

Standard of Living and Livestock Donation Programs in Developing Economies: Evidence from
Native Alaskan Villages

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September 2012

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Very Preliminary Draft – All Comments Welcome

Abstract

In order to reduce poverty in developing countries, organizations such as World Vision, the International Humanity Foundation, Heifer International, and Maasai Association have developed programs to provide livestock to low-income families in developing countries. These programs operate under the assumption that livestock provide a source of food and income for recipient families. The extent to which these programs improve the standard of living of endowed families has not yet been determined. This paper examines the effect livestock programs have on impoverished groups utilizing evidence from a federal program developed in 1891 to provide reindeer to Native Alaskans as an alternative to government subsidies. Reindeer were intended to provide a dependable source of cash income and employment in rural villages (Dillingham, 1999). Preliminary results utilizing household-level data from several Native Alaskan villages suggest that the introduction of reindeer herding was not successful at increasing the incomes of Native Alaskan families. Families that owned reindeer, however, lived in larger homes of slightly better sanitary conditions.

I. Introduction

Native Americans chronically represent one of the poorest socioeconomic groups among Americans. Attempts to understand the economic development of Native Americans have been hindered by a lack of data on the incomes and standard of living of native peoples prior to 1970. This paper utilizes newly transcribed data which recorded the economic status of a sample of Native Alaskan households in the late 1930s. These data allow new insight into the lives of Native Alaskans during the Great Depression and differences in the development of different tribal groups in Alaska. Furthermore, because of the detail catalog of household assets, these data offer an opportunity to gauge the success of programs developed by the U.S. aimed to promote the economic development among Native Alaskan villages.

Similar to contemporary livestock programs such as World Vision, the International Humanity Foundation, Heifer International, and Maasai Association, which provide livestock to low-income families in developing countries, the federal government attempted to improve the economic welfare of Native Alaskans at the turn of the 19th century by introducing reindeer herding. The federal reindeer program was developed in 1891 as an alternative to government subsidies.

Reindeer were intended to provide a “dependable source of cash income and employment” in rural Alaskan villages (Dillingham, 1999). In 1892, 171 reindeer were imported from Russia, as well as Sami herdsman to educate Native families in herding practices. At the height of the program, over 600,000 reindeer were herded in Alaska. Although reindeer herding is still practiced by Native Alaskan families today, the success of the program has not be determined. This paper examines the effect family ownership of reindeer had on household

income, assets, and living conditions utilizing a newly data which documented the economic status of Native Alaskan villages from 1938 to 1941.

II. Alaska and Its People

Alaska is a land of extremes. Alaska consists of 586,400 square miles of land; two-thirds of which is in a perpetual state of permafrost.¹ Fairbanks experiences record highs of 96 degrees Fahrenheit and lows of -62 degrees Fahrenheit. The state boasts 57 active volcanoes and one of its islands, Unalaska, has an average 250 days of rain every year. On the northernmost part of the state, 230 miles above the Arctic Circle, Barrow has 65 days of complete darkness a year. Ground transportation within Alaska is often limited to frozen rivers during the winter, one of two highways, and the Alaska Railroad. Many locations are thus only accessible by air or sea transport.

The peoples that have developed in this region reflect the harsh conditions of the state. Today, the largest proportion of the population identifying themselves as Native American or Native Alaskan is the state of Alaska. According to the Alaska Native Claims Settlement Act of 1971, the term “Native” refers to a person of one-fourth degree or more Alaska Indian, Eskimo, or Aleut blood, or combination thereof (Report No. 81-127 gov). In 2000, about 16% of the population in Alaska was Native. Figure 1 illustrates the different tribal regions of Alaska’s indigenous groups. Tlingit, Haida and Tsimshian tribes occupy the Southeastern area of Alaska. Athabaskan Indians live in the interior and the Northwestern part of the state is home to the Inuits. Aleuts live on the peninsula and Yupik speaking Eskimos live on the Southwest Coast (Segal 1983). Many of these peoples continue to live in the most remote areas of Alaska,

¹ Permafrost is defined as soil at or below freezing for a period of two or more years. The presence of permafrost has many implications for sanitation (limited plumbing capabilities) and housing standards in the most northern parts of the state.

although several Native Alaskans live in metropolitan areas. Today, nearly thirty percent of the entire Alaskan Native population lives in the three most populated areas in Alaska. In 2007, the population of Alaska was 683,478. This has increased by 8% from 626,932 in 2000 and by almost seventy percent since statehood in 1959. This illustrates the huge migration of people into Alaska in the second half of the last century.

The history of Alaska following western settlement is greatly shaped by its rich natural resource base. The first to “discover” Alaska was the Russian Navy crew of the Saint Peter in 1741. The captain, Danish navigator Vitus Bering, conducted enough voyages in the 18th century to establish Russia’s eventual claim to Alaska (Utter, 2001). When Russian crews brought back sea otter fur, a fur market was instantly born. In order to invoke “constructive control” over the fur trade, the Russian American Company was created by the Russian Empire (Utter, 2001). The Russian American Company developed the first permanent settlement in Alaska in 1784, but Russia never permanently colonized and eventually negotiated the sale of Alaska to America 1867.

