

ANALYSIS OF A "MIXED ECONOMY" IN AN ALASKAN NATIVE SETTLEMENT: THE CASE OF ARCTIC VILLAGE¹

Steven C. Dinero
School of General Studies
Philadelphia University
School House Lane & Henry Avenue
Philadelphia, Pennsylvania
USA, 19144

Abstract / Résumé

In this paper, I analyze the mixed economy of the Nets'ait Gwich'in settlement of Arctic Village, Alaska. The economic structures of the Gwich'in began to undergo considerable change following Contact by Europeans in the 19th century. Today the Gwich'in possess several modern amenities, and are linked to the global capitalist economy.

Still, data collected in the village in 1999 provide cogent evidence that the priorities and values of the community remain centered upon the hunt and other subsistence activities. Cash income generated through wage labor or transfer payments is merely an additional means to perpetuate this activity. Thus, any assumptions that the Gwich'in are on the verge of abandoning this socioeconomic system for an urban-centric, wage labor-based system are at best, premature.

Dans le présent article, l'auteur analyse l'économie mixte de l'établissement des Nets'ait Gwich'in à Arctic Village (Alaska). Les structures économiques des Gwich'in ont été modifiées considérablement à la suite des contacts avec les Européens au cours du XIX^e siècle. À l'heure actuelle, les Gwich'in possèdent plusieurs commodités modernes et ils sont liés à l'économie capitaliste mondiale. Pourtant, les données recueillies dans le village en 1999 offrent des preuves convaincantes que les priorités et les valeurs de la collectivité demeurent centrées sur la chasse et d'autres activités de subsistance. Le revenu monétaire provenant du travail salarié et des paiements de transfert n'est qu'un autre moyen de maintenir les activités traditionnelles. Aussi, il semble prématuré de supposer que les Gwich'in sont sur le point d'abandonner leur système socio-économique pour adopter un système fondé sur le travail salarié et la vie urbaine.

The Alaskan Native Economy Today: A Mixture of Subsistence, Wage Labor, and Transfers

Throughout Native Alaska today, hunters, gatherers and fishers continue to carry out subsistence economic activity at a very high level. The contribution which subsistence continues to make to the Alaskan Native economy has been described as "substantial," (Wolfe & Walker, 1987: 78) and for good reason. Food acquired off the land provides nearly half of that which is consumed in Native villages (Tuck & Huskey, 1986: 3). Moreover, subsistence harvests in Native Alaska have been found to be higher than the national average consumption of meat, fish and poultry combined (Wolfe & Walker, 1987:60). While the amount of food taken off the land is substantial in the Native community, however, its share comprises only about 5% of the total fish and game harvest taken in the state annually (Fall, 1990: 81).

Subsistence as an Economic and Social System

Subsistence is both an economic and a social system in Native Alaska. In such a system, the nuclear household is not the production unit. Rather, the extended family across generations is the unit that works cooperatively to benefit the group as a whole (Langdon, 1991: 280; Wolfe & Ellanna, 1983: 4). Indeed, subsistence economies include resource production *and distribution* (Lonner, 1986: 21). As a result, subsistence economic systems do not emphasize material gain or wealth accumulation as is found in capitalist economies, but rather, seek to maximize "psychological security and self-sufficiency in the face of uncertainty" (Lonner, 1986: 16). Also unlike the capitalist mode of production, maximizing efficiency to create surplus is not valued; rather, the ultimate goal is "to produce sufficient products to satisfy the needs of the less effective majority" (Lonner, 1986: 20).

This is sought through the exchange of both social and economic products. Non-commercial transfer of food and materials (i.e. via kinship networks) is key to the success of subsistence-based socioeconomic systems (Wolfe, 1983b:264). This is brought about by individual task specialization, where each group member contributes to the system in the areas where he or she can be most effective and productive.

As a result, it can be seen that the perpetuation of subsistence directly impacts both the economic and the social reproduction of Native Alaskan communities. "In a subsistence-based socioeconomic system, the means of production, social groups, the education of children, distribution and exchange networks, and other socioeconomic institutions are intricately connected with the customary and traditional uses of re-

sources" (Wolfe, 1983b: 251).

And yet, no community in the state today is solely dependent upon subsistence. Rather, mixed economies have developed over the past few decades that combine hunting, fishing, trapping, and some wage labor and transfer payment income. Still, such economies remain subsistence-based, "in recognition that the most stable and reliable economic base in the community is the harvest of renewable wild resources for local use and *not the market or wage labor*" (Wolfe, 1983a: 37; emphasis added).

Such a combination of subsistence, wage labor and transfers is common in Native Alaska. The key elements in a mixed economy include a mutually supportive relationship between subsistence and the market sectors, a "domestic mode of production" which is kinship based, production systems tied to the seasons, non-commercial sharing networks, and "complex systems of beliefs, knowledge, and values associated with resource uses passed on between generations" (Wolfe, 1983b: 272).

The role of wage labor and transfer income in mixed economies is indeed unique. First, it must be noted that although the western capitalist system assumes that wage labor and subsistence are at opposite ends of an economic dichotomy, there is no necessary contradiction between cash and subsistence economies. The two can and do interact, rather than one needing to replace the other (Lonner, 1986: 17). Thus, the assumption that as wage labor participation in a community increases subsistence will decline is unsubstantiated. Kruse (1982) found in the late 1970s that subsistence behaviors do not decline as wage labor rises (24), and Langdon (1991), in research conducted a decade later, confirmed that being employed does not affect subsistence participation negatively (283).

Cash as an Economic Input

In a mixed economy cash income, regardless of source (wage labor, welfare, food stamps, unemployment benefits, Social Security, the "Permanent Fund" payments from Alaska's oil revenue), is usually converted into inputs for subsistence economic activity (Fall, 1990:80). There is a great deal of economic rationality to using cash in this manner for, as Wolfe notes (1983a) "the most efficient use of limited cash income is to invest a portion in equipment and operating costs for fishing and hunting" (46).

The existence of cash and modern tools such as the 4-wheel ATV or the snowmobile in Alaskan Native villages need not then suggest the replacement of subsistence with a capitalist economy at all. Rather, the existence of such elements in virtually every Alaskan Native village to-

day may simply confirm the strong economic function and significant social value of subsistence behaviors in these communities (Wolfe & Walker, 1987: 68). "It is not the presence per se of cash or technology that distinguish subsistence-based socioeconomic systems, but how cash or technology are integrated into the community's economic and social activities" (Wolfe, 1983b: 252).

Kruse's research on the North Slope and Upper Yukon-Porcupine regions in the late 1970s confirm a number of these contentions. Kruse found, for example, that men with formal schooling participated in subsistence activities more than those with less education (Kruse, 1982: 29). Moreover, those with more education were, predictably, also more likely to work in wage labor. Indeed, he also found that increased income correlated with an *increase* in the number of subsistence activities carried out by his survey respondents (32). He explains these findings by suggesting that subsistence continued to provide men with opportunities to "develop skills, be in charge, and to get out in the community. In sum, subsistence activities seem to offer to men personal benefits not found in wage employment" (27-28).

