THE TRUSTEE PAPERS

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PUBLIC INVESTMENT IN ALASKA

Essays from the Early 1980s

A collection of professional papers prepared for
the Alaska Permanent Fund Corporation Board of Trustees

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RESPONDENT ADDRESS

March 8, 1982

Dear Governor Hammond, Members of the Legislature, and Fellow Alaskans:

It is with great pleasure that I present to you this collection of professional papers concerning the privileges and problems of managing Alaska's oil wealth. We have chosen to call this collection The Trustee Papers, the genesis of the papers having been a series of seminars held by the Trustees of the Alaska Permanent Fund.

In the spring of 1981, toward the end of our first year as Trustees, we began an in-depth exploration of the future of the Fund. From the first, it was agreed to explore the issues in the context of how all the oil revenues were or might be spent. This was to insure that any new role for the Fund would be consistent with its fundamental purposes and, too, would be more suitably lodged in the Fund than elsewhere.

To aid in our examination, we scheduled a series of seminars to specifically address various issues surrounding the management of state funds: budget growth, loan and capital programs, distribution of benefits, and the Permanent Fund itself. We were joined in this endeavor by members of a select legislative delegation chaired by Senator Sturgulewski, and frequently by interested members of the public. We arranged for the counsel of economists and other financial specialists of national stature, drawing upon their knowledge and experience of other states and nations.

The Trustee Papers is a product of these seminars. Considerable thought and, I believe, wisdom is contained in these pages. I consider this document to be "required reading" for all of those concerned with the issue of how we can most intelligently use our revenues to serve the people of Alaska.

Sincerely,

Elmer Rasmuson

Elmer Rasmuson
Chairman of the Trustees

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EXECUTIVE SUMMARY

When the Permanent Fund Trustees decided that their approach to the broad issues of fund direction and management should be an approach undertaken in the context of all the oil revenues, they determined, too, that a series of public seminars would provide an appropriate framework for study. Working closely with a special legislative panel, the Trustees identified several issues critical to a consideration of overall state investment strategy, and seminars were scheduled accordingly. Each of these seminars featured one or two speakers of national stature, economists and other financial specialists possessed of backgrounds which uniquely qualified them to respond to the particular seminar topic. These speakers were sent specific questions and detailed materials to use in preparing their remarks and to ensure their ability to focus on Alaska's economy and unique conditions. With the assistance of the Treasury Division and financial advisors across the country, an impressive group of consultants was retained. Speakers from private industry, Wall Street, and academia, from liberal to conservative schools of economic thought, presented before the Board of Trustees their careful assessments of questions and issues confronting Alaskan policymakers. Several speakers presented formal papers, which papers comprise the bulk of this document.

Despite the diverse backgrounds and styles of the speakers, certain themes consistently emerged and certain cautions were repeated: there are dangers in subsidizing industry as a means of diversifying and strengthening the economy (see Gordon and Gillis papers); the provision of capital by the state may be an unnecessary service and fails to benefit the poor (see Fry, Coffman, and Gillis papers); public infrastructure development ought to be carefully analyzed to determine if there are genuine public benefits or if these are actually public liabilities (see Gordon, Arrow, and Gillis papers); subsidies are not the primary factor in long-term industrial development (see Gordon, Peden, and Gillis papers). Each of the speakers who specifically addressed the question of Permanent Fund investments emphasized the importance of the Fund managers' responsibility to maximize the portfolio yield, working to achieve a real rate of return.

May 8, 1981. Seminar Topic: Assessing the Alternatives. Professor Donald F. Gordon, an economist with the City University of New York and a former advisor to the Alaska Legislature, discussed options in utilizing the state's oil wealth. Working from the premise that the state's wealth belongs to the people of Alaska and that the issue is how to best use this wealth to benefit the "rightful owners", the people of Alaska, Professor Gordon suggested immediate distribution to the current population of the state as the most equitable solution. All other alternatives, including creation of a public corporation with annual dividends, increasing services and reducing taxes, and "building the economy" through industry subsidies, will create problems of inmigration, discriminatory distribution of monies, needless expenditures, or all of the above. Professor Gordon countered several of the justifications often given for industry subsidization and public infrastructure development and observed that the state's wealth has the potential of creating more problems than it cures. He advised that legislators proceed cautiously, carefully assessing the impact of decisions which may, in the long run, increase rather than decrease problems of unemployment and economic instability.

June 30, 1981. Seminar Topic: Capital Improvements as "Investments". Nobel laureate Kenneth Arrow, an economist with Stanford University, discussed measurement of "returns" on public investments, the nature of public investment and the relationship of public investment to the Permanent Fund. Defining the essential character of public investment as "the provision of goods at less than their cost", Prof. Arrow observed that public investment runs the risk of using goods in less than their optimal way because of the absence of the market test, which private investors employ. While recognizing the limitations of benefit-cost analysis, Professor Arrow nonetheless held that it offers decision makers a framework for examining the merits of a project. Attempting to facilitate economic development through public construction of infrastructure and business subsidies tends to be self-defeating, he noted, and this can be shown by cost-benefit analysis. He viewed subsidies as generally benefiting only a small group, doing nothing for future generations, and possibly even doing nothing for present day Alaskans if jobs are filled by immigrating workers from other states. He strongly urged against Permanent Fund involvement in public investment, suggesting that infrastructure and economic development projects could better be handled out of other state funds.

Katherine Peden, a private industrial development consultant from Kentucky and former Commissioner of Commerce of that state, discussed industrial incentives and the role of the state versus that of private industry in developing capital or infrastructure projects. Ms. Peden described the success of her administration in developing thousands of new jobs for Kentucky and reducing the unemployment rate, and she stressed that this was accomplished without large public infrastructure development, industry subsidies or other government assistance programs. These accomplishments were the result of careful isolation of which industries Kentucky was best suited for, selling specific corporations on the Kentucky locations, providing vocational training tailored to the industries, and developing a cooperative business climate at both state and local levels. She emphasized that Alaska already has sufficient financial incentives for businesses and that she believed a concerted effort similar to that undertaken in Kentucky would achieve similar results in Alaska. She remarked that if industry has to be "bought", it is better left where it is; otherwise, when the subsidy disappears, the industry will disappear with it.

August 20, 1981. Seminar Topic: The Capital Gap, Development Banking, and the State Loan Programs. Dr. Richard Coffman, University of Idaho, and Dr. Maxwell Fry, University of California at Irvine, presented two separate papers which serve to follow up their 1980 report to the State of Alaska entitled *Capital Shortage in Rural Alaska.* Addressing the Permanent Fund specifically, they both emphatically concluded that the Permanent Fund should not be engaged in subsidy programs. Further, they proposed that the state should completely withdraw from the loan "business", and cease crowding private financial institutions. If the state must be involved in the provision of capital, they advocated direct grants to individuals. Dr. Coffman suggested that a complete departure from the existing system of "ownership" of the state's oil wealth might be considered, and he suggested that some kind of private property rights system, putting money in people's hands, would increase their net worth, improve their credit ratings, and spur economic growth without the intervention of the state and without reducing the efficiency of capital markets. This would obviate the need for a Permanent Fund, because individuals would have control over their own "shares" of the oil wealth. Given the present system, however, both professors urged maximization of the portfolio yield as the goal of the Permanent Fund.

September 10, 11, 1981. Seminar Topic: Management Issues. The September annual meeting of the Board of Trustees focused more specifically on actual management of the Fund than did the other meetings. The two guest speakers, Mr. Robert Greeley, Manager of Corporate Investments for Hewlett Packard and a former legislative advisor, and Mr. Sam Nakagama, a noted Wall Street economist, did not present papers but transcripts of their remarks are available in the files at the Permanent Fund office in Juneau.

Mr. Greeley discussed current investment trends for large institutions and particularly those of a trust character similar to the Permanent Fund. He reviewed the performance of a series of investments, and noted that there was no evidence that professionals have been consistently able to predict the success of these investments. This argued for some reasonable measure of diversity, and he described the asset mixes of various large institutions and the relationship between asset mix and investment goals. He observed that the best measure of investment performance is returns that are as consistent as they are good.

Dr. Nakagama, discussing short, medium and long term strategies for large investors, pointed out a number of dilemmas arising from current national economic and foreign policies. He noted that the keystone of the Administration's foreign policy is a strong defense program supported by large increases in defense expenditures. In order to accomplish the increases contemplated, two to three percent of GNP must be shifted from consumer consumption to defense. This shift, in addition to one required for energy development, can be accomplished in Dr. Nakagama's opinion only through very high interest rates or tax increases. Very high interest rates, in this country, however, depresses economic activity in other countries. This puts pressure on other governments to cut their defense expenditures, thus thwarting the overall defense effort and putting additional pressure on the United States. Significantly lower interest rates, on the other hand, would ignite the winds of inflation almost instantaneously raising the prices of commodities, metals, and oil.

Dr. Nakagama was extremely pessimistic about the near term future. He could foresee the rationalization of conflicting policies occurring ultimately through the imposition of a value added tax to curb consumption and other tax policies to encourage savings and capital investment.

From the viewpoint of investment, he encouraged the avoidance of long-term bonds and recommended diversification of financial assets. He views international diversification favorably, noting that the financial markets of the United States have steadily shrunk until today they account for only about one half of the world's total financial markets.

October 22, 23,. 1981. Seminar Topic: Effects of In-State Investment. The Legislative Budget and Audit Committee selected the October meeting speaker, Dr. Malcolm Gillis of the Harvard Institute for International Development. Dr. Gillis, drawing on his experience of other oil-rich parts of the world, provided an assessment of problems and mistakes which have troubled other places in the wake of major oil discoveries. He further identified some of the socio-economic effects of large-scale investment in small economies, such as Alaska's. His paper in many ways, synthesized much of the testimony presented by speakers at the previous seminars. He presented examples of the stresses common to virtually all of the oil rich countries listed in his paper: substantial inflation, rapid growth of government spending, undesired effects on economic activity outside the oil sector, "boom-town" and congestion problems. He pointed out examples of problems caused by ill-considered capital projects and infrastructure development, industrial subsidization and other selective subsidized credit, and immigration. He further postulated reasons for these problems.

In closing, Dr. Gillis argued for profit maximization rather than "soft" economic and social goals, as the superior objective for management of the Fund, concluding with the remark that such a rule would be advisable . . . "not only to protect the Trustees from needless litigation in the future, but because I believe that it would be in the best interests of your constituency in both this generation and the next."

THE PROBLEMS OF WEALTH

Donald F. Gordon
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This is a summary of remarks made before the Board of Trustees of the Alaska Permanent Fund and the Joint Legislative Budget and Audit Committee on May 8, 1981. In addition, there is appended some brief answers to some of the issues raised in the ensuing question period.

THE PROBLEMS OF WEALTH

First let me say how happy I am to be back in Alaska and have the opportunity to discuss the interesting and indeed awesome issues that you here will have to resolve.

Some of these remarks will sound a little like the abstract theoretical points made by a typical economics professor, points that you will think have very little bearing on the practical and immediate problems that you face. I am fully conscious of this. But I think it is important to have a framework in which to place actual decisions. The issues before you raise basic, almost philosophical questions, and even if in real life we cannot do an ideal job, it is useful to know where one would like to go if one could. It can have a vital effect on where one actually goes.

There are several areas of the world which have, or have had, "problems" similar to those of Alaska today. Alberta is one of them. Holland was another. Britain and Norway were others. The tiny island of Nauru in the South Pacific was not so long ago, the wealthiest country in the world because it was sitting on a pile of depletable phosphate.

The issues arise because the money goes, in the first instance, to a government. Of course, people have become wealthy before by means of oil. Some years ago one heard stories of quite a few such lucky ones who had oil discovered on their farm or in their backyard. They became rich and I would be surprised if their grandchildren were not subsequently fairly rich as well.

One premise we might start with is that the Alaskan oil money belongs to all Alaskans. Many political figures talk that way, and I am sure believe it. But it is not sufficient to say that it belongs to all the Alaskans; one must really understand what that means. It belongs to them in the same sense that if three brothers jointly and equally owned a farm in Texas, and if oil were found on that farm, then they would each own equal shares in that oil revenue. If one starts from this perspective the task is to protect these property rights and to ensure that they are transferred, or their benefits are transferred, to their rightful owners.

The numbers involved, and the benefits that could flow to all Alaskans, are almost staggering. As I understand it, if we reasonably estimate the future flows of oil money from the present operating field alone, discount these future revenues back to the present at a reasonable ten percent rate of interest, we arrive at a sum, which divided by the present population amounts to about $200,000 per man, woman, and child. In this perspective you are all, in a sense, trustees who have the fiduciary responsibility for transferring this enormous wealth, and/or its benefits, to its moral and legal owners and/or beneficiaries.

Before pursuing the question of methods of doing this we should note that there are other quite different premises than the private property rights framework which I have suggested. Some would certainly say that, quite apart from the technicality that these funds will flow initially to the state government of Alaska, they do not really, i.e., morally, belong to the people of Alaska, but should benefit all Americans. I am sure many in New York City would so argue, and as you probably are aware there are now some legal questions that have arisen over the taxes or royalties that some states are imposing on oil, coal or other resources, that are purchased by people in other states. Indeed, some will go further and say, and do say, that it is immoral for Americans to have this kind of wealth, and that the Alaskan oil money should benefit the whole world. Certainly many have taken that view of the oil wealth of, say, Saudi Arabia, as judged by their reactions to that country's apparent policy of maximizing its returns.

But in what follows I am going to suppose that we truly believe that the wealth belongs to all Alaskans. What can be done with it? I am going to discuss, in order of what I believe to be their desirability, four options, although within each option details can vary. All of my evaluation is premised on the belief that the wealth morally belongs to all the people.

Option I — Give It To The People

The first is stunningly simple in principle and by a great margin the most desirable in terms of our criterion. It answers the question: What can be done with it? by another question: Why not give it to the people? More specifically, we form a corporation to which we assign all future oil and gas revenues. Then we issue say, 100 shares in this corporation, for each and every Alaskan, and send them out in tomorrow's mail to all Alaskan residents.

This will be a private corporation, not an arm of the Alaskan government. Each shareholder (or in the case of children his parent or guardian) will have the right to keep or sell his shares as he sees fit. (Let us hope that this corporation may, for tax purposes, be treated as simply a conduit, as the tax lawyers say, so that the oil earnings will not be taxed twice.) Since the present value of this corporation's future earnings will be on the order of eighty billion dollars we may be sure that a lively market for such shares will spring up on the New York or other stock exchanges. It will have the value of about twice IBM, presently the stock with the highest total market value.

We can be reasonably sure that many in fact would take advantage of this opportunity and sell a large part, or even all, in some cases, of their shares, and with the proceeds buy a variety of assets — other stocks, mutual funds, real estate or bonds. The advantages of doing so are that they would then have a diversified portfolio of wealth, and they would be out of an industry that many believe is likely to be subject to rather severe fluctuations. For both reasons their future income would be subject to less fluctuation. Thus, in the future the oil monies would go to individual investors, bank trust departments, or pension funds in the rest of the United States or even around the world; in turn many in Alaska would be drawing large earnings from their investments in the rest of the world.

But we must also face the fact that if this were done some present residents of Alaska might choose to migrate, for one reason or another, and that future migrants to Alaska would not share in this bounty. Yet, I do not think one would want, even if one could, to put a fence around Alaska and forbid exit. And future immigrants to Alaska will not share in this bounty just as future residents of Oregon or Mississippi will not. This is entailed in the view that it "belongs" (note tense) to all Alaskans.

Whether or not any such scheme is carried out you should be clear about what is accomplished if you do this, and equally clear about what you are doing to people if you do not.

Such an option, would of course abolish, by next week all the poverty in Alaska and a very great amount of all the inequality that now exists. I have the impression that the inequality in income and wealth that is now present in Alaska may be among the highest in all the states, principally of course because of the depressed state of a large part of the native population. All that would cease. And the relative equality that would then result would not be relative equality in poverty but equality in wealth.

More important perhaps is what you are doing by any other course of action. Let us imagine two families. One is a reasonably prosperous middle-class childless couple with two incomes earning, let us say, $40,000, and owning no other assets to speak of. Each would have now about $200,000 in present value of oil money and this can conservatively be expected to earn a real rate of return after inflation of five percent or $20,000 forever. (The real yield after inflation of the Standard and Poor's 500 stock average over the most recent 53 years is 6.3 percent.) Thus, their total income would be $60,000 or $30,000 each (before taxes). Now take a poor, perhaps native, family with six children who have a pre-oil income of perhaps $5,000. (I am of course laying it on, but as you know, there are such families.) With their oil claims such a family would have an additional $80,000 for a total of $85,000 or $10,625 each. Now, if you do not give it to the people, you will be taxing the family with $30,000 each back to $20,000, and you will be taxing that family with $10,625 apiece back to $625. It is a crushing burden of taxation, far higher than any other state, and it is hard to imagine one more arbitrary, capricious and inequitable. I cannot believe that any of you or the people really want that.

Since I come from New York City and am advocating what may sound like a left wing share-the-wealth scheme it is perhaps appropriate that I say something concerning my own values. While I believe we have an obligation to do a good deal for the poor (much differently than we now are) I have no belief in equality of income or wealth, and am probably to the right of President Reagan or even Mr. Stockman on that. I do not believe in a progressive income tax above some middle-class level, and believe its popularity is a result of middle-class envy of the rich, the productive and the successful. I believe in property rights (i.e., human rights) and a free market. Hence, I do not believe in expropriating the property rights of the poor or the rich, but certainly not those of the poor.

I have called this option, "Give It To The People" and will continue to speak that way for convenience. But that is really a gross misnomer. A better title would be "Refrain From Expropriating More Of The Peoples' Property," because the question is not that of "giving" it to them. It is theirs.

Option II — Give The People Their Dividends

While the plan outlined above is the most satisfactory method of dealing with this question — assuming our property rights assumption — let us suppose it is impossible. All other methods are less satisfactory, yet they are by no means equally unsatisfactory. Perhaps the least bad would be to form the corporation mentioned above, but let it be a government corporation, and let it be required to distribute dividends every year of, say, five percent of the total present value. The corporation would, as would private individuals in the previous scheme, sell its future oil rights and invest in stocks, real estate, etc. around the world. Most of these investments would be outside of Alaska. Indeed, a good case could be made for discrimination *against* Alaska investments, since the principle of diversification would indicate a separation between those firms and industries where one works and those in which one has invested assets.

Since the dividends would be distributed on a per capita basis the immediate effect of such a plan would be to raise all incomes by $10,000. Naturally the population would increase, the dividends per capita would fall, and there would be severe downward pressure on wages due to the inflow of labor. Eventually, real incomes from all sources might be much the same relative to the rest of the United States as they now are. I would predict that the immigration during the pipeline boom would look like nothing compared to what would ensue under such a scheme. Would the population grow to two million? Or to four million?

It is clear that compared to the first option this is not an ideal solution if the wealth belongs to all present Alaskans. Most of the income would eventually go to those who are not now in that category. Yet, present Alaskans would benefit in the near term and the wealth itself would not be dissipated in unproductive investments or other expenditures. (There would be what economists call a serious misallocation of labor. The low wages in Alaska would indicate that the labor would not be as productive as it would be in other parts of the United States.) For those who believe this wealth should go to the whole country this might be a better plan despite the inefficient use of labor.

Option III — Less Taxes And More Services

Suppose now that both the previous schemes are impossible. Then, another solution would be to use the funds to reduce taxes that go to finance present government services and to increase those services. The rationale for this would be that since we cannot give the people their own wealth or the dividends therefrom, let us contrive to give them the goods and services that they might spend on if they could. Thus, less taxes would leave some of their income to be spent as they wish; and we could try to choose additional goods and services as closely as possible to what they would want. Note that we are here speaking of services to the people as consumers; we are not talking about services to business and industry. (See Option IV below.) Thus, more roads, better education, or "free" health services might be possible choices; but the extent of the income is so substantial that we might be "forced" to consider free bowling alleys, theatres, TV sets, automobiles, and haircuts, even after all taxes are cut to zero.

There are, however, great difficulties in such programs which have already appeared. Decreased taxes are highly discriminatory. As Governor Hammond has cogently argued the elimination of the income tax took oil money which belonged to all the people and gave it to predominately high income groups. So with services. As the Governor has also pointed out subsidized mortgage loans transfer vast sums to a relatively small group. And how to decide? How are you going to answer someone (like my wife, for example) who wants to borrow to purchase a grand piano? If the money belongs to all Alaskans why should one get a subsidized loan for a house and another be denied one for an expensive boat? Or for a trip around the world? Subsidized loans are also highly discriminatory against the poor. They own an equal amount of the wealth. But their low incomes will make them unable to qualify for anything like an equal amount of the loans.

