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CREATING A RESOURCE FOR LOW COST URBAN HOUSING:  
TOWARDS A POLICY FOR DEVELOPING THE MOBILE HOME INDUSTRY

By

Arthur D. Bernhardt\*

The problems underlying our housing crisis can be summarized simply: Our housing production and delivery system must provide more and better housing at a lower cost. The annual production rate must be increased by more than 100%. The responsiveness of the production and delivery process to the needs of the user must be greatly increased. And occupancy costs per square foot of usable floor space must be substantially reduced.

Two basic strategies are available. One is to channel enough real resources into the housing industry so that it can provide enough adequate housing with its present efficiency level. The other strategy is to create a setting for the housing industry to substantially increase its efficiency and responsiveness to user needs.

Only by re-allocation of resources can the first strategy succeed. As appropriations for other areas of high social priority are below the desired level of funding, it appears necessary to minimize the need for re-allocation of resources. The second strategy, that is, maximizing the productivity of the basic real resource inputs of materials and labor, appears from a political perspective to be the most feasible option.

The author is presently conducting a research project on the mobile home industry to determine how this industry can optimize its performance, in terms of maximizing its efficiency and responsiveness to user needs, and how it can best contribute to solving the national urban housing problem. This project is an action-oriented, multi-disciplinary, interagency effort. The primary objective is to determine the potential of the mobile home industry to produce better and more housing at a lower unit cost, especially for the urban market, and to develop a course of action for implementation.

This paper summarizes some of the intermediate findings of the project. The industry's present status and basic capabilities are briefly characterized. A discussion of the constraints within which the industry operates hints at a substantial latent potential. Finally, a methodology is discussed for identifying the latent potential and for developing a course of action.

#### STATUS OF THE MOBILE HOME INDUSTRY

Until about 1961 the demand for mobile homes grew at a rate proportional to that for single family homes. But during 1961 to 1970, which were years of a declining market for conventional single family housing, mobile home production rose by about 300%. In 1969, annual production of mobile homes passed the 400,000 mark. Over 90% of the total current production are 12 feet wide and 55 to 75 feet long. Today the average mobile home of 684 square feet, completely furnished, retails for \$6,000 or \$8.75 per square foot. Wholesale prices are \$5 to \$6 per square foot.

In 1969, mobile home production equalled 52% of conventional single family starts. More than nine out of ten new primary housing purchases valued up to \$15,000 were mobile homes in 1969. Today the mobile home inventory exceeds two million units, representing close to 4% of the total national housing stock. The mobile home population approaches seven million.

#### CAPABILITY OF THE MOBILE HOME INDUSTRY

The mobile home industry has developed without public assistance. One of the main strengths of the industry is that it works with vigorous initiative to remove barriers to further growth. The focal point of the industry's initiative is the Mobile Home Manufacturers Association which has concentrated primarily on

the socio-economic-political environment, particularly on problems of the post-distribution phase. The Association has consistently worked to upgrade the once negative trailer image, and has lobbied for maintaining the vehicular definition of this product which made the mobile home industry immune to the restrictive controls operative in the housing market. Thus, the industry could escape building code-imposed redundancy, could standardize and thus employ mass production, and could use unskilled non-union factory labor. In the late forties and fifties, the Association worked successfully to educate the financial sector to finance mobile home retail purchases. Building code restrictions would have continued to constitute a significant problem if during the fifties the Mobile Home Manufacturer's Association had not initiated a long-term program of self-regulation. The objective was the development of a nationwide uniform production standard. In 1969, "USA Standard All9.1-1969 for Mobile Homes--Body and Frame Design and Construction; Installation of Plumbing, Heating, and Electrical Systems" was published. The mobile home industry now has a nationwide uniform performance type code. Probably, the most important achievement, however, was that the industry virtually built its own market. The association worked vigorously for over two decades to stimulate mobile home park development, by interesting the financial sector in financing such developments and by educating local government officials in an effort to overcome the practice of discriminatory zoning. The mobile home industry has created the mobile home park industry as an indispensable support function.

The industry is clearly in a phase of consolidation. The percentage of total sales accounted for by the leading ten manufacturers has steadily grown since 1959. Now, this concentration ratio is about 50%. The concentration ratio probably understates the amount of concentration in some regional markets. This can be compared with concentration ratios of 12% and 2% respectively in the manufactured home industry and the on-site residential building industry in 1968.

Originally, plant locations were highly concentrated. But with increasing unit dimensions, high freight rates stimulated a decentralization process. Producers diversified geographically, either through acquisition or construction of branch plants in key market areas. Company sizes expanded more than plant size. A relatively homogeneous network of plants began to cover the country. Regional retail sales patterns showed the same development over time. The trend is clearly toward more even distribution of regional shares of total mobile home sales. An efficient production and delivery capability for low-cost housing spread evenly over the nation has developed.

