

Self-Employment and Poverty Alleviation: Women's Work in Artisanal Gold Mines

Marieke Heemskerk

Development policy makers increasingly focus on the informal sector as an area to alleviate poverty and promote gender equity. Female self-employment is especially encouraged because higher incomes for women empower them, improve the health of their families, and alleviate poverty in society at large. In this context, development institutions have been urged to increase female participation in artisanal mining. However, knowledge about the gains and costs to women who earn a living in informal, artisanal mines is sparse. This study analyzes women's self-employment in artisanal gold mines in Suriname, South America. The results suggest that if long-term social and health conditions are considered, work in the informal mining sector is not likely to improve the quality of life in the interior of Suriname. The analysis contributes to informal-sector research by focusing on women and on rural regions, two areas of investigation that have received relatively little attention. The author cautions against development policy that narrowly focuses on economic growth and efficiency, and argues that public policy that anticipates long-term health, cultural, and social outcomes has a better chance of being sustainable.

Key words: artisanal gold mining, gender, informal labor, Maroons, Suriname

This paper is about women who work in artisanal gold-mines in Suriname, South America. The analysis responds to increasing policy interest in developing the informal sector, which shows promise for strengthening gender equity and alleviating poverty in rural areas of the developing world (Browne 1996, 2001; Ferdinand 2001; Kantor 2000). My main question is: Will promoting women's work in informal, artisanal gold mines improve the quality of life of Suriname's rural poor? To answer this question, I compare how women benefit from mining with the price they pay for working in the mining area.

"Informal" labor has been defined in numerous ways, but generally refers to money-generating activities that are

largely unrecorded and unregulated by national governments (Harding and Jenkins 1989; Portes, Castells, and Benton 1989). The archetypical informal job is easy to enter, labor intensive, small scale, family owned, and low tech. The bulk of informal-sector workers are self-employed, performing low or unskilled labor as street vendors, cleaners, gofers, shoeshine boys, and sex workers, among other professions. Policy makers have long been either hostile or indifferent to people on the sidelines of the official economy because these people tend to evade taxes, are difficult to control, and often operate illegally. As the social and economic potentials of the informal sector become better understood, the international development community has begun to encourage and assist its workers (Bangasser 2000).

At the same time, policy interventions aimed at improving labor market conditions have increasingly targeted women, for several reasons. First, earning an independent income can improve the well-being of women and their families by strengthening their social and economic autonomy (Massiah 1999; Momsen 1993; Safa 1995). Second, empirical data from various countries suggest that compared to the incomes of men, women's earnings disproportionately benefit child nutrition and survival rates (Kennedy and Haddad 1994; Kennedy and Peters 1992; Lamontagne, Engle, and Zeitlin 1998; World Bank 2001). Hence enhancing women's incomes may do more for poverty relief than promoting higher wages for men. Furthermore, despite increased female labor market participation, women remain more likely than men to perform low-paid unskilled labor and less likely to obtain top-level positions and wages (Benería and Feldman 1992;

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Howes and Singh 1995; Standing 1999). A greater level of gender equality is desirable because evidence suggests that it "strengthens countries' abilities to grow, to reduce poverty, and to govern effectively" (World Bank 2001:1).

Women's income-earning options are especially limited in rural areas where high-paying jobs are scarce and gender roles are typically more conservative than in cities. In an effort to remedy the limited economic opportunity for rural women, some international development institutions have recommended that countries encourage female participation in artisanal mining (Barry 1996; Labonne 1996; UN 1996). The United Nations (1996:222), for example, urges policy makers to support "increased involvement of women at all levels" of the artisanal mining industry. The World Bank advocates that "[g]overnments should...promote [women's] involvement as mine owners and operators" (Barry 1996:9).

I will present findings from Suriname that suggest that women's self-employment in artisanal mining areas is unlikely to alleviate persistent poverty. My argument resonates with anthropological studies that have cautioned against development policy that narrowly focuses on immediate economic growth and efficiency (Browne 1996, 2001; Kantor 2000). The following review of research on women in artisanal mining sets the stage for this argument.

Women and Artisanal Mining

Artisanal mining includes all manual and mechanized mining that uses rudimentary prospecting and extraction techniques. Artisanal miners extract base minerals (e.g., salt, coal), heavy and industrial minerals (e.g., mica, chromites), gemstones (e.g., diamonds), and precious and semiprecious metals (e.g., gold). The artisanal mining industry attracts poor people because it can generate high incomes and requires little entry capital or education (UN 1996; ILO 1999). A worldwide rise in rural poverty in low-income countries has led to a doubling of the number of people involved in artisanal mining in the past decade (ILO 1999).

