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The Political and Economic Feasibility of an American Industrial Policy

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THE POLITICAL AND ECONOMIC FEASIBILITY OF AN AMERICAN INDUSTRIAL
POLICY

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Honors Research
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POLICY

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ABSTRACT

An industrial policy is "any government measure that prevents or promotes changes in the structure of an economy." This paper provides an overview of the issue, by focusing on how government can encourage productivity growth in the economy.

By studying other countries we hope to learn how industrial policy might work in America. The obvious choice to model is Japan's Ministry of International Trade and Industry (MITI), but other countries, most notably the British and the French, have adopted certain policies as well. On the whole, while Japan has been most successful, MITI may have more credit than is due, and countries such as France have failed in their industrial policy initiatives. Given America's reluctance to involve government in the management of the economy and the uncertain response of government commissions to crises in the past, the best approach would be to combine a Japanese MITI-like body with some power and an advisory British-style committee that must be checked by Congress and/or the president.

Industrial policy should focus on several sectors of the economy. There are two ways that industrial policy is helpful. First, industrial policy can directly influence tariffs and non-tariff barriers (NTBs), which can have a significant influence on productivity. This paper, however, only addresses the second aspect of industrial policy. What are the areas where productivity can be improved. They include infrastructure, education, science, technology, and R&D promotion.

The methodology is based on both economic and political theories. Underlying the economics is indifference curve analysis which postulates that American economic growth in overseas markets will depend on competitiveness, which in turn depends upon productivity. Politically, congresspeople will try to maximize their probability of getting re-elected. These two theories are incorporated into a system that ranks preferences on economic and political feasibility. Accordingly, since politicians are making the decisions, more weight is given to the political component, and the two feasibility rankings are added to come up with a feasibility score. This score is set against a null hypothesis, and the lower of the two scores should reflect Congressional preference.

President Clinton has made several proposals, including one for an Economic Security Council. These proposals are evaluated for their political and economic feasibility. Conclusions will show that for the most part, Clinton's proposals are economically and politically feasible, compared to what the government currently does.

There are problems, however, with the data, the methodology, and the various proposals. There are limits to what can be inferred from this study. These will be explored, and the need for more research will be examined, as well as what area would be focused on in the future. Now, however, this paper provides a general overview into a topic that is very current.

"Industrial policy" in the United States has long been a phrase associated with private firms in the manufacturing sector meaning the strategy that they use as a whole in order to maximize their profits. Since the early 1960's however, "industrial policy" means "any government measure that prevents or promotes changes in the structure of an economy."¹ Industrial policy is designed to promote one country's manufactured products in national and international markets. More and more companies want government to intervene and help them compete, because foreign firms, especially the Japanese, have the same advantage. Typically, this "policy" comes in the form of semi-protectionist tariff and non-tariff barriers, government subsidies for industry-wide R&D, and investment spending.

This policy has proven very effective, as the "Japanese Economic Miracle" illustrates. Not surprisingly, others, such as members of the European Economic Community (EEC), have followed their example. They have also done well, especially in the global market. This increases the pressure for other countries to initiate their own comprehensive industrial policy, which snowballs the effect. In fact, it has become almost essential for governments to help increase their firms' global competitiveness as markets become increasingly global.

Most of the gains realized by the rest of the world have come at the expense of the United States. This fact has led some scholars, politicians, and business leaders to call for the U.S. government to adopt its own industrial policy in order to compete

better in the global market. These people agree with Socialist author Arthur MacEwan as he says:

Political control over the economy is certainly a necessary condition for meeting our economic goals, as much as staying alive is a necessary condition for leading a good life. Just as certainly, of course, political control, like staying alive, is not a sufficient condition. It just makes good things possible.²

As of 1983, 55 percent of business executives in a survey responded that they favored "'some kind of government' intervention in dealing with the problems of basic industries in the United States."³ Throughout the '80's and into the '90's, these calls have intensified. On a nationally syndicated TV show on 2 April 1992, for example, Democratic nominee hopeful Bill Clinton flatly stated that "we need an economic policy."⁴

On 3 November 1992, Clinton swept into the White House, campaigning on the promise of economic reform. Several new programs and reforms have been suggested by the new president, his supporters, and his critics. These proposals all have the same basic goal: they want to change the way American firms do business and make them more competitive and productive in the global economy. To do this, Clinton and others envision a new industrial policy for the United States, run by the federal government. While this has proven successful in Japan and Germany, in the United States it is a controversial concept.

Any industrial policy that the United States would attempt to undertake must in theory and practice be both economically and politically feasible, or it has no chance of succeeding. Often,

however, what is economically viable is not politically feasible, and vice versa. Industrial policy, if done correctly, can overcome the gap between economic and political feasibility. It could also intensify the wedge between them if Congress and/or the Clinton administration adopt a policy that hurts the American economy, or if Congress simply refuses to pass an economically sound but politically damaging policy package. It is therefore imperative that a policy must meet both criteria of economic and political feasibility.

The Arguments For Industrial Policy

Proponents of government-sponsored industrial policy often argue one of two ways. First, they will argue that American competitiveness is declining, which is weakening our economic position in the global community and stagnating economic growth. Therefore, there needs to be some external force to promote market solutions to help America's economy grow again. A second common argument focuses more on international fair play. A government agency or agencies that can promote the same type incentives for domestic firms that other countries' agencies' can will allow U.S. firms to be more competitive inherently, because they would then be dealing on a level playing field. Both arguments provide ample support for why there should be an industrial policy in the United States.

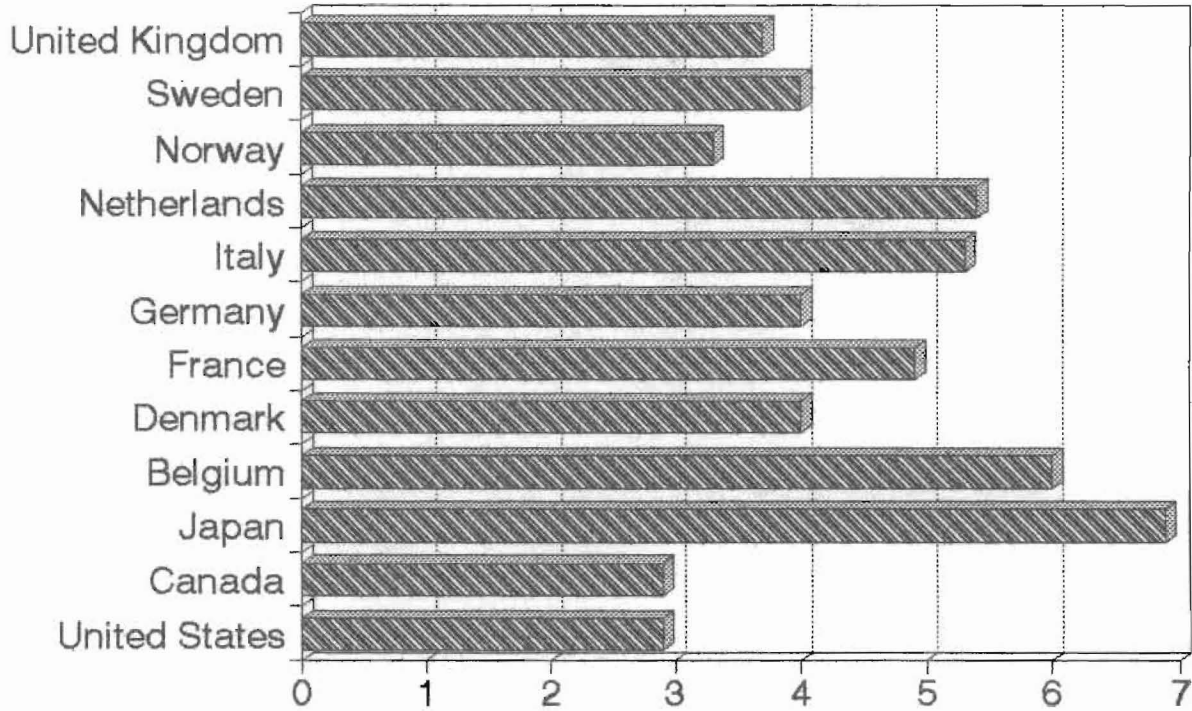
The first argument cites statistical evidence to support its position. These statistics show that American competitiveness, as proxied by American productivity, has fallen relatively to the rest of the world. Chart 1 shows Output per Hour growth rates for several developed countries. America's output per hour rates have grown the least. These rates, which are used to approximate productivity, are growing slower than the rest of the world.

Statistics such as these compel many executives and policymakers to call for a comprehensive set of government policies that can address these issues of falling productivity and competitiveness, falling share of world GNP, and so on. The trade deficit is also cited as evidence that our economy is losing competitiveness; America is importing more and exporting less, and this reflects on worsening competitiveness in international markets.

The impetus for industrial policy from this first argument comes from the fact that the factors that affect competitiveness, such as productivity, are not being adequately dealt with in the market. If the problems in productivity cannot be addressed through the market, then there must be some other solutions that can deal with them. This is where the government can step in and augment the open market by increasing incentives to enhance the growth of productivity and/or competitiveness. Changes in productivity can cause similar changes in competitiveness. If the factors that affect productivity are not being corrected, then the factors that deal with competitiveness are not being corrected.

