International Labour Review, Vol. 118, No. 5, September-October 1979

Migration and employment in the Arab world: construction as a key policy variable

R. Paul SHAW*

1. Introduction

In the short span of only five years, labour migration has brought dramatic changes to the manpower structure of the Arab world. There are currently over 2 million migrant workers in the Organisation of Arab Petroleum Exporting Countries (OAPEC), representing about 25 per cent of their labour force. By 1978 remittances to Arab countries had soared to over US $4,000 million per year, a threefold increase since 1973. Policy-makers have been confronted by the problems of channelling massive remittances into productive investments, by losses of skilled labour from oil-poor to oil-rich countries, by migration-fed congestion and housing shortages in primate cities, and by the need for policy instruments to influence the distribution of migrants in ways that better serve Arab economic integration and co-operation (Arab Planning Institute and ILO, 1978).

Unfortunately, progress in understanding the many important trends, causes and effects of migration in the region has been virtually paralysed by severe data limitations. The same applies to the formulation of national and international policies designed to guide migration flows. In response to the first problem, the ILO has initiated a massive data collection programme (Birks and Sinclair, 1978a, b, c and 1979). As regards the second problem, I believe that construction could serve as a key policy variable in Arab migration and employment, for at least five inter-related reasons.

First, the construction sector is a leading employer of migrants in both international and internal Arab labour markets. Second, the employment of migrants in construction typically aids labour-exporting or labour-surplus countries by absorbing large numbers of unskilled workers, serving

* Population and labour policy adviser to the ILO, Middle East and Mediterranean Region. The views expressed in this article are solely those of the author.

Copyright © International Labour Organisation 1979

as a "port of entry" for rural labour to the industrial workforce and providing on-the-job training. The return of these workers (many of whom are temporary migrants) can contribute invaluable skills to the poorer Arab countries which are just beginning to embark on their own construction-development programmes fuelled by OAPEC "dollars-in-aid". Third, appropriate planning of construction activity can influence the distribution of migrants both among and within countries. Fourth, the construction sector is a prime candidate for policy intervention. It receives large shares of development expenditures which policy-makers can generally invest as they see fit. Further, it is much easier to influence than many other variables bearing on employment and migration (e.g. wages and salaries), because a host of technical and locational controls exist to guide its behaviour in desired directions. Fifth, residential construction is already a major recipient of worker remittances in the poorer Arab countries. Accordingly, this subsector and these funds could be organised to underwrite self-help housing and labour-intensive employment in rural areas and small towns.

In addition to the above, I believe that construction can serve as an engine of growth in the poorer Arab countries as well as in the OAPEC group. Indeed, it is my view that construction is one of the few economic sectors that can be used to attain simultaneously several of the "basic-needs" objectives adopted at the ILO's World Employment Conference in 1976. The present article seeks to substantiate these claims. It should be pointed out here that what follows is not intended as a blueprint for action but is designed to make planners and policy-makers take a second look at the possibilities open to them of achieving, "at a stroke" as it were, a range of desirable aims.

2. Impact on employment

The economic boom in the OAPEC countries following the 1974 increase in oil prices has been led by the construction industry. Between 1971 and 1977 construction absorbed between 11 and 58 per cent of the non-agricultural labour force in the major labour-importing Arab countries, and between 8 and 23 per cent in the labour-exporting countries (see table 1). By world standards these figures are extremely high. If we apply the rule of thumb that two additional man-years of employment are created for every three man-years on-site in building construction, then the role of construction is second only to agricultural or service employment in most Arab countries.

The importance of construction as an employer of migrant labour *per se* is shown in table 2. In the seven major labour-importing countries approximately 41 per cent of all non-nationals are employed in construction. In Kuwait nearly 60 per cent of all new work permits issued in 1977 were for building and construction alone. Further, on average, 85

Table 1. Employment in construction in selected Arab countries, 1970-77

Country	Year	% of non-agricultural labour force employed in construction
Major labour importers		
Bahrain	1971	18.6
Kuwait	1975	11.1
Libya	1973	21.1
Oman	1975	58.0
Qatar	1970	16.9
Saudi Arabia	1975	26.7
United Arab Emirates[1]	1975	33.2
Major labour exporters		
Algeria	1970	14.1
Egypt	1976	8.0
Jordan	1971	22.9
Morocco	1977	16.3[2]
Syria	1975	14.1
Tunisia	1975	12.8
Yemen Arab Republic	1975	16.3

[1] Includes Abu Dhabi, Fujairah, Ras Al Khaimah, Sharjah and Umm Al Quwain. [2] National Development Plan estimate.

Sources: National censuses and sample surveys.

per cent of all construction workers in the major labour-importing countries were non-nationals in 1975-76. Somewhere in the order of 60 per cent of these were unskilled or manual workers.