These disadvantages of government services are over and above the view of many conservatives (1) that government cannot and should not be choosing the peoples' consumption, and (2) that it is generally inefficient in providing it. To the extent that government can and should provide a very limited range of services it is reasonable that, with more income, Alaskans may want to increase those services. But these could be financed by normal taxes on the increased incomes that would result from the oil money if Option I were chosen, or to a much more limited extent, if Option II were adopted.

As with Option II increased services and less taxes would increase the population and lower wages. This effect would be less than in Option II for the not very satisfactory reason that more of the wealth would be dissipated due to the inherent difficulty and waste in such government programs.

Option IV — Building The Economy

There is finally a variety of special programs which I classify under the general heading of "building the economy." The phrase has a seductive appeal, but it is the worst of all. Perhaps these programs are so popular because most state and local governments have "economic development" programs, but except for a few places like Alaska and Alberta they have little or no money to spend on them.

Such programs are defended in a number of ways. One hears, for example, in both Alaska and Alberta, that these economies are "underdeveloped" or "semi-colonial" and "dependent," being excessively based upon the export of non-processed natural resources. The oil wealth in this view is an opportunity to replace this economic structure with a "mature," diversified, and integrated economy in which the different parts provide markets for each other. Another popular notion is that the oil wealth provides an opportunity to finance "infrastructure" — such items as roads, railroads, ports or airports, and perhaps electric power facilities. These are typical government functions or government regulated functions, and on the basis of these private industry can be established. Another idea, very popular in Alberta, is that the government should assist in the creation of industry which will provide jobs "after the oil is gone."

The notion of a colonial economy is very difficult to analyze in economic terms. It seems to reflect a psychological state of mind rather than a disadvantageous economic structure. One element of this idea that does make economic sense is that a diversified economy is less subject to fluctuations in economic conditions than one that is undiversified. But it is not clear why a free private enterprise economy produces too much specialization or dependence. Artificial or government stimulated diversification can be enormously expensive. That is why most places are not diversified. North Dakota is not diversified, being largely based on grain and oil, for example, while New York City may be as dependent as any economy in the world for its imports. Is that bad? Maybe a state such as Ohio is more diversified, but it is not clear that it is that much happier for all that. Dependence is another name for specialization and the division of labor which increase productivity.

More particularly, why would one want to process natural resources at home if this can be done more cheaply elsewhere? The subsidy of local processing means less, not more, gain from the natural resources since by hypothesis costs are higher, and incidentally this would increase dependence in the form of more specialization. What is "mature" about that? Do you want to compete with Saudi Arabia in subsidizing the world with petrochemicals?

There is also some sense in the notion of government participation in infrastructure investments either by government ownership or regulation. The case is based upon "natural monopolies" or, in other words, large economies of scale. This is why we have, for the most part, government owned highways and government regulated telephone companies or electric utilities. Yet, this is not a case for using the public's oil money for these purposes. Any specific highway or electric project may or may not be worthwhile; *but it is never more worthwhile simply because the government has the money in the first place.* Any worthwhile project can be financed by borrowing, and these loans could be serviced by taxes on the income from the oil money which the government has passed to the people under Option I.

I would urge extreme caution in infrastructure investments. The history of Canada is to quite an extent a history of railroad boondoggles in which the government threw the peoples' money away. The British Columbia Railway, just a few miles away, is a continuing very expensive financial disaster. During the first half of the nineteenth century many of the eastern states did the same with canals. If the financing of infrastructure had to be by loan or taxation it would create, I think, a suitable check on ambitious but uneconomic schemes. Careful cost benefit analysis will help, preferably from more than one independent source.

Finally, in this category, let us consider the argument that this money could be used to foster industry which will be available to provide employment after the oil industry is gone. This seems to be the favorite in Alberta. Such subsidies frequently take the form of loans at preferred rates, or loans which the firms involved would not otherwise get. These are simply subsidies disguised. I find no reason in theory or in evidence to suppose that private financial markets irrationally deny loans for economically sound projects.

Now such subsidies will provide jobs (as, of course, will uneconomic infrastructure or subsidies for processing raw materials) but they will not decrease unemployment in any reasonable time period. Such projects will temporarily tighten the labor market and induce immigration. This is why we read of people leaving Detroit for Houston. But after the labor market adjusts unemployment will fluctuate around its "normal" levels. There will be more population, more employment, and also more unemployment.

But, what will really happen after the oil money is gone? The subsidies will stop, the industries will decline, and the migrants will go back, both those in the oil industries and those in the subsidized industries. What was the point in bribing the latter to come to Alaska in the first place?

Before finishing this discussion of Option IV let me indicate why it is the worst of all. Option III is wasteful because the value of the extra services which the government provides is not as much as the value of the services which the people would provide, if they had their own money to spend as they see fit. But such services have *some* value. Subsidizing uneconomic industries through uneconomic infrastructure or otherwise is simply throwing the money away. It does not create jobs. It merely substitutes jobs in Alaska for jobs elsewhere. And it increases rather than reduces unemployment.

My own attitude to economy building is best expressed by quoting the old Scottish philosoper:

> *"The statesman, who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted not only to no single person, but to no council or senate whatever, and which would nowhere be so dangerous as in the hands of a man who had folly and presumption enough to fancy himself fit to exercise it."*

In closing, let me draw an analogy between your situation and a story I read in the New York Times a few days ago. It seems that in Louisiana quite a few people are getting rich because they happen to own land, previously passed over, but which at the current price of oil is very profitable to drill. The story indicated that while some of these were previously quite prosperous and were becoming richer, quite a number had previously been quite poor and were now quite prosperous. And of course there were a lot in between. Suppose now the State of Louisiana goes to the previously poor (and to the others) and says, "If we leave this $50,000 per year with you it will sap your work incentives, you may not preserve it for your children, and we will not be able to provide infrastructure such as the domed stadium in New Orleans. Nor will we have the funds for expanded services, and subsidized loans for mortgages or building the economy. So we are taking away this $50,000 and leaving you with your original $5000 per year." Surely we would be appalled. Even the New York Times might be appalled. (The New York Times appears to be for private enterprise and free markets only so long as nobody gets rich from such institutions.) Of course, the State of Louisiana cannot do this. One the other had the State of Alaska can, and on a much bigger scale. I submit that to the extent you do not protect the property rights of all Alaskans along the lines of Option I, you are doing to all the Alaskan poor (and the others) what Louisiana would, in the circumstances envisioned, be doing to a handful of the poor.

QUESTIONS

Q — We are greatly into the loan business (subsidized) or into direct grants, permanent fund, and budget infrastructure. We haven't mentioned industry, or the developing industries. We talk about fisheries. We talk about agriculture and about timber. What would you have us do that would help us make better decisions on the course on which we are embarked? How can we really evaluate whether we should go full choke subsidizing the development of particular industries?

A — It seems to me you should stop most of those things, except to assign all the oil funds you can to the Permanent Fund at least as a holding operation. I do not see any merit in creating or expanding industries that would otherwise not exist. Some expenditures for infrastructure are probably justified but I would first get careful cost benefit analysis, perhaps from two or three sources first.

If you cannot do that perhaps you should even expand loans all round. It sounds silly, of course, but if the money belongs to all the people why lend it to a small preferred group?

Q — The property right issue in terms of resident Alaskans is often also thought of in terms of not only current residents but of extending the ownership to include future generations. Would you comment on the argument that the distribution of the shares of the wealth itself is in some way a denial of those rights of the future?

A — I am glad you raised that issue because it is important and because I only alluded to it in my remarks. The same issue has been raised in Alberta even by those sympathetic in general to distributing the wealth. I have three comments on that. First, if the current voters really want the wealth distributed to them and the government does not do it, it can hardly be said that the current government is very democratic. Second, we should note that we do not do that with other wealth holders from, say, David Rockefeller to the average citizen. We do not take his money telling him that we do not trust him to save sufficient for his children and grandchildren.

But then the most important point is the last. The record of the behavior of governments and individuals indicates overwhelmingly that individuals will in fact save and pass on to the future a larger amount of wealth while governments will blow it. The American population over more than a century has saved on average about ten percent of their income. Do you think Alaskans are different? On the other hand, the examples of Alaska and Alberta, both of which I understand are overspending their current normal income by about 100 percent indicate that it is the government, not the people, whom we should fear. If I may paraphrase the old Scottish philosopher, it is the greatest impertinence for bureaucrats and politicians to affect to look after the capital of the people. They are above all the greatest profligates. Let them take care of their own affairs and they may be assured that the people will well handle theirs.

I do not wish to imply that there is something peculiar about the Alaskans or Albertans. I am sure that if the government of the City of New York had access to such monies it would disappear in record time, and all the while we would hear noises about taking care of all the people.

Since people do save and accumulate there is no fear, incidentally, that this is "temporary" money just because the oil will run out. Temporary money can always be turned into permanent income streams through financial markets, and will be so turned if the people get their hands on it. What happened, on the other hand, to the windfall gains that came to Alaska near the beginning of the last decade?

Q — In the paper by the Business Round Table and by Commonwealth North, there was discussion of constitutional limits on spending. In one paper they called for a limit on both capital and operating spending and in the one, just on the operating budget. Do you have comments on that beyond what you have said so far, possibly on the need to slow down?

A — I am not a constitutional expert and am somewhat reluctant to comment on that. I do very much believe that it would be highly desirable to slow down current spending. Many conservatives in the United States also believe that but they seem to disagree on how to do it.

A constitutional limit reduces one's flexibility and so may stop wise spending if the government spending were otherwise all wise. I think the call for constitutional limits is an implicit recognition of the fact mentioned above, that it is government not the people that is the spendthrift, and that somehow our democratic structures — perhaps in fact because of our democratic structures — these thrifty wishes of the people do not get translated into government action. For these reasons I would favor constitutional limitations on both capital and current spending.

Q — I would be interested in knowing how your premise of the personal property right of individual Alaskans interacts with the constitutional right of all United States citizens to travel freely and change their residence. We have recognized that distributing the Alaskan wealth to individuals will cause population growth but how would you incorporate that fact?

A — You could solve the travel problem in a politically ideal world by distributing shares in a corporation which owns all future oil revenues, and doing it immediately. You pass the legislation this afternoon and distribute the share next Tuesday to residents. I am sure there would be some litigation over who is and who is not a resident, but I would suppose that to be minor.

It does not appear that such a plan would be unconstitutional although I am not a lawyer. The Homestead Act of 1860 you remember passed masses of government land directly into private ownership, although on a highly arbitrary and I would say inequitable basis. All the rights of the non-settlers, rich or poor, were passed to would be settlers. If you distribute the *income* from the wealth, rather than the wealth itself, on an annual basis you would have the problem you mention. Population would grow, wages will fall to offset the dividends, and the wealth would pass to the rest of the United States. At least the capital itself would not be wasted as it surely would by government spending. But I would much prefer an immediate distribution of the whole amount.

Q — If we are trying to preserve the wealth for the future should we be limited to liquid investments?

A — I presume you mean short term money market instruments such as Treasury Bills. If that is true the answer is certainly not. The record shows that the real rate of return on treasury bills since 1926 has been approximately zero after we allow for inflation. Common stocks as I mentioned earlier yield about 6.3 percent after inflation over the same period. Stocks go up and down of course but if we are interested in the long term future this should not bother us. Incidentally, the dividends from stocks are much more stable and have risen more than the rate of inflation.

Q — Considering the weather here throughout the year, is it clear that many people will move to Alaska?

A — Considering the $10,000 per year per person I would think many would. And I am sure the average size of family will go up.

Q — Have the Albertans clarified the basic premises that govern their spending decisions? As I remember correctly, the Heritage Fund in Alberta is administered by the Cabinet and it does a variety of things such as invest in infrastructure, invest in business that would ordinarily be private business, and spend, I think, on ordinary government operations. So there actually is a body of people somewhere sitting there saying a billion for this or a half a billion for that is a good idea because it will help us achieve our objective which is to make sure that the people get their hands on their share of the money or whatever their objective is.

A — I could make a good many comments on that but, in short, I think their program is a disaster. They have lent money to other provinces, apparently for political purposes. They have increased services as normal government expenditures. But their chief premise seems to be to overcome the "colonial" type economy which I mentioned earlier and to provide for jobs when the oil money runs out. They are therefore subsidizing industries that otherwise would not exist, including the processing of their raw materials. They are competing with Saudi Arabia in swamping the world with petrochemicals.

Of course, these industries will need a continuing subsidy. While the oil jobs and income last these subsidies can be extended. But when the oil money runs out the subsidies will presumably cease, and then both the jobs in oil and in the subsidized industries will cease. The subsidies will therefore not cushion the readjustment that will then be necessary. They will exacerbate it.

Q — One of our priorities is in the energy field, the use of non-renewable resources funds to develop our renewable resources such as electricity and cheap energy. What would be your opinion on that?

A — I suppose that is one area in which a subsidized industry might last once it is started in the sense that the depreciation on some parts of hydroelectic power is very close to zero. I could not comment on any specific project except to urge you to get serious cost benefit analysis before committing yourself. This is a type of infrastructure investment that might lure industry and employment to Alaska, and the type that the government is inevitably going to get into if it is done at all.

It might lure industry and employment here, but as I said earlier, it will not reduce, but probably increase, unemployment. Why would you want to use the peoples' money for that?

ALASKA PERMANENT FUND
BOARD OF TRUSTEES

Testimony of Kenneth J. Arrow

"Criteria for Public Investment"

Public Hearing, June 30, 1981

Prof. Arrow: Mr. Chairman, ladies and gentlemen. Prefacing my remarks, I want to make two slight disclaimers. In th first place, in the short time allotted to me, I'm not able to go into many of the complexities, and you will probably thin easily of problems that I have not covered in the course of this period. That's not entirely because I am not aware of ther here. It should be pointed out that a field like public investment has an enormous number of special cases with particula emphasis, and these can't all be covered in general principles. I'm trying to set only some basic ideas and stimuli to thought

Secondly, of course, I do not claim to be at all well acquainted with the special problems in Alaska, and they are, indeed rather unique to the situation at hand. The very opportunities that gave rise to the creation of the Permanent Fund obviousl are not the sort of things that are normal in this field, and there may be many local and special circumstances which I'r overlooking. Nevertheless, I think it is important to consider what the general experience and theoretical analysis of economist who have thought a lot about these problems can bring to bear on these issues. There's always a great temptation in consider ing public expenditures to think one's own situation is unique; even though there are various rules that say you shouldn' do something or should do something. The current case is always exceptional. General experience elsewhere and analysis o other situations of at least partial comparability suggest that it might be better to stick to the ordinary principles than to en courage deviations from them.

Now, I'll put the problem in a nutshell. We're talking here about the provision of goods either through the public secto or under its influence. Basically, this means that we are talking about the transfer of goods at less than their cost. That i the essential characteristic of the public sector. It is true that what is called the public sector sometimes operates particula agencies which are self-liquidating, which run on a business-like basis. Those don't interest us for our purposes. They ar presumably to be handled in the same way a commercial enterprise is handled and don't give rise to any special problems One can worry about financing them, just as one can worry about financing anything else, but by and large they don't rais any special issues that are not already handled in the ordinary understanding of private enterprise.

The interesting problem about the provision of public goods is that we are offering goods and getting no direct retur in the term of a price, or selling them at a price which in some sense is below their cost. I say "in some sense," because ther is some ambiguity about what is meant by costs.

Public investment, the theme I've been asked to concentrate on, really means investment for the purpose of producin public goods, that is, for the purpose of producing goods that are going to sell below cost. Therefore, the issues are the sam as those for public goods in general, except that there is also a time dimension, which in particular raises the question of th interest rates to use in calculations.

Now, let me illustrate the remarks I've made so far before I go further. What would be illustrations of public investment in this sense? Well, I'll point out some, since they might not be obvious. Take education. In all education, we are spendin money today, and receiving benefits in the future. I'm not talking only about putting up buildings. I'm also talking about the act of teaching, which we usually think of as a current expenditure. We are investing money today, in the expectation that the student will at some future time yield benefits to himself or herself and to society, which will presumably compensate for the costs incurred. At the elementary and secondary levels, we do not in the American system, charge at all for the conduct of the enterprise, at least when it's offered by the State. At the university level, state universities, and I assume the University of Alaska is no different, charge a good deal less than any measure of any cost you can think of. Even private universities, as a matter of fact, usually charge less than the true cost of education. They're subsidized in other ways. So education's an example of selling a commodity at zero price or below cost.

Highways are another typical example. We don't ordinarily charge for highways. We charge in an indirect way. We charge for gasoline which is used; presumably gasoline consumption has some relationship to highway usage. But it's not a direct cost for any particular highway.

Public urban transportation almost everywhere is offered at below cost. I understand that Anchorage's bus system is a heavily subsidized operation.

A somewhat less clear-cut case, particularly in the United States, is represented by railroads and by electricity generating. In some countries, these services are operated by the government and sometimes at a loss. In the United States, publicly-owned electricity generating is, strictly speaking, a losing proposition because taxes are not paid, but the loss is disguised. But by and large, electricity generating has tended to pay its own way.

A more subtle form of government spending in which people do not pay the full cost is a subsidy to the private sector. If you offer fellowships to a student to go to the university, that's a subsidy element to enable him to engage in what is somehow judged to be a desirable activity. Food stamps constitute a subsidy although the purpose is the relief of poverty. Special loans, special credit instruments for particular sectors in which the interest rate charged is below the market rate of interest, are equally forms of subsidy. This is just as much a government expenditure as it would be if the public, for example, invested directly in the enterprise in question. Again, a commodity, in this case credit, is being offered below the market cost.

Why should the government ever engage in activities like this? Or, to put it another way, if it's sometimes good to sell below cost, why isn't it always good to sell below cost? What's the principle? The private market operates, of course, on the principle that costs had better be covered by prices. Otherwise, survival is not assured, to say the least. Since the days of Adam Smith, the need to cover costs has been held to be, not merely a fact, but a desirable state of affairs. What's desirable about it? It guarantees that the activity in some sense yields a net social benefit, a benefit which exceeds the cost. Why do we say that? If a person pays a price for a good, it stands to reason it's worth that to him or her. The price, in effect, measures the value to the individual getting the good. If the price covers the cost, then we have a statement that the value of the good to the person buying it is worth the cost incurred by the seller and by those who sold to the seller, all the way back. In effect, certain resources were devoted to producing this good. They could have been used to produce other goods. The cost of those goods, at least when the economic system is reasonably competitive, will represent, in effect, the other goods that could have been produced with these resources and are not. Hence, the cost of a product will measure, to some extent, what it is worth to society in the sense of what else could have been done with it; directing the resources to a particular product and having people willing to pay the price implies that the resources have been allocated to their highest use as measured by the willingness of buyers to pay for it.

When we sell below cost, then, we run a risk that, in fact, resources are being used in a less than optimal way. Money which could have been lent out to private industry and permit an investment yielding, say, seventeen or eighteen percent instead is being lent out at nine percent, and presumably therefore to enterprises that are only capable of earning nine percent. Therefore, less is going to be produced with that loan than would have been produced had the loan been going to a firm under market conditions. That's the prima facie case against subsidies, and, more generally, against any attempt to price below cost.

Now, this is recognized. On the other hand, it is recognized that it is not always possible to price things at all, and that when it's possible to price them, it is not always desirable to price them at full cost. Let me briefly review the conditions which have been argued to lead to this result. These are really the justifications for the existence of a public sector, for determining the exact role of the government in the economic sector, and, in particular, what public investments are considered to be desirable, even though they reflect a losing proposition in terms of the enterprise taken by itself. One argument is that the benefits may not entirely flow to the users of the goods. The benefits flow to others, so that the total of the social benefits may exceed those of the people who have a choice of using the benefit or not. It is, for example, frequently argued for education that everybody benefits from an educated society. The technical term that's usually used here is "externalities." I guess it has now become a very common term. When everybody can read and write, communication becomes easier, and it's possible for everybody to benefit. I may benefit from the fact that somebody else can read and write and do some arithmetic, to the extent that our educational system is in fact achieving these goals.

So this has been the argument for making education a social good. Education is a good that could easily be priced. There are other goods for which there is less argument about externalities, but where the pricing is impractical for technical reasons. Highways are a better example of that. Consider a long road with a number of access roads. Suppose you want to charge everybody using the highway.That would require toll booths located everywhere. Now, we do have some toll roads, but on the whole, the costs of operating toll booths become themselves a considerable cost of the operation, and that is a clear diseconomy. There is no value to the toll booths per se, their only value is to collect the revenue. In fact, even that isn't the value. Their social purpose is only to test whether or not people are willing to pay the price. Now, we do have tolls when a highway has water under it instead of land; it is called a bridge. Urban roads form an extreme example of the opposite, where clearly any kind of pricing becomes so costly as to become impractical.