Only some of the factors underlying the outstanding cost performance of the industry can be mentioned here.

Close to 200 firms produce 10 or more mobile homes per year in approximately 400 plants. The largest plants produce up to 45 units per day and employ direct labor in excess of 500 people. Mobile home manufacturing is highly efficient. The cost structure of mobile home manufacturers is dominated by material costs, which account for an average of 65%. Direct labor accounts for about 7-12%, profits before taxes for about 7-10%. Labor productivity in the industry is high. For the production of 1,000 square feet of net floor area, in place, exclusive of land and land development, the mobile home industry typically needs between 135 and 230 man hours, the manufactured home industry needs 350 to 540 for modules and 380 to 700 for package-based houses, and the traditional residential building industry usually from 700 to 1,000.

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These differences in productivity are only in part the result of different production standards. It is true that mobile home manufacturers experience production cost increases of about 10-25% if they manufacture a mobile home in compliance with FHA standards instead of with the industry code All9.1. However, the difference in productivity is primarily due to the greater operational efficiency of mobile home manufacturing. For example, a dwelling unit consisting of three modules with given structural and mechanical specifications, requiring 500 man hours of direct factory labor for a home manufacturer, can be produced in only 300 man hours by a mobile home manufacturer. As another example, a mobile home manufacturer spends approximately \$1.10 to manufacture a truss of the same performance specifications that a home manufacturer manufactures for about \$4.20.

The high degree of efficiency in production is a result of high sophistication in management. For example, a financial analysis of a sample of 24 major mobile home manufacturers, merchant builders, and prefabbers, all publicly held, showed that the average profit margins were 3.1% in the mobile home group, 2.3% for merchant builders, and 1.6% for prefabbers. The mobile home manufacturers turned their assets into sales nearly four times, which compared with average asset turnover ratios of about 1 for the prefabbers and of below 1 for the merchant builders. The average turnover of inventories was 10 times for the mobile home manufacturers, 4 times for prefabbers, and 2 times for merchant builders. Accordingly, the mobile home manufacturers earned an average of about 15% on their capital; merchant builders and prefabbers less than 4%.

#### PROBLEMS AND CONSTRAINTS FACING THE MOBILE HOME INDUSTRY

The present performance of the industry, while in absolute terms impressive, appears to reflect only a fraction of the industry's potential if one considers the problems which presently inhibit the growth and development of the industry. In the following, only some of the major problems are mentioned. But even from such a limited listing it should be evident that the mobile home industry has a substantial potential for improving its performance.

1. Mobile home taxation is obsolete. The major problem is the unsettled status of an object that is not clearly permanent or transient. An amazing range of different taxes and fees has been imposed upon mobile homes. The mobile home may be taxed as realty, together with the land, or separately as personalty. Yet, it may be exempt from property taxation by payment of an in lieu excise, ownership, or privilege tax, or by purchase of a vehicular license. Nearly every state has statutes with different provisions. In most states different methods are applied for units on rented park spaces, for units on owned park spaces, and for units outside of parks. Mobile home park taxation is equally chaotic. Since most states tax mobile homes differently from other types of housing, the owners of permanent dwelling units suspect that the mobile home owner is not paying his "fair share" of the local government budget. The "fair share" argument reinforces anti-mobile home prejudice to make mobile home regulation discriminatory.

2. Mobile home regulation is in need of overhaul; the regulatory and legal framework is outmoded and inadequate. Local mobile home policy is a direct function of local public attitudes. Vested interests push for exclusionary or repressive ordinances. Zoning is perhaps the most critical problem. The resulting slow rate of new park development freezes the replacement rate. The urgent physical upgrading of the mobile home inventory is retarded. In 1969, only an estimated 118,000 new park sites became available, as compared with an output of more than 400,000 mobile homes. About sixty percent of "safe" sales of mobile homes are lost, because of lack of park space, and also because most statutes and ordinances confine mobile homes to licensed parks. This latter constraint limits the potential market for the low-cost product to those market segments which are prepared to accept the particular sociological characteristics of mobile home parks.

3. The industry is still too unstructured. The relatively high concentration ratio, taken by itself, would define the market structure as oligopolistic. But the regional marketing focus combines with lack of product differentiation and of barriers to entry to make competition among the manufacturers of mobile homes as keen as among prefabbers and merchant builders. The high turnover of firms testifies to this. In 1969, an estimated 110 new manufacturers entered the industry.

4. The responsiveness of the supply sector to the specific needs of the mobile home industry is low. Product development policies of the supply sector are still largely determined by the needs of the on-site residential building industry. There is a need for improved communication and coordination, in particular there is a critical need for modular and dimensional coordination and for standardization.

