SOCIAL AND COMMUNITY ISSUES IN PORT DEVELOPMENT

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ABSTRACT

Ports have differential effects on the various individuals and groups in the community, depending upon such individual and household characteristics as command of resources, class background, ethnic background, stage in life cycle, lifestyle orientation, etc. These differential effects may be handled in project analysis and evaluation by (1) externalising and making explicit for other areas of public policy (i.e. for compensation, welfare programs, etc); (2) weighting and including in the project balance sheet; or (3) internalising. Assuming port planners' preferences for (1), a method is outlined for utilising census data to generate a frame-work for initial assessment of differential community effects. Its application to Melbourne is discussed.

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Ross King

1. INTRODUCTION

Harvey (1973) suggests two perspectives or 'formulations' through which to examine and understand urban processes: a 'liberal' and a 'socialist'. In the former, it is seen that the social system is not in a state of equilibrium, that all its members and groups are in fact in 'differential disequilibrium' with their environment - itself continually changing in different directions and at different rates - and are adjusting to that environment with differing effectiveness dependent on their command of resources of wealth, education and political power. The better educated, more affluent and more politically powerful use their advantage to further their own interests and enhance their own income. They are seen to do this in two main ways: by advocating preferential pricing (of road space, of fuel, of housing, etc); and by advocating projects such as road improvements, freeways, ports etc to serve their activities or firms or suburbs. Thus, it is suggested, all pricing arrangements and all investments are to be seen as being generated by social conflict and competition.

The 'socialist' model, by contrast, rejects the dualism between production and distribution implicit in the 'liberal' (and in all liberal political economy), and insists instead 'that production is distribution and efficiency is equity in distribution'. Conflict and competition is still seen to underlie the generation of pricings and projects, but is itself seen to be underlain by the historic processes of division of labour, social alienation, and modes of production and of economic integration. Projects not only have distributional effects; it is their distributional effects that account for their generation and advocacy in the first place.

The point of this is that the differential effects of pricings and of urban projects are inescapable. The way they are to be seen by the analyst is a philosophical question; but they must be seen. There would seem to be three fundamental approaches:[1]

(a) Questions of equity are to be kept absolutely external to the policy or investment. Decisions are to be made on efficiency grounds alone, and then compensation or specific welfare policies are to be urged to remedy any non-preferred equity effects resulting from real income distribution or other impacts. As a corrollary to this approach, projects should not be used to achieve welfare objectives.

The requirement on the planner and analyst is to explore and make explicit all differential effects.

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[1] For suggesting this distinction I am indebted to Professor Peter Hills, University of Leeds.

(b) Real income distribution effects of policies and projects are acknowledged, and outputs of alternatives are modified by a series of politically determined weightings in the process of analysis and comparison of those alternatives.

(c) Specific real income distribution effects are sought (i.e. the investment is intended to assist one group relative to another), and these effects are internalised in the analysis. (See Weisbrod 1968).

The choice between approaches is a philosophical one, to repeat, and is in the realm of political economy. So Harvey's first or 'liberal' critique would demand (a) or (b); his second or 'socialist' would lead to (c). Port planners and operators, I suspect, are generally going to prefer (a) and then accept its necessary consequences of making differential effects explicit.

This paper attempts to raise some of the issues involved in looking at differential effects of port development - and to a certain extent of projects generally - upon the urban community.

2. 'INTERNAL' COSTS AND BENEFITS

The clearest and most directly measurable costs and benefits of the port system on the broader social system are the money costs and benefits of the port's provision and operation. Some of the elements accounting for these effects can be listed.

(a) The capital works program of a port is usually paid for by loan borrowings. Ports compete for the resources represented by these funds with schools, hospitals, welfare housing, etc., and with individuals and firms. There is thus a foregone opportunity cost ... in the interests of eventually cheaper goods and services to those who use them.

Port authorities generally have certain advantages as borrowers: preferential access to the market as public authorities, and preferential interest rates. Thus there are subsidies from the broader community to the port system.

(b) The operating costs and loan servicings of port authorities are ostensibly covered by charges for port services.

