	-0.492***	0.68	1.48	18		
		(0.93)		(3.92)	(-4.03)					
III	1.47	0.080	0.207+		-0.046	0.20	1.38	18		
		(1.12)	(1.39)		(-0.16)					
	-1.50	0.045		1.413***	-0.294*	0.43	1.53	18		
		(0.73)		(2.88)	(-2.00)					

^a For specification of the estimated functions and for countries included see the text. The numbers in parentheses beneath the regression coefficients are the t-values.

*** Indicates significance at the 0.5 percent level; ** 2.5 percent level; * 5 percent level; + 12.5 percent level (one-tailed t-test).

^b In the case of type I the average annual percentage change in GDP for the period 1973-1979 is taken, in the case of type II and III that one of 1974-1979 and 1975-1979 respectively.

Though slightly reduced, the impact of relative oil prices on economic growth remains negative if type II is considered. By this estimate it is attempted to separate the growth effect from the once-for-all loss in gross domestic product caused by higher oil import bills. However, as compared to the reference group of developed countries the negative coefficient of *EP* is rather small for *NOPECs*, most evidently if the share of investments in *GDP* (C_2) is taken as a proxy for capital inputs; this result conflicts with the hypothesis according to which the oil price rise would be detrimental especially to growth in *NOPECs*. The second type estimates indicate that the oil price shock of 1973/74 reduced growth rates in *NOPECs* by 2–3 percentage points whereas the developed world suffered a loss of 2.5–5 percentage points.

For both developing and developed countries it has to be considered that short-term problems in adjusting the economy to the quadrupled oil prices may bias the regression results. In order to exclude short-term distortions, regression type III is run where annual average *GDP* growth rates for the period of high oil prices are calculated using data for the second half of the seventies only. In three of four cases the coefficient of the oil price variable is insignificant. At least for *NOPECs*, there was no persistent negative impact of the oil price rise on economic growth. In contrast to the group of developed countries for which results are rather ambiguous, the analysis of *NOPECs* quite clearly leads to the rejection of the hypothesis of lasting oil price induced growth impediments. Apart from the once-for-all loss in gross domestic product in 1974, the oil price shock rather brought about some adjustment problems which affected growth only for short.

Since the *NOPEC* group consists of quite different countries with respect to their dependency on energy imports, their development level or trade policies performed, it still has to be assessed if the results yielded for the 31 *NOPECs* as a whole also hold for various subgroups¹⁹. *Table 2* presents estimates run for country groups charac-

19. There was no room for presenting estimation results of all types I–III in the following tables concerned with different country groups. Although tables are restricted to equation type III, i.e. the longer-term impact of rising oil prices, results of estimations I and II are considered in the text where necessary. Complete estimation results are available from the author upon request.

RISING OIL PRICES AND ECONOMIC GROWTH

Table 2

Regression results for developing countries classified by dependency on energy imports^a

Country group	Type ^b	A	L	C ₁	C ₂	EP	R ²	D.W.	Number of observations
High dependency on energy imports	III	0.68	0.148+ (1.50)	0.433*** (4.40)		-0.007 (-0.05)	0.45	1.82	34
Low dependency on energy imports	III	-0.17	0.233* (1.99)		0.625* (1.98)	-0.059 (-0.37)	0.20	1.84	34
Net energy exports	III	1.52	-0.117 (-0.43)	0.160 (1.00)		-0.032 (-0.11)	-0.13	1.59	14
		0.13	-0.174 (-0.68)		0.675+ (1.52)	-0.90 (-0.34)	-0.01	2.11	14
		1.25	0.178 (0.97)	0.134 (0.96)		0.022 (0.11)	-0.09	2.44	12
		1.74	0.159 (0.83)		-0.210 (-0.37)	0.113 (0.48)	-0.20	2.10	12

^a For specification of the estimated functions and for countries included see the text. The numbers in parentheses beneath the regression coefficients are the t-values.

*** Indicates significance at the 0.5 percent level; ** 2.5 percent level; * 5 percent level; + 12.5 percent level (one-tailed t-test).