Turning to the major labour-exporting countries,[1] approximately 75 per cent of migrant workers from the two Yemens were employed in construction in 1975 (mostly in Saudi Arabia). Among Egyptian workers in Kuwait 50-53 per cent were employed in construction, in Libya 50-70 per cent, in Saudi Arabia 30-35 per cent and in other Arab countries 34-45 per cent (Choucri et al., 1978). Between 1973 and 1975 some 40 per cent of Jordanian workers abroad were involved in construction. Finally, the proportion of Tunisian migrants employed in building construction was 30-55 per cent in Libya (1971-76) and 90 per cent in Saudi Arabia (1976).

The tendency for migrants to gravitate to construction or for construction to serve as a "port of entry" to the industrial labour force for rural workers is evident in many other contexts as well. For example, construction has played a major role in absorbing Maghreb workers in Western Europe. In France migrants accounted for 48 per cent of the growth in the construction labour force between 1966 and 1976;[2] they contributed 44 per cent of the construction workers in Switzerland (1974)

Table 2. Non-nationals employed in the labour force and in the construction sector of major labour importers, 1975-76

Major labour importers	Year	Total labour force ('000)	Non-nationals in the labour force			
			As % of labour force	% estimated to be unskilled or manual workers	% employed in construction	As % of all construction workers
Bahrain	1976	83	43.4	82.1	21.4	48.2
Kuwait	1975	305	69.9	64.0	22.9	93.0
Libya	1975	784	42.3	45.4	53.1	77.5
Oman	1976	110	63.3	75.3	86.0	75.7
Qatar	1975	66	80.0	75.1	18.8	97.3
Saudi Arabia	1975	1 648	46.9	59.9	40.7	95.0
UAE	1975	298	85.4	60.5	37.4	82.4
Totals	.	**3 294**	**51.9**	**60.0**	**41.2**	**85.6**

Sources: Birks and Sinclair, 1978a, b, c and 1979; World Bank; national statistical yearbooks; national censuses; estimates by the UN Economic Commission for Western Asia.

and 22 per cent in the Federal Republic of Germany (1972). It has also been observed that construction is a major employer of rural-urban migrants (up to 80 per cent in Khartoum, Sudan). This is important from the viewpoint of its potential effects on the internal distribution of employment and migration (Shaw, 1978a).

The above data suggest a number of conclusions. First, since employment in construction, or rather employment in manual jobs, is by no means preferred work among OAPEC nationals, it is virtually left to expatriates from the poorer countries. Second, construction absorbs a disproportionate share of unskilled migrants. Third—though this cannot be derived directly from the data—a large share of the migrants are single (or, if married, are unaccompanied by their dependants) and return home within a few years.[3] In other words, expansion of the construction sector in the OAPEC countries has been virtually synonymous with (i) increasing immigration, (ii) the absorption of unskilled workers from labour-surplus countries, and (iii) opportunities for on-the-job training which could benefit the labour-exporting countries via the return migration of needed skills.

3. Impact on the distribution of migrants

To what extent could official intervention in construction activity influence the rates of international migration or its distribution among Arab countries? As a corollary we can ask, "Might differential rates of construction within Arab countries influence the internal distribution of migrants as well?"

These questions are central to the present paper in view of the strong desire in the Arab world that movements of workers within the region should serve the goals of Arab integration and co-operation.[4] The second question is critical because (i) Arab governments perceive internal population distribution as their number one demographic problem (see table 3), (ii) planners are seeking to reduce the "index of primacy" (roughly speaking, a measure of urban concentration), which is two or three times higher in Arab countries than in Europe and North America, and (iii) both internal and international migrants tend to converge on primate cities.[5]

As a contribution to answering these questions, the Appendix summarises the results of a number of studies which seek to measure the impact of differential rates of building activity on both international and internal migration. If, judging by these studies, it is reasonable to assume that construction could significantly influence migration, we must now ask to what extent we can influence construction.

4. Scope for policy intervention

The magnitude of planned construction in the Arab world is simply staggering. On average some 10 to 20 per cent of current national devel-

Table 3. Government perceptions of population growth, distribution and external migration: selected Arab countries, 1974-78

Country	Year	Rate of population growth	Net rate of external migration	Internal distribution of population
Bahrain	1976	Satisfactory	Satisfactory	Satisfactory
Iraq	1978	Too low	Too low	Change needed
Jordan	1976	Too high	Too high	Change needed
Oman	1976	No view	No view	No view
Qatar	1976	Satisfactory	No view	Satisfactory
Saudi Arabia	1976	No view	No view	No view
Syria	1976	Satisfactory	Satisfactory	Change needed
UAE	1976	No view	No view	Change needed
Yemen AR	1974	No view	No view	Change needed
Democratic Yemen	1976	No view	No view	Change needed

Note: "No view" often means that government respondents had insufficient data or that no policy existed on the question concerned.