These port services are not final but intermediate goods or services, i.e. they are goods or services that enter into the production of further output.

(c) Certain operating costs and loan servicings of authorities contributing to port services are <u>not</u> charged for. Roads servicing docks, the dredging of shipping channels, etc., sometimes come into this category.

(d) The port authorities generally pay a return or levy to their state governments, which is in effect a land rent for the land (including 'wet land') for which there would be alternative uses, and therefore competition.

This may or may not represent a market rent. If it does not, then a further cross-subsidy is operating.

Four points can be made about these pricing arrangements. First, ports compete with other users of resources, including resources of land and in-shore water. The prices that they pay for these resources seem to be distorted by preferential access to capital markets and preferential interest rates, and by subsidies to their land rent. Therefore an adequate description of these effects should indicate the prices paid, together with corresponding shadow prices for various assumptions about market behaviour.

Secondly, the charges for port services also seem to be distorted. Port authorities enjoy a partial local monopoly (except perhaps in the case of Melbourne, where there are alternative ports at Geelong and Westernport, operated by alternative port authorities). At the national scale there is no monopoly, although cartel arrangements are feasible. However the prices seem to be distorted downwards from what might be expected: all the port authorities seem to subsidise their services (by passing on their own low prices for factors) in order to attract business.

Thirdly, the subsidy from the community to the port system can be seen in two ways: (1) it is an investment in cheaper consumer goods to those who consume them; (2) it is the price the community pays for the social good of seeing its port thriving and active.

Fourthly, and most importantly, the subsidy is differential across the community and related to the tax structure; and enjoyment of the benefits is differential and dependent on the extent to which different individuals enjoy 'final' consumption of the subsidised goods and services.

3. 'EXTERNAL' COSTS AND BENEFITS

Ports, like roads, railways, power stations, each new motor car and container truck, your house and my house, have 'external' or 'third party' effects upon other elements in the urban system. The problem with social goods and 'bads', and with external benefits and costs, has been summarised by Musgrave and Musgrave (1973, p77):

> Social costs - which include both internalised (or private) and external costs - exceed private costs. Since the market accounts for the latter only, the price is too low and the good tends to be over-supplied. Similar problems arise where externalities are generated in the process of consumption (e.g. automobile pollution) rather than production. In either case, costs to society are disregarded. This is the problem of pollution.

The external costs, if left to be suffered by their recipients, are further subsidies from the community to the port system. And of course any external benefits - good views of fine ships, wharves from which to fish - are further benefits of the system.

3.1 PRINCIPAL EFFECTS

These external costs and benefits are generally related to the following principal effects of the port system.

(a) Port developments are increasingly visually isolated from the community, and therefore alienated (e.g. Darling Harbour redevelopment in Sydney). The effect is a consequence of a particular planning response to changing technology and scale of shipping and cargo handling.

(b) There may be disturbance of valued natural systems (e.g. reclamation of mangroves, silting or beach erosion from changed water movement, etc).

(c) Port operations have a number of direct impacts: noise, glare from lights (e.g. Webb Dock on Williamstown in Melbourne), dirt and dust(e.g. Botany Bay coal loader, in apprehension if not yet in fact), water pollution from oil spillages, etc.

(d) Land transport beyond the dock gate is changing in scale, in technology (with containerisation, bulk handling, larger vehicles) and in direction and location (with the movement of the goods handling and manufacturing industries towards the periphery of the city).

These various effects differentially deliver forms of *services* and *disservices* to the individuals who comprise the urban community.

3.2 SERVICES AND DISSERVICES, PREFERENCES AND VALUES

It is necessary to make the distinction between (1) the *services and disservices* delivered to an individual by an existing provision of the urban system or by a projected change to it, and (2) the *preferences* for those services or the *values* placed upon them by the individual. Both the service delivered and the value placed upon it can vary with such individual characteristics as 'class' background, stage in life cycle, ethnic background, and so on. Following is a discussion of those individual characteristics and of their apparent relationships to behaviour in the sense of responses to the opportunities and constraints of the urban system. But it is essential to realise that the relationship can occur through the medium of those two independent sets of intervening variables: (1) the actual levels of service or disservice delivered to different individuals by a given effect, i.e. by some condition of opportunities and constraints; and (2) preferences or values that different individuals attach to given services and disservices.

