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33

Applied Research on Decentralization of Health Systems in Latin America:

Chile Case Study

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TABLE OF CONTENTS

LIST OF TABLES ii

ACRONYM LIST iv

ACKNOWLEDGMENTS v

INTRODUCTION 1

METHODOLOGY & THE DECISION-SPACE APPROACH 2

OVERVIEW OF THE HEALTH SYSTEM IN CHILE, 1970-1998 5

POLICY PROCESS & THE HISTORY OF DECENTRALIZATION 10

ANALYSIS OF DECISION SPACE 13
NATIONAL DATA ANALYSIS 17
PRESENT NATIONAL LEVEL DATA ANALYSIS 19
RURALITY, TYPES OF SERVICES AND SHARED PROVISION OF PRIMARY CARE 30
UTILIZATION 37
FINANCIAL SOUNDNESS 52

CASE STUDIES 53

MUNICIPALITY OF SANTIAGO: RECENTRALIZED PRIMARY HEALTH CARE SERVICES 54
MUNICIPALITY OF MAIPU: 57
CENTRALIZED CONTROL BY SSMC AND MUNICIPAL CONTRIBUTIONS 57
THE PROVINCE OF AYSEN: 59
RECENTRALIZING PRIMARY HEALTH CARE SERVICE 59
THE CITY OF CONCEPCIÓN: 62
DECENTRALIZED PRIMARY HEALTH CARE SYSTEM 62
THE PROVINCE OF ÑUBLE: 66
MUNICIPAL ASSOCIATION AND MATCHING GRANTS 66
CASE STUDY CONCLUSIONS 68

CONCLUSIONS 71

IMPLICATIONS FOR POLICY GUIDELINES 72

ANNEX I. INTERVIEWS 73

SANTIAGO INTERVIEWS 73
MAIPU INTERVIEWS 73
AYSEN INTERVIEWS 73
NUBLE INTERVIEWS 74

BIBLIOGRAPHY 75

PUBLICATIONS OF THE LATIN AMERICA AND THE CARIBBEAN REGIONAL HEALTH SECTOR REFORM INITIATIVE 77

LIST OF TABLES

Figure 1 Standard Decision Space Map 3
Figure 2 Formal Decision Space Map of Primary Health Care in Chilean Municipalities in 1988 15
Figure 3 Formal Decision Space Map of Primary Health Care in Chilean Municipalities in 1996 16
Table 1 FAPEM versus Expenditures per Year 18
Table 2 Classification of Municipalities by Population Deciles (1996) 21
Table 3 Municipal Disposable Revenenue per Inhabitant Deciles based on Local Revenue (1996) 21
Table 4 Infant Mortality Rate 1993-1995 (Municipal Deciles) 22
Table 5 Variables Related to Local Government Capacity 23
Table 6 Medical Inputs (1994) 24
Table 7 Make-up of Own-Source and CMF Municipal Disposable Income (1996) 25
Table 8 Municipal Disposable Revenue per Inhabitant Deciles Based on Local Revenue (1996) 25
Table 9 Municipal Disposable Revenue per Inhabitant: Distribution Statistics (1996) 26
Table 10 Make-up of Municipal Recurrent Costs (1996)* 26
Table 11 Revenue Originating in Municipal Primary Health Care (1996) 27
Table 12 Expenditures on Municipal Primary Health Care (1996) 27
Table 13 Expenditures on Primary Municipal Health Care per Beneficiary (1996)* 28
Table 14 Expenditures in Municipal Primary Health Care per Capita (1991 and 1996) 29
Table 15 Determination of the Local Contribution to Primary Health Care 30
Table 16 Classification of Municipalities by Type of Clinic and Presence of Health Service 31
Table 17-A Make-up of Municipal Health Revenues by Type of Municipality 32
Table 17-B Make-up of Expenditures on Municipal Health Services by Type of Municipality 32
Table 17-C Total Expenditure on Health and Socio-Economic Indicators 33
Table 17-D1 Municipal Contribution to Health 33
Table 17-D2 Primary Health Care Activities per Beneficiary 34
Table 17-E Primary Health Care Input Indicators by Type of Municipality 34
Table 17-F Infant Mortality Rate by Type of Municipality 34
Table 18 Determination of Local Contribution to Primary Health Care 35
Table 19 Determination of Local Contribution to Primary Health Care 36
Table 20 Determination of Change in Local Contribution to Primary Health Care 37
Table 21 Primary Health Care Activity by Beneficiary 38
Table 22 Determination of Municipal Primary Health Care Activities 39
Table 23 Determination of Municipal Primary Health Care Activities (1996) 40
Table 24 Change in Municipal Primary Health Care Activities by Beneficiary (1992-1996) .40
Table 25 Efficiency in Municipal Health Management 42
Table 26 Efficiency in Municipal Health Management 43
Table 27 Registration Rates at Municipal Clinics as a Proportion of the Potential Beneficiary Population 44
Table 28-A Registration Rates at Municipal Clinics in Late 1995 45
Table 28-B Registration Rates at Municipal Clinics in Mid-1997 46
Table 29-A Determination of Salaries and Medical Hours in Municipal Primary Health Care (linear specification) 47

Table 29-B Determination of Salaries and Medical Hours in Municipal Primary Health Care (logarithmic specification) 48
Table 30-A Expenditures on Medical Personnel in Municipal Health Care 48
Table 30-B Physician's Salaries in Municipal Primary Health Care 48
Table 30-C Medical Hours per Beneficiary in Municipal Primary Health Care 49
Table 31 Variation in Infant Mortality Rate 1989/91 to 1993/95 50
Table 32 Data for Year 1996 53

ACRONYM LIST

CENABAST	Central Supplies for Ministry of Health
CEPAL	Economic Commission for Latin America
CESC	Economic and Social Councils
CODECO	Communal Development Councils
CTC	Confederation of Copper Workers
FAPEM	Facturación por Atenciones Prestadas en Establecimientos Municipales (FONASA Payment Mechanism to Municipalities)
FCM	Common Municipal Fund
FONASA	National Health Fund
FOSIS	Solidarity and Social Investment Fund
IPS	Public Health Institute
ISAPRE	Instituciones de Salud Provicionales (Private Insurance Plans)
MOH	Ministry of Health (MINSAL)
ODEPLAN	National Planning Office
SERMENA	National Medical Service for Employees
SNS	National Health Service (1952-1979)
SNSS	National System of Health (1979-ff)
SUBDERE	Subsecretariat for Regional Development

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INTRODUCTION

In the last two decades, health sector decentralization policies have been implemented on a broad scale throughout the developing world. Decentralization, often in combination with health finance reform, has been touted as a key means of improving health sector performance and promoting social and economic development (World Bank 1993). The preliminary data from the field, however, indicate that results have been mixed, at best. In some cases, these limitations have resulted in a backlash against the reforms and an initiative for recentralization. We believe that this rejection is often premature or misplaced, and that the issue at hand is how to better adapt decentralization policies to achieve national health policy objectives. In this context, it becomes increasingly important adequately to understand the dynamics of health sector reform processes in diverse contexts, to draw both general and case-specific lessons, and to formulate effective strategies for future research and policy making.

The term "decentralization" has been used to connote a variety of reforms characterized by the transfer of fiscal, administrative, and/or political authority for planning, management, or service delivery from the central Ministry of Health (MOH) to alternate institutions. These recipient institutions may be regional or local offices of the same ministry, provincial or municipal governments, autonomous public service agencies, or private sector organizations. Decentralization has been predicted to improve health sector performance in a number of ways, including the following: (1) improved allocative efficiency through permitting the mix of services and expenditures to be shaped by local user preferences; (2) improved production efficiency through greater cost consciousness at the local level; (3) service delivery innovation through experimentation and adaptation to local conditions; (4) improved quality, transparency, accountability, and legitimacy owing to user oversight and participation in decision-making; and (5) greater equity through distribution of resources toward traditionally marginal regions and groups. At the same time, fears have been raised about potential macroeconomic destabilization and the aggravation of interregional disparities in wealth and institutional capacity as a result of decentralization (Prudhomme 1995).

The recent proliferation of decentralization policies is part of a broader process of political, economic, and technical reform (World Bank 1998). These include "democratization" and, perhaps more importantly, the neo-liberal "modernization" of the state. The latter movement promotes institutional and territorial decentralization as a means to introduce competition and cost-consciousness into the public sector, and develops a new role for the state in "enabling" and "steering" rather than replacing private sector activities. The promotion of cost-effective investment in primary care and outreach services, beginning with the Alma Ata Conference on Primary Health Care in 1978 and reinforced in the World Bank's 1993 World Development Report, have provided a further technical impetus for health sector decentralization.

The range of policies grouped under the rubric of "decentralization" is quite diverse with respect to objectives, mechanisms, and effects. In this report, we will make use of widely accepted terminology developed by Rondinelli (1981), who identifies three principal categories of decentralization: deconcentration, delegation, and devolution. *Deconcentration* is generally the most common and limited form of decentralization, and involves the transfer of functions and/or resources to the regional or local field offices of the central government agency in question. Within a deconcentrated system, authority remains within the same institution (e.g. the Ministry of Health) but is "spread out" to the territorially decentralized instances of this

institution. *Delegation* implies the transfer of authority, functions, and/or resources to an autonomous private, semi-public, or public institution. This institution assumes responsibility for a range of activities or programs defined by the central government, often through the mechanism of contracting. *Devolution* is the cession of sectoral functions and resources to autonomous local governments, which in some measure take responsibility for service delivery, administration, and finance.

METHODOLOGY & THE DECISION-SPACE APPROACH

Our analytical framework for the evaluation of these cases is based on a principal-agent approach. In this perspective, the central government, generally in the figure of the Ministry of Health, is viewed as setting the goals and parameters for health policy and programs. Through the various modes of "decentralization" described above, the central government delegates authority and resources to local agents—municipal and regional governments, deconcentrated field offices, or autonomous institutions—for the implementation of its objectives.

This approach acknowledges that the central and local governments have at least partially differing objectives. Agents often have distinct preferences with respect to the mix of activities and expenditures to be undertaken, and respond to a differing set of stakeholders and constituents than national-level principals. Local institutions, therefore, may have incentives to evade the mandates established by the central government. Moreover, because agents have better information about their own activities than does the principal, they have some margin within which to "shirk" centrally defined responsibilities and pursue their own agendas. The cost to the principal of overcoming this information asymmetry is often prohibitively high. Within this context, the central government seeks to achieve its objectives through the establishment of incentives and sanctions that effectively guide agent behavior without imposing unacceptable losses in efficiency and innovation. Diverse mechanisms are employed to this end, including monitoring, reporting, inspections, performance reviews, contracts, grants, etc.

The process of decentralization may be seen as one of selectively broadening the "decision-space" or range of choice of local agents, within the various spheres of policy, management, finance, and governance (Bossert 1998). The central principal voluntarily transfers formal authority to the agent in question in order to promote its health policy objectives. The degree and nature of this transfer differs by case, and shapes the function of the principal-agent relationship and the decentralized system as a whole. The case studies presented in this report do not seek to quantify formal decision-space, but rather to offer a preliminary characterization of its range—narrow, moderate, broad—within an array of health system functions. The nature and extent of decision-space is presented through "maps," similar to Map 1 presented below, which are complemented by an analysis of the history and context of decentralization reforms.

Figure 1 Standard Decision Space Map

FUNCTION	RANGE OF CHOICE		
	NARROW	MODERATE	WIDE
Finance			
SOURCES OF REVENUE	⇒	⇒	⇒
ALLOCATION OF EXPENDITURES	⇒	⇒	⇒
INCOME FROM FEES & CONTRACTS	⇒	⇒	⇒
SERVICE ORGANIZATION			
HOSPITAL AUTONOMY	⇒	⇒	⇒
INSURANCE PLANS	⇒	⇒	⇒
PAYMENT MECHANISMS	⇒	⇒	⇒
CONTRACTS WITH PRIVATE PROVIDERS	⇒	⇒	⇒
REQUIRED PROGRAMS/NORMS	⇒	⇒	⇒
HUMAN RESOURCES			
SALARIES	⇒	⇒	⇒
CONTRACTS	⇒	⇒	⇒
CIVIL SERVICE	⇒	⇒	⇒
ACCESS RULES			
TARGETING	⇒	⇒	⇒
GOVERNANCE RULES			
LOCAL GOVERNMENT			
FACILITY BOARDS	⇒	⇒	⇒
HEALTH OFFICES	⇒	⇒	⇒
COMMUNITY PARTICIPATION	⇒	⇒	⇒

There are other channels of control that the central government has to shape or override local decisions. The central government may offer incentives to local decision-makers to encourage them to make choices in favor of national priorities. These incentives can be in the form of matching grants in which the national government will provide funding for a priority activity if the local government will provide counter-part funding and implement the activity. Incentives can also come in the form of guidelines – for instance, model fee schedules – and other forms of technical assistance to upgrade local capacity and to influence local decisions. They may also come in the form of specific training and skill development in the areas that would strengthen central priorities. There may also be mechanisms for special recognition of achievements in priority areas – such as competitions for highest immunization rates among municipalities. Finally, the central government can simply provide services that are centrally directed – such as continuing to provide malaria control programs and vaccination campaigns run and funded by the central government.

A central question however, is how do the different choices allowed at the peripheral level affect the performance of the system. We often expect health sector reforms to produce improvements in equity, efficiency, quality and financial soundness of the health system.

(Bossert, 1998) For us then it will be important to assess how decentralization as implemented in Chile, has affected system performance along these dimensions.

This preliminary report presents the case of health sector decentralization in Chile, one of the first countries in recent years to adopt and implement a significant decentralization of a highly centralized national public sector health system. We seek to evaluate several closely related dimensions of decentralization policies. First, we review the background to the decentralization process – the characteristics of the system prior to decentralization. Second, we assess the process by which decentralization was adopted and implemented. Third, we look at the ways in which the reforms affect local health sector decision-makers and the range of choice available to them, using our analytical framework and "decision space" analysis (see below). Finally, we analyze the effect of decentralization on performance of the health system in providing equity, efficiency, quality, and financial soundness.

OVERVIEW OF THE HEALTH SYSTEM IN CHILE, 1970-1998

Chile is a middle-income country with a population of 14.8 million and a per capita GNP of US$4,810 (World Bank 1998). It has a long history of public health investment, originating with the establishment of the General Sanitary Bureau in 1887 and later the Ministry of Hygiene and Social Security and Assistance in 1924. Government involvement in vaccination and maternal and child nutrition programs has been pervasive since the 1920's. The country's health indicators are exceptionally good by regional standards: life expectancy is 72 years, and the infant mortality rate is 14.3 per thousand. These figures compare favorably to those of OECD countries, particularly given that per capita income and health expenditures are considerably lower [get *figures*]. Chile is considered to be well along in the epidemiological transition, with non-communicable and chronic diseases having increased from 53.7% of all deaths in 1970 to 75.1% in 1990 (Albala and Vio 1995). Favorable health status indicators are accompanied by near universal literacy and completion of primary education, drinking water and sanitation infrastructure availability[1], and the population's heavily urban character (83.3%) (Azevedo 1998).

Prior to 1979, Chile's health system was predominantly public, administered by a centralized National Health Service (SNS) established in 1952 on a model similar to the British National Health System. Under this model general tax revenues and social security contributions from workers funded a nationally managed system of hospitals and primary care facilities. The National Medical Service for Employees (SERMENA), was established in the 1940s as a social security service to provide preventive services to employees in the formal sector, funded through a mandatory payroll contribution[2]. In 1968, SERMENA's role was expanded to give contributors access to private providers, establishing the basis for the preferred provider system adopted later. As of 1979, the SNS covered approximately 60% of the population, including blue-collar workers and the indigent population, while SERMENA covered the 25% of the population consisting in white-collar workers and their dependents. The private sector covered another 10% of the population, and the military accounted for the remaining 5%. The three decades following the establishment of the SNS saw a dramatic decline in the infant mortality rate, from 136.2 per 1000 live births in 1950, to 82.2 in 1970, and 31.8 in 1980. Life expectancy rose from 53/56.8 years in 1950 to 67.6/74.6 years in 1980 (Azevedo 1998). By 1980, the SNS accounted for 80% of public expenditures on health (Reichard 1996).

In 1979, the Pinochet military government introduced sweeping reforms, involving both privatization and decentralization of Chile's health system. In the sphere of health financing, a separate public system was established through the creation of the National Health Fund (FONASA), which integrated both the publicly funded SNS and the contributory SERMENA.

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[1] Safe drinking water is available to 95.2% of the urban- and 73.3% of the rural population, and 73% of the urban population is covered by the sewer network (González-Reyes, 1995).

[2] This contribution was equivalent to 1% of taxable earnings and pensions of employees, plus an additional contribution by each social security institution of 1% of taxable earnings plus 2% of total pensions paid (Raczynski 1994).

FONASA operates as an independent directory of the Ministry of Health, and is responsible for the management of the public financed system. FONASA offers two types of coverage through a voucher system, which permits members to purchase services from private providers. Service prices are fixed through a centrally determined scale (arancel FONASA), and members provide co-payments originally determined by the level of quality of service elected (group 1, 2, or 3). Public sector coverage is complemented by the private health insurance market, organized under the rubric of institutions known as ISAPRE (Instituciones de Salud Previsionales). The ISAPREs, originating in the 1981 social security reform, are also financed through the 7% health insurance fee paid by members. They have expanded to comprise approximately 20 "open" institutions, and an additional 12 that are limited to employees of specific companies (self-insurance). Currently, some 26% of the population is covered under the ISAPRE system. As of 1990, the ISAPRE are regulated by the newly created Superintendencia de ISAPRE.

With respect to health service delivery, the public sector (SNS) was restructured and decentralized (deconcentrated) through the establishment of 26 (now expanded to 28) regional health services. These regional entities, while legally autonomous, are administered by civil service public employees and controlled by the Ministry of Health through the central authority known as the National System of Health Services (SNSS). The regional health services provide all public secondary and tertiary care in the country through a network of 188 hospitals of varying sophistication, as well as a number of associated clinics and health posts. The Ministry of Health also controls CENABAST, responsible for the purchase and supply of all SNSS equipment and supplies, and the Public Health Institute (ISP), responsible for public health, hygiene, and disease control.

Beginning in 1981, nearly all responsibility for primary health care and education was devolved to the country's 308 municipal governments. This transfer took place within a more generalized program of administrative decentralization, which included the establishment of 13 regional governments and the transformation of municipal governments throughout the country by the 1975 municipal organic law. Municipal boundaries were also redrawn in an effort to homogenize municipalities according to socioeconomic group, resulting, among other things, in a doubling of the municipalities in the Santiago metropolitan area (Nickson 1995). The new legislation authorized the municipalities to establish their internal organization for administration and service delivery and to contract services directly from the private sector. It also reformed the staffing structure, and liberated pay scales from the "single scale" of public functionaries. Staffing levels were restricted to no more than one functionary per 500 inhabitants, and personnel expenditures could not exceed 35% of the municipal budget.

Municipal governments were also given significantly greater fiscal authority. Alongside exclusive control over vehicle permits, waste disposal charges, and commercial and industrial permits, the municipalities were also granted direct control over 40% of property taxes. The Common Municipal Fund (FCM) was established whereby 60% of property tax revenues from all municipalities (with wealthier municipalities providing an additional contribution from industrial and commercial permit revenues) was redistributed to municipalities according to a per capita allocation formula based on level of rurality and poverty. Formula-based central government transfers complement these revenues. While municipalities have little or no authority to set taxes, these reforms increased the overall revenues available to them by six times between 1976 and 1988 (Castañeda 1992).

This administrative reform, however, was not accompanied by political decentralization. On the contrary, the formerly highly politicized and fiscally undisciplined municipalities were brought under the direct control of the central government. Throughout the Pinochet period mayors, like regional governors (*intendentes*), were directly appointed by the President of the Republic and were subject to central government authority. Local participation was circumscribed by the replacement of municipal councils with Communal Development Councils (CODECOs) representing approved business and professional interests. As of 1977, the leadership of neighborhood organizations (Juntas de Vecinos) was directly selected by the regional governors from candidates nominated by the local mayors.