Alaska was sold to America for two cents an acre, a bargain considering the discovery of gold less than five years later and the discovery of oil in 1968. The discovery of oil prompted significant changes for the native peoples of Alaska. Land ownership came into questions and the Native population was pressured to settle indigenous land claims. This led to the Alaska Native Claims Settlement Act of 1971. The Act delineated 44 million acres of land for Alaska Natives and compensated Native Alaskans approximately one billion dollars to extinguish their claim to the rest of Alaska (Utter, 2001). This money was used to create thirteen regional nonprofit corporations in which Natives are the stockholders (Segal, 1983). A map of the regional areas created is available in Figure 2.

III. Native Alaskan Policy, 1867-1940

Alaska became a territory of the U.S. on October 18th, 1867 when it was purchased from Russia. Under the treaty of the sale, Native Alaskans were not granted citizenship. Alaska was under the control of the military until a governing body for Alaska was created by passage of the Organic Act of 1884. The Organic Act was one of the first attempts to “civilize” Native Alaskans. Efforts to civilize typically took the form of teaching Natives English and, as a result, Native Alaskan policies revolved around education. In addition to creating a civil government, the Organic Act called for the creation of territory schools for Native and non-Native children. Sheldon Jackson, a Presbyterian missionary from New York, was appointed as General Agent for education in Alaska. Jackson contracted out education of Alaska’s Native children to missions, which were to exclusively instruct in English and convert Native Alaskans to Christianity. Jackson observed the pressure overharvesting of natural food sources was placing on Native populations and began efforts to alleviate the problem. He noted that the climates on the Seward Peninsula were similar to those in Siberia in regions where Sami were herding reindeer. Jackson envisioned Native Alaskan herding reindeer for both subsistence needs as well as an income source from the sale of offspring, hides, meat, and various other goods produced from the animals. A plan was proposed to congress and the first sixteen reindeer were introduced in 1891.

In 1896, the U.S. Bureau of Education ended the practice of contracting with missionary schools to provide education to Native Alaskans and a number of new federal day schools were built in Native villages. In 1905, a segregated system of schools was developed under the Nelson Act. Only those Native children that lived a “civilized life” were permitted to attend non-Native schools. Native people were not recognized as Alaskan citizens until 1915 and they

became U.S. citizens under the Citizenship Act of 1924. Administration of schools and health services was transferred from the U.S. Bureau of Education to the Bureau of Indian Affairs in 1931. In 1936 the Alaska Reorganization Act was passed allowing Native Alaskans to develop constitutions for self-governments and to create reservations. Seven reservations were created during the 1940s; however, only one exists today. The others were repealed with passage of the Alaska Native Claims Settlement Act. In 1937, the Reindeer Act was passed making it illegal for non-native individuals to own reindeer.

IV. Introduction of Reindeer

Reindeer are domesticated caribou whose environmental needs are ideally provided by the conditions of the Seward Peninsula. Each mission school was provided with a small herd for educational purposes and the first herds were accompanied by native Siberians to educate Native Alaskans in animal husbandry. By 1902, reindeer importation from Russia ended and there were 2,280 reindeer on the Seward Peninsula. Sale of reindeer to non-Natives was prohibited and only Native Alaskans and missions were permitted to own reindeer. Reindeer herds increased in size to 27,000 in 1910 and 57,800 in 1914. During the 1910s, over sixty-five percent of reindeer were in the hands of individual Native Alaskan families, the remainder being under the charge of missions, the government, non-Natives that had obtained a herd.

By the mid-1930s, non-Native ownership of reindeer had increased to a third of all reindeer and problems of monopolization and price-gouging had arisen. The Reindeer Act of 1937, which is still in place today, was passed to restrict ownership of reindeer to Native Alaskans. Under the Reindeer Act, Native Alaskans received government aid to facilitate the

purchase of all non-Native owned reindeer. It also created strict barriers to prevent non-Native involvement in the reindeer industry and allowed free grazing on federal lands.

V. Data

The data for this analysis is provided by an economic survey of Native Alaskan villages conducted by the Credit Section of the Alaska Extension Division of the Bureau of Indian Affairs from 1938 to 1941. This survey is part of a seven record series commissioned by the Bureau of Indian Affairs containing annual reports on herders of reindeer, statistical charts on the operation of Native Schools, statistical information on the education and medical services of the Alaska division, quarterly school reports, community reports, and household economic activity.² In the economic survey, information was collected on the level of production, consumption, income, assets, and living conditions of each of the 367 Native Alaskan households included in the survey. Each village was surveyed once over the period from 1938 to 1941, creating a cross-sectional glimpse into the economic activities and quality of life of Native Alaskan peoples at the end of the Great Depression.

The most unique aspect of this data is the detail in which assets, production, and income sources were recorded at the household level. In terms of assets inside the home, the survey collected information on the size and quality of the home as well as the number of sewing machines, beds, cupboards, radios, phonographs, pictures, ornaments, rugs, clothing, dishware, washing machines, and jewelry possessed by each Native household. The number and value of livestock, such as geese, chickens, sled dogs, and reindeer, were recorded in addition to information on the production, consumption, and sale of garden produce. Assets outside of the

² National Archives and Records Administration, "American Indians: A Select Catalog of National Archives Microfilm Publications," Washington DC, 1998.

home were also recorded and include information on garden implements, engines, chargers, sundry tools, boats, seines, traps, sleds, tents, boots, saws, and guns. Household income sources are carefully categorized into income from the sale of arts and crafts, livestock, garden produce, fish, pelts, boat building, wages, and government pensions.

