FAIR COMPENSATION AND THE BOOMTOWN PROBLEM

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Rapid development of energy facilities in small communities imposes social costs on local populations while serving nation-wide interests. The social pathologies arising from construction of energy facilities in rural locations have created an "energy boomtown problem" that has been widely recognized.[1] Both proposed and current solutions to the problem include prevention of localized costs brought about by better facility siting practices[2] and state or federal planning

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1. J. GILMORE and M. DUFF, BOOMTOWN GROWTH MANAGEMENT: A CASE STUDY OF ROCK SPRINGS—GREEN RIVER, WYOMING 1-29 (1975); OFFICE OF COMMUNITY PLANNING AND DEV., U.S. DEP'T OF HOUSING AND URBAN DEV., RAPID GROWTH FROM ENERGY PROJECTS: IDEAS FOR STATE AND LOCAL ACTION (1976); Gilmore, *Boomtowns May Hinder Energy Resources Development*, 191 SCIENCE 535 (1976). *See generally* K. TOOLE, THE RAPE OF THE GREAT PLAINS 80-125 (1976).

2. *See, e.g.*, Industrial Development Information and Siting Act, WYO. STAT. §§ 35-502.75-.94 (Supp. 1975); Coastal Zone Management Act Amendments of 1976, Pub. L. No. 94-370, 90 Stat. 1013 (1976) (amending 16 U.S.C. §§ 1451-1464 (1972)). Other sources are collected and annotated in R. LITTLE and S. LOVEJOY, WESTERN ENERGY DEVELOPMENT AS A TYPE OF RURAL INDUSTRIALIZATION: A PARTIALLY ANNOTATED BIBLIOGRAPHY (1977).

assistance for localities.[3] Other solutions seek to assist localities by improving their ability to raise revenue through existing means; for example, state enabling legislation might be changed to increase the local share of sales tax revenue and ease local borrowing restrictions.[4] Another class of solutions to the energy boomtown problem compensates communities for the costs imposed on them by energy development.[5]

In this Article, the general "boomtown problem" and current compensation schemes are considered, and the appropriateness of subsidy schemes is analyzed on theoretical grounds. This analysis suggests that the effect of these subsidies as usually designed is to reward people who are not in fact injured by the development, and miss many of those who deserve aid. The misdirection is a result of carelessly identifying a community with the people who live in it at a particular time. An appropriate compensation plan requires that the affected groups of people be more carefully described. While the discussion that follows considers the problem specifically in the context of boomtown compensation programs, the analytical approach can be generalized to other geographically related programs.

I. THE ENERGY DEVELOPMENT BOOMTOWN PROBLEM

At first glance, the construction and operation of an energy extraction or conversion facility[6] in a rural location does not suggest a need for subsidies to the affected community. Economic development, of which an energy facility provides a dose enormous both absolutely and relatively, is something communities usually seek out and encourage. Offsetting these expected and realized benefits from energy development, however, are costs imposed on the localities that host either the developments or the newcomers needed to support them. In fact, it has been widely accepted that the rate of development in the "typical" boomtown is so great, and the changes in the quality of life it brings are so drastic, that accepted social indicators, such as employment stabili-

3. Gilmore, *supra* note 1.

4. Wyoming Legislative Select Committee on Industrial Development Impact, Interim Report and Recommendation (1974).

5. For examples, see notes 35-38 and accompanying text *infra*. For a rationale for federal aid to boomtowns and their states, see J. Monaghan, Managing the Impacts of Energy Development: A Policy Analysis from a State Government Perspective (April 1977) (address delivered at National Governor's Conference, Washington, D.C.).

6. These facilities include strip-mines, coal-fired electricity generating facilities, coal gasification plants and oil drilling operations.

ty, divorce rates, alcoholism and crime, are likely to record real pathologies: life in the boomtown is worse than it was in the village that preceded it.[7] Field interviews in several western states and the literature on boomtowns reveal several types of problems.

1. *Social Disruption.* Sudden changes in the nature of a community impose a new social structure on the old one and cause social conflict. Rates of alcoholism, drug abuse, mental illness, divorce and juvenile delinquency increase.[8] The Gillette, Wyoming divorce rate is now twice that found in the surrounding county.[9] Children have low achievement levels and increased truancy; assaults increase.[10] Rock Springs' Mental Health Center has had a ninefold increase in cases when population approximately doubled between 1970 and 1975.[11] The Center reports that most of its new cases are long time residents having difficulty managing drastic changes caused by the large population influx.[12] They are more likely than the newcomers to become alcoholic or suffer from mental illness.[13]

2. *Inadequacy of Public Services.* Public services, especially those constrained by the size and condition of capital goods, often falter under the pressure of rapid population growth accompanying energy development. Prior to the energy boom, facilities may have been barely adequate—perhaps in poor condition or operating at capacity for a small population. A rapid influx of people requires service expansion and improvement or the addition of previously non-existent services, but few boomtown areas are forewarned about coming developments or the need to enhance their fiscal capacity. A variety of examples can be found:

- Eight out of ten water wells in one oil boomtown go dry because of increased water consumption;[14]

7. Little, *Some Social Consequences of Boom Towns*, 53 N.D. L. REV. 401 (1977); J. GILMORE and M. DUFF, *supra* note 1; Gilmore, *supra* note 1.

8. Little, *supra* note 7.

9. *Id.*

10. *Id.*

11. J. GILMORE and M. DUFF, *supra* note 1, at 12. *But see* Mountain West Research, Inc., Construction Worker Profile: Final Report 55 (1975) (Prepared for the Old West Regional Commission, Billings, Montana) (reporting only a 90% increase in cases).

12. Mountain West Research, Inc., *supra* note 11, at 55.

13. R. Foster, State Responses to the Adverse Impacts of Energy Development in Wyoming (1977) (Energy Impacts Project, Laboratory of Architecture and Planning, M.I.T.).

14. D. Sanderson, State Responses to the Adverse Impacts of Energy Development in Texas II-4 to 8 (1977) (Energy Impacts Project, Laboratory of Architecture and Planning, M.I.T.).

- Two Texas boomtowns discharge almost raw sewage because of overloaded treatment plants;[15]
- A kindergarten meets in a condemned building because of a shortage of space;[16]
- County protective officers, facing increased county-wide demands, reduce previous city coverage and force several small towns to create municipal police forces;[17]
- A Texas coal boomtown must more than double its number of firemen and almost double the amount of its firefighting equipment and facilities in order to remove a State Insurance Board penalty (based on the city's lowered firemen/population ratio) and to provide expected services.[18]

3. *Shortage of Private Goods and Services.* During a boom, the private market rarely keeps pace with the demand for goods and services, especially housing. In some cases, housing shortages can restrict energy development: one hundred families recently found no housing when transferred to an oil boomtown and had to be transferred back to their previous positions.[19]

4. *Inflation.* Excess demand triggers inflation in prices, wages and rents. While price increases are welcomed by the storeowner whose costs usually do not rise as quickly as revenues, and increased housing prices are a blessing to the landlord, inflation is particularly harmful to the senior citizen and others on fixed incomes who cannot take advantage of rising wages. High construction wages, combined with a general labor shortage, cause other wages to rise. This can hurt the agricultural economy (though agricultural workers benefit from higher wages if their employers don't go out of business).

Increased costs can also affect provision of local public services. Two boomtowns[20] had to increase salaries by 40% in order to hold experienced employees. Increased costs for building materials raise municipal costs just when public facilities need to be expanded.[21]

5. *Revenue Shortfalls.* Even though growth expands sales and property tax bases, revenues increase more slowly than costs in the

15. *Id.*

16. *Id.*

17. *Id.*

18. P. Burke, An Impact Evaluation Report, City of Mount Pleasant, Texas 30 (1976) (General Land Office, Austin, Texas).

19. D. Sanderson, *supra* note 14, at II-21.

20. Mt. Pleasant, Texas and Pearsall, Texas. *Id.* at II-10.

21. *Id.*

short run. Despite a 19% increase in sales tax revenue, Mt. Pleasant, Texas, a coal boomtown, has already increased property tax rates several times.[22] Even with a 68% increase in its local sales tax revenue, Pearsall, Texas, an oil boomtown, finds itself short of operating funds.[23] These revenue shortfalls are due to (i) delays between the time development begins and the time the locality realizes either property or sales tax revenue; (ii) delays in raising capital for constructing and improving public facilities; (iii) capital needs beyond local government's legal bonding capacity; (iv) location of high-tax-yielding properties outside the communities hosting the newcomers and the resulting public costs.

6. *Resources Lost to Other Uses.* Industry and its workers are notably consumptive of three resources needed by the agricultural economy: water, land and labor. As new industries use efficient collection techniques and cities exercise eminent domain over water rights, less is available for agriculture. In the energy development regions of some states, groundwater use is unregulated by state permits.[24] Increased consumption by energy development may mean water shortages for cities and agricultural producers drawing from the same aquifer.

Easily irrigated land near stream beds is particularly valuable to agriculture but it is also valuable to energy developers because, for example, coal is nearer the surface.[25] Strip-mining reduces agricultural output by removing land from production for at least ten years. Food processing industries fail in oil boomtowns because agricultural producers face a shortage of inexpensive labor, created by high drilling salaries that attract unskilled and semi-skilled farm workers.[26]

22. *Id.* at II-11.