While this may indeed be the case, Kruse's findings also further confirm the mixed economic pattern discussed in the literature throughout the 1980s and 1990s (see especially Wolfe & Ellanna, 1983; Wolfe & Walker, 1987; Langdon, 1991; Wolfe, 1991; et. al.). This literature documents the fact that wage labor income and transfer payments do not replace subsistence, but rather, are used as capital investments which are typically used to offset the monetary costs associated with subsistence activity. As Wolfe (1991: 20-21) summarizes this argument at length, subsistence activities are not 'cash-less' activities – they require cash and occasionally produce cash.... The household uses money to purchase equipment used in subsistence food production, such as boats, outboard motors, snow machines, fishing nets, rifles and ammunition. The ability to purchase equipment used in subsistence activities is contingent upon earning some money during the year. The monetary incomes earned typically in villages are not sufficiently large to support the family unless a portion is used in subsistence fishing and hunting.

Thus, although wage labor has entered Native Alaska, it is viewed internally by the Native community as but a means to an end (Wheeler, 1998: 254). Essentially, wage labor can be seen as necessary only insofar as it allows one to acquire the money needed to buy equipment to carry out subsistence. As a result, wage labor in Native Alaska, when it is available, may be seen by some Alaska Natives not in terms of a "career"

or "occupation" per se, but rather as a short-term solution to a problem of limited cash reserves (i.e., not unlike the manner in which game is hunted when food reserves are low, or fuel gathered to replenish low stocks). As one community planning document put it, (*DIY*, 1991):

To us, money is not an end, but a means to make life easier in a harsh environment. Money is used for basic survival needs, not luxury... We wonder about people who think we are poor, for how can we be considered poor when food, clothing, shelter, laughter and compassion surround us daily?... We value our children, our land, our animals, our lakes, rivers, trees, air, and mountains. We value each other and ourselves...not for how many material goods we have or want. We do not separate these things; we are made of these things. (32)

As Wheeler concludes succinctly (1998), "cash is a resource, as opposed to a political system of resource management" (257).

The Role of Transfer Payments

Alaska Natives incorporate cash brought into their communities through government programs in a similar fashion. To be sure, welfare and other government-provided transfer payments are crucial to helping support the Native Alaskan economy. As of early 2001, nearly 7700 Alaskans were receiving temporary welfare assistance (Figure 1a); of these, 40% were Alaskan Native families (Kahklen, April 24, 2001; see Fig. 1b). Given that natives comprise about 16% of the state's total population, this figure suggests an over-representation of Natives by more than double their numbers in the general, non-Native population.

Indeed, Jorgensen (1990) has argued that welfare and other transfer payments are the principle means through which Natives have been incorporated into the capitalist economy (308). Some others have argued that a "welfare culture" has now developed in Native Alaska, built up over more than half a century of government assistance. "Welfare [among Native Alaskans] can be viewed as a failure. It kills incentive to be creative, or to get an education" (Moore, July 29, 1999). Recent changes in the law have been established to alter this apparent level of dependency.

The Alaska Temporary Assistance Program, which replaced AFDC in Alaska in July 1997, has established a number of policy changes in an attempt to pursue its agenda of "welfare-to-work" reform (www.hss.state.ak.us). For example, benefits for two-parent families have been reduced considerably since 1997, and are lowered still further during summer months when work in Alaska is more plentiful. ATAP requires that families receiving benefits also attain some sort of work within

two years of receiving benefits, and "penalizes individuals who refuse to participate in work activities" (www.hss.state.ak.us).

But perhaps more significantly, a five-year/60 month limit for receipt of transfer payments was instituted. After this time, it is assumed and required that one will move from "welfare to work," and will no longer need to rely on this transfer income.

Statistics collected by the Alaska Department of Health and Social Services do indeed reveal a continuous drop in the ranks of those receiving ATAP, both in the Native and non-Native Alaskan communities, since the new rules were implemented. And yet, what is also clear is that, though fewer Native families are collecting welfare payments overall, the percentage of all recipients who continue to receive payments and who are Native is rising (Fig. 1b).²

It is significant too that communities are exempted from the 60-month rule if more than 50% of their adult populations are not working in wage labor (Hadland & Mosher, 1998:1). Residents in these communities may continue to receive ATAP after the five-year limit has ended.

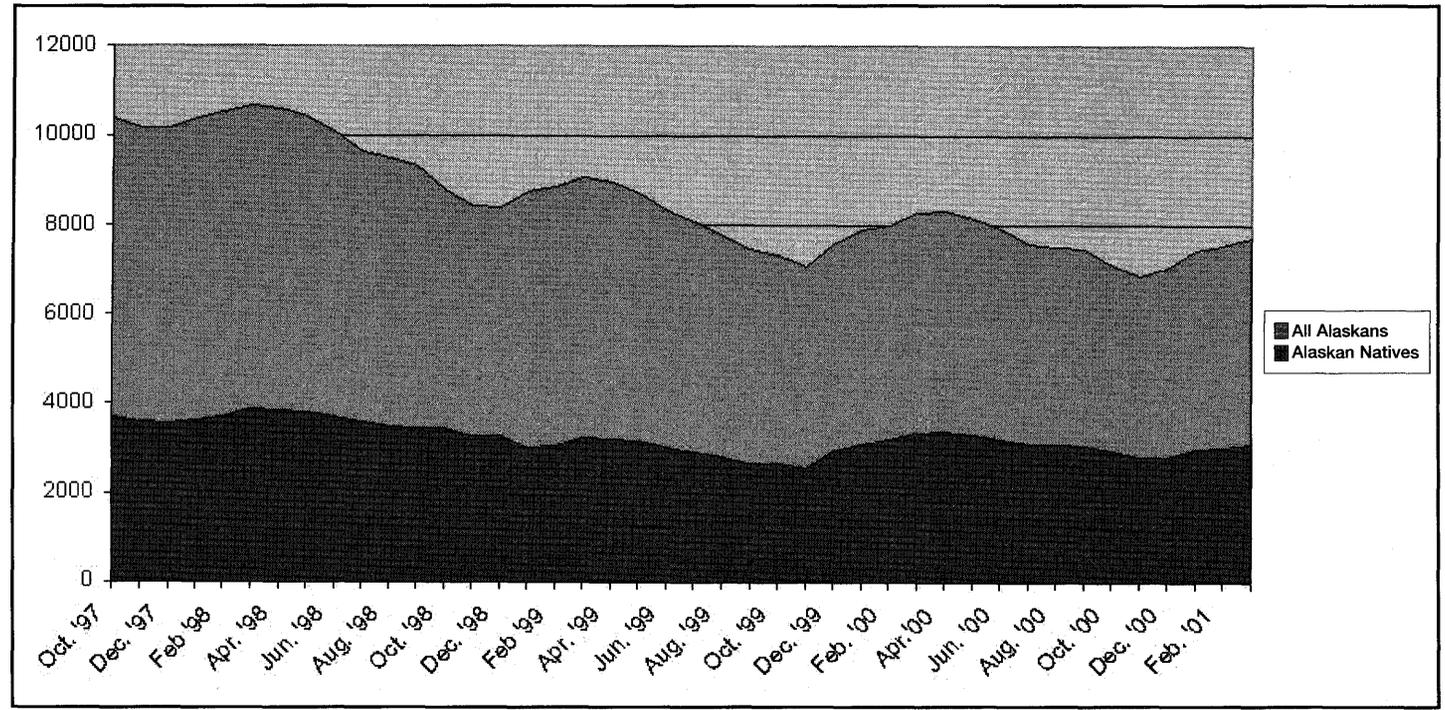
While this movement toward welfare reform has had many proponents in the lower 48 states—including former President Clinton, whose administration was responsible for much of its development—it is uncertain how these changes will impact Alaskan Natives. It is the contention here that, like wage labor, transfers enable Natives to acquire the cash they need to buy equipment to carry out subsistence activities (Wheeler, 1998:255). Thus, ongoing cutbacks in welfare payments in Native Alaska may in fact adversely impact subsistence as well, directly (and perhaps, ironically) damaging this sector of Alaska's economy.