CHART 1

Percent Change in Output/Hr, 1960-1990



Source: Monthly Labor Rev. Dec. 1991.

The second argument attacks the lack of industrial policy from an advantage standpoint. Basically, the argument is that the rest of the countries have an industrial policy that provides them with certain advantages that U.S. firms don't have. As a result, they are better able to compete in the marketplace. In order to "level the playing field," our firms need the same type of government support. This aspect of industrial policy, though, is not within the scope of this paper; the focus will be on industrial policy that deals with increasing productivity.

In order to analyze any industrial policy, it is helpful at first to understand the history of industrial policy will highlight what types of policy have been tried in the past both in the United States and other countries, notably Japan. Second, the contents of industrial policy are explored. Third, the theories of economic and political viability are developed, followed by the method of analysis. Finally, the industrial policy analyzed will be the the Clinton agenda pertaining to competitiveness and productivity concerns. Analysis will show that most of the proposals are valid both economically and politically, compared to what the government currently does.

II. LEARNING FROM OTHER COUNTRIES

Most other countries have attempted a form of industrial policy, which America can learn a great deal from. Primarily, though, they have followed one of two models, either the Japanese

model or the British model. The Japanese model focuses on an administrative agency that can direct the economy and foreign penetration into domestic markets, a MITI-type agency. The British model of industrial policy, on the other hand, centers on an "information/consensus agency" like Great Britain's National Economic Development Council.⁵ These two models offer different roads to industrial policy. Both have mixed records, though.

The Japanese Experience

At the end of World War II, the Japanese economy was in shambles, and subject to the rule of the occupying American forces stationed there. American forces had distinct goals for the Japanese economy:

After WWII, America tried to keep Japan an agrarian nation, but this approach was abandoned in 1947 and again when occupation ended with the signing of the San Francisco Peace Treaty in 1951. 'The initial policy to discourage all the seeds of its war potential and keeping Japan as a land of agriculture and insignificant commerce proved too costly for the U.S. Treasury.' [Ozaki, 1992, p. 7]⁶

After this policy was abandoned, the Japanese began to develop their own economy and institutions immediately. On 25 May 1949, they established the Ministry of International Trade and Industry (MITI) to oversee the international economic policies of Japan, and on 24 November 1949, the Foreign Exchange and Foreign Trade Control Law (FEFTCL) was passed.⁷ These laws, and others, such as the Export-Import Transactions Law which actually allowed cartels to be formed under certain conditions⁸, all intended to strengthen the

Japanese economy by semi-protectionist industrial policy means.

U.S. foreign policy permitted this advantageous behavior:

Until the 1960's the United States helped the recovery and development in Japan by keeping the U.S. market open for Japanese goods, while at the same time accepting Japanese protectionist policies. . . . The United States accepted such asymmetrical benefits because of a commitment to . . . Japanese recovery, because it expected to benefit from the reductions when the exchange controls were removed, and because it sought to maintain the momentum of establishing a more open trading system.⁹

America expected to benefit from the post-protectionist era that would ensue after Japan had firmly re-established its economy. This American policy, coupled with the protection itself, provided Japanese firms with favorable domestic and foreign market advantages from which to grow. Japan took advantage of it.

Against this backdrop of both favorable domestic and foreign government policy, the Japanese Economic Miracle occurred. This miracle consisted of annual real growth of Gross National Product (GNP) of 10% for every year from 1950 to 1970. Among the reasons explaining this unprecedented phenomenon are Japan's ability to absorb and adapt foreign technology, the availability of labor due to movement out of agriculture and a growing population, heavy investment in manufacturing, and the previously mentioned government policies of export expansion and import protection.¹⁰ Japan went from a minor economic power in 1960, when they had less than 3% of the world GNP, to a major force in the 1980's, as Japan accounted for 10% of world GNP and 8.3% of world trade.¹¹

Industrial policy receives a lot of credit for some of the successes of the Japanese economy during this period. For example,

the government targeted industries such as steel, oil refining, petrochemicals, automobiles, aircraft, industrial machinery, electronics, and computers, and promoted them "through tax incentives as well as financing provided by government lending institutions and private savings encouraged by government policies."¹² Industrial policy in Japan improved productivity of Japanese firms, which thereby increased its international competitiveness. As Japan's competitiveness increased, they had an open market waiting in the United States that absorbed their goods, which increased international trade in the favor of Japan and at the expense of the United States.

Japan also invested heavily into its private sector. This gave firms the capital necessary to expand business, often beyond the country's borders. There was also reinvestment into new technologies and procedures that would increase productivity. Base technologies from foreign countries, especially basic technologies from the United States, would be adapted to Japanese production techniques and brought to the international market quicker than the United States could bring it. These industrial policies also increased productivity, and allowed Japan to significantly increase its competitiveness in the global arena. This has resulted in considerable economic growth for the country.

These effects were augmented by other policies that the government undertook for the sake of industrial policy that increased competitiveness, namely the use of tariffs and NTB's by MITI and other organizations. Contrary to popular thought, the

tariff is not the main protectionist strategy that Japan opts for. It is relatively minor, and usually ineffective. The use of tariffs also provided political problems for Japan, as the GATT was making strides in eliminating tariffs in other countries, Japan still had relatively high tariffs¹³; as the Japanese economy grew and grew, this became increasingly more unacceptable to the rest of the world.

The situation finally reached the beginning of resolution in 1959, when at an International Monetary Fund (IMF) conference in Washington, D.C., the United States "reminded Japan that the pace of her trade liberalization was unjustifiably slow in light of her growth records and balance-of-payments position."¹⁴ As the GATT conference began in Tokyo later that winter, these discussions continued. After that, "these experiences compelled the Japanese government to realize that as an international bargaining tool, if nothing else, the early liberalization of her trade became a matter of necessity."¹⁵

As a result Japan did start to lower her formal tariffs, and continued to do so as a condition of admission into the IMF in 1964.¹⁶ They continued to be reduced, and Japan participated in the GATT Kennedy, and Tokyo rounds, until by 1988, Bela Balassa and Marcus Noland argue that "on the whole, tariff rates on non-agricultural products in Japan approximate those of the EEC and the U.S."¹⁷ For the most part, this is still true.

The Japanese markets remain relatively closed to foreign competition today, however. The United States and other developed

countries believed that if they could force Japan to lower their tariffs, they could still make significant inroads to the Japanese markets. However, this line of reasoning was faulty, because the main elements of protection the Japanese employed were NTB's. Consequently, "when Japanese tariffs were significantly reduced in the GATT Kennedy Round, there were still significant barriers to entry in the Japanese market."¹⁸ These were the NTB's that made up most of the industrial policy's protectionist strategy to increase Japanese competitiveness.

NTB's include " all transparent border measures that directly or indirectly limit imports."¹⁹ This can include, but is not limited to, such restraints as quotas, Voluntary Export Restraints (VERs) and Voluntary Restraint Agreements (VRAs), and tariff quotas, which increase the duty on goods after a specific amount. Other types of NTB's are more informal, and include "administrative guidance" requirements, customs procedures, standards, testing, and certification requirements, public procurement practices that are primarily closed to the foreign competition, and defense of depressed industries.²⁰

Unlike the GATT reduction on tariffs, there have not been many agreements on what to do about NTB's. The Tokyo Round of the GATT (1973-79) came up with the first set of codes on NTB's, but this has not really limited their use. The Second Maekawa Report, issued in 1987, recognized the need for Japan to liberalize its practices in, among other things, importing manufactured goods, tariffs, the government procurement system to allow some imports, and

agriculture.²¹ This would allow for fairer competition in the Japanese markets.

Japan is not the only country to employ NTB's as a defensive tactic in order to give domestic firms a little edge. The EEC and the U.S. are equally culpable. Japan's more extensive restrictions, however, often mean the difference in cost of a Japanese good, as opposed to a foreign good. Where the NTB's are relatively low, as they generally are in the U.S., they usually cannot promote such an effect. This has given Japan a relative advantage over the U.S. in terms of market penetration, which has led to some of the gains that the Japanese have made.

Japan has developed a very successful industrial policy around a few central principles. The government should help the private sector increase productivity, which will help increase international competitiveness. The government should also help stimulate investment and R&D spending, and help private firms develop new technologies that get to the market faster than the competition. It should also help support domestic industry by use of tariffs and NTB's that help limit foreign penetration into the domestic market, without provoking adverse reaction from the international community.

Some authors have concluded that Japanese "industrial policy" is not as successful as it appears to be. As Murray Weidenbaum points out, MITI has not helped all the successful industries in Japan, and has actually hurt some industries that it was trying to help.²² He further states that:

"perhaps the secret of the Japanese miracle has not been the government's efforts to influence individual industries. Rather, the successes of individual Japanese firms have occurred in an environment of low tax rates on investment, vigorous domestic competition, and heavy emphasis on industrial engineering and process improvement."²³

He concludes that MITI industrial policies of industry-specific targeting are overrated, and even detrimental to the industry in question as an industrial policy tool.

