

8. THE RESOURCE ABUNDANCE SCENARIO

The resource abundance scenario is based on the assumption that endowments, comprising both material resources, such as machinery and goods, and non-material resources, such as skills and knowledge, survive a cataclysmic disaster. However, the overall industrial infrastructure, which we take to be the system of social and political institutions whose functions facilitate existing demand/supply transactions, is heavily damaged. Thus, the institutions which interacted with the market structure in the best case scenario are largely removed except at the local level. As Katz (1982) says, in describing one possible route to such a disaster, currency will be worthless and the banking system will collapse, leaving no means for borrowers to pay debts. There will be no insurance system, and only local records of stock certificates and property ownership. Even where records survive the corporate entities to which they relate, probably will be beyond the reach of surviving communications or have ceased to function.

However, despite this loss of national and regional institutional infrastructure, we assume that a high level of resource survival will be associated with the preservation of local institutions including, town councils, church congregations, voluntary organizations, and the kinship structure. Under these circumstances, it is likely that existing property rights will be preserved if the owner is a member of the community. Property rights may be reallocated by survivors where owners are anonymous to the community either because they live far beyond the reach of surviving communications abilities or because they are large corporations that were part of the national institutional structure that is now, by definition, defunct. Where non-owners already occupy such property as renters or managers, possession is quite likely to become the criterion for the establishment of property rights, even if the fiction is created of holding the resource in trust for the original owner. Where there is no surviving occupier or manager capable of managing the resource, reallocations may include the creation of common property to be used under the control and on behalf of the community as a whole. Alternatively, it may become an open-access resource available to all comers to exploit as they wish, thus succumbing to the so-called "tragedy of the commons" (Hardin 1968).

8.1 COORDINATION OF RESOURCES

The resource abundance scenario seems most likely to apply to rural areas since urban areas with high population density are less likely to remain in the resource intensive state for very long without access to a food producing hinterland. For this reason, most of our description will concentrate on rural examples. However, we do not preclude the survival of urban-rural areas under these conditions, for example, where the pre-war direction of commuting is reversed as city dwellers sell their labor on farms. Other possibilities include small urban

manufacturing enterprises that are able to adapt to production of goods from local materials to satisfy post-war demands.

If pre-disaster property rights are respected where the distribution of resources is very skewed, the owners of land and agricultural resources and the owners of raw materials for emerging craft skills may take on the role of organizing productive labor. Survivors who do not control agricultural land and seed stocks will not be able to produce the diversity and quantity of foodstuffs necessary to support their families. Single families may not have access to sufficiently large plots of land to be fully self-supporting. Many will not be able to continue in their former occupations, having merely their labor power to trade. Landowners may be unable to use mechanized agricultural equipment, partly because of the lack of petroleum and partly because they are likely to diversify their crops due to the loss of centralized national markets.

Where resources are evenly distributed throughout the surviving community, for example in an area consisting almost exclusively of small family farms, the removal of formal government infrastructure is likely to leave coordination problems for a community of equals in the areas of communications, transportation, marketing, and the provision of public goods. Coordination problems may also arise in the event that prior property claims are rejected and major difficulties may emerge in the organization of labor and production. This may be the case either in the event that new property rights are based on common ownership or on an individual free-for-all. Decision makers will likely be faced with the problem of restructuring the coordination of resources to satisfy wants. Much of the coordination performed by the pre-disaster institutions and interregional market structures will be lost.

Whatever the distribution of resources, two major forces are likely to influence the recovery of resource coordination for exchange and production in the resource abundance scenario. First, with the removal of monitoring, dispute resolution, and enforcement infrastructure, there will be loosening of the constraints governing market opportunism (Williamson 1985). In effect, traders may be more likely to violate implicit or explicit exchange agreements where sanctions and enforcement are weak. This would increase the uncertainty of trade, making exchanges with temporal, spatial, or principal-agent obligations much more costly to trading agents.