The International Labour Organization (1999) has estimated today's population of artisanal mineworkers at 11.5-13 million, of whom 3.5-4 million are women. Another 1.5-2 million women are involved indirectly by selling goods, food, and services in and around mining areas. The proportion of women in the artisanal mining force varies, ranging from about 5 percent in Malaysia and Suriname, to 10-30 percent in Latin America, and more than 75 percent in some African countries (Table 1). Women are panners, cooks, mining operators, nightclub entertainers, sex workers, and merchants, among other professions. While some women work marginal jobs, occasionally in conditions resembling debt servitude, others are powerful managers of multiple mining teams (Heemskerk 2000; Rodrigues 1994).

Women in the artisanal mining workforce warrant attention because their narratives help us understand women's work and gender relations in the informal sector. Even though the informal sector is estimated to employ more than 80

Table 1. Estimated Numbers of Miners and the Proportion of Women Participating in the Artisanal Mining Industry in Selected Developing Countries and Regions

Country/ Region	Estimated Number Employed (1,000s)	Percent Women in Work Force
World	11,500 -13,000 ¹	30 ¹ , 10-50 ³
Latin America	1,000 ²	20 ^{1,2}
Bolivia	100 ¹	10-15 ¹ , 40 ³
Brazil	100-250 ¹	>17 ^{2,4} (gold)
Colombia	100-200 ¹	
Suriname (gold)	15-20 ⁵	2.5 - 5 ⁵
Africa		45-50
Guinea	40 ¹	75 ³
Ghana	50-300 ¹	50 (clay, stone) ¹ 75 (salt) ^{1,3}
United Republic of Tanzania	450-600 ¹	40 ¹
Zimbabwe	50-350 ¹	50 ^{1,3}
Asia		<10
China	4,300 ¹	
Malaysia	4.6 ¹	5 ¹
Thailand	21.5 ¹	25-40 ¹

Sources: ¹ILO 2001; ²Veiga 1997b; ³UN 1996; ⁴Rodrigues 1994; ⁵Heemskerk 2000.

percent of workers in low-income countries, qualitative research on informal work is sparse. Literature on female employment has paid little attention to the informal sector (Mehra and Gammage 1999), and few informal sector studies have addressed the particular needs and obstacles faced by women (Ferdinand 2001).

Mining economies throughout the world have historically employed women (Porsild 2000). Social scientists have studied gender relations in large-scale, industrial mines (Murphy 1990; Klubock 1998; Nash 1979; Tallichet 1997), but we know little about the experiences of women in informal, frontier-type mining (but see Rodrigues 1994). Stories from women in Suriname's artisanal mines reveal some of their motivations, responsibilities, needs, and expectations.

Research Area

Suriname

Suriname is north of Brazil, between Guyana and French Guiana (Fig. 1). Suriname's 425,000 people live almost entirely in and near the capital city of Paramaribo (ABS 2000:1).

The country's national language is Dutch, but many other languages are spoken, including Sranan (the national Creole) and languages specific to various ethnic groups. An estimated 66 percent of the urban population lives below the poverty line (ABS 2001:14). This percentage is probably higher in the country's interior but no reliable census data exist for the forested areas.

While economically poor, Suriname is rich in natural resources. Relatively intact tropical rainforest covers 80 percent of the country. Minerals, notably bauxite, are the country's main source of foreign exchange. Gold mining has historically been part of the Suriname economy, but the number of people currently involved, the amount of gold extracted, and its social and ecological impacts are unprecedented (Healy 1996; Heemskerk 2001). Almost all gold is extracted by an estimated 10,000 to 20,000 artisanal gold miners. A quarter of miners are estimated to be Suriname Maroons, and the remainder are Brazilian migrants (Veiga 1997a). The Suriname government fails to control artisanal mining, and much of Suriname society sees artisanal miners as a problem—a barrier to large-scale mine development and the culprits of the country's environmental problems.

In 1999, 24.8 percent of women and 50.4 percent of men in Suriname officially participated in the labor force (World Bank 2002). But these statistics omit the informal sector and rural areas, where many women work. My observations in the city and the forest suggest that a majority of Suriname citizens earn at least part of their income in the informal economy. Many people maintain a formal job for health benefits and pensions, but rely on a range of informal activities to get by. For example, I met several female government employees who sold homemade snacks and ginger beer at church and other social gatherings. In Suriname, this type of informal, small-scale trade is called *hosselen*.