However, Weidenbaum's conclusion is entirely consistent with the theoretical neoclassical conclusions about how to implement industrial policy to augment an economy. The Japanese have provided a stable environment conducive to economic growth by providing lower tax rates on investment, saving incentives²⁴, government - private sector cooperation on R&D and technology development projects, and favorable international terms of trade. Japan has thus been able to increase productivity and competitiveness, which has greatly increased their economic standing.

Other Countries

A second type of policy is modeled after a British ministry, the National Economic Development Council. It has no real administrative power, but can only make recommendations. In order for this arrangement to be effective, the commission members will have to be in consensus to make their recommendations to Congress and the President. Achieving consensus on economic issues is notoriously impossible. The first task that such a committee would

have to make is what goals to set, and the representatives from business, government, and labor may never agree what goals should be targeted, due to their varied interests.

There are then significant problems with either type of industrial policy. Each policy, if done wrong, could severely hurt America's economy. However, if done right, the benefits from such a policy could result in increased economic growth and a healthier American economy. Which policy, if either, is right for the U.S.? What should the decision be based on? What factors should be considered?

What Can America Learn?

An American industrial policy should take into account the country's history of past commissions without any administrative power. On the whole, they have not been very successful, and when they have, they have avoided the key issues. For example, the 1979-81 Steel Tripartite Committee "did not deal with the subject of labor-management concessions. It focused on government aid to the industry."²⁵ This committee did not even deal with the issue it was created to address. Nor is this a singular occasion in American politics. Consider Kennedy's Advisory Committee on Labor-Management Policy, which never did what it set out to do²⁶, or Carter's Economic Revitalization Board, which never met²⁷.

It would appear, then that commissions which have no regulatory or administrative power go unnoticed and do not help alleviate the problems they were commissioned to address. It would

then appear that an agency, if established in an American industrial policy, would need some sort of administrative power in order to be effective. However, these commissions can have too much power, and in America, a country where, as Alexander Hamilton found out in his experiment with the National Bank, the populace is inherently distrustful of government intervention into the economy, there would be a significant loss of popular support for a bureau such as MITI.

A Japanese-type administration indeed brings its own set of problems. First, the problem of the disputed effectiveness of MITI itself shows that this type of policy may not be as effective as it seems. Second, the experience of France's Ministry for Industrial and Scientific Development shows that such policies may not be successful at all. They are however very costly to implement, so the government should make sure that its taxpayers' money isn't being wasted on a program doomed to failure.

There is room, however, for compromise for a commission that is going to set industrial policy. First, as suggested by the British model, the commission should try and map out a direction for the economy; which way does the commission see the economy going, where do they want to be, and how are they going to get there? Second, give it some, but not too much or too little, regulatory power. The committee should not be able to direct government money to specific industries; they should be allowed to make such recommendations to Congress, if they so desire, though. This commission should nevertheless have the power to set

macroeconomic policy goals in conjunction with the Federal Reserve Board (the Fed), in order to make sure that an environment conducive to investment is maintained as much as possible.

The committee must develop a cogent strategy for improving American competitiveness for American firms. The committee should also consider how to properly promote investment and savings within the economy, and work with the Departments of Education, Transportation, Agriculture, Commerce, Labor, and the Treasury to determine how they can help the economy. Some committee members should be from these respective departments as well, as they are all areas that help the economy grow in the long run. By doing this, and providing incentives for economic growth, this type of committee will combine both aspects of other agencies: it will have some regulatory power and the ability to make recommendations for the Congress to act on, but it will essentially be a committee to establish where economic priorities should be and provide a long-run direction for the American economy and plan on how to get there.

The American policy body should also have the ability to impose customs procedures, patent requirements, and other types of NTB's so that they can increase the competitiveness of domestic firms. The committee can weigh the benefits of such policy against the costs and decide on an appropriate policy that will not hurt the American economy. Congress should still have power to set actual tariffs and VERs and VRAs that require ratification. Here, though, the commission should have regulatory power in this area.

An American industrial policy commission, then, should be a conglomeration of British and Japanese models of policy agencies to handle the distinct problems facing the American economy. What areas of the economy should they look at? What kind of proposals will they be looking at? How will these proposals be handled?

III. CONTENTS OF INDUSTRIAL POLICY

Industrial policy focuses on one goal: to increase American international competitiveness. In order to do this, an American industrial policy should include elements that will help productivity grow. This is further subdivided into three areas, infrastructure investment, education/human capital investment, and science and technology/R&D investment. These three areas reflect components of productivity that have declined in recent years. By improving these factors, productivity should increase, which should then increase American competitiveness, which should help the American economy grow, especially in the international community.

When making policy proposals, the lawmakers first have to target what areas they want to look at. An example industrial policy is included in Table 1. Obviously, the policy will probably want to set up some sort of coordinating agency just discussed. Next, certain areas need to be targeted so that the government can subdivide and offer proposals for the specific areas, instead of trying a blanket approach. Obviously, productivity will be a major concern. Consulting Table 1, other areas of importance include the infrastructure, education, and science and technology including R&D

TABLE 1
An Approach to Industrial Policy

Basic Approach

1. Achieving economic growth via a partnership among labor, small business, larger corporations, universities, and government.
2. Government plays a creative leadership role.

Major Components

1. A Broad-Based Investment Program
 - Revitalize basic industries.
 - Expand growth industries.
 - Create an environment encouraging investment.
 - Make sure taxes encourage savings.
 - Make sure everyone pays fair share.
 - Invest in new technologies.
 - Establish goal of committing certain % of GNP to R&D
 - Provide incentives to entrepreneurs who undertake high-yield but risky R&D.
 - Human Capital investment.
 - More \$ for college loan programs.
 - More competitive faculty salaries in shortage areas.
 - Invest in public infrastructure.
 2. Managed Transitions
 - Give incentives to employers/unions who retrain workers.
 - Expand co-op efforts to help workers relocate to new jobs.
 - Provide adjustment assistance to workers to acquire new skills.
 - Undertake efforts to train hard to employ youths.
 3. An Economic Cooperation Council
 - Should have ability to assess future needs, and build a partnership around solutions to major economic problems.
 - Should combine economic and political considerations.
 - Must have wide spread bipartisan support from business and government, as well as labor.
 - Its purpose is to establish our national economic goals, map out a strategy, and marshal our resources for meeting them.
-

Source: Weidenbaum, Murray L. Business, Government, and the Public. 3rd. ed. Englewood Cliffs, NJ: Prentice-Hall, 1986, p. 242

concerns. These areas have their own unique concerns and problems, but they all are vital to economic well-being. Their problems should then be addressed in a forum considering the problems of industry. As the sample outline in Table 1 suggests, they shall be included here, as well.

The Administrative Agency

Research indicates that best type of American policy to adopt will be one that can have a little regulatory power, but be primarily an advisory board that can set certain goals for the economy. To this end, President Clinton has proposed an Economic Security Council (ESC), "similar to the National Security Council. [NSC]"²⁸ The NSC is a statutory agency created in 1947 to "advise the president and to help him coordinate the activities of the major foreign policy agencies."²⁹ The goal of the NSC is to coordinate all the appropriate agencies under a single foreign policy.³⁰ Presumably, an ESC would have the same type of job: coordinate the various agencies involved under one cohesive economic policy.

Just as the NSC involves the president, the vice president, the chairman of the joint chiefs of staff, the secretaries of State and Defense, the director of the CIA, and the national security advisor³¹, the ESC should include the president, the vice president, the Fed chairman, the secretaries of Education, Transportation, Agriculture, Commerce, Labor, and the Treasury, and a national economic advisor. It should also include, however, Senators and

Congresspeople from both parties, private corporation leaders, labor union leaders, and small business representatives. While this is quite a large committee, it will represent a good mix of public/private, labor/management, and executive/legislative/bureaucratic cross-sections that can air out their own views on economic policy matters. President Clinton has not yet specified any such committee organization, however. One of his campaign promises on 13 August 1992 to the Los Angeles World Affairs Council was to "create an Economic Security Council, similar to the National Security Council."³² He has yet to act on that promise.

This agency would most likely replace the Vice President's Competitiveness Council. Congress has cut funding and has threatened to eliminate the office altogether, because of its slant to business during the Bush presidency. The Council issued recommendations in favor of government non-intervention in the economy, and other "pro-business" recommendations³³. Also, it did not have any regulatory power, and was a very weak organization politically, as well, that faced a hostile Congress, and was led by a politically impotent vice president. Hence, the ESC proposed here would be better positioned to listen to the concerns of all groups, and be politically well-balanced so neither party eliminate the Council or deny funding for purely political reasons, as appears to be the case with the Competitiveness Council.

The agency proposed by Clinton, the ESC, offers many of the advantages already discussed about a mixture of Japanese and British agency models, if implemented as described. First, it has

little or no direct regulatory power, but it is more than a thinktank for policymakers. Second, the mechanism is different, with the Council making its recommendations to the president and Congress, so that cooperation between the two branches of government can be fostered. Third, it is definitely designed to coordinate economic policy, which is of vital importance in the government. These aspects of the ESC are consistent with the committee approach developed earlier, with less regulatory power than envisioned, but maybe even more effective, if the Council can be put into effective practice.