A map of the villages included in this sample can be found in Figure 3. There exists substantial variation in the geographic location of these villages. A majority of these villages are located on the coast, but the sample does include two inland villages. There also exists variation in the distance to the nearest populated area. According to the 1940 census, there were only eight towns in Alaska in 1939 with a population of a thousand or more. I loosely define these as “metro” areas. Distances to these towns are available in Table 1. The average distance between a village and the closest “metro” area is 191 kilometers. Figure 4 shows the locations of these of high-population areas.

a. Family Composition

Table 2 gives a summary of the structure of Native households by village. The average number of households per village is twenty-eight and the average household consists of five individuals, of which fifty-three percent were male. The largest village, Hoonah, consists of fifty-five households, 280 individuals, and has an average family size of five individuals. Tatitlek has the smallest population at fifty-eight individuals while Elim consists of the fewest number of households, eleven. Elim also has the largest average sized household at 6.36 individuals. The village with the smallest average-sized household is Kasaan, with an average household size of 3.5 individuals.

Information is also provided on how family members are distributed across different age groups (columns 5-12 of Table 2). Overall, the Native households surveyed consist of young individuals under the age of thirty. The village of Stebbins did not report any individuals over the age of forty, but also happens to be the most predominantly male village of the entire survey. Over sixty-eight percent of the average household in Stebbins is male.

b. Sources of Income

The income sources of each village are reported in Table 3. Canning and fishing wages comprise a substantial portion of the average household's income. The sale of arts, crafts and pelts accounted for \$136 in income, or a quarter of the average household's overall income of \$544. Surprisingly, the sale of fish and other seafood was not a substantial source of income for any of the villages. Three villages reported earnings from government pensions and the typical pension payment was \$240 per individual. Only two villages report income from the sale of livestock. A family's typical livestock consisted of reindeer and sled dogs. Only one village reports families owning chickens and geese. Out of the two villages reporting income from the sale of livestock, Elim is the only village that also owns reindeer.

c. Assets and Liabilities

A summary of assets are shown in Table 4 and liabilities are reported in Table 5. The average household owned \$2,494 worth of assets and \$112 in liabilities. The majority of assets owned by Native households are in category "equipment and livestock," although several villages report no ownership of livestock. One village, Kwethluk, reported ownership of mining rights, which was categorized as industrial land assets. The average household in the sample had

\$458.77 in “home assets.” The average value of a household’s place of residence was \$402.62. Although the specific categories of liabilities were not reported for each village, for those that did, indebtedness was highest for capital goods. The average family owed \$61.17 for capital goods and \$49.35 for clothing and food.

Table 6 reports which villages own reindeer and the average number of reindeer per family within a village. Because the destination for reindeer was decided by the climatic region of a family, the distribution of reindeer amongst households is somewhat exogenous. The regions in which wild reindeer live in Alaska is reported in Figure 5. Of the villages in the sample, four contain families who reported ownership of reindeer. The average number of reindeer per village is 2,057 and the average number of reindeer per family within a village is 273. Within a village reporting reindeer owners, nearly sixty percent of families within those villages owned reindeer. Therefore, there is variation within reindeer-owning villages of which families owned reindeer. The villages which reported reindeer owners are Elim, Kwethluk, Mekoryuk, Unaleklet, and White Mountain. Two of these, Elim and White Mountain, are located on the Seward Peninsula. Villages on the Seward Peninsula were the first to receive reindeer due to the similarity between climactic conditions on the Seward Peninsula and the regions herded by the Sami. Reindeer herds later formed in other locations in Western Alaska which presented favorable conditions for reindeer herding. The villages which reported reindeer owners are all within the natural range of wild reindeer shown in Figure 5. The average value of a reindeer was \$6.50.

VI. Regression Analysis

This paper examines the effect family ownership had on the lives of Native Alaskans in the 1940s. Household income, assets, sanitary condition of grounds, and the square footage of the home are used as measures of standard of living and are regressed on family composition variables, year fixed effects, village fixed effects, and the number of reindeer owned. The condition of grounds is a dummy variable equal to 1 if the sanitary condition of the grounds was reported as fair, poor, bad, or very bad. The results from these regressions are reported in Table 7. Because of the addition of village fixed effects, the comparison being made in these regressions is within villages across households with reindeer and households without reindeer.

Column 1 and 2 of Table 7 show that the number of family members who are male and the number of family members who are female have a statistically insignificant, positive relationship with household income and assets. Having household members under the age of twenty is negatively associated with household income and assets. The number of reindeer owned by a family has a very small, but positive relationship with income. However, this positive association is not statistically significant. The coefficient estimate on the number of reindeer implies that if a family were to obtain one hundred reindeer, their income would increase by 1.45 percent. Given the average household income is about \$545, an increase of one-hundred reindeers owned by a household would be associated with a rise in income by about eight dollars. The addition of one reindeer is associated with statistically significant increase in household assets by 0.0679 percent. In context, the addition of 100 reindeer to a family would result in an increase in household assets of \$169. This result is mostly driven by the inclusion of the value of reindeer in household assets. The addition of one reindeer has a negative effect on the probability a family is living in bad sanitary conditions and has a positive relationship with

the size of the home. The addition of 100 reindeer to a family is associated with a statistically significant increase in the size of the home by 4.7 percent, or eighteen square feet. Overall, ownership of reindeer appears to slightly improve the living condition and asset accumulation of Native Alaskan households, but does not appear to provide a substantial source of income.