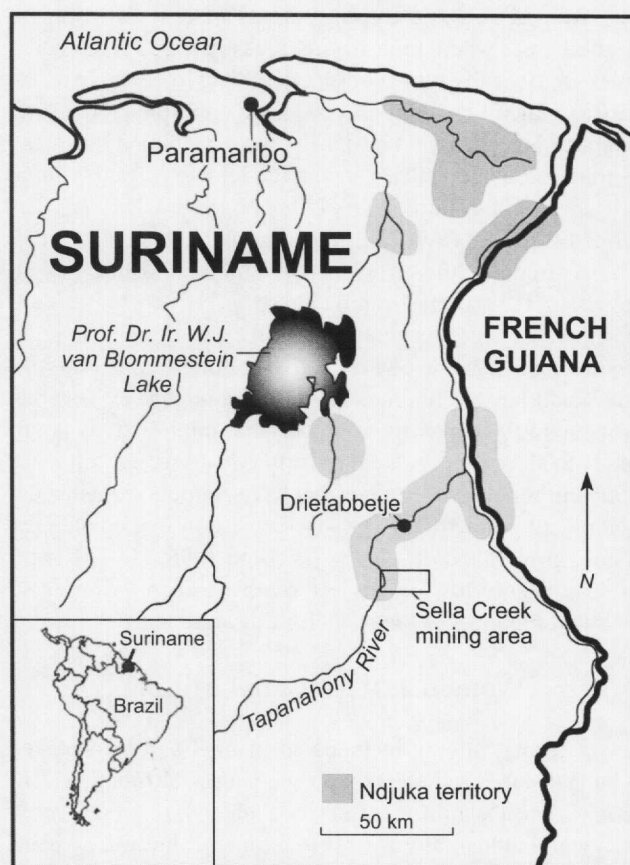
Fieldwork Site

Data were collected during more than a year of field research among the Suriname Maroons. Maroons are descendants of escaped African slaves, who established independent communities in the rainforest in the 16th and 17th centuries. Six culturally distinct Maroon groups claim different territories in Suriname and operate largely independently of the nation state in political, legal, and sociocultural matters (Price and Price 1999).

I conducted research among the Ndjuka Maroons, who, with an estimated 25,000 members, are one of the largest Maroon groups (Price and Price 1999). The Ndjuka live along the main rivers of Eastern Suriname and French Guiana (Fig. 1). Ndjuka villages typically contain about 25-50 households and are almost exclusively inhabited by Ndjuka. Research efforts were concentrated on forest villages and mining activity along the Tapanahoni River. The base research community was Drietabbetje, the Ndjuka capital.

The majority of fieldwork was conducted in the Sella Creek gold mining area. An estimated 60 to 70 gold mining

Figure 1. Suriname, Ndjuka Territory, and the Sella Creek Mining Area



camp occupied the area, housing a shifting population of about 700 people. Artisanal miners used to work manually with gold pans and shovels, but since the 1980s virtually all Maroon gold miners use generator-driven hydraulic machines (Heemskerk 2001). In addition to the mine operator or machine owner, hydraulic mining teams consist of a foreman, four to six laborers, and a cook. Many teams also employ part-time or full-time carpenters, porters, chainsaw operators, and others. All mine operators in Sella Creek were of Maroon descent, and three of them (4 to 5 percent) were women. Approximately half of the workers and cooks were Brazilian.

History has left the Ndjuka with an ambivalent attitude toward formal work. Ndjuka men traditionally leave their forest communities for extensive periods to work for the government or in extractive industries (Thoden van Velzen and Van Wetering 1991). Many older Ndjuka men had experience in wage labor jobs, which before independence (1975) were considered prestigious. They cut forest trails, took measurements, maintained airstrips, and worked as guides, assistants, and boatmen for geological mapping, malaria

control, construction, and other jobs in the interior. Men would work for several years so they could return to their forest villages with commodities and savings that allowed them to marry or rejoin their families and enjoy the tranquility and the freedom of life in the forest.

This historic quest for money and goods from the coast coexists with a negative perception of formal employment as a form of slavery (Vernon 1985). Many Ndjuka want to be economically independent. "If you work for a boss," one man (age 28) said: "you will earn little and he will get everything." Several men objected to being "bossed around." Andre (age 34) summarized these sentiments when he explained he had quit his job in the city to become a gold miner because in the city: "You make little money; the boss is yelling at you. You will never have something for yourself. My goal is to have a better life. I want to live free [and] not depend on a boss."

These comments express the idea, reflected in oral traditions and folk tales, that outsiders are seeking to take away the Ndjuka's freedom and profit from their labor, as happened to the ancestors who were plantation slaves (Vernon 1985). Consequently, even though formal work is a justified means to obtain cash money, informal labor is culturally more desirable. Gold mining is attractive because it allows people to work and live largely independently from Suriname's urban population. "In gold mining you can leave when you want to," one man (age 21) explained, "in a [formal] job that is impossible."

Men stay long away from home, and Maroon women make most household and production decisions on their own. Notwithstanding, they depend on labor and products that men provide. Men clear the forest for agriculture, hunt, carve canoes, provide cash income, and supply their wives with manufactured goods, such as oil and salt, preserved fish and meat, kitchen tools, fabrics, and other household supplies (Heemskerk 2000; Price 1993). Statistics that compare Maroon men and women are rare because national censuses do not include the interior where most Maroons live. Interviews and observations suggest that compared to men, Maroon women are less likely to be literate, speak the national Dutch language, and finish elementary school (Heemskerk 2000).