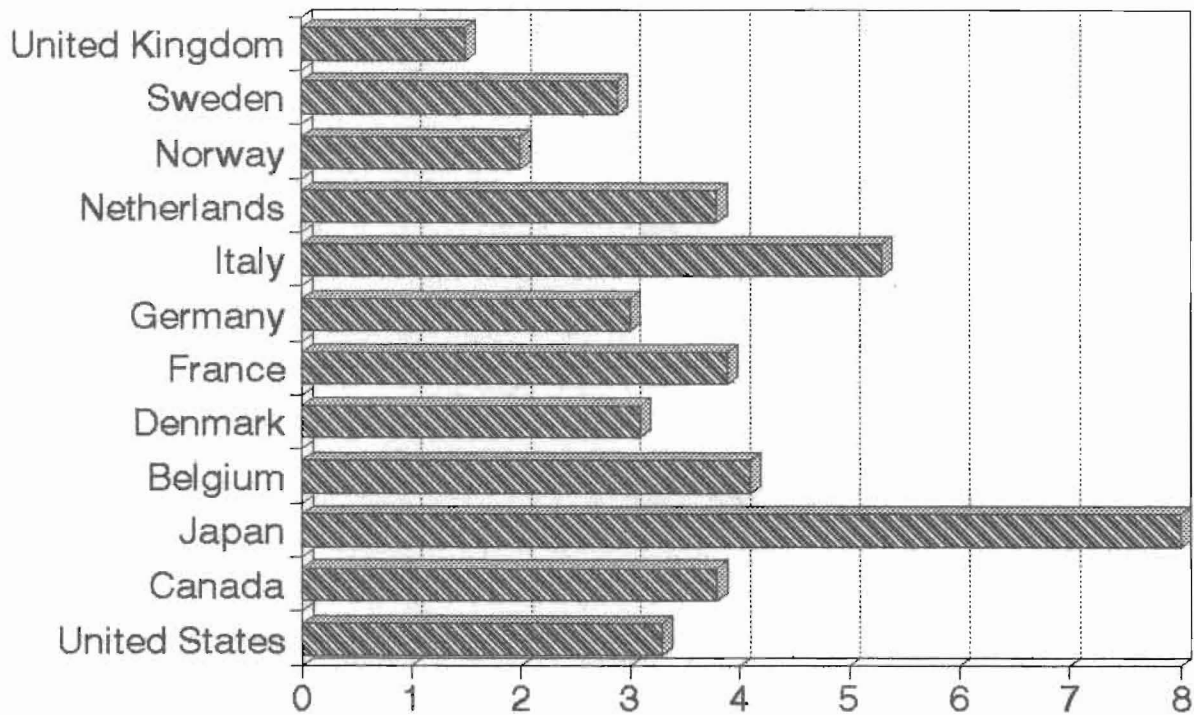
The agency approach is one of many made in the recent campaign. Several other proposals were made as well, concerning a variety of issues that affect the nation's economic health. These issues include productivity, infrastructure investment, education reform, and science and technology policy that includes R&D. These areas are all in need of different types of proposals.

Productivity Concerns

Looking back at Chart 1, notice that it graphs output per hour over different time periods. Output per manhour is a common measure of productivity. Others include output and hourly compensation as in Charts 2 and 3, respectively. Output is the most direct measure of what a country produces, and can reflect productivity, although not as accurate as output per manhour. Hourly compensation is a proxy for the average wage rate, which theoretically reflects productivity, as well, and can proxy it,

CHART 2

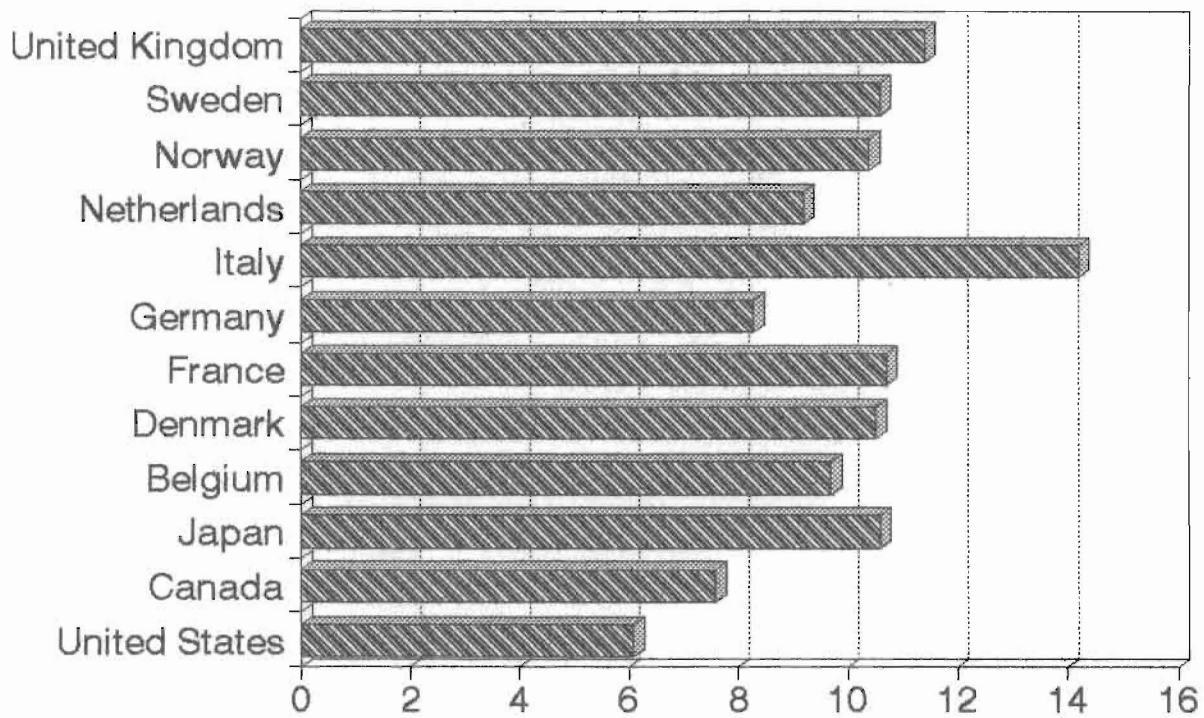
Percent Change in Output, 1960-1990



Source: Monthly Labor Rev. Dec. 1991.

CHART 3

Percent Change in Wages, 1960-1990



Source: Monthly Labor Rev., Dec. 1991.

too. On Chart 2, America falls in the middle of growth, but on Chart 3, it falls dead last out of the 12 countries surveyed, as it is on Chart 1. These charts show America's lagging productivity, and has caused economists to ask what has caused this drop.

The answers, as can be expected, are quite varied. Some of the literature focuses on technical change, as Solow³⁴, Romer³⁵, and Ethier³⁶. The basic conclusion from these authors is that technical change, not a change in the labor/capital ratio, is responsible for much of the productivity growth, although the magnitude of this change is disputed. Other authors, such as Abramovitz³⁷ and Nelson³⁸ argue that another force is at work. Collectively, their argument, known as convergence theory, states that productivity levels of countries will tend to converge over time. The United States, which has led this category for most of the century, is just experiencing a natural phenomenon.

Convergence theory probably plays some role in the explanation. As Nelson states, though, "the 'followers' spend a higher percentage of Gross Domestic Product (GDP) on R&D than the 'leader' (the United States)."³⁹ If this is the case, then bringing R&D spending in line to a similar percentage of GDP, would break this trend of convergence. Therefore, there is a stronger element than convergence that plays a role in productivity changes. If it is technical change, or a change in the labor/capital ratio, then they can be made targets for policies that can improve these statistics, and thereby increase productivity growth.

Productivity has been a topic where several policies have been proposed, as well. Some proposals cite the link between productivity and infrastructure investment⁴⁰. Others cite knowledge and education⁴¹. Still others cite science and technology, along with R&D⁴². All three of these areas can help increase productivity growth, in the medium to long run. It is therefore useful to look to these separate areas to see how the government can help enhance productivity.

Infrastructure

Some call the lack of recent infrastructure investment "America's Third Deficit"⁴³ to show just how important the infrastructure is to the American economy. As David Aschauer says: "because the elements of core infrastructure are intrinsic to almost every sector of private production, they are especially influential in the determination of total national economic output."⁴⁴ Thus, infrastructure investment is seen as a major player in productivity growth. Yet infrastructure investment has fallen off. As a result, so has productivity growth, according to proponents of this theory.

President Clinton, recognizing this, has proposed that infrastructure spending be increased as much as \$134 billion in the next four years.⁴⁵ This is part of his long-term plan to help revitalize the economy. The \$134 billion would be spent on road improvements, and new roads and rails, including block grants to states for infrastructure investment⁴⁶. Some of his long-range

goals include a fiber optic network that links all homes, businesses, and schools by 2015, and rigorous investment strategies for the future.