Second, the removal of pre-disaster infrastructure and interregional market structures, in combination with the wholly changed demand/supply environment, would drastically alter the set of opportunities for trade. In other words, while many opportunities will be lost, others will be created. As Kirzner (1973) points out, it is the existence of unexploited opportunities for earning profits that stimulates middle-man behavior. This view is consistent with Schumpeter (1964), where firms are motivated by potential profits to create new ways of doing things and new things to do. Even under the resource intensive survival scenario, many old ways of doing things will be severely restricted or lost. However, the availability of resources will be an incentive for some people to innovate under the new

conditions. Evidence from self-help businesses suggest that innovations are more likely to develop where preset guidelines are at a minimum (Knight and Hayes 1982).

Unfortunately, the gains to middle men are likely to be limited by the increase in opportunism. Thus, profit opportunities will have to be large, relative to investment, to compensate these agents for accepting the risk of coordinating resources. In fact, the presence of extreme opportunism and the need to coordinate resources probably will discourage most loosely organized middle men and lead to the emergence of organized corporate groups led by entrepreneurial managers. Knight (1921) in discussing the relationship between profit levels, resource coordination, and managerial control, argues that control of, and responsibility for, resource coordination is strongly identified with entrepreneurship and profit seeking.

Of special concern is how the opportunities for entrepreneurship will be taken, given the increase in uncertainty from opportunism. Williamson (1985) argues that a competitive market structure may sufficiently govern exchanges, where the goods are non-specialized for the traders (middle-man behavior). If impersonal exchanges are not possible then extra-market governing institutions, such as firms, contracts and courts, will be necessary for stable exchanges.

It is important to recognize that the entrepreneurial role is not exclusively economic and is likely to fall on charismatic persons of high prestige such as clerics, respected community leaders and those emergent leaders who show particular skills for organizing during the crisis period. Thus, this part of the resource intensive system is strongly dependent on prestige exchange among organizers. Such organizers are likely to be recognized because of their roles in the associational exchange structures where they have developed proven ability as wheeler-dealers. These community organizers will thus correspond to the big men who mobilize individuals for major cooperative efforts to provide public goods as in traditional Papua New Guinea (Pospisil 1971).

Survivors in this scenario may cooperate to form production enterprises, especially in the urban organization of crafts and small manufacturing. However, as Durkheim (1893) points out, labor specialization makes members of a social unit highly interdependent, hence more vulnerable to risk. The loss of external markets and their governing institutions is likely to result in a reduced range of goods and services, even though resources may be abundant. Hence, we assume that the resource abundance scenario will revolve around a primary production/consumption unit based on the nuclear family. These units constitute a basic subsistence exchange structure. Where the primary family groups combine, forming new social networks and extended families to share and pool resources, then elements of intimate exchange structures occur. The reasons for the shift of large-scale anonymous individual exchange, characteristic of the best case scenario, into a more familial and intimate exchange structure are essentially the increase in trading risks and the loss of trust among trading partners. Only those who are intimates or part of an established trading network

are likely to be seen as trusted trading partners in the absence of an effective infrastructure that can guarantee exchange contracts. This may make it very difficult for middlemen to rekindle true market activity.

However, there will be entrepreneurial opportunities. Particularly since, as we have said, resource abundance need not be an exclusively agricultural scenario. Hydroelectric or mine-mouth fossil plants, which are located in rural areas, are likely to survive any largely urban attack. With no responsibility to government or stockholders, local managers/operators may see themselves or their communities as owners of the plant and become either powerful monopolists or managers of these resources as common property. Similarly, any property, such as plant, machinery, and products located in the rural or semi-rural areas, previously owned by national and multi-national corporations, also may be claimed by local managers and, together with utility managers and other entrepreneurs, form the hub of an eventual rebirth of industrial production. Once the utilities are operative, they paradoxically, could provide an abundance of power since the previous consumers in urban areas may no longer be there to demand energy. Nearby factories and communities may eventually form the nucleus of new cities, and attract populations from outlying areas.

