

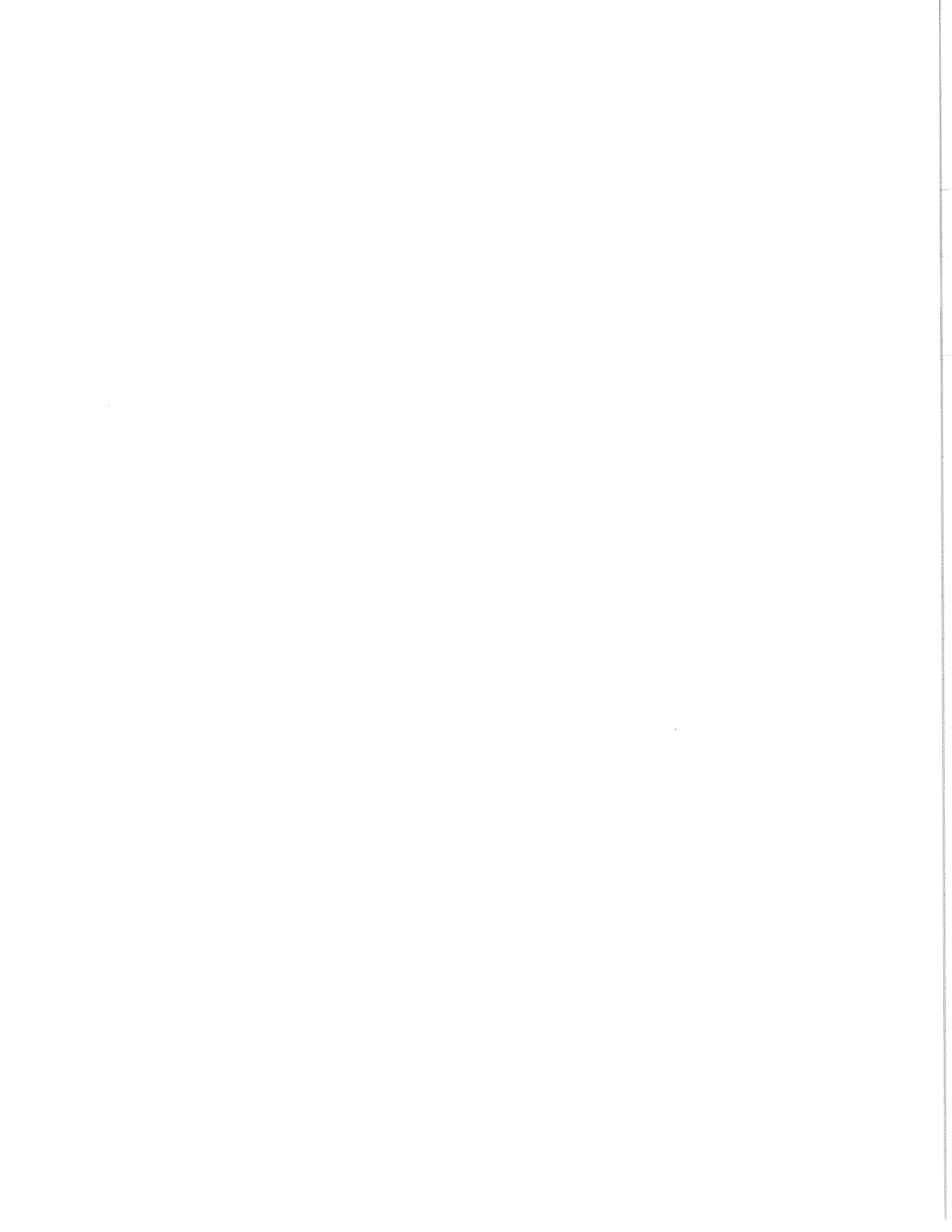
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IMPORT-SUBSTITUTION IN FRONTIER REGIONS

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INTRODUCTION

This paper discusses the pattern of economic development in northern frontier economies. In particular, we examine the process of structural change which occurs as a result of the local production of goods and services previously available only outside the region. This is broadly defined, the process of import substitution. Import substitution will be examined with reference to the economy of the State of Alaska.