Source: Results of Second (1973), Third (1976) and Fourth (1978) United Nations Population Inquiry (unpublished data).

opment expenditures have been allocated for housing alone (see table 4). For all types of construction the figure may well exceed 30 per cent, representing some US $100,000 million over the period 1975-80.

Since these enormous funds are in the policy-makers' fief, they represent a readily available means for steering employment opportunities (and hence internal and international migrants) away from primate cities. Such action is likely to appeal more and more to policy-makers in view of national goals to (i) close the rural-urban gap in housing availability, (ii) promote labour-intensive employment in smaller towns and off-farm work opportunities for farm families, and (iii) find an alternative to highly restrictive rural-urban migration policies such as demanding residence and work permits, demolishing squatter settlements, or keeping down urban wages (which usually involves a confrontation with the unions).

Now, a major difference between the OAPEC and the oil-poor Arab countries is that planned government expenditures on building construction (per capita) are several times greater in the former group. This implies a wide differential in the potential influence of a "construction-migration strategy" between the two groups of countries. Could migrant remittances be used to close this gap?

At present, few policies exist to guide remittances into any form of productive investment or employment in the labour-exporting countries. However, large shares of migrant remittances are already finding their way into private housing. Further, since many migrants originate from rural areas (e.g. in the two Yemens, Oman, Egypt and the Maghreb countries), remittances are promoting desperately needed residential construction in

Table 4. National development expenditures on housing and construction in selected Arab countries, 1970-81

Country	Period	% share of planned national development expenditure on:	
		housing	all construction
Labour importers			
Bahrain	1977-78	14.9	30.2
Iraq	1970-75	15.7	.
Kuwait	1976-81	31.6	.
Libya	1975-80	11.2	.
Qatar	1976-77	21.2[1]	.
Saudi Arabia	1976-80	14.3	58.0
UAE (Abu Dhabi)	1976-80	11.7	37.0
Labour exporters			
Algeria	1974-77	13.3[2]	.
Egypt	1977-81	10.0	.
Jordan	1976-80	11.5	.
Morocco	1976-80	15.2	30.0
Sudan	1976-80	11.2	25.0
Syria	1976-80	9.0	.
Tunisia	1976-80	14.3	.

[1] Includes residential water and electricity supply. [2] Includes related social services.
Source: National development plans.

areas other than primate cities.[6] Clearly, the opportunity exists to develop savings and financing schemes to reinforce these positive effects.[7] With a little planning, there is no reason why the private ambitions of a great many migrants to own their own home could not be harnessed to promote national goals of self-help housing, labour-intensive employment and population decentralisation.

With respect to the volume of remittances, the experience of Jordan and the two Yemens suggests that between 1975 and 1980 remittances will almost certainly exceed total national development plan expenditures over the same period! On a per worker basis, remittances averaged from US $550 (Jordan), to almost US $2,000 (Morocco) in 1975 (see table 5). Their rapid growth between 1975 and 1977, combined with the fact that migrants tend to return with considerable accumulated savings, suggests that these funds could go a long way towards closing the per capita expenditure gap noted above. Indeed, if remittances over the 1975-80 period were channelled into housing construction in the seven major labour-exporting countries, they would, on average, double the per capita development funds available in this sector.

Table 5. Remittances to selected labour-exporting countries, 1975-77

Country	1975 remittances[1]		Ratio of 1977 to 1975 remittances	Remittances as % of:			
				Exports		Imports	
	Total (million US $)	Average per migrant worker (US $)		1975	1977	1975	1977
Algeria	466	1 096	0.5	11	4	7	3
Egypt	367	611	3.9	23	66	7	27
Jordan	167	549	2.5	109	186	18	38
Morocco	533	1 925	1.1	35	44	18	18
Oman[2]	104	1 739	.	.	.	.	.
Syria	55	785	0.9	6	5	3	2
Tunisia	146	1 327	1.0	17	16	8	8
Turkey	1 312	1 609	0.7	94	56	25	17
Yemen AR	221	690	4.6	1 556	5 449	72	139
Dem. Yemen	56	799	3.2	373	352	32	49

[1] These figures pertain to remittances of all workers abroad, not just those in Arab countries. Remittances to the Maghreb countries derive largely from Western Europe. [2] Oman is both a labour exporter (from North Oman) and a labour importer.

Sources: World Bank; national statistical yearbooks; unpublished data from national planning ministries.