Methods and Sample

Field research took place in the summer of 1996 and between June 1998 and May 1999. Interviews were conducted in Ndjuka, the local language, and included ethnographic and semistructured interviews and a structured survey. I interviewed both women and men, but this paper primarily draws on data collected among women. The survey took about half an hour to complete and asked about socioeconomic status and mining history. Survey questions usually inspired unstructured conversations that lasted for one to two hours. Ethnographic interviews ranged from about 15 minutes to several hours and typically occurred over the

course of several days. All informant names in this paper are pseudonyms.

In 1996, I conducted ethnographic interviews with three self-employed women in the Sella Creek mining area. In 1998-99 I returned to the same area to conduct a survey among a larger number of women working in mining-related professions. However, their limited numbers prevented me from surveying more than 11 women in the mining area in that year. The 1998-99 survey further included 29 women who previously worked in gold mining but had quit at the time of the interview. Many of these women had come with their husband or family when they were younger. One woman (age 55) recalled:

I went with my mother and father; that was before I wore the *pangi* [traditional skirt; an indication of reaching social maturity]. I helped with cooking and washing clothes. Later I went to work in the store of my husband, where [people] would buy salted meat, clothing, beans.... That time people worked manually [in gold mining].... Gold was not worth as much [as it is now].

Oral histories indicated that mining has traditionally been part of the Ndjuka economy, but as a temporary activity in times when cash was needed (see also Healy 1996). In those days women worked closely with their husbands or parents, washing gold and taking care of domestic chores, the garden plot, and their children or younger siblings. Today, mining has become the primary source of income for many Maroon households in eastern Suriname and no longer occurs in family units.

Women with mining experience had worked 16 months on average in the mining area, ranging from a few days to a maximum of eight years. I asked them about their past mining experiences, some going back over several decades, and why they had left. In sum, my understanding of Maroon women's work in gold mining areas derives from 3 women who worked in the mining area in 1996; 11 women who were working in the mining area in 1998-99; and 29 women who had worked in mining-related professions at various times before 1998-99. In addition, I interacted with, and learned from, Brazilian women in the mining area.

The high mobility of Ndjuka and the absence of population statistics made random sampling from the nonmining population impossible. Hence, I sampled purposively to represent the locally observed demographic structure (N = 79). Table 2 summarizes the sample characteristics, comparing women working in the mining area with those who did not. Due to the nonrandomness of the sample, I could not statistically compare the two groups, and my results may not extrapolate to Ndjuka society at large.

Results and Discussion

Women are rare in Suriname's gold mines. I estimated their numbers at about 5 percent of the mining population in the study area (Table 1). Approximately half of these women

Table 2. Sample Characteristics of Women Who Worked in the Gold Mining Area Compared with Nonmining Women, 1998-99

Variable	Gold Mining	Nonmining
N	11	79
Residency in an urban area, ¹ percent (N)	73 (8)	28 (22)
Age, mean	28.9	35.8
Number of years of formal education, mean	4.5	3.1
Speaking Dutch, percent (N)	55 (6)	31 (25)
Number of children, mean	3.1	3.5
Single mothers, percent (N)	55 (6)	19 (15)
Annual income, mean	\$9,822	\$296
Annual income, median	\$3,888	\$40

¹ "Urban" is defined as living either in Paramaribo or in urban enclaves in the coastal region, called Cottica.

were Brazilian migrants, and half were Maroons. The length of their stay in the mining area ranged from just over a week to almost the entire year. During this period, most women lived with mining teams in transitory camps. The typical mining camp consisted of a kitchen area and a few huts or shelters in which hammocks were tied. In some places, adjacent camps formed larger clusters that resembled small villages with stores, televisions, satellite dishes, music, and radios for communication with the outside world.

Maroon women performed a variety of jobs that differed in wages and time investment. Three out of the 14 women I interviewed (11 in 1998-99; 3 in 1996) managed mining operations, six were cooks, two weeded and cleaned camp areas, and one woman was still searching for work. Almost all women (13 out of 14) were involved in retail, often to complement other jobs. They bought cigarettes, malaria medicine, and other products in the capital city to sell in the mining area at several times their original price (Heemskerk 2000). Traders usually traveled among camps, but two women owned shops that also served as restaurants. I never saw female pit laborers, porters, carpenters, or foremen. These jobs were common for men. Most cooks and all sex workers were women.

Cooks usually worked in a camp for several months under relatively stable working conditions. They worked long hours, being the first to rise to make coffee and the last to go to sleep after dirty dinner plates had been cleared away. Most cooks were paid a fixed wage and could earn extra money by washing clothes and hosselen. Cooks enjoyed more financial security and higher incomes than women who came briefly for hosselen, but at a cost. They missed their families and commented on the boredom and discomfort, sexual harassment, unbalanced nutrition, and frequent illness. Lengthy stays aggravated these problems.