The absence of currency may be an initial obstacle to these developments since systems of direct barter tend to be inefficient. However, this need not be the case under certain circumstances (Dalton 1982, Leijonhuvud 1973). For example, barter may support trade where the medium of trade is scarce or money prices fail to adjust quickly to an economic environment that has radically changed. However, where direct swaps do generate intolerable externalities, precious metals and jewels may prove to be close substitutes for currency, provided appropriate assay skills are available within the community. Another possibility in cooperative communities is the development of time contracts in which goods and services are exchanged for promissory notes of labor time. This has the convenience of being infinitely divisible from months to minutes, and the contracts for time may be legitimated by the dispute-settlement system should they not be honored.

For example, in the Comox Valley of Vancouver (Hart 1986), a barter system called the Local Exchange Trading System (LETS) allows members to operate without money. Members of LETS submit information about the goods and services they have to offer for a notional green dollar amount. A member who wants another's service, but has no money, contacts the other member who provides the service and through the LETS office credits the suppliers account and decreases the demander's account. The supplier may require the services of others in the network who, because of this exchange, are able to employ the services of the original demander

The unit of exchange, the green dollar, remains where it is generated, providing a continually available source of liquidity. The ultimate resource of the community, the members' productive time, is never limited by lack of money (Meeks-Lowry 1987).

Over the two years the scheme has been running there have been no problems with members defaulting on repayment. This is explained by the intimacy of the network and the trust that has developed between traders and for the system. Also, inability to pay is not a problem since green dollars never leave the community and are always able to be re-earned; the currency cannot collapse because it is based on the time and skills of the members. Other possibilities for generalized exchange outside of such an intimate network are discussed by Hart (1986), including buckskins (the origin of the term buck).

8.2 SURPLUS RESOURCES

The overall exchange system under the resource intensive scenario primarily is a combination of prestige exchange, peasant marketplaces, intimate, and subsistence exchange structures. These circumstances of survival create conditions for the development of a perpetual surplus for small to medium sized communities. Paradoxically, this development may begin when, because of the destroyed capacity to produce industrial goods, competition increases among individuals and between families for the remaining stocks of processed foods, appliances, and other manufactured goods, such as batteries. Such competition would result in an initial rapid rise in demand for these goods which peaks when these items are either consumed, break down, or are unrepairable. Beyond this, the practical significance of manufactured goods would continue to decline steadily as they are rendered relatively useless and are increasingly substituted by a growth in the supply of domestically produced goods and services.

In essence, society shifts from specialized goods and services to activities that are non-specialized and which afford greater levels of self-sufficiency. From the time of the disaster, survivors will have had an opportunity to become self-reliant through developing a domestic mode of production and adapting their rural skills to produce a variety of replacements for manufactured goods, in anticipation of their ultimate disappearance. In addition, however there may have been a change in the external demand of some goods, notably, food. The sudden destruction of urban areas comprising industrial infrastructure and its population may open the way for a highly productive rural population to overproduce survival goods, such as food, way beyond its needs. This may be exacerbated by stored supplies which survive the disaster. In short, among those who remain, there is the possibility of a surplus in available essential resources.

The combined effect of these conditions may alter survivors' perceptions of satisfaction from manufactured goods, producing a constraint on wants that Marshall (1961) calls "material plenty," with a low standard of living, or what Sahlins (1972) calls the "zen road to affluence." Like Sahlins' hunter-gatherers, the Amish Mennonite communities of Pennsylvania restrict the wants of their members, with respect to consumer goods in order both to maintain group solidarity and to guarantee availability of capital for essential resources (Hostetler 1963). Thus, both Bushmen and Amish are able to shape the utility functions of their members even, in the latter case, when they are

constantly exposed to the wide range of goods that entice members of neighboring communities.

It is, therefore, reasonable to suggest that under conditions of resource abundance, people may change their pattern of pre-attack wants and see their new wants as completely and infinitely satiable. Under these circumstances, there may be very little incentive to engage in economic activity for direct financial gains. Indeed, as the literature on hunter-gatherers suggests, production is likely to be low relative to its possible capacity; labor power underemployed, and technological means underused as are natural resources. Under these circumstances, surpluses would become available to trade, but, since all units have satisfied their own subsistence wants with a similar range of goods, trade is unlikely to occur. The possibility emerges that such a society will not create the critical level of diversity in endowments or preferences that Alchian and Allen (1969) identify as necessary to support the desire for exchange for financial gain.