23. *Id.* Hanna, Wyoming presents another example of inadequate tax base growth. In the first three years of its boom, property assessed valuation rose 66%, but the per capita tax base fell from $562.12 to $499.87. Its tax rate was already at the statutory maximum. Outside subsidies were required to maintain adequate public services. Nellis, *What Does Energy Development Mean for Wyoming?*, 33 HUMAN ORGANIZATION 229, 236 (1974).

24. For example, in Texas the voluntarily formed Water Conservation and Subsidence Districts are the only entities with power to regulate the spacing and extraction rates of water wells. Seldom do these special districts restrict water extraction. D. Sanderson, *supra* note 14, at III-7. Both Colorado and North Dakota face court tests of the state's right to regulate groundwater use. C. Lu, State Responses to the Adverse Impacts of Energy Development in North Dakota 16-18 (1977) (Energy Impacts Project, Laboratory of Architecture and Planning, M.I.T.); L. Monaco, State Responses to the Adverse Impacts of Energy Development in Colorado 33-34 (1977) (Energy Impacts Project, Laboratory of Architecture and Planning, M.I.T.).

25. D. Sanderson, *supra* note 14 at II-22 to 24; R. Foster, *supra* note 13, at 10.

26. One town which has experienced this is Dilly, Texas. D. Sanderson, *supra* note 14, at II-22 to 24.

7. *Aesthetic Deterioration.* Boomtown development sacrifices amenity to economy and ease of construction. Trailer courts are laid out without paving or landscaping. Commercial establishments are built of sheet metal and often located in unsightly strips along major roads. Many residents consider aesthetic deterioration a problem, particularly if they considered the area attractive before the boom. Part of the aesthetic problem is caused by the size of new developments: many new neighborhoods, in which trees and shrubs have not had a chance to grow, look barren and dwarf established parts of town.

8. *Fundamental Change.* An important cost of boomtown development has nothing to do with conventional indicators of stress or inadequacy, since it results from change itself rather than what the town changes to. The original residents of a boomtown chose their community, or chose to remain, because it was the best place for them, or at least the best they could afford. When development occurs, the appearance, social structure, friendship patterns, style of life and nearly everything else about their community changes. The community that supported them simply disappears. The injury such disappearance causes is only partly mitigated if the "new" town is clean and orderly; transporting an Eskimo to New York is only slightly less stressful if he is taken to Park Avenue rather than Harlem.

A. *The Rationale for Direct Assistance*

Some boomtown costs can be prevented through better company or community planning. An alternate facility site may destroy less farm land; a new technology may require less water for processing coal; a town with excess public facility capacity could absorb a population increase without strain. But even the best planned and operated facility will force costly changes upon the surrounding communities. Preventing these costs may be unavoidable, impractical, or too expensive, that is, exceeding the cost of suffering. For example, the cost of preventing social cost to oldtimers by building a whole new town for immigrants would probably exceed the benefits obtained. In these cases tolerating the costs rather than preventing them may be efficient.

Unfortunately, these costly changes often take place in energy boomtowns without compensation. The resulting decrease in the quality of life suggests that citizens of the community are bearing an unfair share of the costs of providing energy to ultimate consumers. "Costs" in this sense may be monetary, as is the case when taxes increase following construction of the facility, but they may take many other

forms including damage to the natural environment, increases in the crime rate, or a change in the community's social structure due to a large influx of construction workers and their families.[27]

It is important to note at this point that not all boomtown costs are best reduced by compensation or subsidy. Some result from what an economist would call market failure, and are, or should be, dealt with by programs which involve no direct transfers of funds. For example, the inability of developing communities to finance newly needed capital facilities like sewage treatment plants or schools, or housing, often results (i) from state limitations on local borrowing, and (ii) from federal limits on lending interest rates. These limitations impede the functioning of a free capital market. Without these constraints, economic theory shows that towns or builders could borrow the right amount of funds at an efficient interest rate (one which reflects the real risks of the loan or bonds). If the market failure produced by these constraints becomes more costly than other problems they present, then the appropriate boomtown relief strategy is to relax them.[28]

A wide variety of boomtown relief programs are fundamentally concerned with correcting market failures. Typical of these are state loans to local communities, planning services, bonding limit extensions and better state planning.[29] Programs of this kind are separable, both conceptually and in fact, from subsidies that transfer resources to boomtowns or their residents, and the remainder of this Article will have almost nothing to say about them. In general, we think anything a government can do to make the market in energy development work efficiently is probably a good idea, and programs of this kind are, if anything, under-appreciated. In the discussion that follows, however, our concern will be with programs that transfer money or services to boomtowns.

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27. The previous section of this Article highlights these costs imposed on boomtowns and particularly their long time residents. *See generally* J. GILMORE and M. DUFF, *supra* note 1; P. Burke, *supra* note 18; R. Foster, *supra* note 13; Gilmore, *supra* note 1; R. Little, *supra* note 7; D. Sanderson, *supra* note 14.

28. Another example of market failure is the inability of boomtowns to obtain professional planning services. If the labor market in city planners worked perfectly, every town could buy as much planning as it needed. Because planners are difficult to divide among towns and often unwilling to move to rural places, it may be appropriate for the state government to provide planning services to developing communities. If it charges for the service, it will be operating a market-failure-correction scheme. If it gives away the service, it will be running a subsidy program as well.

29. For an overview of typical relief programs, see OFFICE OF COMMUNITY PLANNING AND DEV., U.S. DEP'T OF HOUSING AND URBAN DEV., RAPID GROWTH FROM ENERGY PROJECTS: IDEAS FOR STATE AND LOCAL ACTION 30-34 (1976).

Assuming that boomtown development is made as efficient and equitable as possible by introduction of programs to correct market failures, what theoretical basis underlies transfer programs? The decision to mine coal or convert it into electricity involves a comparison of the costs involved (bulldozers, labor, insurance, land acquisition, etc.) with the benefits (sales, for the most part). If some of the costs are ignored, too much coal will be mined or burned—it will appear "cheaper" than it really is. Thus efficiency requires that decisionmakers consider the costs of their energy development including the cost of inputs like small-town amenity which they consume in the production process.[30] The obvious way to ensure that these costs are considered is to make energy developers pay for them, and then pass them on to consumers in the form of higher prices.

However, efficiency does not always require that the sufferers be paid.[31] Rather, in most cases, payment may be justified by the equity principle that people should be compensated when they suffer private loss for the public gain.[32] Our collective desire for coal does not justify confiscation of the amenity of a small-town inhabitant. In summary, since the energy development is providing economic and other benefits, such as furthering energy independence, on a national or at least statewide scale, and since the price energy consumers pay should reflect all the costs of production, equity and efficiency suggest that the beneficiaries of the development compensate the losers (the community) for their associated costs.

30. One calculation finds social costs about one and one-half times the amount of direct costs in the production of electricity from coal. *See* E. Peelle, Internalizing Social Costs in Power Plant Siting: Some Examples for Coal and Nuclear Plants in the United States 1 (November 17, 1976) (Oak Ridge National Laboratory, paper presented at the International Meeting of the American Nuclear Society, Washington, D.C.).

31. The analysis of problems of this kind is the task of externality theory in welfare economics. Whether sufferers from an externality (an economic effect external to a decision-maker's balance sheet) should be compensated for efficiency's sake is not generally a simple matter. For a thorough discussion, see W. BAUMOL AND W. OATES, THE THEORY OF ENVIRONMENTAL POLICY (1975). For a less technical introduction, see R. DORFMAN AND N. DORFMAN, ECONOMICS OF THE ENVIRONMENT (1972).

32. In law, where government action is involved, the problem is addressed in discussions of the "taking issue." Principal papers on the legal issues involved include F. BOSSELMAN, D. CALLIES and J. BANTA, THE TAKING ISSUE (1973); Costonis, *"Fair" Compensation and Accommodation Power: Antidotes for the Taking Impasse in Land Use Controversies*, 75 COLUM. L. REV. 1021 (1975); Michelman, *Property, Utility and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165 (1967); Sax, *Takings, Private Property, and Public Rights*, 81 YALE L. J. 149 (1971). These articles concentrate on questions of land use but deal also with the larger issues.

B. *Existing Boomtown Programs*

To put present compensation schemes in context, important flows of funds, some of which are zero under present policy, are displayed in Figure 1. In this diagram, resources from the different, but not exclusive population groups are transferred through the developers and the different government units to various recipients. Each population pays taxes (T_n, T_s, T_c) to its appropriate level of government. Federal and state governments spend some of these dollars and transfer a portion to lower levels of government (A_{fs}, A_{sc}, A_{fc}). These transfer payments are designed to increase the recipient's ability to provide certain goods and services deemed important by the giver. The governments also receive revenue from energy developers (T_{df}, T_{ds}, T_{dc}) who buy labor with wages (W) and receive revenue through sales to the national population (S).