As far as specific kinds of policy intervention in the construction sector are concerned, it will suffice to say that a wide range of controls and regulations are already available to guide its locational behaviour. For example, residential construction is sensitive to variations in the cost of construction materials, the cost of construction loans, demolition rates, land-use zoning, and the price of housing and subsidies (Strassmann, 1979; Shaw, 1978a). Further, government intervention in building construction as a means of redistributing population growth and urban development has already met with a good deal of success in a wide range of developed and developing countries alike (Shaw, 1978b).

5. The contribution of building construction to economic growth

Needless to say, any decision to enlist building construction in the service of migration policy assumes that employment in this sector will not impede economic growth. Such an assumption would have come under fierce attack during the 1950s and early 1960s. During the early 1970s, however, and particularly after the consensus reached at the HABITAT conference in 1976, building construction found its way back into the heart of development strategy. In many cases, increased World Bank support for housing programmes in developing countries has led the way. The traditional preoccupation with housing's high capital/output ratio and the view that housing construction provides little more than a durable consumer good have now been pushed aside as narrow and unfounded (United Nations, 1971; Grimes, 1976). Indeed, by shifting the emphasis from growth-related to development-related investments, the World Bank and other institutions have underlined the important role of housing construction in providing or stimulating the expansion of a whole range of infrastructural and social services.

In a wider context, world figures show that construction accounts for up to 50 per cent or even more of gross domestic fixed capital formation, and capital formation in construction for over 10 per cent of GDP (see table 6). In 1975 construction contributed 56 per cent of the gross fixed capital formation in Iraq, 70 per cent in the Yemen AR, 69 per cent in Jordan, 56 per cent in Syria and as much as 79 per cent in Saudi Arabia.

Regardless of the level of development, residential construction represents between 20 and 30 per cent of the gross fixed capital formation and over 40 per cent of total construction (table 6). During 1965-70 investment in housing accounted for as much as 46 per cent of total construction investment in France and 55 per cent in Italy.

The fact that capital formation in residential construction represents such a consistent share of GDP over a wide range of countries implies that

Table 6. Selected measures of building construction and housing expenditures at different levels of development, 1970-74

Measure	Level of development[1]		
	Most developed ($N = 15$)	Moderately developed ($N = 16$)	Least developed ($N = 8$)
Construction capital formation as % of gross fixed capital formation	55	← 49 →	
Construction capital formation as % of GDP	12	← 11 →	
Residential and non-residential building construction as % of gross fixed capital formation	40-60	35-50	22-30
Ratio of residential to non-residential building construction	1.02	2.10	3.58
Residential construction as % of gross fixed capital formation	20-30	20-34	15-23
% of private final household consumption in purchasers' values allocated to housing expenditures	21	← 20 →	

[1] "Most developed" countries are those with a per capita GNP of US $2,000 or more; "moderately developed" = US $300-1,999; "least developed" = less than US $300.

Sources: United Nations: *Yearbook of national accounts statistics*; national statistical yearbooks.

housing is an investment that will be made by consumers at every stage of development. Indeed, housing represents some 15 to 25 per cent of household expenditures in developed and developing countries alike (table 6). Direct payments for housing, including maintenance, absorb about 23 per cent of the average American's income and up to 40 per cent of the income of the poor. Housing is the major focus of saving for all but the highest-income families.[8] It has been recognised by the World Bank as a profitable investment item, yielding a high flow of income.

With many migrant workers available for the construction sector, productivity per worker can be permitted to lag because employment can grow, disproportionately, to make up the difference. The elastic supply of construction workers is perceived as such by construction firms, because wages remain low (Strassmann, 1979). This is not to say, however, that productivity is also always low. For example, the ratio of the contribution to GDP per construction worker to the contribution per manufacturing and service worker was, respectively, 1.49 and 1.59 in Indonesia (1971), 0.83 and 1.09 in Mexico (1970), 0.93 and 0.80 in Pakistan (1972), 1.58 and 2.01 in Tanzania (1967) and 1.07 and 1.39 in Tunisia (1966). Clearly, construction is able to hold its own.

Finally, recent studies on the role of building construction in employment and economic growth suggest the following conclusions:

(1) The income multiplier for housing construction in developing countries appears to be about 2 (Colombia, Mexico, Pakistan, India, Republic of Korea) (Grimes, 1976; Strassmann, 1979).

(2) One unit of final demand for housing can lead to as much as two units of aggregate output in the economy as a whole (Mexico) (Araud et al., 1973).

(3) Residential construction provides between two and three years of employment for each new unit: one man-year on the job, one in factories producing building materials and up to an additional man-year in related industries (United States) (Strassmann, 1979).

(4) In terms of "per unit of value-added" at least two studies estimate equal if not greater returns to construction labour than to manufacturing labour in "industrialised settings" (UNIDO, 1969; Shah et al., 1974).

(5) High growth rates for a number of countries have been spurred by exceptionally high growth rates in construction (Singapore, Japan, Colombia, OPEC countries).