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Import substitution is in many ways the hidden dynamic of frontier economic development. Most interest and attention in frontier regions is given to the development and expansion of natural resource exports while, import substitution is overlooked because it is undramatic or assumed to be automatic. Ignoring import substitution presents two problems to frontier region economic policy. First, ignoring the effect of import substitution may result in the underestimation of the effects of resource development projects. Impact analysis based on a simple economic base multiplier ignores the expansion of the multiplier which may accompany growth as a result of import substitution (see Bender and Parcels, 1983). Secondly, ignoring the role of import substitution when formulating regional development policy may eliminate an effective area for public intervention. This paper addresses the second of these concerns (see Huskey, 1982 for an examination of the effect on impact analysis).

The remainder of this paper is in four sections. The first section defines the relevant terms. Both frontier economies and import substitution are defined and their interrelation is discussed. The second section attempts to estimate the import substitution which occurred in the Alaska economy during the 1970's. The third section examines, with reference to Alaska, why import substitution

may not be as automatic as traditionally assumed in frontier regions. Finally, we examine the reasons why an import substitution component of a regional economic policy may be appropriate in frontier regions.

IMPORT SUBSTITUTION IN FRONTIER ECONOMIES

The frontier is a region of transition between the developed and undeveloped territory. The economy of a frontier region reflects this marginal position (see Goldsmith, 1983). The primary characteristic of frontier regions is that they are lightly populated; this low population density translates as a high per capita level of resources.

The main economic characteristics of the frontier is its immaturity. This immaturity is reflected in low levels of goods and services being provided locally.¹ Economic immaturity is also reflected in the low levels of infrastructure provided. Infrastructure includes both publically provided capital, such as roads, and privately provided capital, such as housing. This economic immaturity is a natural consequence of low population levels and it results in the high cost of activities which require market goods and services. In the North the cost consequences of immaturity are reinforced by extremes in climate (see Rea, 1976).

The primary initiator of economic growth in frontier regions is the development of natural resources for export out of the region. The high cost of economic activity on the frontier means only the unusually rich resources will be developed. The development of natural resources uses imported capital, labor, and intermediate goods, because these resources are unavailable in the region.

Growth on the frontier using natural resource development as the leading sector has been described by the Staple Theory which was developed out of the

observation of the historical growth of the Canadian economy (Watkins, 1972).

In this theory economic development occurs as a result of the diversification around the staple base through linkages between the staple sector and input, output, and final demand sectors. The characteristics of the natural resource export sector affect the extent of diversification.

The role of import substitution in this development process is evident.

Originally frontier regions produce nothing but the natural resource; all inputs are imported. This includes not only direct inputs to the production process but also indirect inputs, the goods and services used by labor. One aspect of economic development around the staple base is the replacement of some part of these imports with local production. Import substitution in the direct inputs (backward linkages) and indirect inputs (final demand) is determined by the characteristics of the staple; these characteristics reflect how the good is produced and include incomes earned, industrial structure, and labor required.

Import substitution is one of four sources of structural change identified by Chenery (1960).² Import substitution occurs as goods and services previously purchased outside the region are produced in the region. In frontier regions it may also include local production of goods and services which were previously not consumed because of the high import costs.

The extent of import substitution in an industry is determined by the size of the local market for its product, the cost structure of the industry, and the delivered cost of the product from a competitive source. For a frontier region, the growth of the region's population and the region's location relative to centers of industry and commerce are important determinants of the extent of import substitution.

The size of the market for a good or service is represented in by its demand curves. Product demand is a function of local price structure, the income of residents, the prices of other products, and the intermediate demand for the product. In frontier regions, as the Staple Theory points out, these will be determined by the type of natural resource production. Change in export activity may change not only the demand for inputs but also the demand for residentiary products as the number, incomes, and types of population change.

The second factor affecting import substitution is the local cost structure of the industry. Local costs of production are not static. The production of most goods and services are subject to economies of scale, so that as the market expands the average cost of production declines. Economies of scale achieved as frontier regions grow will result from internal changes in both the firm and industry. However, more important for frontier regions may be urbanization economies which result from increased local infrastructure and services as the population of the region grows. The economies of scale which accompany expanding regional population are the major dynamic of import substitution.

The final factor which influences import substitution is the delivered price of the good or service as an import. The market in the frontier region is usually not large enough to affect the cost structure of the producing region. The delivered price, in this case, equals the price at the source plus transport costs.