However, exchange may arise from other motives. Under conditions of resource abundance, elements of prestige exchange structures are likely to be present. There is some suggestion in the anthropological literature that prestige exchange reduces the risk of trading where no formal regulation exists (Malinowski 1922). In other words, moral regulation is substituted for formal regulation. We expect a large reduction in trading for financial gain due to the absence of money and the high search and transaction costs. Thus, in the resource intensive scenario, exchange is likely to occur using goods as a medium to create social bonding, just as it does in poor urban areas at present (Stack 1974; Dow 1977).

Bell (1981:79) points out that relations of interpersonal trust regulated by customary ethics formed the basis of civil society from which the modern market system emerged.

The world of Adam Smith was one of thousands of small family firms, of visible merchants and customers, so that Smith could look to civil society, not government, as the arena in which competition would be regulated by custom and ethics, rather than by contract and law.

If prestige exchange forms the basis of civil society which is itself the foundation upon which the market system is built, it is important to understand how prestige exchange might develop under resource abundance. Initially, persons with access to the diminishing supply of manufactured products may accrue considerable prestige from the acquisition of these increasingly scarce resources. However, the source of prestige may expand to include domestically produced items at the point when all subsistence needs are met by the production/consumption unit. The possibility of prestige exchange to enhance social bonds is opened by the ability to produce large surplus quantities for competition regarding the amount of the good produced. The overall importance of the prestige exchange structure as an index of status, relative to trade for financial gain, itself increases because differences in absolute wealth will vary very little in the surplus

environment. This is one of seven changes discussed below, which characterize the economics of a surplus trading environment.

- o A major impact of the events producing the resource intensive scenario is the destruction of money as a medium of exchange. In these circumstances prices are likely to be determined through barter with the items and quantities exchanged displacing monetary prices as an indicator of value.
- o The large predisaster demand for a narrow range of agricultural products from the survival areas is likely to be severely reduced. The major consumers of these products, who previously lived in urban areas, may no longer be there and the means to transport the products may have been virtually eliminated.
- o Given the emergent perceived surplus of vital resources and the virtual elimination of those unnecessary for survival, time constraints cease to be binding. Nothing is particularly urgent, since everything needed is available and that which is not available is not of use.
- o Although there may be few limitations on time so that, theoretically, the market system will eventually respond in the short to medium term, time makes very little difference to the excesses of available products.
- o The changes in the demand and supply of goods combined with the shift in preferences brought about by the disaster may have a major impact upon the value of assets and the distribution of wealth. Some goods, once valued and representative of wealth, may no longer be valuable and their owners may be, almost instantly, relatively poor. Others, whose goods and services were of little use before the disaster, may suddenly become of great importance.
- o In addition, where there is destruction of records and property ownership, this is likely to render some debtors free of their debts and some creditors without claims to wealth.
- o Under the best case and institution intensive scenarios the possibility is present for government intervention in the distribution of resources. Under conditions of resource abundance, however, the centralized government, by definition, has been destroyed.

These seven factors suggest that exchange for financial gain is considerably reduced. However, the changes discussed above would produce a change in the kind of exchange rather than its reduction or elimination. Exchange for financial gain may be reduced considerably as self-sufficiency and the perceived surplus of food take hold. This situation also is likely to be encouraged by defensive cultural strategies. As Siegel (1979) shows, threatened groups seek to defend their cultural identity and this may be at the expense of other

interactions. Pueblo Indians, Black Muslims, the Amish, Hutterites, and Mormons have enforced detailed and rigorous codes for the regulation of their members behavior. They have increased cultural integration, and intensified communications within the group while minimizing communication with outsiders. However, some of the changes identified above are likely to create a demand for the development of social-control institutions to reduce the considerable conflict that emerges based upon the perceived perceived injustices of the new order. The existing infrastructure will be unable to respond adequately without resources being shifted into the creation of new institutions to support the new form of exchange and, in particular, the resolution of disputes.

8.3 FUNCTIONS

The resource abundance scenario will require that some of the fourteen functions of exchange institutions will be performed by institutional arrangements different from those operating under the best case.