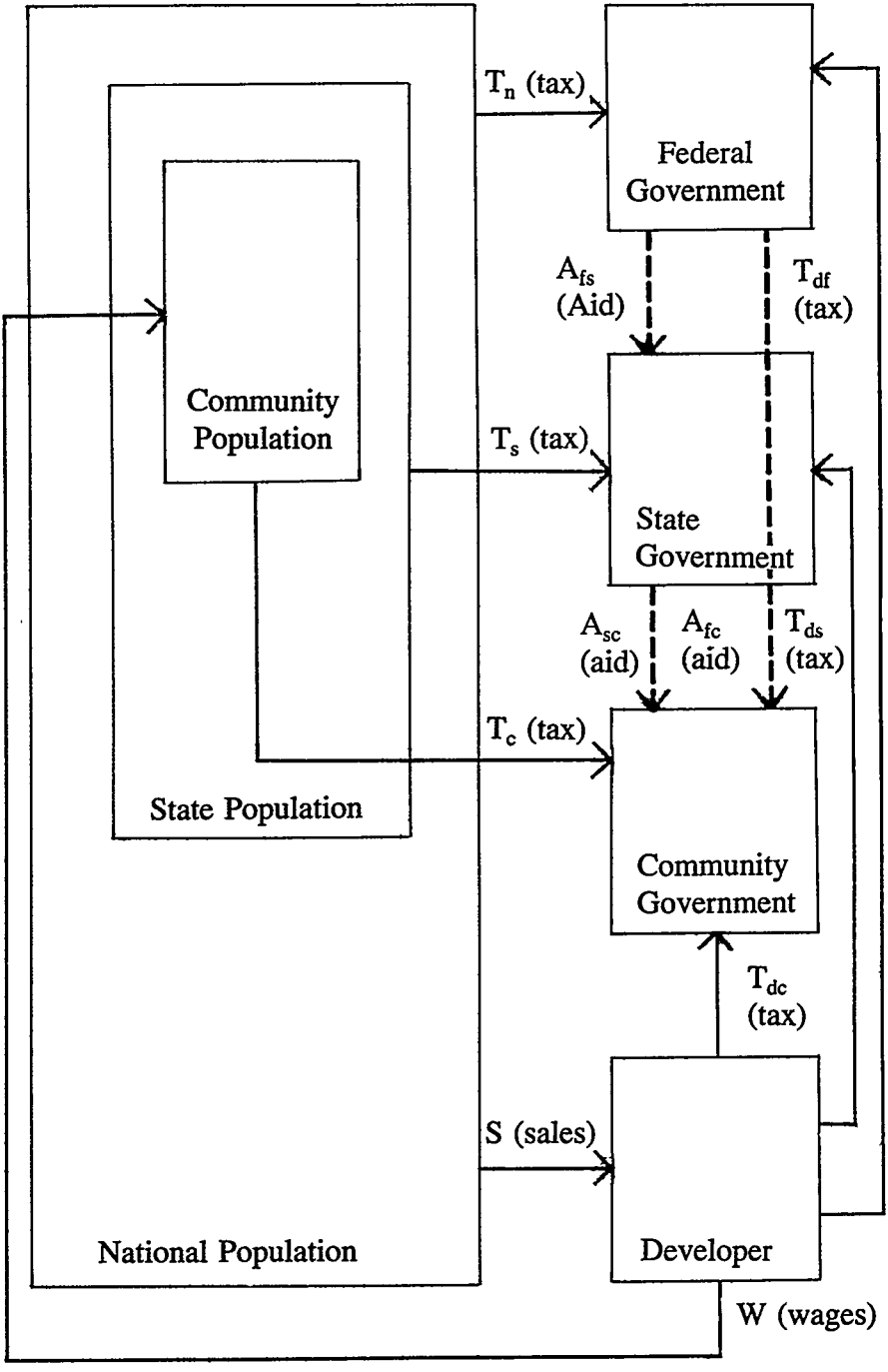
Local communities usually shoulder much of the responsibility for providing public services. In cases of normal population growth, local communities can provide these services since their revenues (T_{dc}, T_c, A_{sc}, A_{fc}) expand at approximately the same rate as expenses. However, in cases of rapid energy development, service needs expand much faster than the local revenues. When energy facilities are outside a community's boundary it receives no direct benefits at all from the development ($T_{dc}=0$). Community tax revenues (T_c) generally lag population growth.

Every existing compensation program can be described as changing the amount of funds flowing along one of the arrows of this diagram. Where state and federal governments feel responsible to assist localities, they may tax their populations or developers to finance compensation to communities.[33]

Several programs have been developed at the local, state and federal levels to adjust the total of costs and benefits for energy boomtowns to zero or above. These programs vary in several ways, but they can be conveniently sorted out according to the source of their funds.

33. One important justification for government impact programs was suggested previously in our discussion of the rationale for direct assistance. That is, since the larger polity benefits from the development, it should share in the induced costs. Additionally, a government might justify these programs on the theory that, since its policies either directly or indirectly cause these costs, it should therefore "pay" for them, or because the payments may induce local support for regionally beneficial but locally noxious projects.

Figure 1
Compensation Types



KEY: Figure 1

T_n = Federal government revenues from income tax, mineral lease revenues

T_s = State government revenues from sales taxes, property taxes, mineral lease revenues, possibly income taxes

T_c = Community government revenues from sales taxes, property taxes, user fees

S = Developers' sales of energy resources to consumers nation-wide

T_{df} = Federal taxes and payments required of developers

T_{ds} = State taxes and payments required of developers, such as severance taxes, conversion taxes, corporate income taxes, permit fees

T_{dc} = Community taxes and payments required of developers, such as property taxes, building permit fees, sales taxes

A_{fs} = Federal transfer payments to states

A_{sc} = State transfer payments to local communities

A_{fc} = Federal transfer payments directly to local communities

W = Developer's costs of doing business (including wages, capital costs, and land costs) exclusive of payments to governments.

1. The community government may use its authority to require the developer to make payments equalling the development's net cost to the community (T_{dc}=Costs).[34] Most local governments lack sufficient

34. In Washington, the Skagit County Commissioners conditioned site zoning approval on a contract rezone agreement under which Puget Power and Light Co. must meet 35 conditions to "reasonably and adequately mitigate the impacts of the construction of the project on the community." E. Peelle, *supra* note 30, at 11-18. Tax prepayments are calculated to cover education and law enforcement costs. *Id.* *See* Myhra, *Energy Development*, in PRACTICING PLANNER 12 (Sept. 1976). Because of their limited control over developments, few community governments are capable of directly de-

authority, either *de lege* or *de facto*, to effectively implement such a policy.

2. The state government can transfer revenue from both the state population (T_s) and from the developer (T_{ds}) to the community government (A_{sc}). T_s includes income, sales and property taxes, while (T_{ds}) comprises severance taxes, conversion taxes and permit fees. Community payments (A_{sc}) can be channeled through grants, loans or state provision of services.[35]

3. With similar mechanisms, the federal government may transfer revenue from the national population (T_n) and from developers (T_{df}) to the community government (A_{fc}).[36]

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manding payments equal to the costs they absorb. Most taxing schemes must be imposed equally on all residents and not just on developers. More important, a single community's competitive position vis-a-vis a major energy company is weak. If it demands much more in local aid than the government of an alternate site, the developer may simply go elsewhere. For one view of developer-community relations, see S. West, Opportunities for Company-Community Cooperation in Mitigating Energy Facility Impacts (1977) (Energy Impacts Project, Laboratory of Architecture and Planning, M.I.T.).

35. For example, Wyoming has imposed a special coal severance tax to create a fund from which communities affected by coal production may obtain grants or loans to finance public water, sewer, highway, road or street projects. The tax will expire when $120 million has been collected for the fund. WYO. STAT. §§ 39-227.1, .10 (Supp. 1975 & Supp. 1977). Other compensation programs are authorized by the Wyoming Joint Powers Act, WYO. STAT. §§ 9-18.13 to .20 (Supp. 1975), and the Wyoming Community Development Authority Act, WYO. STAT. §§ 9-826 to 848 (Supp. 1975). *See* R. Foster, *supra* note 13, at 20-25.

North Dakota has imposed a privilege tax on coal conversion facilities. A percentage of the tax is returned to the county in which the facility is located. N.D. CENT. CODE §§ 57-60-01 to 96 (Supp. 1977). North Dakota has also imposed a coal severence tax, with the proceeds allocated to coal impacted communities. N.D. CENT. CODE §§ 57-61-01 to 10, 57-62-01 to 05 (Supp. 1977). *See* C. Lu, *supra* note 24, at 24-30. Both the Wyoming and North Dakota programs are designed to compensate communities for the adverse *fiscal* impacts imposed by energy developments. They do not attempt to compensate for all local energy development costs. Their programs focus on front-end capital requirements and link impact payments with revenues gained from increased energy development.

36. Only one federal compensation program provides aid directly to localities (A_{fc}) without going through state decision-making bodies. Under the Payments to Local Governments for Entitlement Lands Act, 31 U.S.C.A. §§ 1601-1607 (Supp. 1977), the federal government pays to any unit of local government up to 75 cents per acre of "entitlement lands" located in that unit's boundaries. *Id.* § 1602(a). If the land is located in two jurisdictions, *e.g.*, a town and a county, the smaller jurisdiction receives the payment. *Id.* § 1602(d). The payment is reduced according to the amount of other revenues collected from the federal property. *Id.* § 1602(a)(1). The objective of this payment is to compensate localities for foregone tax revenue. The only restriction on funds which go directly to localities is that they be used for a governmental purpose. *Id.* § 1601. Payments are made whether or not the lands are leased. *See* S. Brody, Federal Aid to Energy Impacted Communities: A Review of Related Programs and Legislative Proposals 40-44 (1977) (Energy Impacts Project, Laboratory of Architecture and Planning, M.I.T.).

4. Another approach involves federal and state cooperation. Instead of directly compensating the community government, the federal government may transfer revenue to the state government (A_{fs}), with the expectation that the state will transfer all or a portion of the aid to the appropriate locality (A_{sc}).[37] Federal controls over the state's allocation range from federally-established distribution formulae to federally recommended but non-binding priorities for the revenues' use.