In the sphere of primary health care, the vast majority of the clinics and health posts previously administrated by the SNS(S) were turned over to the municipal governments in a gradual process spanning the period of 1981 to 1989. The transfer took place in two waves, the first 20% of clinics being turned over in 1981 and 1982, after which the process was halted for several years due to the country's economic crisis and accompanying political instability (discussed at greater length below). Between 1987 and 1989, the majority of the remainder of the primary care facilities were transferred to municipal government management throughout the country.

Under five-year renewable agreements, primary care infrastructure and personnel were transferred directly to the municipalities along with the responsibility for continuing and permanent maintenance and health service provision. The agreements further stipulated that the municipal facilities were to develop at the same pace as comparable facilities remaining under SNSS administration. Municipalities were given three options for the administration of the primary health care facilities: (1) direct administration; (2) administration through non-profit municipal corporations with the participation of the mayor; and (3) "delegated administration", similar to the second option, but without the participation of the mayor and with the possibility of partial financing from the municipality. Almost all chose direct administration through the establishment of a municipal department of health. The main divergence from this trend occurred in largest municipalities, situated in the Metropolitan Region, which mostly opted for management by municipal corporations.

Despite the devolution of primary health care management to the municipalities, norms and health care delivery programs continued to be centrally determined by the SNSS. Municipal clinics were required to provide: a child and adolescent program, an adult program, an OB-GYN program including pre- and perinatal care, a dental program, an environmental program, and complementary activities such as home visits, group education, vaccinations, etc. Municipal health facilities were required to subject themselves to technical supervision by the Ministry of Health. Moreover, in what came to be one of the most controversial elements of the decentralization program, primary health care personnel were removed from the status of public functionaries, and municipal governments were given the authority to contract these personnel under the labor code governing private employees.

Alongside the newly established municipal departments of health and health corporations, the regional health services under the SNSS continued to provide primary care as well. The SNSS has exclusive responsibility for primary care in the municipalities of Aysén, where extremely low population density made municipal management difficult, and the Metropolitano Central, where a failed attempt at private management resulted in the return of primary care administration to the public sector in 1990. It is noteworthy that in the latter case, clinic administrators refused to consent to the transfer of responsibility to the municipal

government, preferring a return to the SNSS. In other municipalities, primary care is either the exclusive responsibility of the municipal government or is shared by municipal and SNSS establishments. As of 1993, the SNSS operated only 173 separate primary care facilities in the country, in comparison with the nearly 1,500 operated by the municipalities (Carciofi et al. 1996). However, SNSS also provides primary care in hospitals and adjacent facilities in some municipalities. In all cases, the SNSS is the sole public sector provider of secondary and tertiary care, and primary care facilities must refer publicly funded patients to these centers.

The municipal primary health care system receives approximately 10% of public health care funds in over 1500 clinics and health posts (Carciofi 1996). The system is financed primarily by FONASA through a mechanism known as the FAPEM (Facturación por Atenciones Prestadas en Establecimientos Municipales). The FAPEM, which reimburses municipal clinics and health posts for services rendered on a fixed price scale, generated rapidly escalating costs in its first two years. In 1983, cost ceilings ("techo FAPEM") were established for the municipalities on a case-by-case basis. These ceilings were renegotiated each year based on a complex process involving: the national budget process, regional health care allocations, the establishment of cost ceiling by municipality, and finally the distribution of funds among clinics and posts within a municipality.

The FAPEM system has been criticized on several grounds, including the fact that the FAPEM price scale ("arancel") is not based on an adequate study of costs and does not differentiate between service costs in rural vs. urban areas, etc. The system both tends to promote curative over preventive care and does not provide incentives for quality or efficiency. Moreover, the FAPEM system has been shown to be regressive in its distributive effects, with each of the wealthiest two deciles of municipalities receiving 40% greater funding than any of the remaining deciles, a point to which we will return below.

The gap between the FAPEM ceiling and the cost of services rendered by the municipalities steadily widened during the 1980s, increasing from 8% to 30% of FAPEM expenditures from 1981 to 1986 (Gonzalez Reyes 1995). In an effort to bridge this gap, municipalities are devoting an increasing level of local revenues to health care with negative effects on equity. Between 1990 and 1993 municipal funding for health has increased by 91%, now comprising 30% of all public sector spending on primary health care (Carciofi 1996). The municipalities characterize this expenditure as "deficit" spending required to compensate for the lack of full reimbursement for services rendered, which the municipalities consider a central government responsibility. The central government, by contrast, considers municipal health care expenditures to be voluntary "counterpart" spending to improve health care according to local preferences.

Alongside the decentralization process, the Pinochet government oversaw a major reduction of health expenditures, equal in real terms to a 10% decline between 1974 and 1983 (Reichard 1996). Interestingly, this came in the context of the doubling in real terms of social spending between 1970 and 1988. This increase in the social sector as a whole is attributable primarily to the government's subsidy of the privatization of the pension system, and to social welfare spending, including emergency employment programs. The reduction in health spending was partially explainable by the shifting of social security contributions to the private sector through the establishment of the ISAPRE system. The rising share of the private sector in health spending is also suggested by the estimated drop in central government spending from 61% of total public expenditures on health in 1973 to 35% in 1992. It is estimated that whereas only 35% of public financing came from the users in 1974, this was increased to 65% in

1989 (Montoya-Aguilar and Marchant-Cavieres 1994). Also, because health expenditures were 55% dependent on payroll contributions, wage deterioration during this period brought decreased revenues and expenditures (Castañeda 1992).

Despite the decline in public health expenditures, by targeting and increasing coverage of services to maternal and child health as well as the poor, health status indicators continued to improve, though more slowly than in the previous period. Infant mortality, maternal mortality, and adult mortality all continued to fall until 1984 after which they stagnated for a period of two to five years, resuming a more gradual decline thereafter (Montoya-Aguilar and Marchant-Cavieres 1994). Likewise, the number of medical consultations per capita in general clinics increased from 0.92 in 1976 to 1.24 in 1983, falling again to 1.12 in 1989. Publicly owned health infrastructure experienced a major deterioration throughout this period, leading to increasingly abysmal conditions throughout the 1980's (Lake 1987, 1991).

POLICY PROCESS & THE HISTORY OF DECENTRALIZATION

The policy process leading to the decentralization of the Chilean health system must be seen within the larger context of the Pinochet government's neo-liberal political economic agenda. This agenda was formulated primarily by economists educated at the University of Chicago (the famed "Chicago Boys") who gained influence with the military junta following the 1973 coup which overthrew the socialist Allende government.

When the military government assumed power following the 1973 coup, policy sectors were divided between the various branches of the armed forces, the Navy receiving responsibility for economic policy and the Air Force taking over social policy. Although the Chicago Boys' policy proposals had been circulated among the military leaders well before the coup, they were bypassed in favor of a policy more favorable to status quo Chilean business interests. The government turned, instead, to former Christian Democrat ministers Sergio Molina and Raul Saez, and ex-president of the Central Bank, Carlos Massad, associated with the structuralist economic school developed by CEPAL (Economic Commission for Latin America).

The 1974 economic crisis, however, provided the impetus for the ascendancy of the neo-liberal technocrats who had gained favor with the increasingly powerful General Pinochet. The Navy was relieved of responsibility for economic policy, which in 1975 was transferred to new Minister for Economic Coordination Jorge Cauas. Social spending in all sectors was drastically reduced, and by 1976 inflation was reduced from 600 to 200 percent. This fiscal austerity program was accompanied by a major privatization initiative; between 1973 and 1980, Chile's 460 major state-owned firms were reduced to 23. The relationship between the military government and the business sector was strengthened by deregulation leading to the consolidation of capital. It is estimated that about two-thirds of all Chilean capital was controlled by six major firms by 1980 (Gwynne cited in Scarpaci 1987). Employers were permitted to reduce retirement and health care contributions in the interest of lowering labor costs and improving Chilean firms' international competitiveness.

Social policy, including health, underwent a somewhat slower transformation. Because of the significance of the public sector in Chile's health system, it was of major relevance to the military government's reform agenda. As early as November of 1973, Air Force Colonel and newly proclaimed Minister of Health Alberto Spoerer indicated the military government's attitude toward the universal coverage policies of the past, stating that, "Health care is not given; rather it must be obtained by the people" (Scarpaci, 1987). Nonetheless, while the 1974 inflationary crisis rapidly propelled the neoliberal technocrats to the helm of economic policy, the Air Force under General Leigh continued to direct social policy for several years. Leigh focused early efforts on labor reform, focusing on traditional Chilean business *gremio* interests. The new Labor Code and the Social Statute of the Firm, introduced by Leigh, were effectively derailed by Pinochet, who subjected them to long periods of study by the commission or simply blocked implementation when approved. The ascendancy of Pinochet and the Chicago Boys in the wake of the economic crisis ultimately brought an end to Air Force control of social policy. In 1978, General Leigh and several other senior air force officers were removed, and social policy was essentially given over to neo-liberal reformers such as Harvard-educated economist, Jose Piñera, and engineer Hernan Buchi.

The deconcentration of the national health system and the devolution of primary health care provision to the municipalities can be seen within this larger move toward privatization

and reduction of public sector expenditures. Then Sub-secretary of Health and (Hacienda), Hernán Buchi, stated: "[T]he other important element in the change and development which Chile underwent was decentralization…In the measure in which the management of the health sector could be decentralized, it would be easier to make it competitive with the private sector and more feasible in the future to gradually make the transfer from state actions to private actions" (quoted in Duarte 1993). The SNS, meanwhile, was seen by reformers as too big, too inefficient, and politically too problematic. In 1977, the Ministry of Health issued the following policy statement:

[The SNS's] size made it practically unmanageable. Its centralism sapped local initiatives, vital in a country with the geography of Chile. Its power converted it into a political force with a policy far removed from health care. Monopoly, administrative chaos, central management, and a powerful political arm skillfully managed by demagogic trends, have carried it to an intolerable situation in some respects for the health of the country (quoted in Scarapaci 1987).

On a more technical level, devolution of primary health care was argued to: (1) bring decision-making closer to the local level; (2) make programs more appropriate to local reality; (3) provide greater flexibility in health sector management; (4) increase citizen participation in health promotion; (5) mobilize municipal resources for the health sector; and (6) promote intersectoral coordination between health and public works, etc. (Duarte 1993).

The Chilean health reform distinguishes itself from that of other countries in that it essentially and deliberately involved no participation on the part of the electorate, consumers, or providers. This was deliberate on the part of the military government, which increasingly acted to marginalize the *Colegio Medico* (Chilean medical society) from decision-making. Decree 3601 reduced the legal status of the *Colegio* to that of a voluntary professional organization with no official membership in policymaking bodies and eliminated membership in the *Colegio* as a requirement to practice medicine in Chile (Scarpaci 1987). This was part of a broader move to "depoliticize" and streamline the military government's "technical" policy process as determined by the *Junta* and ODEPLAN (National Planning Office). It likewise corresponded to a concerted effort to dismantle Chile's formerly powerful unions and to eliminate them as a source of organized opposition to neo-liberal reform (Martinez and Diaz, 1996).

The elimination of the *Colegio* was of particular importance to the formulation and implementation of decentralization because of its strong opposition to the reform efforts of the regime. Physicians and health care professionals within the SNS were opposed not only to the privatization of insurance through the creation of the ISAPRE, but also to the devolution of primary health care. The decoupling of primary health care from the SNS(S) and the removal of municipal primary care professionals from the status of public functionaries had major technical and political consequences for Chilean health care providers. First, the creation of the municipal subsector was seen as deleterious to the integrity of the public health care system, making management, referrals, and technical supervision more difficult. Centralized SNSS programming of municipal service delivery activities was held to create disincentives to quality provision of care and organizational strengthening of the municipalities.

Likewise, the concentration of power in the centrally appointed mayor and the absence of qualified management personnel in many municipalities disrupted technical management of primary care facilities. Perhaps most significantly, from a political standpoint, the transfer of municipal health care workers to the private sector introduced major professional problems and disincentives for providers. Not only were salaries freed from the requirements of the

public functionary scale, but municipal health care professionals were effectively isolated from the opportunities for promotion and advancement which had previously existed in the national system.

These concerns led the *Colegio* and the union of healthcare workers to stage protests against the devolution process throughout the course of the mid-1980's. These protests coincided both with the larger organized union protests throughout the country as well as a major economic crisis in 1982-83. Protests and work-stoppages led first by the Confederation of Copper Workers (CTC) and later by the broad union coalition represented by the National Workers Command, brought considerable upheaval throughout 1983-84. All of these factors contributed to the aforementioned suspension of the devolution process in 1982. The introduction of the FAPEM ceilings on health cost reimbursements also slowed municipal government requests for primary health care facility transfers, and the Ministry of Health took a cautious approach to the evaluation of the initial wave of devolution. The economy experienced a vigorous recovery after 1984, resulting from the application of corrective policy measures, especially in exchange rate strategy. This recovery and the government's severe repression of political dissidence led to the resumption of the devolution process in 1986, and by 1989 upwards of 90% of primary health facilities had been transferred to the municipalities.

The period following the return to democratic government in 1990 has seen some significant revisions of the reforms undertaken in the Pinochet period. Under the Aylwin and Frei administrations, there has been a significant expansion of health care spending in general and a renewed focus on primary care. Between 1990 and 1993 there has been a 40% increase in overall per capita public expenditures on health (Montoya-Aguilar and Marchant-Cavieres 1994), and a 53% increase in real per beneficiary public spending devoted to primary care (Duarte 1993). The greatest increase in resources has been in the lowest income quintile, which experienced a 119% increase in this three year period, as compared with an average increase of 86%.

Meanwhile, approximately US$ 450 million has been allocated for the recuperation of health infrastructure in the five-year period following 1990, including the construction of three new hospitals and the modernization of secondary care facilities (Azevedo 1998). Beginning in 1990, the Program for the Reinforcement of Primary Care, supported by a grant of $10 million from USAID, was instituted, including investment in primary care emergency facilities, expansion of primary care facility working hours, purchases of medicine, establishment of basic laboratories, etc. This was accompanied by a capacity-building program for municipal primary care management, particularly through the Rural Health project oriented to the improvement of services in the most sparsely populated municipalities. Infant, maternal, and adult mortality rates, as well as mortality rates from infectious disease have resumed their decline in the post-1990 period. Notably, increased spending and continuing improvement of health indicators has been accompanied by no perceived improvement in quality; on the contrary, public opinion polls show patient satisfaction to have actually declined since the Pinochet era.

Continued rotating strikes by the national union of health care workers in the early 1990s have resulted in the adoption of the Primary Health Care Workers Statute. This law provides a centrally mandated pay scale for municipal health care workers, increases in which are tied to increases in the public functionary "single scale". This has resulted in the absorption of 84% of the increases in primary health care expenditure discussed above by personnel costs (SUBDERE 1996), as well as to a considerable reduction in the management flexibility afforded the municipalities in human resource and budget management (see below).

As of 1994, the FAPEM system has been changed from a cost reimbursement scheme to a capitated allocation system in which per capita allocations are based on number of registered beneficiaries adjusted by formula according to the degree of poverty and rurality of the municipality in question (SUBDERE 1996). Health care centers attending less than 2,500 beneficiaries were assigned fixed rather than per capita allocations in order to insure fixed cost coverage. The capitation system required a complicated process of beneficiary inscription at the primary care clinics and health posts, leading to a delay in full implementation until 1997. Preliminary results indicate that under the new system there has been an increase in the amount and rate of growth of central government contributions to municipal primary care, as well as a corresponding 5% decrease in the annual rate of growth of municipal contributions (SUBDERE 1996: 30 ff).

The return to democracy has also brought about major changes in municipal government. As of 1992, local constituencies directly elect municipal councils and mayors, and Economic and Social Councils (CESC) incorporating broader citizen participation have replaced the CODECOs.

ANALYSIS OF DECISION SPACE

The local decision space established through the decentralization process, and the changes brought by the post-1990 revisions of this process can be described by the following "maps" of formal decision space for 1988 and 1996. These maps present the range of choice (narrow, moderate, and wide) available to local governments in the functional areas of financing, expenditures, health service delivery, human resources, access rules, and governance. The general assessment of decision space in 1988, Figure 2 below, shows the relatively broad range of options afforded to municipal governments. This decision space was established primarily through the devolution of the authority to negotiate contracts and salaries under the private labor code and to manage budgets with revenues from FAPEM and the FCM as well as complementary municipal funds.

By 1996, however, the decision space allowed to municipalities had been significantly reduced. As is evident in Figure 3 below, the medical profession's reassertion of its power under the democratic government, and the resulting Statute of Primary Health Care Workers, has radically changed the range of choice over human resources available to the municipalities. The reintroduction of a centrally determined employment norms and a national pay-scale for municipal primary health care workers, indexed to public functionary salary increases, significantly decreases the range of options available to municipal governments, both with respect to budgeting and personnel. This in comparison with the wide decision space afforded by the scheme of local level negotiation under private sector labor laws prevailing in 1988.

As discussed above, the 1994 FAPEM reform has not appreciably changed the range of options available to municipal governments. Preliminary results indicate that governments have received higher levels of reimbursement under the democratic governments than previously, and there have been no major changes in distribution other than the favoring of municipal health corporations over the directly administrated municipal health departments. Under the new per capita allocation system, the municipalities retain a moderate range of financial decision space through the provision of earmarked central transfers. This space is broader for the wealthier municipalities because of the option to complement central transfers with own-source revenues. While this inequity in decision space is improved somewhat

through the redistributive effects of the FCM, the wealthier municipalities still spend considerably more per primary health care beneficiary than the poorer muncipalities. While the poorer muncipalities contribute less complementary funds to primary care facilities in absolute terms, this contribution is equal to 5.3% of muncipal income for the poorest quintile as opposed to only 2.8% for the wealthiest quintile (Duarte 1993).

Under the rubric of governance, a significant broadening of decision space occurred in 1992 through the institution of direct municipal elections. Prior to this date, mayors were appointed by the President of the Republic and were, consequently, direct representatives of the authority of the central government. Mayors exert significant power over municipal primary care facility governance, either through direct control of the municipal health department or through presidency of the board of municipal health corporations. The democratization of municipal government in 1992 brought much greater flexibility and the opportunity for greater citizen participation in local decision-making. Whereas in some municipalities the mayor is now elected separately from the municipal council, in most the mayor is the council member with the greatest number of votes. These councils are, in turn, advised by a broader Economic and Social Council, incorporating representatives of the organized citizenry (neighborhood, business, producer, and church groups).

Figure 2. Formal Decision Space Map of Primary Health Care in Chilean Municipalities in 1988

FUNCTIONS	RANGE OF CHOICE		
	NARROW	MODERATE	WIDE
FINANCE			
SOURCES OF REVENUE		EARMARKED CENTRAL TRANSFER (FAPEM) NEGOTIATED WITH MUNICIPALITY FREEDOM TO PROVIDE LOCAL FINANCING CONSTRAINED BY SCARCITY OF FREELY AVAILABLE MUNICIPAL FUNDS	
EXPENDITURES			ALLOCATION OF EXPENDITURES ACCORDING TO LOCAL CRITERIA (SUBJECT TO TECHNICAL PROVISION NORMS)
INCOME FROM FEES	NO FEES FOR MUNICIPAL SERVICES		
SERVICE ORGANIZATION			
HOSPITAL AUTONOMY	NOT APPLICABLE		
INSURANCE PLANS	NO SEPARATE INSURANCE		
PAYMENT MECHANISMS		SALARY BONUSES ALLOWED	
REQUIRED PROGRAMS & NORMS	DETERMINED BY SNSS		
HUMAN RESOURCES			
SALARIES			BROAD FREEDOM TO SET SALARIES AND DECIDE UPON CONTRACTING ACCORDING TO LOCAL REALITY AND RESOURCES
CONTRACTS			
CIVIL SERVICE			MUNICIPAL STAFF COVERED BY PRIVATE CONTRACTING LAW
ACCESS RULES			
TARGETING	FREE ACCESS FOR PUBLIC HEALTH SYSTEM BENEFICIARIES)		
GOVERNANCE RULES			
LOCAL GOVERNMENT	MAYORS DIRECTLY APPOINTED BY PRESIDENT		
FACILITY BOARDS		3 OPTIONS FOR PRIMARY HEALTH CARE FACILITY GOVERNANCE AND HEALTH OFFICES	
HEALTH OFFICES			
COMMUNITY PARTICIPATION			COMMUNITY PARTICIPATION AT DISCRETION OF MUNICIPALITY

Figure 3. Formal Decision Space Map of Primary Health Care in Chilean Municipalities in 1996

Functions	Range of Choice		
	Narrow	Moderate	Wide
Finance			
Sources of Revenue		Earmarked central transfer (FAPEM) negotiated with municipality	Freedom to provide local financing (constrained only by available municipal funds)
Expenditures		Allocations limited by salary and hiring constraints since salary expenditures are high proportion of PHC expenditures.	
Income from Fees	No fees for municipal services		
Service Organization			
Hospital Autonomy	Not applicable		
Insurance Plans	No separate insurance		
Payment Mechanisms		Salary Bonuses Allowed	
Required Programs & Norms	Determined by SNSS		
Human Resources			
Salaries	New Statute established central norms for salaries		
Contracts		Contracts limited by Statute	
Civil Service	Statute establishes new civil service for municipal health workers		
Access Rules			
Targeting	Free access for public health system beneficiaries		
Governance Rules			
Local Government			Mayors elected
Facility Boards		3 options for primary health care facility governance and health offices	
Health Offices			
Community Participation			Community participation at discretion of municipality

The present study seeks to analyze in depth the impacts of health sector decentralization suggested in broad strokes by foregoing maps of decision space (see Figures 2 and 3 above). The study seeks to assess the variations in resource allocations and in performance that have emerged in the process of decentralization at the municipal level.