Saleswomen minimized mining-related distress by short stays but had little income security. Incomes of traders depended on variable demands for goods, risky travel conditions, and unreliable credit systems. A significant proportion of merchandise bought on credit was never paid for, but refusing to extend credit would drive away customers. Some estimated that uncollected credit accounted for up to half of their sales. One merchant (age 29) said: "It is difficult to find money; I do not find it easily. If people owe you 100 gram¹ [of gold], you perhaps receive 50 or 60 gram. It can take one or two years [before they pay]." Some mine operators would help merchants by settling the accounts of their workers before paying salaries. Most vendors, however, had little power to enforce payment.

All female mine operators had worked other jobs in and outside the mines before reaching the top of the mining hierarchy. Mathilda (age 39), who owned and managed one of the largest camps in the area said she started her career by:

selling things, in Maripasoela, Stoelie.... St. Laurent [Maroon forest villages]. Then, when I was 18 years old, I began to hossel [in places] where people were mining for gold, along the Lawa River. Many Ndjuka people worked there, and I traveled with the men that brought supplies; they were family.

After some years, Mathilda collected her savings and borrowed additional money from family members to buy a mining machine. The work was tiring, she said, but the money made up for it. Gracia, another mine owner, used to be married and a school teacher. After she got divorced, she found it impossible to support a family on a teachers' wage and decided to try her luck in mining.

Maroon women in Sella Creek helped one another with lodging, food, transport, and loans. Mathilda brought and hosted two nieces who came to sell goods and employed one of them as a cook in her camp. A restaurant owner shared her hut with a female friend who had come to hossel. Because many Maroons in the Sella Creek area were kin, women could count on material support from male relatives as well. However, emotional and verbal support from other women help them cope with the macho mining world.

Support networks were common among Maroons and among Brazilians, but less so between these groups, in part due to language barriers. Gracia complained that Brazilian women were "spoiling the forest" by not obeying menstrual taboos. Maroon beliefs in the polluting powers of menstrual blood prescribe that women go into seclusion during their monthly periods (Price 1993). Not observing certain behavioral rules will bring harm, and even death, to the community.

Obeying menstrual taboos is a nuisance in the mining area, which lacks the female support networks that help women cope in the village. Nevertheless, most Ndjuka women I met did their best to observe these rules. During her menstrual period, Gracia did not drink from the communal water barrel, sat apart from her laborers on a bucket set aside for that purpose, and ate from a plate that was otherwise not

Table 3. Payment Systems and Wages Observed in Suriname Mining Areas

Profession	Payment System(s) Observed in the Sella Creek Mining Area	Monthly Net Total (g gold) ¹
Jobs Performed by Women and Men		
Boss/Machine owner	60-70 percent of gold extracted minus production costs (e.g., machines, transport, supplies, food)	range: 14-1,063 median: 140
Cook	10 g/team member/month, or stable wage paid by boss	60 25, 30
Shop owner	Sales minus transport and acquisition costs	n.a.
Transient vendor	Sales minus transport and acquisition costs	range: 0-50 median: 10
Jobs Exclusively Performed by Women		
Wash clothes	1 g/pp/load	20
Sexworker	3-5 g/service 8, 10 or 15 g/night (on credit more expensive)	n.a.

¹ 1 gram gold = \$9 average in 1999 (Kitco 2002).

being used. Other Ndjuka women took birth control pills for months in a row to halt their menstruation all together. Gracia blamed Brazilian women, who were not sensitive to Ndjuka spiritual beliefs, for bringing the wrath of evil powers upon the area, thus causing problems including the recent disappearance of three young Ndjuka men.

While experiences were diverse, women working in mining areas shared several benefits and drawbacks. Higher incomes and greater independence were offset by negative health effects, a perceived failure to meet family responsibilities, and social stigmatization. I discuss these topics below.

Income

It is difficult to determine average mining wages because many women combined a variety of services and worked for variable periods. Table 3 lists reported payment systems and earnings in the study area. Wages varied somewhat across space, over time, and due to personal differences, but the listed amounts provide a good approximation. They are substantially higher than wages women could earn in formal or informal jobs outside the mining area (Tables 2 and 3).

Among women who did not work in the mining area, a majority (75 percent) were subsistence farmers, half (51 percent) practiced petty commerce, and a fifth (19 percent) received irregular welfare payments.² Fifteen percent of nonmining women depended entirely on others, usually a husband or male kin. Fewer women reported income from

remittances, livestock, or wage labor. The median income of these nonmining women was \$40 per year (N = 79). It must be noted that the measure of income included only cash money earned. I excluded production for personal consumption because it was not possible to obtain a reliable estimate of its value. Given the low market prices for crops and forest products, including the U.S. dollar value of produce for home consumption would not raise nonmining incomes to the level of mining incomes. However, the dietary contribution and social benefits (e.g., in gift giving) of homegrown food are obviously important.