This plan may run into problems, though, in getting passed through Congress. First, according to some, the deficit must be taken care of before public infrastructure investment will have its effect.⁴⁷ The deficit in and of itself is an almost inconceivably big obstacle; if that hurdle must be in effect cleared before meaningful investment can take place on the infrastructure, then government is going to let infrastructure investment continue its downward trend and tackle the larger problem of the deficit and not waste the money on infrastructure investment. If, however, infrastructure investment is not crowded out by the deficit, then the infrastructure investment can have a very real effect on the economy, if it does not add to the national debt.

Education

Former President Bush said: "Education is the one investment that means more for our future because it means the most for our children."⁴⁸ Current President Bill Clinton and several other prominent figures in the American public found education to be the number one priority facing America today.⁴⁹ Admittedly, Bush and Clinton did not agree on much, but they both agree that education is a very important concept. After all, education is, in the long run, R&D.⁵⁰ Experience further indicates that it may become increasingly more important, as well. As an economy matures, its

focus shifts from manufacturing to service oriented jobs, at least prima facie in the United States and the EEC. Service sector jobs generally require more and more educated workers in order for them to grow.⁵¹ As the service sector in the U.S. continues to grow, the need for a more and better educated work force will also continue to grow.

It seems that nearly everyone agrees that American schools need improvement. Statistics abound that American schools are being outperformed by foreign competition in subjects such as math and science. Yet our Congress cannot agree on the solution to one of the biggest problems we as Americans face. Bush wanted to be "the Education President," but the Congress, controlled by the Democrats, never fully considered his proposals. When they did compromise with the GOP, as on the NSIA, the Democrats reneged on their concession at the last minute, leaving the GOP congresspeople angry and the legislation dead in the water.

The first problem American schools must face is developing a national educational philosophy. As David Steiner says: "by decentralizing education, we admit that no overarching substantive narrative binds the nation, that no inherited wisdom offers a universally persuasive vision of educated citizens."⁵² By not having a national focus, then, there is no comprehensive philosophy that underpins the education American children receive, short of local wisdom. The country cannot then expect uniformity in quality of education or the availability of programs to all youth, because as communities surely differ, their programs and outcomes will also

differ. Education reform cannot succeed either, as the differences in individual programs can alter the effect national policies have on locally run school systems. Therefore, a national focus and philosophy can foster uniformity in quality and quantity of education, and equal application of government policies across the country.

After this initial problem is addressed, several other questions still remain. First, how can the federal government improve the quality education for everybody? What must students learn to be competitive in the global economy? With few financial resources available, are there valid, low-cost ideas?⁵³ These are just a few of the questions that Clinton's education policy must address over the next four years.

The first question stems from the national philosophy. The biggest contribution the federal government can make at this stage is to develop a comprehensive educational philosophy that can achieve a large consensus among the electorate. After this, the federal government can set up national standards for schools and set up new and innovative programs for schools to use to improve the quality of educational services available. These programs, however, can only supplement the local school initiatives, because the primary source of funding is not the federal government, but the local school systems themselves. The biggest contribution at the federal level will be to focus education in America on the same set of goals and educational maxims that can promote uniformity in school systems across the country.

Second, what should students learn in order to be competitive in the global economy? According to the Department of Labor Report issued on 2 July 1991, Students should master the 5 "competencies" -- reading, writing, math, speaking, and listening. Also, students should be able to think creatively, make decisions, solve problems, and reason. Schools should help develop responsibility, self-esteem, sociability, and integrity among the students, as well.⁵⁴ Labor lists these as the minimum requirements for people to be able to be competitive in the global labor markets. These goals can serve as basic guidelines for a national philosophy of education, and national requirements can be developed from them, as well.

Third, with few financial resources, are there valid low-cost innovations? The answer is yes. Conservative Republicans have been pushing for public/private school choice with no success over the last four years, despite the fact that it is a relatively low-cost solution to education problems (Democrats, by way of contrast, have often pushed for complete federal funding of programs already in place, such as Head Start).⁵⁵ Intense partisanship and a gridlocked Congress, and House Education and Labor Committee are often cited as the reason for inaction on this particular program, and similar proposals of the Bush Administration.⁵⁶

Other innovations are possible, though, without being as politically divisive as school choice vouchers. These programs center around encouraging parents to play an active role in their children's education. To this end, Patrick Welsh, himself a schoolteacher, observes that: "the kids who do well, whether they

be rich or poor, have one thing in common: parents or some other adult in their lives who have put a premium on education and have pushed them."⁵⁷ Therefore, getting parents involved and interested will help improve the schools -- without specific federal aid for education -- by improving attitudes toward education from the home front. Obviously, not all students start out equally from a family standpoint, either, given current trends in family structure. However, programs to address these problems, although important to education and increasing the economic well-being of the lower-class and single-parent households, are not within the scope of this paper. What is within its scope, however, is what has our new President has promised to improve education in order to improve competitiveness in the long run.

Clinton has focused on education as one of four major target areas for his administration.⁵⁸ To this end, he has several ideas on ways to improve education and human capital investment. These include improving early childhood education, revamping financial aid, and job training/apprenticeship programs.⁵⁹ Other proposals include a European-style tax cut for corporations sponsoring worker training. These programs have three different foci: making sure kids can start school relatively equally, making sure college is affordable for all, and providing training for good jobs for non-college-bound youths. Programs such as these, it is argued, can do a lot for advancing future prosperity.⁶⁰

In improving early childhood education, Clinton wants programs such as Head Start to be fully implemented. All too often, poorer

children, especially from the inner cities with the poorest school systems in the nation, start school at a disadvantage due to their poverty. In order for these children to have a chance to compete in their future, special programs like Head Start must be fully implemented. Other proposals, such as child care subsidies or tax incentives, can help, too. As child care becomes more affordable, more single mothers, the most impoverished demographic group, can afford to work instead of staying home raising their children. This allows, them to rise out of poverty, which increase the chance of the children to be better educated through a better home atmosphere, etc. By focusing on the child care and preschool years, Clinton, like other liberals, hopes to increase the pre-school and early childhood education, most of which goes on outside the home, and can be a very important determinant of future success for the child.

The second target of the Clinton administration concerns the rising costs of college. As the service sector becomes increasingly predominant in America, more and more education is needed. Thus, more students will go into higher education of some type. As demand for education increases, higher learning institutions need more resources, which raises the cost of higher education. This is a trend which has spiralled upward in recent years in America.

However, this is only partially true in reality. The supply of college students is increasing, because more and more, companies simply cannot hire workers straight out of high school. This trend

is only partially offset by the rising costs; most students and families simply have to pay the increase. Those that are forced out of education, though, are going to be the lower class students without a lot of resources at their disposal, arguably the one group of students who could benefit from going to college the most.

Students do receive a lot of federal student loans and grants. However, it still may not be enough to offset the cost of college if it is anything less than the full amount. Other needy students who need just as much financial aid, may not, under the current restrictions, be getting enough aid to allow them to go to school.

For these reasons, President Clinton has proposed to revamp the federal student financial aid system.⁶¹ His proposals include working off student loans by government community service hours, and making the aid received more "equitable". These programs are intended to allow more students the opportunity to attend college and better prepare themselves for the job markets of the future. Obviously, as students become better educated (and more knowledgeable), their productivity will increase, which will help America be more competitive globally.

The third and final focal point of his education/human capital policy is the plight of the non-college bound youth. As the service sector demands a better educated work force, high school graduates simply do not possess the required skills. This leaves only blue collar-type manufacturing and other industrial jobs open that are good enough to make a living. These jobs, as manufacturing dwindles, simply are not available to accommodate the

needs of those graduating high school each year. As a result, high school graduates that do not go to college face an increasingly bleak job market and future. Clinton's job training/apprenticeship program aims to alleviate this troublesome trend. As he promised the United Auto Workers Convention in San Diego on 15 June 1992, "for the kids who don't want to go to college, we'll restore the dignity of blue-collar work by guaranteeing an apprenticeship program to every non-college bound student in the U.S."⁶²

President Clinton offers several new programs to increase the future competitiveness of America, through various policies in infrastructure and human capital/education investment. He also highlights a third area that can be just as important in shoring up American competitiveness in the near future, science and technology. Once, America dominated these areas, but now others have caught up. By including a science and technology policy, that also includes R&D policies, America can further improve its competitive position in the international economy.

Science and Technology

In the period immediately prior to WWII, the United States led not only the economic development of the world, but its technological development, as well. The two go hand in hand. As Japan developed, though, it was able to adapt basic scientific advancements from other countries, especially the U.S., and turn them into usable and marketable technologies faster than the parent

country could. It was thus able to exploit technology and produce cheaper, higher quality products, in for example the steel industry.