Using the framework outlined in the introduction, the current study attempted systematically to assess the variations that emerge with decentralization at the municipal level. The framework asks two basic questions: 1) what kinds of choices did local governments make now that they had additional discretion (wider "decision space")? And 2) did these choices make any difference in the performance of the system in terms of equity, efficiency, quality and social soundness? This was an exploratory analysis which depended on previous studies, the data available at the national level, and access to field cases.

This study was carried out in two phases. The first is a national-level general analysis of associated with the management of primary health care as well as variables related the municipalities' socioeconomic milieu. First a literature review of existing studies and evaluations was completed. Then a national level data set was created specifically for this project based on data available from the Ministry of Health and the Ministry of the Interior. This information was first subjected to single variable analysis, followed by a more in-depth description of possible cause-effect relationships using multiple variable regression analysis. The results of this national level quantitative analysis were then complemented in a second phase of individual case studies, carried out in 5 municipalities.

NATIONAL DATA ANALYSIS

Literature Review

The literature on the municipal health care system has been extensive, focusing primarily on issues of equity and efficiency in financing for which there is available data, and to a much lesser extent on issues of quality.

Two studies, conducted in 1986 and 1988 respectively, analyzed the early impacts of decentralization on primary care facilities at the municipal level. The 1986 study (Secretaría de Desarrollo y Asistencia Social 1988) was conducted using a sample of 30 municipalities which had taken on the management of primary care facilities in 1981. This study found that since assuming health facility management, the municipalities had significantly expanded primary care infrastructure (45% increase in number of square meters of facilities and a 35% increase in number of examination rooms built). Dental equipment availability was increased by 85%, and basic lab equipment, previously unavailable in any of the thirty facilities, was made available in seven clinics. The number of service hours offered per beneficiary was increased by 80% in rural areas for physicians and dentists, and by 45% for paramedical personnel. The number of medical consultations per hour was increased to 3.8 in municipal establishments, in comparison with 2.8 in similar SNSS facilities.

A 1988 study (Jimenez and Gili 1988) based on interviews in visits to primary care facilities in the Santiago Metropolitan Area found a high degree of compliance (80%) with Ministry of Health standards concerning infrastructure and equipment, supplies, and administration. Budget concerns, low salaries, and inadequate compliance with human resource and supervision norms were cited as problems.

With respect to central government financing, González-Reyes (1995) demonstrates the increasing divergence between recorded, increasing expenditures and actual reimbursements since the institution of the FAPEM cost ceilings in 1981, summarized below in the Table 1.

Table 1. FAPEM versus Expenditures per Year

YEAR	FAPEM (THOUSANDS OF PESOS)	SERVICE EXPENDITURES (THOUSANDS OF PESOS)	FAPEM/ EXPENDITURES
1981	129632	129632	100.0
1982	2004331	2184160	91.8
1983	1704730	2126846	80.2
1984	1688738	2149808	79.4
1985	1498273	1937931	77.3
1986	1597975	2064794	77.4

Castañeda (1997) shows that the reductions in FAPEM support between 1982 and 1985 were felt much more severely in the rural (28% reduction in real expenditures) than in the urban municipalities (9% reduction). This larger reduction in expenditures is attributable in part to a smaller compensatory increase in municipal own-source contributions to health spending in rural areas (158%) than in urban areas (580%) over this period.

Duarte (1993) compares per capita own-source contributions of municipalities to health care by income quintile for the period from 1989, the first data of full decentralization, to 1992. He found that the municipalities in the highest quintile contributed significantly more resources per beneficiary in absolute terms than those in the lowest quintile, while per beneficiary contributions in the middle three quintiles appear to have been relatively equal. However, when these own-source contributions are considered as a percentage of total municipal income, the poorest quintile municipalities were shown to spend nearly twice as much as the wealthiest quintile municipalities (5.3% for quintile 5 vs. 2.8% for quintile 1).

Larrañaga (1996) demonstrates that the Common Municipal Fund has a significant redistributive effect on municipal resources. Prior to FCM redistribution, municipalities in the wealthiest decile were found to have a per capita municipal income level seven times greater than that of the poorest decile. The FCM reduced this difference to a factor of 2.5, and brought the first through eighth deciles into near equilibrium of available municipal income per capita.

Carciofi et al.'s (1996) analysis of the 1990 CASEN household census appears to reveal a relatively equitable distribution of primary care expenditures and comparable accessibility of primary care among high- and low-income populations. However, their more detailed analysis of municipal public resources tells a different story. The level of resources per beneficiary received by the highest income decile of municipalities is more than twice that of the remaining deciles. When using the Solidarity and Social Investment Fund's (FOSIS) poverty indicator, the highest two deciles obtain between 50% and 100% more public resources for primary health care than the remaining deciles. This is, in part, attributable to the aforementioned higher level of complementary own-source funds proportioned by the wealthier municipalities.

However, analysis of the central government FAPEM transfers indicates that, here too, there is a regressive tendency. In fact, the central government transfers per beneficiary to the muncipalities in the wealthiest two deciles are more than 40% greater than to the remaining deciles. Carciofi et al. (1996), Larrañaga (1996), and Duarte (1995) all concur in this conclusion, and identify this regressive tendency as a significant indicator of inequity in the FAPEM system. This tendency is attributed to several factors, including: (1) the ability of wealthier municipalities, through complementary own source funding, to hire more personnel and thus produce more reimbursable services; (2) the influence of political factors within the aforementioned FAPEM negotiation process; and (3) the shift of beneficiaries in the wealthier municipalities from the public sector to the ISAPRES, making historic FAPEM allocation formulae obsolete. It is argued that the new capitated FAPEM system will rectify these problems (Larrañaga 1996), but because the per capita system only began to be gradually instituted in 1997 no reliable data is as yet available to confirm this assertion.

With respect to the relationship between quality and efficiency, Carciofi, Cetrángolo, and Larrañaga (1996) find that despite a 53.9% increase (in real terms) in public expenditures on primary care, there was no perceptible improvement in user satisfaction. Polls indicate that whereas in 1988 the Pinochet government's health policies obtained 33% public approval, in 1993 under the Aylwin government approval declined to 19% (Carciofi et al. 1996). Moreover, a Centro de Estudios Públicos survey conducted in 1993 showed that 65% of those polled considered that the quality of available health services had remained the same or declined in the last five years. Fifty-five percent of those surveyed did not perceive the aforementioned increase in public health spending, considering that expenditures had remained the same or declined (CEP 1993). While these public opinion poll-based statistics are not conclusive and are not specific to the municipal primary health care system, they do raise significant questions regarding the efficiency and quality of public health services under the new regime.

PRESENT NATIONAL LEVEL DATA ANALYSIS

The current study is based on both national level data analysis and five case studies of specific municipalities. In this section we review the national level data that was collected and analyzed for this project. The national level data base was created covering the period from 1990-1996 and including 318 of the country's 334 municipalities, the smallest 16 having been excluded from the study. Data was obtained primarily from the Primary Care Department of the Ministry of Health and covers both regular information collected by the Ministry of Health and financial information provided by the municipal governments via the Subsecretariat for Regional Development (SUBDERE) within the Ministry of the Interior. The variables that were available included basic data on municipal characteristics such as size, rurality, socio-economic vulnerability, as well as data on financing from central and municipal sources, expenditures within the health sector, utilization of health services, human resources (hours and salaries), and institutional capacity. Other data sources were either not in a compatible form or could not be obtained for the project.

As we noted above, this is an exploratory study using a new framework for analysis and attempting to gather available data sources to assess issues raised by the framework. We found early on that the data available was quite limited and restricted the kinds of analysis that could be done. The national data base used in this study covers only the period 1990-1996, with some indicators of an even more limited period. Initially it was hoped that the data would allow two types of comparisons that would assess the impact of decentralization on local choices and on

performance. We had hoped to have access to data from the period before decentralization in the 1980's so as to assess changes from before to after decentralization. This was not possible since data for the period prior to 1990 was unavailable. Even data that had been previously analyzed, such as Duarte's data on 1989, was no longer in accessible form to be included in our data base.

We had also hoped to compare centrally controlled primary care facilities to those controlled by municipalities. While we have been able to focus our field cases on this issue we have not been able to use comparative data analysis to do quantitative comparisons. As is usual in centralized budgeting, the data for expenditures and even for service delivery were not disaggregated to the municipal level, making quantitative comparisons impossible.

We are therefore limited in the kinds of analysis that we can do to assess the impact of decentralization. We cannot use the data to determine the difference between decentralized and centralized situations. However, we can assess variations in decentralized municipalities and try to explain why some municipalities were able to allocate more or less to health care as well as why some were more successful in achieving measures of performance.

Therefore the analysis here focuses on explanations for the variation in performance of different types of municipalities based on their size, socio-economic characteristics, institutional capacity, intergovernmental transfers and local revenues, types of services provided, and presence or absence of other public providers. This analysis suggests how decentralized municipalities have fared in decision making and in performance and can be used to determine policies for improving the chances for achieving the broader objectives of equity, efficiency, quality and financial soundness within a decentralized setting.

Our assessment of decentralization depends in this case on the local characteristics that are likely to influence the ability of different localities to provide sufficient resources to primary health care and to manage those services adequately. The study focuses on three central issues:

- How to explain variations in per capita assignments to primary health care -- essentially a question of equity;
- How to explain the variations in efficiency (production for expenditures) among municipalities; and
- The impact of types of services and multiple public providers on allocations and on efficiency.

In the following section we review the data that was used in this study in some detail.

Municipal Characteristics: Size, Socio-Economic Characteristics, and Capacity

It is often hypothesized that size of the municipality, and its general capacity to implement public programs is an important determinant of the local capacity to take on the responsibilities of decentralization. There were several sources of data available at the national level to assess both size and capacity of municipalities in our sample.

Chilean municipalities are quite heterogeneous in terms of population size and socioeconomic vulnerability. There are a total of 334 municipalities in the country, of which the sixteen smallest were excluded from this study, thus forming a final base of 318 municipalities. Even so, there remains a significant variation in size. Table 2 presents this information by organizing the municipalities by deciles of population size (estimated for 1996 based on the 1992 census).

As is shown in Table 2, half of the total municipalities have less than 17,111 inhabitants (distribution mean), representing only 10.4% of the national population. In turn, 68.6% of the total population lives in the largest 20% of the municipalities. These significant differences in population size of municipalities are often hypothesized to have an impact on capacity and requirements for providing primary care.

Table 2. Classification of Municipalities by Population Deciles (1996)

DECILES	AVERAGE	MINIMUM	MAXIMUM	% SHARE
1	336.3.7	1012	5159	0.8
2	6248.0	5222	7533	1.4
3	9391.5	7916	11182	2.1
4	12476.9	11233	13457	2.7
5	15157.6	13490	17111	3.4
6	19612.8	17293	22495	4.4
7	27868.2	23261	32391	6.1
8	45426.5	34232	60737	10.2
9	99936.3	64216	136745	22.6
10	209833.4	136903	392302	46.0

Source: Prepared from the Ministry of Health Data Base

One of the more important characteristics of municipalities is the municipal income. Table 3 presents the municipalities by income deciles. The analysis of municipal revenues and expenditures will be presented in the *Municipal Revenues and Expenditures* section below.

Table 3. Municipal Disposable Revenenue per Inhabitant Deciles based on Local Revenue (1996)

DECILES	MUNICIPAL INCOME
1	5007.7
2	7835.5
3	11174.6
4	13760.1
5	16309.3
6	18952.1
7	21695.6
8	25686.7
9	33676.0
10	94106.7

Source: Prepared based on Subdere information

The municipalities may also be classified according to their level of socioeconomic vulnerability. In this regard information concerning the infant mortality rate is available for

each of the 318 municipalities. This is defined as the amount of children who die before reaching five (5) years of age in relation to every 1,000 live births. This variable is one of the most important indicators of population health and is closely related to socioeconomic factors in the milieu. Table 4 presents the distribution of the infant mortality rate by deciles for the 1993 -1995 period (yearly averages). As can be seen, the difference between the average rate in the lowest decile is 5.3 times than of the highest decile.

Table 4. Infant Mortality Rate 1993-1995 (Municipal Deciles)

DECILES	AVERAGE	MINIMUM	MAXIMUM
1	5.8	1.7	7.9
2	9.0	7.9	9.8
3	10.5	10.1	11.1
4	11.9	11.1	12.5
5	13.1	12.5	13.7
6	14.1	13.7	14.5
7	15.1	14.6	15.9
8	17.1	16.0	18.3
9	20.2	18.6	22.7
10	30.8	22.9	68.9

Source: Prepared from the Ministry of Health Data Base

To assess the governing capacity of local governments we selected two available variables presented in Table 5 below. The first variable is the variation in the results of a nation wide education test (the Simce test) at municipal schools.[3] The Simce test measures academic achievements in basic skills such as mathematics and Spanish, and is taken by all students between the fourth and eighth grades. The results are likely to reflect the effects of socioeconomic factors and of individual capacity, as well as the quality of the education being offered by the various educational establishments. The variation in the results of the Simce test approximates the changes that have taken place in the municipal educational offer, if it is taken into account that the socioeconomic and individual variables remain relatively constant over time within each municipality. Thus, during the 1990-1996 period there was an average increase (simple) of 11.6 in the Simce test taken by students who attend municipal educational establishments. This is a significant increase within the context of a generalized process of investments in the area of education. These investments were made with the explicit purpose of increasing the quality of education. Nevertheless, descriptive statistics show that there are important variations between municipalities. This would seem to indicate that the change in test scores may well reflect differences in the local capacity to manage the respective establishments and social services whose administration was delegated through the process of decentralization that took place during the 1980s.

[3] At this type of schools education is free of charge, and 60% of the country's students are enrolled in them. Most come from medium or low-income families.

Table 5. Variables Related to Local Government Capacity

	VARIATION SIMCE TEST	REGISTRATION OF CLINICS (%)
Average	11.6	66.9
Mean	11.7	64.7
Variation coefficient	0.54	0.74
Gini coefficient	0.29	0.27
90/10	13.4 (*)	75.4*
50/10	6.5 (*)	38.4*
75/25	7.8 (*)	33.5*
# observations	212	294

Source: Prepared based on Ministry of Health information
Note: This refers to absolute difference between percentiles

The second variable in Table 5, the percent Registration of Clinics, represents the ability of the local government to implement the registration of beneficiaries for each clinic as part of the per capita financing mechanism. It was assumed that those municipalities which were more successful in mobilizing their populations had a higher level of governing capacity than those with lower percentage of registrations at primary health clinics.

The average percentage of population registering at clinics during the period referred to was 66.9% (simple average), with a considerable gap of 7.5 times between the percentiles 90 and 10, and with a variation coefficient of 74%. Thus, the municipalities displayed marked differences in their capacity to govern.

Human Resources

A third characteristic of local capacity is the human resources available for primary health care services. An analysis of the existing national level data on human resources[4] suggests that there is considerable variation among municipalities in the number of physician hours contracted for primary health services. These varied significantly by income of the municipality. In Table 6 below, the difference in medical hours contracted between the 9th and 1st income decile (90/10) is almost four fold with a Gini Coefficient of 0.63. Without longitudinal data we do not know if this difference is due to the historical pattern of the centralized system or is the result of increased resources available in wealthier deciles.

The wages paid full-time physicians in 1994 reached a mean value of M$599.6, measured in 1996 pesos, which was (then) equivalent to approximately US$1,500 (net, monthly). The variation in salaries however was more evenly distributed than hours available with a gap of 1.82 times between the percentiles 90 and 10, and a Gini coefficient only 0.17. Without longitudinal data it is difficult to interpret this data. The relative equality may be the historical legacy of a relatively equal pay scale under the centralized system. The emerging inequality may be the result of market forces beginning to emerge as the higher income municipalities may have been paying slightly higher salaries.

[4] The data was available for a subsample of 212 municipalities in 1994

Table 6. Medical Inputs (1994)

	MEDICAL HOURS CONTRACTED	MEDICAL HOURS FOR EVERY 1,000 BENEFICIARIES	PHYSICIANS SALARIES
Average	243.0	9.21	599.9
Mean	77.0	7.48	556.3
Variation. Coefficient	1.48	0.63	0.41
Gini coefficient	0.63	0.32	0.17
90/10	25.1	3.71	1.82
50/10	2.33	2.13	1.27
75/25	5.63	1.93	1.30
# observations	212	210	212

Source: Prepared based on Ministry of Health information

As we will see in following sections, of these municipal characteristics, both population size and municipal income explained some differences in allocation and efficiency in primary health care.

Municipal Revenues and Expenditures

Central to the decision space allowed to municipalities is the ability to allocate resources to primary health care expenditures. As explained above, municipalities have two major sources of funds -- one from the intergovernmental transfer from the central fund (FONASA) called FAPEM and the other from own-source revenues. Own-source revenues come from local taxes and are adjusted by the Municipal Common Fund so that the revenues of the wealthier communities are redistributed to the poorer municipalities according to a formula based on population and municipal income. Since the FAPEM assignments are largely decided by the central authorities, we will focus first on the funding sources that the municipalities control. Municipalities can decide to allocate their own resources to health sector or to other sectors without any central government interference. It is the decision to use these local municipal resources that is at the core of the local decision space on financial issues.

Tables 7 displays the make-up of own-source and equalization fund municipal revenues for 1996. Disposable municipal revenue originates from the four sources: real estate taxes, commercial and industrial patents, vehicle registration fees, and the Common Municipal Fund. The latter represents the main source of disposable revenue for the municipalities, reaching 59% of the total, followed by real estate taxes and commercial patents (approximately 10% each). [5]

[5] Note that these figures represent simple averages and not the participation of each source of revenue in the national total. Thus, for example, the proportion represented by the Common Municipal Fund in the sum of municipal resources at the national level is substantially inferior to the quoted percentage of 59. The reason for this difference is that the Common Municipal Fund represents the most important source of revenue for most rural municipalities (whose weighting in the national total is relatively small).

Table 7. Make-up of Own-Source and CMF Municipal Disposable Income (1996)

VARIABLE	OBSERVATIONS	AVERAGE	MINIMUM	MAXIMUM
Income	317	.012	0	.598
Tax	317	.109	0	.516
Patent	317	.098	0	.513
Permit	317	.077	0	.564
CMF	317	.588	.017	.985
Other	317	.112	.002	.400

Source: Prepared based on Subdere information

The present study confirms the results of prior analyses of the importance of the equalization fund (CMF) on available municipal resources, as evidenced in the following tables. The first column of Table 8 classifies the communities by deciles according to per capita municipal income, *before* redistribution through the Common Municipal Fund. Thus, municipalities are ordered according to the fiscal capacity local governments would have if there were no revenue redistribution at the local level. This is, in effect, a reflection of the socioeconomic level of its residents, through parameters such as the value of real estate, the location of commercial and industrial establishments, and the ownership of motorized vehicles.[6] As can be seen, the capacity to generate own-source revenues varies considerably between municipalities. The average disposable revenue per inhabitant, as shown in Table 8, of tenth decile is 18.8 times that of the first decile, demonstrating the need for compensatory mechanisms to put local governments on a more equal economic.