In comparison, half of the women working in the mining area earned at least \$3,800 per year (N = 11). For example, cooks typically earned about 60 gram gold per month, which approximated \$540 at an average price of \$9 per gram of gold in 1999 (Kitco 2002). They earned more than double the salaries of college-level professionals, such as nurses and administrators (~\$200 per month), and five times as much as women performing low or unskilled labor such as cleaning and maintenance (~ \$100 per month). Moreover, formal wages were paid in depreciating Suriname guilders or, in the case of public servants, not paid at all in times of governmental budgetary crises.

My data further show that women earned similar wages to men in the same mining-related professions. Moreover, the artisanal mining industry imposed few institutional barriers to female participation: women did not have problems obtaining concessions through the Ndjuka land allocation system, and they were not disadvantaged in access to loans.

Neither did I hear about cultural taboos banning women from working in mines, as have been observed elsewhere. For example, researchers in a mining area in Mozambique found that women sold food and beer outside the mine, but were prohibited from entering it (TopTecMinas, Kazilimani, and Bukali 2000). In Suriname, no such restrictions seemed to exist.

Economic and Social Autonomy

Ndjuka men and women generally agreed that men could regulate their wives' behavior while women had little influence on their husband's economic, social, and sexual activities. As one woman put it: "If you live together [as husband and wife], you obey his rules." Because many Ndjuka women depend on their husbands for access to nonagricultural assets and food, not obeying a spouse or otherwise losing his favor can have serious consequences for the well-being of a woman and her children (Heemskerk 2000).

Anthropologists have found that a woman's bargaining position in the household can strengthen when her contribution to the household income increases relative to the man's (Momsen 1993; Nash and Fernandez-Kelly 1983; Safa 1995). Stories from Suriname confirm this pattern. Martha (age 32) sold cigarettes and other luxuries in the mining area. Her husband disapproved of her work away from the home, but the fact that Martha's weekly income exceeded his monthly wages overruled these objections. Rita (age 34) observed that earning a substantial independent income gave her the choice to not be in a relationship. Before "I lived with my husband," she said, "...but we were poor, and you want to buy clothing for your children and yourself, so I started hosselen." Rita worked as a vendor in the mining area when her husband found a job in town. He left Rita for another woman, but when this new relationship did not work out he begged her to come back. Rita refused and decided she wanted to "work one more year for myself. Then I will find a husband to take care of me."

Mathilda's nieces (ages 18 and 19) sold marijuana, cigarettes, and other small luxuries to gold miners and helped out in the kitchen. They were attracted by the freedom and adventure the mining area offered. Self-employment in mining areas not only removed them physically from the vigilance of their parents and older siblings, it also exposed them to the liberal lifestyle of a frontier society.

Health

Small-scale gold mining jeopardizes public health due to: miners' release of mercury into the aquatic ecosystem; high rates of malaria transmission and the evolution of drug-resistant malaria strains; a high prevalence of unsafe sex; and unsafe working conditions. The epidemiological, biological, and technical dimensions of these effects have been documented for Suriname (De Kom, Van der Voet, and De Wolff 1998; Healy 1996) and other Amazonian countries (Bezerra, Veríssimo, and Uhl 1996; Faas, Rodríguez-Acosta; and Pérez

1999; Veiga and Hinton 2002; Zalis et al. 1998). Here I will only focus on conditions related to gender relations and women's lives.

Women's child-bearing capacity places them at an increased risk for both malaria and mercury pollution. Infection with *Plasmodium falciparum* (a common strain of malaria in Suriname) during pregnancy is a prime cause of both maternal morbidity and perinatal morbidity and mortality (Schultz et al. 1996). Pregnant women and infants are also most susceptible to the effects of chronic mercury poisoning from the consumption of contaminated fish (Veiga 1997b). It must be noted that due to their limited fish consumption, women in mining areas are probably less exposed to mercury than people in nearby communities, who rely on fish for daily protein.

Women in the mining area, in particular sex workers, risk contracting sexually transmitted diseases (Faas, Rodríguez-Acosta, and Pérez 1999). It is difficult to estimate the number or proportion of women engaged in the commercial sex trade, due to its covert nature. Though none of the Maroon or Brazilian women I met self-identified as sex workers, my observations suggests that commercial sexual relationships were common. For example, Maria, a Brazilian cook, refused to enter sexual relationships with gold miners. However, when she was pressed for money to pay the college fees of her daughter in Brazil, she felt she had little choice but to make an exception. Selling sex helped women meet immediate financial needs because high demand and little supply made for high prices: about three to five grams of gold (\$27-\$45) per service or eight to ten grams of gold (\$72-\$90) per night.

Boundaries between (semi-) commercial arrangements and other relationships were transparent. Some women had sex with different men for a clear (negotiable) price, but others settled with one man who would regularly give presents or gold or found a more stable partner. Condom use was infrequent. Few official statistics are available, but local health workers believe that HIV/AIDS infection rates are high and increasing in mining areas and Maroon villages (personal communication, D. Vernon, anthropologist and health care worker, Hospital of St. Laurent, French Guiana, 2001). This trend especially threatens women because they are more vulnerable to HIV infection than men (WHO 2000).