(6) Since the capacity of the construction sector sets a physical limit to the acceleration of growth, it can actually serve as a bottleneck to development plans if its capacity is insufficiently planned (Cyprus, many Arab countries) (Choucri, 1977).

6. Concluding remarks

A most important reason for enlisting construction in an Arab migration and employment strategy is that it is one of the few economic sectors that can simultaneously contribute to the satisfaction of several basic needs. Construction has increasingly occupied a central position in many of the ILO's employment missions because it utilises labour-intensive modes of production, spurs the development of indigenous building industries, absorbs large amounts of unskilled labour and is conducive to the adoption of self-help techniques.

The planning of construction activity on a regional basis, in contrast to its usual *laissez-faire* concentration in primate cities, has also been recognised as a means of (i) correcting serious imbalances in available housing and virtually all forms of social overhead capital, and (ii) ushering rural people into the mainstream of development by providing infrastructure and employment closer to where they live (e.g. through feeder roads, light agro-industries) (Shaw, 1978c).

Government intervention in construction activity also holds the potential for tackling *distributional problems* which have eluded Arab planners during the growth frenzy of the past decade. Its direct impact on international and internal migration, employment generation, labour-intensive production, and the provision and decentralisation of social overhead capital, implies that it may be the best available policy tool for

influencing the distribution of Arab migration and employment. Given the lack of consistent national or international policies dealing with labour migration in the Arab world, and the fact that redirecting or tempering such movements has now become a major policy challenge, construction activity should surely be planned to serve these goals without delay.

Appendix

The impact of differential rates of building activity on international and internal migration

1. International migration

Cross-sectional evidence

To my knowledge only one study has estimated the impact of different rates of building activity on international migration flows among several countries (Shaw, 1978a). This pertained to 169 migration flows among 13 OECD countries in 1971. The elasticity of residential construction relative to international migration exceeded that of all the other variables considered.[9] While data shortcomings prevent replication of this study for the OAPEC countries, it is possible to analyse migration from 12 suppliers *(i)* to the nine major labour importers *(j)* in relation to two surrogates of building activity ($N = 108$).[10]

Our surrogates of differential building activity are (i) average dwelling starts *(DS)* per thousand of the economically active population (labour force) in 1970-74 (DS_j/DS_i), and (ii) average national development plan expenditures on housing *(DEH)* per thousand of the labour force in 1973-75 (DEH_j/DEH_i). We also evaluate the impact of differentials in total national development plan expenditures *(DE)* per thousand of the labour force in 1973-75 (DE_j/DE_i).[11]

Of the three variables, *DS* is expected to be the most relevant to generating employment opportunities for migrants. That is, it incorporates or subsumes *DEH* and is likely to bear much more directly on migration-related employment than *DE* (which will include large allocations of funds for capital-intensive projects). As these variables are obviously inter-related, the most interesting, from a policy viewpoint, will be the one with the greatest elasticity.

Other relevant variables for which data were available include: distance between capital cities $(D_{i \to j})$, size of labour force of the sending area (LF_i), temperature (T_j/T_i), per capita Gross National Product (GNP_j/GNP_i), and migrant stock *(MS)*. *MS*, or the stock of migrants from country *i* residing in country *j* prior to the period under study (1970-75), is included as a crude surrogate of the "friends, relatives and information" effect.

Our migration measure *(M)* is the stock of non-national workers in country *j* in 1975 originating from country *i*. This is expressed as a rate per thousand of the labour force in country *j*, or $M_{i \to j}/LF_j$.

Our hypothesis is that high values for DS_j/DS_i, DEH_j/DEH_i, DE_j/DE_i, GNP_j/GNP_i, LF_i and *MS* will induce migration, while high values for $D_{i \to j}$ and T_j/T_i will discourage it.

Statistically significant results are summarised in table A. The difference between equations 1-2 and 3-4 is that the latter include migrant stock *(MS)*. Data on *MS* (for 1970) were available for 36 migration flows only. These observations pertain largely to migration among Arab countries in Western Asia, whereas equations 1-2 ($N = 108$) include migrants from the Far East and North Africa.

The reported constant elasticities and *t* ratios point to the following conclusions:

Table A. Analysis of international labour migration to the OAPEC countries, 1975

Equation	N	Elasticity (η) and Student t ratio	Independent variables					R^2	F ratio
			DS_j/DS_i	DE_j/DE_i	$D_{i \to j}$	LF_i	MS		
1	108	η	.53	—	−.99	.23	—	.27	7.63
		t	2.40	—	4.14	3.49	—	.	.
2	108	η	.30	.37	−.87	.17	—	.30	9.43
		t	1.70	2.28	3.63	2.28	—	.	.
3	36	η	.82	—	ns	ns	.59	.44	3.57
		t	2.40	—	ns	ns	2.78	.	.
4	36	η	.79	ns	ns	ns	.51	.48	4.11
		t	3.01	ns	ns	ns	2.61	.	.