In summary, the nature of Alaskan Native economies today is a mixture of subsistence and cash inputs. A substantial part of these inputs, be they from wage labor or transfer payment income, are then re-invested in the subsistence enterprise, while some are dedicated to store-bought foods and other commodities not connected to subsistence activity. Still, it may be asked how exactly Alaskan Natives utilize the mixed system to their economic and social benefit. Using the case of the Nets'ain Gwich'in of Arctic Village, I will seek below to address this question in further detail.

Alaskan Gwich'in Historical Background, 1850-1990

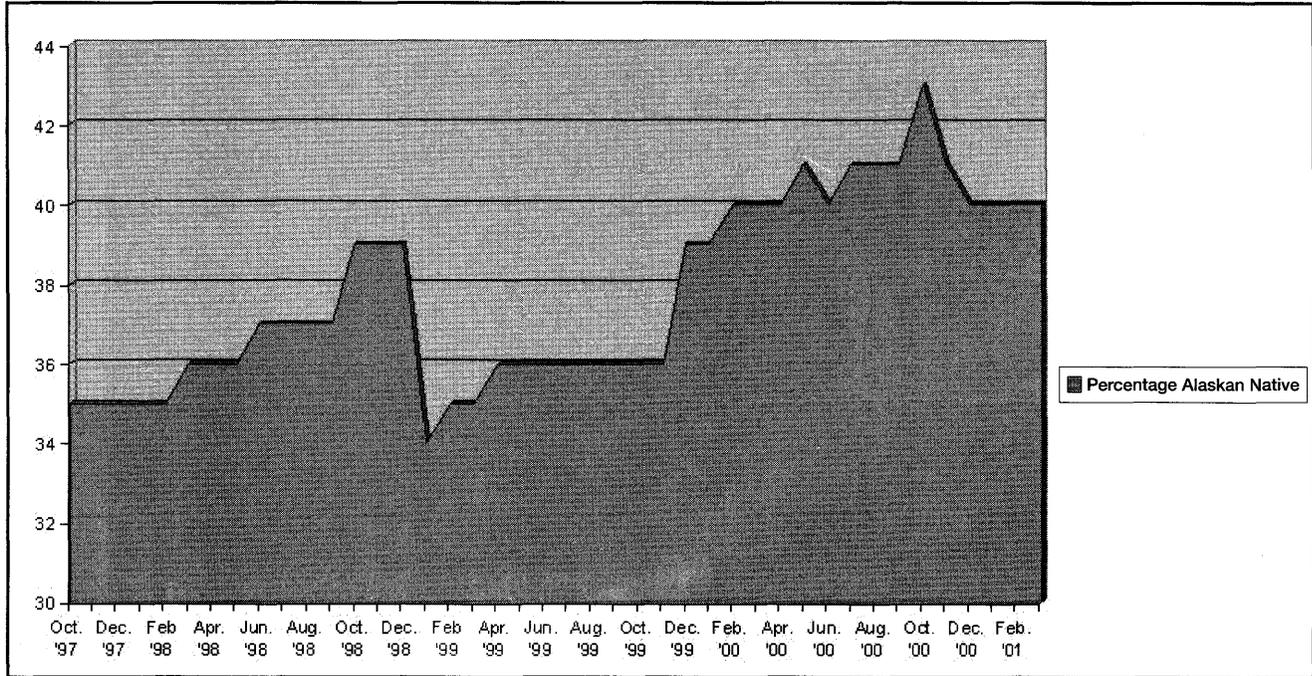
In order to fully understand the present-day Gwich'in economy in Arctic Village, it is first necessary to give some background concerning this community, and how it shifted from a nomadic lifestyle to a more settled communal environment. The area in which the Alaskan Gwich'in live is comprised of nearly 37,000 square miles of land (Andrews,

Figure 1A
 Alaskan Families Receiving ATAP Since the 60-Month Rule Was Instituted.



Source: Adapted from Kahklen, State of Alaska Department of Health and Human Services Division of Public Assistance (April 24, 2001).

Figure 1B
Percentage of Families Receiving ATAP That are Alaskan Native.



Source: Adapted from Kahklen, State of Alaska Department of Health and Human Services Division of Public Assistance (April 24, 2001).

1977:103), located in the interior region of northeast Alaska known as the Northern Plateaus Province (Wahrhaftig, 1965: 22; see Map 1).

The area experiences extremes in temperatures—90 degrees F. is possible in summer, while it can reach as low as -50 F. in winter. Winter lasts from mid-September, when the first snows fall, until breakup in mid-June. The region varies from marshy lowland valleys, flats that stretch for miles beyond the Yukon River's banks, to the foothills of the Brooks Range. These hills generally reach summits no higher than 1,500-2,500 feet. The land is covered with boreal forest (Slobodin, 1981: 514), and is comprised of permafrost. Flora is limited to lichens, conifers, and the like; fauna includes bear, moose, caribou, and small fur-bearers (Wahrhaftig, 1965: 23).

Historically, the Nets'aii Gwich'in (also referred to in the literature as "Chandalar Kutchin"; see Slobodin, 1981) were semi-nomadic hunters, gatherers and fishers, structured in small groups and bands known as "Restricted Wanderers" (Hosley, 1966:52). "This community pattern is adapted to scattered or seasonably available food resources" (VanStone, 1974:38). While larger mammals served as the primary food source, smaller mammals (beaver, hare) were used for clothing and trade (Slobodin, 1981: 515).