Table 8. Municipal Disposable Revenue per Inhabitant Deciles Based on Local Revenue (1996)

DECILES	MUNICIPAL INCOME	FINAL INCOME	TRANSFER
1	5007.7	43986.1	38979.1
2	7835.5	36807.8	28972.7
3	11174.6	39409.9	28235.3
4	13760.1	37733.8	23973.7
5	16309.3	30730.4	14421.1
6	18952.1	26780.1	7828.0
7	21695.6	30100.5	8404.9
8	25686.7	36996.0	11309.3
9	33676.0	38237.0	-5439.0
10	94106.7	88513.0	-5593.7

Source: Prepared based on Subdere information

[6] This is the case even though vehicle registration may have taken place in a municipality other than that of residence.

Table 9. Municipal Disposable Revenue per Inhabitant: Distribution Statistics (1996)

	INCOME BEFORE MCF	INCOME AFTER MCF
Average	24646	40823
Mean	17437	30984
Variation coefficient	1.22	0.70
Gini coefficient	0.45	0.30
90/10	6.68	3.22
50/10	2.76	1.40
75/25	2.31	1.73
# observations	317	317

Source: Prepared based on Subdere information

The second column of Table 9 above presents the per capita municipal income after the Common Municipal Fund contribution (FCM). As can be seen, the contribution considerably increases the amount of available income for those municipalities with less income of their own. In particular, it is worth pointing out that the decile with the lowest own-source income experiences a nearly ten-fold increase in the amount of resources available per inhabitant. Furthermore, distribution for the municipalities as a whole is considerably compressed: the Gini coefficient is reduced to 0.30 from the initial level of 0.45. The difference between both types of income corresponds to the net transfers received from the CMF, shown in the last column of Table 8.

Municipalities then are free to allocate this revenue to the following categories: wages of general municipal workers; the purchase of inputs required by those activities which are an exclusive responsibility of the local government; municipal contributions to the management of educational services; and primary health care, a task transferred to the municipalities as a result of decentralization. The categories are outlined in Table 10. The transfers to health care centers represent on (simple) average 7.5% of the total recurrent costs of the municipalities, with values ranging from 0% to 27%.

Table 10. Make-up of Municipal Recurrent Costs (1996)*

VARIABLE	OBS	AVERAGE	MINIMUM	MAXIMUM
Wage	317	.336	.151	.570
Inputs	317	.456	.202	.723
Health	317	.075	.00	.270
Education	317	.131	.00	.380

Source: Prepared based on Subdere information
*Note: Financed with free disposable income

In practice, financing for municipal primary health care depends upon two (2) types of income: the contribution made by the central level (FAPEM) and that made by the municipality. The revenue composition and distribution of expenditures in municipal primary health care

management can be seen in Tables 11 and 12 below.[7] As shown in Table 11, the central contribution from FAPEM is the main source of financing, representing on average 63.6% of the income available to municipalities for the financing of the primary health care activities. For their part, the contributions made by the municipalities themselves represent 25.3% of resources available for primary health care provision. Note that the aforementioned variables shift significantly between municipalities: specifically, local contribution runs the gamut from 0% to 61% of the total.

Table 11. Revenue Originating in Municipal Primary Health Care (1996)

VARIABLE	OBS.	MEAN	STD. DEV.	MIN.	MAX.
Central Gov. Cont	272	0.636	0.161	0.039	1.00
Charges	271	0.002	0.007	0.00	0.046
Local Cont.	272	0.253	0.157	0.00	0.854
Other	272	0.037	0.059	0.00	0.610

Source: Prepared based on Subdere information

Expenditures incurred by the municipality in the management of primary health care establishments have four main components: salaries paid to staff working in said establishments; inputs and materials; administrative expenses; and investments (see Table 12). According to the figures shown below, expenditures for staff at clinics and health posts represent the most significant cost (61.2%), followed by inputs (23.9%), administration (10.6%) and investments (3.6%); however with quite a variation among municipalities.

Table 12. Expenditures on Municipal Primary Health Care (1996)

VARIABLE	OBS.	MEAN	STD. DEV.	MIN.	MAX.
Salaries	271	0.612	0.145	0.00	0881
Administration	270	0.106	0.102	0.00	0.701
Inputs	271	0.239	0.073	0.019	0.672
Investment	271	0.036	0.067	-0.012	0.748

Source: Prepared based on Subdere information

In order to evaluate the impact of decentralization on equity, it is important to assess the differences in allocations according to municipal income. Studies of decentralization in general have found that wealthier communities often are able to allocate more of their own resources than poorer communities, unless the poorer communities are subsidized more heavily by central authorities or by an equalization fund.

Table 13 displays municipal expenditures for primary health care, expressed in terms relative to the beneficiary population attending municipal health clinics. This last variable is calculated by the Ministry of Health and should be considered an approximation of the actual

[7] Those municipalities that do not present any municipal activity in primary health care are excluded. Generally speaking, this policy holds for the entire chapter.

beneficiary population.[8] The contribution the municipalities receive from the central government is presented together with the recurrent expenditures, as are the resources committed by the municipalities to complement the amount received from the central level. Data are presented as averages for the municipalities, ordered by municipal per capita income deciles, or, put differently, according to an approximation of the municipalities' socioeconomic level.

There are three important facts that may de deduced from an examination of the information displayed in Table 13. First, allocations for municipal primary health care do not vary systematically with the socioeconomic level of the municipality in 90% of the municipalities (the first to ninth deciles of per capita municipal income). This relative equity is due to similar allocations from the center (which are slightly progressive) and to the similar levels of local allocation which may be partly a result of the more equal local source revenues that emerge after the allocations from the Municipal Common Fund. On the other hand, there is an important gap between the most affluent decile, whose per beneficiary level of resources for municipal primary health care is approximately double that of the other municipalities.

Second, the contribution provided by the central level is relatively equal among groups of municipalities, with a progressive bias in the case of the poorest decile. Third, the local contribution is equal to approximately one third of the contribution made by the central government, with the exception of the last decile, where the municipal contribution exceeds the central contribution (which explains the existing gap at the level of total resources among the municipalities).

Table 13. Expenditures on Primary Municipal Health Care per Beneficiary (1996)*

DECILES	TOTAL EXPENDITURE	CENTRAL GOVERNMENT CONTRIBUTION	LOCAL CONTRIBUTION
1	14479.5	10570.9	3681.6
2	12160.8	9219.7	2748.1
3	12205.0	8701.8	3543.9
4	12678.5	9241.7	3325.9
5	11608.2	8303.1	3221.5
6	12286.3	8178.3	3754.6
7	13826.3	9598.2	3889.8
8	11677.5	8367.7	3158.2
9	12231.0	8638.7	3121.4
10	23496.0	9479.2	12808.8

Source: Prepared based on Subdere information
*Note: Averages by deciles of municipal income

Table 14 shows total per capita expenditure in municipal primary health care in years 1991 and 1996. The data show that resources more than doubled in real terms during this period. This is a reflection of a massive increase in social spending, fueled by rapid economic growth.

[8] The public health system does not carry a complete record of its affiliates. Further, beneficiaries of this sector may seek health care modalities other than those provided by the municipalities.

Also, the distribution of resources among municipalities becomes more equal, showing a more progressive pattern of social spending.

Table 14. Expenditures in Municipal Primary Health Care per Capita (1991 and 1996)

DECILES	1991	1996	INDEX 91	INDEX 96
1	6380.93	14479.9	100.0	100.0
2	5975.59	12160.8	93.7	84.0
3	5720.30	12205.0	89.7	84.3
4	4787.16	12678.5	75.0	87.6
5	5413.89	11608.2	84.8	80.2
6	5408.82	12286.3	84.8	84.9
7	6819.40	13826.3	106.9	95.5
8	5653.75	11677.5	88.6	80.7
9	6817.58	12231.0	106.9	84.5
10	13977.76	23496.0	219.1	162.8

Source: Prepared based on Subdere information
Note: Ordered by deciles of per capita income 1996

What determines the local contribution to primary health?

In this section we will use regression analysis to attempt to explain what determines the total municipal contribution (local and FAPEM) to primary health care expenditures. The regressions have as a dependent variable the expenditures per beneficiary financed by the municipality itself, which may be interpreted as a sign of its interest in primary health care. The main control variable is the level of resources available to the local government, measured by the disposable revenue per inhabitant of the municipality. Other important control variables are expenditures per beneficiary delivered by the central level to the municipality and the size of the population benefiting from municipal primary health care. The first of these variables measures the presence of substitution or complementary relations between the central and local contribution, while the second variable helps to study the effects of scale in the municipal management of primary health care management. Further, the potential effect of other variables such as the percentage of rural population, the municipality vulnerability index and the presence of the Servicios in the supply of municipal primary health care was explored.

Table 15 reveals the main results obtained in the estimation of the municipal contribution to the management of primary health care establishments, through linear and logarithmic regression equations.[9] The coefficients of the logarithmic variable correspond to elasticities that are easier to interpret than those resulting from linear specifications. Thus, the contribution per beneficiary made by the municipality to primary health care is closely linked to the availability of per capita resources at the local government: for each 1% of increase in these revenues the contribution to primary health care rises by 1.08% (specification 4). As can be seen, the primary health care financing structure, which allows local government to complement central transfers without restrictions, results in a differentiated resource scheme based on the availability of municipal revenues.

[9] Not reported here are specifications that included variables such as percentage of rural beneficiaries, degree of vulnerability and type of municipal primary health care management, whose coefficients were not statistically significant.

For its part, the central contribution variable is not significant when attempting to explain the level of total municipal per capita contribution, so that at the aggregate level there is no defined substitution or complementary relationship between the two types of contribution (FAPEM and local). In turn, population size does indeed have an impact upon the municipality's contribution per beneficiary, after controlling for variation in municipal revenue. The association between the population variable and the municipal contribution to primary health care allows for two types of interpretation. On the one hand, it may reflect the effect of diseconomies of scale that would require greater expenditure per beneficiary as the population of the municipality grows. On the other hand, it may reflect the effect of a political factor if the size of the municipality's population is associated with the presence of more active demands on the part of the community regarding the provision of social services at the local level.

Table 15. Determination of the Local Contribution to Primary Health Care

	(1) LINEAR	(2) LINEAR	(3) LOG	(4) LOG
Municipal revenue	0.065*	0.56*	1.13*	1.08*
Central gov. contr.	0.018..	---	0.19	-------
Population	0.011*	0.07*	0.22*	0.19*
Constant	1009.3*	1384.2*	-7.74*	0.17*
Adjusted R2 Number observed	0.17 276	0.14 276	0.18 252	0.17 273

Note: Regression coefficients are reported.
*Significant to within 5% except in cases marked with an asterisk.

RURALITY, TYPES OF SERVICES AND SHARED PROVISION OF PRIMARY CARE

After municipal income and size, three additional characteristics differentiate municipalities in the Chilean system: the urban/rural character of a municipality, the types of facilities managed by the municipality and the presence or absence of other public providers of primary care managed by regional offices of the Ministry of Health. Urban and rural municipalities are significantly different in the types of services, the dispersion of the population and the costs of some key inputs.[10] The type of municipal primary care facility also varies from small rural posts to large urban clinics (consultorios). Different facilities are likely to require different levels of expenditure, human resources, and to experience different levels of utilization. These differences suggest the need to assess the impact of decentralization on these different geographic areas and on the different types of services provided. In addition, as noted above, many municipalities are served not only by the municipal facilities but also receive primary health care from centrally controlled public facilities – clinics, hospitals and auxiliary facilities. It is likely that the presence or absence of other facilities will influence the provision and performance of municipal services.

[10] Urban and rural characteristics are somewhat different than population size since many municipalities have both urbanized centers and rural peripheries. In this categorization, rurality is defined by the population dispersion which in turn determines the type of primary care facility.

For purposes of the analysis the municipalities were divided into rural and urban, and the rural municipalities were further divided into those that run only a health post and those that also manage a health clinic. "Rural" is defined by the type of establishment in the municipality so the rural categories include plainly rural areas and also largely urban municipalities that manage clinics located in their rural surroundings. A second classification refers to whether or not the regional Ministry of Health office – the Serivicio -- is also a provider of primary health care activities in the municipality, either at hospital establishments with a low level of complexity (small towns) or in clinics linked to more complex hospitals (larger towns or cities).[11] The urban/rural variables and the presence of the Health Services define a total of six analytic groups, as can be seen in the division set forth below in Table 16.

Table 16. Classification of Municipalities by Type of Clinic and Presence of Health Service

Group	Type of establishment	Presence of regional MOH facilities (Servicio)	Number of municipalities	Municipal beneficiaries per thousand population
1	Rural clinic	No	104	.992
2	Rural clinic	Yes	33	.472
3	Rural health post	No	19	.759
4	Rural health post	Yes	57	.337
5	Urban clinic	No	34	.572
6	Urban clinic	Yes	38	.480

The presence of the Servicios among providers of primary health care is a matter of degree. In most municipalities where the Servicio operates there are also municipally managed clinics. This is the case in a municipality where a low-level hospital provides care for the population living in the urban area, while a municipally managed clinic operates in the rural area of the same municipality. There are also cases of entirely urban municipalities (cities) in which primary health care is dispensed in establishments assigned to hospitals as well as at urban clinics that depend upon the municipality. The last column of Table 16 represents an indirect measure of the presence of the Health Services in primary health care, namely the percentage of the total population of the municipality which benefits from municipal primary health services. If similar groups of municipalities (1 vs. 2; 3 vs. 4; 5 vs. 6) are compared, the data suggest, as would be expected, that the presence of the Servicio is associated with a decrease in the proportion of persons benefiting from municipal health care. This effect is more marked in rural communities (groups 1 and 2) than in urban areas (5 and 6).[12]

On the other hand, there are 22 communities where primary health care is the exclusive responsibility of the Servicio. One of the most relevant cases includes Aysén—where in 1992 the clinics were returned to the Servicio because the funding levels assigned to the municipalities and their own limited resources were insufficient to cover the dispersed

[11] Not included are those cases where there is no municipal administration and where all clinics are managed by the Health Services (Aysén and Metropolitano Central).

[12] Note that there are three (3) important suppliers of primary health care: municipal clinics, establishments that are agencies of the Health Service, and private providers. It is to be surmised that the presence of the latter has a relatively similar effect among related groups of municipalities for purposes of deriving the conclusions arrived at in this text.

population. In another case, Metropolitano Central in Santiago, a failed effort at private management resulted in the return of the clinics to the Servicio in 1990. It is important to note that in the latter case the clinic directors would not turn over clinic administration to the local municipalities. The case studies in a following section will address these communities in more detail.

The set of Tables 17-A through 17-F demonstrate the averages of the different variables of the database for each one of the six (6) groups of municipalities defined above. The data reveals the differences between municipalities in which the only provider of primary health care is the municipality versus those cases in which the Servicio is also a provider (groups 1, 3 and 5 vs. groups 2, 4 and 6, respectively).

One of the more important findings related to the decisions of local municipalities to allocate their own revenues to health is revealed in Table 17-A. Here it is clearly shown that although the central government contribution remains relatively similar in all groups, those municipalities that have sole responsibility for their heath services (i.e. groups 1,3 and 5 where there is no Servicio providing services) have higher local contributions than do those which share responsibility with Servicios.

Table 17-A. Make-up of Municipal Health Revenues by Type of Municipality

GROUP	CENTRAL GOV'T CONT.	CHARGES	LOCAL CONT.	OTHER REVENUES
1 RC-N	0.64	0.00	0.28	0.03
2 RC-Y	0.67	0.00	0.21	0.03
3 RHP-N	0.60	0.00	0.32	0.04
4 RHP-Y	0.69	0.00	0.18	0.04
5 UC-N	0.49	0.01	0.37	0.07
6 UC-Y	0.63	0.00	0.25	0.05

Source. Prepared from the Subdere and Minsal information data base

In terms of expenditures, Table 17-B shows that most municipalities assign a similar percentage to salaries, with the exception of urban municipalities with no Servicio which allocate higher percentage of funds to inputs, like drugs. Municipalities with rural health posts and no Servicio place more resources in inputs, than do those with rural health posts and Servicios.

Table 17-B. Make-up of Expenditures on Municipal Health Services by Type of Municipality

GROUP	SALARIES	ADMINISTRATION	INPUTS	INVESTMENT
1 RC-N	0.64	0.00	0.28	0.03
2 RC-Y	0.67	0.00	0.21	0.03
3 RHP-N	0.60	0.00	0.32	0.04
4 RHP-Y	0.69	0.00	0.18	0.04
5 UC-N	0.49	0.01	0.37	0.07
6 UC-Y	0.63	0.00	0.25	0.05

Source. Prepared from the Subdere and Minsal information data base

As would be expected, urban areas have lower socio-economic vulnerability and higher Simce scores than do rural areas as seen in Table 17-C. However, rural municipalities with

Servicio support have lower vulnerability indicies than do rural municipalities without Servicio services, suggesting that the central government provides services in the more vulnerable areas than to less vulnerable areas, assuming more responsibility for these municipalities.

Table 17-C. Total Expenditure on Health and Socio-Economic Indicators

GROUP	HEALTH EXP. 1991	HEALTH EXP. 1996	SINCE	MUNICIPAL REVENUE	VULNERABILITY INDEX
1 RC-N	7068.3	12459.3	63.6	43339.4	92.4
2 RC-Y	5195.6	11009.0	64.7	26547.5	75.8
3 RHP-N	9085.5	10262.5	62.6	86993.3	93.5
4 RHP-Y	6222.0	8771.1	63.8	34446.6	90.3
5 UC-N	8167.2	13927.0	65.9	40939.4	40.5
6 UC-Y	6820.1	11319.4	67.8	28779.0	43.0

Source. Prepared from the Subdere and Minsal information data base

Table 17-D1 shows the average financial contribution from municipalities to primary health care. The data shows than in 1996 urban municipalities made a bigger contribution in per capita terms than rural municipalities. On the other hand, except in urban areas, the contribution was larger on average in those cases where the Servicio was not present. A regression analysis, which allows for controls, is required to offer an adequate interpretation of these facts. This analysis is performed later (see Tables 18, 19, and 20 and adjacent text)

Table 17-D1. Municipal Contribution to Health

GROUP	MUNICIPAL CONTRIBUTION TO HEALTH		
	1991	1996	% INCREASE
1 RC-N	1428.7	4741.8	232
2 RC-Y	1190.8	3142.3	164
3 RHP-N	1682.3	6771.9	303
4 RHP-Y	1430.6	2654.0	86
5 UC-N	2665.8	6208.5	134
6 UC-Y	1145.7	6464.5	464

Source. Prepared from the Subdere and Minsal information data base

Table 17-D2 shows a per beneficiary index of primary health care activities, measured as a weighted average of consultations and check-ups (the weights being relative production costs of these activities). The statistics show that municipalities without the presence of the Servicio seems to perform better in this indicator, as presented by every pair comparison of otherwise similar characteristics. All cases present an improvement over time, reflecting the increase in resources allocated to the health sector during the period. Notice that it is not possible to make inferences about the rural versus urban cases as they probably differ in the mix of services which are provided.

Table 17-D2. Primary Health Care Activities per Beneficiary

GROUP	PRIMARY HEALTH CARE ACTIVITIES		
	1992	1996	% INCREASE
1 RC-N	7.07	7.71	9.1
2 RC-Y	5.96	6.16	3.4
3 RHP-N	9.87	10.03	1.6
4 RHP-Y	7.40	7.61	2.8
5 UC-N	5.65	5.76	2.0
6 UC-Y	4.65	4.76	2.4

Source. Prepared from the Subdere and Minsal information data base

Table 17-E shows that although there is quite a variation in total medical hours available from municipalities with rural health posts and no Servicio (2.9 hours per day) to those with urban clinics and no Servicio (10.1), the hours per beneficiary were relatively similar (0.674 hours/beneficiary to 0.750). What is significant in Table 17-E is the fact that salaries for rural physicians are higher than for urban physicians by a wide margin and those for physicians in municipalities with rural health posts but no Servicio are almost 50% higher than for urban clinics.