^b In case of type III the average annual percentage change in GDP for the period 1975-1979 is taken. Estimation results for types I and II which are not presented in the tables concerning different country groups because of lack of room can be obtained from the author.

terized by different import shares in domestic consumption of commercial energy. Although overall results are rather shaky for the small group of net oil exporting *NOPECs*, their growth, apparently, was not affected significantly in either way. This was to be expected: On the one hand, their domestic energy resources safeguarded them a good deal against being hit by external oil price shocks; on the other hand, their energy exports were not as extensive as to take advantage of higher world market prices in a significant degree. As concerns the two net oil importing *NOPEC* groups, the coefficient of

PETER NUNNENKAMP

Table 3

Regression results for developing countries classified by level of development^a

Country group	Type ^b	A	L	C ₁	C ₂	EP	R ²	D.W.	Number of observations
High per capita income	III	1.44	0.462***	0.062		-0.067	0.49	1.62	22
			(3.97)	(0.67)		(-0.46)			
Medium per capita income	III	0.78	0.477***		0.295	-0.100	0.50	1.85	22
			(4.51)		(1.08)	(-0.77)			
Low per capita income	III	1.52	-0.074	0.570***		-0.188	0.41	2.05	24
			(-0.50)	(4.35)		(-0.96)			
High share of industry in GDP	III	-0.42	-0.054		1.220***	-0.328 ⁺	0.10	2.02	24
			(-0.30)		(2.34)	(-1.26)			
Low share of industry in GDP	III	0.76	0.144*	0.096		0.096	0.19	0.86	16
			(1.83)	(1.16)		(0.83)			
High share of industry in GDP	III	-0.13	-0.007		0.571 ⁺	0.031	0.20	1.17	16
			(-0.04)		(1.22)	(0.21)			
Low share of industry in GDP	III	1.58	0.397***	0.206*		-0.141	0.44	1.74	30
			(3.02)	(1.90)		(-0.85)			
High share of industry in GDP	III	1.46	0.476***		0.362 ⁺	-0.279 ⁺	0.40	1.82	30
			(3.83)		(1.24)	(-1.83)			
Low share of industry in GDP	III	1.21	-0.042	0.266***		0.000	0.19	2.28	28
			(-0.45)	(2.70)		(0.00)			
Low share of industry in GDP	III	-0.80	-0.170		1.003***	-0.047	0.28	1.93	28
			(-1.78)		(3.31)	(-0.34)			

For footnotes see Table 2.

the oil price variable is insignificant, too. Hence, the degree of dependency on energy imports cannot be regarded as the dominant factor in determining the magnitude of losses in gross domestic product caused by the oil price shock.

With regard to the longer-term implications, if *NOPECs* are differentiated according to their level of development, it seems that it is mainly the already advanced *NOPECs* which were hit by the oil price rise. Although the value of the oil price coefficient declined if

RISING OIL PRICES AND ECONOMIC GROWTH

adjustments were made for the once-for-all effect and short-term distortions, the impact remained significantly negative in two cases (*Table 3*). On the other hand, growth was not affected to any significant degree in both the low income group and those *NOPECs* characterized by low shares of industry in gross domestic product²⁰. This contrast is most evident with respect to different degrees of industrialization, whereas for different income groups results are somewhat ambiguous²¹. Probably, the share of industry was the most important factor in determining the growth effects of the oil price rise of 1973/74 in the seventies²². This view is backed by striking similarities between the results yielded for highly industrialized *NOPECs* and those for developed countries²³.

Differences between *NOPEC* subgroups are less pronounced if countries are grouped according to the degree of world market orientation (for type III see *Table 4*), a further indication that it is mainly the level of development and especially the degree of industrialization which crucially influences the magnitude of oil price induced growth effects. Notwithstanding, it is quite remarkable, that for countries with high shares of exports in *GDP* coefficients of *EP* are insignificant not only in the longer run but also for equation types I and II; for the group characterized by low exports shares, however, there is a negative impact in the short run²⁴. This indicates that world market

20. Coefficients of *EP* were insignificant, too, for both equation types I and II concerning the two least developed country groups; however, the short-term impact of rising oil prices was clearly negative for the more advanced Third World economies.

21. Surprisingly, results in *Table 3* are indicative of a persistent negative growth impact for the middle income group only, whereas the corresponding coefficient is insignificant in equation type III for high income *NOPECs*. However, the reliability of the former result may be questioned because of a small R^2 and an insignificant labour elasticity.