Background to Gwich'in Settlement

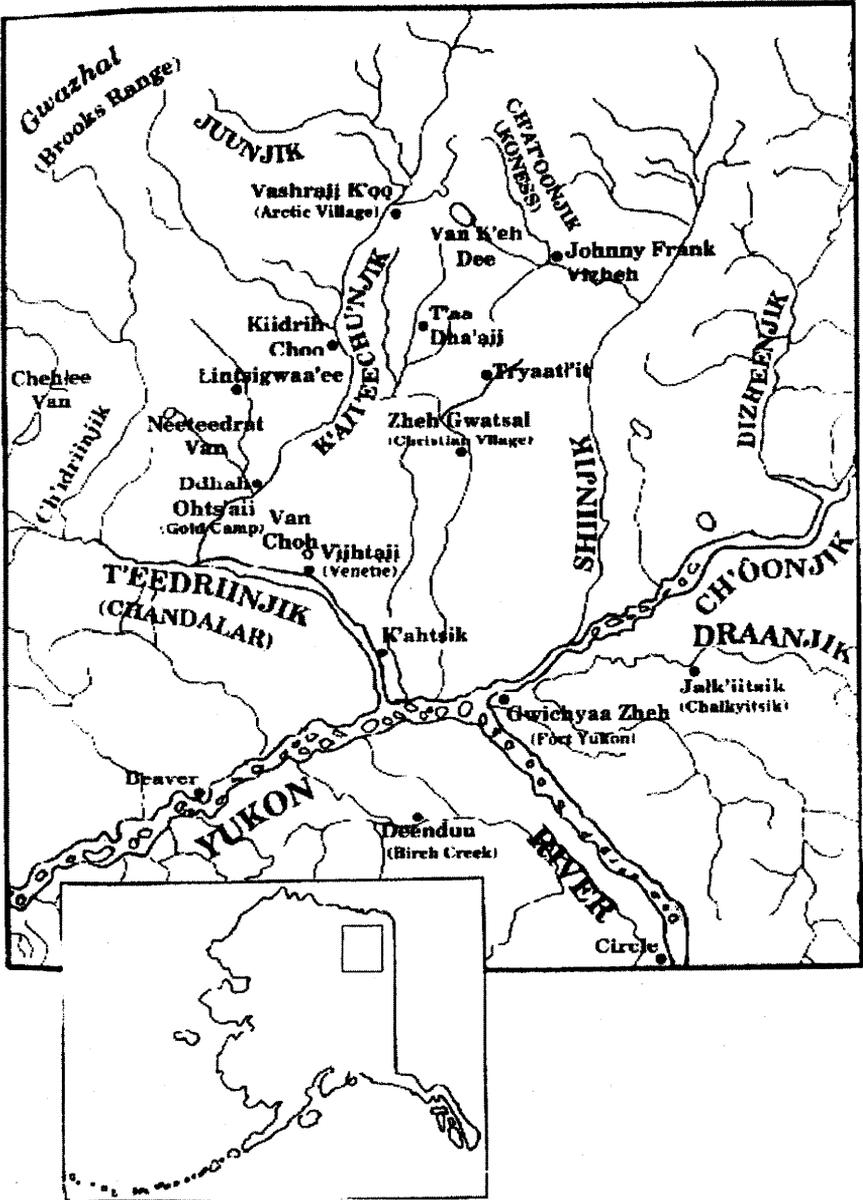
It is uncertain when exactly the Gwich'in of northeast Alaska first were contacted by Europeans. While some argue that first contact occurred in 1847, with the establishment of Hudson's Bay Company at Fort Yukon, (Hadleigh-West, 1963: 21; Nelson, 1973: 13; Slobodin, 1981:529), others indicate a later period, the 1860s (Caulfield, 1983:88), when the Roman Catholic Church and the Church of England began sending missionaries to the region.

The Europeans actively introduced social change to the Gwich'in via Church missionizing (see Dinero, 2003), and fostered economic change via the fur trade (Hosley, 1966:165). Schools functioned as the intermediary mechanism between the two as formal education was used to further socialize Gwich'in children with western cultural values (Hosley, 1966: 231), and to follow Christian social mores (VanStone, 1974:87). The creation of schools and the requirement that all children attend them played a direct role in the settlement process of the community. Similarly, Gwich'in involvement in the fur trade played a role in the decline of their nomadic lifestyle (Hosley, 1966.153).

Thus, the Nets'aii Gwich'in founded their first permanent residence in 1908 (Caulfield, 1983; Hadleigh-West, 1963) or 1909 (Village Focus; Lonner & Beard, 1982). The settlement was named *Vashraii K'oo* (mean-

Map 1

The Venetie Reservation and environs, with English and Gwich'in Place Names. The Reservation is bordered by Arctic Village to the north, Venetie to the south, and Christian Village to the east.



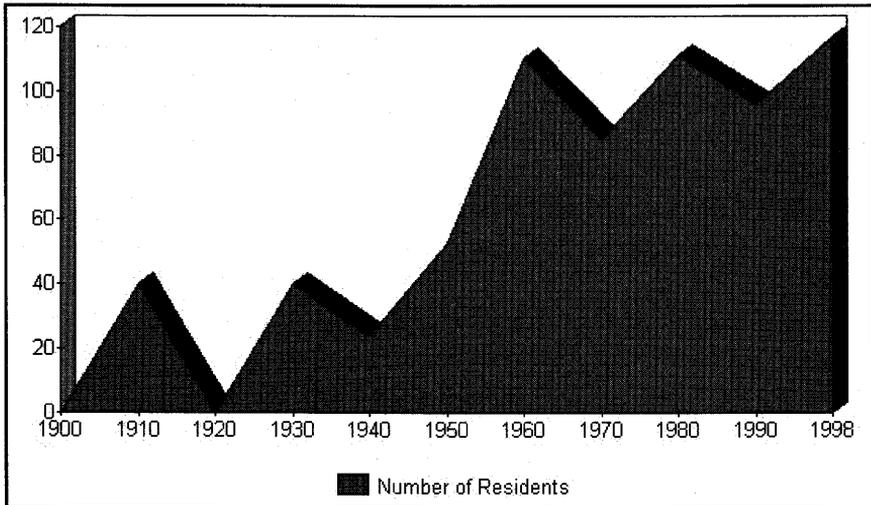
Source: Mishler, 1995:xxix.

ing "Creek with Steep Bank"; Village Focus) after a creek that flows into the East Fork of the Chandalar River (Mishler, 1995: 434). The English name for the town became Arctic Village, although the origins of this name are unknown (Hadleigh-West, 1963:17).

The village population remained in flux during its first 40 years (Fig. 2) as people continued to live a semi-nomadic existence. Following the establishment of the Venetie Reservation in 1943, (such reservations were developed to promote social and economic development in the Native sector via "a fixed, limited, and protected land base"; see Hosley, 1966: 206), external political and economic pressures encouraged further settlement.

Thus, between 1950 and 1960, the permanent village population more than doubled. With settlement, temporary tent-like shelters were replaced by log cabins, (Hadleigh-West, 1963: 311) each heated by a wood stove. And yet, as "traditional" nomadism declined, the community still maintained a certain degree of residential mobility.³

Figure 2
Arctic Village Population, 1900-1998
Growth of Arctic Village Population During the 20th Century



Source: www.comregaf.state.ak.us/CF_CUSTM.htm

Recent Developments in the Alaskan Gwich'in Community

Politicization of Alaskan Gwich'in interests also increased in the 1950s as the community struggled with the U.S. Federal Government to protect and maintain its traditional lands. The Gwich'in sought to increase

the amount of land beyond that initially allotted to the Reservation in 1943. In 1950 and again in 1957, the village petitioned the U.S. Department of the Interior to enlarge the Venetie reserve west and north (Lonner & Beard, 1982: 101), but to no avail.

Rather than surrendering land, the U.S. government adopted a different approach to dealing with Indigenous Americans in the early 1960s. The Johnson Administration implemented its Great Society/War on Poverty initiative, which extended into Native Alaska. On the one hand, the Gwich'in of Arctic Village presumably benefited from this plan, insofar as new housing and buildings were constructed in the village to help improve the communal standard of living (at least, from a western perspective). At the same time, however, the programs also helped to foster increased dependence on the government, and greater participation in the cash, wage labor economy (Lonner & Beard, 1982: 131-32).