Notes: A dash (—) signifies that the variable was not included in the regression; ns = not statistically significant at the 5 per cent level. Results for DEH_j/DEH_i, GNP_j/GNP_i and T_j/T_i are not reported as they were insignificant in all regressions. The t ratio measures the probability that the elasticity estimates are statistically significant. Only those reported here were significant at the 5 per cent level or better.

(1) *DS* is consistently significant as an explanatory variable; the elasticity ranges from .53 (equation 1, $N = 108$) to .82 (equation 3, $N = 36$).[12]

(2) The elasticity attached to *DS* overshadows that of *DEH, GNP* and *DE* (in equation 4).

(3) In equations 1-2, distance *(D)* takes on the expected sign and elasticity, as does the size of the labour force in the sending country *(LF_i)*. In equations 3-4, however, neither variable is statistically significant. This is attributable to the exclusion of India, Pakistan and North Africa, where distances and population size tend to be greatest. However, it is worthy of note that distance was also insignificant in the OECD analysis mentioned above.

(4) The inclusion of *MS* in equations 3-4 clearly boosts the explanatory power. While it is often risky to assume independence between measures of *MS* and migration *per se* (Shaw, 1975), the time period here is five years and the impact of the oil boom on migration falls between the time referents for *MS* and *M*. Accordingly, it can reasonably be assumed to capture the effects of "friends, relatives and information" on migration.

Time-series evidence

Another means of evaluating the construction-migration relationship is to incorporate the "business cycle" approach pioneered by Brinley Thomas. For example, drawing on Thomas's time-series data from 1869-1911 (Thomas, 1973), we regressed migration from the UK to the USA against (i) US residential construction activity (RC_{us}: positive effect hypothesised), and (ii) UK residential construction activity (RC_{uk}: negative effect hypothesised). Constant elasticities for RC_{us} and RC_{uk} were found to be 1.08 and $-.56$ respectively (though RC_{uk} was barely statistically significant at the 5 per cent level). As observed in Thomas's own graphic analysis, construction cycles are clearly significant to understanding variations in migration between continents.

While time-series data on the OAPEC countries are extremely scarce, the experience of Bahrain (1971-77) and, to some extent, Kuwait (1967-76) testifies to the impact of construction cycles on immigration. In the case of Bahrain, 10,000 net migrants were attracted in 1973-74, largely by employment openings in petroleum-related activity. By mid-1975, however, the cumulative number of net migrants had jumped to 40,000 and then to 70,000 by 1977 following the rapid expansion of construction employment.[13]

Kuwait offers an interesting example of the kind of impact that low-income housing can have on migration. With a view to redistributing wealth, the Kuwaiti Government operates a low-income housing programme for resident Kuwaitis and aliens able to secure Kuwaiti citizenship. During 1969-70 and 1975-76 government activity under this programme was at least double what it was in any other year between 1966 and 1976. Correspondingly, the number of residence permits granted more than doubled during these years from a "usual" 30,000 to 75-100,000. The correlation between construction of low-income housing units and issuance of residence permits during the period 1966-76 is $R^2 = .56$, with an elasticity of .5. These findings are particularly significant in view of the fact that neither yearly changes in oil revenues nor per capita government expenditures correlate significantly with variations in residence permits issued. As other OAPEC countries have offered low-income housing to their nationals as well, this factor could be construed as an important "missing" variable in the regression analysis above (equations 1-4).

2. Internal migration

In many respects the relationship between building construction and internal migration is easier to evaluate. Data are more abundant and the international

comparability of statistics is not an issue. Studies reporting a strong relationship between differentials in building construction among urban areas and differentials in migration to those areas have already been summarised for Canada, the USA, the UK, the USSR, Israel and Brazil (Shaw, 1978b). The study of Canadian urban migration is particularly relevant here as variations in urban residential construction were found to be highly correlated not only with the distribution of indigenous migrants among urban areas but with the internal distribution of recent international migrants as well (Shaw, 1974).

Turning to the Arab countries, we found that levels of residential construction were highly correlated ($R^2 = .78$) with rates of net migration to the urban sector of 11 governorates of Morocco (1960-70).[14] The elasticity was .5. In an analysis of net migration to seven cities in Iraq (1965-70), similar results were found using "value of city residential construction" as the explanatory variable ($R^2 = .70$). However, the elasticity was considerably higher at 1.75.