Table 17-E. Primary Health Care Input Indicators by Type of Municipality

GROUP	MEDICAL HOURS		PHYSICIANS' SALARIES
	TOTAL	PER BENEFICIARY	
1 RC-N	5.1	.694	597.7
2 RC-Y	6.4	.726	571.1
3 RHP-N	2.9	.679	738.2
4 RHP-Y	7.8	.674	614.0
5 UC-N	10.1	.736	514.8
6 UC-Y	7.3	.750	534.1

Source. Prepared from the Subdere and Minsal information data base

Table 17-F shows that infant mortality rate improved in the period 1991-95 in all municipalities except those with rural health posts and no additional services -- where they slightly declined. The municipalities with the greatest improvement were those with rural clinics and with Servicio primary care services available. The lesser improvements in the already low rates in urban areas were not influenced by the presence or absence of Servico primary care services.

Table 17-F. Infant Mortality Rate by Type of Municipality

GROUP	MEAN IN 1991	MEAN IN 1993	MEAN IN 1995	DIFFERENCE 1991-95
1 RC-N	19.94998	17.72629	14.79356	5.156427
2 RC-Y	21.45702	17.48873	15.02709	6.429931
3 RHP-N	22.88336	27.70152	23.29244	-.4090759
4 RHP-Y	21.65352	18.07714	15.58084	6.07268
5 UC-N	14.19093	12.71225	10.51753	3.673399
6 UC-Y	16.62811	15.08895	12.9948	3.633286

Source. Prepared from the Subdere and Minsal information data base

Nevertheless, the tendencies identified in the foregoing must be validated through a regression analysis that controls for the effect of third variables, as we will see in the following section. Thus, for example, the relation between the urban/rural nature of the clinics and expenditures for supplies must be properly controlled for the amount of resources available to the municipalities for financing of primary health care. Similarly, the larger local contribution to health care made by particular municipalities must be controlled for the availability of revenues in the hands of local governments.

Explaining the differences in local contribution by municipal groupings

How can we explain the differences in contributions of the six different municipality service mixes? We turn again to regression analysis. Table 18, shown below, presents the previous linear and logarithmic specifications discussed above, now including additive dummy variables for each group of municipalities (group 1 acts as reference point, and is reflected in the regression constant). The results show that, in general terms, the association between municipal contribution and revenue, local population and central contribution variables is maintained (see Table 15 above). The logarithmic specification (4) shows the greater effect of the dummy variables, and suggests that where the Servicios are present (groups 4 and 6) the local contribution per beneficiary of the municipal primary health care system diminishes, after controlling for variations in the level of disposable municipal revenue available.

Table 18. Determination of Local Contribution to Primary Health Care

	(1) LINEAR	(2) LINEAR	(3) LOG	(4) LOG
Municipal contribution	0.062*	0.061*	1.07*	0.994*
Central gov. cont.	-0.026	---	0.209	_____
Population	0.05	0.001	0.292*	0.246*
Constant (RC-N)	2252.3	2071.7*	-7.70*	-4.59*
Group 2 (RC-Y)	-679.8*	-596.1	-0.337*	-0.322
Group 3 (RHP-N)	-293.6	-207.2	-0.088	-0.016
Group 4 (RHP-Y)	-1575.8*	-1532.8	-0.469*	-0.417*
Group 5 (UC-N)	1618.6	1620.9*	-0.147*	-0.065
Group 6 (UC-Y)	-608.6	-345.0	-0.511*	-0.513*
Adjusted R2	0.22	0.23	0.19	0.19
Number Observed	272	291	252	273

Note: Regression coefficients are reported.
*Significant to within 5%

Table 19 displays estimates of the relation between the local contribution and its determining factors for each group of municipalities. This variant allows for the set of regression coefficients to be freely adjusted for each group of municipalities, thus delivering a more flexible specification than the one set forth in the previous Table, which allows only for differences in the constant term of the regression. The results of the new procedure demonstrate that the variation of the dependent variable -- local contribution per beneficiary -- is *not* generally explained by the independent variables studied in the analysis. This is due to the low levels for the determination coefficient (adjusted R2) and the results of the t tests for the coefficients of individual variables. It may be concluded that the most significant part of the impact caused by the municipal revenues and municipal population variables occur *between* groups of municipalities, reflecting that the breakdown separates the municipalities into differentiated sets according to the variables mentioned above.

Table 19. Determination of Local Contribution to Primary Health Care

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
Municipal revenue	0.069*	-0.015	-0.034	0.034*	0.181*	-0.005
Central Gov. contr.	0.115	-0.028*	0.504	-0.077	-0.423	
Population	-0.016*	0.015	0.019	0.017*	0.018*	
Constant	849.6*	3218.5	3430.5	1914.8	195.6	1557.7
Adjusted R2	0.25	-0.07	-0.05	0.00	0.74	-0.07
Number Observed	101	31	17	64	24	35

Note: Regression coefficients are reported.
*Significant to within 5%

The following discussion centers upon the econometric results of relating the change in the dependent variable—municipal contribution per primary health care beneficiary—to the change in the variables on the right hand side: per capita municipal revenue and central contribution to municipal primary health care. The differences concern the period extending from 1991 to 1996 and do not take into account the population variable, for which adequate information is not available.

Table 20 indicates the results for the total sample of municipalities and for the subsets made up of the six groups defined earlier. In the general case (first column of results) it is found that the change in the local contribution to primary health care is positively correlated to the variation in disposable revenues available to the municipality. It simultaneously shows a negative relation to the dependent variable with respect to changes in the contribution provided by the central level. The last result is of particular importance, in that it represents a change from the 1996 specification, where the central contribution variable proved not to be a determining factor of local spending. Put otherwise, no well-defined relation emerges from the comparison of the various municipalities in terms of central and local contributions to municipal primary health care. However, this relation emerges at the level of complementarity when the response of each community vis-à-vis variations in central financing is examined.

Table 20. Determination of Change in Local Contribution to Primary Health Care

	ALL	GROUP 1 RC-N	GROUP 2 RC-Y	GROUP 3 RHP-N	GROUP 4 RHP-Y	GROUP 5 UC-N	GROUP 6 UC-Y
Variation municipal income per capita	0.040*	0.065*	0.021	-0.011	0.011	0.064*	-0.047
Variation contribution central govt.	-0.121*	-0.074	-0.328	-0.575	-0.438*	0.319*	0.193
Constant	1552.9*	768.4	2972.5	8011.3*	3135.4*	323.5	3011.2
Adjusted R2	0.12	0.27	0.06	-0.06	0.25	0.41	-0.03
Number observed	276	101	31	17	64	24	35

Note: Regression coefficients are reported.
*Significant to within 5%

At the subgroup level there are also some interesting results. The local contribution responds more forcefully to changes in municipal revenues in the instances of groups 1 and 5, which include most of the municipalities where there is no primary health care provision by the Servicio. In turn, the relationship between changes in revenues and the local contribution to primary health care is not statistically different from zero in those municipalities where the Servicios are present (groups 2, 4 and 6). This result is consistent with the greater importance that primary health care would assume for local government when it is entirely responsible for providing these services. This may in turn reflect the pressure exerted by the community upon decisions regarding local expenditures.

For its part, the impact of changes in the central contribution differs depending upon the type of municipality. In those municipalities which manage clinics or health posts, and the Servicio is present, a clear negative relation exists between changes in the central and local contributions. On the other hand, in those communities where the Servicio is not present, the relation is nonexistent (null, in statistical terms), or indeed positive (group 5). This result points in the direction suggested above: the presence of the Servicio in the provision of primary health care is an important determining factor for the degree of responsibility assumed by the local government in the financing of its own health establishments.

UTILIZATION

Up to now we have focused on the issue of equity of expenditures per capita and tried to identify those variables which might explain the variation in per capita expenditures. A second issue of equity and one that is also linked to efficiency is utilization of services. The following section will identify variations in utilization among different types of municipalities and use regressions to try to explain these variations.

In our study we can identify the number of occasions per year in which a municipal primary health care beneficiary receives medical attention. This indicator was established as an index of controls and visits that took place at clinics in each municipality. The relative cost of each type of intervention is used as a weighting factor for these variables in the resulting index (the variable was developed at the Ministry of Health for use in the research leading to this paper).

Table 21 displays the main descriptive characteristics of the variable described above for the years 1992 and 1996, as well as the variation experienced over this time period. It can be observed that the distribution of the variable is slightly skewed toward the right insofar as the average is higher than the distribution mean. Differences between municipalities are shown through a set of indicators that measure aspects of the distribution of the variable: variation coefficient, Gini coefficient, the difference between the percentiles 90 and 10, between the mean and the percentile 10 and between the percentiles 75 and 25. Note that the statistics displayed are not adjusted for population or any other scale indicator.

Table 21. Primary Health Care Activity by Beneficiary

	YEAR 1992	YEAR 1996	DIFFERENCE
Average	6.73	7.16	0.412
Mean	5.96	6.26	0.267
Variation coefficient	0.56	0.57	---
Gini coefficient	0.25	0.25	---
90/10	2.68	2.79	4.54*
50/10	1.58	1.70	2.13*
75/25	1.59	1.59	1.77*
# observations	291	292	291

(*) Note: This refers to absolute difference between percentiles

The information displayed above in Table 21 suggests that the amount of primary activities per beneficiary vary considerably between municipalities (2.8 times between the percentiles 90 and 10). This is partially explained by the differences in rural and urban populations (see below). On the other hand, during the four-year period between 1992 and 1996 there was a slight increase in utilization (6.4% increase in mean value), while the dispersion of the variable was unchanged. The regression analysis that follows goes into further detail regarding the determinant factors in primary health care through the various municipalities.

The following set of regressions relate the number of health activities per beneficiary in 1996 to a set of variables or potentially determining factors: the level of expenditure on primary health care per beneficiary, the municipal management modality (by corporation or by department) and the percentage of the municipality which is rural. The results of the described regression are summarized in Table 22.[13]

The regression shows that the most important variable explaining the amount of care provided per beneficiary is the total level of expenditures in primary health care (per beneficiary). These expenditures include both those that originate at the central level and contributions made by the municipality itself. The expenditure variable is statistically

[13] In Table 18 primary care activities are regressed on a set of variables, including an additive dummy for each type of municipalities(groups 1 to 6, group 1 included in the constant). In other words, differentials among groups are accounted by different constants.

significant and its effect is always positive: the greater the amount of resources available, the greater the amount of health care activities carried out.[14]

The second explanatory variable is the percentage of the municipal population that is characterized as rural which is also associated with an increase in the number of services rendered per beneficiary. This result may be an indication that service composition is different in rural areas, or may be the result of more urgent health-related needs in these areas.

The variable for municipal modality is treated as a dummy, with value 1 for corporations and zero for municipal departments. In Table 22 the corresponding parameters are small and negative, implying that everything else constant, corporations exhibit a little bit less primary health care activities (in per capita terms) than departments.

Table 22. Determination of Municipal Primary Health Care Activities

	(1) LINEAR	(2) LINEAR	(3) LOG	(4) LOG
Expenditure by beneficiary	0.292*	0.183*	0.634*	0.470*
Rural population rate	2.24*	---	0.286*	
Municipal Modality for Administration	-1.22*	-0.780	-0.196*	-0.136*
Constant	2.24*	5.098*	-4.25*	-2.480*
Group 2		-0.925		-0.155*
Group 3		2.420*		0.172
Group 4		-0.345		-0.095
Group 5		-1.507*		-0.196*
Group 6		-2.240*		-0.318*
Adjusted R2	0.24	0.23	0.28	0.27
Number observed	234	258	234	258

Note: Regression coefficients are reported.
*Significant to within 5%

The analysis of the different groups (rural/urban facilities and presence/absence of Servicio primary care services) as additive dummy variables does not contribute additional explanatory value to the determination of primary health care activities per beneficiary (columns 2 and 4 of Table 22). Other variables, such as the municipal population, did not turn out to be significant, from which it follows that there are no economies of scale in the supply of health services above and beyond those already controlled for by the level of expenditures earmarked for service provision.

Table 23 presents the results of regressions that consider the groups of municipalities 1 through 6 with separate independent regressions for each group, based on whether the clinics are urban or rural and the presence or absence of the Servicio in the municipal primary health care supply. In this case there is no clear pattern relating municipal characteristics to decentralization variables. Thus, at the level of urban clinics, the presence of the Servicio completely blurs the relation between spending and activities in municipal health care (group 6 vs. 5). This is consistent with the previous finding regarding the presence of the Servicio as an element that allows the municipality to "shirk" responsibility for primary health care.

[14] Note that there may exist a problem of endogeneity in this relation.

Nonetheless, at the level of rural clinics (groups 1 and 2), a direct and well-defined relation can be observed between spending and the level of activities, both in the municipalities where the Servicio is present and in those where it is not.

Table 23. Determination of Municipal Primary Health Care Activities (1996)

	ALL	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
Total expenditure		0.281*	0.637*	-0.152	0.265*	0.198*	0.15
Type of administration		-0.738	-1.695	---	-2.616*	-0.233	-0.626
Constant		3.76*	-1.074	12.51*	4.055*	3.110*	4.758*
Adjusted R2		0.16	0.48	-0.08	0.09	0.51	0.03
Number observed		94	31	13	49	34	37

Note: Regression coefficients are reported.
*Significant to within 5%

The analysis above analyzed utilization rates for a single year (1996). In the following analysis we use the change in primary health activities per beneficiary over the 1992-1996 period as the dependent variable. The regression found a weak overall relationship (0.15 and R2 of 0.08) with the change in the availability of resources (Table 24), but no clear pattern of response emerges between municipalities with/without the presence of Servicios in primary health care. The most important distinction occurs when the municipalities are classified by level of service offered. Thus, those communities that run rural health posts (groups 3 and 4) do not seem to respond with increases in the level of activities when expenditures for municipal primary health care rise. However, this does indeed occur in those municipalities that run rural clinics (groups 1 and 2) and in those that are in charge of managing urban clinics (groups 5 and 6). On the other hand, it is in the group of urban municipalities that the change in the resource level variable best explains the change in the level of activities. This occurs particularly in group 5 (urban clinics with no Servicio presence), where the adjusted R2 is -0.63.

Table 24. Change in Municipal Primary Health Care Activities by Beneficiary (1992-1996)

	ALL	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
Change in total expenditure	0.154*	0.201*	0.376*	-0.573	0.065	0.262*	-0.154*
Constant	-0.701*	-0.878*	-2.21*	6.950	0.267	-1.004*	-0.648*
Adjusted R2	0.08	0.09	0.15	0.09	-0.01	-0.63	0.27
Number observed	248	93	31	13	49	27	35

Note: Regression coefficients are reported.
*Significant within 5%

In conclusion, we find that utilization was related to total resources available for primary health care. It is important to note that it was the total health expenditure and not the local contribution that explains variation in utilization. The analysis of changes in utilization suggests that the increased decision space over local resources to be contributed to health generally is not related to changes in utilization. However, we found some evidence that the presence of Servicio services continue to influence the "shirking" behavior of municipalities. In those urban municipalities with no Servicio, increased expenditures significantly increased utilization.

Few of our other decentralization variables provide any explanatory value. Our data base did not include data on the ages and sexes of the population, differences in disease burdens, nor on the total number of providers in the market, which might have provided additional explanation for variation in utilization.

Explaining the Efficiency of municipal management

It is often argued that decentralization will allow local managers more flexibility to make decisions that will increase efficiency in the use of health resources. Our study attempts to examine the variables which might explain variations in municipal level efficiency.

For economists, productive efficiency requires maximizing the product obtained based on a given set of resources (inputs), or alternatively, minimizing the production costs of a given quantity of units of the good or service being proffered. In either case two elements are present: (i) to operate on the production frontier so as not to leave productive opportunities untapped; (ii) elect optimum input combinations based on the technical relations between production possibilities and prices in force.

A crude measure of the efficiency of municipal primary health care management is the ratio between health activities (outputs) and the level of spending (inputs). All else being constant, a greater value in this indicator points to better use of existing resources in terms of the health services generated. The following analysis should be viewed with caution because, using this indicator of efficiency assumes: (i) that the health activities carried out by the various municipalities are homogenous as regards quality and other attributes (otherwise a greater number of activities is not necessarily a sign of greater efficiency); and (ii) that the prices paid for inputs allow for the sustainability of the results over time (that is, cost reductions not sustainable over time are excluded). Both of these assumptions are difficult to evaluate in the current study.

Table 25 shows the averages and several dispersion measures of the efficiency variable for the various groups of municipalities based on type of facility and presence/absence of Servicio primary care (as defined in Table 16). The data show a significant difference in average efficiency between rural establishments (groups 1 to 4) and urban clinics (groups 5 and 6). This difference may represent the different quality of the health activities (consulting room visits or patient control) may have in rural as compared to urban areas. To evaluate this possibility, we will control for ruality in the regressions below. We have found, elsewhere in this report (p???) that the urban / rural difference is not explained by the medical hours contracted in the various municipalities.[15]

[15] The introduction of the medical staff per beneficiary variable did not contribute in a statistically significant manner to the regressions disclosed in Table 26. Had it been otherwise, it would have been possible to postulate that the greater amount of visits to health establishments in rural areas are simply a reflection of the fact that the population is attended to by paramedical staff.

Table 25. Efficiency in Municipal Health Management

GROUP	MEAN	STD DEV	GINI	THEIL	# CASES
1 RC-N	0.5667	0.1887	0.165	0.045	94
2 RC-Y	0.5287	0.1669	0.176	0.053	31
3 RHP-N	0.7654	0.5533	0.353	0.205	13
4 RHP-Y	0.5941	0.3010	0.265	0.125	49
5 UC-N	0.4399	0.1023	0.129	0.028	34
6 UC-Y	0.4495	0.1299	0.152	0.052	37
TOTAL	0.5438	0.2386	0.211	0.079	258

On the other hand, both the urban and rural municipalities that manage health clinics (groups 1, 2, 5 and 6) evidence a relatively low dispersion of the efficiency variable, as is shown by the standard deviation and the inequality measurements indicated by the Theil and Gini coefficients. This suggests that effiicency in clinics is relatively homogeneous in each geographical type. This finding does not seem to be influenced by the presence or absence of Servicio services.

Table 26 presents the results of the regressions that seek to identify factors related to municipal efficiency in primary health care management. The following analysis is restricted by the fact that most variables included in the database are related in a direct way to the efficiency variable, whether through their numerator (health activities) or their denominator (spending on primary health care). This type of variables cannot be included in the regressions because their correlation to the dependent variable is spurious. Thus, for example, it makes no sense to test for a statistical correlation between efficiency and variables such as central contribution, local contribution, medical wages, etc., given that all of those contribute to the definition of efficiency. The explanation as to why efficiency levels vary between municipalities must be sought elsewhere.

Among the variables that were ultimately considered to demonstrate statistical validity were the extent to which a municipality is rural in nature, the degree of vulnerability and the percentage of registration at municipal clinics. The association between efficiency and the degree of rurality is direct (positive), and may be explained by the aforementioned relation between the type of health activity and the rural condition of the municipality. That is, more rural municipalities manifest a greater number of health activities per beneficiary, presumably due to the difference between a consultation or control visits in urban as compared to rural areas. Thus the degree of rurality in the regression takes on the role of control variable, which makes it possible to study the impact of third variables upon efficiency when the levels of this variable have already been adjusted for.

Table 26. Efficiency in Municipal Health Management

	ALL	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
Rural population	0.301*	0.075	-0.091	0.798*	0.050	0.056	0.672*
Vulnerability	-0.001*	0.000	0.003	-0.004	-0.006*	-0.002	-0.001
Registration	0.160*	0.092	0.203*	-0.437*	0.426*	0.010	0.016*
Constant	0.376*	0.426*	0.179*	1.027	0.724*	0.055*	0.031*
Adjusted R2	0.06	-0.02	0.09	-0.07	0.28	-0.24	0.27
Number observed	232	93	31	13	48	13	34

Note: Regression coefficients are reported.
*Significant to within 5%

The registration rate at municipal clinics also appears in the regression and might also be a proxy variable for the degree of efficiency of the general work carried out by the local government, and as such would be positively associated with the efficiency noted in its management of local health care. Alternatively, a municipality that is more successful in primary health care management might achieve a better response on the part of the local community when the population is asked to register at municipal clinics. In any case the statistical relation that exists between the registration rate and health management efficiency variables must be interpreted as a sign of the consistency of interrelated processes, rather than as a well-defined causal relation.