Soon thereafter, the Alaska Native Claims Settlement Act (ANCSA) was signed (1971). A major outcome of the Act was the creation of thirteen Native regional corporations, and 203 village corporations (Arnold, 1976: 146). The role of the regional corporations was to serve as for-profit companies as holders of traditional Native lands and the resources therein, and to invest their by-products in order to "promote the economic and social well-being of [their] shareholders and to assist in promoting and preserving the cultural heritage and land base" (www.doyon.com). The village corporations were governed separately from the regional corporations. Moreover, "village corporations [did] not replace village councils or the governing bodies of municipal governments" (Arnold, 1976: 160).

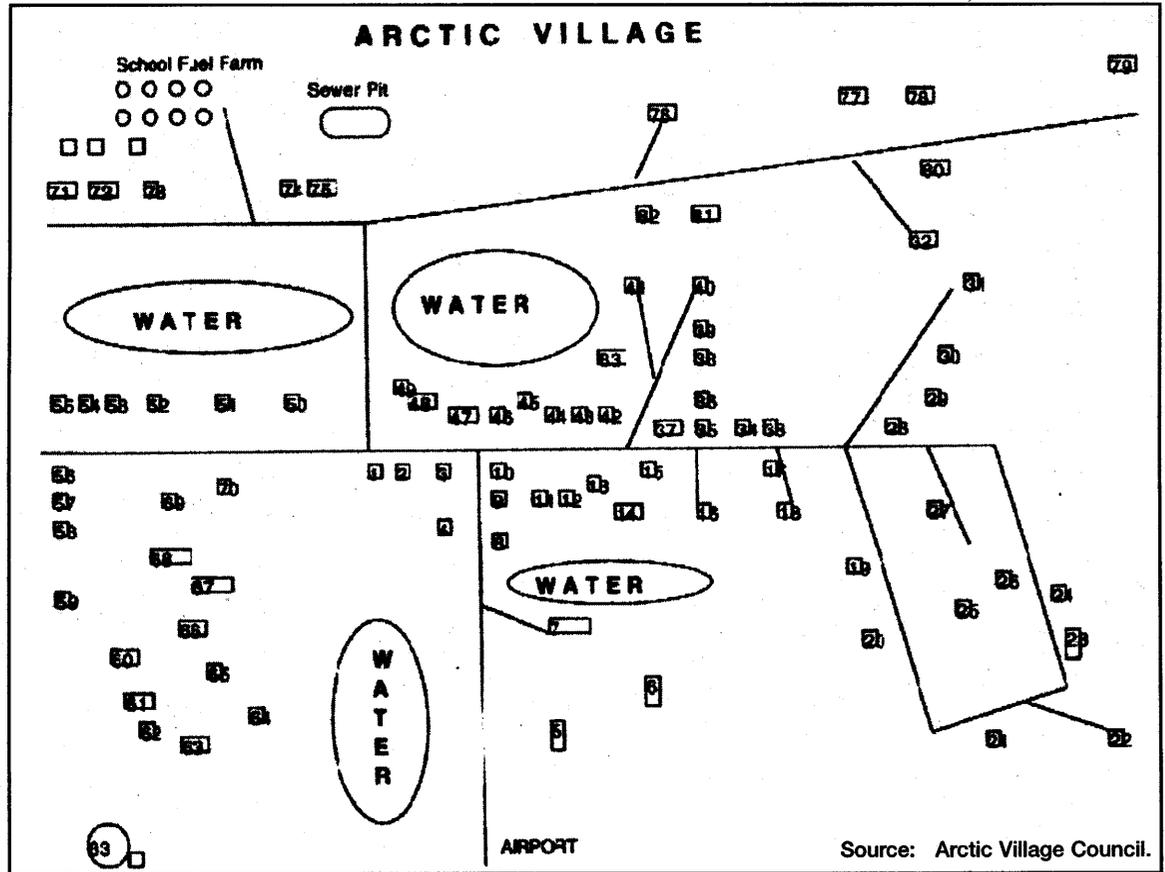
Of the thirty-seven villages included in the Doyon Native Regional Corporation established in Alaska's interior region three villages, Arctic Village, Venetie and Tetlin voted to take title of their own reserves rather than to participate in the land claims settlement. In so doing, the Alaskan Gwich'in opted to take control of the 1.8 million acre Venetie Reservation from the Federal government. In the words of Alaskan Gwich'in community leaders (*DIY*, 1991):

Our system of self-regulation and self-determination is based largely upon self-respect and self-esteem, which allows us to then work for the common good of our village.... Our leaders believed ANCSA was a trick to "ripoff" the land from Native people. We feel we were right in our decision to stay with the way we know best, our Indian way. (38)

Thus the Venetie Tribal Council (which includes the Gwich'in villages of Venetie and Arctic Village) is independent of the Doyon Regional Corporation, and Doyon has no obligation to it (Arnold, 1976: 200).

Map 2
Arctic Village in 1999

- Key:
- 1. Clinic
 - 2. Native Store
 - 3-6. Residences
 - 7. Community Hall
 - 8. Residences
 - 9. Village Council Office
 - 10. Passive Solar Freezer
 - 11-13. Residences
 - 14. Post Office
 - 15-44. Residences
 - 45. Bishop Rowe Chapel
 - 46-52. Residences
 - 53. Old Chapel
 - 54. Cache
 - 55-70. Residences
 - 71-73. Schools
 - 74. Water Plant
 - 75. Washateria
 - 76-83. Residences



By the 1980s, the Alaskan Gwich'in in general, and Arctic Village in particular, had changed a great deal when compared to its condition only 20 years earlier. Caulfield (1983) cites a number of these changes, including "the availability of limited wage employment opportunities and government transfer payments, changes in resource distribution, the use of new technology such as high-powered rifles, outboard motors, and snow machines, changing demographic patterns, and resource competition" (101). A preponderance of all terrain vehicles (ATVs) developed in the '80s as well, lending to greater geographic dispersion of the village residences away from the old village center (Map 2).

And yet, despite these various changes, the Gwich'in continued to practice subsistence activity, albeit in innovative and sometimes altered ways. Indeed, as will be seen below, the Nets'ait Gwich'in at the turn of the century still maintain a modified but vibrant and active form of subsistence-based economy even today, despite (or as a result of?) the developments that have occurred in the community since WWII.

The 1999 Arctic Village Study

In the summer of 1999,⁴ I set out to examine recent economic developments in the Nets'ait Gwich'in settlement of Arctic Village. In order to work most effectively in the post-nomadic setting, I utilized both standard planning methods, combined with participant observation (see Dinero, 1996).

Study Description and Methodology

I acquired permission of the tribe to conduct research prior to entering the village (see Norton & Mason, 1996:857) by submitting a preliminary proposal both to the Arctic Village Council, as well as the Tribal Council at Venetie. In this proposal I explained to the community why I wished to conduct research in their village, and how this research would be implemented (see Norton & Mason, 1996: 859).