I also run the regressions above with fixed effects for language groups instead of village fixed effects. The language groups are shown in Figure 6. By including language groups, the regressions then compare across families with and without reindeer, within language groups. Language groups may better control for Native market networks than village fixed effects. These regressions are reported in Table 8. The addition of language group fixed effects appears to have little effect on the signs of the coefficients. The sign on the number of family members over sixty years old is now negative, but statistically insignificant. The magnitude of the coefficient on the number of reindeer slightly changes with the inclusion of language group fixed effects, but the sign on the result remained the same. The addition of 100 reindeer to a household would result in an increase in income by \$7.25, an increase in assets by \$217, and an increase in square footage by twelve.

Regressions that include distances to high-population towns are reported in Table 9. These regressions show that the smaller distance to Nome, Fairbanks, Juneau, Sitka, Wrangell and Ketchikan the higher household income and assets. Surprisingly, the farther away a village is from Anchorage, now the largest city in Alaska, the greater household income. The coefficient on the household's number of reindeer remains practically identical to those in Table 7.

VII. Conclusions

Ownership of reindeer appears to have led to slight improvements in the living conditions and asset accumulation of Native Alaskan households in the late 1930s. The evidence suggests, however, that reindeer did not provide the steady source of income they were intended to by the federal government. Although the sanitary conditions and size of homes were better for reindeer owners, it is unclear whether having access to a steady supply of reindeer meat improved their health. The closest measure of health available in the village household data used in this paper is the sanitary conditions of the grounds. The data does include some information on household consumption; however, only one family reported producing and consuming venison, so it does not appear to be an accurate source of information on a household's consumption of reindeer.

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Figure 1: Tribal Regions of Alaska



Source: Alaska Native Knowledge Network

Figure 2: Regional Corporations Created Under Native Claims Settlement Act



Source: Paula Giese (1997)

Figure 3: Map of Villages in Sample



Figure 4: Villages and “Metro” Areas

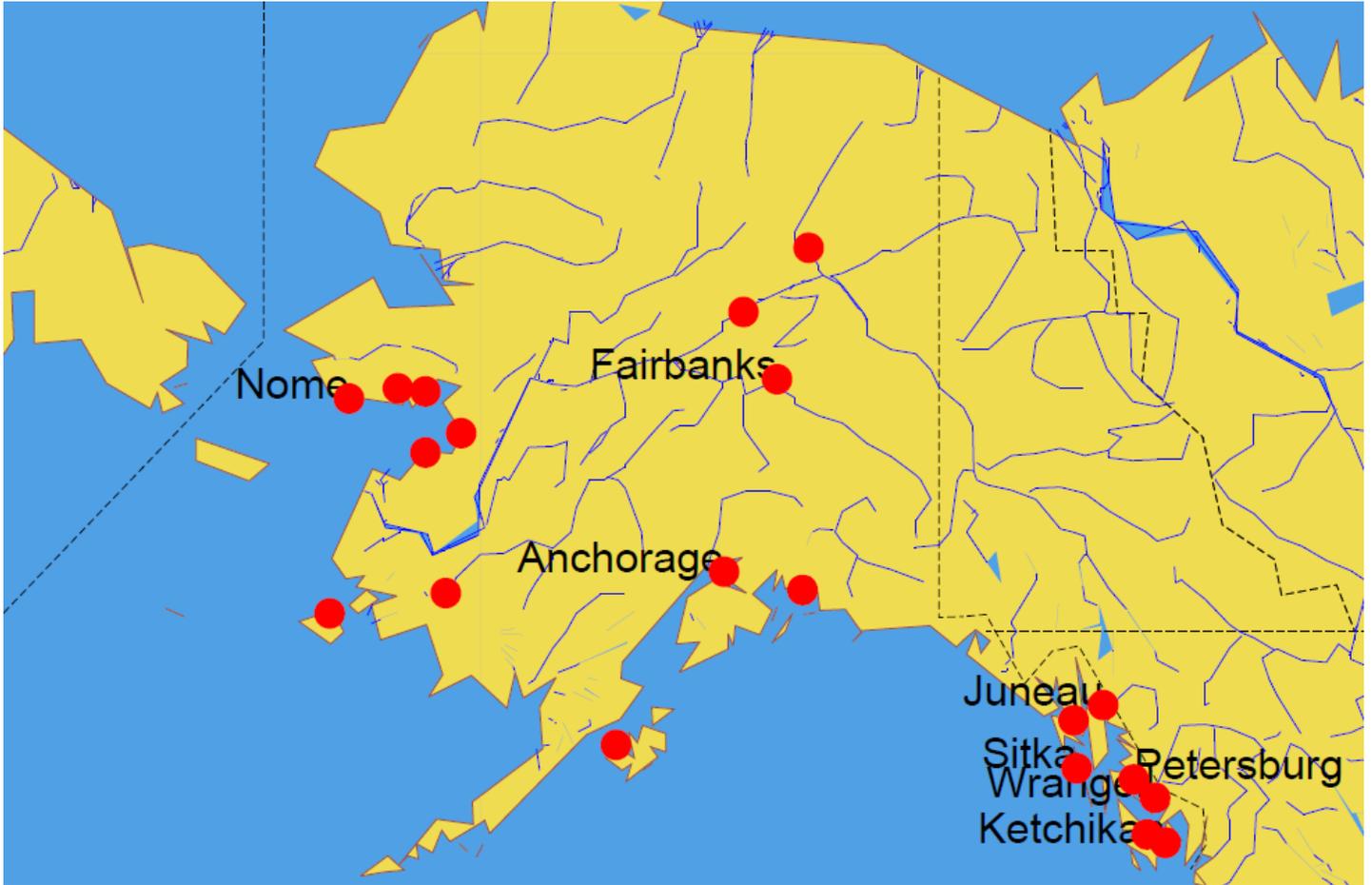
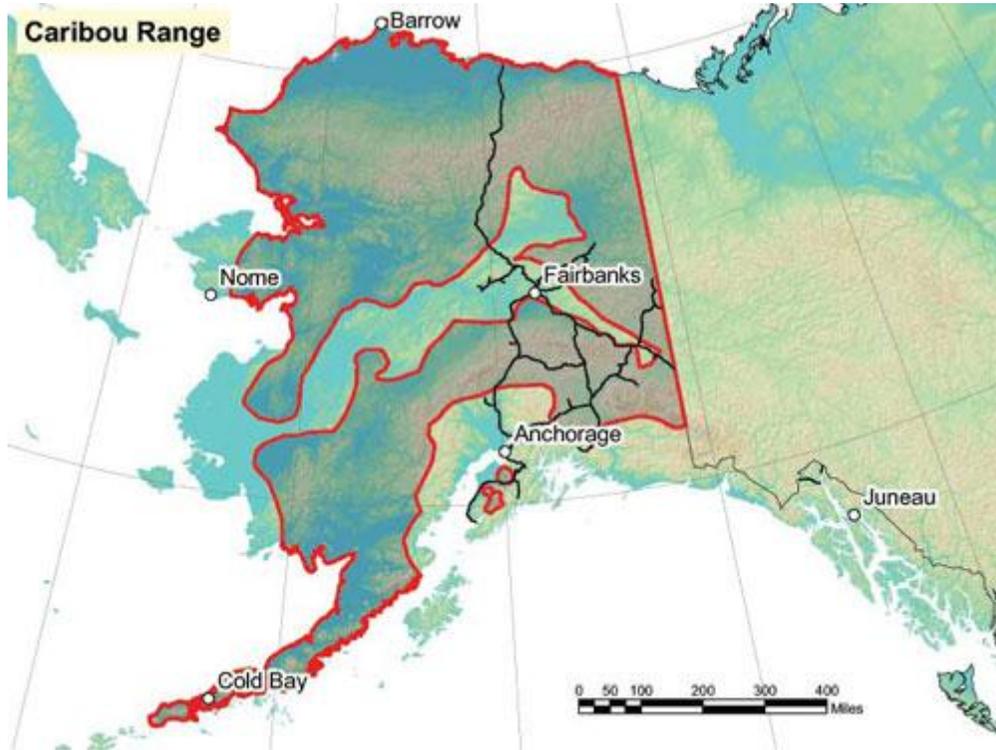