On the other hand, urban roads offer an example of another kind of externality, namely congestion. The typical urban road situation is that since people are not charged for the use of the road, they will use it as much as they can. In the first place, they're wearing the road out without bearing the cost of maintenance. In the second place, they're imposing costs on other motorists by causing delay, increased accidents and so forth, and these costs that are imposed on others are not paid. Other people's time is being used up by my driving the road in a crowded condition. It is not paid for and it's clearly impractical to make me pay for it. This leads to one of the arguments as to why public urban transportation should not be charged the full price. Urban transportation, say, buses or subways, performs a function, of course, to the person who's using it.

It constitutes a new form of transportation to convert people, let's say, from automobiles to this use. Presumably they prefer it, and so there's a benefit there. But there's another benefit which is not paid for, namely, the benefit to the motorists who remain on the road. They have less congestion to put up with. So there is an argument for saying that the price ought to be less than the cost because some of the benefits are being received by those who are not paying for it. The total benefits are greater than would be ascribed to the users.

The case of publicly provided railroads and electric generating, although, as I say, in fact is much less common in the United States, affords an interesting example of another problem. I'm sorry that there are these multiplicity of issues, but that is, in fact, the way that it is, and I find that a number of these issues have already arisen, apparently, in Alaska, so it's worthwhile going through this. But the problem here relates to certain ambiguity in the word cost, which I alluded to a few minutes ago. Typically an electric generating plant is much more efficient on a large scale than on a small scale. This doesn't go on forever. It looks like the present thousand-megawatt-or-so plants are pretty close to exhausting the economies of scale. But they're certainly a good deal more efficient than, say, five-hundred-megawatt plants. Once one of these plants is built, what is the cost of selling an additional unit of the electricity? It is relatively small because the plant is highly efficient. There was a big fixed cost in putting it up, but the cost of running one more unit tends to be small. That is, in fact, what is meant by saying that the plant is more efficient on a large scale than a small scale. It is precisely that the cost of one more unit of the sale is less than the average cost of all. If, after the plant is already in operation, somebody requests 1,000 kilowatt hours, it would be socially profitable to sell it to him or her at anything above the additional cost of producing that electricity; what economists call the marginal cost. But if everybody were charged marginal costs, you would have the problem that the plant would not be paid for.

Economists have argued frequently on the basis that railroads and electricity generating might well be publicly run and operated as losing propositions with prices equal to the marginal cost. As I say, this solution has not, in fact, been adopted very much in the United States, on the contrary, the typical solution is the regulated monopoly. That is to say, the plant is run as a private enterprise. The prices charged cover their costs, but a ceiling is put on. The reason for the ceiling is, of course, that if you have plants with economies of scale, there really isn't much room for competition. The big firm has an advantage over the little firm and therefore will drive the other one out. That's socially good, by the way. It means that the electricity that is produced is more economical. But there is a risk that once the big firm is in the monopoly position, it will exploit it, and therefore turn it to unnecessary private profit.

What is the justification of at below-market interest rates to special interests? The usual argument is a dynamic variation of the economies of scale argument. By the word, "dynamic," I mean, "referring to things happening over time." There is an old argument that industries become more efficient, that is, reduce their costs, as they become larger, not so much because of economies of scale in the technological sense but because they learn from practice. When an industry is started, people don't know quite what to do. As time goes on, and as the industry acquires experience in production, costs are reduced. This is an old argument; the infant industry argument is the term that is always used for it. There is no question that, in principle, it is valid. We can find examples of it. There is also no question that it has, on the whole, been grossly abused as an argument for achieving subsidies or other protection. In the past, the argument has usually been used to justify not subsidies but tariffs against foreign competition. There are very few cases, indeed, although there are some, where the development of industries has been encouraged in this way and has, in fact, turned out to be profitable. Nowadays, it is more typical to find a demand for protection from industries which are senile rather than infant. Shipbuilding is a sick industry in most countries in the world except Korea, whose success is the reason why the industry is sick everywhere else. You will find in Great Britain and in Scandinavia very strong protectionist elements demanding the saving of the shipbuilding industry. Subsidized lending to particular industries is a special case of subsidy, justified, if ever, by the infant industry argument.

To sum up, I am suggesting it is in fact true that there are a number of cases where public investments judiciously undertaken have a justification, even though pricing is below cost. The costs are not recaptured; full-cost pricing is technically impossible or undesirable because the benefits are so widely spread that there is no way of capturing them easily. That doctrine is sound but dangerous, because it opens the door for demands to all kinds of public investment. Once the restraint of requiring an activity to pay its own way is removed, there is no clear limit. That is one of the reasons, I think, why railroads and so forth are expected to pay their own way in the United States; even though theoretically there is not as much railroad service as would be optimal, the test of the market has been met by the services actually performed.

Benefit-cost analysis essentially has been introduced as a method of creating a substitute for the discipline of the market. It is an inferior substitute—I want to make that clear—but it is, in fact, valid. If public investment is to be undertaken it is clear that some method of this kind must be used.

The private equivalent of benefit-cost analysis is nothing but a profit-and-loss statement, or a balance sheet, if you look at it in terms of investment. Leaving aside some exceptional cases, the costs involved are the same as anybody else's cost. There are no differences between private and public costs that are relevant to this discussion.

It is on the benefit side, the analogue of revenue, that we find differences. Revenue has to be replaced by the benefits received by the recipients. In the private sector, the benefits received are identified with the price that people are willing to pay for that project. The classic illustration is the decision to build a bridge. The first analysis of public investment goes back to Jules Dupuit, in the 1840's in France. Dupuit was an inspector of bridges and highways, and he phrased the critical questions: given that there is a demand for building bridges in various places to accommodate vehicular traffic, when should you build a bridge and when should you not? He essentially laid down the correct point of view, which has been retained to this day, though with many degrees of sophistication. It is necessary to figure out how much people would be willing to pay for the bridge; if they didn't have the bridge, how much would they be willing to pay as a lump sum or per unit of use of whatever for the bridge.

Now, if in fact you don't charge fully for the use of the bridge, then the benefits might spread to quite remote areas. For example, I have heard that there are discussions here about building bridges and causeways over various places from Anchorage—to Fire Island, across Cook Inlet or Turnagain Arm. If you don't charge or you charge an inadequate amount for the use of that causeway, one of the beneficiaries will be landholders on the areas that are opened up. I don't know whether those areas are private property or not, but let me suppose they are; or, if they are government property, suppose that they are treated by the government as private property and rented or sold at market prices. Then the rise in land values because these areas have become accessible surburban or industrial sites would be a measure of the benefit from building the project. Before you build the project, of course, these values can only be estimated. But it is equally true of private investments that future revenues are only estimates, and they have not infrequently been wrong. Private investment is not foolproof. Whenever you are dealing with the future, outcomes can't be guaranteed. But within the same degree of uncertainty, we could estimate the benefits from the bridge or from a highway as being measured, in part, by what people would be willing to pay to make the trip, in part, by the rise in land values occasioned by the ability of people to go to that area and buy houses or build factories there.

The general principle is, for evaluating benefits of any public investment, what are the members of society willing to pay for this project? If it is education, we may ask, what are we willing to pay to have other people educated? If it is public urban transportation, you might ask motorists what they are willing to pay to have less congestion on the road as a result of the urban transportation and add what the users are willing to pay for the transportation.

There has been in the last twenty-five years, a very considerable elaboration of the concept of benefit-cost analysis. The principles, as I say, are not new, but it turns out that, in application to specific circumstances, there are many questions that arise. For one thing, there was a tendency to double counting of benefits in the early versions of benefit-cost analysis. For example, I spoke both of the land value increase, say, due to a new road, and the willingness to pay by the drivers. Well, you can't count them both, without some overlapping. If drivers are willing to pay and don't, they therefore value the land that much more highly.

Benefit-cost analysis as a tool actually used in practice originated in the analysis of water projects. About 1950 or '51, an interdepartmental committee proposed a scheme of evaluating water projects. The dominant feature of a typical water project is irrigation. It sometimes includes hydroelectricity, sometimes provides urban water supply, but the dominant purpose is irrigation and, to a secondary extent, flood control. Irrigation water could be charged for on a perfectly private basis, but it virtually never is. Flood control would be very hard to charge for on a private basis. The beneficiaries cannot be separated out, because everybody in the valley below is protected.

The committee, which was composed of some very good economists, both practical and theoretical, worked out the argument that we should calculate the benefits and costs from such water projects, and this test should be applied. Over the years, the exact details of the procedure were refined; some of the errors in the early calculations of benefits and costs were improved, particularly in the calculation of benefits, which is the hard one. I must say in all candor that it is not true to this day that a project has to pass a benefit-cost test to be acceptable. What is required is that such a benefit-cost analysis be performed on projects of the Bureau of Reclamation or the Army Corps of Engineers. The outcomes are not necessarily decisive; projects with benefits less than costs have been approved. I think the real gain from benefit-cost analysis has been that the really atrocious projects, the ones where the benefits are negligible compared to the costs, aren't being proposed anymore. There is distinct evidence that we are improving in responding to the discipline of benefit-cost analysis in water projects.

I don't think this is the place for a lecture on the details of benefit-cost analysis. There are many unsolved questions. For example, in investments, construction costs are incurred in a few years, and the benefits are received over a long period of time. The problem of discounting the future benefits is relevant. One could use the rates of return of the private market, in this case, the rate of return one can get by prudent investment policy of the Permanent Fund, but there has been considerable qualification of that simple proposition in the scholarly literature. While there is some disagreement as to the correct rate of discount, there would be a reasonable degree of consensus about it. Hence, benefit-cost analysis provides an analogue of the balance sheet as well as of the profit and loss statement.

Let me conclude by making some remarks about what little I understand of the special situation here. What you apparently have is windfall. It's as though you inherited a very, very large sum of money. What is creating a little bit of confusion is that it doesn't come in all at once. If it did, it would be fairly clear that you'd have to treat it as capital. Instead, it comes in as an erratic flow, which, at least in the absence of future strikes, is rising rapidly to a sharp peak after which it will presumably decline, equally sharply or more or less equally sharply over a subsequent period. A prudent business calculation would suggest you treat the discounted value of these flows as a present capital value for the benefit of the future generations, for which you're acting as trustees, as well as for the benefit of present generations, who are also entitled to something. You should treat it as something on which you can make a flow payment which should keep capital intact.

You can start making payments now. It may be that the current receipts are above or below the steady state payment flow, the interest on the capital value. I would guess that it's somewhere close, as a matter of fact, and the receipts will probably rise above that level shortly. The payments are to be thought of as an income to Alaskans. I know there's a problem. I'm not going to answer the question of who's an Alaskan, because of immigration, as well as, I gather, some differentiations among past Alaskans who were already here. But those are political questions, not for an Outsider to discuss. You have some idea of what population you're trying to benefit, and presumably it's not the entire United States. But, in any case, the Fund should be treated as something out of which you can spend, that is, confer a flow of benefits to the population, which is more or less constant in time. This can be achieved, of course, by investing prudently in liquid securities or diversifying into

equities or even making real investments of some kind or another. But these are investments whose sole aim is to maximize the return. The Fund acts as a prudent trustee would with an estate, a very large estate, to be sure. The steady return can then be distributed in the form of a cash dividend or a tax reduction to the population. Obviously the fact that there is a Permanent Fund shows a recognition by the State of Alaska of this question. The fact that the Permanent Fund gets only a small fraction of the total petroleum related revenues of all kinds shows that the commitment is very much less than total. This question perhaps goes outside whatever I'm asked to talk about today, although Professor Gordon addressed some of these questions last time here, and I must admit I'm very sympathetic with what he said.

The question being raised here more strictly is the role of public investments in the handling of the Fund. Well, I've said public investments should be justified on a benefit-cost basis. That's a complete answer. But how is it affected by the existence of the Permanent Fund? The Permanent Fund might be the vehicle for these investments. It might make the investments on the basis of benefit-cost analysis and therefore yield a flow of benefits not in actual cash payments but in the benefits of selling things below cost. in infrastructure, in electricity generating plants on a large scale, in education, which I have not heard stressed so much, at least, in the six hours that I've been here. It may be just a bias due to my professional identification as an educator, but since seventy-five percent of the income of our country is payment to human beings, basically payments for skills, one can't neglect education as a source of capital for the future.

One could argue, and I must say I would be sympathetic to this ideally, that public investment shouldn't be made by the Fund at all. Public investments should be made in the ordinary way by the State of Alaska. If you want to smooth out the payment, the costs of a public investment, which involve a lot of money for a short period of time, there is no particular reason why the taxpayers at a given moment in any society, Alaska, or any other state, should pay for it right away. It's perfectly reasonable to pay for it by bonds. It would be perfectly reasonable for the Permanent Fund to buy those bonds, but there's no particular reason for any special relation. It should be the responsibility of the State to decide on public investments independently of the Permanent Fund. Part of the payments from the Permanent Fund could go well to the State in the form of a tax reduction, which would make it a lot easier to finance public investments, but there should be no direct link between the payments to the State and what the State does in the way of public investment.

By the way, let me back up a moment. I spoke of maintaining the capital of the Permanent Fund intact. That statement should be understood in real terms. The income we're talking about is the income net of inflation, not what is received in current dollars. Stanford University, which has an endowment or small version of a permanent fund problem, figures that they can take out about 4.8 percent a year and regard that as income. That is a pretty high figure and must suggest a pretty good management, which may or may not be possible to achieve on a huge scale. Whatever the correct figure is, there would be reasonable rate of return which would permit a payment of two, three, four percent as income and still keep the capital intact in real, inflation-corrected terms.

Let me note that I haven't seemed to mention most of the things people talk about when they talk about public investment. There's a repeatedly stated idea that economic development of an area that wants to somehow grow rapidly can be facilitated by having a lot of infrastructure or a lot of subsidy to business or both. Many states and many localities have competed for business by offering tax concessions and selling land below cost to the plant that comes in or for the purpose of bringing this plant in. Ireland has a very elaborate system of subsidies to foreign businesses to encourage their entrance. Ireland is a fairly depressed country. The rate of growth in Ireland has not been positively affected, and there are several reasons why one would expect the policy of trying to create private viable industry, industry that's supposed to make its own way, by subsidies is apt to be self-defeating. First of all, if the market really optimizes, it's clear that there must be some losses when you subsidize industries. There's going to be to be too much use of what is provided for by the public sector. In other words, the gains to the company are bound to be less than the losses to the state. Furthermore, if the company itself is not an Alaskan company, there's even less reason to suppose that the benefits will accrue to the state.

One could imagine that in conditions of high unemployment, if that's a relevant consideration, that you'd like to sop up some of that unemployment. But remember that, if the labor is reasonably fully employed, the laborers who work for a new firm are being taken away from other firms. So if you're going to calculate, to use a benefit-cost analysis, you've got to do it right. Both the subsidy paid and the losses to the other businesses in Alaska must be offset against the gains. I think you'll find it very, very difficult, except in the most extraordinary of circumstances, to find a gain. The very extensive experience in subsidies of Puerto Rico, including petrochemicals, which I hear was a big source of trouble here, should be looked into. The general view has been that it was a tremendous disappointment. A lot of money was put into Puerto Rico; on the whole, most analyses show that there's been no gain. In this case, the money came from the United States government. It didn't even come from Puerto Rico, the Puerto Ricans were getting a free ride, and yet there was no gain to Puerto Rico, the money was just completely wasted.

Another tendency in public investment is to say, well, we want something big, something that's going to last. We have what is sometimes called an edifice complex. We have been very proud in the Lower 48 of the large dams, Boulder Dam and so forth, and they do last. They remain around a long time. They do have one virtue; they do prevent the present generation from squandering the money. But whether they yield anything very much to the future generations is much less clear. There's even a tendancy to argue that we want to build these things because building is a good thing, because we want to keep the construction workers busy or the construction industry active, as well as workers. I think this is one of the poorest reasons for building, unless you assume that you have unemployment. If construction's not naturally large enough, then we should have a shift of resources out of construction into other sectors. There's a very strong tendency, furthermore, whenever you concentrate expenditures on a particular kind of investment, and many of these are very high on construction employment, all you do really is raise wages and profits in that business. Let me draw a parallel. We increased greatly the demand for medical

services in the United States by the passage of Medicare and Medicaid in 1967. A number of consequences followed from that, by the way, many of which were very good. On net, we still received a benefit in spite of what I'm going to say. But one of the consequences that follows is that physicians' fees started rising very, very rapidly. There is a narrow sector which is doing the supplying. They were already reasonably employed. Elementary economics tells us that if demand is going to rise and supply is going to move very sluggishly, then the price is likely to rise, and that's exactly what happened. Hospital costs, the cost per hospital day, was another large rising magnitude. If you invest strongly in construction, a good deal of the benefits are likely to be dissipated. The expenditures, rather, are likely to cause increased costs within the narrow ranges of this industry, which means that the benefit effectively is going to a small sector of the population, not to the state as a whole. You are not keeping your capital intact; the expenditures will not yield benefits in the future.

So, for these reasons, I am urging a very careful accounting in the form of benefit-cost analysis, crude as it is, and I mean to emphasize there's a lot of uncertainties connected with it, there are a lot of difficulties with it. It's not an easy thing to use, but, unless you have something, at least a crude version of benefit-cost analysis, you're not going to have any guide to a public investment program. I'm further suggesting that public investment programs of a large scale, more than are reasonably obviously dictated by needs, are apt to be very wasteful. Thank you.

"FACTORS IN INDUSTRIAL SITE SELECTION: WHERE DOES THE STATE COME IN?"

Edited Excerpts from the Testimony of Katherine Peden

Presented before the Permanent Fund Board of Trustees
June 30, 1981

In thinking about what we are doing and continue to do in Kentucky and other states in the Appalachia area, we're right now on a crest of a coal boom in Eastern Kentucky. We've been up and down, much as you have in your discovery of oil on the North Slope. Three years ago, the coal business was absolutely at top boom there. Now, you go through Eastern Kentucky and you'll see millions of dollars worth of mining equipment for sale. The major banks in Louisville are having great losses of monies that they had put into small mining operations. But, fortunately, in Eastern Kentucky we are not at a crest and dropping down to a valley, because in the early sixties we had a governor in Kentucky who was from that area, the real heart of Appalachia. He saw the wisdom of education and the need to provide jobs other than the coal industry. I was a campaign manager for this governor. We went in on a pledge of 75,000 new non-agricultural jobs in four years. Tobacco, as you are well aware, has been a very controversial product of Kentucky and has had its booms and busts, too. I assumed the office of Commerce Commissioner in December 1963, and our commitment meant that everyday when I got up and went to that office, I had to have created, or have in creation, fifty new jobs, according to the press; and they kept close tabs on me to see if I could produce fifty new jobs.

We did it, and in the process I became so intrigued at providing jobs for people of Kentucky and for other states that I created a new career for myself. We first found out what our people's abilities were; we felt in Eastern Kentucky that skills were very limited. We were exporting young people. If they did stay long enough to graduate from high school, they were immediately going to Cincinnati or Detroit—anywhere they could get a job because there weren't jobs available in the coal mining area of East Kentucky unless they wanted to go into one of the underground mines. So we delineated the types of industries that we thought could go into a Hazard, Kentucky or into a Harlan, Kentucky, which are just small mining towns. We coupled that with the location of vocational education schools. Our Congressman, Carl Perkins, who's Chairman of the House Education Committee, is from that area and gave us great encouragement in this, and we were able to delineate the type of industry that could make a profit in Kentucky, especially Eastern Kentucky, and coupled that with vocational training in that area.

As we look now at the current ten factors that industrialists look for in locating a new plant, I wanted to share with you just a few facts and then relate them to how we did some things and perhaps stimulate some questions later.

Transportation. You know here in Alaska what your transportation pluses and minuses are. I was very impressed by your Port of Anchorage. I know a lot about your water-borne transportation here. Labor market. We'll discuss that in great length. Business climate, including taxes and incentives. I will hand to each of you at the conclusion of my remarks the compilation of the tax and monetary incentives of Alaska versus all of your sister states so that you'll see how you're ranking with the new approaches. Frankly, there are not many financial areas that you haven't already been providing as assistance: industrial revenue bonds, through State financing, industrial sites, all of those. Market access. Alaska, of course, is not situated in the central part of the United States, but you are close to some of the emerging world markets, in very close proximity. Industrial sites. There are needs, and I know that some of you are going to ask how many millions do we have to put in in developing an industrial site. My criteria for an industrial site is that it's zoned, that there is public transportation contiguous to it and that there be water, sewer and energy sources. Developing the land can be done by the private sector. Whether you charge ten thousand or fifty thousand or a hundred thousand an acre, dollars for an acre of land is of very little consequence in the total cost of industrial complex. But the infrastructure must be a public burden, the water, sewer and the transportation. When those are provided, then I believe you have fulfilled industrial site requirements that will meet the standards anywhere.