The threshold level of production of an industry is that output level where local production is cheaper than importing. This is the point at which import substitution becomes possible. Once local demand passes this point, local production can compete with imports. Shifting of any of these three determinants

will affect the level of output at which import substitution becomes possible. The link between growth of a staple sector output and economic development occurs through import substitution. Factors which affect the cost of production, demand, and delivered price affect the extent import substitution will occur.

Import substitution is a function of the changing profitability of an industry; firms move into a region if they can profitably operate there. The size of the market influences a firm's profitability. Profitability will be determined by the price which can be charged for a product and the cost of producing it. Prices which can be charged in an open region are determined by the price of imports, which is a function of the cost of producing and transporting the good to the region. Import substitution does not occur in all sectors at the same time. We would expect import substitution to occur in industries with relatively high transport costs and which exhaust economies of scale at relatively low levels of production.

IMPORT SUBSTITUTION IN ALASKA

In this section we examine the detailed growth of Alaska industries between 1970 and 1979, in order to develop a better understanding of the process of import substitution in frontier regions. Table 1 provides an examination of employment growth in Alaska between 1970 and 1979. This table allows us to isolate the pattern of import substitution by comparing employment growth to the growth in the market. In this case, the market is defined by "real Alaska income," which is a measure of the purchasing power available in Alaska. Since employment growth can result from external demand and intermediate demand as well as local final demand, employment is divided into three groups to represent dif-

ferent markets: (1) "population serving" primarily serves the local population, (2) "industry serving" primarily serves local industry, and (3) "mixed serves both local and outside markets. Although the categories are not pure, they reflect the primary source of demand for industries in each group. Industries are placed in each category by definition. Three patterns of change can occur. Employment can expand at the same rate as the market, faster than the market, or slower than the market. Expansion at a rate faster than the market is a necessary condition for import substitution.³

In examining Table 1 we must keep in mind that the change in employment can only be a proxy for import substitution. There are at least three reasons to be cautious. First, change in employment can also result from a change in technology. If the manner of production changes, employment does not offer a good measure of import substitution. Secondly, even the more detailed level of industry breakdown presented here masks considerable industrial variation. Separate sectors within an industry may move in different directions, obscuring the presence of import substitution. Finally, if excess capacity existed in 1970, the expansion may not have been greater than the market, but import substitution could still have occurred.

Table 1 compares actual growth in employment between 1970 and 1979 with the growth that would have occurred if employment had grown at the same rate as the market. Employment growth at the market rate we assume is simply support sector expansion; employment growth greater than the market rate is import substitution. The rate at which the market for each industry is assumed to expand equals the rate of growth in Alaska real person income plus the rate at which national employment growth in the industry differed from real national income growth. This approach attempts to account for both changes in the structure of demand and

Table 1

Import Substitution 1970-1979

Industrial Sector	Employment ¹		1979 Market Expansion ²	Net (3)-(2)	% of Actual (4)/(2)
	1970	1979			
<u>Mixed Basic & Support</u>					
Holding & Investment	17	1,117	39	1,078	97
Other Transportation	273	1,734	369	1,365	79
Eating & Drinking	2,796	8,161	5,936	2,225	27
Hotels & Motels	1,450	3,286	2,588	698	21
State & Local Govt.	18,439	36,617	30,847	5,770	16
Special Trade Const.	2,377	4,502	3,834	668	15
Water Transportation	830	1,235	1,139	96	8
Air Transportation	3,070	5,000	4,798	202	4
<u>Support: Population Serving</u>					
Telephone Communications	150	1,969	217	1,752	89
Insurance Carriers	248	913	390	523	57
Radio & Television Com.	280	748	472	276	37
Apparel: Retail	424	1,059	688	371	35
Miscellaneous Retail	1,638	3,650	2,577	1,073	29
Health Services	2,174	5,734	4,120	1,614	28
Local Passenger Transp.	609	1,036	745	219	28
Security, Commodity Brk.	53	105	81	24	23
Printing & Publishing	558	971	777	194	20
Food: Retail	1,714	3,602	2,919	683	19
Banking	1,355	2,975	2,409	566	19
Furniture: Retail	346	706	578	128	18
Millwork: Mfg.	78	151	129	22	15
Utilities	817	1,404	1,223	181	13
Real Estate	711	1,443	1,274	169	12
Amusement & Rec Service	241	486	443	43	9
Credit Agencies	329	788	757	31	4