The relatively recent onset of the mining boom in Suriname means that its long-term effects on public health are not yet apparent. However, research and local observations suggest that long-term costs to public health are substantial not only in mined areas but also in miners' home villages and nearby communities (MacMillan 1995; Veiga and Hinton 2002). These costs may ultimately undo short-term financial gains derived from artisanal gold mining.

Family Responsibilities

Informal labor is often valued for its flexible work schedules that allow for combining paid labor with care for

children and the household (Browne 2001; Espinal and Grasmuck 1997; Hill 2001). That was not true for artisanal mining. Several nonmining women explained that their domestic duties, especially child care, were incompatible with travel to and work in mining areas. A woman, aged 18, explained: "I went to Sella once, about a year ago. I sold *kwakka* [cassava product].... Now I have a baby I do not go anymore. I will return when the baby no longer needs breast-feeding." Taking children to the mining camps interferes with school attendance and exposes them to disease. More women came to hoesel, bring food to their husbands, or join spouses in the mining area during school holidays, when they could take their children with them.

Compared to other women, self-employed women in the mining area were more likely to be single mothers (Table 2). To make sufficient money, female heads of households left their children in the care of others as they worked throughout the year. Despite their economic success, many felt they were failing as mothers. Ina (35) captured the feelings of other female miners I spoke to, when she said that by working far from home she could not give her seven children the attention they deserved:

I will stop [mining] as soon as I find a solution, when I receive support every month. Then I will stay in the city and take care of the children. The children must go to school, therefore I suffer deprivation, for them. [You work in mining] when you see no other way out. I regret leaving the children.... Taking care of children does not only mean supporting them financially, it requires giving personal attention.

Ironically, both the Maroon community and women themselves felt that a woman's labor away from the home to secure sustenance and a better future for her children indicated irresponsibility toward those same children.

Several women suggested that as soon as sufficient and reliable income support became available, they would quit working outside the home. Two women said they would not return to the mining area if they found someone to provide for them and their children. Two others planned to leave as soon as they saved enough money to set up a small business in the city.

Social Stigmatization

Cultural norms that dictate the sexual division of labor and responsibilities in Ndjuka society also defined people's ideas about who should, and who should not, be gold mining. In casual conversations, Ndjuka women and men mentioned that gold mining was appropriate for men but not for women. One woman (age 40) explained that she did not work in the mining area because "the man has to work for the woman." Other women added that "Women cannot do the work [gold mining]" and "Women cannot go look for gold." When I asked a man if he wanted his children to work in the mining area, he answered "I only have daughters," indicating they would naturally not become miners.

Women risked their reputation by working in what was considered an inappropriate place for a woman, unless she joined a husband. One woman (age 37) explained: "I want to go to Sella; my younger sister has asked me to join her, but my husband does not want it. He does not want me to leave him." Olga (age 35) used to go to Sella Creek to cook for her husband. Now that he has another wife he no longer takes her, and consequently she stays home. Carmen (age 29) confirmed: "If a man does not want to take you [to the mining area] you cannot go.... People will say you go whoring." Similar prejudices thrive throughout the mining world, which has viewed independent female entrepreneurs in mining areas as promiscuous (Porsild 2000).

For women who did work in the mining area, husbands and male kin were crucial for introduction and transport to the mining area. This is partly because women are traditionally less mobile than men and tend to be less comfortable traveling to unknown places. In addition, "respectable" women will not travel alone to the mining area. Out of 40 women with mining experience, more than half (53 percent) had been introduced to gold mining by a partner and 18 percent by a brother. Marijke (age 36), for example, was a merchant elsewhere when her husband introduced her to the mining area. When she and her husband separated, she started traveling with male relatives who brought supplies to the camps. Even with some years of experience in the mining area, Marijke never travels without kin, both to protect her reputation and because relatives will provide free transport.

Though men gossiped about women in the mining area, they did not object to their presence per se. In contrast, many men appreciated the care and sense of home women could provide in a predominantly male environment (see also Rodrigues 1994). At the same time most men prohibited their own wives from working in the mining area, in part because the community might interpret this as a man's failure to provide for his wife.

It is noteworthy that even though urban women had to travel farther and were least familiar with life in the forest, most women in the mining area came from Paramaribo and the surrounding coastal area, called Cottica (8 out of 11 in the 1998-99 survey; Table 2). This observation can be explained by two factors. First, Cottica Maroon women have a long tradition of participation in informal trade. For Sonia (age 35), for example, selling in the mining area was merely a shift in markets: "My mother died early and I am the oldest child, so I had to take care of my younger brothers and sisters. I first went to hoesel at the French side [French Guiana].... At the French side the gendarmes took all the money." Sonia had been working in gold mining areas since 1993. Initially she had commuted between Paramaribo and French Guiana. When increased control complicated travel across the border, Cottica Ndjuka saleswomen like Sonia pursued other opportunities in gold mining areas.