Figure 5: Wild Caribou Range



Source: Alaska Department of Fish and Game

Table 1: Distances to "Metro" Areas

Village	Nome, km	Fairbanks, km	Anchorage, km	Juneau, km	Sitka, km	Petersburg, km	Wrangell, km	Ketchikan, km
Elim	150.6	688.8	729.4	1619	1665	1793	1863	1960
Hoonah	1729	989.8	880	79.78	117.8	208.1	278.1	383.1
Karluk	969.9	881.6	477.1	1185	1140	1288	1350	1409
Kasaan	2053	1330	1194	341.2	247	144.3	95.81	50.65
Ketchikan	2102	1373	1243	377.4	295.2	179.9	117.9	0
Kwethluk	458.9	825.5	622.1	1540	1542	1684	1752	1832
Mekoryuk	459.4	1062	887.4	1804	1803	1946	2014	2091
Stebbins	188	718.5	676.9	1599	1633	1766	1835	1928
Stevens Village	774.3	144.1	533.7	1135	1229	1329	1396	1507
Tatitlek	1032	445.3	177.4	747.9	774.7	907.8	977.6	1070
Unaleklet	233.7	636.6	631	1533	1573	1703	1773	1868
White Mountain	97.08	253	782.2	1674	1720	1848	1918	2015
Venetie	907.1	253	670.4	1137	1249	1334	1399	117.9
Average	858.1	738.6	731.1	1136.3	1153.0	1240.9	1290.0	1248.6