3.3 INDIVIDUAL CHARACTERISTICS

The following appear to be the principal individual characteristics determining (1) level of service or disservice from a provision or change in the urban system and (2) preferences or values placed on those services and disservices.

(a) *Command of resources*

There is ample evidence that the social, emotional and mental effects of environmental changes are less in more affluent populations than in poorer, and are ameliorated by greater job and social mobility (e.g. Litwak 1960, Klein et al 1971). The freeway or deterioration in existing conditions that would impose tolerable disservices on residents in Brighton and Toorak could impose intolerable disservices in South Melbourne or Fitzroy, although the resistance from the former would be both more vocal and more effective.

This relationship would seem to refer to command of resources, for which *income* and *education* might be the best measures. I am drawn to education as the most useful indicant; education seem to underlie income, access to power, and other aspects of command over resources.

(b) *Social 'class'*

Households whose background is of lower incomes and poorer education are more dependent on propinquity for community, and on neighbourhood services and facilities, than are households of higher 'class'. This dependence implies greater service or benefit from proximity to kin and to friends, and from proximity to neighbourhood services and facilities. It also means that a barrier in the form of a new freeway or railway, or simply resulting from increased traffic on an existing road, affects lower 'class' groups more than it does higher 'class' groups.

Clear definitions of class, and indicants or measures of it, are generally elusive.

(c) *Age, stage in life cycle*

Age and stage in the life cycle affect preferences and consequent demand for baby health clinics, child care arrangements, preschools, schools, tertiary education, children's playgrounds, sporting facilities, libraries, art and craft groups and similar facilities, employment opportunities, the entertainment facilities of the city centre and inner suburbs, beaches and swimming pools, old people's centres, domiciliary health services, etc. Improved access to these services and severance from them will thus vary in its effect, depending on the age and stage in life cycle of the individuals affected.

(d) *Role in the household*

The effects of certain environmental conditions, and particularly of those associated with dwelling type, also differ with role in the household. Children in flats are more prone to bronchial disorders than are their peers in houses with private open space, are kinetically deprived, etc; the incidence of anxieties, psychoneuroses, genito-urinary disorders, etc., in mothers of young children in flats are higher than those in houses (Fanning 1967, Hird 1967, etc.). And there are other, similar examples for which the evidence is reviewed in King (1976 b). But there are fewer differential effects of residential environment on men. Thus there is a distribution of disservices or costs to be borne, and of services or benefits to be enjoyed, to the various members of the household .... and we are left with the question of intra-family equity!

(e) Ethnic background

Ethnic background determines preferences for specialised ethnic services - shops, restaurants, coffeehouses, night spots, ethnic doctors, lawyers and other professionals - as well as for proximity to kin and to associates. These valuations may however decline with period of residence in Australia; they could even become negative. On the other hand, households of Australian background could initially place strongly negative values on concentrations of ethnic services or on proximity to some migrant households, although such negative valuations might in time decline. These issues have been discussed in King (1976 c).

(f) Life-style orientation

There are other preferences that cannot be so easily related to personal characteristics, although they can be seen to relate to a few underlying and somewhat fundamental preferences: for children vis-à-vis orientations to careers or 'social life'; for employment for women, and for the nuclear family and for single family dwelling units.

Although this orientation may vary with such factors as social class, ethnic background and religion, nevertheless it is useful to see it as being fairly distinct from these in its effect. Certainly within social classes at least, populations appear to be very strongly pluralist in lifestyle orientations: Gans for example, in his work on lower class Bostonians, identified four quite distinct life-style patterns, namely *routine-seekers*, *action-seekers*, *maladapted* and *middle-class mobiles* (Gans 1962). The last of these categories - middle-class mobiles - seems to relate to a dimension *motivation* and *social mobility* that is clearly identifiable in Australian society, is affected by ethnic or cultural background, and in turn affects the individual's position (or that of his children) on the command of resources and/or social class scales (King 1976 c). Gans' other categories can also be seen to relate to identifiable dimensions describing aspects of the plurality of Australians' life-style orientations.