For Syria (1965-70) we examined the rates of in-migration to the urban centres of 12 *mohafazets* (administrative districts) specific to four population age groups ($N = 48$). Our explanatory variables included the proportion of the urban labour force employed in construction *(CL)*, the per capita allocation of government development funds to the urban centre *(GF)*, as well as measures of urban unemployment and manufacturing wages. The results of this inquiry are particularly interesting in view of the large share of urban development funds that goes to public works, which in turn employ a large share of construction labour. Only *CL* and *GF* were statistically significant, with elasticities of .77 and .22 respectively. We also examined the role of *CL* and *GF* in accounting for inter-urban lifetime migration flows among the 12 *mohafazets* ($N = 112$). The results tend to corroborate the findings reported above. *CL* was again statistically significant, with an elasticity of 1.16.

Finally, mention should be made of the bold efforts that have been made by Algeria to absorb surplus labour and curb rural-urban migration since restrictions were placed on emigration. Building and public works have served as the leading sector by providing 38 per cent of new employment growth between 1970 and 1976. Construction activity has been designed to stimulate the growth of rural employment and influence migration with the result that (i) rates of migration to the coastal cities have fallen by 33 per cent, and (ii) the share of the total city population resident in the interior slightly increased between 1966 and 1973 (Bénachenhou, 1978).

The Government of Bahrain has also been successful in using low-income housing programmes to relocate Bahraini nationals in new outlying suburbs, and to promote the population growth of some of its traditional villages (Al-Hamer, 1978).

Notes

[1] In order of importance, the major labour-exporting countries to the Arab world are Egypt (20.0 per cent of the total), the Yemen AR (15.9), Jordan (14.5), Pakistan (10.5), India (8.5), Iran (5.8), Democratic Yemen (3.9), Syria (3.7), Lebanon (2.7), Tunisia (2.6), Oman (2.0) and Iraq (1.2).

[2] In 1976 about 40 per cent of all migrant workers in French construction came from Algeria, Tunisia and Morocco. A recent study of this sector points to its function as a "port of entry" and indicates that it absorbs older workers likely to be unskilled (Tapinos et al., 1978).

[3] It is well known that employment in construction and temporary migration go hand in hand in the Arab world (Birks and Sinclair, 1978c). This association is being reinforced as large contracting companies are permitted to import labour for the sole duration of their construction projects.

[4] This view is documented in the proceedings and recommendations of a recent conference on migration to the Gulf countries hosted by the Arab Planning Institute, Kuwait (Arab Planning Institute and ILO, 1978).

[5] This problem was cited at the conference mentioned in the previous note (Arab Planning Institute and ILO, 1978). A sociological study of about 300 non-Kuwaiti teachers revealed that congestion, housing shortages and lack of recreational facilities were the most frequent complaints made about the concentration of migrants in Kuwait City (El-Awadi, 1978).

[6] For example, the highest rates of migration in the Yemen AR in 1975 were from the poorest provinces. Most of these migrants came from farm backgrounds and left their wives or families to manage the farm during their absence. Remittances to these families might be anywhere from five to ten times their yearly farm income. Though the Yemen AR is one of the world's poorest countries, remittance-fed residential construction is surprisingly high in areas outside the capital, San'a.

[7] During the past decade a good deal of success has been achieved in mobilising savings of low-income families for housing programmes in developing countries (Sweet and Walters, 1976; Vernez, 1976).

[8] Housing is also viewed as a means of raising economic productivity because it increases incentives for saving and capital formation (Robinson, 1963; Howenstine, 1968; Vernez, 1976).

[9] Other variables in the OECD study were differentials in per capita GNP, average wages and salaries adjusted for purchasing power, unemployment, tourist flows (as an "information" surrogate), distance, and dummies capturing the effects of migration policies, commonality of language, etc. The elasticity (η) attached to differential rates of residential construction *(DS)* was 1.8. Combined, these variables produced an R^2 of .51.

[10] The labour-importing countries *(j)* are those in table 2 plus Jordan (a small importer) and Iraq (which has about 40,000 Egyptian and 5,000 Jordanian workers). The labour suppliers *(i)* are Egypt, Jordan, Lebanon, Somalia, Sudan, Syria, Tunisia, Yemen AR, Democratic Yemen, India, Pakistan, and the three Maghreb countries regarded as a group.

[11] Admittedly, *DEH* and *DE* are more representative of planned than of actual expenditures.

[12] The direction of causality between *DS* and migration can be assumed to be relatively uncluttered by simultaneous equations bias since rates of *DS* in the major labour-importing countries will be independent of labour migration in view of (i) the temporary status of most migrant workers, and (ii) regulations that prohibit non-nationals from owning houses in many countries.

[13] Data provided by the Bahrain Ministry of Finance and National Economy.