Table 1, Page 2

Industrial Sector	Employment ¹		1979 Market Expansion ²	Net (3)-(2)	% of Actual (4)/(2)
	1970	1979			
<u>Support: Industry Serving</u>					
Fabricated Metal Mfg.	16	171	26	145	85
Machinery Mfg.	51	361	82	279	77
Paint, Glass, Wallpaper Stores	44	115	69	46	40
Legal Services	337	1,246	762	484	39
Hardware: Wholesale	123	335	228	106	32
Other Bldg Material:Retail	66	134	104	30	22
Groceries: Wholesale	455	1,026	843	183	18
Lumber: Retail	351	664	552	112	17
Business Services	1,996	4,774	4,205	569	12
Transport Equipt: Mfg.	63	89	78	11	12
Electrical Goods: Wholesale	258	532	477	54	10
Hardware: Retail	128	220	201	19	8
Total Nonagricultural					
Wage and Salary	92,467	166,406			

1. Source: Alaska Department of Labor, Statistical Quarterly, 1970-1979.

2. Market expansion equals rate of real income growth (.663) plus difference between U.S. growth rate and U.S. growth in real income. U.S. Department of Commerce; Survey of Current Business, July 1973, 1983.

3. Grew at less than the market:

Mixed: General Heavy Construction

Population Survey: Food Mfg., Communication Services, General Merchandise Store, Auto Stores, Insurance Agents, Personal Services, Auto Repair, Misc. Repair, Motion Pictures.

Industry Serving: Stone, Clay, Glass Mfg., Other Mfg., Trucking, Warehousing, Wholesale Machinery, Wholesale Drugs, Other Wholesale.

the affect of varying income elasticities. Only those industries which exceeded market growth are shown. Below we examine import substitution by sector.

Mixed Sector. Growth in this sector was primarily a result of changes in Alaska's export sector. The growth of the travel industry, primarily serving markets outside the state, has resulted in larger local growth of hotels and motels and eating and drinking establishments than the growth of the local market could support. Both air and water transportation expanded at approximately the same rate as the market, probably because of technological change and initial excess capacity which counterbalanced the effects of growing markets. For example, changes in airplane design may make it possible for fewer employees to provide service to the same number of people. Only a portion of the excess growth in these industries can be assumed to be a result of import substitution.

The mixed basic sector growth illustrates the effect of certain events on the structure of the economy. The three industries with large excess growth, grew because of the development of petroleum at Prudhoe Bay, these are other transport, holding and investment companies, and state and local government. "Other transport" is primarily pipeline employment; the growth of this industry occurred with the construction and operation of the trans-Alaska pipeline. The growth of holding and investment companies resulted from the establishment of the Alaska Native Corporations by the Alaska Native Claims Settlement Act. The settlement was reached to accommodate pipeline construction. Finally, the non-proportional expansion of state and local government was a response to the growth of petroleum revenues. Each of these industries was connected with petroleum development at Prudhoe Bay; Prudhoe Bay was the catalyst for this development. The deepening of this sector resulted primarily from the change in the structure of the Alaska export sector.

Population-Serving. Seventeen industries in this sector (65%) exhibited some degree of import substitution, according to our definition of that term. Of these seventeen the largest number were in services (41%) followed by retail trade and utilities (each 24%) and manufacturing (12%). The industries in which import substitution accounted for the greatest absolute growth were Telephone Communications (1,752 employees), Health Services (1,614 employees), and Miscellaneous Retail (1,973).

Three reasons import substitution did not occur in other industries may have been specialization of function, technological change, and excess capacity. For example, in small markets all retail activity may be handled by a general store; as the market grows, specialized stores will appear; this results in General Merchandizing expanding at less than the market (similar changes occurred in construction). The most obvious example of effect of technological change may be in Food Manufacturing. As technology has reduced transport costs from larger centers (reduced spoilage, etc.) imports have actually replaced local products. Finally, excess capacity may have existed in certain sectors in 1970 (Movies, Auto Sales, Insurance Agents); implicitly we are assuming optimal adjustment in 1970 and 1979, and this may not be the case.

Industry Serving. As in the population serving sector, services are important components of import substitution. In absolute terms Business and Legal Services experienced the greatest excess growth (569 and 484 respectively). Of the twelve industries experiencing growth in excess of the market, 58 percent were trade (wholesale and retail) industries which serve industry. It may be surprising that Warehousing did not show greater import substitution. This may also be a result of improved transportation between Alaska and Seattle. Improved

transportation, in the form of more transportation service which reduces the time between orders and delivery, may permit these services to be performed in Seattle.