Table 2: Household Composition

Village	Individuals	Family Units	Average Size of Household	Average # HH Members Under 5	Average # HH Members 5-10	Average # HH Members 10-20	Average # HH Members 20-30	Average # HH Members 30-40	Average # HH Members 40-50	Average # HH Members 50-60	Average # HH Members over 60	Average # HH Members Male	Average # HH Members Female
Elim	70	11	6.36	1.00	0.45	1.82	1.09	0.64	0.45	0.45	0.45	3.36	3.00
Hoonah	280	55	5.09	0.76	0.64	1.11	0.58	0.71	0.42	0.35	0.53	2.58	2.56
Karluk	145	34	4.26	0.53	0.59	1.21	0.62	0.47	0.32	0.24	0.29	2.26	1.97
Kasaan	77	22	3.50	0.77	0.18	0.41	0.45	0.55	0.41	0.27	0.41	1.95	1.55
Ketchikan	183	34	5.38	0.82	0.59	1.62	1.00	0.32	0.41	0.44	0.18	2.82	2.56
Kwethluk	153	31	4.94	0.77	0.52	1.29	1.35	0.42	0.32	0.16	0.10	2.55	2.39
Mekoryuk	222	39	5.69	1.13	0.69	0.97	1.10	0.49	0.38	0.31	0.56	3.05	2.64
Stebbins Stevens Village	96	22	4.36	1.33	0.67	0.00	2.00	0.67	0.00	0.00	0.00	3.00	1.67
Tatitlek	85	17	5.00	1.41	0.47	0.94	0.82	0.41	0.35	0.29	0.29	3.00	2.00
Unaleklet	58	13	4.46	0.62	0.69	1.15	0.69	0.31	0.54	0.15	0.31	2.23	2.23
White Mountain	211	38	5.55	0.97	0.79	1.39	1.00	0.42	0.45	0.16	0.37	3.11	2.45
Venetie	174	33	5.27	0.94	0.79	1.33	0.91	0.55	0.21	0.24	0.30	2.82	2.45
	82	18	4.56	0.67	1.00	1.28	0.56	0.17	0.44	0.33	0.11	2.33	2.22
All Villages	1836	367	5.00	0.85	0.63	1.20	0.84	0.48	0.38	0.29	0.33	2.66	2.34

Averages are taken within each village. The bottom row shows averages over the entire sample

Table 3: Income by Source

Village	Sale of Livestock	Sale of Arts and Crafts and Pelts \$	Sale of Garden Produce	Sale of Fish and Seafood	wages from boat building	Wages from Canning and Fishing	Wages from Other	Pensions and Relief	Total Wages
Elim	12.73	69.00	3.18	36.55	0.00	68.18	230.09	0.00	419.73
Hoonah	0.00	19.49	3.00	0.85	1.76	426.84	95.58	38.18	585.71
Karluk	0.00	17.97	0.00	0.00	0.00	0.00	0.00	0.00	17.97
Kasaan	0.00	0.82	0.00	2.27	0.00	461.68	185.00	0.00	649.77
Ketchikan	0.00	4.76	0.00	4.06	140.62	460.79	316.76	0.00	927.00
Kwethluk	0.00	278.23	0.00	4.26	0.48	0.00	41.61	0.00	324.58
Mekoryuk	0.00	100.74	1.62	0.00	11.31	0.00	87.26	0.00	200.92
Stebbins	138.00	177.23	0.00	2.18	0.00	0.00	0.00	0.00	317.41
Stevens Village	0.00	522.12	0.00	0.00	0.00	0.00	5.12	31.76	559.00
Tatitlek	0.00	0.00	0.00	0.00	0.00	123.31	309.92	4.62	437.85
Unaleklet	0.00	159.08	25.95	36.50	0.00	0.00	90.61	0.00	312.13
White Mountain	0.00	163.61	0.00	10.15	0.76	1.36	634.30	0.00	810.18
Venetie	0.00	588.44	0.00	6.67	6.67	0.00	110.28	0.00	712.06
Entire Sample Average	8.65	136.20	3.40	7.25	14.93	140.87	157.49	7.36	544.52

In 1940 dollars. Averages are taken within each village. The bottom row shows averages over the entire sample.

Table 4: Assets

Village	Building and Home Assets	Out Building Assets	livestock assets	Equipment Assets	Furniture and Personal Property Assets	Arts and Crafts Assets	Garden Produce Assets	Fish and Seafood Assets	Cash and Accounts Receivable	Industrial land assets	Total Assets
Elim	231.82	38.64	1280.91	473.36	464.27	367.82	39.09	90.00	0.00	0.00	2985.91
Hoonah	655.22	75.64	0.00	1557.71	805.15	11.29	29.25	36.04	150.65	0.00	3320.95
Karluk	348.74	0.00	0.00	161.62	252.56	1.21	1.85	30.97	0.00	0.00	796.94
Kasaan	425.45	0.00	0.00	1534.59	276.14	0.00	0.00	6.36	4.55	0.00	2247.09
Ketchikan	1473.24	0.00	0.00	655.62	1037.82	15.55	4.97	10.94	15.94	0.00	3214.07
Kwethluk	143.39	25.90	4629.16	295.06	320.32	15.19	0.00	152.19	0.00	164.52	5745.74
Mekoryuk	164.56	164.23	91.79	1378.33	391.54	539.21	9.72	77.67	107.26	0.00	2924.31
Stebbins	93.33	5.67	223.33	368.00	133.00	12.67	4.00	79.00	0.00	0.00	919.00
Stevens Village	175.00	79.41	50.59	289.88	19.18	0.00	1.41	29.41	16.47	0.00	661.35
Tatitlek	375.00	76.67	0.00	441.50	479.83	0.67	4.67	37.67	4.17	0.00	1420.17
Unaleklet	208.82	54.34	74.71	283.58	311.76	52.03	25.92	36.79	33.68	0.00	1081.63
White Mountain	238.64	47.21	2004.88	405.79	512.91	41.97	7.30	121.48	71.45	0.00	3451.64
Venetie	390.41	47.32	577.32	676.30	408.32	92.33	10.99	53.37	30.25	0.00	2286.60
Entire Sample Average	402.62	53.57	644.53	722.71	458.77	83.07	11.43	56.74	46.85	13.90	2494.18

Averages are taken over the entire sample (last row) and over households for each individual village. In Elim, a HH has an average of 2985 dollars in assets. In 1940 dollars.