5. Federal and state governments can use their authority, on behalf of the community government, to require developers to compensate communities directly (T_{dc}).[38]

37. Through the Mineral Lands Leasing Act, 30 U.S.C. §§ 181-287 (1971), *as amended by* 30 U.S.C.A. §§ 181-287 (Supp. 1977), 50% of the revenue from federally-owned mineral leases is returned to the states in which the leased land is located. *Id.* § 191. Under the Act as amended, the state legislature has the responsibility of directing use of this revenue for planning, public facilities and public services giving priority to those subdivisions of the state socially or economically affected by mineral development. *Id.*

Communities receive only a portion of the revenue collected originally from mineral leases within their boundaries. For example, Wyoming gives some directly to host counties and places bonuses in an "impact and emergency account." WYO. STAT. §§ 9-577 to 580.1 (Supp. 1975). *See* R. Foster, *supra* note 13, at 34-36. Colorado places its revenue in an Oil Shale Trust Fund, the interest from which is distributed to affected communities. COLO. REV. STAT. § 34-63-104 (Supp. 1976). *See* L. Monaco, *supra* note 24, at 37-38.

Another example, the Coastal Energy Impact Program (CEIP), requires that all of the money eventually pass through to the affected communities. The Coastal Zone Management Act Amendments of 1976, Pub. L. No. 94-370, 90 Stat. 1013 (1976) (amending 16 U.S.C. §§ 1451-1464 (1972)), allocate $1.2 billion for grants and loans to states and local areas affected by coastal energy development. It determines the interstate distribution of the funds and places restrictions and requirements on each state's intrastate allocation. Local areas must be able to demonstrate that they have exhausted other forms of assistance before applying for CEIP grants. *See* S. Brody, *supra* note 36, at 27-33.

38. For example, the Wyoming Industrial Siting Council requires developers to assist communities in providing public services should public revenues fall short of the demands placed on them by the energy development. WYO. STAT. §§ 35-502.75 to .94 (Supp. 1975). In this situation the state uses its legal authority to force developers to provide local benefits (T_{dc}) which localities could not negotiate on their own. *See* R. Foster, *supra* note 13, at 30-34. In one instance, the Wyoming Industrial Siting Council conditioned the license for Missouri Basin Electric's proposed Wheatland power plant on the provision of financial assistance designed to reduce impacts. Direct payments and technical assistance help provide many public and private services, totaling approximately $19.3 million. (Up to $15 million may be recoverable through sale of the housing project). E. Peelle, *supra* note 30, at 9-18.

There are several other relevant examples. The defeated Synthetic Fuels Bill (H.R. 12112) would have permitted the U.S. Energy Research and Development Administration (ERDA) to require a development company to compensate community costs imposed by a federal demonstration project. *Proposed Amendments to the Federal Nonnuclear Energy Research and Development Act of 1974: Hearings on H.R. 12112 Before the Subcomm. on Economic Stabilization of the House Comm. on Banking, Currency and Housing*, 94th Cong., 2d Sess. 3-40 (1976). *See* S. Brody, *supra* note 36, at 34-36. The Federal Power Commission has assumed authority to force developers to mitigate

Several criteria can be applied to programs of this kind. They ask whether the program is (i) transferring the right amount of funds (ii) from the right source (iii) to the right recipients. Criteria of the first type comprise an extensive literature on cost-benefit analysis.[39] The difficulty of knowing how much compensation to pay rests for the most part in assessing prices for goods, such as aesthetic quality or family stablity, which are not conventionally traded in markets and for which money prices cannot be observed. We will not consider this problem here as boomtowns do not present special difficulties in cost-benefit assessment.

Whether the right people are paying for boomtown compensation (the right people are *prima facie*, but rebuttably in special cases, energy consumers) is a question of applied economics. Again, although technically challenging, this problem is not peculiar to boomtowns and we will examine it no further.

The remainder of the Article will, however, consider what kind of program is likely to reach the right recipients—the people who are made worse off by the development of a boomtown. We will see that giving money to a boomtown government, as nearly all existing and proposed programs do, is unlikely to reward the proper individuals. Even giving the town facilities, as a developer might do under programs of type 5 above,[40] misdirects the subsidy. To see why this is the case, we must look at the boomtown's population, and the dynamics of its development, in detail.

C. *Boomtown Dynamics*

In order to design programs that reach the right recipients, the static model of boomtowns (Figure 1) must be replaced with a dynamic one (Figure 2) that depicts in more detail the *changing* characteristics of boomtowns. Figure 2 disaggregates the decisions made through a boomtown's history, and the impacts these decisions have, over six populations and over time. The six populations include:

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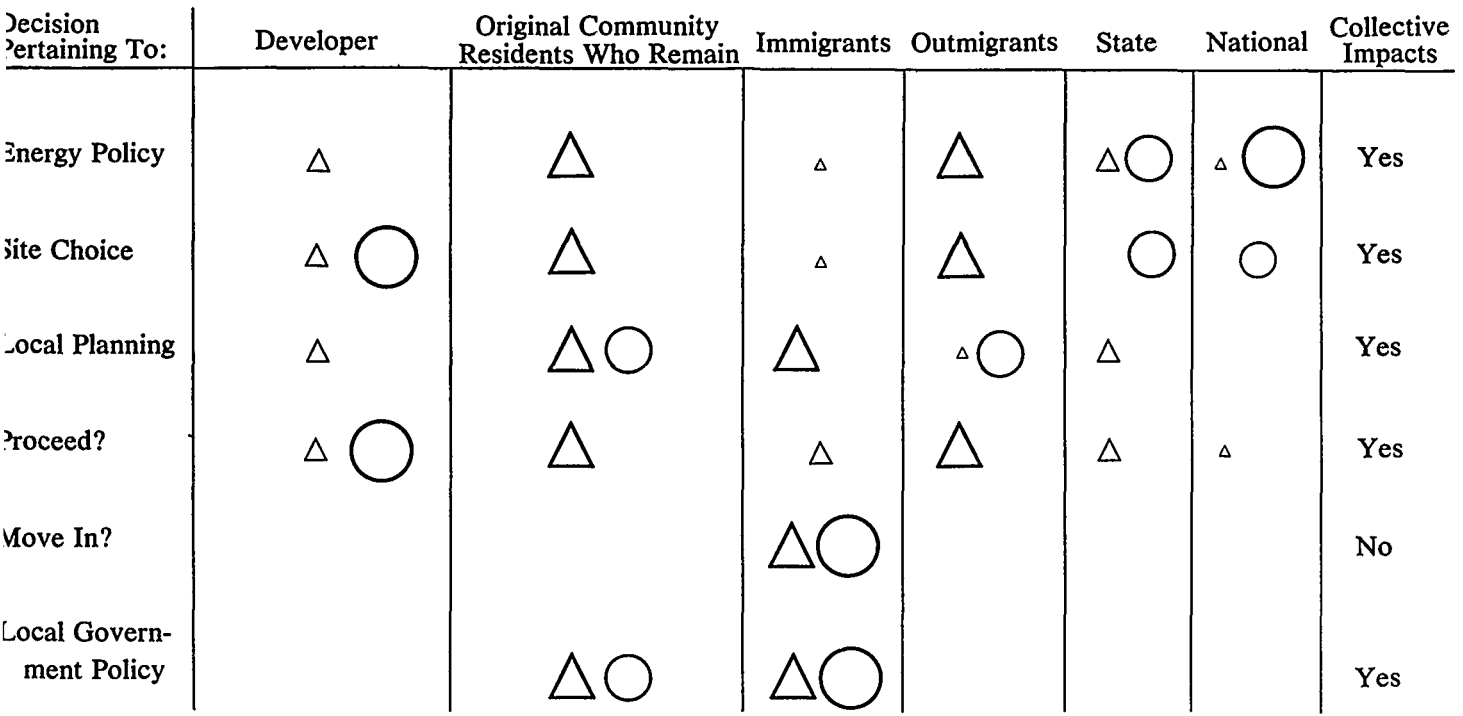
adverse impacts imposed upon host communities. *See* E. Peelle, *supra* note 30, at 5. The Nuclear Regulatory Commission has required TVA to make direct payments to communities affected by the proposed Hartsville Nuclear Power Plant. *Id.* at 11.

39. The word "extensive" is to be emphasized. Introductions to the field can be found in E. MISHAN, ECONOMICS FOR SOCIAL DECISIONS (1973); E. STOKEY and R. ZECKHAUSER, A PRIMER FOR PUBLIC CHOICE (1977).

40. *See* note 38 and accompanying text *supra*.

Figure 2

Decision Map



i. The energy facility developer and its shareholders,
ii. The community residents who remain through the development process,
iii. The immigrants who arrive as development proceeds,
iv. The outmigrants (those members of the community whose decision to leave is related to the development),
v. The population of the state, and
vi. The population of the nation.

These six categories of people are subpopulations of the three major populations listed previously.[41] The categories are not necessarily exclusive nor do their memberships necessarily coincide with a single government's constituents. At different times people may be found in more than one category.