1. Property rights, initially are likely to be defined by possession. However, the loss of central government and the urban economic and commercial centers will leave some property, previously corporately, state, or federally owned, open for redefinition. This may be privately appropriated, or be claimed by the local governing collectivity. Depending upon the extensiveness of the destruction, the loss of records for public utilities, in particular, may make such resources available for redefinition.
2. Within survival communities supply/demand information is likely to be conveyed by whatever networks remain from the predisaster rural infrastructure and will be supplemented by friendship and kinship networks and individual traders. A major problem may arise, however, for transfer of information between communities. This will need to be overcome if those developing craft goods and agricultural products are to trade with those that begin to resume industrial production. Initially, this role may be filled by ham radio operators and CB radios, as occurred in the Mexican earthquake and Chernobyl disasters. However, these forms of communication will be limited by the availability of power, batteries, etc. Traveling merchants, acting as middle men, may also serve to carry information between communities although, unless these persons are already known and accepted in more than one place, this form of information exchange may be severely limited.
3. An opportunity for legitimate transactions is provided by the remaining wholesale and retail outlets in particular by stores, farmers' markets, and flea markets. In addition, the farm and sites visited by numbers of people, such as churches and meeting halls, lend themselves to this function and are likely to be supplemented by kin- and friendship-based trading networks.

4. The provision of legitimate contracts within a community is likely to be dependent upon the type of property-rights system that emerges. Decision makers holding positions of power within the community probably will supplement existing law with rules to protect their private interests. Contracts between traders probably will be constrained by the customary rules of kin and friendship networks. In addition, where traders and farm cooperatives exist before the disaster, a collective constraint may limit the possibility of exchanges which benefit individuals at the expense of the cooperative.
5. The enforcement of contracts, other than by physical coercion, is likely to be carried out by the same institutions as those that limit the provision of legitimate contracts.
6. Dispute settlement may operate on a combination of various rules. The rural dispute settlement mechanism of settlement-directed talking probably will remain and is likely to be of the mediation and go-between type. Here justice is administered by negotiation. Bargaining takes place not only over the substance of the dispute but also over the rules and procedures that apply. Some attempt may be made to treat like situations in a consistent manner, but this will be flexible and open to negotiation, depending upon the circumstances and justice will be determined by results. Courts may still meet but, in practice, justice is likely to be administered according to community consensus involving relatively arbitrary application of formal rules and procedures. Appeals may well be arbitrary and relatively informal compared with the best case or institution intensive scenarios. In addition to these forms, greater use may be made of the private justice institutions in the remaining organizations. The result is likely to be a co-existing diversity of procedures for settlement which are institution specific and may range from authoritarian, through representative, to collective forms (Henry 1983). The sanctions applied in any one of this range of dispute-settlement systems also may be specific to the institution, but will tend more towards shaming, ostracism, and expulsion than to imprisonment, treatment, or fines, since the services available to administer correctional facilities would be diverted or depleted and, given the weakness of the formal enforcement infrastructure (lacking the authority of the state) collecting fines could be difficult. Sanctions against outsiders who transgress community rules may be punitive and harsh. However, internal sanctioning may be progressive, corrective, and restitutive, aimed partly at individual rehabilitation and partly to repair the breach in society. Finally, some settlement by contest may be present. This may take the form of the competitive destruction of property in abundance or the giving away of property which is valued.
7. Maintenance of civil order is likely to be carried out by the institutions, such as courts and police, that remain from

before the disaster. However, as various enterprises and organizations assume responsibility for policing their own members, private policing may be a more common feature (South 1988). Some conflict is to be expected between the private police of different land, utility, or factory owners, especially in the absence of a federal system of control. Community policing may be organized and take the form of volunteers, neighborhood watches, and generally avocational forms (Shearing and Stenning 1987).