Finally, the municipal vulnerability variable has a lesser and negative impact on municipal efficiency in primary health care. The result may indicate the fact that the poorest (most vulnerable) municipalities have weaker local governments than the more affluent municipalities, which in turn affects their management capacity in the health sphere. This interpretation is, however, tentative and needs to be discussed further.

On the other hand, the efficiency study at the level of groups of municipalities is quite poor in terms of statistical results. The variables taken into consideration demonstrate statistical relevance in only five of a total of eighteen cases. Three of the five statistically relevant cases belong to the registration variable, thus emphasizing the close interdependency of this variable with the measurement of efficiency in health care management. Similarly, the regressions that display the best adjustments are those belonging to the groups of municipalities in which the Servicios are present. That would be consistent with the hypothesis posited above regarding the effect of local government behavior (more or less sensitive) when more than one option exists with respect to primary health care providers.

In any case, the weak statistical significance of the analysis at the level of municipal groups tends to support the conclusion that the differences in efficiency levels observed are the result of factors of a rather more qualitative nature, which are difficult to detect in a regression analysis.

Efficiency of Governing Capacity

The data allows us to examine another question related to efficiency: the capacity of a local government to perform essential tasks for the health sector. In 1995, the primary health care financing system was changed from the former FAPEM transfer system, which was based on historical criteria and subject to arbitrary modifications, to a per capita allocation scheme based on a formula distinguishing between municipalities based on degree of rurality and of

poverty. The introduction of the new financing system requires the registration of potential beneficiaries of primary health care clinics at the respective establishments. These may or may not correspond to the user's municipality of residence (although this should normally be the case). As was pointed out earlier, it is natural to suppose that the municipalities that are most successful in their registration drives reflect cases in which local government is better regarded and / or has the capacity to mobilize the community.

Table 27 presents the registration rates at municipal clinics for the various groups of municipalities, in relation to the estimated beneficiary population at two points in time: fourth quarter 1995 (Registration 1) and second quarter 1997 (Registration 2), respectively. In the first case a higher registration rate can be observed at rural health posts and clinics (groups 1 to 4), when compared to urban municipalities (groups 5 and 6). In any case, there is a considerable variation of results between individual municipalities, as can be seen by the high standard deviation coefficient in each group. On the other hand, by mid-1997 (Registration 2), the process was already well advanced, though still subject to significant individual variation. No appreciable differences were observed with respect to the presence/absence of the Servicio among municipal primary health care providers (even groups vs. odd groups).

Table 27. Registration Rates at Municipal Clinics as a Proportion of the Potential Beneficiary Population

Group of municipalities	Registration 1		Registration 2	
	Mean	Std. Dev.	Mean	Std. Dev.
1 RC-N	0.65	0.24	0.89	0.19
2 RC-Y	0.66	0.32	0.94	0.29
3 RHP-N	0.77	0.37	0.95	0.33
4 RHP-Y	0.69	0.31	0.96	0.32
5 UC-N	0.56	0.24	0.97	0.27
6 UC-Y	0.55	0.30	0.96	0.26

Source: Prepared from the Minsal information data base

Explaining Governing Capacity

Through a regression analysis those variables associated with the differences observed in the registration rate of the population of the various municipalities were identified. These variables belong to two types of determining factors: those that measure the effect of geographical conditions upon the registration rate and those related to the achievements of local governments regarding municipal primary health care. In the first set, municipal per capita income delivered better results than variables more directly associated with geographical conditions (such as the degree of rurality). On the other hand, the amount of primary health care activities per beneficiary of the municipal system delivered the best adjustments within the second set of variables.

Tables 28-A and 28-B show the econometric results obtained for determining the inscription rate at municipal clinics (during the fourth quarter of 1995 and the second quarter of 1997, respectively). Results are presented for the set of municipalities for which information is available and for each one of the subsets of cases, classified according to the parameters urban/rural and presence/absence of the Servicio among municipal primary health care providers.

In most of the cases analyzed, the number of health activities per beneficiary turns out to be a statistically significant factor in the rapidity with which registration at municipal health clinics takes place. The respective regression coefficient is positive, which indicates that the municipalities that display the greatest number of health-related activities per beneficiary of the municipal primary health care system tend to be more successful in their capacity to convoke the community to register at municipal clinics. The level of municipal revenues, for its part, proves to be statistically relevant for particular subgroups of municipalities, but its overall impact is less well defined in relation to the first variable.

These results confirm the statistical association detected in the section above between the registration rate variable and the level of health-related activities (which is behind the efficiency indicator). This causal relation may work in both directions. The most effective municipalities will obtain the best response regarding registration of the population at health clinics; at the same time this last variable may reflect the general efficacy of municipal management, which among other things translates into larger amounts of health-related activities for a given quantity of available resources.

The differences between types of municipality appear to be especially clear in Table 28-B, which reveals results of the municipal registration drive at the conclusion of the process in mid-1997. Here it can be seen that the determination coefficient of the regressions acquire significant levels - approximately 30% - in the case of municipalities where the Servicio is present, while it is virtually non-existent in cases where the municipality is the only provider of primary health care activities. This fact implies that the variables on the right hand side of the equation, and in particular the number of activities per beneficiary, are closer determining factors of the registration rate when the Servicio is present (this is also indicated by the size of the regression coefficient).

A possible reading for the previous result is that the Servicio acts as an alternative option for inhabitants of the municipality. In this respect, the different supply capacity displayed by the municipalities regarding the number of health-related activities provided is translated into differentiated registration rates only when an alternative health care provider exists (the Servicio). In turn, when primary health care provision is reduced only to the municipalities' efforts, the registration rate is unrelated to the capacity to provide primary health care services, given that there are no other alternatives.

Table 28-A. Registration Rates at Municipal Clinics in Late 1995

	ALL	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
Primary Health Care Activities	0.026*	0.026*	0.019	0.025*	0.028*	-0.021	0.053
Per capita municipal income	0.008	0.003	-0.060	0.028*	0.035	-0.009	-0.054
Constant	0.438*	0.463*	0.703*	0.277*	0.359*	0.719*	0.45
Adjusted R2	0.14	0.04	-0.006	0.48	0.24	0.005	-0.06
Number observed	287	100	33	19	64	34	37

Note: Regression coefficients are reported.
*Significant to within 5%

Table 28-B. Registration Rates at Municipal Clinics in Mid-1997

	ALL	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
Primary Health Care Activities	0.013*	0.016*	0.041*	0.006	0.236*	0.048	0.070*
Per capita municipal income	-0.022	-0.011	-0.145*	0.021	0.105*	-0.034	-0.076*
Constant	0.846*	0.822*	1.065*	0.695*	0.425*	0.833*	0.841*
Adjusted R2	0.03	0.03	0.24	0.01	0.28	0.06	0.35
Number observed	291	102	33	18	66	34	38

Note: Regression coefficients are reported. There are significant to within 5%except in cases marked with an asterisk.

For its part, the registration rate at municipal clinics would be a proxy variable of the degree of efficiency of the overall work carried out by the local government, and as such would be positively associated with the efficiency of said government's management in the local health sphere. Alternatively, a municipality that is more successful in primary health care management will achieve a better response from the local population when people are asked to register at municipal clinics. In any case, the statistical relation that exists between the registration rate variable and the health management efficiency variable must be interpreted as a sign of the consistency of interrelated processes rather than as a well-defined causal relation.

Finally, the municipal vulnerability variable has a lesser and negative impact on municipal efficiency in primary health care. The result may indicate the fact that the poorest (most vulnerable) municipalities have weaker local governments than the more affluent municipalities, which in turn affects their management capacity in the health sphere. This interpretation is, however, tentative and needs to be discussed further.

Efficiency and Use of Human Resources

For a subgroup of approximately 180 municipalities there is information available regarding salaries and medical hours contracted at municipal primary health care establishments. These variables, properly controlled by disposable resources and municipal characteristics, could be indicators of different approaches and degrees of commitment displayed by the municipalities in matters regarding the management of primary health care establishments.

Nevertheless, the preliminary regression analysis suggested that both average wages and the number of medical hours contracted (in relation to the number of beneficiaries) present a considerable degree of variation, which cannot be explained in terms of the variables that measure disposable resources for municipal health and the characteristics of the municipality.

Quite opposite results were achieved when the total expenditure per beneficiary was analyzed with reference to "medical contracts" (average salary multipled by number of hours contracted). "Medical contracts" proved to be strongly correlated with a set of factors that approximate the level of resources in primary health care (central contribution, local contribution), as well as with characteristics of the municipality (level of municipal per capita revenue, degree of rurality, and presence of the Servicio as a primary health care provider).

Tables 29-A and 29-B present the results obtained through the respective linear and logarithmic specifications for each one of the three dependent variables considered:

expenditure per beneficiary on medical staff; average salaries paid out to physicians and number of hours contracted per beneficiary.

Results demonstrate that spending on medical personnel increases with central and local contributions to primary health, as well as with the level of municipal revenue and the presence of the Servicio in the municipality, while it declines with the proportion of the population living in the rural area (Table 29-A). In turn, the relation between variables is far more diffuse when it comes to determining wages and medical hours. In the former case there is indeed a reversal with respect to the rurality variable, which now impacts positively upon medical wages (and which indicates the effect of compensatory wages for working in more remote places).

It follows that variables such as the level of available resources and the socioeconomic characteristics of the municipality determine, in a significant manner, the amount of resources earmarked for medical staff (per beneficiary). However, the division of that budget into work hours, particularly as regards the level of medical wages, is an outcome of the action of another type of factors. As a hypothesis it could be suggested that the physician's wages constitute a variable that is rather more exogenous to municipal decision-making, and therefore not correlated to the level of resources available at the local level. Alternatively, it could be that the average wage is associated with the differing levels of medical staff (years of experience, specialties), a variable that is not adequately reflected in the available information.

The group of Tables 30-A and 30-C present the results of the regression analysis at the level of the six groups of municipalities according to urban/rural condition and presence/absence of the Servicio (linear specification). Results obtained to a certain degree replicate outcomes at the level of all municipalities, even though they are far more diffuse as concerns their statistical significance, probably an effect of the reduction of the sample. These results are presented, therefore, more for reasons of general information than because of any analytical interest they may have.

Table 29-A. Determination of Salaries and Medical Hours in Municipal Primary Health Care (linear specification)

	(1) Expenditures on salaries	(2) Salaries	(3) Medical hours
Central govt. contribution	0.449*	0.008	0.002*
Local contribution	0.271*	-0.007	0.000
Municipal revenue	0.026*	0.021*	0.001
Extent rural condition	-1344.7*	101.4*	-10.98*`
Presence of Servicio	993.8*	11.3	3.31
Constant	-1426.1*	461.2*	-8.21
Adjusted R2	0.43	0.09	0.10
Number observed	175	178	179

Note: Regression coefficients are reported.
*Significant to within 5%

Table 29-B. Determination of Salaries and Medical Hours in Municipal Primary Health Care (logarithmic specification)

	(1) Expenditures on salaries	(2) Salaries	(3) Medical hours
Central govt. contribution	0.498*	0.089	0.520*
Local contribution	0.182*	-0.001	0.138*
Municipal revenue	0.358*	0.096	0.263*
Extent rural condition	-0.263	0.147	-0.659*
Presence of Servicio	0.149	-0.014	0.173
Constant	-1.39	11.38*	-6.41*
Adjusted R2	0.27	0.04	0.22
Number observed	168	171	172

Note: Regression coefficients are reported.
*Significant to within 5%

Table 30-A. Expenditures on Medical Personnel in Municipal Health Care

	Group 1	Group 2	Group 3**	Group 4	Group 5	Group 6
Central gov. contribution	0.232*	0.747*	---	0.758*	0.341	-0.048
Local contribution	0.117	0.942*	---	0.708*	0.243*	0.046
Municipal revenue	0.038*	-0.133	---	-0.083*	-0.009	0.033
Constant	-108.8	812.8	---	-1819.1*	1509.3	3342.2
Adjusted R2	0.29	0.72	---	0.76	0.37	-0.08
Number observed	77	26	---	25	23	32

Note: Regression coefficients are reported.
*Significant to within 5%

Table 30-B. Physician's Salaries in Municipal Primary Health Care

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Central gov. contribution	0.002	0.010	---	0.010	-0.009	-0.004*
Local contribution	-0.003	-0.008	---	0.022	-0.008	-0.001
Municipal revenue	0.002	-0.009	---	-0.004	0.002*	-0.001
Constant	596.6*	753.3*	---	525.8	540.5*	584.1*
Adjusted R2	0.03	0.07	---	-0.05	0.09	-0.09
Number observed	77	26	---	26	24	33

Note: Regression coefficients are reported.
*Significant to within 5%

Table 30-C. Medical Hours per Beneficiary in Municipal Primary Health Care

	Group 1	Group 2	Group 3**	Group 4	Group 5	Group 6
Central gov. contribution	0.294*	0.783*	---	3.029	0.753*	-0.016
Local contribution	0.179	1.524*	---	-0.717	0.547*	0.114
Municipal revenue	0.026	-0.196	---	0.021	-0.029	0.093
Constant	2079.2*	1094.2*	---	10171.0	3104.0	4881.5
Adjusted R2	0.12	0.70	---	0.001	0.43	-0.06
Number observed	79	26	---	25	23	32

Note: Regression coefficients are reported.
*Significant to within 5%

Efficiency and Infant Mortality

The infant mortality rate is basically related to variables rooted in the socioeconomic milieu and the geographic condition of each community. From the point of view of the present study it is more interesting to analyze the changes in infant mortality during the period under consideration, given that such specification of the variable controls for the aforementioned socioeconomic factors, which tend to remain stable over a relatively short time frame.[16]

Nonetheless, no expenditure or primary health activities variable, measured at level or difference rate, was found to be a statistically relevant in relation to the changes in the infant mortality rate at the municipal level. This result suggests that the evolution of the variable is determined by structural factors that are not very sensitive to short term actions implemented by the health system. This, however, within an acceptable range of options. Clearly, if a discrete change occurs, such as the closing of the primary health care clinics, a first magnitude impact would be felt in the aforementioned health indicator.

Thus, the only variable that proved to be statistically significant in the effort to explain the variation in the infant mortality rate was the initial level of the variable itself (Table 31). The relation between the two variables moves in the negative direction: the higher the initial mortality level, the more important the level of decline found during the period covered by the analysis. This is quite natural if it is taken into account that in the municipality the indicator has a floor that restricts the achievement of additional reductions in the infant mortality rate once relatively low levels have already been reached.

The comparison of results at the level of groups of municipalities presents scenarios difficult to interpret. Thus, for example, at the level of urban clinics it can be observed that the municipalities in which the Servicio is present tend to display better defined relations for the reduction of the infant mortality rate (group 6 vs. group 5), while the opposite occurs at the level of rural clinics (group 1 vs. group 2). Nevertheless, the reduction in the infant mortality rate is relatively similar in any of these cases (see Table 17-F).

[16] The most strictly formulated condition is that the distribution of the socioeconomic variable stay constant throughout the municipalities.

Table 31. Variation in Infant Mortality Rate 1989/91 to 1993/95

	ALL	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
INITIAL LEVEL	0.609*	0.782*	0.519*	0.156	0.631*	0.533*	0.728*
CONSTANT	-7.13*	-10.54*	-4.71	-3.98	-7.60*	-3.89*	-8.47*
ADJUSTED R2	0.38	0.64	0.37	-0.04	0.39	0.37	0.57
NUMBER OBSERVED	317	104	33	19	67	34	38

Note: Regression coefficients are reported.
*Significant to within 5%

Conclusions of the National Level Data Analysis

Allocations and Equity Under Decentralization

One of the objectives of the health system is to provide equal access and funding for primary health services and activities. The resources earmarked for primary health care originate both in the central government, which in the period under study allocated similar per capita amounts to all municipalities, and in the local contribution to health, which is uncontrolled by the center and was found to be a function of the total level of municipal resources. In other words, wealthier local governments were able to assign higher per capita funding than were less wealthy municipalities. We found that for every 1% increase in municipal income, there was a similar increase in allocations to health. This general effect, however, was somewhat compensated by a relatively unique equalization fund, the Common Municipal Fund, which redistributes resources among the municipalities. The CMF reallocates resources among municipalities and significantly reduces income inequalities (Gini of 0.30 prior to redistribution and 0.45, after redistribution).

The study found a significant correlation between the municipal expenditure per beneficiary and the level of municipal revenue (correlation of 0.527). This is so because the local contribution varies with municipal income while the central contribution is the same for all municipalities. There is no clear pattern on the part of the central authorities to direct expenditures toward the poorest municipalities, although there may be an effort along those lines through the introduction of specific programs directed by the Ministry of Health which are outside the scope of this study. Reallocation of resources is mainly achieved through the CMF and not by central government decision.

The study found however that the presence or absence of a centrally controlled primary care provider (through the Servicio) was related to the decisions of localities to assign resources to their health sector. When controlled for total municipal income, those municipalities in which the Servicio is present systematically provided a smaller contribution to their municipal primary health care system.

On the other hand, the urban communities reveal a higher local contribution to municipal revenue in comparison with the rural municipalities. This could indicate a response to increased political pressure on the part of the community concerning demands for social services. This is not a cost factor, given that variables such as medical wages tend to be higher in rural zones than in urban areas.

Conversely, when the change in local contribution during the 1992-1996 period is examined, it can be observed that in those municipalities in which the Servicio is not present there is a greater response to changes in municipal revenues. In other words, these

municipalities are more sensitive to change, while those in which the Servicio provides primary care appear to "lean" more upon this circumstance. A similar reading is derived from the substitution relationship that exists between the local contribution and the central contribution in groups of municipalities where the Servicios are present, while at least one group of municipalities in which the Servicio has no presence demonstrates a complementary relation between both types of contribution. The usual finding of “fiscal layziness” does not appear in relation to the funds provided by the center to the local government but rather in the physical presence of centrally funded primary care facilities.

Utilization

A second indicator of equity is utilization of health services. The analysis found that the level of local health activity was related to the level of expenditure and the degree of rurality. This suggests that there may be a significant difference in the kinds of service that are provided in urban and rural primary care. Indeed, rural municipalities systematically manifest a higher volume of primary health care activities than urban municipalities.

However, when we examined the change in the level of activities as a function of changes in the level of financial resources (period 1992 - 1996), we found that urban areas increased their activities at a faster rate than did rural areas. This response may be due to greater social and political pressure on local governments in urban areas.

Efficiency

Efficiency is another of the objectives of decentralization. In this analysis it has been defined as a relation between outputs (health activities) and inputs (health expenditures). This analysis found that health activities were related to the degree of rurality (controled for type of service rendered) and to the registration rate in municipal clinics. The latter measures the capacity of local government, and in that regard is consistent with the achievement of efficiency in the management of municipal primary health care, even though the causal relation between the two variables may operate in both directions. Thus, the registration rate is associated with the amount of activities in the case of municipalities where the Servicio is present, which would be consistent with the population’s greater dependency on the municipal clinic when it is the only source of primary health care.

Expenditures for medical staff may be another variable related to efficiency. We found that these expenditures are related to total available resources for primary health care. Medical wages appear to respond only to how rural a municipality is, thus bolstering the hypothesis that it is a variable exogenous to the municipality and determined more by market considerations that require higher salaries to attract physicians to rural areas.

Quality

Quality of care refers both to the technical quality of the service provided and to user satisfaction. The latter criterion is of particular interest if we take into account the high degree of dissatisfaction with the health system evinced by the population, as reflected by the disparity between negative public opinion polls and the country’s generally good indicators in this field. The underlying hypothesis explaining this contradiction is the inadequate treatment and care received by public system users, particularly through the primary health care system, which is the point of most frequent contact between a significant portion of the population and the public health system.