(g) Length of residence, stability

There is some evidence, again reviewed in King (1976 c), that length of residence in a dwelling and/or area, and intention to stay there, affect preferences for its characteristics and severity of impact from any relocation.

There are undoubtedly other characteristics of individuals that affect their behaviour, including their response to the constraints and opportunities of the urban system, although the above do seem to be of some pre-eminent importance. For the present paper however, that importance must remain as hypothesis only.

3.4 THE ASSESSMENT OF DIFFERENTIAL IMPACT

It should be clear from the above that the individual must be the unit of observation in any valid assessment of social effects (benefits and costs) of port developments. The approach has been outlined in King (1976 a).

In *initial* impact assessment - to compare effects of one project with those of another, or to compare effects on one area or population with those on another, or to reduce a large range of alternatives within a given design space - the data requirements of such an approach are somewhat unfortunate. Shorter methods are required, with observation of *individuals'* characteristics and behaviour reserved for some *final* assessment. It would clearly be useful were it possible to employ aggregated areal data in such initial assessment: if an estimate of household characteristics in terms of the above determinants can be used to match population against likely effect, then that effect multiplied by an area's population can yield estimates of 'aggregated average effects' which can enable comparisons of likely effects on different areas, or comparisons of different projects, road alignments, or similar strategies. As the Australian Bureau of Statistics publishes census data at Census Collectors District (CCD) level, the question arises: can that data be utilised to generate an evaluative framework for such impact assessment and comparison?

An attempt to answer that question in the affirmative is reported in King (1977): it could be expected that the above determinants of behaviour, if really significant, would affect residential location and consequent areal differentiation in the city; the evidence for such a set of relationships, in the case of Melbourne, is clear indeed. Part of this evidence will be examined in 4 following.

4. THE CASE OF MELBOURNE

Social processes related to the historic division of labour, differential command of resources over time, institutional distortion of housing markets, social alienation, etc (i.e. the sorts of processes implied in Harvey's 'formulations' referred to previously) have led to residential differentiation in Melbourne. (See Gans 1968, Timms 1971, King 1976 b pp23-28). Hence the differential effects of projects confront a population that is already differentiated socially.

4.1 DIMENSIONS OF SOCIAL DIFFERENTIATION

In an attempt to understand social differentiation in Melbourne in such a way that the understanding could assist with initial impact assessment, factorial ecological studies of residential differentation have been the starting point. It is suggested however that (1) the scale of the units of observation in such studies is usually too large and the data are consequently too aggregated; and (2) the initial indicants of social characteristics are usually too narrowly selected. Criteria for selecting a model of social differentiation might be: (1) the initial indicants broadly representative of the ways in which the population seems to be structured; (2) the model achieving a high level of explanation, so that total variance in the indicants is explained as fully as possible; (3) high communalities of indicants (i.e. high levels of explanation for each indicant separately; and (4) high eigenvalue and high proportion of explained variance for each revealed factor or underlying dimension of differentiation. (See Harman 1965).

In the exploration of Melbourne (King 1977), the finally accepted picture has been of a family of models, comprising a family of differentiating dimensions, derived from data at Census Collectors District (CCD) level:

(a) Four dimensions: The population can be crudely though simply explored in terms of four inferred dimensions:

(i) *educational and professional status*, clearly related to the *command of resources* variable (a) of 3.3 above.

(ii) *life-style orientation: material possessions, suburbia*, apparently related to the *life-style orientation* variable (f) above.

(iii) *life cycle: young households*, apparently related to the *age, stage in life cycle* variable (c).

(iv) *ethnic background: Greek, Italian*, apparently related to the *ethnic background* variable (e).