Other criteria that are listed among the top ten are recreation, and I think we can give Alaska a Triple A on that one; financing, and, again, you have already put in place, with the wisdom of your Legislature, most of the financial incentives that any other state has. The availability of vocational training. I do not know if there is a recent survey of those persons in Alaska desiring employment and what their abilities are. I strongly suspect that there are great skills awaiting employment here in Alaska—men and women who came here, liked your living, want to stay, and have unbelievably high skills. If we were able to catalog those and group them appropriately, we might be able to take a very valuable package to an industrial prospect who would then come and utilize these human resources. Available buildings. I think that's not important here.

You'll note I haven't talked about energy. In the Lower 48, regardless of whether it be my state or whether it be New York, Florida, wherever, developing energy is always a big question in major industrial sites there. And you have it—whatever type—and apparently in unlimited quantities. You have the water; half of the states in the United States, the Lower 48, are desperately in need of water. The thing that's going to hold the western part of the Sun Belt back the very most is lack of water, because the Colorado River's just not going to be able to support all of that. And you have natural gas. I'm sure that whatever environmental problems there are, whether it be air or water, can be easily surmounted using the very highest standards.

But the thing that I believe would be a great direction in your efforts to provide jobs for your citizens would be, number one, to know who they are, what skills, if any, they have, and where they're located; and, number two, for those who do not have skills, to provide vocational skills and other on-the-job training facilities through your educational system. I'll use our experience with Rockwell Standard for an example. They make big axles for most of the trucks, the big quarter-of-a-million-dollar Ford trucks that I'm sure take commodities up and down your Alaska highways. The trucks are made in Louisville, Kentucky, but the axles are made over in Winchester, Kentucky and Appalachia, Kentucky. And Rockwell Standard provided for our vocational training. Superintendents off of their production lines at other plants came in while the plant was being built (it was a $35,000,000.00 facility) and trained tobacco workers and young men and women right out of high school for the job they were going to have in that plant when they went on production. It's been a very successful operation. American Standard put a plant in over in the heart of Appalachia at Paintsville (ph) Kentucky, and we put a vocational school in Paintsville, originally to help the requirements of Rockwell Standard, and now it helps the entire area there.

You have already done and have the capability of doing in the future things that will take care of the money, of the big money. What I'm talking about is peanuts as far as the costs are concerned for job creation, but it is important. Once we knew what skills we had, knew what we could offer in the way of transportation, of available sites, of water and sewer capacity, we coupled that information with the types of industries we thought could go in a community. We delineated sixty-four industries out of the standard industrial classifications of four digits. I don't want to get too technical, but these are down to such specific industries as a metal working plant that made bicycle parts. We were able, for instance, to delineate that they could make a bicycle part for nine cents a part cheaper in a location in Kentucky than they could in a location in Borea, Ohio. And then, frankly, we became the greatest evangelists you ever saw. Nobody ever knocked on as many doors and tried to influence as many people as we did. We took our Governor, which impresses and encourages industrialists, and I'd call up and request an appointment with different industrialists. And once we got our foot in the door, then we were able to sell our story of Kentucky. Very frankly, I think that's the story you have. You have a magnificent story. Your tourism story we all know, and I hope that you will continue your fine tourism. I love your ads, and I hope you continue to do all you can because not enough people know about Alaska to come and enjoy your beauty. But I would also like to see a program in which you are going into the Bill Norrises, the Chairman of the Board of Control Data in Minneapolis, you're going in to see a Dave Luke, the Chairman of the Board of West Vaco (ph), big wood industries in the whole world. I know that they will accept you; I know they will accept the story. But, as any good salesman would know, you have to have the backup material. I believe that with your interest, your dedication, the sites you have, the natural resources you have, you can put together an attractive package. I know there are limitations. I know what your wage rates are. I know that there are heavy unionization areas up here. But I would not let any analysis over-balance the many pluses that you have. There were people who told us that we were going to bloody our heads trying to break the unions or bring in any other unions into the coal mine areas of Eastern Kentucky. It wasn't true. If UAW wanted to come into Detroit with a plan that made automobile parts that they were going to use in the assembly line, they had to have a union plant to start with. But, if a plant wanted to go into Richmond, Kentucky and be non-union, the people of Richmond, Kentucky saw to it that the employees there gave the industry breathing time of a couple of years, and then they would vote whether they wanted a union or not. So I, for one, am never fearful of whether you're in a situation with a strong union or not. In many cases, it's a great plus for you. I can't stress enough the importance of knowing what skills you have among your people and then coupling those with the advantages that you have in any part of your state. I have prepared for you a resume of these location factors and I have the latest report of the fifty legislative climates, ranking Alaska with all the other states as to incentives, tax incentives for industry and other laws, financial assistance for industry, and special services for industrial development.

There are just a few other items I want to mention—items that I think added much to our program and continue to add We not only have done a good job in bringing down the unemployment rate in Eastern Kentucky, but we have created a goo business climate. The Legislature can do more than any citizen or any inside or outside force in creating a welcome climat for business. The attitudes of the community leaders and leaders are extremely important.

I hope you will realize that I have not said anything about government assistance. Your local and state leaders can certain ly help in the coordination effort, but you've done about as much in the way of government interplay and putting in plac opportunities as I believe are necessary at this time until you get to a specific. When an opportunity comes, it may take legislativ action. You may have to introduce a bill so that certain requirements are fulfilled in order to bring a particular industry in but I'm sure that your assurance to that industry that you would introduce such a bill would be very meaningful. There mus be cooperation between local and state development programs. I get the strong feeling sometimes that the reason we can see the industrial prospects is that we have so many levels of bureaucracy we can't weed out all of the people and the program that are running around trying to develop them. Right now I think is the time, with the Administration in Washington an the need to put people to work, to go to those people that provide employment, and they are the industrial other leaders . .

[End of requested portion]

Following her formal testimony, Ms. Peden answered questions from the Trustees and legislators. A verbatim transcrip of Ms. Peden's remarks is in the files of the Permanent Fund Corporation in Juneau. These files are open to any intereste member of the public.

CAPITAL SHORTAGE, PUBLIC vs PRIVATE ALLOCATION OF CAPITAL, AND ALTERNATIVE OWNERSHIP SYSTEMS FOR ALASKA'S OIL WEALTH

Prepared for
The Permanent Fund Trustees
August 20, 1981

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I. CAPITAL SHORTAGE AND CAPITAL MARKET EFFICIENCY IN ALASKA.

In attempting to assess the functioning of rural capital markets in Alaska we looked at a number of different aspects of the problem. I will list these first, then discuss them in turn:

1. Is there a shortage of physical capital in rural Alaska?
2. Do private financial institutions create a shortage of capital by discriminating against rural Alaska?
3. Is there a capital shortage in Alaska as a whole due to too little competition among financial institutions?
4. Has state regulation of financial institutions created a capital shortage?
5. What effects have state loan programs had on the availability of capital in Alaska?

Now to look at each of these in turn.

1. **Shortage of physical or real capital.** If private financial institutions have failed to provide enough financing to rural Alaska in the past, then there will be too little real capital there today. This would imply there would be good, high return investment opportunities available, to put the needed real capital in place. We reviewed the limited literature on this subject. Krutilla and Brubaker, two economists from Resources for the Future, studied this question in 1976 and concluded there were few investment opportunities in interior Alaska. Similarly, in 1979, Olson and Tuck, of the University of Alaska, viewing this question in the context of potential investments for Native Corporation funds, concluded sustained economic growth in rural Alaska was extremely unlikely. Finally, the experience of the Native Corporations in trying to locate investment opportunities for the substantial amounts of funds each year since 1973 suggests such opportunities may be lacking.

This last inference is somewhat controversial. Some have suggested investment opportunities exist, but Native Corporations have not found them for a variety of reasons—preoccupation with problems of internal organization, lack of business experience, lack of managerial skills, and so forth. Perhaps this is the case. All we can say at this point is that we have yet to see any evidence that the supposed investment opportunities do exist.

This issue also serves to point out that if investment opportunities do exist, factors other than capital shortage may keep them from being exploited. In the case of the Native Corporations the capital was clearly there; if good investments were overlooked it was for other reasons.

This point can be generalized. I was told that someone who heard our testimony last year said we couldn't see the trees for the forest. To him, if there was a river full of fish, and no one catching them, that was a capital shortage. That is much too simple a conclusion. There may be many other reasons why no one is harvesting those fish. There may be other lower cost fishing grounds, there may be other higher paying uses of labor time, there may be no market, there may be a market but it may be subject to very restrictive price controls, and so on. We cannot conclude *a priori* that capital shortage is the problem in every case.

In the same vein, we sometimes hear people complain of a capital shortage for investing in opportunities they claim will be there *when* a market is developed or transportation costs fall or some other key change occurs. Obviously, this is a bit of a confusion. The investment opportunities are conjectural. The real shortage is of markets or low cost transport, or something else. Additional financial capital will not make these problems go away. And if these really are the basic problems, then making more capital available is probably just a good way to waste that capital.

We have no trouble compiling a list of factors which may hinder business activity and investment in rural Alaska: (a) lack of investment opportunities, (b) land title problems, (c) insurance difficulties, (d) lack of infrastructure, (e) inadequate collateral, (f) lack of information and expertise, (g) seasonal nature of business opportunities, (h) high costs of everything, including capital, (i) low personal income and wealth in rural Alaska.

We feel that one of these factors, the last one, is of major importance in any policy discussion of capital shortage. Levels of per capita income and wealth in rural Alaska are low, perhaps only one-third as high as in urban Alaska. This means rural Alaskans must settle for fewer goods of all sorts—food, shelter, clothing, luxuries, and credit. The cure for this problem is to increase their wealth and income, not to give them grants of individual goods. Unfortunately, though, we as a nation have just come through a nearly fifty year period, starting with the New Deal, during which it has been fashionable to try to cure poverty with grants of goods and services, rather than grants of income. This approach is almost totally discredited among economists, who are nearly unanimous in arguing that something like a negative income tax should replace current systems of public housing, food stamps, low cost medical care, subsidized credit, and so forth.

When I was teaching in New York City one of my colleagues was a well known liberal economist, who has in recent years announced himself a socialist. He and I could argue and disagree on hundreds of economic issues, but this was one we could not disagree on: if you want to raise income, give money, not goods and services. If you give money, people are free to spend it on whatever they like; this will allow them to maximize their satisfaction as they see it. If you give goods and services, they are stuck with those particular forms of income, unless they can find ways to sell or trade them for things they prefer more.

Further, in the case of granting subsidized credit, if you give money you raise personal net worth and thus increase the individual's borrowing capacity. If you give credit you put the individual into debt, and further reduce his capacity to borrow.

Thus our strong recommendation: look carefully at the problems of rural Alaska; if they really come down to problems of wealth and income, then subsidize people, not capital or credit. The same dollar amount of subsidy implicit in any state loan program will do more for people if it is given instead as a cash grant.

2. **Do private financial institutions discriminate against rural Alaska?** Many business people and households in rural Alaska feel they have a more difficult time getting credit than do their urban counterparts. They allege the system discriminates against them. We can find no evidence that this is true. It appears there is no discrimination in deposit interest rates—these are uniform throughout the state. Loan interest rates also appear to be uniform state-wide. Non-price and conditions could, of course, be used to discriminate against rural borrowers, but the small amount of evidence available suggests to us that such is not the case. What does seem to be the case is that low personal income and wealth, plus the whole host of business problems listed above, mean that rural borrowers are at a disadvantage when standard, uniform criteria are applied in judging loan applications—thus, they get less credit. Finally, the provision of extensive, high cost, probably low profit, branch bank net works to serve rural Alaska suggests discrimination in *favor* of rural Alaska in the form of subsidized service provision.

We understand some people, though, are suspicious of the branch banks, and see them as a way to suck deposits out of rural Alaska, without putting loans back into the community. However, Federal law prohibits such behavior, and the Federal agencies enforcing the Community Reinvestment Act of 1977 told us all regulated financial institutions in Alaska were in compliance with the law as of the time we were looking at this problem. (Copies of letters from the Federal Authorities will be found in Appendix A of this report.)

What we conclude, then, is that there is no rural/urban split in Alaska's capital markets. Rather, there is a single, unified, statewide capital market. We thus turn our attention next to a consideration of factors effecting capital availability and interest rates in the state as a whole.

3. **Is there too little competition in the State's financial markets?** Part of the concern about capital shortage in Alaska appears to stem from the observation that, at least from 1968 through the late 1970's loan interest rates charged by commercial banks were generally higher than those found elsewhere in the U.S. This is seen by some as evidence that competition in this industry is not strong enough to drive interest rates down to "normal" levels. If this argument is correct and there is some degree of monopoly power operative in commercial banking in Alaska, then microeconomic theory predicts output will be restricted in this industry, which translates into a capital shortage.

We find, however, that deposit interest rates as well have been higher in Alaska than in the rest of the country; this cannot be due to monopoly power. Our explanation for the generally higher structure of commercial bank interest rates is that during the time in question Alaska was a capital short region, due mainly to high loan demand caused by the pipeline boom, and as such had to import capital from the rest of the country, paying a premium to cover transactions costs normally associated with inter-regional capital transfers.

While we do not believe the *levels* of loan interest rates are evidence of lack of competition, we also observe that the *spread* between deposit and loan interest rates in Alaska has consistently been larger than in the rest of the country. This is a result which would be found if competition was lacking. We also observe that Alaska's commercial banking industry is more concentrated than in other states with similar banking laws. Nationally, in states which like Alaska allow state-wide branching, the two largest banks in the leading SMSA have about 59% of the business (as measured by deposits); in Alaska the figure is 74%. On the basis of these observations we suspect there is too little competition in commercial banking, perhaps leading to restriction of lending activity and to avoidance of some riskier loans which would be undertaken in a more competitive environment.

The cure for too little competition is more competition. Our suggestions for increasing the amount of competition among Alaska's financial institutions will be given at a later point in this testimony.

4. **The effects of state regulation.** The regulatory picture in Alaska has been changing recently. Alaskan financial institutions, along with those in the rest of the country have long been subject to Federal ceilings on deposit interest rates. These ceilings, which distort the savings decision and tend to make the financial sector smaller than it should be, are being phased out over a six year period, under provisions of the Depository Institutions Deregulations and Monetary Control Act of 1980. However, until completely eliminated these ceilings contribute to inefficiencies in financial intermediation in Alaska, as elsewhere.

The same Federal Act imposes uniform reserve requirements on all financial institutions either federally insured or eligible for federal insurance. As it is phased in, this Federal requirement will override the reserve requirements Alaska has imposed on its state chartered banks. Our 1980 position that State reserve requirements are unnecessary and unwise remains unchanged. However, the issue of what should be done with these reserve requirements has been taken out of the State's hands by the Federal override.

Alaska has a gross receipts tax on banks. This is an unwise tax, which interfers with the efficient functioning of financial institutions. Removal of that tax as per our 1980 recommendation would improve the efficiency of the State's private financial institutions.

There remains, however, a form of state regulation which seriously distorts Alaska's capital markets. This is regulation in the form of loan interest rate ceilings, generally known as usury laws. Usury laws substitute loan pricing by government fiat for price determination in the market place. State usury laws generally are so restrictive that they set interest rates below even competitive levels. This is especially true during times of inflation, such as we have experienced in this country for too many years now. In the typical situation, the quantity of loans demanded is quite large due to the relatively low loan interest rate set by law, but the quantity of funds supplied to financial institutions is low due to Federal deposit interest rate ceilings. There is thus excess demand—a capital shortage—in the market place. Commercial banks attempt to subvert usury ceilings through compensating balance requirements which raise the effective but not the nominal loan rate. At the same time they and other financial institutions institute nonprice rationing to deal with the excess demand. Many factors can serve as the basis for nonprice rationing, but for our purposes it is perhaps most important to note that discrimination is likely to be in favor of conventional, low risk loans, and against unusual, innovative, or risky investment projects which come seeking financing. This, of course, works against new borrowers, aggressive, risk-taking businesses, and firms with new technologies and new products, among others.

Alaska has several usury laws: the Trade Practices Act that applies to all financial institutions except small loan licensees, the Retail Installment Sales Act, and the Small Loan Act. All three have adverse effects on the functioning of Alaska's capital markets, but the Small Loan Act is by far the most serious. During the period of our study, 1979-80, the provisions of this Act, combining maturity size, and interest rate restrictions, essentially limited loans over $1,000 to a marginal return of only 12%. Since nearly risk-free money market investments yielded more than that at the time, the Act destroyed any incentive for small loan licensees to make loans larger than $1,000. As a result, finance companies do very little business in Alaska. Nationally they account for about 6.4% of all financial institution assets, but in Alaska they have only ½ of 1% of such assets. This obviously leaves a sizable hole in the structure of Alaska's financial institutions, and effectively eliminates one source of loans to high risk borrowers.

We have strongly recommended that the state abolish all usury laws, with priority going to elimination of the current Small Loan Act. A new Small Loan Act might allow finance companies to offer uninsured savings and time deposits, which would increase competition between these institutions and commercial banks, savings and loans, and credit unions.

5. **State loan programs and capital shortage.** State loan programs are instituted to increase the availability of capital at "reasonable" interest rates. In general, with small exceptions, they do not have that effect. Rather, they "crowd in" on private institutions and replace private lending with public lending. This is not just an assertion. It is a simple implication of economic theory, which has long been recognized in the economics and finance literature, and which is supported by statistical as well as theoretical studies. However, I am going to leave to Professor Fry the task of elaborating on the crowding in effect, and I at this point will leave the conclusion as an assertion.

I ask you to consider what happens in private markets if this assertion is correct. State loan programs are set up and begin lending money, usually at below market, subsidized rates. Borrowers desert private lenders. With less business, private lenders have to reduce the size of their operations. There are economies of large scale operation in financial institutions, which implies, conversely, that there are diseconomies of small scale operations.

Private sector lending becomes more costly, and at more of a disadvantage in competing with state loan programs. Smaller, weaker, institutions fail, and go out of business or are absorbed by other institutions. There is less competition than before, with all the problems that implies. If this line of reasoning is correct, and it is, then state loan programs threaten the viability, and in the extreme, the very existence of private sector financial institutions.

Unfortunately, there are influential people who are not impressed with this conclusion as it stands, and who would have us believe it really makes no great difference if government lending replaces private lending. This is wrong. As I shall attempt to show in a few minutes, political allocation of capital is almost inevitably less efficient than market allocation of capital.

Before we reach that subject, however, it is important to note another specific problem which tends to arise with one type of government loan program, namely, loans for business purposes. State business loan programs generally involve subsidies, almost always in terms of subsidized, below market interest rates, and often in terms of lenient credit standards. Naturally, such highly favorable terms attract many would-be borrowers—usually, far more than the loan programs can accommodate. Those who run the loan programs must somehow ration their limited funds. Actual rationing schemes which develop may be very complex and involve many elements. Usually, however, a key element is that state loan bureaucrats will attempt to ration loan funds in accordance with their personal theories of economic development. In underdeveloped countries this has classically shown up as heavy subsidization of such things as the steel industry on the naive theory that economic development implies industrialization, industrialization requires steel. Hence, we find high cost, low productivity, white elephant steel mills in deserts and jungles all over the world. The variety of bureaucrats' economic development theories and fantasies is endless, limited only by their imaginations.

The real danger here is that subsidized credit programs rather than harnessing the energy and productivity of the market system, may actually destroy it. The destruction will be at the very heart of the market system, because it will change the very nature of the basic productive unit of that system—the business firm. It will transform the profit or value maximizing firm into a subsidy maximizing firm.

The profit maximizing firm tries to produce products that will sell, tries to hold costs down to increase profits, is constantly alert for new products, new production methods, new markets—for anything that will give it an edge. The subsidy maximizing firm, on the other hand, doesn't care what it produces, doesn't care whether it holds costs down, or whether it uses capital intensive or labor intensive methods of production. All its energies are devoted to doing whatever will allow it to qualify for subsidies; it produces what is subsidized, it uses lots of whatever inputs are subsidized most generously, it locates wherever it can get the most subsidies. It is alert and aggressive, and looking for opportunity—but opportunity is defined in terms of anticipating where the government subsidy spigot will next open up.

The real tragedy, of course, is that subsidy maximizing firms do not provide a viable economic base for a country. They have no real substance, and when the subsidies stop, they melt away, leaving an undiversified, weakened economy.

We have come a long way—and we have a long way to go yet. I would like at this point to summarize, in two different ways, what we have covered so far. First, a simple summary of the capital shortage question. We find that capital markets in Alaska are unified—there is no urban-rural split. These markets appear to work reasonably well, but do have some specific deficiencies. These deficiences have specific cures. There is too little competition in some parts of the capital markets; more competition should be encouraged. There is too much regulation of the capital markets; markets should be deregulated. State loan programs are not a cure for capital market problems. Rather, they are part of the problem. All state loan programs should be abolished. The Permanent Fund should not add to the problem by getting into the loan business, or by funding other state loan programs.