Those sectors exhibiting import substitution over this period are producers of services rather than goods. The primary characteristic of service producers is that the customer goes to the firm for service. In this case, the transport costs are very high and growth of the market will allow these costs to be eliminated by local production. In addition to high transport costs, we would also expect that these sectors represent firms which exhaust scale economies at smaller sizes. In 1977 (the last year data was available) a large share of the firms in the import substitution industries in Alaska had fewer than 50 employees: 25 percent of the firms in Communications and Utilities; 47 percent in Finance; 56 percent in Business Services; 37 percent in Medical Services; and 62.3 percent in other services. This also holds for the U.S. in general; in 1978 only 4 percent of Trade Sector firms and 6 percent in Business Services had more than 50 employees (Tussing et al. 1983).

This preliminary evidence suggests that import substitution has occurred in Alaska. The more rapid expansion of those industries traditionally considered supporting industries than those considered export industries is part of the evidence. Import substitution has been a major component of the employment growth of the Alaska economy. If we count the growth in those support sectors which grew in excess of 10 percent more than the market growth as import substitution, then 17 percent of the employment growth of the Alaska economy between 1970 and 1979 occurred because of import substitution. Import substitution occurred in sectors which accounted for 38 percent of the total employment in

1979.4 By these measures, import substitution has been a significant factor in Alaska's recent growth.

LIMITS TO IMPORT SUBSTITUTION ON THE FRONTIER

Import substitution is often ignored in regional development policy. This is in many ways the result of the theoretical basis for this policy. Economic base theory serves as the basis for regional development policy in Alaska and many frontier regions; the promotion of exports is the primary development tool suggested by this theory. Economic base theory assumes the support sector plays a passive role, simply responding to export growth. Although we may recognize that the support sector does not expand proportionally to export growth, the theoretical description of import substitution may suggest an automatic process. Government intervention or policy actions are not suggested by these theories. This section describes some preliminary evidence that import substitution may not be as automatic a process as assumed and, in fact, the encouragement of the growth of the support sector may provide an area for governmental policy in frontier economies.

If import substitution occurs automatically following the process described in the first section there would be no need for public action. Once the market reached its threshold, local production would begin, replacing imports with profitable local production. There are both limited empirical evidence and theoretical arguments to suggest that the process is not as automatic as assumed.

Tussing, et al. (1983) have examined the structure of the Alaska economy and found, that compared to similar economies, Alaska seems underserved in many sectors. Table 2 reproduces some of these results. Table 2, which compares the

employment/population ratio in Alaska and 11 BEA Economic Areas⁵ which are similar in both population and real per capita income, suggests Alaska may not have many industries that exist in other similar size markets.

In those sectors traditionally assumed to be support sectors, Alaska has a much smaller employment to population ratio than similar markets in the lower 48 states. This is particularly true in the Trade sector where the employment per thousand population differs from the average of the 11 other areas by as much as 67 percent for wholesale trade and almost 66 percent for furniture and home furnishings. The Service sector has certain areas with large difference, the ratio differs by 66 percent for Health Service and 150 percent for Amusement and Recreation. This same pattern has been found for supporting type manufacturing industries (Tussing, 1983).

Examining Table 2 suggests that the structure of the support sector in Alaska differs from the structure in other similar regional economies. It suggests that at least in certain Trade and Service sector industries Alaska may be underserved, provided with less of the industry than the market could support. These findings suggest that the market may fail to work properly. It is only to the extent that the market fails for some reason to provide the appropriate amount of industrial activity that government policy is warranted.

However, the difference in industrial structures suggested in Table 2 may also be the result of employment data's inability to accurately reflect economic activity. Differences in relative prices of factors may result in different patterns of production in Alaska which use less labor. In this case, differences in industrial structure will simply reflect least cost production choices by entrepreneurs and not market failure. Similarly differences in relative prices

Table 2

Employment Per Thousand Population for Selected Industries:
Alaskan and Comparable Areas
1980