A second reason for the disproportionate number of urban women in the mining area is the stricter adherence to a traditional lifestyle in rural areas. Traditions remain in

Maroon neighborhoods in Paramaribo, but stronger integration in the cash economy and increased contact with outsiders are encouraging more flexible interpretations of these traditions. For example, Maroon women with regular wage labor jobs might not cook for their husbands during their menstrual periods, but they will not risk losing their job by staying at home for some days every month. I believe that prior commercial involvement and a cosmopolitan worldview caused Cottica Ndjuka women to respond to economic opportunities in the artisanal mining industry more rapidly and in larger numbers than other Maroon women.

Conclusions

Narratives from Maroon women working in gold mining areas are consistent with anthropological studies that have documented opposing effects of women's participation in paid labor (Massiah 1999; Momsen 1993; Nash and Fernandez-Kelly 1983; Safa 1995). Female self-employment raised household income and increased the power of women in their relationships with men (see also Hill 2001; Valodia 2001). Especially for single women, working in artisanal gold mines prevented dependency on others.

Yet women's labor market participation also brought tension to households. Men felt displaced as breadwinners, while women experienced increased work burdens and felt they were bad mothers and wives. Ndjuka society reinforced these frustrations by labeling women in the mining area as irresponsible and promiscuous and by mocking men who failed to support their families. Some single women said they preferred to not carry all responsibility for household economic survival. My findings suggest several directions for policy and future research.

Informal Versus Formal Labor Markets

Informal work accounts for a significant share of the economies of poor and rich countries in both monetary value and the number of people employed (ILO 2002; Harding and Jenkins 1989; Portess, Castells, and Benton 1989). Suriname data challenge the persistent "miserabilist" vision of the informal sector as a conglomerate of marginal, low-paid, and low-skilled jobs (Bangasser 2000). Self-employment in gold mining areas was generally profitable, innovative, and resilient to national political and economic instability. Confirming findings from other places and other informal jobs (Espinal and Grasmuck 1997; Hill 2001; Rajiman 2001; Valodia 2001), women's mining-related earnings exceeded wages in the formal sector, met male wage levels, and remained relatively unaffected by monetary inflation. The limited need for diplomas and permits was advantageous to women who, on average, had less formal education and training than men. Moreover, self-employment allowed women to work for themselves, as many Ndjuka prefer.

On the down side, informal work differs by definition from formal employment by its lack or minimal enforcement

of public standards for wages, social organization, health, and safety. Maroon women worked in an unhealthy and unsafe environment that lacked adequate social and economic protection. Sexual harassment and cultural customs such as menstrual taboos further complicated their professional lives. Improving labor conditions in what is a large and heterogeneous segment of the world economy requires better information. In addition to more accurate statistics, that information must incorporate qualitative understanding of the working lives of people who depend on informal labor for a living (Browne 2001). This study has aimed to advance such qualitative understanding which, in combination with other sources, might ultimately inform policy directions.

Mining and Rural Poverty

As anticipated, work in mining areas generates relatively high incomes. In Suriname, however, economic progress was overshadowed by adverse social and health consequences, including personal dissatisfaction, family tension, social disintegration, and illness. We have come a long way since development was expressed purely in terms of dollars flowing in and out of a country. Many policy makers now recognize that measures such as per capita gross domestic product, even when adjusted for purchasing power parity, are usually poor indicators of the well-being of a country's citizens. Indeed, today's measures of progress toward sustainable development incorporate health, equity, democracy, and human rights (IISD 2000; UNDP 2000). As governments and development agencies are rethinking their approach to small-scale gold mining, the multifaceted nature of sustainable development should be of primary concern.

Policy interventions aimed at immediate improvement of public health could positively contribute by launching malaria and AIDS prevention campaigns, by promoting safer mining methods, and by investing in doctors, medicines, and hospital beds in the Suriname forest. Policy aimed at more durable poverty alleviation might be more effective if it stimulates money-generating activities outside mining areas. Given a tradition of active female entrepreneurship, financial and informational assistance that enhances the efficiency of women's self-employment would fit well within Maroon culture. Future research might reveal employment areas that generate adequate incomes yet pose less risk. A challenge to policy makers is to encourage informal, microscale income-generating activities that offer secure incomes, opportunities for social advancement, safety, and a healthy work environment, while maintaining the flexibility and independence that are so highly valued by poor women seeking to earn or augment their household incomes.

Notes

¹Prices for goods and services in the mining areas are set and paid in grams of gold rather than in national or foreign currency. Products are typically priced three to ten times the prices in the city (Heemskerck 2000).

Numbers add up to more than 100 percent because Maroons typically perform different jobs simultaneously or in sequence. For example, a subsistence farmer may sell some of her crops, processed food (e.g., farina), or merchandise she has bought during a trip to town.

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