Upon receiving permission to visit the community, I began preliminary work on a household survey research instrument. I would not be the first to use a structured household survey in the north; Kruse, among others, had used such tools in late 1970s among the Inupiat (Kruse, 1982:5), as did the Alaska Department of Fish & Game Division of Subsistence throughout the state in the 1980s and 1990s (Wolfe & Walker, 1987; Fall, 1990). Stabler did similar work in the Northwest Territories in the 1980s as well. Like Stabler, I sought to interview residents and other informed individuals in addition to implementing the planning survey (Stabler, 1990:64-65).

Using the survey instrument, I posed a variety of questions concerning wage employment, subsistence, community living conditions, personal characteristics, and living experiences and travels outside of the region. I discussed the instrument with a variety of Gwich'in and non-Gwich'in community members prior to implementation in order to try to avoid asking unnecessary, sensitive, or otherwise problematic questions that could jeopardize the data gathering process.

Following Caulfield (1983: 8-10), the last to conduct a survey in the village, I defined a "household" as an occupied dwelling unit.⁵ I surveyed both men and women; as was the case with Caulfield, men are over-represented (see below). I also used "information recall," allowing respondents to remember/estimate such information as their percentage of food consumed annually that is harvested from the local land. I interviewed Gwich'in, non-Gwich'in Native, and non-Native village residents (although there are admittedly very few non-Gwich'in in the village), in order to gain as clear and complete a picture as possible of present village social and economic conditions. Like Caulfield and Kruse (1982), I paid each respondent \$10.00 for their time spent answering the survey questions.

Of the 40 dwelling units (Map 2) occupied during the survey period (August 3-19, 1999), I was able to gather data from 35 households (87.5%). Interviews lasted between a half-hour and two hours, although the average length of time spent with each respondent was 35-40 minutes. Interviews took place wherever respondents felt most comfortable – inside homes, outside homes, in the health clinic, the Washateria (where the village washing machines and showers are located), the Village Council building, and even on the shores of one of the village lakes.

Upon completion of the survey, all data were coded for analysis using *SPSS 9.0 for Windows*. Given the small size of the data set, chi-square significance testing was used for all data, where $p < or = .05$.

General Survey Results and Descriptive Statistics

Some descriptive statistics were first gathered concerning the household survey respondents' backgrounds (Fig. 3). Marital status was broken down into two categories, "single" and "married/cohabiting." Based on the data, education levels were divided into three categories. It is seen that, in terms of gender breakdown, the percentage of male and female high school graduates is virtually identical, but males were more likely to continue their education beyond the high school level. This does not appear to be true of men in the previous generation (Fig. 4), though the "Don't know" category is substantially higher for fathers, perhaps skewing these percentages.

Figure 3
Descriptive Statistics Concerning the Survey Respondents

Gender:				
	Male	63%		
	Female	37%		
Age:				
	19-36	57%		
	37-64	43%		
Marital Status:				
	Single	40%		
	Married	29%		
	Cohabiting	31%		
		M.	F.	Total Pop.
Education:				
	Did Not Graduate High School	14%	15%	14%
	High School Grad	36%	39%	37%
	High School Plus (College, Vocational School, etc.)	50%	46%	49%

Forty-six percent of those surveyed were employed in wage labor (Fig. 5). This statistic suggests that there has been little change over the past decade in employment levels in the village; in 1990, roughly 53% of the adult population was not in the labor force (www.dced.state.ak.us.mra/CF_BLOCK.cfm). Indeed, the 1990 Census identified 59 potential adult workers, but only 28 job positions available in the village. Only 25% of these job positions were in the private sector, while 75% were in the local or state government sector.

In the 1999 survey, women were found to be more likely to be employed in a wage labor position than men ($p = .01$). Single men were especially less likely to be employed than single women ($p = .02$).

Figure 4
Respondents' Highest Grade Completed (by Gender)

	M.	F.	Total Pop.
Did Not Graduate High School	14%	15%	14%
High School Grad	36%	39%	37%
High School Plus (College, Vocational School, etc.)	50%	46%	49%

Family income, which includes all cash income regardless of source, was divided into two categories, "less than \$10,000," and "\$10,000 or more." Fifty-seven percent of survey respondents chose the first category, and 43% chose the second category (29% with incomes between \$10,000-20,000, and 14% over \$20,000). Such figures differ markedly from 1990, when the numbers were reversed (i.e., 57% earned \$10,000 or more, and 43% earned less than \$10,000). While this difference may in part be related to the fact that the 1990 Census figures were based on a 46% sample, it is still notable that 38% reported incomes higher than \$20,000 in 1990, (though none reported earnings above \$29,999). That said, the 1990 median household income in Arctic Village was \$9,661, and nearly a third of families were impoverished (www.dced.state.ak.us/mra/CF_BLOCK.cfm).

Single 1999 survey respondents tended to have lower incomes than those who were married or cohabitating ($p = .02$), regardless of their gender. No correlation between highest educational level reached and the likelihood of being employed in wage labor was found. Moreover, it should be noted that being employed correlated with higher incomes only among older respondents ($p = .03$). In other words, no correlation between holding a wage labor position and family income was found among the younger respondents surveyed.

The Economy of Arctic Village

Family income reveals only a very small part of the Arctic Village economic picture, and says very little about how the economy actually functions. The 1999 data suggest that there are a number of connections between wage labor activity in the town, receipt of transfer pay-

Figure 5
Economic Indices in Arctic Village

	M.	F.	Total Pop.
Employed (wage labor)	27%	73%	46%
Not employed	77%	23%	54%
Receive alternative income/transfers			51%
Do not receive alternative income/transfers			49%
Annual family income less than \$10,000			57%
Annual family income between \$10,000 and \$20,000			29%
Annual family income over \$20,000			14%

ments, and residents' subsistence activities and behaviors. Though the explanation of these connections is not always certain, the data discussed below do show that the mixed nature of the village economy is indisputable.

Subsistence in Arctic Village

Clearly, subsistence continues to play a major role in the village economy (Fig. 6). It is not surprising that the caribou is the primary game source for this community; indeed, the Gwich'in refer to themselves as the "Caribou People," and the Porcupine herd is well recognized as a "vital" resource for the community (Fall, 1990: 87). While village hunters are known to harvest no more than 140 moose over a hunting lifetime (about 65 years), active caribou hunting families in the village harvest 15-18 of the animals per year, minimally 3-5 per person (anonymous personal communications, July 8 and 10, 2001).

The average *estimated* percentage of food taken from the land as compared to that purchased in the store was 51%. Although this is a

Figure 6
Percentages of Households Pursuing Various Forms of Subsistence Activity During the Previous 12 Month Period (August 1998 - July 1999), and Their Overall Estimated "Subsistence Rate."

Hunting/Gathering Food	
Fish	94%
Caribou	89%
Berries	80%
Ducks/fowl	74%
Small mammals (hare, ground squirrel)	71%
Moose	66%
Dall Sheep	14%
Cutting/Hauling Fuel	
Fire wood	89%
Hunting/Gathering Cash Game	
Furbearer hunting (muskrat, wolf)	60%
Furbearer trapping	31%
Overall "Subsistence Rate" (Estimated by Respondent)	
20 - 50%	60%
60 - 90%	40%

substantial number, the other statistics gathered suggest that it should, perhaps, be even higher, given the degree to which hunting and gathering continue in and around the village.