22. In this case, the less pronounced results concerning different income groups may be explained by the observation that besides all 15 highly industrialized *NOPECs* also 6 of 14 less industrialized *NOPECs* belong to the high or medium income group.

23. The average share of industry in gross domestic product reached 40 percent in the *NOPEC* subgroup (1976) and was only slightly higher for the reference group (43 percent).

24. For the latter group all coefficients of *EP* are significantly negative in cases of equation types I and II (at the 5 percent level of confidence or better).

PETER NUNNENKAMP

Table 4

Regression results for developing countries classified by export shares^a

Country group	Type ^b	A	L	C ₁	C ₂	EP	R ²	D.W.	Number of observations
High share of exports in GDP	III	1.17	0.194*	0.278**		-0.024	0.34	1.55	24
			(1.76)	(2.63)		(-0.14)			
Low share of exports in GDP	III	0.87	0.278**		0.413	-0.129	0.13	1.28	24
			(2.29)		(0.79)	(-0.66)			
High share of manufactured exports in total exports	III	1.75	0.158+	0.168*		-0.122	0.11	1.92	34
			(1.45)	(1.98)		(-1.04)			
Low share of manufactured exports in total exports	III	0.71	0.075		0.523*	-0.134	0.11	1.83	34
			(0.63)		(2.00)	(-1.14)			
High share of manufactured exports in total exports	III	1.06	0.344***	0.225***		-0.018	0.59	1.34	24
			(3.52)	(3.79)		(-0.16)			
Low share of manufactured exports in total exports	III	0.62	0.308***		0.391+	-0.070	0.39	1.99	24
			(2.22)		(1.66)	(-0.50)			
High share of manufactured exports in total exports	III	0.89	0.071	0.361***		-0.010	0.20	2.29	34
			(0.66)	(3.23)		(-0.06)			
Low share of manufactured exports in total exports	III	0.14	0.101		0.586+	-0.074	-0.00	2.17	34
			(0.85)		(1.42)	(-0.43)			

For footnotes see Table 2.

oriented *NOPECs* had better opportunities to prevent losses in gross domestic product following the oil price shock. In trying to expand exports they possessed an additional instrument to reduce balance of payments problems without affecting growth. Furthermore, export-oriented *NOPECs* were in a better position to offset the oil price induced deterioration in terms of trade by raising their own export prices.

The last mentioned alleviation was of only minor importance, at least in 1974, for those *NOPECs* whose exports to a high degree consisted of manufactured goods (estimated coefficients of *EP* were significantly negative in equation type I, though, at the 12.5 percent level of confidence only); probably, most favoured were countries export-

RISING OIL PRICES AND ECONOMIC GROWTH

ing raw materials whose prices still increased considerably in the mid-seventies (for example cacao, coffee, phosphates, rubber and tin). But later on, *i.e.* adjusting for 1974, growth was no longer affected significantly by rising oil prices in the former group.

V. CONCLUDING REMARKS

Concerned with the seventies, our results indicate that negative growth effects of rising oil prices were rather limited in time for non-oil developing countries or even restricted to an once-for-all loss in gross domestic product caused by the deterioration in terms of trade in 1974. Contrary to the stated hypothesis, the impact of the oil crisis of 1973/74 was insignificant in the longer run. At most, it is the already industrialized *NOPECs* which have to be exempted from this statement. As the importance of industry in Third World economies will further increase, in a growing number of countries reaching a level comparable to those prevailing in developed countries, the influence of relative oil prices may become more distinct in the future, though depending on the patterns of industrialization and, above all, the chosen factor intensities.

This may become evident already in the eighties after *NOPECs* have been hit by the second oil price shock. Some other factors point to the same direction. Unlike the seventies when relative oil prices declined in the years following the first oil shock, a continuous rise in relative prices is predicted for the future²⁵. This may contribute to complicate the reduction of seriously enlarged balance of payments deficits. Probably, a growing number of *NOPECs* will face balance of payments constraints, as difficulties increase to finance higher oil bills by borrowing on international capital markets. It may be added that prospects to reduce deficits by expanding exports are rather gloomy, too, in view of only low economic growth rates in developed countries and an intensified recourse to protectionist measures. To sum up, it may become increasingly difficult for *NOPECs* to adjust their economies to rising oil prices without affecting growth.