Now, for a second summary of our conclusions so far. I should like to put this in terms of two alternative scenarios for the future of the Alaskan economy. One scenario projects the effects of the state continuing with the policies it now follows. The other projects the effects of making the policy changes we recommend. Up to this point, our discussion has focused on the efficiency of a single sector of the economy—the capital markets—and ignored larger issues related to the state's oil revenues. At this point, though, it will be useful to develop the two scenarios in the context of two alternate ways of injecting state funds into the Alaskan economy. The alternatives to be considered are cash grants, on the one hand, and state loans, on the other.

Scenario **One.** The State redistributes some part of the oil revenues as cash grants to Alaskans. This results in increased disposable income for Alaskans, which leads to additional spending for personal consumption and for investment in owner-operated businesses. Although a considerable amount of this new spending would go for imports, a significant amount would remain in the State, stimulating economic activity, and giving a multiplied increase in income. Jobs would be created to produce goods and services for which there was a real market demand.

At the same time, increased income would stimulate savings, leading to increased deposits in the State's financial institutions, and thus to increased lending capacity of those institutions. Financial institutions would also face increased demand for loans from expanding businesses, and from consumers wanting to finance consumer durables and housing purchases. For the full effects on private capital markets to be generated, however, two additional policy steps would have to be taken.

First, a new Small Loan Act would have to be passed to fill in the hole now existing in Alaska's financial system because the current Small Loan Act discourages household and industrial finance companies from operating in the State. A new Small Loan Act should allow the rapid development of financial institutions providing finance to high risk projects. The second step would be to remove the other market imperfections due to current State policy. This would allow the private capital market to respond vigorously and efficiently to meet the growing demands of households and businesses. Specifically, (1) all usury and interest rate ceilings should be removed, so that the interest rate will be free to serve its main social role as the allocator of capital, and (2) all State loan programs should be abolished so that market decisions rather than decisions of State bureaucrats determine who gets capital, where, when, and on what terms. The result of these actions will be an expansion of the private capital markets, increased scale (and thus lower per unit cost) for individual financial institutions, more competition than presently and ultimately the development of a sound, vigorous capital market which will be a key element in Alaska's future development.

In summary, then, Scenario One leads to (1) an expansion of the Alaskan economy, (2) the growth and expansion of those businesses and industries which meet consumer needs and/or produce goods for which there is an external market, (3) increased income and wealth for individual Alaskans, enabling them to make equity investments and borrow larger amounts than previously, and (4) the development and strengthing of private capital markets in Alaska.

Scenario Two. The State attempts to use its selective credit policy (the policy of granting loans, often at subsidized rates, to selected firms, industries, and individuals) to simulate the Alaskan economy. Oil revenues are used to expand existing State loan programs and establish new ones. This puts money in the hands of the favored borrowers and gives an economic stimulus, with a multiplier.

However, the State's lending activity crowds in on the private sector and to a large extend just replaces loans which would have been made by the private capital market. This offsets and nearly eliminates the multiplier effect. Further, as the scale of Alaska's private financial sector shrinks, individual institutions become smaller, and some encounter financial difficulties. The larger established institutions weather the storm, but smaller and newer institutions are hard hit, and competition in lending is reduced. Per unit costs rise as the average size of institutions falls. This leads to increased charges and interest rates to borrowers.

At the same time, the selective credit policy has two undesirable effects: (1) subsidized interest rates give commercial borrowers false signals about the value of capital and so they waste capital, investing in numerous unsound projects, and (2) due to the selective nature of the loan programs economic expansion comes in the industries which the State believes should be expanded, rather than in those which pass the market test of producing output which consumers are willing to buy. Thus, there is no good reason to believe investments made in response to State policy will stand up over the years and contribute to sustained, diversified growth of the State's economy. Since there is no increase in income there is also no increased savings to serve as a pool of funds for real investment. Further, the Small Loans Act will continue to discourage household and industrial loan companies from operating in the State, thus leaving a hole in Alaska's capital markets.

In summary, then, Scenario Two leads to (1) a lesser expansion of the Alaskan economy than does Scenario One, (2) long term movement of the economy in a questionable direction as expansion responds to the selective credit policy rather than to real economic forces of the market, (3) increased debt for firms and individuals who borrow from the State, and (4) contraction and weakening of the State's private capital markets.

II. PRIVATE vs. PUBLIC ALLOCATION OF CAPITAL

One of the key predictions of the section just completed is that state lending will crowd in on private lending, thus tending to substitute government allocation of capital for market allocation. What is the significance of this? Obviously, to persons of "capitalist" ideology this is an undesirable change, but to persons of "collectivist" ideology the change is favorable. We should, though, like to go beyond ideology, beyond mere definitional characterization of one system as good, the other as evil. What we need to do is to judge the two systems in terms of their probable effects on economic efficiency.

It is easiest to begin with the analysis of the marketplace as a system for allocating capital. This is so because for over two hundred years now we have had an economic theory of the workings of markets. In 1776 Adam Smith pointed out in *The Wealth of Nations* that the Invisible Hand of competition could harness the selfish actions of individuals and produce results for the common good. That insight is as valid today as it was two hundred years ago. Further, in the time since Adam Smith's day, economists have greatly refined his basic notion, developing very specific and rigorous concepts of economic efficiency, showing in detail that competitive equilibrium will achieve efficiency, developing concepts of market failure to analyze cases where private markets will not lead to efficiency, and finally, working out theories of economic policy to give us a kit of tools to use to correct or reduce market failure. We thus know a great deal about the operation of individual markets and the market system as a whole.

When we apply the basic theory to capital markets we focus on the institutions known as financial intermediaries. These firms intermediate between savers and investors. Thus, they operate in two markets—a savings deposit market and a loan-investment market. (Some intermediaries have contractual rather than deposit relations with savers, e.g., insurance companies, pension funds.) Intermediation consists of providing financial services that satisfy demands in both markets. That is, intermediaries provide size intermediation by, for example, aggregating small deposits and making large loans. They provide maturity intermediation by taking on short term deposits and making long term loans. They provide risk intermediation by offering savers implicit participation in a relatively safe portfolio of loans and investments which individually may be relatively risky. At the same time, they reduce transactions and information costs of financial dealings, and they take advantage of economies of scale and economies of specialization.

If the markets they operate in are competitive, then competition will force them to produce the economically efficient mix of services (output) and produce each service at its lowest possible cost. Further, the system of financial intermediaries will produce a system of equalibrium interest rates, which will serve to allocate capital throughout the economy, among the competing demanders. These interest rates will give efficient, accurate signals to capital users, and will guide capital to its highest, most productive uses. This, then, in outline, is the case for market allocation of capital.

In the real world, of course, we never achieve perfect institutions. We have already indicated that Alaska's existing capital markets have imperfections. However, methods of reducing these imperfections are well known, and can be implemented. The 1980 Depository Institutions Deregulation Act will improve capital market functioning throughout the country. State deregulation and termination of state loan programs are our suggestions for moving Alaska's capital markets even closer to the results of the competitive model.

Let us turn now to the analysis of a system of political allocation of capital. This is more difficult to analyze because we lack a complete, detailed, theory of the economics of political systems. However, there has developed in recent years a field of the economics of public choice, which provides us with some insight into matters such as the political allocation of capital.

Under a system of political allocation of capital (e.g., a system of state loan programs and state banks) basic decisions will be made through majority rule voting. That is, the legislature and, at a later stage, state bureaucrats, will vote on how much capital the whole system is to have, how much capital shall go to each funding institution, how much to various individual demanders, what interest rates to charge, what terms and conditions to require of borrowers, and so forth.

Public choice economics has shown that majority rule is often deficient as a decision mechanism on such economic issues. One technical problem, which we need not go into here, is that majority rule decisions taken through a series of pairwise votes may lead to no unique outcome, no unique "will of the voters," but instead may vary with the arbitrary sequence of pairwise votes taken.

Of more practical importance is the problem that simple majority rule ignores the intensity of the voters preference. This is not so in marketplace "voting", where we each vote the intensity of our preference by the amount we are willing to pay for particular goods and services. But in political voting a passionate "no" counts just exactly as much as and no more than a mild "yes". The real danger in such voting is that a majority with little at stake can outvote a minority with much at stake. This means voting can lead to situations where the losers lose more than the winners gain. In such cases no possible redistribution of winnings could compensate the losers and still leave net winnings. Voting can, and in the real world frequently does, approve projects with negative net value.

The following simple example will illustrate the point. Assume five voters, A, B, C, D, and E are to vote on a proposal which would cost $500. The costs are to be shared equally, so each would have to pay $100 in extra taxes to finance the project if it is approved. Assume the benefits to the individuals, as they themselves assess them are $105 each for A, B, and C, and $50 each for D and E. A, B, and C have a mild interest in seeing the project undertaken—$5 net value to each, and will vote in favor of it. D and E are stongly against the project, since each stands to lose $50, and will vote against it. The project passes, 3 to 2. The political system has voted in a project with total benefits of $415, but total costs of $500, for a negative net value of $85. Or, put more bluntly, the political system has voted to waste $85 worth of resources.

This example is very realistic and relevant. Real world political systems involve more voters, more issues, logrolling, and so forth, but this sort of outcome is always a possibility. It is not a possibility if the same decision is taken in the marketplace. The dollar votes of consumers A through E would total $415, cost of production would be $500, and no profit-seeking firm would willingly produce the good. This is one reason why market decision making on production of private goods is likely to be superior to political decision.

In the previous example all five voters took part in the decision. Let us modify that assumption by calling on a second insight of public choice economics. This is the notion of "rational voter ignorance." That essentially says that information necessary to make good, informed decisions on all issues, public and private, is costly, and that voter/consumers will rationally choose to remain ignorant about issues which they expect to have little impact on them. On other issues where they have a great deal at stake they will pay the price to inform themselves, and will perhaps get involved in political activity once they are informed.

Again, an example will be useful. Assume Legislative Bill A is very important to one person in a thousand who expects to gain $1,000 if the bill passes, but only pay $2 in extra taxes as his share of the cost. The other 999 persons out of a thousand, let us assume, will get no benefits from the bill, but will each have to pay $2 in taxes. Now assume all one thousand know it cost them $5 in time and nuisance to become informed about the effects of any bill. A person who expects to lose a trivial $2 if the bill passes, will see little if any reason to incur a cost of $5 to understand the issue more fully. The person expecting a net benefit of $998, however, will be intensely interested in this bill, and will inform himself about it, at a cost of $5.

If this person can induce his elected representative to get the bill passed at a cost to him of less than $993, he will come out ahead. In essence, he will be the only one voting on the bill, since the other 999 citizens will ignore the issue. Replicate this situation in the constituencies of other elected representatives, and you have the strong possibility of passing a bill which costs $2,000 in taxes for every $1,000 in benefits generated.

This is the problem of resource misallocation due to special interests in a political system. It is especially acute in a fiscal situation like Alaska's, where the cost to the citizen is not an out-of-the-pocket cost, but instead the opportunity cost of using already collected oil revenues. Recognition of this problem has apparently led to Alaska's recent law requiring that interest rate subsidies be open and above board, rather than hidden. While this is a good law, which will undoubtedly make it more difficult for special interests to arrange subsidies, it should be noted that as long as subsidies are tied to individual prices they will continue to cause resource waste and misallocation.

A third problem with political decisions on economic matters is that often they force all citizens to consume a standard level of government output, rather than having the option, as in the marketplace to consume more or less of a good than does the average person. I would like more national defense, you would like less, but we both are stuck with the medium amount preferred by the median voter. This is tolerable in the case of defense, which we know cannot be produced in the marketplace; we are willing to put up with this imperfection of government in order to have *some* defense. It is not tolerable, though, when we have as an alternative a well functioning market which will cater to individual tastes.

The State of Alaska now forces all individuals to save about 10% of "their" share of oil revenues, in the form of allocations to the Permanent Fund. In a few minutes I will develop an alternative which would have allowed individual, market-determination of the savings percentage. Can we have any doubt that free choice would lead to variety in individual savings decisions, rather than the uniformity we see today under political determination on this issue?

Another major aspect of public decision making is not related to voting *per se*, but rather to what happens after the voting, namely, that responsibility for actual operations is turned over to government bureaucracies. In order to understand what that implies about economic efficiency we need a theory of behavior and equilibrium of the bureaucracy, analogous to the theory of the business firm which we use in the theory or markets. Popular thought offers two theories. On the one hand, there is the "public servant" theory. This sees bureaucrats as selfless, hardworking souls, whose only objective is to achieve the public interest, subject to their limited budgets. In this theory, bureaucracies, reflecting the motives of the bureaucrats, do work in the public interest, which includes improving the economic performance of the private sector. At the other extreme is the "evil bureaucrat" theory. This sees bureaucrats as only out for their own good, as parasites on the public purse and predicts bureaucracies will be expensive and wasteful, and will seldom if ever operate in the public interest.

The emerging economic theory of bureaucracy takes a more general view of bureaucrats and bureaucracies. First, it assumes that bureaucrats, like the rest of us, seek a variety of objectives. The public interest is probably one of those objectives. However, income and wealth, power and prestige, security, and other personal objectives are also sought. The theory notes that achievement of many of these personal objectives is postively correlated with the size of the bureau which the bureaucrat works in. Thus, the bureaucrat will have a strong incentive to take actions which will increase the size of his bureau and its budget.

Up to this point, the theory could be applied to both public and private bureaus. However, the second major building block focuses on the constraints or limits which the parent system places on the bureau and its bureaucrats. Here, public and private bureaus part company. Private business firms seek profits. This gives them a relatively simple, straightforward yardstick to use in judging their various operations, divisions, and so forth. Further, the stockholders of corporations can and do withdraw support from firms with poor profit performance and poor performance of stock's price. These mechanisms combine to keep private bureaucrats from straying too far toward substituting their own personal objectives for those of the parent organization.

The same is not true of public bureaucracies. They are not judged on simple profitability criteria, but instead are judged in the much more flexible term of the public interest. Also, the ultimate "owners" of the public bureaucracy—the citizens, the taxpayers—cannot just consult the stock market page to find out how well their assets are being managed. In fact, they really have no simple way of monitoring bureaucratic performance. All in all, public bureaucrats are much more free than private bureaucrats to use the resources of the organization for their own ends, rather than for the owners' ends.

Specific models of public bureaucracies tend to focus on one aspect of the loose control the public has over its bureaucrats. That is in cost control. The basic problem here is that funding agencies and legislative oversight committees tend to find it nearly impossible to determine what it really costs to produce the output they want. The bureaucrats themselves are the only real experts on cost and production of their output, and they are highly skilled at concealing that information. Astute bureaucrats are thus able to inflate their budgets by claiming necessary costs are higher than they actually are.

Applied to Alaska's financial sector, these models suggets that if Alaska replaces private, profit seeking financial intermediaries with public bureaucracies, the result will be (a) high cost operations, which will be difficult to control or correct by political means, (b) evolution of operational procedures and paperwork requirements which increase staff and budget size, and place a heavy compliance burden on private borrowers, (c) evolution of lending policies which tend to increase the size of the bureau, rather than those that tend to maximize the social return from lending.

In very brief summary, without repeating all the individual points made in this section, it appears that political allocation of capital is likely to be far less efficient than market allocation. Neither system can be perfect, but the imperfections of the market system are slight and fairly controllable, while the imperfections of the political system are major and almost inherent—or, at least, basically uncontrollable in our present state of knowledge about the economics of public choice.

III. ALTERNATIVE FORMS OF OWNERSHIP FOR ALASKA'S OIL REVENUES

In the previous two sections I have come down hard against the idea of state loan programs. However, I actually have a great deal of sympathy for the business people and households who are asking for such programs. Some of these people desperately need business financing, others would very much like to have housing financed. It must be very frustrating to see your needs unmet when your state government has more money then it knows what to do with—especially if you believe that in a democracy all assets and property of government ultimately belong to the governed. In other words, if you believe that part of that money *is yours*. Under these circumstances it is quite understandable that people ask their government to *at least* lend them some of their own money.

From my perspective, however, their frustration is misplaced. Instead of being frustrated with interest rates and the availability of capital, they should be frustrated with the way their ownership of oil money has been defined. This is the final issue I would like to explore: the issue of the economic implications of alternative ways of defining the ownership of Alaska's oil revenues.

Let us look first at the current situation. Alaska's citizens own the oil lands and they own the oil revenues. But what they have is *common property* ownership: the citizens own the oil revenues in common, as a group, and no individual can single out any part of them as his private property. To understand what typically happens under common property ownership, consider the familiar case of an ocean fishery. Assume the fishery is owned as a common property resource, an open access resource, where anyone who wants to can exploit it at no charge. We know what happens in such an unregulated fishery. The "rule of capture" holds. You can convert valuable common property fish to your own private property by catching them. Trying to do this, people overinvest in boats and gear. There is too much fishing effort . . . more people fishing more hours than is really necessary. Thus some real resources are wasted. In addition, overfishing can occur and the fishery can be driven down far below its sustainable level, and, in the extreme, can be completely wiped out.

This is precisely the case of Alaskan oil revenues. They start as a common property resource, then people attempt to capture them, to convert them to private property, through political action. That is what is really taking place each legislative session; it is what is taking place here when people petition the Trustees to get the Permanent Fund invested in various local activities, directly or indirectly. Elimination of income taxes turns part of the oil revenues into the private property of those who get to keep the money they would ordinarily have paid in taxes. Appropriations for various state bureaucracies turn part of the oil revenues into the private property of bureaucrats, who can use their budgets to advance their careers and raise their future incomes. Provision of subsidies, hidden or open, to various groups converts part of the oil revenues to their private property, and so on.

Obviously, the people who win the most at this game are the politically powerful and astute. Also, it should be obvious that a certain amount of the oil money is dissipated in paying the costs of political activity, in bureaucratic waste, and in production of negative net value projects for special interests. *One important thing that this points up is that you in Alaska really have very little, if any choice about whether or not oil revenues are going to be privatized. This is because if you continue on your current path the political system is going to privatize them by the method just described.* Your only choice is of how the revenues will be privatized. You can let them be captured by the politically powerful, the clever, the astute, or you can make an open, public decision about how they are to be split up into the private property of all Alaskans.

Having discussed the problems inherent in common property ownership of the oil revenues, let us turn now to look at the actual pattern of use of oil revenues which has emerged under this form of ownership. Existing arrangements and political decision making have led to (1) a large increase in government output relative to private output, (2) a large increase in government's power to try to control the development of the private sector through selective credit policies, subsidies and other methods and (3) a large increase in public savings, through the Permanent Fund, with these resources apparently earmarked for provision of future government output.

Is this a set of results which best reflects the true preferences of the citizen-owners of the oil revenues? Are these the results of an allocative system which is responsive to the real needs and demands of the citizens? Our previous discussion of the allocative deficiencies of the political-bureaucratic system should make you doubtful that the answer to either of these questions is yes.

In order to put the current system in perspective, let us compare it with an alternative system which could have been used to define ownership in Alaska's oil revenues, and then to allocate those revenues. The key to the current system is that individual citizens own the oil lands through their rights as owners of a private corporation which had as its stockholders all Alaskans, and only Alaskans . . . or whatever group of persons you want to say has ownership rights under the current system. How much control over oil wealth would that system have given individual owners, and what patterns of resource use would we have seen over the years since discovery of oil?

Prior to the discovery of oil, stock in this land owning corporation would have had some (perhaps low) market price. As soon as oil was discovered, the market would have bid up the price of the stock. This would have immediately given individual Alaskans an increase in net worth. With each new discovery and each higher estimate of the size of the oil pool and each increase in the world price of oil, the market would have bid the stock price even higher. Thus, all the favorable events we have seen over recent years would have increased the net worth of Alaskans.

Individuals would have been free to sell the stock at any time, or hold it as they saw fit. Presumably the corporation would have periodically increased dividends, thus increasing the cash flow to those Alaskans who continued to hold stock. Also note there would have been no need for stockholders to remain in the state in order to receive their increases in wealth. This is in sharp contrast to the current system. Finally, ownership rights would have been clear-cut and legally enforceable, and there would have been no need to engage in political activity to either secure the rights or to protect them from encroachment by special interests and bureaucrats. In sum, individual Alaskans would have had far more personal control over their share of the oil wealth if it had been private property than in the current case where it is common property until converted to private property through political decisions.

The patterns of resource use flowing from individual control of oil revenues would also have been quite different than those we have seen under the current system. First, there would have been a great increase in demand for market produced goods and services, rather than the current increase in government output. Second, increased market demand would have stimulated private investment and economic expansion in response to market forces, rather than expansion in response to government subsidies. Third, there would have been an increase in private savings, rather than in public savings. This would have increased deposits in local financial institutions. Fourth, increased investment demand would have meant increased loan demand; increased deposits would have meant increased loan capability; local financial institutions would have grown and achieved economies of scale and increased competition, rather than the opposite effect we see now due to crowding in by state loan programs. Fifth, there would have been some increased demand for public goods and services, as people would also want to consume more of these as their incomes rise, and there would have been some normal increase in state revenues through the income tax.