Among indicators used to measure primary health care quality is the waiting time at primary health care clinics and the perception of quality and degree of satisfaction expressed by system users. It is necessary to take into consideration that the aforementioned variables are not available in the existing databases. Studies ordered by the Ministry of Health conclude that there are no appreciable differences in the quality dimension between clinics that depend upon the municipality and those that depend upon the Servicios. ("Evaluacion de la Atencion Primaria", Division de Salud de las Personas , Departemento de Atencion Primaria, Ministerio de Salud, Santiago, 1997).

FINANCIAL SOUNDNESS

For the central government it is important that decentralization not threaten the country's balance of public finances. This concern has a basis in reality, given that local governments may feel tempted to increase expenditures above and beyond revenues if the framework of incentives and constraints allow them to do so. The local government may have clear incentives to increase expenditures, insofar as this improves the well being of the community and financing is forthcoming from the central government. Therefore, careless planning in the financing of the decentralization process could constitute a hazard to the country's fiscal stability.

In Chile the municipalities do not have the possibility of carrying deficits, as they cannot issue debt instruments. This presupposes an important control in municipal finances: given that it is not possible to finance the excess in expenditures there is no room for a deficit. An exception to this rule is the debt originating from non-payment by some municipalities of social security contributions for employees (including teachers and health workers).

Fiscal pressure therefore expresses itself through the requests for greater resources from the central government. This pressure has been channeled through teachers' and health workers' unions, which have carried out nationwide work stoppages intended to achieve wage increases and benefits associated with job security (bylaws). This pressure upon fiscal resources is beyond the institutional boundaries of the decentralization process. Furthermore, the force exerted by union pressure and its success has its origin in the centralized nature of these sectors (to which must be added the strategic importance of education and health services). In this regard, pressure upon fiscal resources cannot be attributed to one or another of the municipalities, and is therefore beyond the scope of this study, which seeks to identify those means of decentralization that are most propitious for advancing the objectives of the principal.

CASE STUDIES

The case studies were selected to attempt to evaluate in more detail the differences between centralized and decentralized municipalities. We had hoped to assess this difference through national level data and when this was found to be impossible due to data limitations in the centralized municipalities, we focused the case studies on this issue. We selected the three cases of municipalities where the central authorities, through the regional Servicios, were the sole providers of primary care: Santiago, Maipu and nine municipalities in the Region of Aysen As noted above two of these areas had had an initial period of decentralized responsibility but both had been returned to Servicio responsibility. Maipu had been under central control and never decentralized. We compared these communities with two similar areas which were decentralized: Concepcion which like Santiago is a large city, and eight municipalities in the Region of Nuble which is a dispursed rural area like Aysen. An initial attempt to select the cases on the basis of additional national level data did not result in meaningful comparative cases.

Table 32 summarizes the general comparative statistics from our data base for the municipalities included in the case study.

Table 32. Data for Year 1996

	ÑUBLE (1)	AYSEN (2)	CONCEPCION	MAIPU	SANTIAGO	REST
Population	8815	34528	263394	324169	229580	43300
Child mortality	11.7	18.4	14.9	9.0	10.2	14.9
Local revenues (3)	25683	7642	18189	54630	20471	230145
Local revenues (4)	40385	29747	42397	24342	126473	40674
Rural incidence	0.70	0.18	0.01	0.01	0.00	0.47
1992 PHC activities per benefic. (5)	4.99	------	5.90	-----	-----	6,77
1996 PHC activities per benefic (5)	5.85	------	6.28	------	3.50	7.09
Total expenditure p/b,1991 (6)	5940	-----	9190	----	59507	6303
Total expenditure p/b,1996 (6)	12500	-----	14472	----	39972	10503
Central Transfers in PHC budget % (7)	61.0	----	48.0	-----	4.0	64.0
%, Local contribution in PHC (7)	29.0	----	33.0	-----	82.0	25.0
% wages in PHC expenditure (8)	61.0	----	73.0	-----	57.0	61.0
% administrative wages in PHC exp (8)	9.0	----	5.0	----	19.0	11.0

Notes: (1) average (non weighted) of seven rural municipalities in the region of Ñuble
(2) average (non weighted) of two largest municipalities in Aysen
(3), per capita terms, before redistribution by Fondo Comun Municipal
(4) id, but after redistribution
(5) Available only for PHC under municipal administration (no under Services)
(6) $ 1966
(7) 1996, other income adds up to 100%
(8) 1996, purchase of input adds up to 100% (and about 2.0% in investment)

These case histories were prepared by an interviewer with long experience in the health sector. The interviews were with officials from the local health offices, the Servicios, the municipalities, and other observers. Interviews generally lasted over one hour. The list of interviews is in the Appendix.

MUNICIPALITY OF SANTIAGO: RECENTRALIZED PRIMARY HEALTH CARE SERVICES

Santiago is one of several municipalities in the Metropolitan Region, the capital of Chile.[17] The central government executive offices including the ministries are located in Santiago, along with home offices of all the principal banks and most commerce and industry of the country. The municipality itself is relatively small, with 229,300 permanent inhabitants, however as the city center it attracts around one million workers during the day.

The residential zone is composed of old residences, many from the end of the last century, that shelter the population comprised of those of lower socio-economic status, including many retired people. Thirteen percent of the adults are older than 65 years old -- double the national average. Many of the residents live in fair to bad conditions, particularly after the earthquake in the capital in 1985. Frequently these houses are shared by a few families and rented separately to each family. One of the greatest problems of the area and of all the metropolitan region, is the high level of environmental contamination especially in the months of autumn and winter.

In the last few years a new generation has been “repopulating” the municipality. Renovation of apartments and condominiums has brought young married couples from wealthier socio-economic levels. These new inhabitants, in general do not use the public health services but rather are members of the private insurance system of ISAPREs.

The Primary Care Community Network

Santiago is quite an unusual municipality in Chile. Not only is it the center of the capital city but it is within the responsibility of two regional Servicios the Central Metropolitan Regional Health Service (SSMC) and the Western Metropolitan Regional Health Service (SSMOc). The Grand Santiago Metropolitan area is also served by four other Regional Servicios (North, East, South and South Central) Only one other municipality in Chile is divided like this (the other also in Grand Santiago). Currently, Santiago is also one of only two areas in which all of the primary health care system that had been under centralized control prior to 1980's is now the responsibility of the two Servicios. The primary care facilities for one of the Servicios (SSMC) however had been privatized for a brief period during the military government. This occurred in all the municipalites within the Servicio, including Maipu as we will see in the following case. All the other municipalities served by the other Regional Servicio SSMOc were decentralized.

Most primary care in Santiago is provided by three big, old clinics built in the 1940s. These clinics depend on the two Health Services. Consultorios N1 and N5 depend on the Central Metropolitan Health Service (SSMC) and the Andes Consultorio depends on the

[17] Including also Maipu -- see next case.

Western Metropolitan health Service (SSMOC). In addition there are three emergency hospital services: the Central Hospital (principal emergency hospital of the country), The Children's Post of Arriaran San Borja Hospital (dependent of SSMC) and the N3 Post (dependent upon San Juan de Dios Hospital of SSMOC).

The three clinics were originally designed to serve the large working population of the city in large impersonal facilities. This centralized construction has resulted in significant problems of access that particularly affects the older adults of the sector.

A network of seven municipally controlled "neighborhood clinics" complements the Regional Servicio network of facilities. These neighborhood clinics provide services to those who cannot otherwise get to the other establishments. It is particularly interesting that the relationship between these clinics and each Regional Servicios differs. The coordination between the municipal clinics and the facilities run by the Servicios is weak in the SSMC and quite good in the SSMOc. It is expected that in the year 2000 all of the facilities in the SMMOc will be decentralized to the municipality.

The Origin of the Municipal Network

The Municipal network is the result of a major community initiative that was begun shortly after the downfall of the Pinochet regime: the Municipality and Participatory Program First Convention in 1990, where the local people discuss the principal problems of the community and discuss solutions to the needs. In the health field these community discussions identified the problem of access and quality of service as priorities. They proposed services that were easier for the local people to reach and more emphasis on preventive activities.

As a consequence of the Convention, five "neighborhood clinics" were created at the end of 1990 and later a rehabilitation center for the elderly in1995 and a sixth clinic in 1998. These centers are located in areas where the population had said it was most difficult to access the pubic system network. The neighborhood clinics were perceived by the community as a victory of local initiative.

The clinics have also become centers for other community initiatives such a as a program for older adults with around 100 clubs and 3000 people enrolled, with large recreational and preventive components. There is a Community Office for Women with two programs tied to and coordinated with the area of municipal health. One is for women's health and the other is for mental health. They provide psychological support and training to women with problems in their daily lives. There is another program for domestic violence that carries out activities in training and prevention in violence and child abuse, providing services for them. Finally there is a program for drug abuse that incorporated both prevention and promotion and also has a component of treatment.

Relationship with Regional Servicios

During the military government, rather than decentralize the primary care facitlities to the municipal government, the facilities in SSMC were privatized. This experiment caused a great deal of instability for the health workers who had previously been protected by civil service benefits. This experience would have a long term effect on the future of decentralization in the Servicio. Privatization was not well implemented and resulted in a financial crisis and the experiment with privatization was ended few months before the end of the military government.

After experience with managing their own municipal neighborhood clinics and with rising complaints about the poor level of services offered by the SSMC, the municipality of Santiago petitioned to gain control over the SSMC's clinics. The petition led to protests by the civil workers of the Central level and strikes to oppose the measure. In the end it was not implemented and there continues to be strong resistance in the SSMC to any municipal initiatives and to coordination between the SSMC and municipality. Recently the Ministry has turned over all funding and responsibility for the health promotion activities to the municipalities which has forced the SSMC to be in contact with and plan projects with the Municipal Health Office (DAS).

The relationship between the municipality and the Western Health Service (SSMOc) is quite different. The SSMOc never had clinics in the community of Santiago *[check this]* and the municipal neighborhood clinics were seen as providing needed coverage especially to the poor and elderly population. Since 1996 the municipality and the SSMOc reached an agreement through which the SSMOc donates a small sum of money (approximately 8% of the municipal budget) to support the activities of the neighborhood clinics. As a result of the success of the neighborhood clinics, there was an agreement to use both municipal and regional government funds (US$ 2million) to construct a new clinic to offer integral medical attention could be offered to the sector. This agreement meant that the clinic was the responsibility of both the SSMOc and the municipality.

Social Participation

Since the return of democracy, Santiago politics have strongly promoted active community participation. The current mayor, who has been in his position for ten years has made participation a priority. Neighborhood groups, organizations for women, elderly, centers for parent's of school children, and more recently the citizen safety committee were all re-organized. The mayor designated one hour a week to talk on the phone and respond to doubts of the community over the radio. The CESCO (Economic Social Community Council), the biggest formal organization for social participation, has functioned the whole time during the politics, the projects and communal budget. A competitive fund for community projects was created as an initiative of the community social organizations.

These community groups were successful in developing and supporting the municipal neighborhood clinics and gaining support of the SSMOc. However, they have not been able to gain access to or influence over the SSMC clinics. The SSMC has resisted all efforts of coordination and integration. This difference is both at the administrative and clinical levels. It is clear that the SSMC staff see the municipality as a threat similar to the privatization experience. On the other hand the staff of the SSMOc is much more responsive to local initiatives. The staff participate several times a year in promotion activities carried out by the municipal clinics in plazas in the different neighborhoods.

Innovations in Service Provision

While the municipality innovated by creating and funding its own neighborhood clinics, most of the new innovations in service delivery have been initiated with national funds. The visibility and resources of the municipality of Santiago make it a prime place to pilot national programs. For instance, the Ministry has initiated new programs in mental health, programs for women, and a program for domestic violence and child abuse. These programs are used as examples for other communities. A prevention and drug treatment program with an interesting experience in care of the drug addict, with a different strategy than putting the

addicts in a community with other addicts. They have developed also programs already tested in other communities like huge donation of glasses for older adults, donations of dentures and orthodontic treatment for school children.

Some of these new initiatives have failed, such as a center for orthodontic specialties which had high levels of co-payment and low demand. Another nutritional program for older adults was too costly to be maintained, and recently a family health center in an area already highly covered by one of the SSMC clinics, did not have sufficient demand.

Conclusions

The case of Santiago demonstrates that even without direct responsibility for health provision and with no access to national transfer funding, a municipality can begin to respond to local demand and participation to develop and fund its own health services, in this case a network of municipal neighborhood clinics.

It also shows the importance of the history of a process of decentralization that had left a strong scar on the workforce of the primary health care service. The strong resistance to local initiatives by the SSMC, which had experienced a threatening and failed attempt at privatzation, is a sharp contrast with the positive relationship between the municipality and SSMOc. This relationship will result in a formal decentralization of some primary health care services and access to national funding for those services.

MUNICIPALITY OF MAIPU: CENTRALIZED CONTROL BY SSMC AND MUNICIPAL CONTRIBUTIONS

The municipality of Maipu is located 30 km to the west of the center of Santiago. It was originally a satellite city of the capital with an economy based upon agriculture and later in the 1950s it became a center for diverse industries. Maipu was absorbed into the Greater Santiago as it grew explosively since the 80's -- from 114,000 inhabitants in 1980 to 256,000 in 1992 and 500,000 in 1999. While there are still many industries, now Maipu is more of a bedroom community for middle and lower class people working in other parts of the city. The municipal budget in 1998 was $21,000 million (US$47million; approximately US$90 per person per year). Maipu is in the low vulnerability category (13) of the UNICEF socio-economic vulnerability classification.

Organization of Primary Health Care

As in the municipality of Santiago, health care in Maipu is the responsibility of the Metropolitan Central Health Service (SSMC). As with Santiago, Maipu's primary care was originally privatized with disastrous results and then recentralized into the SSMC. There are now two public primary care clinics. The second one opened in 1995 and was financed by the National Regional Development Fund. There is also an emergency health post (SAPU) that sees patients 24 hours, and two small health centers in the rural areas. The Municipality compliments these services with two neighborhood clinics and a specialized clinic for school children.

The SSMC plans to open a Referral Health Center (CRS) that will be one of the principal places for specialty referrals from the primary level to reduce the flow of patients to services in the center of Santiago. The SSMC also plans to build two new clinics in the areas with high population growth, funded by national budget funds.

Programming of Activities

The major clinics in Maipu are programmed, staffed and managed by the SSMC, under the norms established by the Ministry of Health. However, although the SSMC has resisted municipal efforts, the Municipality has begun contributing to expansion of primary services by the clinics by organizing and funding new programs not included in the normal Ministry activities. In some activities, such as workshops for pregnant teens; preventative examinations for the women (Pap Tests) and municipal training sessions, and medical attention for patients with back problems through grants made as a kind of barter between the municipality and the SSMC. This exchange has involved municipal contribution to Mental Health Unit of the SSMC clinic, two ambulances, vehicles for health campaigns, civil workers and supplies for the clinic lab in exchange for the SSMC professionals providing examinations in the Municipality-owned neighborhood clinics.

The Municipality on its own carries out several activities such as providing specialist care for older adults at its neighborhood clinics, managing a community center for mental health, preventive programs in family violence, drug abuse, emotional problems and psychological rehabilitation for schizophrenics. Under a recently created Office for the Disabled, the municipality has also provided a "self-management" center for deaf and blind children and those with autism, cerebral palsy.

The municipality has also coordinated activities with the Ministry of Education for the detection and treatment of visual and hearing problems and orthopedic and back problems for school children. It also supports a dental clinic that carries out preventive activities and treats cavities for all elementary schools in the area. The municipality has also created a special Health Fund, like a social assistance program, that helps people “indigent or with the proper needs” economically. It helps people affected by serious illnesses such as cancer, AIDS, or after certain types of surgery.

Despite the fact that the major services in Maipu are provided by the centralized SSMC, the municipality has been able to provide a series of activities that have not been addressed and that will not be addressed at the national level. For example, programs for persons with disabilities or those with catastrophic illnesses.

Management of the Municipality-Health Service

The municipal health programs are not run directly by the municipality but rather are contracted between the municipality and its clinics. The Directors of the neighborhood clinics are not part of the municipal government. However, municipal officials are members of a "Development Council" that is formed as an advisory body for each clinic. The clinics report to the Municipal Council that approves their annual budgets. The clinics are not allowed to sign separate agreements nor assume responsibilities beyond the original contract with the Municipality.

Social Participation

The social participation at the community level is organized through the Neighborhood Committees. They elect directors who form the Communal Union of Neighborhood Committees. There is also an advisory Economic Social Community Council.

The Development Councils for each neighborhood clinic might play a role as a venue for community participation, however, interviews suggest that these advisory councils do not have much power and are used by the clinic staff to get community funding. It is not an arena where the community expresses its interests and desires about the functioning of the clinic. The interviews suggest that some members of the community feel that the municipal authority does not respond to community participation because it sees community leaders as threats in future elections.

Conclusion

Like Santiago, Maipu shows that a local municipality can take initiatives to provide health services even though the major providers in the municipality are the SSMC clinics managed at the national level.

Maipu has made an effort to provide both neighborhood clinics and specific kinds of services that are not provided in the normal national benefits package-- in mental health, disabilities and chronic illnesses.

It has also developed a contractual relationship between the management of the municipal neighborhood clinics and the municipal government. It does not run the clinics as part of the municipal government.

Finally, although the municipality has mechanisms for community participation, it appears that these mechanisms are not particularly effective means of expressing community desires.

THE PROVINCE OF AYSEN: RECENTRALIZING PRIMARY HEALTH CARE SERVICE

The Aysen region was the last region created in the regionalization of the National Health System in the 1970s. It is located in the extreme south of Chile, about 1500 km from the capital. There is no direct access to Aysen by paved roads and it experiences harsh winters that restrict mobility between the different zones of the region. Colonization of the area began around 1930 with the exploitation of the livestock in the interior Patagonia area. In order to sell the livestock in areas other than Aysen the two main centers were created: the port of Aysen and the city of Coyhaique. Since this region borders Argentina, it has been given high priority within the government in terms of administrative control of the area.

The population of Aysen has grown slowly, from 78,800 in 1990 to 87,800 in 1995. Livestock sales have decreased along with activities related to fishing and mining, both which were developed fairly recently. Tourism is growing, especially since new roads have been constructed over the last 15 years making travel in the area more of a possibility.

There are ten municipalities in the area, with 78% of the population concentrated in the cities of Coyhaique (45,000) and Aysen (20,000). Four of the communities have less than 1500 habitants and the rest only a little more than 5000.

The process of decentralization to these municipalities started in 1982 with the emergence of the rural health posts in the larger communities. The process was expected to continue to all the communities in spite of the criticism from regional health authorities in1988. However, in 1993, the process was reversed and primary care returned to the regional Servicio the health service.

Primary Level Organization and the Problems of Municipal Transfer

The health care network of the region is made up of a relatively complex hospital and two general urban doctor's offices in the region's capital, four basic hospitals in other communities and 30 rural health posts with an auxiliary resident in each one. The cases that could not be treated in any of the regional facilities are sent 500 km to an area with a more complex health care facility in the city of Puerto Montt. Since 1990 four new rural posts have been constructed and the existing infrastructure has been 90% renovated. The regional hospital has also undergone some renovations including the construction of new pavilions and an intensive care unit, which will increase the capacity of the regional health system as a whole, since there are no private establishments. These regional investments in construction and improvement have been made with funding from the National Fund for Regional Development (FNDR).

The dispersion of the population and the difficulties of access have meant that planes and boats are often needed to access certain places in the area, and making emergency situations difficult. The health services have emphasized measures to prevent emergencies, such as moving pregnant women to the regional capital weeks before the a birth that might have complication. The dispersion of the population also requires that a professional health care team visit the rural health facilities since it would be too costly to provide full time staff for such a low population.

The above mentioned realities were not considered carefully in the process of decentralization. Funding was assigned according to national standards for financing the posts, the rural auxiliary, fuel and medications without taking into consideration the additional costs for the dispersed population and transportation needs. Fixed costs were high and the number of patients to attend extremely low, however the funding was assigned according to the national standards of fee for service of FAPEM which made it impossible to finance the system. In some cases the administrators made their workers invent activities so that they could receive sufficient funding.