(b) Six dimensions: Increasing the number of accepted factors to six yields dimensions which could be inferred as follows:

(i) *ethnic background and life cycle: new immigrants*, related partly to variable (e) *ethnic background* and partly to variable (g) *stability* preceding.

(ii) *educational and professional status*

(iii) *life cycle: young households*

(iv) *ethnic background: Greek, Italian, Maltese*

(v) *life-style orientation: Material possessions, suburbia*

(vi) *ethnic background: German, Hungarian, Jew*

(c) Ten dimensions: To increase the number of accepted factors further seems to yield an additional 'branching' of inferable dimensions:

(i) *ethnic background: German, Maltese, Yugoslav*

(ii) *life cycle: old, widowed, women*

(iii) *length of residence: very new area*

(iv) *educational and professional status*

(v) *ethnic background: German, Hungarian, Jew*

(vi) *heterogeneous dwelling stock: tenements, terraces, small dwellings*, and apparently a dimension of life-style orientation.

(vii) *Housing Commission tenants:* apparently related to a sort of 'negative life-style orientation' in so far as this group usually has few options.

(viii) *ethnic background: Greek, Italian, Asian*

(ix) *life-style orientation: established area*

(x) *life-style orientation: working class suburbia*

The relationship of this structure of inferred dimensions of social differentiation to the suggested structure of determinants of social impact and behaviour should be obvious. Further, the above pattern is statistically stable: varying the indicants yields little change in inferable dimensions, and varying the number of accepted factors generally seems to reveal the multi-dimensional nature of ethnic background and of life-style orientation Therefore the leap of faith will be taken: CCD scores on the above dimensions will be used as a framework for initial assessment of differential effects of port and similar projects ... at least until a better framework comes along.

(Some of these scores will be quoted following. They all relate to a form of model (a) above, using principal factoring with iteration, rotated to a fairly oblique solution on the direct 'oblimin' criterion, accounting for 74.8% of initial variance in a very wide range of indicants, and with a minimum eigenvalue of 1.83. The factor scores are in effect z-scores: they are in terms of standard deviations above or below the Melbourne mean, where CCDs are the units of observation).

4.2 POPULATION CONCENTRATIONS AND CONCENTRATIONS OF PROJECTS

The Webb Dock development of the Port of Melbourne is occurring in an area of particularly vulnerable population. (Parts of the Port of Melbourne and parts of the Port of Sydney face a similar problem). Port Melbourne LGA scores -0.996 on *educational and professional status* (command of resources) above; this is the lowest for any Melbourne LGA. All CCDs are similarly low, ranging from -0.597 to -1.147; with scores of -0.636, -1.117 and -1.193 in the particularly affected Garden City area. (By contrast, the lowest scoring CCD in Melbourne is in Fitzroy, with -1.327, and the highest in Hawthorn with 4.943). On other dimensions it is particularly vulnerable to severance: it has a very stable population, particularly in Garden City; high ethnicity, except in Garden City; relatively unique combinations of life-style orientations; etc.

Various forms of cluster analysis of areas on dimensions of social differentiation reveal that the area most immediately affected by Webb Dock and its land transport is strongly similar to a range of inner suburban areas in the local government areas of South Melbourne, Melbourne, Fitzroy, Collingwood, Richmond and Footscray. It is important that these areas are also 'threatened' by a number of other public projects: Westgate Bridge and F9 freeway, Johnson Street Bridge, F2 and F19 freeways, Newport Power Station, etc. Any increased activity in the Central Business District, related to the Melbourne Underground Loop Railway, the Melbourne Strategy Plan or otherwise, may also affect road transport penetrating the area. Other changes in port operations will similarly affect road transport. On the other hand the areas fulfil a vital residential function in Melbourne, as they supply 'low cost' housing to low income households together with ready access to a variety of employment opportunities and community services. In other words the impact of a series of public projects threatens a housing resource for which no replacement is available. (Other inner suburbs - in Prahran, St. Kilda, Melbourne, Brunswick, Essendon - are in different 'clusters' and generally serve different community and social groups).