But an extraordinary rate of growth of government spending would have been unlikely, since to achieve that the political system would have had to pry the money out of the hands of the citizens, rather than spending it before they can get their hands on it, as is now the case. Finally, it seems very unlikely that there would have been anything at all like the Permanent Fund. The long run savings percentage in this country is less than 10% out of personal disposable income. Savings out of income from non-renewable resources tend to run higher than that, but it seems unlikely that voters would have approved an additional 10-15% public savings out of gross oil income, on top of their normal savings. The Permanent Fund may make a certain amount of sense to citizens in the context of current arrangements, where it is a means of removing a portion of wealth from the fate that awaits it in the imperfect, waste-political system. But it would make somewhat less sense in the context of the alternative system, where individuals would have direct personal control of their own oil incomes.

We have now compared the effects of two alternative ownership systems for Alaska's oil wealth. It has been shown that the current system of common property ownership has a number of serious deficiencies:

- it does not give individuals effective control over their shares of the wealth;
- it has no inherent tendency to produce economic efficiency. Rather, majority rule voting and bureaucratic administration have strong tendencies to misallocate resources and to dissipate the wealth;
- the misallocative effects of the current system are not limited to government production and output . . . they also spread to the private sector, reducing the efficiency of capital markets, and setting subsidized interest rates which make capital look less scarce than it really is, thus distorting production decisions throughout the economy.

A private property rights system, in contrast, would perform much better on all these counts. Can there be any question which system Alaskans would choose if given a second chance?

If the current system is so flawed, why is it in use? Has it some great merits we have overlooked? Is this system needed because it is more democratic than the alternatives? Are there other high minded justifications for the system?

As far as I can tell, none of these things has anything to do with the existence of the system. The system exists by accident. It was historical accident which put the oil lands in the hands of the state of Alaska. It was historical accident in the form of custom and tradition which led to a common property definition of ownership of the wealth from those lands.

Now, as a result of these accidents, economic affairs run backwards in Alaska. The normal pattern in our society is that income is generated in the private sector, then some portion is taxed away to run the public sector. In one sense this is true in Alaska as well, since the oil revenue comes from taxes on the oil industry. But from the point of view of the individual citizen it looks as if part of his income is now materializing in the public sector, from which point some small portion may be passed on to him, if he is lucky.

Is there any reason why Alaskans should continue to allow the game to be played this way? Does the present system have any legitimacy at all? These are questions an outsider probably should not ask, and certainly should not answer. I do hope, though, you in Alaska will ask and answer them for yourselves.

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TO ALL READERS OF "THE TRUSTEE PAPERS":

Dr. Richard B. Coffman has notified us of an omission of a portion of his text appearing in the second paragraph, page 27 of "The Trustee Papers". The paragraph in question should read as follows:

"In order to put the current system in perspective, let us compare it with an alternative system which could have been used to define ownership in Alaska's oil revenues, and then to allocate those revenues. The key to the current system is that individual citizens own the oil lands through their role as "owners" of the state of Alaska. The whole system and all its allocative results would have been very different if individual citizens had owned the oil lands through their rights as owners of a private corporation. Imagine that the oil lands had been owned by a private corporation which had as its stockholders all Alaskans, and only Alaskans - or whatever group of persons you want to say has ownership rights under the current system. How much control over oil wealth would that system have given individual owners, and what patterns of resource use would we have seen over the years since the discovery of oil?"

We regret any inconvenience this error may have caused.

CROWDING IN, SMOOTHING OUT AND BRINGING DOWN
Three Issues for Alaska's Permanent Fund

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1. INTRODUCTION

In the best of all possible worlds, the Alaskan economy would develop smoothly and efficiently, without recession or overheating, providing continuous employment opportunities at rising real wages for its residents. Recent history tells a very different story. The Alaskan economy grew remarkably from 1973 to 1978, with an influx of labor and capital creating bottlenecks, shortages and higher prices. Then, with the completion of the oil pipeline, employment opportunities were severely cut back. Part of the labor force returned to the lower 48 and a local recession set in. Construction nose-dived, vacancy rates soared, and many small businesses were hard hit. Very naturally, local businessmen turned to the state with its vast oil revenues for help.

Since mid-1980, the Alaskan economy has recovered, largely as a result of the start of a massive public works program — $1.6 billion in federal, state and municipal expenditures, or about $4,000 per Alaskan. In addition, over $1 billion is being spent on North Slope oil development. An injection of capital expenditure of $3 billion into an economy of $4½ billion can hardly fail to produce another period of overheating. Construction will expand to bursting point, not only to meet the demands of public works' programs, but also to build new office blocks and housing for the expanding private sector and the increased labor force.

It is within the context of Alaska's episodic economic history that this report addresses three issues of relevance to the management and use of the Permanent Fund: (a) Crowding in; (b) Smoothing out; and (c) Bringing down. Crowding in is the term in general use to describe the phenomenon of finance provided by the government sector being substituted for finance previously provided by or potentially available from private sector financial institutions. To the extent that pure substitution occurs simply because government sector funds are cheaper than private sector finance, the sole effect of government sector loan programs, etc., is to cut back the private financial sector and, hence, to create a nationalized or socialized financial system. The issue, therefore, is whether or not the Permanent Fund can play a role within the Alaskan economy without crowding in on the private sector banks, S&Ls, mutual savings banks, credit unions, and finance companies.

In view of the violent fluctuations in the Alaskan economy over the past decade, the second issue considered here is that of a possible role for the Permanent Fund in smoothing out such economic disturbances. Could the Permanent Fund inject funds into the Alaskan economy to mitigate recession and hold them back to counteract overheating? And if so, how could such a policy be implemented and would it be in Alaska's own best interests?

Finally, there is the question of the volatile national economy and, in particular, the sizable fluctuations in interest rates which have taken place over the past two years. It has been argued that the present "high" interest rates are causing sound Alaskan businesses to fail. Could the Permanent Fund play an effective role in bringing down short-term interest rates in Alaska? If so, would this stabilize the Alaskan economy? And what would be the cost in terms of any decrease in economic efficiency?

2. CROWDING IN

Finance lies at the heart of any capitalist system, as Marx and Lenin well knew. The capitalist economy's financial system intermediates between savers and investors. Financial institutions survive and make profits by developing expertise in assessing risk. Risks are taken and funds extended for investment purposes when the expected return is negative. A correct appraisal of risk will mean that, although some ventures fail and the financial institution will face some delinquency and default, earnings on average exceed costs.

Government can compete with private sector financial institutions in the provision of investible funds. When government or public sector financial institutions offer subsidized credit, borrowers switch with alacrity from private to public sector lenders. The result is contraction of private sector financial intermediation.

Perhaps the most important issue here is whether government/public sector lending has, in fact, competed with/crowded in or simply complemented private sector lending in Alaska. If government loans have filled a "capital gap," providing funds only to investors unable to borrow from the private sector, then no crowding in has taken place. Whether or not government lending programs are the best solution to capital gaps is, of course, another issue.

The answer to this question lies not in economic theory or armchair theorizing, but rather in empirical evidence. To ascertain the facts of the matter, this author drew a one-in-twenty sample of borrowers from Alaska's State Business Loan Program. The sample consisted of borrowers for small business, fishing and tourism investments, dispersed throughout the state. A questionnaire (Appendix) was mailed to 60 borrowers, of whom 23 (i.e., 38 per cent) replied.

Eleven of these borrowers had not approached a private sector financial institution at all. Evidently, their first choice, subsequently satisfied, was for state loans. The remaining 12 borrowers had looked into private sector possibilities for the loan they sought. Eleven selected the state loan program because the "interest rate [was] too high elsewhere." Only two of the 23 respondents were turned down by private sector financial institutions. Hence, 21 out of 23 borrowers might have been accommodated by the private sector had no state loan program existed. On this count, over 90 per cent of state lending could have crowded in or substituted for private sector lending and less than 10 per cent alleviated any capital gap, which may or may not exist.

It has been suggested (*Alaska Industry*, June 1981, p.9) that "the residential real estate market [was] brought back to life last summer by the state's low interest home mortgage program." Were this actually the case, this state lending program might have been complementary to rather than competitive with private sector lending. As with the Small Business Loan Program, the problem is one of distinguishing state loans which crowded in private lending from state loans which did not. In this case, there is no direct evidence. However, one could consider the following points:

1. At the national level, there was an upsurge in building permits issued starting in the second quarter of 1980.
2. The massive public works and oil-related capital expenditures which started in mid-1980 had a general stimulative effect on the Alaskan economy.
3. The office space shortage which materialized in 1981 provides *a priori* support to the proposition that the building boom was demand not supply generated.

This is not to deny that residential construction was totally unaffected by the state's subsidized mortgage program. Rather, it simply points out that some recovery would undoubtedly have occurred in any event. Furthermore, it is not unreasonable to suggest that the main impact of the state mortgage program was on the timing of construction activity rather than on the total stock of housing in Alaska.

Alaskans have seen subsidized loan programs of various kinds come and go. Sometimes, funds have been plentiful, at other times appropriations have been delayed. The rational reaction to temporary or one-shot subsidized loan programs is to adapt the timing of one's investment plans to coincide with cheap loan availability. Hence, a temporary subsidized loan program can be expected to have a greater short-run impact effect than a permanent one. The temporary program changes the timing of investment plans to a much greater extent than does a permanent subsidy. The next section discusses the benefits and costs of such manipulation of investment timing. The purpose here is simply to suggest that the coincidence of temporary availability of subsidized mortgages and a housing boom is quite consistent with crowding in. Alaskans who changed the timing of their housing investment plans in order to obtain a subsidy from the state mortgage program changed their behavior in only one respect. In other words, they would have borrowed from the private sector financial institutions at some future date had the state not instigated its subsidized mortgage program. The *future* demand for private sector loans was transformed into a *present* demand for state loans. Hence, Alaska's private sector financial institutions lost business, i.e., were crowded in.

It would be difficult not to conclude that a large majority of Alaska's state loans have substituted for or crowded in private sector lending. This conclusion is reached on the basis of the evidence and arguments presented above and in two other reports [Coffman and Fry (1980, pp. 120-125); Counsel for Community Development (1981, pp. 3, 20, 95-97 and 112)]. In addition, the current condition of Alaska's private financial sector is entirely consistent with the case for crowding in.

Does crowding in matter, except of course to the shareholders of the private financial institutions? Are the state loan programs actually more efficient than private sector lending? Or is taxpayers' money being used to subsidize not only interest rates on state loans but also excessive administrative costs and inefficient decision making? An earlier examination of Alaska's Small Business Loan Program [Coffman and Fry (1980, pp. 126-127)] threw up indicators of administrative inefficiency and serious lack of expertise in making loans to small businesses. Hence, inefficient and inexperienced state lenders may well have been using public funds to drive out efficient and experienced private lenders. There is no case for such use of taxpayers' money.

Experience indicates that the role of the capitalist economy's private financial sector in risk taking is perhaps the most difficult to substitute or duplicate in state lending. The Third World, for example, is full of state-owned financial institutions with miserable performance records. A number of developing countries, eg, India, have nationalized their entire financial sectors. In no case has a more rapid pace of economic development ensued after bank nationalization. Typically, greater government involvement in and/or interference with the financial system, eg, through selective credit rationing, interest rate controls, etc. has reduced both the quantity and efficiency of investment. Hence, economic growth has been reduced [Fry (1978, 1980, 1981)].

Of particular interest and relevance is the Third World's experience with development banking. The 1950s and 1960s witnessed the establishment, often under the auspices of the World Bank, of development banks in the majority of developing countries. These institutions were expected to spearhead the drive to industrialization, agricultural investment, tourism, etc., providing finance and knowhow, both technical and managerial. Specifically, development banks were to meet the demand for longer-term investible funds which commercial banks, typically run along Anglo-Saxon lines, were disinclined to consider.

The main effect of this considerable effort in institution building appears, with hindsight, to have been financial layering. The development bank obtains funds from the central bank which, in turn, taps the commercial banks. Intermediation between original saver and ultimate investor is undertaken not by just one financial institution but by three, four or even five. The costs of financial intermediation are increased with each additional institutional layer. And greater costs imply a greater spread between the net returns to savers and the gross costs to investors. Both saving and investment are deterred by the decreased efficiency of financial intermediation.

The 1980s are witnessing a new direction in financial development—a move towards multipurpose or universal banking. This trend is to be found among both developed and developing economies. The inefficiencies of financial layering, a product of regulation-induced overspecialization, have been recognized. In the United States, the passage of the Depository Institutions Deregulation and Monetary Control Act of 1980 heralds an era of one-stop banking in this country. The Anglo-Saxon tradition of commercial banks as providers solely of short-term finance is to be superseded by the German/Japanese model of universal banking.

Government regulation has been responsible for suboptimal efficiency of private financial sectors in Alaska and in the rest of the United States. The efficient solution, finally adopted at the federal level, is not to substitute state for private sector lending but rather to dismantle inappropriate regulations. In particular, no efficient substitute for the profit motive has been found in the area of risk taking.

All this implies that the Permanent Fund should avoid the role of development bank. Nor should it foster unnecessary and inefficient financial layering by placing funds at subsidized interest rates with Alaska's other financial institutions or state lending programs. This leaves two courses open to the Permanent Fund, both potential profit-maximizing strategies. The first is to employ a New York-based investment management firm to place funds. The second is to recruit similar expertise to manage the Permanent Fund directly. The first strategy may be cheaper, the second could result in more funds staying in Alaska, particularly if a capital gap really exists. By definition, capital gaps always imply the existence of unexploited profitable investment opportunities. An Alaska-based management team could be expected to exploit such opportunities more readily than a New York-based management firm. The choice, therefore, appears to hinge around the empirical question of whether or not any significant volume of unexploited profitable investment opportunities with entrepreneurs seeking financial backing exist in Alaska. Coffman and Fry (1980, pp. 56-95) and the Counsel for Community Development (1981, p. 86) are both skeptical of the capital gap thesis.

3. SMOOTHING OUT

The Alaskan economy has swung violently from boom to recession and back again over the past few years as a result of a number of internal and external shocks. The internal shocks include the oil pipeline construction and the recent flush of public works projects, while the external ones consist of the 1973-74 and 1979-80 international oil market gyrations and post-1979 fluctuations in U.S. interest rates.

The lengthy recession from which the Alaskan economy is now emerging is not without its casualties. It is not surprising, therefore, that proposals to use Alaska's oil revenue to stabilize and/or insulate its economy have surfaced. Specifically, it has been suggested that interest rates and credit availability could be stabilized to some advantage. For example, the Counsel for Community Development (1981, p. 106) advocates a scheme whereby the Permanent Fund would shift its portfolio in favor of local investments in times of tight money.

To the extent that restrictive monetary policy does hit hardest and discriminate against peripheral regions of the country, a thesis for which some evidence exists, then a profit-maximizing, locally managed Permanent Fund would automatically shift the composition of its portfolio towards a higher proportion of local investments. Hence, the Permanent Fund would be reducing the discriminatory impact of restrictive monetary policy, but not eliminating the overall credit tightness.

There are two reasons in favor of such an investment strategy for the Permanent Fund. First, no financial institution has the resources to counteract the Federal Reserve's monetary stance. To be sure, the Permanent Fund could provide handouts, subsidies, or grants to help Alaskan business ride out a credit crunch. But the Permanent Fund cannot affect the market rate of interest, i.e., the opportunity cost of funds. Countering restrictive monetary policy, therefore, is clearly a fiscal not a financial or monetary device. And, as such, any attempts at countercyclical policies are quite inappropriate activities for the Permanent Fund or for any other financial institution. Subsidization is the converse of taxation and, hence, must be considered, approved, and implemented in exactly the same way as taxation. All subsidies should be appropriated from general state funds.

The second reason is that profit maximization is a clear objective for Permanent Fund management. Performance against this objective can be evaluated with reasonable precision. Were Permanent Fund management given additional objectives, their task would be made much more difficult and might well require expertise outside the field of investment management. More important, performance evaluation against multiple objectives is virtually impossible. The real danger is the Permanent Fund investments would soon be based more on political than economic criteria. This, of course, would undermine the entire *raison d'etre* of the Permanent Fund. And, at present, there is no shortage of funds for politically motivated appropriation in Alaska.

It is even clearer that internal shocks to the Alaskan economy should be countered, if at all, by fiscal rather than financial means. The timing of public works projects might be the most appropriate instrument for stabilization purposes. Again, there is no justification for involving the Permanent Fund in any attempts to insulate or stabilize the Alaskan economy. Part of its recent instability has been produced by the state legislature. If instability is so unpopular, the state legislature already has ample resources with which to tackle the problem.

4. BRINGING DOWN

Short-term interest rates are now higher than long-term interest rates. High short-term rates are hurting Alaskan businesses. Therefore, the proposal has been made that the Permanent Fund could bring down short-term interest rates in Alaska to the level of long-run rates. This, it is argued, would not distort resource allocation because the present level of short-term interest rates is expected to fall.

Evaluation of this proposal proceeds along exactly the same lines as the analysis in the previous section. Again, the Permanent Fund cannot actually bring down short-term interest rates in Alaska. All that the Permanent Fund or, for that matter, any other state-owned institution can do is compensate for high rates by providing subsidies. The real issue is whether or not subsidies for this or any other reason are justified. If so, it is a fiscal, not a financial, matter. And, of course, it must never be forgotten that, always and everywhere, subsidies have to be paid for by someone. There is no such thing as a free lunch.

5. CONCLUSION

This report has warned against two pitfalls which the Permanent Fund should avoid. On the one hand, there exists a real danger of state-owned financial institutions, of which the Permanent Fund is one, crowding in the private sector financial institutions. Yet, a nationalized financial system is basically incompatible with capitalism. The Permanent Fund can guard against crowding in by pursuing, single-mindedly, a profit-maximizing investment strategy. Such behavior would fill any capital gap which may or may not exist in Alaska.

On the other other hand, the Permanent Fund is very definitely not the appropriate vehicle for dispensing subsidies to Alaskan borrowers by providing loans in any form at below-market interest rates. Subsidization is, like taxation, a fiscal matter. As such, each and every subsidy to Alaskan residents and businesses should quite clearly be appropriated from general state funds. There is absolutely no justification for circumventing the standard appropriation procedure for subsidies of any kind.

The prescription for the Permanent Fund's investment strategy given by Coffman and Fry (1980, p. 138) still holds:

> An unfettered, profit maximizing strategy for Permanent Fund investments would eliminate any economic shortage of capital in Alaska, if it exists, and also exploit any profit available from market segmentation, if that exists. In other words, it would equate interest rates in Alaska with rates in other areas of the United States. Welfare is clearly maximized by a profit maximizing investment strategy for the Permanent Fund. It is our strong recommendation that the Permanent Fund should be given the sole objective of maximizing the yield of its portfolio.

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APPENDIX

Business Loan Program Questionnaire

Sixty questionnaires were mailed to a one-in-twenty sample of borrowers from the State Business Loan Program. The sample included loans for small businesses, fishing and tourism. Twenty-three replies were received, i.e. the response rate was 38 per cent.

Letter of Transmittal

7 February, 1980

Dear Borrower,

I am conducting a small study of the State's Business Loan Program for the Department of Revenue. The objectives are to find out how successful this program has been and what changes would improve it.

Your assistance would be of great value and much appreciated. Please would you help by completing and returning the enclosed questionnaire in the stamped addressed envelope provided. It should not take more than a few minutes and will be an important input in the process of improving this program.

Thank you very much in advance.

Yours sincerely,

Maxwell J. Fry

BUSINESS LOAN PROGRAM QUESTIONNAIRE

1. How did you get to know about this program?

    2 Advertisement
    3 Bank or other financial institution (e.g. S&L association)
    8 Friend or acquaintance
    9 Business associate
    1 Other — please specify (Overall Economic Dev. Committee, Kenai Pen.)