The circles in Figure 2 are decision symbols, and vary in size to illustrate the power the respective decision-makers have in the choices taken at each stage.[42] The triangles indicate the groups affected by the decisions at each stage, and vary in size according to the "per capita" *importance* of the impact.[43] Figure 2 can be read as a narrative from top to bottom. Initially the state and national populations determine their respective energy policies within which future development must occur. In the next stage, the energy company, with a varying amount of state and national participation, chooses a location. Next the entire initial population of the community, including both those who will remain through the development process and those who will leave (i) construct a set of local restrictions within which development can occur, and (ii) do the initial planning which will guide the community's response to the changes brought by development. The company makes a "go/no-go" decision which presumably involves a prediction of the profitability of the development under the restrictions developed in the previous stage. Members of a potential immigrant population decide whether to move to the community. When the development stage comes to an end and the operation of the facility enters a steady state, the remaining original residents and the immigrants (the new perma-

41. *See* Figure 1 *supra*.

42. For example, on the assumption that immigrants substantially outnumber the remaining original residents of the community, they are expected to be more powerful in making local government policy in the post-development phase. Similarly, national energy policy dominates state policy for reasons of budget and constitutional precedence.

43. We use the term "per capita" somewhat loosely, to indicate the relative change in the utility of a member of a particular population. Notice that the size of this symbol does *not* vary with the *size* of the population.

nent population of the community) determine local government policies with regard to public services, tax levels and the other normal business of government.[44]

"Impact triangles" without "decision circles" are significant since, wherever possible, decisions should be made by those affected by them.[45] A look at Figure 2 in this light brings the problem of the boomtown into perspective; every triangle not associated with a circle promises dissatisfaction for the affected population unless two things are simultaneously true:

1. The population empowered with the decision desires to act in the interest of the affected population, and,
2. The population empowered with the decision is informed as to the desires of the affected population.

For example, the choice of a site is usually made predominantly by the developer. The consequences of choosing one site over another, assuming a spectrum of reasonably comparable sites, will probably be fairly small in the company's terms, but for a particular community the consequences of being chosen will be enormous. We can expect that a bad decision is likely to occur if the developer is ignorant of the desires of the community. The next stage of decision, local planning, shows five populations affected by a decision taken by only two of them, but the decision-making populations have a great deal at stake. In this case it is likely not only that they will misunderstand or ignore the desires of the other two, but that the deciders' and the sufferers' interests will actually diverge; both conditions for a "correct" choice will be absent.[46]

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44. An important source of boomtown problems is often a mismatch between the governments with taxing or regulatory authority over development and the populations affected. A common example is a facility located in a school district different from the one in which its employees reside; the plant's district has enormous potential tax revenues but few school children while the residents' district has large educational obligations but a small tax base. UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, MANAGING THE SOCIAL AND ECONOMIC IMPACTS OF ENERGY DEVELOPMENT (1976). Our narrative decision model does not display this mismatch for reasons of clarity, but the reader should recognize the likelihood that consequences of development are not compartmentalized geographically to follow local government boundaries.

45. We violate this principle willingly only when we are forced to by practical considerations, as when a population voluntarily relinquishes its decision-making power in a repetitious or highly technical matter to an administrative unit of government.

46. Real examples of such mismatches are easy to find. In fact, the existing structure of most state compensation programs invites dissatisfaction of the affected population since the state officials, who serve the statewide population, decide on impact payments to the local, affected population, and the interests of the state government can conflict

At this point it may be useful to review the sources of the "boomtown problem" in light of the foregoing analysis. The process threatens a suboptimal outcome in any of several places. Notice that 3, 4 and 6 below are evident only in light of a dynamic rather than a static analysis.

1. National and state energy policy, which is presumably designed to serve an aggregate of the interests of the whole population, may be set with insufficient sensitivity to the large per capita costs imposed upon specific small groups which have little voting power. Despite the best will in the world on the part of the governmental decision-makers, such costs may occur for purely structural reasons. Notice that until specific sites are chosen for energy facilities, the citizens of many small rural communities respectively face only a small probability of being selected, so even if one wished to be responsive, it would be impossible to identify the particular towns whose population will in the end be affected.

   Even recognizing local costs, a Kaldor-Hicks criterion[47] will probably be used in a particular siting choice. Under this criterion a "correct" choice would accept the imposition of local costs if the (nationally distributed) benefits outweighed them. Most analysts believe this rule to be justified even though the sufferers are not compensated out of the gainers' benefits.
2. The next chance for costly error lies in the selection of sites. A developer may well be insensitive to differences in the desire for development of the communities among which it is choosing.
3. After a site has been selected, planning for future services must inevitably be conducted without the participation of

with the best interest of local energy impacted communities. Local officials cite this conflict as a reason to restructure compensation programs. For example, energy boomtown officials and developers in North Dakota argue that Coal Impact Funds should be given directly to boomtowns, since they know their needs better than any state agency. *See* C. Lu, *supra* note 24 at 28-30. They also argue that a larger portion of the Coal Severance Tax and the Coal Conversion Tax revenues should go to affected communities, since current compensation does not cover their costs. *See* The Beulah Beacon (Beulah, N.D.), September 23, 1976, at 1, col. 4. However, state officials prefer distributing benefits among all state residents rather than just compensating boomtowns. *See* C. Lu, *supra* note 24, at 28-30.

47. The Kaldor-Hicks criterion favors a change in the current societal state if those benefiting *could* compensate those losing in such a way that some would be better off and none worse off, even if the compensation would not actually occur. The underlying assumption is that, in the long run, the total net benefits of a series of choices will be equally dispersed across the total population. *See generally* E. STOKEY and R. ZECKHAUSER, *supra* note 39; Zeckhauser and Schaefer, *Public Policy and Normative Economic Theory*, in THE STUDY OF POLICY FORMATION (R. Bauer & K. Gergen, eds.) 58-60 (1968).

future immigrants, even though they are the people who, by sheer number, will suffer the lion's share of the consequences. The immigrants not only have no political voice in the process at this point but cannot even be identified.

4. The consequences of the planning process for the portion of original residents who have the characteristics of being mobile and are thus potential outmigrants is especially interesting.[48] If the restrictions the community places on the development are so onerous that the company chooses not to proceed with the projects, this portion of original residents has a future essentially unchanged from their present condition and won't be driven to relocate. On the other hand, if the development proceeds and they decide to relocate, the success or failure of the planning restrictions they help to generate will be of no consequence to them.[49]
5. Some projects ought not to go forward, even by the Kaldor-Hicks test, but if the developer makes the decisions, these projects may be carried out in spite of the large social costs they impose on the community residents.
6. Finally, there is reason to believe that the large number of immigrants to an energy boomtown may have markedly different tastes in government services, taxing policy and social conventions from the original rural population. Age differences, particularly between the retired farmers and ranchers living in small town centers and young construction workers, or contrasts in occupations and lifestyles can combine with the preponderant voting power of the immigrants to produce dissatisfaction with local policies among oldtimers.[50]

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48. *See generally* S. GOLDSTEIN, PATTERNS OF MOBILITY, 1910-1950, THE NORRISTOWN STUDY (1958); I. LOWRY, MIGRATION & METROPOLITAN GROWTH: TWO ANALYTICAL MODELS (1966).

49. A cynic would predict latent outmigrants to (i) favor proposals only if they diminished the likelihood of construction and (ii) have no interest in proposals which would actually improve the local quality of life if the development proceeded. Their utility structure in any case is distinctly at variance with the interests of residents who expect to remain through the project's future history. However, until the day they leave, their formal political position is indistinguishable from that of the residents destined to remain. The local political scene in this critical phase is further confused because all residents may find it strategic to pretend to be "conditional outmigrants." The "real" outmigrants may be hard to distinguish from the remainers, and some people may not even know their own status.

50. Young boomtown immigrants in Hanna, Wyoming, show a preference for more public services than do oldtimers of all ages. In the 30-years-and-under age group, newcomers show stronger preferences for retail shopping facilities, good schools, sanitary facilities, youth organizations, civic-service groups, and recreational facilities. In the over-30 age groups, newcomers and oldtimers have more similar preferences. Newcomers and oldtimers also differ politically. While oldtimers in Hanna are staunch Labor Democrats, newcomers are more likely to be Independents. For more differences in these two groups, *see* Nellis, *supra* note 23; Mountain West Research, Inc., *supra* note 11, at 126.

The suboptimality of much boomtown development, especially that resulting from causes 1, 2, 4 and 6 above, takes the form of unnecessary or unfair costs which are imposed on particular groups of people. In the next section we will consider the problem of identifying such groups and the costs they suffer.

II. Identifying Compensable Costs

There are several reasons why governments may institute subsidy programs in addition to compensating suffering caused by development or other government actions. In fact, most transfer programs are directed to recipients who are thought worthy because of their condition rather than because of the reasons for it. Income equalization programs and other forms of welfare subsidize people who are poor, ill-housed or ill-fed. Fortunately, all such criteria are irrelevant to our discussion. Whatever subsidies are thought wise by society for the poor or otherwise deprived, a different set of decisions should determine compensation programs for costs caused by boomtown development. In other words, we are assuming that the poor, the ill-housed, and other targets of entitlement subsidy programs in boomtowns should receive government aid or be denied it just as though they lived in New York or Kalamazoo. Our concern is to identify people who deserve compensation for specifically boomtown-related injury. Conversely, if property falls $5,000 in value because a strip mine spoils the view, the owner should not be found less deserving of $5,000 in compensation just because he is richer or healthier than another who suffers an equivalent loss.