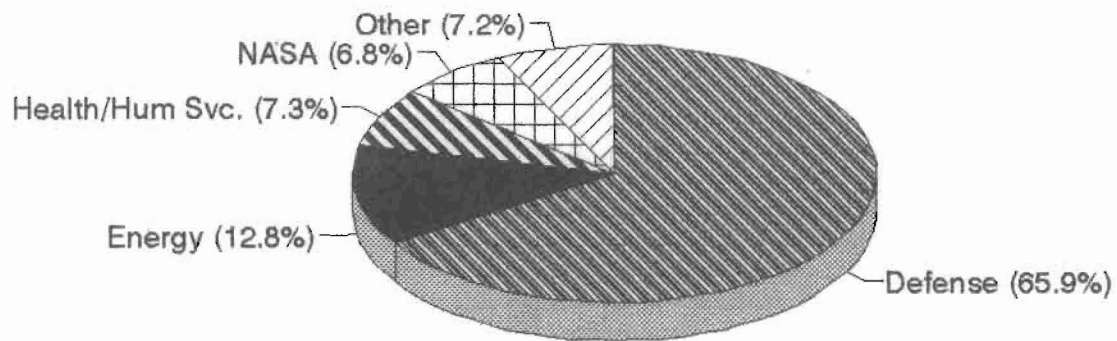
While America still leads in basic science research, it is now losing the battle to bring these new advances to the new market the quickest.⁶³ The problem, then, is not in the basic research, it is in converting this research into a usable technology; after all, science and technology are two different animals.⁶⁴ Thus, America is no longer as competitive in developing new technology as it was. The questions then are what can be done to restore America's technological competitiveness?, and how can R&D policy help America regain its competitive edge in technology development?

In order to answer the first question, areas where R&D are lagging need to be identified. It has already been mentioned that the U.S. is still leading in basic science, but is faltering in the race to develop technology from it quickly. It therefore makes sense to put more effort into developing the basic science that America can still do better than anyone else into usable technologies. By pushing development, America can bring the new technologies to market quicker and have a more competitive position in new markets and industries that will be born in the future.

Answering the second question also helps answering the first question. Consider the current makeup of federal R&D spending as in Chart 4. The chart shows that in 1988, almost 70% of the federal R&D budget was spent in the Department of Defense, and just above 30% on "civilian" R&D. With the Soviet Union extinct and no

CHART 4

Federal R&D Funding, 1988, by Dept.



Source: "U.S. R&D Forecasts." Futures 20 (1988):220-2.

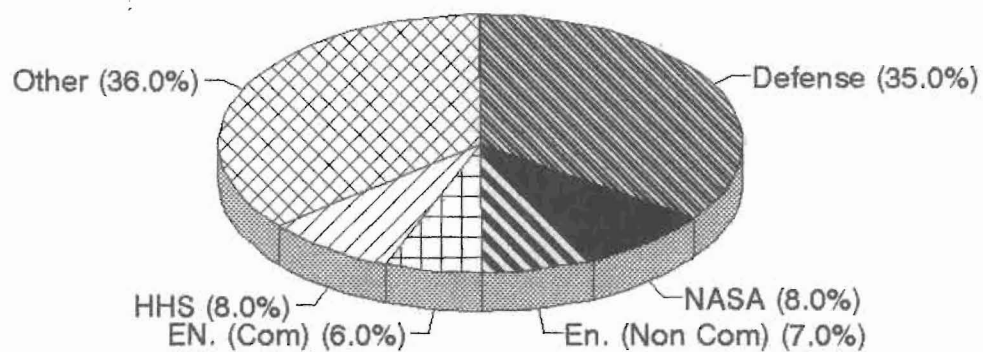
major power surfacing as an enemy, there is an increasing call for the government to cut defense spending, especially on R&D. While cutting R&D may not sound like it would help the economy, in this case it can.

Military R&D and NASA R&D, like "Big Science" projects such as the Superconducting Super Collider (Dept. of Energy) do not have any readily commercial benefits. Therefore, less than 27% of the federal R&D budget is going for civilian purposes, to help promote new technologies and developments that can help American competitiveness. These projects are often more modest in scope, but have a higher impact per dollar than the big ticket items. It therefore can help the economy if the R&D can be adjusted to show a prototypical distribution reflecting parity among commercial and non-commercial concerns, such as Chart 5. This shows what a future distribution may look like, if the defense/civilian R&D split returned to pre-1980 levels.⁶⁵ This division reflects the future prospects of both the defense and civilian R&D requirements in the battle for federal funding. Policies should be implemented to get civilian R&D, the more modest proposals that can really have high benefit per dollar ratios, and defense/non commercial spending to relatively equal levels.

Once money is allocated to civilian R&D, where does it go? There are three possibilities. It can go to a government lab, a private company, or a university. More and more, the funds are being used jointly by two or more of these groups. Cooperative Research And Development Agreements (CRADAS) help both the private

CHART 5

Theoretical R&D Funding by Dept.



Source: "U.S. R&D Forecasts." Futures 20 (1988):220-2.

and government sectors by sharing R&D costs. They are temporary agreements, semi-market driven, with set targets, and the results eventually become common property.⁶⁶ Their use in the federal R&D plan is growing, as the private sector is more willing to share the costs this way. Also, government research grants to universities are tending to increase as well, showing greater cooperation and interdependency among the academic, public, and private sectors of the nation.

The changing face of government R&D, in its distribution among government departments and the increasing involvement of the private and academic sectors, will help increase the competitiveness of American firms as new products can be developed here. The questions remain, though, how could the government's industrial policy help America regain technological competitiveness, and what has President Clinton proposed for a science/technology/R&D policy?

Government policy can help increase American competitive positioning by focusing on the process of developing new and better technologies. As stated earlier, the problem lies not in the research, but in the development end of the spectrum. Therefore, the government should offer incentives, maybe in the form of tax breaks and/or priority in CRADAs and other R&D projects, to encourage firms to develop the products faster. Also one problem may be that too many people are not getting enough information. To this end, and technological extension service, similar to the agricultural service, should be formed to teach companies and

manufacturers about the latest technologies available for their use.⁶⁷

Another concern some authors have is that American firms have not realized how technology development has changed since WWII. Traditionally, development flowed in a straight line from research. Today, though, there is no direct line from basic research to technology; it is more of a fusion of several different processes into one technology.⁶⁸ This makes consolidation and resource sharing all the more important as a tool of American R&D policy, because it can accelerate the rate at which ideas can be shared and fused into a usable technology.

Hence, the government should first equalize defense and civilian R&D, and promote incentives which will stimulate development of new technologies. This can include cooperation with the private and academic sectors, an organization that can help consolidate new technologies and teach people how to use them, and to develop a "database" so that different research can be joined together to develop a new technology quicker. President Clinton, though, has made some proposals which fit in very well with this plan of attack.

Clinton has made several proposals in this area. First, he promised that "for every dollar we reduce the defense budget on research and development, we'll increase the civilian R&D budget by the same amount."⁶⁹ He also will make the R&D tax credit permanent, and propose a 50% tax credit to long-term investors in new businesses.⁷⁰ He further states that "at the very least, 10%

of the \$76 billion that the government now spends on research should be redirected from the Pentagon's research budget to civilian efforts."⁷¹ These proposals are designed to help stimulate R&D and technology growth. This will in theory boost competitiveness in current and future industries that rely on ever advancing technology in order to be competitive. He wants to boost science and technology, especially the latter, which have declined, and as a result, so has America's competitiveness.

IV. THE THEORETICAL FRAMEWORK AND THE MODEL

Both economics and politics are disciplines where general consensus is rarely achieved. The question of feasibility, then, ultimately depends on the perspective taken by the reader. The mainstream economic theory is neoclassical economics. Political realism assumes that politicians' goals are to get re-elected. Since these are the mainstream paradigms, they are employed here, as well. After a discussion of the respective frameworks, a methodology incorporating them will be developed that can evaluate industrial policy proposals put forth by the Clinton administration.

The Theories

The Economic Model

In order for the policy to be successful, it must help American firms compete internationally. Therefore, the proper

economic model must focus on America's position in international trade. The mainstream approach to international trade economics is the neoclassical model of indifference curve analysis⁷². There are several important implications of this framework. First, when productivity declines relative to the rest of the world, competitiveness suffers, as costs are increasing relative to the rest of the world. Second, tariffs and non-tariff barriers (NTB's) are commonly used to protect a domestic market and/or industry from foreign competition; there is economic gain from such protectionist measures for those countries that employ them, relative to the more open markets. Given the implications of the neoclassical model, an industrial policy that focuses on improving productivity and either opening all markets or using tariffs and NTB's to augment its strategy can prove very effective for a country wishing to reap economic gains from the international marketplace. Our focus will be on policies aiming at increasing productivity.

The Political Model

The political framework is relatively simple. A politicians' main goal is to get re-elected, or put in different terms, to maximize his/her probability of re-election. American politicians are theoretically very sensitive to their constituencies in the sense that they will re-elect him in as little as two years. They cannot afford to do anything for the long run if it means committing political suicide in the short run. Since the House of Representatives is re-elected every two years, and the Senate

serves 6-year terms, this can produce some very myopic policy.

Political plausibility, then, entails several elements for its framework. First, it must allow that Congresspeople and Senators can get re-elected in the short run, while the policies are intrinsically long run. Second, it must reach across party lines and appeal to both Democrats and Republicans. Third, it must be cost effective, as big budget items are generally met with disapproval by the electorate.

Methodology

A proposed industrial policy must be evaluated on both its economics and politics. In order to evaluate its economics, goals of what an industrial policy should achieve should be kept in mind. Put simply, this is increased competitiveness in the global market place. As noted above, this can theoretically have two parts; increasing productivity or ensuring a "level playing field" in the international market. Hence, the economic feasibility of a proposal should hinge on whether it help foster growth in one or both of these areas, and how it would so. Simply put, does the proposal help foster increased competitiveness? By what means?