2. Did you apply for your loan from this program after you had looked into other possibilities for borrowing?

    12 Yes — If so, why did you choose this program?
        2 Turned down elsewhere
        11 Interest rate too high elsewhere
        1 Other — please specify (Paperwork for SBA loan)
    11 No

3. What was the main problem (if any) in getting your loan from this program?
    13 Paper work for the application
    2 Raising the necessary downpayment
    2 Providing collateral acceptable to the lender
    6 Other — please specify (No state funds available; incompetent loan officer; time delay; interim financing)

4. How has your loan affected your business?

    15 Greatly helped
    6 Helped
    2 Made no difference
    0 Hindered
    0 Greatly hindered
    0 Other — please specify

5. Did you have any new business with a bank or other financial institution as a result of this loan?

14 No
2 Opened a new account
4 Got another loan
1 Opened a new account and got another loan
2 Other — please specify (Bank released first mortgage and took a second mortgage; interim financing)

6. Is the interest rate charged on your loan from this program satisfactory?

22 Yes
1 No — please indicate the problem (still too high)

7. How could the Business Loan Program be improved in your opinion?

3 (Need low interest rate loans for working capital)
1 (Need assistance with application)
3 (Need more personal contact, less paperwork)
1 (Stabilize the number of loans made each year)

8. Do you have any other comments?

1 (Should be allowed more than one loan)
5 (Loan officer was incompetent)
1 (Maximum loan too small)
5 (Processing time far too long)
1 (Difficulty getting the banks to process and submit loan)

THE EFFECTS OF IN-STATE INVESTMENT: LESSONS FROM OIL-FIRED DEVELOPMENT IN OTHER PARTS OF THE WORLD

Prepared for
The Permanent Fund Trustees
October 23, 1981

Malcolm Gillis
Harvard Institute for
International Development and
Department of Economics,
Harvard University

I. INTRODUCTION

As a youth in rural Florida, the word "Alaska" evoked many pleasant images for me: rivers filled with salmon, waters teeming with Alaskan crab, great stretches of coniferous forest and noble mountains, bracing winters, and abundant wild game. Like most Americans in the lower 48 states, only after 1970 did I learn to add "oil" to the list of images associated with mention of this vast state. And, having been involved in one way or another with the economics of oil for over a decade, I had imagined that my perceptions of the role of Alaskan oil were reasonably current. But in preparing for this session, it quickly became apparent how limited was my appreciation of the significance of the Alaskan oil sector, and the measures taken here to build on the opportunities afforded by oil.

For example, on each new exposure to a major oil producer—be it a nation, state, or province—I have the habit of calculating oil production per capita for the jurisdiction in question. Although such calculations have very limited economic content, I find them useful as a means of developing my initial perspective on issues in hydrocarbons and development. In this case, the calculations brought home to me, in a way not possible when using any other indicator, just how significant oil may be to this state. Even in 1980, *per capita* production of Alaskan oil was about 1,500 bbls./person/year. While this is no news to you, it was striking to me that Alaska's *per capita* yearly production was nearly *thrice* that of Kuwait, more than *four* times that of Saudi Arabia, almost *six* times that of Libya, *ten* times that of Gabon, *thirty* times that of Venezuela, and almost *four hundred* times that of Indonesia, all (except Gabon) charter members of OPEC.*

Even considering that, relative to most OPEC countries, Alaskan oil is higher-cost oil (in terms of extraction and transport cost) and that, being a state within a larger Federal union, Alaska's net returns from each barrel are lower than that accruing to the national governments of OPEC countries, Alaska's problems in coping with a rapid increase in wealth do not appear all that dissimilar from those experienced by OPEC producers as well as non-OPEC Mexico and Gabon. Many of these countries have prospered mightily, even as they have deployed their oil wealth in somewhat less than optimal fashion. The five Mid-East OPEC producers alone had accumulated over $300 billion in combined foreign exchange reserves by early 1981, even though together they expanded *domestic* spending on investment in infrastructure and production at an annual rate of nearly 50% (48%) from 1974 to 1979.

As we shall note, some of the major oil producers exercised little prudence in utilizing oil wealth; several have experienced severe "economic indigestion" following the sudden shift to a rich diet of oil income. Other major producers have, like Alaska, opted for a more cautious approach, laying aside a portion of oil income until such time as attractive options appear for domestic investment. Indeed, arrangements similar to Alaska's Permanent Fund have a longer history than is commonly recognized. The first was the Texas Permanent School Fund, which predates that state's entry into the Union in 1845. There the state reserved, as a condition of entry, its ownership of public lands, including much of the mineralized area of the state, and today the Fund still reaps the benefits of that action. Similarly, Venezuela established in 1974 a special reserve fund to which almost half of annual oil revenues were destined, to finance large-scale development projects. Outside of oil, the Malaysian state of Sabah, rich in timber *and* oil, established the Sabah Foundation, awarding it exclusive rights to (and income from) nearly 3,000 sq. miles of prime hardwood forest land. The Foundation is empowered to invest in a wide variety of projects, ranging from manufacturing through education.

Finally, the experience of nearby Alberta is surely of more than passing interest to Alaskans. But because the Trustees of the Permanent Fund are doubtless far more familiar with Alberta's Heritage Savings Trust Fund (AHSTF) than the present speaker, little further attention will be devoted to this institution in what follows.*

The foregoing discussion is by way of introduction to the execution of the task assigned me today. Part of that task is to distill from experience elsewhere some lessons that might be useful in Alaska's efforts to ensure productive deployment of its very sizable oil wealth. Another part of the task is an effort to identify some of the socio-economic effects of large-scale investment in small economies such as that of Alaska. Finally, I have been requested to comment briefly upon topics treated by previous speakers before the Trustees, who addressed themselves primarily to financial issues related to the exercise of your responsibilities. On this last point, congratulations are in order to the Trustees and their Staff. Previous presentations to the Trustees must have elicited much productive debate. However, I am not necessarily in full accord with everything said therein. In any case, you have chosen well, at least up until today, and most of the advice you have received on such diverse topics as state loan programs, diversification of your investment portfolio, and project selection appears fundamentally sensible, at least from the vantage point of one not yet thoroughly versed in Alaskan affairs.

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* Actual 1979 figures were as follows: (bbls./capita/year)

OPEC:	Kuwait	578	Venezuela	55
	Saudi Arabia	357	Nigeria	11
	Libya	270	Indonesia	4
NON-OPEC:	Mexico	13	Gabon	7
	Malaysia	8		

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* Suffice to say that the legislation establishing the AHSTF provides that 30% of the province's annual revenue from non-renewable resources is to be transferred to the Fund; the other 70% goes into the General Revenue Fund. As Alberta produces 85% of Canada's annual oil production of over 600 million bbls., the Fund has already reached very sizable proportions. By 1980, the present value of the Fund was placed at $30 billion, or about $30,000 per Albertan resident.

II. RELEVANCE OF EXPERIENCE ELSEWHERE

There is merit in attempting to distill lessons for Alaska from the experience of countries that have also had sudden massive infusions of wealth. Care must be taken, however, to avoid succumbing to the temptation to learn too much from these experiences. Indeed, some important *caveats* are in order before any attempt is made to draw lessons. First, some of the adjustment *problems* encountered by oil producing *nations* arise because they *are* nations, with their own respective exchange rate systems, sovereign tax systems, and barriers to entry and exit of labor and capital. Alaska, on the other hand, is a political subdivision within the largest and most diversified national economy in the world. Second, in spite of the surprisingly large (20) group of countries that face the challenges and opportunities of dealing with oil wealth, Alaska's experience thus far has no really close parallels elsewhere in the world. In this, as in other respects, there is a uniqueness about Alaska that limits transferability of lessons from elsewhere. And in any case, comparisons are difficult, because there are at least six different patterns of experience that might be examined, each with its own particular set of earmarks. These six varieties of experience may be depicted as in Table 1.

Which of these cases furnishes lessons that might conceivably be instructive for Alaska? That is not an easy question to answer, since Alaska shares some similarities with virtually every group; but it also contrasts substantially with almost all save one, and the parallels between that particular group (VI) may be more superficial than real.

The first two groups of countries, and particularly the small Mid-East exporters, have had to cope with what has become known as the "Kuwait effect." In such countries, *per capita* oil export earnings also are large enough to provide all permanent residents with a high standard of living. In these circumstances, a free market rate for foreign exchange would be so high vis-a-vis the dollar and imports so cheap that practically everything would be imported; nothing but oil would be exported. Simply put, with "Kuwait effect" present, it makes very little economic sense for citizens to undertake any domestic economic activity other than to collect oil revenue. In fact, citizens of countries like Qatar and Kuwait leave most domestic economic activity to a legion of migrants from neighboring poor countries.

The next three groups of countries all display symptoms of what has become known as "Dutch Disease," a condition afflicting an economy that receives a windfall gain, but whose agents do not necessarily feel better off. This group includes such diverse countries as wealthy Holland and Norway, such intermediately poor nations as Mexico and Nigeria as well as low per capita income countries such as Indonesia and Nigeria.

Table 1

TAXONOMY OF EXPERIENCES ELSEWHERE WITH SUBSTANTIAL AND RAPID INCREASES IN NATURAL RESOURCE WEALTH

TYPE	COUNTRIES
I. Mid-East exporting nations with small* population	Kuwait, Libya, Qatar, United Arab Emirates (UAE)
II. Mid-East exporting nations with middle-sized** population	Saudi Arabia, Iraq, Algeria
III. Developing country exporters with middle-sized population	Ecuador, Venezuela, Malaysia
IV. Developing country exporters with large*** population	Iran, Indonesia, Mexico, Nigeria
V. Industrial country exporters	Norway, Holland, Britain
VI. Political subdivisions of nations (states, provinces) with small population	Alberta, Sabah (Malaysia)

Total number of examples: 20.

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* "small population" = less than 5 million people

** "middle-sized population" = 5-30 million people

*** "large population" = 30 million and above

"Dutch Disease" is a milder form of "Kuwait effect" associated with rapidly rising oil wealth. Dutch Disease should be easier to treat, but is not, partly because diagnostic methods capable of identifying the malady have only recently been developed, and remedies thus far on the market are largely palliative, not curative. Dutch Disease shares some interesting characteristics with the human ailments gout and some form of hypertension. All three diseases are associated with relative affluence. For all three, the short and medium term course of illness produces symptoms that are usually more annoying than debilitating. All three are treatable, if not curable. But left untreated, all three can have potentially serious long-term effects.

Symptoms vary, but not by much. Inflation in excess of world inflation rates is usually present, with bottlenecks such as port congestion, scarcity of construction equipment, etc. In richer countries such as Holland or Britain, onset of Dutch Disease is typically associated with *rising*, not falling, unemployment rates; in poorer societies such as Venezuela, Ecuador, and Nigeria, rising immigration of labor is usually evident. Where the exchange rate regime is one of floating rates—as in Holland and Britain—unwanted exchange rate appreciation typically occurs, artificially cheapening imports and discouraging non-oil exports. With fixed exchange rates, as in Indonesia, the mechanism is different but the effects on trade are similar: domestic inflation, not exchange rate appreciation, erodes non-oil exports and encourages imports, even as international reserves continue to rise. Another symptom found in almost all cases, and, I gather, in Alaska, is a growing share of government in the economy financed *not* from taxes on domestic labor and capital income, but from taxes on enclave petroleum rents. Finally, a common side-effect of Dutch Disease has been resort to heavy subsidization of various activities, particularly energy-intensive ones. Where Dutch Disease is present in developing countries, one usually finds that gasoline and fuel taxes have been abolished, accompanied often by subsidies on all refined petroleum products (such subsidies reached more than $25.00/bbl. in Ecuador in 1980, about $18.00/bbl. in Indonesia in the same year).

From my reading of materials sent by the Staff, it appears that in spite of the special circumstances of Alaska, the state shares some of the problems of the "Dutch Disease" countries, except that which arises from exchange rate adjustments caused by inflows of oil income. At first blush, Alaska's case at present is most comparable to Alberta and Sabah, Group VI in our taxonomy. Again, since it is likely that you are far more familiar than I with the Alberta situation, I refrain from drawing any strong parallels. But in what follows, some similarities with both the Malaysian state of Sabah and Alberta will be highlighted.

III. SOME TENTATIVE GENERALIZATIONS DRAWN FROM EXPERIENCE ELSEWHERE

A. Shared Symptoms

In most of the countries listed in Table 1, we find undercurrents of unease over the type of prosperity that accompanies large infusions of natural resource income. From officials of Mid-East OPEC producers, one often hears of "flawed prosperity." President Lopez Portillo of Mexico has repeatedly spoken of "economic indigestion." In Holland and Britain there is much discussion of "Dutch Disease," and in Indonesia the complaint is expressed in terms of the "Banyan tree" problem, signifying an oil boom that is less than a boon. But even where oil income is perceived as a mixed blessing, it is never viewed as the *bane* of development. That is, it is recognized that this is a "good" problem, not the type of "bad" problems faced by India, Ghana, or even the state of Maine. Indeed, all of the major developing country oil exporters, from the Mid-East (save Iran) to Mexico and Indonesia, have lately enjoyed real GNP growth of 8% per year or more.

1. ECONOMIC SYMPTOMS

The economic stresses cited earlier were common to virtually all the oil-rich countries listed in Table 1. Here we discuss four of these ailments in some detail: all the oil-rich countries listed in Table 1 experienced (1) substantial inflation, in excess of world inflation; (2) very rapid growth of government spending; (3) some unexpected and unwanted effects on economic activity *outside* of the oil sector; and (4) miscellaneous irritants such as port congestion and isolated "boom-town" problems.

Inflation was a particularly wrenching problem. In six of the countries in Group I *and* Group II (Mid-East producers), there was a very sharp increase in inflation in 1975 and 1976, later settling at an annual rate of about 15% from 1976-80. But in Mexico, Indonesia, and Nigeria (Group IV) inflation was somewhat more substantial, averaging in excess of 25% from 1974-79.

Overheating of these economies was in large part a consequence of massive expansion in government spending, in almost all cases. Following the quadrupling of oil prices in 1974, governments in the countries in Groups I and II increased their public expenditures at an average annual rate of 44% per year. In Indonesia, Nigeria, and Mexico, the annual expansion in government spending was on the order of 20-30%, rather similar to recent growth in Alaska's *operating* budget, according to one report; and in Venezuela the number of government workers rose by 2½ times from 1975 to 1980.

In several countries other than the small economies in Groups I and II, rapid growth in oil and gas income was associated with stagnant activity in important non-oil sectors. For example, in Holland, there was a substantial decrease in manufacturing activity, as the index of industrial employment dropped from 102 in 1974 (prior to the increase in gas exports) to 88 in 1979. In Indonesia, prosperity in the oil sector came close to destroying the large labor-intensive rubber sector and the emerging manufacturing sector. Only a 50% devaluation in 1978 saved both. Mexico's exports of non-oil products have also slumped since 1977, as has the agricultural sector, and by mid-1981 45% of Mexican workers had no regular jobs.

Arteriosclerosis in the transport sector has afflicted a number of major oil exporters, but particularly Mexico, Nigeria, and Indonesia. (In Mexico and Nigeria, vessels often have to wait 90 days or more to unload, while in 1980, 32,000 railcars destined for Mexico were backed up into sidings all the way into Oklahoma.) Port congestion is not, however, a problem in the Mid-East, where very large infrastructure investments in seaports were completed by 1980.

2. SOCIO-ECONOMIC SYMPTOMS

Except for the industrial countries listed in Table 1, virtually every major oil exporting jurisdiction has experienced problems in adjusting to higher oil income. These include worsening in income distribution, increased exposure to the vagaries of international oil markets (often called an increase in dependency), and, with two exceptions, a substantial influx of new, expatriate migrants seeking jobs. Also, in Mexico, Nigeria, and Indonesia, as in Alaska during the pipeline construction, new migrants from within the respective countries have been attracted to oil-rich areas in large numbers.

Virtually everywhere, the advent of massive inflow of oil wealth has led to deterioration in income distribution, by which is meant a worsening in the *relative* impoverishment of the poorest income classes. This has occurred in the Mid-East oil exporters, where the large mass of illiterate farmers and Bedouin tribesmen are difficult to reach with government programs. It has also occurred in such middle-sized and large oil-exporting LDCs as Venezuela, Mexico, Nigeria, and Indonesia. Apparently, residents of rural Alaska reportedly suffer as well from relative deprivation, and may be no easier to reach with governmental services than are Indian tribes in Venezuela or Bedouin nomads in the Arabian peninsula. However, there is no evidence that *absolute* poverty among the poorest member of society has worsened in any of the countries in Table 1.

Influx of migrants has become a thorny issue among all such countries, whether migrants are expatriates (Mid-East and Venezuela) or from within a particular country (Mexico, Nigeria, Indonesia). In Kuwait, Qatar, and the UAE, foreign workers already outnumber the indigenous population; in Saudi Arabia, three-fourths of the labor force was foreign by 1979. In Venezuela, fully 25% of the population now consists of immigrants from neighboring nations. In Mexico, the governors of the oil-rich states of Tabasco and Chiapas objected vigorously as early as 1977 to the "invasion" of migrants from the rest of the country.

Inflows of migrants are closely related to another issue associated with natural resource wealth: the "boom town" problem. In the early stages of rapid immigration of people attracted by prospects for employment in the oil sector, requirements for social infrastructure are large, and the "boom town" or "boom region" ordinarily finds it difficult to finance public services, since requirements for infrastructure generally precede the flow of boom-related taxes (c.f. Alaska in 1974). The quality of life in the affected region, therefore, declines until revenues provided later in the boom period allow extensive infrastructure construction. Later, as oil resources are depleted, large numbers of the now aging population are left jobless and are, in any case, not well adapted to the economic conditions of the post-boom period. Further, the *social* infrastructure (schools, roads, hospitals, etc.) built up during the boom period is now excessive (relative both to economic activity and to the post-boom population). Underutilized, this infrastructure becomes accordingly expensive to operate and maintain. You are much better equipped than I to determine whether the "boom town" problem has been, or promises to be, a serious issue for Alaska.

Finally, many leaders of oil-rich countries have recently begun to agonize publicly over the increasing "dependence" of their nations on developments in world markets for oil. In Mexico one hears frequent reference to that country's vulnerability from having become a "one crop" economy. Indeed, the experiences of Ecuador, Mexico, and Indonesia in 1981 show how quickly things can change for countries dependent on oil for more than half of exports and half of tax revenues. As late as March of 1981, each of these countries had projected oil revenues on the basis of prices remaining in excess of $35/bbl. and had planned government budgets accordingly. Ecuador has implemented two major spending cuts since then. Indonesia, with production of 1.6 million bbls./day, currently expects a substantial budgetary deficit for 1982 after seven years of budgetary surpluses, and will have to make painful cuts in planned expenditures. Mexico was forced to pare $4 billion from its budget in August, and still expects a deficit amounting to nearly 10% of GNP this year. The dramatic nature of Mexico's reversal was underscored by the fact that in August Mexico, as nationalistic as any country, had to seek standby help from the International Monetary Fund. In all these countries, something similar to Alaska's Permanent Fund would have moderated the present difficulties. Elsewhere among oil-producing nations, and particularly in Nigeria, neo-Marxist rhetoric has helped fuel growing complaints over the dependency of that country on world oil markets. There, dependency on the industrial West is viewed not just as a barrier to development, but the *cause* of underdevelopment.

Even in Alaska one may observe unease over a perceived state of dependency on the rest of the United States. As in many developing countries, some Alaskans seem to view expanding local processing of the state's natural resources as one way to overcome dependency. As noted below, expanded local processing of natural resources may or may not be advisable on economic grounds, but it will do little for reducing dependency if that is what is, in fact, wanted.

B. Policy Responses

Virtually all countries mentioned have sought to use oil money to create a viable modern economy outside the oil sector, so as to be able to sustain a relatively high income after the oil is depleted. In my judgement, none of the political jurisdictions listed in Table 1 have had even moderate success (although Kuwait, and since 1976 Indonesia, may be exceptions) in coping with the often bittersweet shock of enormous inflows of natural resource income. Perhaps Alaska will be the first to avoid the wastes, overheating, and missed opportunities so characteristic of the great majority of countries in that table. If so, you may establish standards that other jurisdictions may well wish to emulate. All things considered, a reasonably good start seems to have been made.

Let us now examine some of the types of policy responses that have dulled the luster of achievements elsewhere.

1. PROJECT SELECTION

Good economics is the avoidance of needless economic waste, in whatever guise waste appears. In Table 1 countries, "bad" project selection has led to large misallocation of resources. There is only one definition for "good" project selection for the private sector, and, I would think, the Permanent Fund as well: projects selected on the basis of prospective economic *returns*. If there are significant investment opportunities available that involve high *social* returns over and above economic returns, these are best left to the government budget proper. If the Permanent Fund is really to be permanent, there are strong arguments for investing in projects that *will* pay; there are no defensible arguments that investments should be undertaken merely because the government (or the Permanent Fund) *can* pay for them.

This has been the gist of the advice of at least three prior expert witnesses, and I could not be more in agreement with their views on that point. The advice that the Trustees should seek to maximize the yield of the Fund's portfolio is eminently sensible, particularly in light of lessons from elsewhere.

The experience of oil-rich political jurisdictions is littered with projects undertaken because influencial constituencies, citing high unquantifiable "social" returns for large projects, were able to prevail over the objections of cost-minded project analysts. "Social" returns are often defined in terms of "country-building," "dependency-reducing," or enhancing "national prestige." Illustrations of such projects include Indonesia's Krakatau steel project, a $3 billion boondoggle intended to free that nation from the need to import steel. This dubious "freedom" will cost that society nearly $80 million annually for another decade (in addition to the $1.5 billion already invested). We could also cite the Trans-Gabon railroad, a $4 billion project in an oil-rich country of a half million people, as well as the surge of new investments in universities and hospitals in Mid-East oil countries that will remain grossly underutilized for the foreseeable future. Further examples include many of the investments of Venezuela's Guyana Corporation, where large projects in local processing of raw materials have been undertaken primarily because the government had the funds to do so, rather than because they might pay; the British government's use of oil taxes to bail out of Rolls Royce Aerospace merely because this was the crown jewel in that country's enfeebled industrial structure (at a cost of over $25,000 per job saved); and several other examples too numerous to mention here.