Table 5: Liabilities

Village	Indebtedness for capital goods	Indebtedness for clothing and food	Other Indebtedness	Total Liabilities
Elim				0.00
Hoonah	41.22	9.60	3.07	53.89
Karluk	-	-	-	160.41
Kasaan	277.27	4.55	0.00	281.82
Ketchikan	362.59	11.32	94.85	0.00
Kwethluk	-	-	-	5.00
Mekoryuk	-	-	-	200.13
Stebbins				0.00
Stevens Village	0.00	337.47	0.00	337.47
Tatitlek	0.00	26.38	0.00	26.38
Unaleklet	32.50	50.00	245.68	328.18
White Mountain	15.73	1.94	47.15	64.82
Venetie	0.00	199.94	0.00	199.94
Entire Sample Average	61.17	49.35	53.79	111.91

Averages are taken over the entire sample (last row) and over households for each individual village. In Elim, a HH has an average of 2985 dollars in assets. In 1940 dollars.

Table 6: Ownership of Reindeer

Village	Total Number of Reindeer per Village	Average Number of Reindeer per Family	% Families with Reindeer
Elim	436	112.3	100
Hoonah	-	-	-
Karluk	-	-	-
Kasaan	-	-	-
Ketchikan	-	-	-
Kwethluk	6040	910.5	93.5
Mekoryuk	2400	74.4	2.6
Stebbins	-	-	-
Stevens Village	-	-	-
Tatitlek	-	-	-
Unaleklet	60	1.6	2.6
White Mountain	1353	266.00	100
Venetie	-	-	-
Average	2057.8	273.0	59.7

Table 7: Regressions with Village Fixed Effects

VARIABLES	Log		Bad Sanitary	Log House, Sq
	Earnings, \$	Log Assets, \$	Condition of Grounds	Ft
	1	2	3	4
# of Male Family Members	0.186 (0.155)	0.224 (0.137)	-0.0502 (0.0848)	-0.0120 (0.0875)
# of Female Family Members	0.112 (0.155)	0.221 (0.136)	-0.0861 (0.0844)	-0.000819 (0.0868)
# of Family Members:				
Under 5	-0.187 (0.164)	-0.256* (0.144)	0.139 (0.0897)	0.0513 (0.0943)
Age 5 to 10	-0.0614 (0.166)	-0.182 (0.145)	0.0139 (0.0892)	-0.0678 (0.0928)
Age 10 to 20	-0.118 (0.158)	-0.151 (0.139)	0.0706 (0.0865)	0.0653 (0.0888)
Age 20 to 30	0.162 (0.164)	-0.0564 (0.143)	0.0745 (0.0894)	0.0137 (0.0923)
Age 30 to 40	0.147 (0.173)	0.000581 (0.152)	0.127 (0.0947)	0.0157 (0.0992)
Age 40 to 50	0.132 (0.180)	0.0894 (0.157)	0.125 (0.0972)	0.189* (0.103)
Age 50 to 60	0.107 (0.181)	0.100 (0.158)	0.129 (0.0975)	0.136 (0.105)
Over 60 Years Old	0.00211 (0.188)	0.0362 (0.163)	0.0761 (0.102)	0.128 (0.108)
Dummies for Year:				
1938	1.223*** (0.246)	0.0709 (0.210)	-0.368*** (0.119)	
1939	1.713*** (0.307)	0.440* (0.249)	-0.500*** (0.155)	0.476*** (0.173)
1940	-1.382*** (0.249)			0.556*** (0.108)
Number of Reindeer:	0.000145 (0.000120)	0.000679*** (0.000106)	-5.62e-05 (0.000179)	0.000477*** (9.89e-05)
Village Fixed Effects	y	y	y	y
Constant	3.725*** (0.202)	6.033*** (0.155)	0.711*** (0.0914)	5.023*** (0.109)
Observations	339	365	273	227
R-squared	0.573	0.511	0.265	0.439

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Regressions with Language Group Fixed Effects