Higher incomes were found to correlate with two subsistence activities, namely trapping furbearers and hunting furbearers ($p = .03$ for both). In general, trappers and hunters of furbearers tended to be male ($p = .02$), and tended to be married/cohabiting ($p = .04$).

Sale of furs theoretically can be profitable; marten pelts sold for \$55.00-\$65.00 in the late 1990s, wolverine pelts sold for \$300.00-\$400.00, and a wolf pelt could fetch as much as \$500.00 (R. Tritt, August 6, 1999). And yet, in general, involvement in the fur trade offers moderate income possibilities at best. "On average for the individual trapper, trapping is an activity that does not require much money, does not produce much money, and does not lose much money for the average trapper" (Wolfe, 1991: 16).

Thus, it appears that some village residents are using the fur trade as an income "subsidy" within the broader subsistence pattern (Wolfe, 1991: 30). Those involved in furbearer trapping, for example, tended to estimate higher levels of food consumption coming off the land (higher than the 51% average). Those who hunt moose, ducks and other waterfowl also made higher estimates. Among those 19-36, moose hunting and higher estimates correlated particularly strongly ($p = .04$). Among women especially, duck hunting, ($p = .02$), furbearer hunting ($p = .00$) and furbearer trapping rates ($p = .02$) correlate strongly with higher estimates. Married respondents and those between 19-36 also showed strong correlation rates between their estimated levels of food taken from the land, and furbearer trapping activity ($p = .04$ and $.03$, respectively).

Hunters of fur bearing animals were also more likely to hunt other small mammals that are specifically sought for human consumption (for example, ground squirrel). This was especially true among those respondents aged 37-64 ($p = .02$). Furbearer hunting and fowl hunting correlated, especially among women ($p = .01$) as did furbearer hunting and trapping, especially among the young ($p = .03$), married/cohabiting respondents ($p = .03$), and women ($p = .04$).

Education levels also played a role in hunting and other subsistence activities as well. As Kruse (1982) found, higher education rates correlated in the village with higher levels of involvement in subsistence activities among a number of demographic sectors.

Several examples bear out this contention. More educated single respondents were more likely to hunt furbearers ($p = .05$), and small mammals ($p = .03$). More educated women and more educated respon-

dents between ages 19-36 were more likely to hunt waterfowl ($p = .05$ for both categories). High school graduates were more likely to fish for food ($p = .02$) than those with less education. Those with higher education levels were also more likely to have gathered berries over the past year ($p = .04$), especially women ($p = .04$) and those between 19-36 years of age ($p = .05$).

Predictably, those who are involved in one form of subsistence tended to be involved in other forms as well. For example, caribou hunters also were likely to hunt small mammals and ducks, and younger caribou hunters were also more likely to hunt moose ($p = .02$). Caribou hunters were more likely to collect their own fuel than those who did not hunt caribou over the last twelve months, especially those hunters in the 19-36 age category ($p = .05$). Moose hunting and waterfowl hunting also correlated, especially among male ($p = .04$) and single ($p = .04$) respondents.

In summary, there is a great deal of subsistence activity taking place in and around Arctic Village. Virtually everyone in the community is involved in some form of hunting and/or gathering activity. When divisions are found, it is those who are young, have higher incomes, and are formally educated who tend to be *most* involved in the numerous subsistence-based economic activities that take place there. Marital status, gender and other factors affect some activity involvement as well. As for employment in wage labor, *no relationship was found* between one's being employed in wage labor, and one's level of participation in subsistence-based socioeconomic activity.

The Role of Transfer Payments

Transfer payments (Figure 5) play a key role in Arctic Village as an additional supplement to the cash/subsistence economy. Indeed, fifty-one percent of those surveyed stated that they receive non-wage labor income, ATAP in particular.

Predictably, those receiving transfers tended not to be employed in wage labor ($p = .03$), and tended to have lower annual household incomes (that is, under \$10,000/year; $p = .01$). The correlation between income and receipt of transfers was especially strong among males ($p = .02$) and those in the older age category (37-64; $p = .04$).

Like cash income from wage labor, transfer payments are used in the village in a manner that helps to make subsistence activities more efficient (Kahklen, April 11, 2001). Although a limited number of correlations were found between the receipt of transfer payments and participation in subsistence activities, two significant correlations are relevant in helping define the evolving Arctic Village economy. When viewed together, both may help to explain the dynamic relationship in the village

economy between cash brought into the village, and subsistence food hunting/gathering.

First, among married/cohabiting respondents, those who receive transfers were less likely to trap furbearers ($p = .04$). Indeed, those who owned a snow machine (a crucial tool in winter and spring trapping) were more likely to be trappers—but only among those who do not receive non-wage labor income ($p = .04$). As fur trapping is one way villagers access cash to supplement subsistence, and given the fact that those who trap and hunt fur bearers tend to have higher annual incomes which allow them to buy trapping equipment, it is perhaps not surprising that those residents unable to use trapping for cash instead require transfer payments to supplement their household incomes.

But perhaps more significant is the fact that households in which at least one member had gone out for caribou in the previous twelve months were also those more likely to rely upon transfer payments than those whose members did not go out for caribou ($p = .05$). Indeed, caribou hunting was the only subsistence activity that correlated with transfers for all demographic categories (i.e. regardless of age, gender, marital status, education).

Here, one may determine that transfer payments are, like cash earned from wage labor, serving an important purpose in helping to subsidize subsistence hunting and gathering activity. Pursuit of food subsistence (especially caribou, the community's primary source of meat) in particular appears to depend, at least in part, upon the acquisition of non-wage labor cash income.

The Role of Material Goods Ownership in Subsistence Activities

Ownership of a number of material goods was also found to correlate with subsistence activity. While it is true that a great deal of sharing of equipment and goods takes place in the village, especially between kin, it is also apparent that those who actually own a piece of equipment are more able/willing to harvest food from the land than those whose only access to a piece of equipment is by borrowing or sharing.

For example, as noted above, snow machines play a significant role in Nets'aii Gwich'in furbearer trapping and hunting. But their use goes well beyond this single activity. In that the dog sled is no longer utilized by the Gwich'in in the village (some sleds can still be seen in the village lying about outside, among the households' other discarded possessions), the snow machine is the primary vehicle used to travel some eight months out of the year. As a result, sixty-nine percent of respondents' households own one or more snow machines.

Like trapping, moose-hunting activity also was found to correlate with snow machine ownership. Among those aged 19-36 in particular, snow machine ownership correlated strongly with moose hunting activity ($p = .04$).

Similarly, the 4-wheel all-terrain vehicle (ATV) also plays a major role in numerous subsistence activities, and is owned by 49% of the respondents' households. Like snow machine ownership, ATV ownership correlated strongly with moose hunting activity, where owners tended to hunt more than those not owning an ATV ($p = .00$). This was especially true of males ($p = .00$), married respondents ($p = .02$), and those 37-64 years in age ($p = .04$).

Dall sheep hunting also was found to rely on ATV ownership ($p = .01$), especially among males ($p = .02$). This is self-evident, given the time and distance that one must travel to Red Sheep Mountain (in the lower Brooks Range) in order to hunt sheep. Bagging a sheep is quite prestigious in the community (see Caulfield, 1983: 68), though difficult to accomplish due to these logistical constraints.