These are not the only questions that can determine economic plausibility, though. If there is a better economic alternative (political acceptance notwithstanding for the moment), it should be ranked even more feasible than the previous proposal. The proposals, then, can be ranked in order of preference on the condition of feasibility. For example, a treaty that would

eliminate tariffs and NTB's in all nations would be favored to one that increases tariffs. Both do have economically sound strategies, though. If these were the only two policies being considered, in terms of feasibility, the tariff elimination is more economically sound, and would be reflected in a ranking of 1, while the tariff hike would be ranked second.

Ranking different proposals can be very helpful in selecting the optimal policy. However, it again depends on the individual analyst; it is by no means an objective ranking like a list of GPA scores would be; it simply reflects which policy proposal the individual would prefer over another.

Political feasibility is analyzed in the same way, with the different proposals being ranked in terms of political feasibility. Political feasibility depends on the effect on a given politician's chance for re-election, the nature of bipartisanship surrounding the proposal, and its total cost. For example, raising an income tax on the middle class is politically unfeasible, because voters tend to replace those representatives that vote for a tax hike. The more Republicans and Democrats agree on a course of action, the more politically viable a resolution becomes and the higher it is ranked in this category. Likewise, cost can undermine the political possibility if it is too high.

Now suppose that the two proposals, a tariff reduction and the tariff hike, are evaluated for their political feasibility. Here, the tariff hike could be more feasible, because it could be cheaper to implement, and less risky to pass. Therefore the hike would get

a ranking of 1, while the reduction would be ranked 2. Again, these rankings are highly subjective, depending upon an individual's own point-of-view.

The next problem is how to combine political and economic feasibility into the same model. Once the rankings have been established for both parts, the temptation to simply add them together, and prefer the lower composite score, is great. However, considering the example developed here, the simple sum is as follows:

<u>Policy</u>	<u>Economic</u> +	<u>Political</u> =	<u>TOTAL</u>
TARIFF HIKE	2	1	3
TARIFF REDUCTION	1	2	3

How then is the final decision in this case? Both plans are equally feasible overall. How does Congress decide? Given the political realities of the decision-making bodies, they probably attach more weight to the political aspect than the economic. This makes sense, given that politicians will focus on re-election, not necessarily on what is good for the economy if it conflicts with their political aspirations. To weight the political feasibility, simply multiply it by 2. This gives more weight to political considerations over economic factors. The table then may look like this:

<u>Policy</u>	<u>Economic</u> +	<u>Political</u> =	<u>TOTAL</u>
TARIFF HIKE	2	2	4
TARIFF REDUCTION	1	4	5

Here, the decision, is clear. With the weight to the political factors, the decision is for the tariff hike in this example.

One problem that is apparent is the problem of the scalar. For simplicity, I chose a weight of 2. This works well when only two policies are being considered. When more than two are compared, the weight given to political feasibility does matter. Thus, if more than two policies are being compared, special attention must be paid to the weight. Here, however, since only two policies are being compared, the weight does not matter.

The model then, simply ranks the weighted preferences for policies with both economic and political components, as such:

$$\text{Total Rank} = \text{Economic Rank} + 2 * \text{Political Rank}$$

for each policy proposal. These rankings will implicitly reflect the costs and benefits, both economic and political, of the various policies. It cannot, however, serve as a measure of magnitude between the policies, i.e. how much policy 1 is preferred to policy 2, and so on. It is also possible that the number one policy preference is to do nothing pursue. This option can simply be reflected as a policy choice among the alternatives.

Each proposal, then, will be ranked against a null hypothesis. The null hypothesis here is that what the government does now, in terms of policy and spending, will not increase. The policy with the lowest total will be the more feasible of the two policies, and is the one that should be preferred.

TABLE 2
Clinton's Industrial Policy Proposals

Infrastructure

- P1 Increase infrastructure investment by \$134b over the next four years.

Education

- P2 Improve early childhood education (fully fund Head Start).
- P3 Revamp the college financial aid program.
- P4 Initiate job training/ apprenticeship programs for non-college bound students.
- P5 A European-style tax cut for companies sponsoring worker training.

Science, Technology, and R&D

- P6 Decrease defense R&D by at least 10%.
- P7 Match every dollar decrease in defense R&D with a dollar increase in civilian R&D.
- P8 Make the R&D tax credit permanent.
- P9 A 50% tax credit to long-term investors in new businesses.

Sources: see text under the Contents of Industrial Policy section. The numbers P1 through P9 simply refer to proposal 1 through 9.

important factor to consider, especially against a do-nothing policy that can plunge America into further economic decline. For these reasons, the economic rank is 2, as is the political rank.

Infrastructure

The first proposal is Clinton's plan to increase infrastructure investment by \$134 billion over the next four years. Economically, this is a very good proposal, as "countries that provide high public investment in infrastructure experience higher productivity growth,"⁷³ and also economic growth.⁷⁴ The American infrastructure is decaying, and will continue to do so until Congress decides to appropriate funds for it. It is better than doing nothing because productivity should grow as the investment is completed, thus helping our competitiveness.

Politically, however, it is more feasible to do nothing. While Congress recognizes the need for more infrastructure investment, Clinton is asking for them to cut the budget deficit and try to pass a multi-billion dollar infrastructure bill at the same time, with no or few specific spending cuts. President Clinton has some pet projects, namely health care reform, that he considers a higher priority over infrastructure investment. Given this environment, and the treatment of the economic stimulus bill in the Senate recently, it would be very surprising to Congress enact an infrastructure investment bill.

Clinton's infrastructure proposal does not fare well here. While it is the more economically sound, and receives a 1, the

political ranking is 4, for a total of 5. Compared with the null hypothesis that government infrastructure spending stay at current levels, with a total of 4 (2 and 2 respectively), this proposal would fail.

Education

In his attempt to reform education, Clinton has made several policy proposals. First is to improve early childhood education by fully funding Head Start. To analyze its economic feasibility, consider the cost of the program to reach every eligible child. In cold economic terms, the opportunity cost to the government is extremely high. Obviously, the benefits are apparent, because students in Head Start can begin school at the same level as their peers, and will increase their human capital investment so that they can compete. However, if given a choice between fully funding Head Start and infrastructure investment, the infrastructure investment is probably the more economically viable of the two.

Politically, on the other hand, if Congress can again come up with some of the money, they may be willing to fund it fully over doing nothing at all. First, it is in essence a social program, too, that can help impoverished children have a fighting chance to escape destitution. Second, it is a long-run measure designed to help increase the productivity of the future work force, if Congress will want to see it as that way. Third, it has the appearance of "putting people ahead of economics" because its social ramifications are more observable than its economic

implications. For these reasons, it is a politically viable alternative. This does not mean Congress will or should pass the program, it simply says that it could be better for them to pass it than to do nothing.

The second education proposal is to revamp the college financial aid system. This will allow more people to be better trained, which improves the overall education and productivity of the labor force in the long run, because college is more affordable in the short run. Economically, this is feasible, as it is a long-term R&D investment that can pay off dividends well into the future. There has always been a correlation between higher education and higher productivity, so economically it is a sound proposal.

Politically, though, it is hard to estimate. On the one hand, the problem of where the money is coming from lessens the chance for it to pass. On the other hand, it too can pass as a social program that can show that Congress is helping the people. Very few people are happy with the financial aid system today, though, parents students, and educators alike. Therefore, there is considerable impetus from the academic and household sectors for the government to initiate some type of reform. In addition to this, the House Education and Labor Committee, which has been gridlocked the past four years, is just now realizing that it can end the gridlock conveniently enough for Clinton to step into the White House. It may be likely, therefore, that political cooperation on education issues will increase, which may make the

financial aid reform idea more politically feasible than doing nothing at all.

The third of the four education proposals is the job training apprenticeship programs. Economically, this human capital investment is a very sound idea, if the jobs are available; it doesn't do the workers any good to train for nonexistent jobs. Therefore, a general type of training must be undertaken that can be adapted to new and better technologies, and the government and companies must be willing to retrain workers for the new and different jobs. Once these guidelines are set, the labor force moves from unskilled to skilled, and can be more productive and therefore competitive in the future, an economically sound idea, that Morton Kondracke says may be Clinton's best.⁷⁵

Like the other education proposals, this idea is also politically feasible, depending on how Congress wants to tackle the deficit, if at all. The added advantage this program has, especially for the Democrats, is the addition of large number of potentially employed blue collar workers that become voters in the very short run. If the program works, the current Congress, and the Democrats in particular, can stand to gain an entire blue collar generation to its side if the program succeeds. In addition, this is one of the top programs that President Clinton wants enacted, so as a pet project of a newly elected Chief Executive, it becomes even more politically viable. This plan is then both economically and politically feasible.

The final education proposal is also both economically and politically feasible. This is the European-style tax cut for companies sponsoring worker training. Economically, it will effectively subsidize worker training, making it less costly to compete, and/or increasing the number of people that can be trained. Either way, the economic ramifications of a tax cut will spur worker training and help to increase productivity.