25. See for example World Bank [1980, p. 3].

PETER NUNNENKAMP

REFERENCES

- BALASSA, BELA: 'Exports and Economic Growth: Further Evidence', *Journal of Development Economics*, Vol. 5 (1978) No. 2, pp. 181-189.
- COOPER, RONALD L.: 'The Energy-Economy Connection 1974-1979 and Beyond', *Business Economics*, Vol. 15 (1980) No. 4, pp. 5-11.
- Institut für Weltwirtschaft, Forschungsgesellschaft für Alternative Technologien und Wirtschaftsanalysen: *Auswirkungen der Ölpreiserhöhungen seit 1973/74 auf die Nicht-Öl-Entwicklungsländer* (Forschungsauftrag des Bundesministers für Wirtschaft), Kiel/Regensburg 1981.
- International Monetary Fund (IMF): *World Economic Outlook*, Washington, D. C., May 1980.
- RASCHE, ROBERT H. and TATOM, JOHN A.: 'Energy Price Shocks, Aggregate Supply and Monetary Policy: The Theory and the International Evidence', in: KARL BRUNNER and ALLAN H. MELTZER: *Supply Shocks, Incentives and National Wealth*, Carnegie-Rochester Conference Series on Public Policy, Vol. 14, North-Holland, Amsterdam, 1981, pp. 9-93.
- TATOM, JOHN A.: 'Energy Prices and Short-Run Economic Performance', *Review of Federal Reserve Bank of St. Louis*, Vol. 63 (1981) No. 1, pp. 3-17.
- TYLER, WILLIAM G.: 'Growth and Export Expansion in Developing Countries: Some Empirical Evidence', *Journal of Development Economics*, Vol. 9 (1981) No. 1, pp. 121-130.
- World Bank: *World Development Report 1980*, Washington, D. C., 1980.
- World Bank: *World Development Report 1981*, Washington, D. C., 1981.

SUMMARY

According to a widespread impression it is especially in the non-oil developing countries where economic growth has been negatively affected by the drastic rise in oil prices during the seventies. This hypothesis is tested for 31 Third World economies in a cross section approach applying production function analysis and considering relative oil prices as an independent variable; for means of comparison a group of developed countries is analysed. Estimation results indicate that the rise in oil prices did not reduce economic growth for developing countries in the longer run. The negative impact of the first oil price shock of 1973/74 was rather limited in time. At most, those developing economies characterized by relatively high levels of industrialization have to be exempted from this statement.

ZUSAMMENFASSUNG

Nach verbreiteter Auffassung haben die drastischen Ölpreiserhöhungen der siebziger Jahre vor allem in den Nicht-Öl-Entwicklungsländern gesamtwirtschaftliche Wachstumseinbußen verursacht. Diese Hypothese wird auf produktionstheoretische

RISING OIL PRICES AND ECONOMIC GROWTH

schen Überlegungen aufbauend und unter Berücksichtigung der relativen Ölpreise als unabhängiger Variablen in einer Querschnittsanalyse für 31 Entwicklungsländer getestet; zu Vergleichszwecken wird eine Gruppe von Industrieländern untersucht. Die Analyse zeigt, dass die Ölpreiserhöhungen das Wachstum der Entwicklungsländer nicht anhaltend beeinträchtigt haben. Ein negativer Einfluss des ersten Ölpreisschocks von 1973/74 ist nur sehr kurzfristig zu erkennen. Von dieser Beobachtung sind allenfalls die bereits fortgeschritteneren Staaten der Dritten Welt auszunehmen.

RÉSUMÉ

D'après une opinion très propagée les augmentations graves en prix pétrolier pendant les années soixante-dix ont causé des pertes de croissance économique particulièrement dans les pays en voie de développement sans pétrole. Dans cet article l'auteur teste cette hypothèse pour 31 pays en voie de développement à l'aide d'une approche transversale en appliquant une analyse de la fonction de production et en considérant les prix pétroliers relatifs comme variable indépendante; pour des raisons de comparaison l'auteur analyse un groupe des pays d'industrie. Les résultats d'estimation indiquent que l'augmentation des prix pétroliers ne réduisait pas la croissance économique des pays en voie de développement à long terme. L'effet négatif du premier choc de prix pétrolier en 1973/74 était temporellement assez limité. Tout au plus, il faut exempter les pays en voie de développement caractérisés par des relativement hauts niveaux d'industrialisation de cette conclusion.