A. *Compensation Criteria*

To determine who is and is not deserving of compensation, a test of injury will be applied to the various boomtown populations disaggregated in the previous section. The test is a simple one applied to the change in opportunities, including those not chosen, individuals experience with the occurrence of boomtown development. We argue that an individual is better off if he has more options (residential locations, jobs, friends, lifestyles) to choose from, and worse off if some are foreclosed. A Paretian criterion[51] can be formulated more precisely:

51. According to the *Pareto criterion*, State A is better than State B if someone is better off in State A and no one is worse off. The *Pareto optimal* state would be that state for which no other state can be considered better by the Pareto criterion. See Zeckhauser and Schaefer, *supra* note 47, at 43.

> A state of affairs S_2 is preferable to S_1 in the view of an individual if it offers him more choices, but does not foreclose any that S_1 provided.

If a state of affairs provides new choices but eliminates others, this criterion will not help us. But an "independence of irrelevant alternatives"[52] corollary can be stated:

> If a state of affairs S_4 offers an individual a choice which state S_3 forecloses, S_4 is preferable to S_3 in the individual's view if he did not choose any of the foreclosed options under S_3 and chooses one of the new options under S_4.

For example, if we are prohibited from sleeping under bridges by a proposed ordinance which also prohibits stealing bread, we will favor the ordinance since it allows us the new, desirable option of keeping our bread but forecloses an option we don't take advantage of anyway.

Figure 3 illustrates the above criteria with the symbolism of decision analysis. The utilities of the choices in each state of affairs are defined ordinally such that the choice made by the individual is exactly the choice with the highest utility. The variables A, B, C and D have positive values, and they or their combinations represent the amount of the utility of each choice. By our first criterion, State 2 is preferred to State 1, as it offers an additional option without foreclosing any options previously available. By our second criterion, State 4 is preferred to State 3. The only option lost, valued at A-B, would not have been chosen in State 3. The new option made available in State 4, valued at A+D, is preferable to the choice with utility A, found in both states.

Not all circumstances can be compared by these rules; if my favorite television program is replaced by another that I choose to watch, it's not clear whether I am better or worse off. Nor will these criteria help us determine the *amount* of compensation appropriate for a deserving individual unless a scheme is developed in which the victims can display meaningful exchange behavior.[53] But they can be applied to the populations discussed in Part I to rule out compensation for some of them. If someone's post-boom circumstances are no worse than his pre-boom condition by our criteria, there is nothing for which to compensate him.

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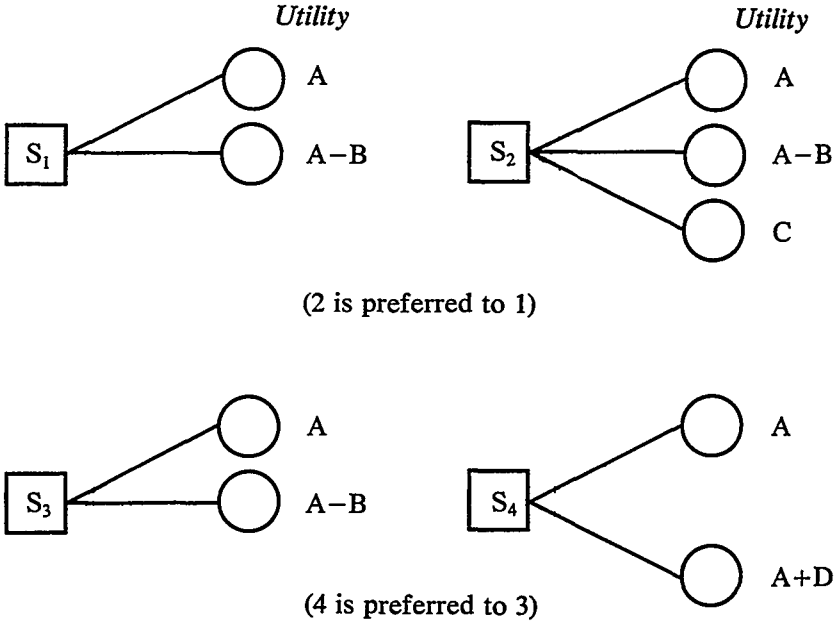
52. R. LUCE AND H. RAIFFA, GAMES AND DECISIONS 127 (1967).

53. Such a scheme is applied to the siting decision, and its importance is discussed, in O'Hare, *"Not on My Block You Don't"—Facilities Siting and the Strategic Importance of Compensation*, 25 PUBLIC POLICY 407 (1977).

Figure 3
Choice Criteria

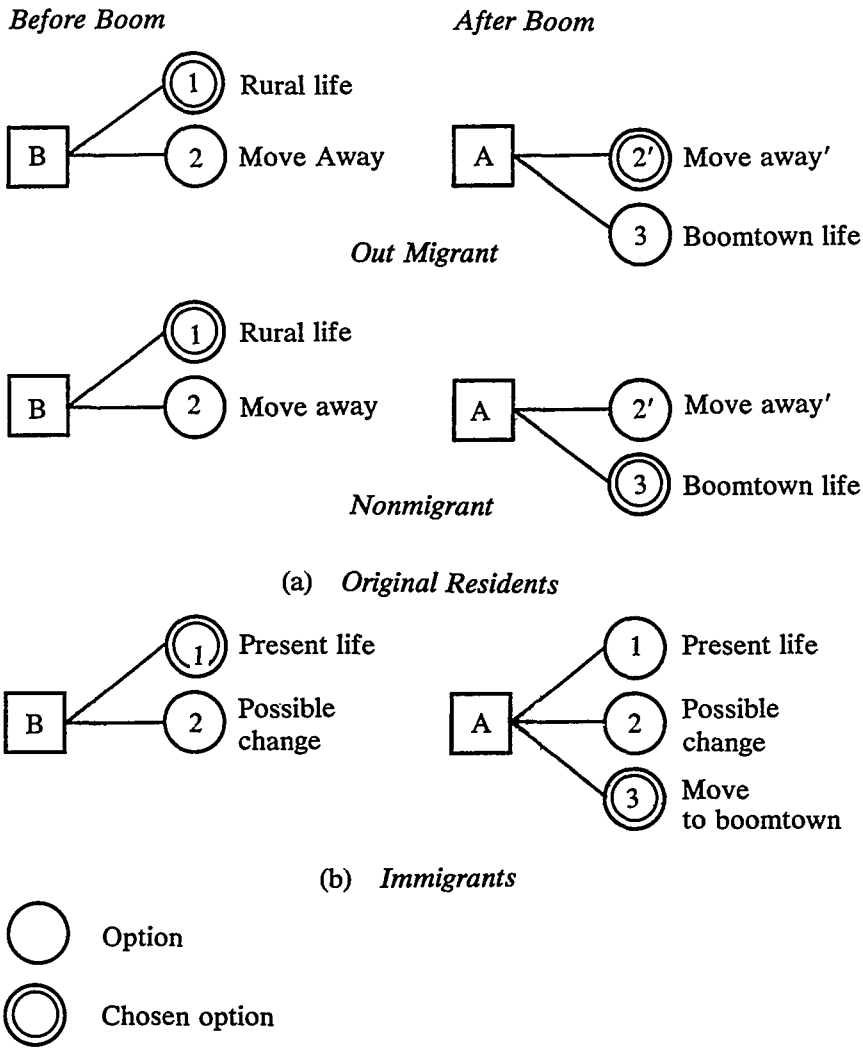


A, B, C, D, ≥ 0

B. *Compensation in the Boomtown*

The change in state that the boomtown development brings to the original residents of the community is illustrated in Figure 4a. Before energy development is threatened or occurs, individuals face two basic options. Those who are present have most recently chosen option 1, whether implicitly or consciously. Development adds a new option. They can live in the boomtown, enjoying or suffering (according to their taste and fortune) financial changes and changes in the quality of life. However, the development forecloses option 1. They can no longer choose the original town with its unmovable and unique friendship patterns, landscape and traditions.

Figure 4
Boomtown Residents' Choices



Among outmigrants, individuals who leave town because of the development, the pre-boom state of affairs is preferred according to our second criterion. Notice that B, "before," includes an option that A, "after," does not, and the individual chooses that option under B.

Also, the option which A offers that B does not is not the one he chooses under A. This means at least to a first approximation that the boomtown has imposed costs on the individual by forcing him into a less preferred set of choices. We say first approximation because as the primes in Figure 4a indicate, moving out of a boomtown may be quite different from moving out of the original town. For example, the boom development may have increased land values so that the emigrant can sell his property for an amount of money so large that he would have sold at that price and left had the option been available under B. If we think this to be true, though it is presumably not the case for renters or small property holders, then we cannot be confident that the boomtown has injured the individual, though we can no more be sure that he has gained.

A similar argument applies to an individual who remains after the changes brought by development. Since the boomtown has offered him a new option, which he accepts, and foreclosed the one he chose under the old state of affairs, his condition may be improved, damaged, or indifferent after development.

The immigrant who arrives to do construction work or to enter secondary sectors such as retailing, after a town starts to boom, displays different sets of choices as shown in Figure 4b. Before the development occurs, he chooses between his present life and whatever other options are available to him. After the development, all these options remain but a third option is added. Furthermore, each immigrant has chosen option 3. By our first criterion the boomtown has improved his condition.