A correlation was also found between ATV ownership and hunting for furbearers ($p = .05$). Among married respondents, ATV ownership not only correlated with hunting furbearers ($p = .04$), but trapping them as well ($p = .02$). Among men ($p = .05$) and respondents aged 37-64 ($p = .03$), fowl hunting also relied upon ATV ownership.

What is significant about these statistics, of course, is that both snow machines and ATVs are expensive items to purchase and maintain. An ATV cost \$5,000-6,000 (C.O.D.) in 1999; shipping costs on a C-130 from Fairbanks to the village added 10 or more percent to the vehicle's price (Sam, August 2, 1999). Additionally, during the summer of 1999, fuel for both vehicles cost \$5.00/gallon—down a dollar from the previous year.

In other words, subsistence activity itself is getting increasingly expensive. Once one takes into account the costs of an ATV and/or snow machine, fuel, rifles, bullets, and the like, practicing subsistence clearly depends upon some cash inflow.

And yet, though household income plays a role in the ownership of some expensive material possessions, this is not always the case. As Figure 7 reveals, households tend to own a variety of material goods, regardless of their economic standing. These include vehicles for hunting and gathering food (ATV, snowmobile), food storage (refrigerator), and food preparation (oven). Indeed, the Village Council identified those items that it considered essential, but which are most difficult to access because of their financial burden, some years ago (*DIY*, 1991: 19), and at the top of this list was the ATV and snow machine. Notably, the survey results also identify as village "necessities" various modes of entertain-

ment (TV, VCR, Nintendo), which are used to occupy the time now achieved through the use of more efficient, mechanized modes of food acquirement and preparation.

Lastly, it should be pointed out that there are three goods found in the village which appear to be considered "luxuries": the telephone, the computer, and the traditional-sized satellite dish. Those with higher incomes were more likely to own one of more of these items. A correlation between computer ownership and higher incomes was especially high among 19-36 year old residents ($p = .05$). Those employed in wage labor also were more likely to own a computer ($p = .04$).

Figure 7
Percentage of Arctic Village Households Owning Various Material Goods

"Essential" Items Owned (Where ownership does not correlate with income)	
TV	100%
VCR	97%
Oven/range	91%
Refrigerator/freezer	83%
Nintendo/Playstation	77%
Snow Machine	69%
4 Wheeler (ATV)	49%
"Luxury" Items Owned (Where ownership correlates with income)	
Telephone	66%
Satellite dish	17%
Computer	11%

Moreover, while income alone does not explain the ownership of all material goods in the village other factors, such as one's educational level and age, do. Those with more education, for example, were less likely to own a traditional-style, \$1,400.00 satellite dish ($p = .00$). This was especially true among men ($p = .01$), married/cohabiting respondents ($p = .03$), and included both age groupings ($p = .03$ for each). Less educated respondents in the 19-36 age category were more likely to own an ATV ($p = .03$) than respondents with higher levels of formal education. And while younger respondents were (not surprisingly) more likely

to own Nintendo/Playstations ($p = .05$), older respondents were more likely to own snow machines ($p = .05$).

Concluding Thoughts

Like that within much of Native Alaska, the economy of Arctic Village is mixed, combining traditional subsistence with cash-based wage labor and transfer payments. What is perhaps most disturbing about the evidence cited above is that wage labor opportunities in the town are limited at best, providing very few with adequate cash to fully supplement their subsistence activity.

While most residents have thus turned to transfer payments as an alternative cash source, which serves as an especially significant subsidy for caribou hunting activity, ATAP may in the future be threatened by the State's welfare reform initiatives. At present, the unemployment rate in the village is clearly too high for it to be affected by this reform agenda. Still, given that 51% of those surveyed rely on some form of welfare while only 46% bring wage labor cash income into the village economy, some concern for the future may be in order.

Alaska's welfare reform program was reauthorized by Juneau in 2002. State officials working on the reform initiative since its inception in 1997 made no changes to the rule exempting residents of villages with unemployment rates above 50%. Depending upon the political climate that prevails in the years ahead, however, one can anticipate that "some money will be taken away (Kahklen, April 11, 2001).

Among the residents of Arctic Village, welfare is perhaps the most controversial issue now found in the community. As one 46 year old male said:

Welfare [has] corrupted our managing our community, our personal self-sufficiency. It damaged our culture.... [As a result], we're more settled than our grandfathers. Only a few of us do subsistence.... My language is disappearing because of BIA welfare. We started getting welfare from the BIA in 1967 or somewhere around that time. That's when everything started to fall toward a western lifestyle, corrupting us from that time.

Lincoln Tritt, another strong critic of Native willingness to embrace the welfare system, addresses the issue with a story (August 18, 1999):

Years, ago, when they were building the oil pipeline, the workers used to throw sandwiches to a pack of wolves they encountered along the road. When they finished the work [on the pipeline], they left. The wolves starved.

The point of this anecdote is of course clear, yet disturbing. For as

the Nets'aii Gwich'in move toward such dependence on outside support systems rather than internal economic development, the Arctic Village economy may begin to rest on a rather shaky foundation indeed. One answer to this dilemma may be found in the now nascent development of eco-tourism in the community. While eco-tourism may help in addressing the cash flow concerns in the village, it simultaneously raises a whole new set of social difficulties as well.

That said, the mixed economy of Arctic Village continues to allow the Nets'aii Gwich'in community to reproduce itself socially, economically, and culturally, and with subsistence clearly as its center. Outside threats to Gwich'in livelihood are ever present, including oil exploration initiatives in the Arctic National Wildlife Refuge where the Porcupine caribou herd calves each year. And yet, the community has proven itself to be incredibly adaptable and resilient over the past several decades of contact with European America. One can only hope and assume that the Arctic Village economy will continue to adapt to the new realities brought on by 21st century economic globalization.

Notes

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2. Kahklen (April 6, 2000) notes that ATAP applications follow a cyclical pattern directly related to the distribution of Alaska Permanent Dividend Fund checks. Amounting to over \$1,000 per Alaskan in 1999 alone, the funds are distributed in the late fall each year. Applications for ATAP drop at this point (November), but begin to "spike" in early spring (February). Seasonal job opportunities, and the use of a retrospective budgeting system in which fall transfer payments are based upon summer earnings (Kahklen, April 11, 2001) also play a role in this welfare payment cycle.
3. In some ways, the community has never fully "settled" in the western sense of the word. Even today, movement between residences in Arctic Village, Venetie, Fairbanks, Fort Yukon, and hunting camps in the region is prevalent.

4. A methodological caveat concerning conducting summer research is perhaps in order here. While logistically, summer is a preferred time to undertake research in such a severe climate, it must be recognized that the observations discussed here were made when weather conditions, food availability, wage labor job availability, and transportation/communication links both within the village and between the village and the outside world were at their optimum. Responses to some of the questions posed may be more positive or optimistic than might otherwise be the case if given during the cold, dark winter months.
5. As Craver notes (2001), the definition of "household" in the north yet requires further definition and development. While each of the "households" in the present study may be seen as geographically separate units housing particular individuals and their belongings, it is certain that social and economic relationships between such households do not necessarily parallel similar units in the non-Native south.

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