5. The R & D intensity in the industry is very low. In general, there is evidence that higher concentration is associated with greater research intensity. Also, technical entry barriers, that is, scale economy barriers and absolute cost barriers, to some moderate degree, are associated with the highest levels of industrial research. One might conclude that more concentration and higher technical entry barriers are necessary to stimulate R & D intensity.

6. Many firms are undercapitalized. The long and intermediate term financing of manufacturing constitutes a problem. Until recently the equity capital in the industry was largely retained earnings. During the past few years, a number of the large firms have sold securities, mainly common stock to the public. Current financing of manufacturing is less a problem because producers generally sell to dealers for cash.

7. Seasonality is a major problem. Because of financing difficulties and shortage of space, production for inventory is a rare exception in the industry. In fact, the residential construction industry as a whole appears to have greater relative seasonal regularity than does mobile home production. Achieving greater seasonal regularity is a prime prerequisite for stimulating innovation in the industry.

8. Presently, common plant sizes are too small for achieving noteworthy scale economies. The production breakdown for 1967 indicated that about 90% of all plants produced between one and 1,500 units per year. An increase in annual plant capacity from 1,000 to 5,000 units reduces average unit costs by only four to five percent. The writer's work to date indicates the existence of substantial scale economies in mobile home manufacturing, with minimum optimal plant size (fully efficient scale of operation) probably on the order of 60,000 to 80,000 units per year. Unit costs for fully efficient operation appear to be about \$3.00 per square foot.

9. Modular developments may confront the industry with problems which so far have been circumvented with the vehicular definition. The Building Officials Conference of America and the Southern Building Code Congress have adopted the industry's production standards. The electrical section is contained in the National Electrical Code. Many states have already incorporated Code All9.1 into their laws, or have such legislation pending. But, the industry has not yet succeeded in having its standards accepted for modular construction--and this may turn out to be decisive for the future development of the industry. On another level, with the advent of modules for fixed-site housing, the industry faces conflicts with building trade unions.

10. The major marketing problem of the industry is that each year a substantial number of households leave mobile home living. Additions to the mobile home supply can only be generated if net increases in mobile home population can be achieved. To meet this challenge, the industry must try (1) to decrease the rate at which households leave, which can only be achieved by making



mobile home living more attractive, and (2) to increase the number of newly entering households, which means eliminating the causes of negative attitudes toward mobile home living and establishing a legitimate housing-oriented product image. Most advertising, however, extolls the pleasures of mobile home life instead of addressing the real, the traditional housing market.

11. The distribution system retards industry growth, and is inadequate for the move into modular developments. There are close to 8,000 mobile home dealers. Dealerships are local, independent and relatively small, often inadequately financed, and with little selling experience. Mark-ups are very high, ranging from 20% to 40%.

12. The high cost of retail financing tends to absorb the production economies. Most mobiles are financed with 5-10 year chattel mortgages at about 7-7.5% add-on interest, meaning that simple interest figures between 11-14%. One solution is to finance mobile homes like traditional homes. The FHA is beginning to insure loans on mobile homes in an amount not exceeding \$10,000 up to a maximum of twelve years, at an interest rate of 8-1/2%. But progress is very slow.

These problems clearly hint at a substantial potential for increasing industry efficiency. How can this potential be identified and exploited?

#### TOWARDS A POLICY FOR DEVELOPING THE MOBILE HOME INDUSTRY

There is no easy panacea. No grand strategy can solve this problem. It appears necessary to decompose the problem, to examine each phase and function of the production and delivery process one at a time. The mobile home production and delivery process consists basically of four process phases--the planning phase, the production phase, the distribution phase, and the service phase. In analyzing one phase at a time it is fairly easy to identify potential measures for improving performance. But the repercussions of such isolated measures on other phases, or sectors, may offset improvements or economies gained; or they may make such measures politically infeasible. The determination of the ultimate effect first requires a thorough understanding of all factors which can influence the final effect and the political feasibility of implementing the individual measures.

It might be of interest to briefly summarize the methodology underlying the project which the author is presently conducting. There are ten major tasks (see Exhibit "Work Plan Flow Chart").

The first task is a comprehensive industrial organization analysis including a detailed analysis of the industry's socio-economic-political environment. The second task is to identify, from the above analysis, those emerging trends which, in combination, will shape the future of the mobile home industry. The third task is an exploratory forecasting of the future situation in the absence of deliberate change in the industry or its environment, the exploratory industry model. The fourth task is to determine how, to what extent, and at what rate the performance of each phase of the production and delivery process of the industry can be improved. The result is a catalogue of individual measures which would result in performance improvements. The identification and analysis of essential ingredients of the industry and its environment is the fifth task, concentrating on those factors in the industry and the environment which resist or are conducive to change. Sensitivity testing, task six, determines the potential improvement in industry performance for each proposed measure, on the assumption that it were fully implemented. The result is the ranking of measures in terms of improving performance. Compatibility testing, task seven, attempts a synthesis of individual measures. Feasibility testing, task eight, determines the effects on the proposed measures of obstacles and incentives to change. Testing of political feasibility is given primary emphasis. Based on the findings of the previous steps, task nine is to define the most desirable, attainable future model, and the most desirable, attainable

future role for the industry within the total housing production and delivery system. Task ten, finally, is to develop a course of action for the mobile home industry to move, with governmental assistance, toward the optimum feasible model developed above.