The analysis in the paragraphs above indicates the importance of distinguishing the populations of a boomtown. Some of the original residents of the community may be damaged by the development in a way that justifies subsidy, though others may be advantaged by the development or indifferent to it. But the newcomers often claimed to suffer social costs from boomtown life are not plausible candidates for subsidy through any boomtown-related program.[54]

This distinction has its roots in a fundamental difference between the "move-in" decision and other decisions, as noted in the last column of Figure 2 above. Most of the decisions, whether made by a group or an "individual" (for example, the developer), affect all of

54. Again, they may deserve government aid for a variety of reasons, but if so it will be under programs directed at people sharing their conditions generally and not only those who have such needs in boomtowns.

those involved in the same way: either everyone in town loses his "rural life" option (Figure 4a) or no one does. The "move-in" decision, on the other hand, is made by each potential immigrant. The quality of the boomtown is little affected by any of their individual decisions and they do not have to suffer its effects collectively. These individual decisions as to participation in the boomtown insulate immigrants from suffering the bad consequences of the decisions of others. No collective decision on the part of the townspeople can protect each townsperson in the same way.

C. *Disaggregation of Affected Populations*

Polices to ameliorate conditions in boomtowns, to the extent that they involve money transfers to their populations, should recognize the distinctions we have drawn in the section above. In particular, "boom-town-specific" impact compensation is clearly not appropriate for the immigrants. They should be regarded as candidates for assistance on the same basis as other groups in the state and national population, and the conventional rules for justifying aid should be applied.[55] To anyone familiar, even at second hand, with the conditions in some boomtowns, this conclusion may seem harsh. Some qualifying observations are in order, though the basic result is not diminished. Certainly, the analysis provided above is weakened if the immigrants

55. Note, however, that boomtown workers may fare poorly in the competition for direct assistance dollars from any level of government, since their incomes are large and low income has traditionally been a necessary condition for general assistance programs from government. Migrant farm workers, slum dwellers and some minority groups will probably be found in greater need. Furthermore, boomtown immigrants obviously prefer their boomtown condition to their previous circumstance. If they were not found worthy of assistance before, it is hard to see why they should suddenly become eligible.

Our lumping together all immigrants and declaring them ineligible for compensation may appear too simple. Consider immigrants who follow energy booms, staying in one location until work runs out. The boom/bust cycle associated with energy development "causes" the cessation of work in one location, and these people may appear to have only one choice other than unemployment, *i.e.*, moving on to the next boomtown. By our criteria, these people *may* deserve compensation from the previous energy boom, but not from one they have just joined. If one were to consider the costs and benefits from all of their moves, however, they probably would still show a net benefit. In deciding their first move to an energy boomtown (*i.e.*, the decision to adopt a career that requires such mobility) they probably knew the job would be temporary and they would have to move within a few years. The cost they placed on their eventual move was included in their personal calculation of the costs and benefits associated with this option and the boomtown lifestyle. One survey comparing newcomers and oldtimers in a coal boomtown shows that newcomers tend to be younger, more mobile, better educated, and significantly better paid. Many newcomers know their positions are temporary and expect to move when the coal is depleted. Even prior to their most recent move, the newcomers tended to be a highly mobile population. *See* Nellis, *supra* note 23, at 232-33.

don't know what they are getting into. We have no way to assess the extent of this problem, but our rejection of subsidy programs for these people is accompanied by endorsement of "fair recruiting" practices and, if necessary, regulations, to ensure that immigrants know what conditions they can expect.

Furthermore, life in the boomtown may be suboptimal for structural reasons that can only be overcome by collective action beyond the abilities of a suddenly expanded, inexperienced local government. We expect public goods such as police protection and street maintenance to be under-provided by the market.[56] We should similarly expect that a government forced to operate beyond its capacities will not provide them optimally. Confidence that boomtown residents would happily pay for better government services, but cannot obtain them for administrative reasons, would support intervention by a higher and relatively less overstrained level of government to provide such services. This kind of assistance is not intrinsically a subsidy program, since the administrative services might be paid for through local assessments, but when local planning assistance is provided most efficiently by simply giving it away, our argument would not discourage it.[57]

As we have seen,[58] the original residents of a booming town cannot be excluded on equity grounds from development-related compensa-

56. *See generally* W. NICHOLSON, MICROECONOMIC THEORY, ch. 23 (1972).

57. This said, we should note a consideration that challenges *all* attempts to ameliorate the conditions of boomtown life. As reports from the Alaska pipeline project relate, the well-paid work on the "slope" and to some extent, in any boomtown, offers an opportunity for capital accumulation not otherwise available in American society. *See* W. Griffith, *Blood, Toil, Tears and Oil: Effects of the Alaskan Pipeline*, N.Y. Times, July 27, 1975, (Magazine), at 8. There are risks (lotteries and investment) which offer (actuarially unfair) low probabilities of very high returns, but few chances exist for a working man to accumulate enough capital *with certainty* to start a business or otherwise change what used to be called his "station." The boomtown allows those who wish to trade two or three years of suffering for large rewards to do so, but if boomtown conditions are made more attractive the wages associated with them can be expected to decline to match wages in established communities. Several researchers are developing the premise that wage differentials between boomtowns and stable communities are considered a premium to compensate workers for the boomtown's poor quality of life. Preliminary findings suggest a $.04 per week salary premium for each dollar decrease in per capita public capital stock. *See* Cummings and Mehr, *Investments for Urban Infrastructure in Boomtowns*, 17 NAT. RESOURCES J. 223 (1977). It is not obvious that boomtown workers using current conditions as a means to step over a convexity in their utility-of-money curve would consider it a favor to have the option to do so foreclosed. *See* H. RAIFFA, DECISION ANALYSIS 94-97 (1968). In fact, we should at least entertain the possibility that boomtowns where life is onerous, but pay is high, serve a social purpose analogous to the function of the frontier in Turner's interpretation, and that this purpose might not only mitigate the societal cost of boomtown pathologies but even justify them! *See* F. TURNER, THE FRONTIER IN AMERICAN HISTORY (1920).

58. *See* Figure 4(a) and accompanying text *supra*.

tion. Some may profit from the change, but some will suffer, and the relative size of the two groups is difficult to ascertain, especially before the development occurs. While most people who stay after development may receive economic benefits such as new or better jobs, increased retail business, or land value appreciation, the unpriced social costs that are packaged indivisibly with the economic gains could well outweigh them. Furthermore, special costs are visited on particular subpopulations.

Despite the complexity of this packaging, costs and benefits can be identified with particular categories of people. People often face increased costs because they suffer inflated cost of living and reduced service quality *without* increases in income, wealth or the quality of new services. The examples below portray some categories of people likely to deserve compensation.

1. *People on fixed incomes*: Most retirees and handicapped people depend on a fixed income. Many female-headed households draw a large share of their income from welfare payments. If the local cost of living increases, these people suffer financially and therefore experience a declining quality of life.[59]

2. *Workers in surplus-labor categories*: Workers in occupations for which there are a surplus of workers will not participate in the wage inflation felt in other occupations for which there is a shortage of workers.[60] Thus, real incomes of the former workers will decrease as the cost of living increases while their salaries remain constant. In particular, working women are seldom allowed to enter the high-paying construction field. Inflation, higher rents and a declining quality of life also hurt them when an influx of construction workers' wives may create a downward pressure on the wages and benefits paid for traditionally female-occupied service sector jobs.[61]

59. Limited empirical evidence shows that the income of aged residents in industrializing rural communities decreases relative to non-aged residents in the same community and to both aged and non-aged residents in stable rural communities. *See* Clemente and Summers, *Industrial Development and the Elderly: A Longitudinal Analysis*, 28 J. GERONTOLOGY 479 (1973).

60. For example, the city manager in Mt. Pleasant, Texas, a coal boomtown, estimates that 20% of the city's population will face an increased cost of living without experiencing any increase in income and wealth. Within this 20% he includes unskilled laborers facing no increased demand for their labor. *See* D. Sanderson, *supra* note 14, at II-27.

61. Clemente and Summers discuss the relative benefits received by women in rapidly growing rural communities. *See* F. Clemente and G. Summers, Large Industries

3. *Farm laborers*: In cases of extensive strip-mining, agricultural laborers may lose their jobs and those leasing farms may lose not only their farms but also their homes.

4. *Owners of agricultural-related industries*: Increased energy development has meant locally decreased agricultural production. Industries dependent on local produce may suffer decreased revenues or even go bankrupt. For example, in southwest Texas, planned construction of a food processing plant was delayed because area farmers could no longer sign contracts guaranteeing the needed supply of produce.[62]

5. *Consumers of particular services*: The decreased quality of services consumed by all residents—such as roads, police protection and fire protection—creates costs for everyone, but other services impose costs directly on selected groups of residents. For example, school children suffer more than adults from overcrowded schools, the elderly from overcrowded health facilities and overburdened doctors.

Not everyone within these categories automatically deserves compensation, since they may also be in categories of people who benefit. Property owners usually gain from increased property values, and owners of commercial establishments gain additional profits from increased business. Workers in occupations facing worker shortages—skilled labor, middle and upper managers—benefit from increased wages and job opportunities. Some unemployed people may find work which pays more than unemployment compensation. In cases where significant portions of land have not been disturbed, a shortage of agricultural laborers may increase salaries. And residents who learn to prefer an increased variety of social interaction may consider crowding and the arrival of newcomers as a benefit rather than a cost.

Despite these special cases, the conclusion of this analysis can be simply put: the only residents of a boomtown who should be subsidized or compensated under a boomtown program are found among the original residents. This has important policy implications for the conventional panoply of boomtown aid programs sketched in Section I.

III. Compensation Alternatives

In light of the foregoing analysis, aid programs which direct funds to the government of boomtowns, especially after development has be-

in Small Towns: Who Benefits? 7-8 (1973) (Working Paper RID 73.9, Center for Applied Sociology, University of Wisconsin, Madison, Wisconsin).