4.3 ENVIRONMENTAL TOLERANCE AND INSTITUTIONAL CONFLICT

It could be argued that any one of these numerous projects could be easily tolerated, and perhaps even two or three of them; but it is doubtful whether anyone would seriously argue that *all* could be developed without causing radical changes to the social structure of the region with severe political impacts. Thus the various authorities responsible for these proposals are in competition with each other, and with private sector generators of 'externalities', for what may be the most limited resource of all: environmental or community tolerance.

Access to this resource is *not* subject to government budgeting policy, as is access to other resources. Therefore the competition is not mediated by any planning process, either implicit or explicit. Further, the limits to the resource are constantly changing with (1) changing perceptions of environmental outcomes, (2) changing valuations of outcomes, and (3) changing ideas of equity or distributive justice prevailing in the community. Port systems are among the most visible and identifiable generators of externalities, and are thereby disadvantaged in this competition. (And it might be argued that private motorists are among the least visible and least identifiable).

Implicit in this problem of institutional conflict is the further problem of different institutions' conflicting perceptions or interpretations of social objectives. The problem of social objectives has been dealt with previously (e.g. in King 1975 and 1976 a), and its theoretical aspects will not be examined here. What must be raised however is the general inability of institutions to relate their identified institutional objectives (to build and operate ports, to build roads, etc) to revealed or even assumed formulations of social objectives. All of the authorities advocating the previously listed changes (Lower Yarra Crossing Authority, Country Roads Board, State Electricity Commission, Melbourne Harbor Trust, etc) tolerate in their current actions a reduction in the residential capacity and environmental amenity of inner Melbourne, in conflict with stated objectives of the Melbourne and Metropolitan Board of Works and of the local government councils of Melbourne, Port Melbourne, South Melbourne and Footscray. But no attempt is made to relate current residential change (generally decreasing population, together with housing succession or 'gentrification' in specific areas), threatened future residential change (relocations, increasing severance from transport changes, etc) and stated objectives (increased housing, increased residential population) to any concept of social objectives, either derived or assumed.

4.4 SOCIAL IMPACT AND UNDERLYING SOCIAL CHANGE

A final point must be raised to modify much of the preceding argument. As observed immediately above, social change proceeds anyway, and the areas subject to threat from port development and from similar projects are apparently subject to substantial changes that might be quite unrelated to such projects and their threat.

Various forms of severance and disruption have frequently been shown to have particularly severe impacts on the sorts of working class families apparently predominating in these areas: there is a rupture of social networks, which are generally more locality-based that are those of more middle class households;

and there is a rupture with a particular place or home ground with its associations and memories (see for example Gans 1959, Hole 1959, Fried and Gleicher 1961, Schorr 1963). But working class communities are changing anyway, as are other types of communities, so how 'important' are these disruptions in the broader context of social change? Buttimer (1971) has suggested that this contextual change can be described under three major headings:

(a) *Economic:* rising income and living standards which appear to give workers an entrée to middle class consumption patterns.

(b) *Technological:* changes in industrial technology which alter the nature of work and the salaries paid for labour, and are associated with changing attitudes toward work and restructuring of social relationships at shop floor level

(c) *Ecological:* the movement of workers from rural to urban and from urban to suburban residential environments with the consequent dilution of old life styles and place-orientated ties.

Various traditions of community studies stress various interpretations of these changes. The Marxist emphasises enduring alienation of workers despite superficial changes in life style. The embourgeoisement thesis suggests that these sort of changes have led large sections of the working class to adopt middle class outlook and way of life; attitudes and life-styles are seen to be economically determined. However various studies have found that the values and relational aspects of class persist regardless of superficial changes in life styles (e.g. Goldthorpe 1969); rather, any change in values and in normative orientations affects only marginal groups of both the working class and middle class, and the change is in the same direction for both groups, towards similarity of outlooks and aspirations (Buttimer 1971, also Kerr et al 1960, Lipset 1964, Goldthorpe 1964).