The testing and determination of political feasibility is obviously a crucial task, because the end product of the project is intended to be a vital plan for the mobile home industry to participate in solving the urban housing problem. As a primary means of ensuring that the result is workable we attempt to achieve participation of appropriate Federal, state, and local agencies; representative mobile home manufacturers, dealers, and mobile home park operators; and industry associations. For example, arrangements have been or are being made whereby Federal and state agencies delegate staff personnel to join our principal project staff. This participation by the principal actors in the industry and its environment not only brings to the project indispensable expertise and a variety of perspectives, but this access to representative agencies or associations, through staff exchange or close working cooperation, is especially crucial for the continuous testing of political feasibility. Equally important, because these actors will have been involved in the development of the proposed course of action, it is anticipated that there will follow a commitment to its implementation, enhancing the likelihood that the resulting strategy will be adopted.

The progress made thus far by Project Mobile Home Industry clearly indicates that the approach and methodology discussed above holds substantial promise. While the scope of this paper does not permit a report on preliminary findings in any detail, two tentative conclusions of the work thus far deserve mention:

1. An annual output by the mobile home industry of about one million relocatable homes and modules by 1975 appears possible if not probable.
2. The mobile home industry has the potential to develop as a resource capable of continuous high-volume production of high-quality, low-cost urban housing.

More significant, our analyses of potentials and of emerging trends in product development, in mobile home park development, in intra- and inter-industry mergers and acquisitions and in the areas of financing, taxation and public regulation, leads to the following tentative policy recommendation:

The mobile home industry develops, should conceive of itself, and should be treated by private and public policy as an integral part of the total shelter-producing industry. It would be unrealistic and it would neither be in the interest of the industry nor in the public interest to continue treating the mobile home industry as an "outside" industry, not yet authentically recognized as a legitimate and potent producer of housing.

Attempting to tap the vast urban housing market, the industry may have to sacrifice some of the advantages it derived so far from the vehicular classification of its product. For the future growth of the industry, it will be decisive to what degree the industry will succeed in reinforcing its capability of delivering low-cost housing. If the industry can maintain this competitive edge, its further growth seems certain. To achieve this, the industry must place more emphasis on consistent long-range planning and, in particular, give more support to longer range planning activities of their association. However, the industry does require the support of the government. Many of the growth impeding obstacles, for example, are a result of public policy and can only be eliminated or alleviated by public action.

Failure at the Federal, state, and local levels to adjust public policy, to take into account these trends will probably not slow the industry's growth, yet it will not stimulate its development either. The proposed alternative for public policy is to stimulate an optimal development of the industry. Public policy, as a mere example, could help the industry in overcoming restrictive zoning practices and thus help create sufficient high-quality park space supply, which in turn would increase the annual industry output by at least thirty to forty percent. Public policies could encourage location of mobile homes in residential districts, for example, double wides with traditional house appearance, which would yield a further increase in output of at least 20% per year. This possible expanded output could be used to guarantee the industry year-round, full capacity operation. Shielded from seasonal fluctuation, the industry would be able to invest into R & D activities. Gradual improvement of the product, especially in terms of design, could be insured and the industry could be expected to produce functionally and architecturally acceptable modules with potential for urban housing. It would be a step towards the creation of a growth industry capable of continuously producing acceptable low-cost housing.

With respect to improving the cost performance of the industry, it is necessary to turn to some broader implications.

The mobile home industry can only achieve a substantial cost breakthrough, e.g., significant economies of scale, by synchronization with the building materials and products sector and the broader institutional system which, however, are geared to the building industry. Policies focusing solely on developing the mobile home industry, however successful, cannot increase the economic and political force of the industry to the degree necessary to compete with the building industry in controlling the important supporting sectors. But if the mobile home industry were recognized as an integral part of the entire housing sector, then its innovative characteristics can influence any program or policy relating to the entire sector. Through this tactic the mobile home industry could act as a nucleus of innovation. The mobile home industry as an outside competitor would force the traditional sector to utilize its superior political and economic power to prevent the supplying and institutional sectors from supporting the rival industry. Yet, as an accepted integral component the "atypical" mobile home industry would be valuable in pointing to deficiencies in the existing structure, thus forcing critical re-examination of traditional concepts and the traditional framework and ultimately stimulating innovation in the larger shelter industry.