Politically, a tax cut is always acceptable. However, for Clinton and the current Congress who are dealing with a variety of tax increases, showing the ability to cut a couple of taxes for the purpose of spurring investment growth (supply-side economics)⁷⁶ may be a meaningful concession to get the GOP behind some of the proposals. By relying on a supply-side tax cut, the Democrats can show a willingness to compromise, which increases their bargaining position for some more divisive issues down the road. The bottom line is, though, that a tax cut is virtually always politically acceptable, even in the face of a budget deficit crisis that faces this country.

R&D

The R&D proposals also have interesting economic and political ramifications. First are the twin proposals to cut defense R&D by at least 10%, and to match this with an increase in civilian R&D. Economically, this simply reallocates government money to areas where it can benefit the American economy the most in terms of increasing R&D support and developing new technologies. This will

help develop new technologies, which can lower production costs, and also increase productivity. By maintaining the status quo, civilian R&D remains vastly underfunded, the military overfunded, especially in the post- Cold War era, and the economy loses a valuable source of potential R&D growth. For these reasons, these proposals are economically viable.

Politically, the substantial decrease in available R&D moneys will not make special interests within the military-industrial complex particularly happy. However, as the military is being downsized, it makes sense to shift R&D from the military to civilian pursuits. The proposal is deficit-proof, because it simply reallocates funds from one source to another; the overall balance stays the same. Plus it has an increased economic benefit for the private sector at a relatively low opportunity cost for the government. It therefore makes sense that the government would enact these proposals, at least in part.

The third proposal Clinton makes for R&D is to make the R&D tax credit permanent. This is both economically and politically correct, and a concession to supply-side economists of both parties, for many of the same reasons that the worker training tax cut is acceptable both on economic and political terms. It is always politically advantageous to cut a tax, especially if people expect tax increases.

The same holds true for the fourth and final proposal, the R&D tax credit of 50% to long-term investors in new businesses. Unfortunately, the economics behind this proposal are not as sound

as the politics. By providing a tax incentive, the government tacitly hopes that more people will invest in new business. the number of businesses then goes up, which increases competition. Unless the government specifies the industries which would get the tax break, if there are restrictions, this does not help increase the R&D or productivity at all. It is therefore a misguided industrial policy, despite its political correctness.

VI. CONCLUSIONS

The results obtained here suggest that for the most part, Clinton's industrial policy proposals are feasible when ranke against what the government is doing now. These results are not infallible, however, as there are several problems that this research has encountered. These problems force readers to be cautious when interpreting the data, and reduce the overall level of condfidence in the results. Despite these misgivings, however, the results seem to suggest that Clinton's policy proposals may be able to work. Further research is needed to develop a more objective method of analysis and better data, and to evaluate other proposals, as well.

Results

Table 3 provides a summary of the Clinton proposals, and how they fared against the null proposals. Generally, Clinton's proposals turn out fairly favorable against the null hypothesis. This makes a case in general for an industrial policy, containing

TABLE 3
Clinton's Industrial Policy Proposals Evaluated

Policy	Feasibility (Weighted)		Total
	Economic	Political	
<hr/>			
Agency			
ESC	1	4	5
Null	2	2	4
Infrastructure			
P1	1	4	5
Null	2	2	4
Education			
P2	2	2	4
Null	1	4	5
P3	1	2	3
Null	2	4	6
P4	1	2	3
Null	2	4	6
P5	1	2	3
Null	2	4	6
R&D			
P6 & P7	1	2	3
Null	2	4	6
P8	1	2	3
Null	2	4	6
P9	2	2	4
Null	1	4	5

Source: the text. The null total is the total value that the null hypothesis received, which was to keep the current government in place. For example, P2 ranked as more feasible than the null hypothesis, because it had a lower score, 4 to 5.

at least some of these proposals. The only policy that would not prove to be more feasible than the null hypothesis is the first policy, increasing infrastructure investment. In many ways, it is definitely the most economically sound of the proposals. However, compared to the public attention on education and private sector concern over R&D policy, infrastructure becomes politically unacceptable. Politics in this example can effectively undermine a very sound economic proposal.

This research also suggests that programs that pay for themselves, such as the combination of policies 6 and 7, are going to be more politically OK than ones which require new spending. The source of this new spending for the infrastructure program was not specified. As a result, it would have added over \$130b to the federal deficit. Considering the deficit itself is one of Clinton's pet projects, he shoots himself in the foot on the infrastructure investment. The change in R&D distribution does not face this problem, because it merely is a transfer of funds from one department to another, without changing the balance of the deficit. It is therefore deficit-proof, and programs which can be deficit-proof will also be politically feasible.

These preliminary conclusions also imply that education reform and improvement could be a very feasible undertaking politically. This seems to contradict the fact that not one meaningful piece of legislation came out of the last Congress. This may be due primarily to partisanship; for the first time in 12 years, a Democrat is in the White House. This could signal a new era of

cooperation between the legislative and executive branches that was notoriously absent during the latter part of the decade.

Aside from these general conclusions, though, not much can be said, due to the restrictions of the model and the data. While the research here supports the hypothesis that industrial policy as construed by the Clinton administration is better than no policy, this can only extend to those specific policies covered within the scope of this paper. There are other aspects of an industrial policy, such as NTB and tariff policy, which were not analyzed, but in a full-blown analysis, would be by necessity evaluated as part of the entire policy.

Also, the other proposals that Clinton has proposed under the guise of industrial policy may not have the same rate of acceptance (8 out of 9) that these particular policies did. One cannot infer anything about the success of the former from the latter, other than it is likely that similar proposals addressing different topics may be more likely to pass. There is very little that can be inferred from this data, short of the general feasibility of industrial policy in the United States.

Problems and Limitations

There are several problems in this presentation that can be ironed out with further research. They can be divided into two sets, problems with the model and problems with the data. Through more refined research and theoretical development, these problems can be overcome in future endeavors so that a more solid and

comprehensive analysis of industrial policies can occur.

The first set of problems and limitations concerns the model. First, it is in essence a subjective ranking based on opinion about any economic and political theory the author holds true. It therefore loses any and all comparability with another person's ranking criterion. A more sophisticated model that takes objective criterion into formulaic consideration is needed to try and objectively analyze what are the economic and political consequences of certain proposals. While this particular limitation significantly hampers this research, this model nevertheless is worthwhile, because it opens the door to a new mode of thinking about how Congress may or should approach decision-making about the economy. This model serves as a first step in the right direction, not as the finished product.

Another limitation of the model, as discussed before, is that it cannot tell the magnitude of a particular policy's feasibility. The more feasible of two policies, for instance, may not be in reality feasible at all. The model presented here cannot take this into account, so the conclusions that can be drawn from it are limited. Further development of the model is necessary to deduce a more sophisticated approach that can represent the magnitude of the distance between the individual policy prescriptions.

Despite these problems and limitations, this model serves its purpose well. As stated earlier, it is a first step in researching industrial policy implications in the future. Also, it can provide a good comparison of two proposals, especially pitting one proposal

against doing nothing, the null proposal, as this research has done. This gives a general idea of whether an undertaking such as industrial policy is worth undertaking, or whether it is better to do nothing.

The model is not the sole source of problems and limitations for this type of research, though. The data also has some limitations that can dampen any conclusions drawn from this endeavor. First, only a few selected proposals and/or campaign promises that President Clinton has made have been studied here. Therefore there may not be a comprehensive look at what his overall industrial policy may look like. Without all the individual policies, it is impossible to evaluate the overall industrial policy Clinton has proposed; this research can only pass judgment on certain aspects of the proposed policy.

Second, to truly feel how this policy would stand up, other industrial policies should be analyzed in the same way, and put against the Clinton plan. It would even suffice to take individual components from several people's ideas and evaluate them and this plan at the same time. This gives more alternatives, and is more difficult, but the results indicate better what direction the policy should lie in.

The data would be much more concrete if actual costs and benefits could be estimated about the programs. This would enable the model to be more objective as well, as it would partially be based some objective facts and figures. Data such as this also provides the researcher with an implicit measure of magnitude in

the difference between net benefit levels between the proposals. However, data of this type is very expensive to collect, and simply could not be obtained for this project.

Problems such as these can be corrected in future research undertaken in this vein. For now, however, the research must draw its conclusions based on the data and the model's results. This data must be analyzed for its implications and evaluations of the policy prescriptions. Obviously a new policy prescription will emanate from this data. This research shows, that in spite of the problems associated with the model and the data, the policy proposals of Bill Clinton are more or less economically sound and politically viable, and that an inclusive industrial policy can help American productivity and therefore its competitiveness.

Despite the limitations of both the data and the model, the research indicates that the industrial policy of the Clinton administration, when compared to government inaction, is worthwhile and both economically and more importantly politically feasible. The only aspect of the nine policies proposed that failed here was the infrastructure policy. This is not to say it won't pass, but it is far more likely for Congress to do nothing on infrastructure than to adopt this proposal. More comprehensive research needs to be done in this area, but general indications are that America can indeed benefit from an industrial policy like the one considered here.

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