8. The legitimation of other functions, including enforcement, will depend upon community norms and the predominant style of leadership that emerges. Where the community structure is dominated by the concentration of resources in the hands of a few property owners, legitimation will tend to be their prerogative based on the power of private property ownership and, as Renner (1949) points out, in its implied right to control people. In contrast, where resources are more evenly distributed, legitimation ultimately flows from the charisma of entrepreneurial leaders and the democracy of participation and negotiation.
9. Guarantees of currency and close substitutes, using a barter system without money as a medium of exchange, cease to be necessary, except insofar as those who trade need to guarantee for themselves the quality of their purchases.
10. Administration of distributive justice will probably continue to be carried out by the vestiges of the local infrastructure and some version of local taxes and sales taxes. But in this case, it probably will be based on payments in-kind. Where charismatic or entrepreneurial leaders emerge, the redistribution of resources is one of their sources of status. Under such a system too, prestige rather than goods may be the valued resource to be redistributed. Some churches and community associations may also perform this function.
11. Monitoring and modifying operations is part of the entrepreneurial role, but networks of kinsmen also will engage in continuous flexible assessment of an entrepreneur's work. As resource ownership is more concentrated, the system is likely to be less flexible as the responsibility for monitoring probably will be concentrated in a few hands. Since the information systems are likely to be less well developed, there will be less opportunity to make rapid changes than under the best case scenario.
12. Mitigation of risk depends on the extent to which social bonding can replace the destroyed infrastructural support systems provided by interest rates, insurance, etc. Risk is reduced, in part, by adopting a barter system, also by trading within a community and among members of a social network. In this case, risk is mitigated by eliminating exchange between traders who are unknown to each other. Such trade will only

continue with the emergence of trading middle men, who make contact with demanders and suppliers and earn a return for accepting the risk of coordinating the desires of these two groups. Within a community of equals risk is reduced by relying on the credit allowed and particularly by the institution of reciprocity. Preference for a series of smaller transactions rather than a few large ones reduces the risk of loss. Where resource ownership is more concentrated, risk reduction depends primarily on the preparedness of the private owners of land and utilities to underwrite the remaining elements of the rural infrastructure and to support coalitions of traders who wish to do the same.

13. Exploitation of comparative advantage, specialization, and the division of labor are likely to be reduced in the initial stages as people develop craft skills to replace vanishing commodities. Individual specializations may emerge in certain craft areas. However, where surviving energy resources facilitate the reemergence of industrial activity, it is to be anticipated that leaders of emerging industry will set up special trading relationships with agricultural areas.
14. Reduction of intertemporal or interregional transaction costs is not, initially, an immediate concern in the resource abundance scenario. Such transactions are unlikely to occur until specialized craft production or industry develops. When alternative communications and transportation are developed to replace those that were available prior to the disaster, special trading relationships may occur, tariffs may be imposed, and more formalized policing may be introduced to reduce the risk of theft.

8.4 CONCLUSION

In the resource abundance scenario we argue that the property rights issue is of central importance, especially since there is no centralized authority external to the community that can regulate and enforce ownership. Irrespective of the concentration of resource ownership, additional demands will be placed on the surviving community's capacity for the resolution of disputes, if only to settle issues of the fair reallocation of surviving property, especially where this is of unknown or uncertain ownership.

The resource intensive scenario describes a clear shift from a money-based to a barter-based system, out of necessity rather than choice. We argue too, that there are likely to be major shifts in supply and demand as goods cease to satisfy the wants of demanders and goods previously readily available become scarce or unusable. More importantly, we argue that, because of the unavailability of many goods currently taken for granted, their attractiveness may decline, a trend spurred on because there is a strong incentive to promote social cohesion rather than to pursue a rapid return to industrial production.

The tendency to seek social cohesion is likely to be enhanced by reduced specialization and a return to traditional fixed rules of allocation.

The resource intensive scenario indicates that one of the principal reasons for developing social cohesion is to restore institutions of trust to replace those destroyed by the ravages of war. Our discussion indicates that replacement institutions may vary significantly from established institutions. Where resource ownership is concentrated, replacement institutions may tend toward the authoritarian, where resources are more evenly distributed, prestige and informal social-control mechanisms are likely to substitute for formal regulation.

Finally, the resource intensive scenario provides significant possibilities for a return to some industrial market system and for the reconstruction of cities based upon surviving energy resources and existing local institutions.