2. FISCAL POLICY

Fiscal policy responses of most governments in Table 1, except those in Group V (industrial country oil exporters), have varied significantly. Many political jurisdictions, from Alberta to Indonesia, have responded by cutting taxes. Mid-East countries in Groups I and II have, since 1974, had little taxes to cut in the first place. Alberta, as you well know, has reduced personal income taxes and abolished gasoline taxes. Sabah, endowed with timber as well as oil revenues, chose to make annual cash payments of almost $50 to each of its 1 million citizens (about 5% of *per capita* income in Sabah), much in the manner of Alaska's planned rebates. Sabah also spends on government social services nearly twice as much on a *per capita* basis as is spent by the central government. As other discussants have cautioned, fiscal actions such as those taken by the subnational units Alberta, Sabah, and contemplated by Alaska, can lead to geographical misallocation of labor *within* each country. In each of the three cases, differentials between state taxes paid and benefits received by residents of different regions will widen in favor of the inhabitants of the resource-rich region collecting large resource taxes. Mobile labor resources throughout the country as a whole can be expected to respond to these fiscal differentials by migrating to the resource-rich regions, where high quality public services can be secured at the cost of very low, or, in Sabah's case, negative taxes on households. This constitutes, *ipso facto,* resource misallocation, and therefore inefficiency, since labor resources flow not in response to more socially productive opportunities within a country, but merely as a consequence of budgetary decisions made possible by geological activity in eons past.

Fiscal subsidies other than grants have also been widely used by oil-rich jurisdictions, particularly in the Mid-East, but also in Indonesia and Venezuela. Heavy subsidies on health services, food, housing, and motor fuel have been common. Except in Indonesia (where immigration is difficult), these subsidies, being difficult to confine to citizens of oil-rich countries, have served to speed up the inflow of foreign workers, and in all cases amount to sizable fractions of GNP. In Indonesia alone, subsidies on motor fuel, fertilizer, and foodstuffs ordinarily amount to 7% of GNP, and almost half of government spending.

If the diversification so keenly sought by oil-rich countries means the creation of an economy that would be viable once oil runs out, then this would require an economy that could ultimately stand on its own in the absence of subsidies, and also pay ordinary taxes. Therefore, large-scale subsidization efforts can run counter to the expressed goals of these societies.

3. SELECTIVE, SUBSIDIZED CREDIT

There are few safe generalizations in economic policy. But one generalization comes as close as any to a universal truth: selective government-sponsored credit programs (particularly those involving subsidies to borrowers) have been, virtually everywhere, resounding failures. Here we speak of failure not so much in the sense of spawning resource misallocation so abhorrent to economists, but failure in the sense of not achieving the results desired by the government. This has been as true of the oil exporters in Table 1, particularly Venezuela, Indonesia, and Mexico, as anywhere else.

Government-sponsored "easy loan" programs have floundered for a variety of reasons. Worldwide, there is a marked tendency to regard subsidized credit as a grant, not a loan. Interestingly, repayment records worldwide for subsidized, low-cost credit shows higher ratios of delinquency and default than found with unsubsidized credit.

Subsidized credit is often advertised as a way of helping the poor or disadvantaged. In reality, there do not seem to be any examples of subsidized credit programs that have been very successful in helping the poor. This is due to the simple (usually overlooked) fact that low interest rates do not help people who cannot borrow, i.e., those who find it difficult to qualify for loans.

Finally, subsidized credit often leads to waste even when loans do end up in the hands of the intended groups. For example, a private banker would never lend money to an entrepreneur to build a rubber processing facility without first verifying that the plant site had access to enough water to allow processing to take place. But this happened on a large scale under selective credit policies in Indonesia. Similarly, a private banker would never extend credit to a small enterprise to help it import sophisticated equipment without ascertaining whether the firm had the people to run the equipment. But this occurred frequently under one of Venezuela's special subsidized credit programs. Finally, no private investment house would lend millions to investors to build high-rise apartment houses without first establishing that there was a market for such housing, but this has occurred on a sizeable scale in Saudi Arabia. It would, then, appear that people rarely make bad loans with their own money; when the public's money is being lent, that is often another story.

A previous speaker before the Trustees observed that state loan programs are "not a cure for capital market problems; rather, they are part of the problem." Another argued that subsidized loans are highly discriminatory against the poor. Still another contended that selective credit programs tend to reduce the quantity *and* efficiency of investment, and that government efforts to operate financial institutions ordinarily serve to increase the costs of financial intermediation. A widely distributed position paper by Commonwealth North argues for curtailment of existing state lending in Alaska, citing several significant problems in the operation of such programs. Experience around the world reinforces and supports these views. I would add that I have searched in vain for 14 years for *one* example of a truly effective state-subsidized loan program for industry.

One additional problem of government lending programs was not discussed by previous speakers: all over the world, and particularly in Europe, governments often find themselves the owners of enterprises to which they earlier extended subsidized credit. Some of the largest state-owned firms in Britain, Italy, France, and Sweden, begin their metamorphoses from private firms in just this manner. British Leyland (BL), Rolls Royce Aerospace, and Alpha Romeo are but a few examples. The pattern is fairly predictable. Governments first attempt to encourage (or keep afloat) firms by providing subsidized loans. Since some (usually significant) fraction of firms receiving subsidized loans are marginal enterprises to begin with (indeed, this is often precisely the argument used to justify special credit programs), many ultimately go under. Governments then, either to avoid localized unemployment or to salvage some of the value of the loans, often step in by converting the loans to equity, in many cases finding themselves majority owners of very weak enterprises.

As the British, Italian, and Swedish experiences clearly show, this is one way to quickly spend a lot of the public's money. For instance, the British government became a reluctant investor of over $3 billion in BL and Rolls Royce *before* 1981. Whether Alaska is ready for a substantial government-as-entrepreneur presence is a question that can only be decided by Alaskans.

4. INFRASTRUCTURE INVESTMENT

a. Experience Elsewhere

All the major oil-rich developing countries, but particularly the OPEC Mid-East producers, have used part of oil revenues to expand basic infrastructure in roads, harbors, telecommunications, electricity, and water supply. Indeed, from 1974 until 1979, the Mid-East producers, especially Saudi Arabia, Qatar, and the UAE, devoted the largest fraction of their overall investments to augmenting physical and social infrastructure; a relatively small fraction was deployed for investment in industrial diversification. Indonesia and Nigeria, with populations of 150 and 85 million respectively, spent smaller shares of their oil money on physical infrastructure, as these low-income countries faced more immediate needs to find investments that would generate employment rapidly. However, Indonesia devoted large amounts of its oil resources to construction of *social* infrastructure, particularly primary schools. A crash program was begun in the area as soon as the initial revenues from the 1974 boom began to flow. As a result of this program, by 1980 nearly 90% of the population aged 5-12 was in primary schools, compared to less than 60% in 1969.

Notwithstanding the apparent success of the Indonesia school construction effort, crash programs to expand infrastructure have often involved substantial waste, by creating facilities that have been grossly underutilized. In other cases, infrastructure projects intended primarily to promote the development of particular localities have been ill-suited for that purpose. In that respect, I am reminded of an apocryphal story concerning the eccentric, often-elected (and often-deposed) President of Ecuador in the sixties, Mr. Velasco Ibarra. Mr. Velasco was truly one of the great demagogues of recent years. This is a story of a campaign speech he made in a town in Ecuador called Dos Gatos:

Velasco:	"And finally, when I am elected again, we will build the biggest *bridge* in Ecuador, right here in Dos Gatos."
Voice from Back of Crowd:	"But Senor Presidente, there is no river in Dos Gatos."
Velasco:	"Then we will also build the biggest *river* in Ecuador, right here in Dos Gatos."

Unfortunately, proposals for large infrastructure projects elsewhere have often been based on motivations even more ignoble than those of Mr. Velasco. For example, oil-rich nations of the Mid-East also made the mistake of allowing contractors not only to *identify* projects, but also to do the feasibility studies *and* the implementation of projects. You can imagine how many projects contractors concluded were infeasible. And it should not be surprising that projects generated in this way tend to help a few people very much and damage many people a little. Examples include the "towers of silence" in several Saudi cities (apartment houses that even today stand unoccupied), and a proliferation of full-scale international airports in small desert kingdoms.

By 1980, many governments in that region had recognized that even for well-conceived infrastructure projects, scarcity of indigenous technical skills often meant poor project design and implementation. Consequently, both Saudi Arabia and Kuwait have had to ask the World Bank to provide reimbursable technical assistance in sector planning, project identification, project analysis, and training.

There are some clear lessons from the Mid-East experience in infrastructure investment. The first is that unless there is sufficient capacity within a government to identify projects and to vet feasibility studies, wasteful projects *will* be chosen, even when there is no shortage of "good projects." Perhaps the state of Alaska is already training a new cadre of between one and two hundred in-house specialists in project design and project evaluation. If not, that effort had best begin soon. This capacity was sadly lacking in many of the oil-rich countries included in Table 1. Many of these countries would have been better off spending large fractions of their oil resources on the erection of large brass—or even gold—monuments to their ancestors, rather than investing in some of the infrastructure projects actually chosen. For at least the future maintenance costs of such statuary would have been minimal, but the maintenance outlay for bad infrastructure projects (such as the Trans-Gabon railroad or the Northern Manitoba Highway) can extend well into the next generation and beyond. And no government anywhere—in oil-rich or other countries—has to my knowledge ever "walked away" from a disastrous infrastructure project that is already in place, even after it has become obvious that it is economic madness to throw another dollar at its upkeep, and while other, fundamentally sound, projects go begging for finance.

That to me is the second major lesson that may be learned from experience in much, but by no means all, large-scale infrastructure investments of other oil-rich jurisdictions. Bad project selection not only wastes *today's* money, it can squander equivalent or even greater amounts of the next generation's money as well. Well-trained project analysts cannot always marshal effective arguments for blocking such untertakings. But their presence usually means that fewer bad projects ever reach a stage where the public's money must be committed, and, perhaps more importantly, can result in smoother implementation of "good" infrastructure projects that lack influential consistuencies.

b. A Digression on Project Analysis

There appears to be substantial pressure in Alaska for mounting a very large program in infrastructure expansion on a scale that could easily rival even that of many Mid-East nations in the last decade. There are doubtless a number of thoroughly analyzed projects already "on the shelf," ready to be considered for implementation. But with the financial resources now available to Alaska, there may also be a temptation to forego careful project evaluation for the extra deep water port, the extra causeway, or the extra 100 miles of railroad track, on grounds that ample funds are available to finance them all.

There will be those who argue that such projects involve such substantial *unquantifiable* benefits that systematic project evaluation (cost-benefit analysis) will be impractical and even useless. Please allow me to explain why proponents of such projects from within governments can quite honestly believe this, and why it is advisable that such projects still be subjected to full-dress cost-benefit review. I speak of sectoral bias of government officials world-wide and the nature of "unquantifiable" benefits and costs.

As custodians of the public patrimony, the Trustees would be well advised to be wary of generalizations purporting to apply to behavior of government officials. Notwithstanding that *caveat,* there is one generalization that seems applicable to governmental decision-making at the sectoral (Ministerial, Departmental) level across a wide variety of countries, both oil-rich and otherwise: there is a well-documented tendency virtually everywhere for decision-makers at the sectoral level to tend strongly to identify the public interest with the interests of "their" particular sector, with results that are not always consistent with the public interest. The Minister or Secretary of the Transportation Department ordinarily views as desirable those policies, programs, and projects that involve expansion of the transport sector, if not of the role of the Transportation Department; the Vice-Director of the Forestry Department generally believes that greater activity in the forest sector involves unmixed blessings for the state or country as a whole. Perspectives such as these often lead to the type of sectoral parochialism (and sometimes chauvinism) exemplified in statements by heads of Departments (of Education, Agriculture, Finance, Public Works), arguing that "expanded (secondary education, fish production, tax collection, infrastructure) must be sought at all costs." Underlying all such statements is the view that more (education, fish production, tax collections, harbors and tunnels) is a means in itself, rather than the means to some broader end. In a sense it is appropriate that sectoral officials seek to defend the interests of their particular sector; there is nothing inherently undesirable about such views, provided that mechanisms exist for countering sectoral bias of sectoral officials when government decisions are ultimately made. That is what project analysis is all about.

Experience suggests that officials responsible for policy toward infrastructure are little different than their counterparts elsewhere in the government. Generally, they, too, identify the broader public interests with the interests of the sector for which they are responsible. This is no less true for Norway and the United States than for Indonesia or Kuwait. This perspective is a healthy one when lack of expertise on infrastructure in the rest of the government has led to an inadequate appreciation of the potential benefits of expanded infrastructure. But it is less than healthy when there are too few project analysts around to challenge inflated claims for the benefits of infrastructure projects.

It seems clear from the foregoing discussion that assessment of the merits and limitations of vastly expanded investment in infrastructure requires institutionalization of systematic tools for evaluating all potential costs and benefits expected to arise from such investments, within a conceptual framework that facilitates quantification of those costs and benefits that *can* be readily acquired, as well as orderly discussion of those costs and benefits less amenable to quantification.

Cost-benefit analysis is such a tool. It is not to be viewed as an infallible substitute for decision-making through the political process, but merely as an aid to that decision-making. For example, a project involving very high quantifiable benefits and very low quantifiable costs may still not be worth undertaking if decision-makers suspect that the *unquantifiable* costs are very high. Alternatively, adherence to this framework places a very heavy burden of proof on those who would argue that large projects involving very low *quantifiable* benefits should still be acceptable, as they must be able to convincingly demonstrate that the *non-quantifiable* benefits are very high. This is, indeed, often possible to show; but attempts to inflate such benefits cannot then be cloaked in scientific vestments.

5. INVESTMENT IN NATURAL RESOURCE PROCESSING

Judging from a reading of several documents sent to me by the Staff, it would appear that there exists some sentiment for further investment in natural resource processing facilities within Alaska, perhaps including forest, fishery, and mineral resources. In general, there is something to be said for such views: considerations of weight loss in timber processing and hard minerals beneficiation ordinarily skew processing investment decisions to on-site locations in any case. I confess complete ignorance of the economics of fish and seafood processing. As for petrochemicals, sensible decisions for investment in such facilities can emerge only after very lengthy review, usually three to four years.

Nevertheless, it is not unlikely that further investment in local processing of some of these resources will prove attractive. If so, private investors can generally be expected to seize such opportunities. Beyond that, if public sector resources are to be used, each project needs to be judged on its own merits; blanket policies for encouraging *all* resources are clearly to be avoided. Technical and market considerations may well mean that, say, an Alaskan copper smelter would be advisable, but a ferro-nickel plant unwise on grounds that it would not pay. But it is difficult to see why anything other than the prospect of a competitive return on a processing investment justifies financial support from the Permanent Fund, unless benefits from employment and technology transfer are sizable. And typically the first type of benefit is surprisingly small; the second cannot be easily quantified and is easily overstated.

Processing investments do ordinarily give rise to increased employment. But they ordinarily represent a highly expensive means of generating new jobs. Rarely are costs *per job created* less than $300,000 to $500,000, if experience in the third world is any guide. Sometimes substantial local benefits in the form of transfer of technology are expected from investments in natural resource processing. Elsewhere, as in Indonesia, Nigeria, and Ecuador, such expectations are rarely realized. Further, if technology transfer does take place in the Alaskan setting, it does not necessarily follow that benefits will automatically accrue to Alaska. It is not widely recognized that technology transfer is effectuated primarily through the medium of *people*. Well-trained metallurgists required for a copper smelter, for example, are in heavy demand all over. Mobility of skilled labor within the United States and, indeed, within the world economy, lessens the chance that Alaska could capture much in the way of benefits from transfer of technology associated with processing investments. Much depends on local absorptive capacity for new technology, generally deficient in Table 1 countries. If Alaska also intends to invest heavily in the training of, say, metallurgists or chemical engineers (for pulp and paper plants), and the like, the argument that processing investments would involve large benefits from transfer of technology would appear rather stronger.

It would be perilous in the extreme to offer any advice on the economic feasibility of *particular* processing projects of any kind without a thorough review of each potential project. It is clear, however, that at present some types of projects are generally more attractive than others. The world is now awash in plans for large-scale petrochemical projects in not only the Mid-East, but in Indonesia, Nigeria, and even Bangla Desh. And the economics of some processing undertakings, particularly in copper, increasingly dictates investment beyond the concentration stage near *markets*, rather than in regions of origin.

In any case, country after country has, since 1960, learned the expensive lesson that more local processing of natural resources is not always better for that country. Among the more prominent examples of the damages from use of government funds to pursue processing at all costs are:

1) The Krakatau steel mill in Indonesia, which, even if it functions as designed, will annually generate out-of-pocket losses of between $60 and $80 million per year;

2) Bolivia's Oruro tin smelter, which must utilize expensive charcoal because of the lack of coal, thereby resulting in deforestation of many steep slopes in that mountainous country, with consequent serious erosion;

3) The petrochemical complex of Colombia's state oil firm, Ecopetrol, an expensive white elephant.

4) Closer to home, we have two examples: (a) Canada's Georgetown Seafoods fish processing facility on Prince Edward Island, the most costly fish plant of its size ever constructed. Among other problems, the facility cannot be supplied with fish during the winter; and (b) the Prince Albert pulp mill in Saskatchewan, a disaster by any standards.

In several other cases, governments have rushed headlong into encouragement of greater local processing. Indeed, there are many instances in which governments, in their zeal to promote processing, have given up more in investment funds or in foregone tax revenue than they have received in benefits to their economies. The Bolivian tin smelter, constructed in 1968-69, is such an example. For another, consider a case in timber. The country of Papua New Guinea has some attractive hardwood stands. The government there is committed to a policy of discouraging log exports and encouraging sawmilling and veneer plants, the better to secure greater domestic value-added in processing. To further this aim, the government has abolished export taxes on lumber and veneer, while maintaining a 10% export tax on logs. In so doing, it gives up $440 of lost taxes for each $100 of additional wages made possible by higher employment in timber processing. This is but one of the common examples of the types of waste involved in indiscriminate enthusiasm for expanded investment in local processing. In such cases, the non-quantifiable benefits to the host economy had better be very high, given that the net quantifiable benefits are negative.

IV. FINAL OBSERVATIONS

Insofar as my remarks have focused on the Alaskan context, I have *assumed* that it is intended that the Permanent Fund is to have a time horizon as indicated by the title of the Fund: that the intention is to maintain the real capital of the Fund at some level yet to be specified by the Trustees. Otherwise, the objectives of the Fund do not seem to be specified in much detail. While in my view it would be advisable to settle soon on the question of the "permanence" of the Fund, i.e., whether the Fund is or is not to be self-liquidating over time, I am perhaps less concerned than many over the lack of a *detailed* set of marching orders to guide the allocation of investments, although the inclusion of appreciating investments in the portfolio is highly advisable. But beyond that, the issue of the objectives of the Fund merits extended discussion, and in your place I would be in no particular hurry to resolve that issue.

But however it is resolved, care will have to be taken to avoid adoption of criteria that do not mesh and which require performance that cannot be measured. In nearby Alberta, problems have already arisen regarding interpretation of the objectives of the Heritage Fund. The stated goal of that fund is to: "strengthen and diversify the economy of Alberta, while providing a reasonable rate of return to the Heritage Fund." This is a sensible-sounding goal, particularly when read off rapidly. However, it has not proven all that easy to implement. In 1980, the Deputy Provincial Treasurer of Alberta was moved to remark that:

> It was not fully anticipated by anyone just how difficult it would be to find a sufficient volume of investments that would meet the twin criteria . . . There is something of a conflict between the two criteria if one takes the view that economic development financing necessarily involves a concessionary element.

Considerations such as those voiced by the Deputy Provincial Treasurer, together with the *caveats* presented herein regarding the pitfalls of massive immediate expansion in local investments in the face of existing transport, manpower, and other bottlenecks, argue for profit maximization as the superior objective for management of the Fund, at least for now. Unlike decision rules containing multiple objectives (c.f. that for the Heritage Fund), a rule involving maximization of the Fund's portfolio is clear and straightforward, and is susceptible to fewer ambiguities of interpretation than any alternative rule that comes to mind. In your place, I would want such a rule, not only to protect the Trustees from needless litigation in the future, but because I believe that it would be in the best interests of your constituency in both this generation and the next.

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