62. D. Sanderson, *supra* note 14, at II-23.

gun, can be seen to suffer from a fundamental flaw. By confusing a town with the people who live in it, this legislation generally directs aid to a population that includes a preponderance of recipients who ought not to be served: immigrants. Alternatively, the programs might be looked at as entitlement subsidy programs, directed towards people who are, for whatever reasons, deserving of amelioration by payments. In this view they are absurdly narrow, excluding all the people who qualify on grounds of their condition but happen not to live in boomtowns. In this section we will propose a conceptual framework that seems suitable for the design of "boomtown impact programs" and will also show that whatever compensation is paid should go to individuals rather than to local governments.

A. *Boomtowns as Disasters*

Nearly all of us willingly insure ourselves, paying a small, certain premium, against large, unlikely losses of various kinds. In some cases, rather than instituting an explicit voluntary insurance program, we agree to tax ourselves for relief payments to be disbursed whenever some of us suffer natural calamities like floods, earthquakes, or hurricanes.[63] If we accept that, on grounds of national interest which dominate any local costs, natural resources will be developed even though suffering is caused to those who live near them, the occurrence of a boomtown can be viewed as a natural disaster deserving compensation as "insurance."

To make this analogy clearer, consider two rural communities engaged in agricultural pursuits. One is struck by a devastating tornado, while the ground beneath the other suddenly turns to coal. Mining of the coal, and its consequent boomtown effects, are inevitable from the town's point of view. Both towns are similarly affected by natural forces beyond their control; the difference between the tornado and boomtown cases, if any, lies in the possibility that the coal-affected town has more warning that its coal will become economically attractive. But even this distinction is a weak one, since most natural disasters are foreshadowed probabilistically—floods occur in flood plains, tornadoes in tornado belts, and earthquakes in seismic zones.

Granting that state regulation and energy developers have some opportunity to divert the energy boomtown "disaster" from one coal field to another, at least in the short-run, we suggest that an energy

63. For a general discussion of federal programs compensating communities for disasters and government action, see S. Brody, *supra* note 36.

boomtown "happening to a community" is analogous for public policy purposes to a natural disaster, and that the insurance model justifies payment of compensation to the sufferers. Such payment should be made with care, and the allocation will inevitably be imperfect,[64] but the only important qualification boomtowns impose on the disaster relief model follows from the fact that energy development is beneficial to identifiable parties, the consumers and the developer. Therefore, the "premiums" for insurance should probably be collected from them, for example by an excise tax which forces the price of the developer's product up, for reasons of efficiency noted in Section I.[65]

We have taken pains to defend the disaster insurance model because it points out the narrowness of the impact of boomtown development in a way complementary to the analysis in Section II. Just as tornadoes don't happen to people who arrive after they occur, the compensable costs of a boomtown are not imposed on immigrants. Similarly, we note, in anticipation of the argument below, that disasters do not happen to governments, but to individuals, and correctly designed disaster relief programs provide subsidized loans, or grants-in-aid, to the individuals and not to their governments' treasuries.[66]

B. *Individual Compensation versus Intergovernmental Transfers*

The boomtown disaster is visited, whatever its intensity, uniquely on a town's original residents, including those who find new conditions so distasteful that they leave. In order to direct compensation towards its proper objects, it is important that it *not* be provided directly to the community's government. There are several reasons why we prefer compensation payments directly to individuals.

1. *Spatial mismatch*—Many people who suffer from a boomtown do not live in the jurisdiction of the government in which the development "mostly" occurs. There are people on unincorporated land within "impact distance" of rural energy developments. Similarly, larger units of government are likely to include many individuals who are not affected adversely, but who would benefit from an intergovernmental transfer. It is rare that the constituents of any local government are the same group as the persons affected in a boom.

64. *E.g.*, the town carpenter may be given relief payment for his house after a tornado even though the destruction it wreaks on his neighbors is a bonanza for him.

65. *See* notes 30-31 and accompanying text *supra*.

66. However, many existing programs ignore this precept. *See* S. Brody, *supra* note 36.

2. *Temporal mismatch*—Few governments can usefully spend a large windfall so as to dispense the benefits of the expenditure very quickly. Furthermore, many of the perceived needs of a rapidly growing community involve capital expenditures like school buildings. If the local government uses compensation receipts in ways which produce benefits over time, the newcomers, who we have demonstrated should be excluded from such benefits, will inevitably participate in the services delivered. Unless these benefits are wholly public goods, this participation will be at the expense of the original residents who were the intended beneficiaries of the whole amount of the subsidy. Not only will the newcomers passively draw off an unwarranted share of these benefits, but since they can be expected to exert significant and possibly dominating influence in the conduct of government after development occurs, they will presumably turn capital investments they inherit towards the particular types of benefits that they prefer and which are unlikely to match the desires of the oldtimers.[67]

3. *Poor discrimination*—Few government services are purely public goods, but most have the non-excludability property at least in part.[68] Local government's attempts to distribute the benefits of compensation receipts are unlikely to make the allocation of benefits match the differential costs suffered by citizens. If it hires more police, crime will be reduced for everyone, including those who actually benefited from the boom; if it reduces taxes, it will reduce them for everyone. If the "spill-over" benefits are obtained as a free bonus from a government program which adequately compensates the real losers, well and good, but there is nothing in our understanding of the kinds of costs boom developments impose to suggest that improved government services are an especially apt compensation for those costs. Furthermore, an important class of sufferers, those who leave as a consequence of the boom and take their votes with them, have only the most tenuous claim on local government's sympathies.

4. *Flexibility*—We find conclusive the fact that while compensation paid to government is likely to miss its intended targets for reasons 1 to 3 above, compensation to individuals does not inhibit the provision of government services as compensation when the sufferers find that

67. *See* note 50 and accompanying text *supra*.

68. The classic example is a park, A's enjoyment of which, until congestion sets in, leaves no less for B. The correct admission fee (price) for such goods is the marginal cost of providing them, or zero, so compensating A with a park inevitably benefits B as well. E. MANSFIELD, MICROECONOMICS 424-26 (1970).

appropriate. If they feel that government can best spend all or part of their payments, they can tax themselves and give the responsibility to government. They can even provide benefits to the newcomers through capital investment, if they so desire. Thus, individual compensation assures that the money so paid will go wherever it best serves the interests of the payees, even to government, where as compensation paid to government gives no such assurance.

We excused ourselves from detailed consideration of allocating compensation payments among individuals, but a general observation can be made. Such allocation should be done through entitlement rules constructed in general terms, and not in view of any particular boomtown's history. It is preferable to construct a schedule of "boomtown disaster relief" under which individuals qualify for fixed payments insofar as they meet specific qualifications like "retired person," "non-landowner" or "agricultural supplies retailer." These categories of gainers and losers discussed in the previous section[69] are not exclusive and any compensation scheme designed to identify *net* costs must consider the magnitude of gains and losses for each category,[70] balancing expected costs and benefits in order to determine an individual's eligibility for compensation.

The size of the compensation should also be included in the compensation schedule and should cover real dollar costs, environmental costs, aesthetic costs and social costs predicted, at the time of the boom, to be imposed by energy development. Future unexpected benefits should not mean compensees must repay the compensation. The compensation should *not* be made in view of the residents' subsequent good or bad experience during the boom itself. The compensation is for suffering, current and predicted, which is imposed at the time the boom becomes a certainty, and any subsequent advantage a citizen gains from the development is appropriately considered his own. It is entirely appropriate for a boomtown resident to take his compensation and build a fortune as a shovel merchant. Similarly, the farmer who loses his compensation through unwise investment may qualify for income transfers paid to poor people statewide or nationally, but the misfortune is not a boom-related one.

69. *See* notes 58-62 and accompanying text *supra*.

70. For example, a person on a fixed income may own his own home. Increased benefits from home ownership may not be sufficient to cover increased costs—food, clothes, taxes, medical services. This home owner may be eligible for compensation whereas a salaried home owner may not. Although home owners generally benefit from increased property values, those living near a facility or residential roads which become thoroughfares may face decreased property value.

CONCLUSION

Design of an appropriate boomtown compensation program in light of our analysis inevitably requires detailed consideration of gains and losses like those sketched above,[71] an analysis that will require empirical research not yet performed. The program's specific characteristics should depend on a balance between the costs of missing deserving parties, or wasting resources on undeserving people who slip through the net on the one hand, and the cost of research and administration on the other. What is important about the design process is that it begin with a theoretically valid framework limiting the search to correctly specified groups of potential recipients, and that it be focussed on individuals and not geographical or government units. As we have seen, unless the analysis starts with individuals and moves towards geographical or governmental aggregation only when efficiency demands it, it is likely to miss entirely important distinctions among the people the aid program intends to serve.

Our narrow conclusion, then, is that boomtown compensation programs should be focussed as finely as seems worthwhile on certain members of the original resident population, and should not be directed to residents of post-development boomtowns nor through local governments. Our broad conclusion is that the shorthand by which we refer to the people in a place by the place's name, or even worse, confuse them with their local government, is a trap for the unwary and one that can lead to major errors in policy design. It would be a wise humility for analysts to go back to first principles, repeatedly murmuring if necessary, mantras like

Cities don't suffer, people do.

A government is not a polity and a polity is not a person.

How would I feel if they did it to me?

71. *See* notes 58-62 and accompanying text *supra*.

NOTES