VARIABLES	Log Earnings, \$	Log Assets, \$	Bad Sanitary Condition of Grounds	Log House, Sq. Ft
# of Male Family Members:	0.182 (0.158)	0.227 (0.140)	-0.0398 (0.0863)	-0.0102 (0.0886)
# of Female Family Members:	0.106 (0.157)	0.242* (0.140)	-0.0763 (0.0859)	-0.0116 (0.0878)
Number of Family Members:				
Under 5	-0.186 (0.166)	-0.286* (0.148)	0.141 (0.0913)	0.0708 (0.0953)
Age 5 to 10	-0.0318 (0.168)	-0.211 (0.148)	-0.00319 (0.0908)	-0.0564 (0.0938)
Age 10 to 20	-0.0998 (0.160)	-0.165 (0.142)	0.0423 (0.0877)	0.0704 (0.0899)
Age 20 to 30	0.168 (0.166)	-0.0481 (0.146)	0.0499 (0.0906)	0.0163 (0.0935)
Age 30 to 40	0.0998 (0.175)	0.00975 (0.155)	0.140 (0.0965)	0.0114 (0.100)
Age 40 to 50	0.0930 (0.182)	0.0796 (0.160)	0.142 (0.0989)	0.199* (0.104)
Age 50 to 60	0.0888 (0.183)	0.0830 (0.162)	0.124 (0.0994)	0.162 (0.106)
Over 60 Years Old	-0.0424 (0.190)	0.00155 (0.166)	0.110 (0.103)	0.156 (0.108)
Dummies for Year:				
1938	1.187*** (0.220)	-0.802*** (0.186)	-0.409*** (0.110)	
1939	0.967*** (0.194)	-0.492*** (0.160)	-0.600*** (0.105)	0.343*** (0.102)
1940	-2.131*** (0.380)	-0.933*** (0.302)	-0.0731 (0.192)	0.141 (0.192)
Language Groups:				
Inupiaq	0.803*** (0.167)	0.761*** (0.149)	-0.0516 (0.154)	0.0906 (0.0989)
Athabaskan	0.831*** (0.244)	-0.851*** (0.217)	0.155 (0.132)	-0.0376 (0.140)
Tlingit	0.829*** (0.135)	0.595*** (0.119)	0.144* (0.0806)	0.611*** (0.102)
Alutiiq	0.722** (0.287)	0.0705 (0.238)	-0.0694 (0.158)	0.421*** (0.159)
Gwichin	1.091*** (0.243)	-0.270 (0.211)	0.496*** (0.137)	
Number of Reindeer	0.000133 (0.000107)	0.000873*** (9.49e-05)	-2.36e-05 (0.000183)	0.000320*** (8.16e-05)
Constant	3.781*** (0.204)	6.907*** (0.172)	0.849*** (0.106)	4.994*** (0.110)
Observations	339	365	273	227
R-squared	0.555	0.482	0.230	0.418

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9: Regressions with Controls for Distance to "Metro" Areas

VARIABLES	Log Earnings, \$	Log Assets, \$	Bad Sanitary Condition of Grounds	Log House, Sq. Ft
# of Male Family Members:	0.186 (0.155)	0.220 (0.143)	-0.0502 (0.0848)	-0.0120 (0.0875)
# of Female Family Members:	0.112 (0.154)	0.222 (0.142)	-0.0861 (0.0844)	-0.000819 (0.0868)
# of Family Members:				
Under 5	-0.187 (0.164)	-0.254* (0.150)	0.139 (0.0897)	0.0513 (0.0943)
Age 5 to 10	-0.0643 (0.165)	-0.206 (0.151)	0.0139 (0.0892)	-0.0678 (0.0928)
Age 10 to 20	-0.117 (0.158)	-0.145 (0.145)	0.0706 (0.0865)	0.0653 (0.0888)
Age 20 to 30	0.163 (0.163)	-0.0469 (0.149)	0.0745 (0.0894)	0.0137 (0.0923)
Age 30 to 40	0.152 (0.172)	0.0360 (0.158)	0.127 (0.0947)	0.0157 (0.0992)
Age 40 to 50	0.135 (0.179)	0.110 (0.163)	0.125 (0.0972)	0.189* (0.103)
Age 50 to 60	0.111 (0.180)	0.134 (0.165)	0.129 (0.0975)	0.136 (0.105)
Over 60 Years Old	0.00474 (0.188)	0.0587 (0.170)	0.0761 (0.102)	0.128 (0.108)
Dummies for Year:				
1938	0.706 (0.521)	-0.188 (0.468)	-0.0482 (0.229)	
1939	0.499 (0.469)	0.232 (0.420)		-0.567 (0.458)
1940	-2.224*** (0.440)	-1.425*** (0.369)	-2.037 (3.253)	
Distance to (km):				
Nome	-0.000464 (0.000942)	-0.000530 (0.000855)	-0.000750 (0.00311)	-0.00254*** (0.000960)
Fairbanks	-0.00223*** (0.000460)	-0.00129*** (0.000420)	-0.00936 (0.0142)	0.000201 (0.000483)
Anchorage	0.00204*** (0.000778)	0.00302*** (0.000709)	0.0101 (0.0161)	0.00153 (0.00376)
Juneau	-0.00217 (0.00675)	0.0131** (0.00618)	0.0459 (0.0526)	-0.0350 (0.0755)
Sitka	-0.0256* (0.0139)	-0.0405*** (0.0126)	-0.110 (0.192)	-0.00917 (0.0276)
Petersburg	0.0756 (0.0503)	0.0515 (0.0457)	0.116 (0.302)	0.0871 (0.201)
Wrangell	-0.0491 (0.0325)	-0.0248 (0.0296)	-0.0537 (0.169)	
Ketchikan	-0.000439 (0.000295)	-0.000708*** (0.000267)	-0.00126 (0.00178)	-0.0471 (0.103)
Number of Reindeer:	0.000148 (0.000120)	0.000703*** (0.000110)	-5.62e-05 (0.000179)	0.000477*** (9.89e-05)
Constant	7.376*** (2.566)	6.505*** (2.303)	2.727 (8.227)	13.16*** (4.704)
Observations	339	365	273	227
R-squared	0.572	0.469	0.265	0.439

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