Various studies also tend to indicate that normative orientations (values and ideas about how valued things are to be achieved) and relational systems and preferences persist despite relocation of working class families (Young and Willmott 1957 and 1963, Berger 1960), although Millspaugh and Breckenfeld (1958) have observed one important exception to this seeming rule: in Eastern U.S. cities, where relocation corresponded with improvement in the physical surroundings, and an increase in cultural and education opportunities, significant changes in life style *and aspirations* took place among certain black families.

The conclusions then may be that behaviour is changing at different rates and in different directions (in response to Harvey's 'differential disequilibrium'), that some groups (perhaps Gan's *routine-seekers* and *maladapted*) are more vulnerable to the stresses and social disruption of forced change than are others. Further, Buttimer concludes that 'the two-fold attachments of working class people to (a) neighbourhood, and (b) social networks, are intricately interwoven, and changes in one, as removal from traditional home area, may cause a temporary rupture of the other, but over time these can certainly be repeated or substituted for. 'Impact may be severe, even if there is a semblance of adaptive behaviour, but in time it declines.

The time factor is critical. The areas and populations under discussion are subject to slow but quite severe disruption anyway: the suburbanisation of residence and employment, falling real incomes and increasing structural unemployment, housing succession by the middle class, etc. The projects currently being developed or advocated will aggravate those processes of change and disruption, and large numbers of individuals and households will bear quite inordinate and unsought social costs. However, *adequate ameliorative programs are initiated over the short and medium term*, the individuals, households and their life-styles can ultimately thrive, either there or elsewhere.

5. CONCLUDING NOTES

Ports, like all urban projects, have differential effects upon the various individuals and groups in the community. Indeed, if their effects were not differential, it is doubtful that they would ever be proposed and developed. In project analysis and evaluation, there are three ways of handling these differences:

(a) Externalise them, evaluating the project in terms of some concept of pure efficiency, and leaving questions of differential impact or distributional effects or equity to other aspects of public policy. The planner or analyst must therefore accept the necessity for making all such effects completely explicit, so that those other aspects of public policy can pick them up.

(b) Acknowledge real income distribution effects of projects, and accordingly modify outputs of alternatives by a series of politically determined weightings in the process of analysis and comparison of those alternatives.

(c) Internalise real income distribution effects within the analysis, acknowledging that the investment is intended to assist one group relative to another, and evaluating in terms of efficiency of distribution.

The choice between approaches is a philosophical one, in the area of political economy. While (c) may possess the attraction of most explicitly recognising the real-world process of project generation and political evaluation, it also faces real difficulties in being translated into a satisfactory methodology for analysis. It also faces the problem that port planners and operators could normally be expected to favour (a). Therefore the present paper has accepted the philosophy of (a), and according concentrated on ways of exploring and making explicit the nature and range of differential effects, ignoring their treatment in evaluation (or postponing it to another paper).

The 'internalised' effects of projects (money costs and benefits) are differentially distributed in the community; so are the 'external' effects, generally geographically. The impact of such effects - particularly the external effects - vary with the characteristics of the individual affected ... with his command of resources, social class, life-style, age and stage in life cycle, role in the household, ethnic background, etc. The individual is thus the only valid unit of observation in impact assessment, and the data requirements are therefore considerable.

The point must be emphasised however that for *initial* assessment of such effects - for narrowing a range of alternatives, or for initial exploration of the nature and likelihood of effects, or for comparing effects on one area with those on another - *areally aggregated data can be used*. Difficulties or costs of analysis are not an excuse. The paper has outlined an approach to that initial assessment, using an analysis framework generated by means of multivariate analysis of areal data, and it has examined some of the problems revealed by its application to Melbourne.

Two final points must be made. First, planning and operating agencies must come to accept responsibility for all the effects that their actions lead to, rather than argue that they are 'someone else's responsibility'. Although they may be ignored in project evaluation - by adopting approach (a) above - they cannot be ignored in fact. Therefore impact assessment must inevitably lead to programs for impact amelioration. Secondly, it is essential in planning to 'budget' for the allocation of community tolerance or environmental capacity. Thus a more comprehensive and sensitive monitoring and planning framework must be found. That outlined in this paper has clearly been only a beginning.

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