<u>Industry</u>	<u>Alaska</u>	<u>Average of Other Areas</u>	<u>% Difference</u>
Personal Services	2.6	3.9	+ 50
Auto Repair	2.1	2.4	+ 13
Miscellaneous Repair	1.0	1.1	+ 11
Amusement & Recreation	1.0	2.5	+150
Medical & Health Services	14.0	23.2	+ 66
Wholesale Trade	13.5	22.5	+ 67
Building Material Sales	2.6	3.6	+ 40
General Merchandise	7.8	8.4	+ 7
Food Stores	8.8	10.5	+ 19
Auto Dealers & Service	6.2	9.4	+ 51
Apparel & Accessories	2.6	4.2	+ 63
Furniture & Home Furnishing	1.6	2.7	+ 66
Eating & Drinking	20.2	22.0	+ 9

Source: Based on information in Tussing, Huskey, Singer, The Place of Support Sector Growth, Import Substitution, and Structural Change in Alaska's Economic Development, Table III-C.3.

and tastes may result in a different structure of demand; employment structure may reflect differences in demand. Finally the data compare the Alaska market with markets which are more spatially compact. Alaska is really a series of smaller separate markets, each of which may be served most efficiently from outside the state. In each of these cases the data would not reflect the failure of import substitution to take place.

Although a portion of these differences can certainly be explained by problems of market definition, differences in production relations, or differences in the structure of demand, they also suggest that the process of import substitution may not be as automatic as traditionally assumed. To the extent the Alaska market fails to respond to opportunities for import substitution, this may be an area for economic development policy. There are a number of reasons to suggest that this is the case.

There are three general reasons to expect market failure in frontier regions; these are change in the threshold with growth, limited entrepreneurial supply, and uncertainty. Import substitution becomes profitable in frontier regions as the market expands past some threshold level. This does not necessarily mean import substitution will take place as a region grows; the process is not automatic and the limitations are especially important for frontier economies. One simple explanation of the failure of import substitution in frontier markets may be the affect of growth on the threshold at which import substitution is profitable. Growth may increase the threshold market size. Transport costs may also be subjected to economies of scale. If transport cost decline as the frontier market expands, the delivered price of imports may fall increasing the threshold size. This would occur if transportation services have

a large fixed cost. In addition, if there are important fixed factors, such as land, growth may in fact result in an increase in the local cost of production. Each of these will increase the market size at which import substitution becomes profitable.

Secondly the limited response to import substitution opportunities may be a result of limited entrepreneurial resources on the frontier. To borrow terms from Hirschman (1956), the expansion of market size beyond the threshold is a permissive not a compelling force. The larger market allows profitable import substitution, but does not automatically compel it. Recognizing this emphasizes the importance of the entrepreneur to import substitution in frontier regions.

Entrepreneurs are a resource which is scarce in frontier regions; as a result of the limited local population and the limited mobility of entrepreneurs from outside the region. There are three major determinants of the supply of local entrepreneurs: the character export sector, the size of population, and the availability of other opportunities. First, the type of staple production occurring in the region will influence the supply of entrepreneurs (see Baldwin, 1956). The characteristics necessary to be successful entrepreneur may not be those of a successful miner, oil company employee, or military officer. Secondly, the relative size of the population in frontier regions will also limit the supply of entrepreneurs. Even if the proportion of entrepreneurs in the population was similar to the national average, the small population means a small number of entrepreneurs. Finally, if the export sector offers opportunity for high wages with little risk or large returns in rent seeking activities, such as real estate speculation, the incentive to become an entrepreneur may be limited. For these reasons, the opportunities available may be greater than the number of entrepreneurs at any normal rate of return.

The local supply of entrepreneurs will not be easily augmented by the migration of entrepreneurs to the region. Entrepreneurs are not perfectly mobile. Strong locational preferences, the psychic income of familiar areas, may limit the flow of entrepreneurs to frontier regions (Richardson, 1978). The limited entrepreneurial mobility also results from the increased risk the entrepreneur associates with the unknown. The high cost of migration for entrepreneurs may keep local markets from clearing at anything close to normal rates of return. Because of limited mobility, opportunities in frontier regions which earn higher rates of return than in settled regions may not attract entrepreneurs.

Two additional factors which affect the supply of entrepreneurs may account for the limited import substitution in frontier economies; these are the imperfect flow of information and the lack of complementary resources. Information does not flow perfectly either to or from frontier regions. Entrepreneurs require information about available opportunities and the possible response of competitors (Clark, 1981). The primary source of this information is personal contact; limitations on this flow of information mean that potential migrants may not know of the opportunities or may underestimate them. In addition, information about innovations in products or technology does not flow immediately to frontier regions. The spatical diffusion literature suggests this sort of information takes time to spread from its source; explanations of this information flow point to distance or hierarchical place as determining when an innovation will reach a place. Since innovations occur primarily in large developed areas, we would expect them to reach frontier regions only with a lag (Weber, 1972). Imperfect information flows will limit import substitution.