[14] In all studies reported here every effort has been made to measure building activity at the beginning of the migration period so as to (i) minimise a simultaneous equations bias, and (ii) accommodate the time period probably needed for construction to affect income and employment opportunities, and migrants' perceptions of these opportunities. Further, the supply of residential construction is likely to lag two or three years behind short-run demand. Short-run behaviour appears to be influenced by the availability of mortgage funds, interest rates, housing grants, vacancies, changes in the volume of construction activity, incomes and relative prices prior to the time of migration rather than at the actual time of migration (Evans, 1969).

References

Al-Hamer, I., 1978: *The population of Bahrain: a summary of past trends and future prospects.* Paper presented to the Seminar on Population and Development in the ECWA Region, Amman, 18-30 December 1978. United Nations Economic Commission for Western Asia.

Arab Planning Institute and ILO, 1978: *Seminar on Population, Employment and Migration in the Arab Gulf States*, Kuwait, 16-18 December 1978.

Araud, G., et al., 1973: *Studies on employment in the Mexican housing industry.* Paris, OECD.

Bénachenhou, A., 1978: *Politiques rurales et migrations en Algérie.* Geneva, ILO; mimeographed World Employment Programme research working paper; restricted.

Birks, J. S., and Sinclair, C. A., 1978a: *Human capital on the Nile: development and emigration in the Arab Republic of Egypt and the Democratic Republic of the Sudan.* Geneva, ILO; mimeographed World Employment Programme research working paper; restricted.

— and —, 1978b: *The Sultanate of Oman: economic development, the domestic labour market and international migration.* Geneva, ILO; mimeographed World Employment Programme research working paper; restricted.

— and —, 1978c: *Nature and process of labour importing: the Arabian Gulf States of Kuwait, Bahrain, Qatar and the United Arab Emirates.* Geneva, ILO; mimeographed World Employment Programme research working paper; restricted.

— and —, 1979: *Saudi Arabia and the Libyan Arab Jamahiriya: the key countries of employment.* Geneva, ILO; mimeographed World Employment Programme research working paper; restricted.

Choucri, N., 1977: "The new migration in the Middle East: a problem for whom?", in *International Migration Review* (New York), Vol. 11, No. 4.

— et al., 1978: *Migration and employment in the construction sector: critical factors in Egyptian development.* Boston, Massachusetts Institute of Technology, Technological Planning Program; mimeographed.

El-Awadi, A., 1978: "Analysis of some social problems related to the labour force in Kuwait", in Arab Planning Institute and ILO, 1978 (in Arabic).

Evans, M., 1969: *Macroeconomic activity: theory, forecasting and control.* New York, Harper and Row.

Grimes, O. F., Jr., 1976: *Housing for low-income urban families: economics and policy in the developing world.* Baltimore and London, Johns Hopkins University Press, for the World Bank.

Howenstine, E. J., 1968: "The role of housing policy in economic growth and stabilisation", in *The role of trade unions in housing.* Paris, OECD.

Robinson, H., 1963: "Inter-American housing financial sources and policies", in *Capital formation for housing in Latin America.* Washington, Pan-American Union.

Shah, P., et al., 1974: *Prefabricated construction in industrially developing countries.* Montreal, Proceedings of the Third International Symposium on Lower-Cost Housing Problems, 27-31 May 1974; mimeographed.

Shaw, R. P., 1974: "Modelling metropolitan population growth and change: the IIPS simulator", in *International Journal of Socio-Economic Planning Sciences* (Stony Brook (New York)), Vol. 8

—, 1975: *Migration theory and fact.* Philadelphia, Regional Science Research Institute.

—, 1978a: "On modifying metropolitan migration", in *Economic Development and Cultural Change* (Chicago), July.

—, 1978b: *Bending the urban flow: a construction-migration strategy* (unpublished).

—, 1978c: *Population, labour force and rural employment strategy for the five least developed Arab countries.* Kuwait, Arab Fund for Economic and Social Development; mimeographed.

Strassmann, W. P., 1979: *Housing and building technology in developing countries.* East Lansing, Michigan State University Press.

Sweet, M. L., and Walters, S. G., 1976: *Mandatory housing finance programs: a comparative international analysis.* New York, Praeger.

Tapinos, G., et al., 1978: *Possibilités de transfert d'emploi vers les pays d'émigration en tant qu'alternative aux migrations internationales des travailleurs: le cas français (II: Etudes sectorielles).* Geneva, ILO; mimeographed World Employment Programme research working paper; restricted.

Thomas, B., 1973: *Migration and economic growth: a study of Great Britain and the Atlantic economy.* 2nd ed. Cambridge, University Press.

UNIDO, 1969: *Construction industry.* Vienna, Monograph No. 2.

United Nations, 1971: *Social programming of housing in urban areas.* New York; Sales No.: E.71.IV.10.

Vernez, G., 1976: "A housing services policy for low-income urban families in developing countries", in *Ekistics* (Athens), Jan.