The most important complementary factor for entrepreneurs is capital. Capital will not flow easily to frontiers for the same reasons as entrepreneurs,

and that may limit the ability of migrant entrepreneurs to take advantage of opportunities. Banks outside the region are not likely to send capital to unknown areas and banks within the region are not likely to lend funds to unknown entrepreneurs. If banks in the frontier region are monopolies or serve large corporate clients they may not accept the risks associated with new import substitution investment.

The final factor limiting import substitution on the frontier is uncertainty. Uncertainty reflects the unknown character of the frontier. The limited flow of information increases the uncertainty for those outside the region. In addition, the pattern of growth in resource based frontier regions may increase the uncertainty about the future. The booms and bust cycles surrounding exploration, development, production, and exhaustion of resources do not provide a stable environment for entrepreneurial investment. Weber (1972) and Richardson (1978) have pointed out that increased uncertainty leads to delays in investment decisions and a reduction in firm size. The reduction in firm size leads to an increase dependence on external sources of service and inputs. Concern about external sources of supply reinforces the agglomeration economies of large places. This results in investors meeting frontier needs in large centers outside the region. Uncertainty will have the effect of reducing the import substitution in frontier economies.

CONCLUSIONS

Frontier regions in which the initial impetus to growth came from the production of natural resources, often fall into the staple trap when selecting policy (Watkins, 1963). This is the focus on natural resource production as the

sole source of economic growth. This idea is supported by the widely accepted economic base theory, which isolates external demand as the primary source of growth.

To suggest that frontier regions might actually pursue a policy of encouraging import substitution requires that two questions be answered. First, is there a role for government policy; is there some failure in the process of import substitution? Secondly, are there legitimate reasons for government intervention; can a market failure argument be made in favor of such intervention?

We have shown in the previous sections both preliminary empirical evidence and theoretical support which argues that frontier economies may not take full advantage of import substitution opportunities; the process is not automatic, so there is an area for government involvement.

Should the government be involved? The notion of pecuniary externalities may provide a market failure argument for government involvement. Economic Base Theory fails to recognize the important feedback effect that support sector growth has on the basic sector. This feedback effect operates as a pecuniary externality and provides the argument government intervention. This feedback effect was originally pointed out by Tiebout (1956); the expansion of the local service sector by reducing the cost of living and doing business in a region may actually make resource development possible. Focusing on the export activity ignores the reasons for resource development and does not provide a suitable model for policy development.

Policies of a regional frontier government should address those factors which limit import substitution. Governments can work to increase the flow of

information. This may be as simple as a media campaign that insures people outside a market exists or a complex target industry program which does market studies and provides them to entrepreneurs. To improve the flow of information into the region, the government may increase its support of education or develop programs similar to agricultural extension agents. If capital is made available it should be appropriate types. Finally, if frontier economies have access to some share of the resource rents, they can use these revenues in a counter cyclical manner which extends growth but does not reinforce the booms and busts. If this program is well publicized it may reduce the uncertainty about the future. This paper points to one area for public policy in frontier regions, it does not suggest resource development is not important, or should be ignored. However the ability of regional governments to influence resource development is limited, and the expansion of the local support sector may have the effect of increasing resource development in the region.

ENDNOTES

¹This refers to market goods. In some regions, such as rural Alaska, non-market subsistence goods are a large part of the consumers real income.

²The four reasons why relations between sectors change in the process of economic development are import substitution, changes in the pattern of domestic demand, change in technology, and export expansion.

³This criteria may underestimate the level of import substitution. The market for goods with low income elasticities increases slower than the market we have defined, if real percapita income expanded significantly. This was true during this period in Alaska. This may explain why certain services which grew much faster than population did not show import substitution. For example, Personal Services, Auto Repair, and Miscellaneous Repair all grew much faster than population (2%, 29%, and 58% respectively) but did not show import substitution according to our criteria.

⁴This includes Eating and Drinking Establishments and State and Local Governments.

⁵BEA Economic Areas are functional economic areas made up of groups of countries. Twelve which are similar in both population and real per capita income suggests Alaska may not have many industries that exist in other similar size markets.

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