The situation showed some disturbing consequences, such as an increase in the number of children born at home in cases that should have been referred to a higher institution and an increase in the number of childhood mortality due to respiratory infections[18]. The Regional Health Servicio had maintained a team to do rotations in the rural areas financed with their own funds, but was insufficient to cover the large and disperse geographic zone. It was this team that expressed concern in 1988 and promoted the change needed for the situation.

[18] This information comes from the Medical Service Subdirectory, the most permanent professional in the health system, warning that does not reflect itself in the numbers because of the small number of infant deaths in the region.

To begin remedying the situation a Reciprocal Assistance Convenant[19] was implemented in 1990. These were legal instruments by which the municipalities could give over part of their health funds to support the Servicio's rotation team and later support buying medicines. However, this source of funding was not suffcient to support the activity and the idea of returning all the facilities and responsibility for primary care to the Servicio -- in effect recentralizing -- gained force. This idea was supported by all mayors and all the local health authorities. It was also favored by the central Ministry of Health which saw it as an initial step that might allow the Ministry to recentralize in other areas.

This pressure was successful and in 1993 the Health Servicio took over once again the administration of the facilities, controlling funds and personnel in order to maintain the technical coordination of the whole regional health network. The situation since then has improved. Now there are 5 professional teams that perform rural rotations, with an agreement with local airlines to help transfer patients and professionals. They also have a Service boat to carry out the rural rotations in the isolated, coastal areas. The only inconvenience cited by some of those interviewed is that the municipalities have ignored altogether the problem of sanitation.

Programming Activities

The restored Primary Care Organizational Team is probably the most stable of the whole Health Servicio and is famous not only in the region but at the central level too. This team has been functioning for 15 years now. In the first few years of decentralization it was in charge of monitoring the quality of attention and maintained high levels of motivation for the rural rotations. The credibility of the team at the central level allowed it to gain greater access to programming and funds from the central level.

This technical leadership and the decentralization process caused all the municipalities, both big and little, to step away from the health sector, leaving all the responsibility in the hands of the professionals of the sector. This could be viewed as a problem in the future especially since the idea of the local vision and the possibility of an inter-sectoral work had been lost.

Human Resources

The testimonies of the technical teams show the impact decentralization had on the region. Isolated, lost to peer contact, in a broken relationship with the secondary level and distanced from the professional rotations.

But the recentralization also had negative repercussions for these same people. While they may have received a bonus for ending their contract with the municipality, but upon re-integrate into the public system their years of working for the municipality were not recognized for seniority. Some staff salaries ended up being lower than those of others who joined the Service after them, affecting their pensions. These teams feel that they gave up everything for the health of their region, and they demanded and were able to reverse a measure that had negatively affected the population's health. Aware of the issue the central Ministry was unable to change the rigid civil service rules on salaries and seniority.

[19] These are different from the CITAP in Nuble which rotates an assistance network in rural Health Service hospitals bettering the access opportunities in the complexity of the decentralized establishments. The CARs deal only with administration of comunal funds on the part of the Health Service of Aysen.

Social Participation

The region has followed the same pattern developed by the health sector that is seen in the rest of Chile. There are Development Councils in the hospitals and local committees in the doctor's offices and health posts. In the case of Aysen they have also added a Regional Health Council. The regional hospital's development council functions the best, since there is certain prestige to be a participant in that group.

The local people, however, see the participation in neighborhood groups as more important for them in order to gain access to competing funds or projects run by the municipality.

Conclusions

There is unanimous agreement among the participants that the decentralization of Aysen was a mistake, a product of the rigid and authoritative center, not the local authorities who were also in disagreement with the measure from the start. As the different interviewees expressed, Aysen was really still in the process of becoming a Region, and its municipalities were too small and weakly organized to take on this responsibility in an area where terrain and dispersion pose such important obstacles.

While this is the view of the participants, they also recognize that the failure of the decentralization process was mainly the lack of sufficient funding imposed by the failure of the system to provide an exception to the FAPEM mechanism of payment. Had the municipalities been allowed sufficient resources to provide services comparable to those now provided by the Servicio (with significantly higher funding), they might have been able to manage the decentralization process better. Current attempts to provide funding by per capita mechanisms, adjusted for dispersion and transportation, might have overcome the problems that led to the recentralzation.

THE CITY OF CONCEPCIÓN: DECENTRALIZED PRIMARY HEALTH CARE SYSTEM

Concepción is the main community of the Bio Bio region, located 500 Km to the south of Santiago. It is the second to largest urban nucleus in the country, with important industrial areas and ports. Concepción is a community with low index of vulnerability, ranking 51 out of 307 in the national poverty index.

Concepción is a city known for its history of relative decentralization, having made serious attempts in the past century to create a fully independent region from the capital. The anti-religious movement of the 19th century was born there and it was an area of revolutionary movements in the 70s, with a radical center in the Concepción University, the third most important in the country. The military dictatorship in1973 focused repression on the City, removing the local industrial management, and putting military authorities in the University and in the regional government; and violently restricting any new attempts at restoring democracy. Today there remains only a weak expression of the earlier radicalism and many private Catholic universities have opened up controling among other things the local television. In spite of this Concepción is the leading community in the Southern part of Chile

and tends to propose alternatives that counterbalance the strong influence of the central government.

Concepcion has devoted a significant portion of local resources to health. Between 1991 and 1998 the municipality has increased its share of funding for primary care from 31% to 50% and increased the portion of local revenues dedicated to health from 4% to 10%. An interesting characteristic of Concepción, which may partially explain the important financial contribution the municipality has made to health, is that since 1990 all the mayors have been doctors who have run on health care issues in their campaigns. Moreover, two other members of the municipal council, the group in charge of approving the municipal budget, are also doctors.

In 1997 Concepción was divided to create two new communities, Chiguayante and San Pedro.

The Organization of Primary Health Care

The municipal primary health care is provided through six municipal clinics (consultorios), which care for 86,000 patients, these clinics have been funded under the percapita mechanism since 1998. The regional Servicio also provides some primary health care in its speciality clinic "Dr. Victor M. Fernandez". There are 45,000 patients assigned to this clinic, including all of the rural sector of the community (5000 inhabitants). This clinic is financed with funds from the Servicio budget. Another clinic. "Nonguen", is run by a NGO with a contract with the Servicio, with 6000 registered patients. The NGO clinic receives a per capita payment (similar to that which is assigned to the municipality) and additional contributions from other investments since the infrastructure is provided by the Servicio. The NGO was initiated in the 1980's with funds from the Italian government.

All the facilities have to refer their patients to the specialists located in the regional hospital. The municipal health system has a laboratory funded with money given on a per capita basis. It has a basic radiologist and a sonogram provided from their own funds. It also has, due to their collaboration as field clinic for the university, a dermatologist and an obgyn and a pediatrician, increasing the resolute capacity of this system. The two clinics under the Servicio refer their exams and x-ray needs to the regional hospital.

The municipal health administration has a Health Department with administrative personnel who manage human resources and monitor acquisitions. There is also a technical team to monitor the facilities.

Activity Planning

Each clinic independently programs its own activities through a process involving the health professionals and the Development Council of the center. The activities are planned based on the country priorities defined by the Ministry and locally adjusted by the Health Servicio, based on local needs assessments. Within these guidelines, each clinic establishes its own priorities. In general, however when budgets are restricted it is the community activities and promotion programs which are the first to be cut.

Program planning concludes with the signing of a management agreement (compromiso de gestion) between the municipality and the regional Servicio, specifying the activities to be accomplished in return for a small financial contribution from the Servicio. The award was distributed in equal parts among all the clinics. The directors of the different centers were the

ones who decided to divide the money equally and also added that most of the money had to be invested in bonuses for the civil servants.

Each clinic also prepares specific indicators to show that they are meeting established goals of technical objectives and patient satisfaction which are evaluated by the Municipal Health Office.

In addition to the Servicio and the municipality, there is a Regional Secretary of the Ministry of Health (SEREMI) who is attached to the general administration of the region. The SEREMI plays a coordinating role among the region's mayors and develops centrally funded projects for the region. For instance, in 1998 SEREMI sponsored a competitive fund for social investment projects that included a benefits package for older adults.

Recently there have been conflicts between the central ministry and the municipality over the funding mechanisms for municipal health clinics. The Ministry has reduced the population estimates for the calculation of the per capita payments to the municipalities using its own data base and eliminating the double registration it identified in the municipal clinic registers. The municipality contests these estimates claiming to know its local population better than the distant bureaucrats of the Ministry of Health. It also is unhappy that the decisions were made unilaterally by the center with no attempt to find a negotiated solution with the municipality. The Ministry's decision was particularly ill timed since the municipal budget had already been approved and the new estimates would mean a significant shortfall in the municipal budget.

The Work of the Municipality—Health Service

The Health Care Office (DAS) of the Municipality has been relatively autonomous from the Servicio since the beginning of decentralization in December 1987. The autonomy is due in part to the Health Care Office's capacity to attract good professionals and persons with strong analytical capacity. Secondly, the Servicio felt overtaxed with responsibility for 10 dispersed poor rural communities in the Province of Aruaco, and was willing to let the municipal government take more responsibility to allow it to focus on the rural areas.

The working relation between the municipal health office and the Servicio is not always smooth. According to the current Director of the Municipal Health Office attempts at coordination usually break down because the Service has a tendency to impose its points of view. In the words of one of the directors of a clinic, “They make us feel like professionals of second class, the Health Service comes in only to impose initiatives that are not financed.” Nevertheless all agree that the coordination between the two offices does work well in emergency situations (epidemic threats such as colera or hanta virus) and in order to plan investment projects (such as the remodeling of the O"Higgins Clinic).

Another activity that requires the coordination of the municipality and the Servicio is the approval of the training programs for local health staff. The law for the decentralization of municipality health, the Primary Care Statute, requires that there are 3 forms of incentives to better the career and the income of the civil worker. The three forms are: seniority, skill and merit (which has not been fully defined as yet under the law, but implies incentives given according to personal performance). According to the Statute, the Servicio has to approve the training projects, making sure that they touch on all the planned priorities approved by the Ministry and adjusted locally. Moreover, the training must be run by accredited organizations and with sufficient academic hours. Up until now both the municipality and the Servicio have agreed on the training programs.

Social Participation

As was mentioned above each clinic has a Development Council, with its own legal identity so that eventually it will be able to manage its own funds. This is the environment in which the organized community participates and where the clinic's activity programming is approved. This process has been extremely valuable for the leaders of the community allowing them to gain grants from the municipal government for painting the clinics and coverage of some of the bills for laboratory exams for patients with chronic diseases. There has also been the opportunity to present projects, such as rat control, control of homeless dogs and cleaner environment, to the municipality.

Some of the leaders of the community note that decentralization means more control over decision-making for the community. However one of the leaders said that decentralization meant increased difficulty in terms of access to specialists, alluding to the difficulty in coordination between primary and speciality levels of care. The community leaders of the rural sector highlight a serious problem of coverage that has not been solved. These leaders live on average 25 Km from the city and have been assigned to the Servicio-run Fernandez Clinic to receive medical attention. This clinic has not been responsive to requests for a special schedule for those that come from afar, who often arrive too late to be seen The solution proposed by the community has been to open a rural clinic but this has also been rejected by the Servicio. The municipality has also not been able to address this problem since the problem is in an area that is not in an area under its jurisdiction. Community leaders all agree that the municipality is more likely to provide additional funding than the Servicio.

There is a diversity of Municipality funds that the people of the community can petition for if they have a neighborhood organization or community institution to work through. These funds include a Neighborhood Development Fund (FONDEVE) which donates resources to investments least presented by the neighborhoods in matching grants which generally require the neighborhood to provide 40% of the costs through manual labor (e.g. paving of sidewalks and passages, sewage systems). In 1998, 91 million pesos (approximately US $200,000) was granted.

A second source of municipal funding is the Director of Municipal Community Development (DIDECO), some of which provide funds for local initiatives or to themes related to health problems. In 1998, they had $233 million (approx US $500000), spending 32 million for assistance to the disabled, 10 million for the elderly and 8.3 million to the Play for a Healthy Community Program petitioned by the Development Council from one of the municipal clinics.

Finally, there is another municipal fund which also has room for health initiatives carried out through voluntary community institutions. In 1998 $300 million was spent (approx US $650,000) of which 65% went to fire fighters, who in Chile are volunteers, and the rest went to different institutions, many of which are associated with health problems like the Association for Families with Schizophrenics; for those with limited vision; to help those with cancer; and the Concepción Red Cross.

Human Resources

As in most of the health system, the civil service health professionals opposed decentralization and hoped that the system would be recentralized with the return to democracy in 1989. There was significant resistance to being dependent on the municipal government and its priorities. Nevertheless, the health professionals maintained the high level

of technical competence and motivation that had been established under the centralized SNS. However, there has been a relatively high turnover of staff in the municipal clinics.

In order to address this problem, the municipality initiated a special bonus program for professionals who remain in their positions. These bonuses range between 25% and 30% of their salary and appear to have been working.

Conclusions

Unlike Santiago, Concepción has had a relatively high level of autonomy since the beginning of the decentralization process. While there has been some friction and failure to coordinate activities with the Servicio, in general the relations have been good. With doctors as mayors, Concepción has been able to assign significant local resources to its municipal clinics and through a variety of local funds for social programs has supported community initiatives in health. It has also been willing to provide financial bonuses to local health providers in a successful innovation to reduce high levels of rotation.

THE PROVINCE OF ÑUBLE: MUNICIPAL ASSOCIATION AND MATCHING GRANTS

Ñuble is a province located to the north of the Bío Bío Region, the same region as Concepción. It is a purely agricultural area, located in the dry zone, dangerous during the rainy season, high levels of soil erosion, low population density and poor. The main product of the area is wine, which as a consequence is related to an increased drinking level and other problems such as violence, alcoholism, and liver damage. Wine exportation has been quite profitable in the area allowing for vineyards to be built and new varieties which has brought more profitable yields. Moreover, the roads to the area have improved and there is now telephone access to the area, both of which help to integrate Ñuble to the rest of the region.

There are eight municipalities that make up Ñuble with a total population of 80,000 in 1992. All the areas are very rural with very low population growth. Four of the eight communities actually decreased population size from 1982 to 1992 and are probably some of the poorest and least developed areas of all of Chile.

All of these municipalities took control of their primary health care facilities by 1989. In 1995, six of the eight municipalities formed an association to fight the poverty of the area. They received a grant of US$500,000 from the Ministry of Health for a three-year project to attempt to provide a cooperative solution to resolve the main health problems in the area. By 1997, all eight communities had joined. The integrated health plan that the association developed focused on community development, with an emphasis in the areas of extreme poverty. The objective was to improve overall health, living conditions and local management capacity. The association's administration is in the hands of and integrated directorate made up of the six mayors, a councilman from each community, and a President of the directorate.

Organization of Primary Health Care

In the eight communities of Nuble there are two basic hospitals, one in Quirihue and one in Coelemu. These hospitals have hospital beds and capacity for emergency surgery. There are six general rural clinic, attended by a doctor, nurse, dentist y midwife. There are 17 smaller health posts, attended permanently by a nurse, with physician rotations on a weekly or bi-

weekly basis. There are 25 rural medical stations (places without resident personnel that have health visits every 15 or 30 days). The hospitals are administered by the regional Servicio and take all reference from surrounding areas along with providing much of the primary health care to the two areas where they are located, the municipalities of Quirihue and Coelemu. For this reason there are not general clinics in every community and why the municipal government in Quirihue and Coelemu take responsibility only for the rural health posts.

All of the municipalities require doctors to do rotations in rural areas. The physicians are usually general medicine doctors that do service for 3-5 years in rural areas before specializing. These rural rotations are directly financed by the Ministry of Health.

The Municipalities Association and the Assistance Network

The Municipalities Association became a mechanism that the Ministry of Health and its regional representative, the SEREMI, used a matching grant mechanism to promote an Integrated Health Plan for all eight municipalities. The ministry established an initial grant for urgent investments and a fund for projects based on local diagnosis and initiative. This grant was a matching grant in which the central ministry provided M$201,246 and the association, from its general grant provided M$ 30,500 in 1997. In addition, for specific activities the municipalities provided additional funds from their own revenues. The communities give priority to a waiting list for glasses; the development of a dental program for the primary schools; the training of auxiliary workers in the prevention and treatment of diabetes and other rural health care topics; the training of the health care teams in elaborating a community plan for health; and a training plan for 1997.

Evaluation of Integrated Health Plan

The project allowed for several health posts to be rehabilitated, vehicle purchases and radiocommunication units were installed in the facilities within the network. This investment program was funded entirely from the Ministry of Health funds (M$ 58,142). The dental program reached 78% of the schools in the province and was funded 66% by the central matching grant and the remainder from municipal funds for a total of M$ 54.773. The eye program was also a matching grant in which 64% came from the central funds. Training for rural nurses was funded almost entirely from the central grant. The auxiliaries were trained in managing diabetes. In the first year evaluation, the number of hospitalization for diabetes decreased and although the number is too low to draw any conclusions, the number of amputations decreased from four to one. With the training, the number of patients under diabetes management (59%) and hypertension control (88%) both increased. Preventive examination for the elderly increased, along with preventive exams for uterine cancer, TB, and the number of women who use contraceptives.

Under the matching grant, the health teams were also trained in how to write a community health plan for 1997.

The matching grant program resulted in an increase in local funding for health from 30% in 1995 to 33.6% in 1997.

Coordination among the municipalities continued to expand in 1998. The training programs expanded and the association added two promotion projects with funds from the Ministry of Health ("Healthy Life Styles" and "Safe Life Styles" with an emphasis on oral health), for a total of M$21000 in which the central matching grant is 62%. A third project was awarded

by the Ministry of Interior for drug prevention ("United for a Better Future") for a total of M$13,000, in which the central grant is 35%. One program, the dental health program will be maintained by municipal funds only since the central funds for this activity were suspended.

The Integrated Health Planning program did not expand to develop a common means of activity programming and planning. It rather focused attention on collective activities funded by the matching grants only.

After 1998 the external funding stopped and the Municipal Association of mayors functioned less. However, as part of the Servicio's support for the Integrated Health Plan, an Intercommunity Technical Operations Committee was formed to facilitate coordination among municipalities. This committee attempted to strengthen the support network and the referral mechanisms between primary care and specialist care. The committee is presided over by the directors of the local referral hospitals

The Social Participation

The Integrated Health Program promoted the creation of Local Health Committees in clinics and posts and the Development Councils in hospitals. These organizations were able to present projects to resolve problems they identified. Between 1995 and 1997 fifty one projects were initiated by this process: 40% for health promotion activities (the formation of health volunteers, alcoholism prevention, recreation activities for the elderly), 33% for improving quality of curative services (better access, cardiovascular projects, control of diabetes) and the rest were in Environment Sanitation (water and latrines). These projects were identified by the committees and councils and raised through Neighborhood Juntas to petition the municipal government for funding.

Conclusions

The Municipality Association of Nuble Province was an initiative of the central government and its health activities depended on the matching grant funding from the Ministry of Health. The association was not able to expand to coordinate other activities among the municipalities of the province.

Nevertheless, the matching grant program was an effective means of mobilizing local resources for priority activities determined by both the center and the municipalities. It did provide for some coordination among the municipalities. In addition, the regional Servicio was able to use the association as a basis to organize a regional technical coordinating unit, the Intercommunity Technical Operations Committee, which was successful in improving referrals and counter referrals between the primary and secondary levels of care.

CASE STUDY CONCLUSIONS

The cases have given us a more detailed view of decentralization and address some unusual issues of the implementation of the process in Chile. First, the suggest that decentralization has not lead to significant local initiatives and innovations. Most local services still appear to be following the fairly rigid norms of the Ministry of Health. This finding reinforces the eariler studies which did not show significant differences in performance from before to after decentralization. Even are areas where significant problems arose -- Santiago where privatization was poorly implemented, and in Aysen and Nuble where additional

resource needs could not be met by local resources -- it was central or regional initiatives that moved to resolve the problems. Only in Concepcion, where an unusual history of relative automomy during the centralized periods and a cadre of local physicians took on political roles, were significant additional local resources made available to the local health services. These initiatives however did not appear to produce significant innovations in services.

Nevertheless, there were several unusual findings in these studies. First we found that electoral pressure in some municipalities led them to take on responsibilities for health activities even in centralized areas where the Servicios were legally responsible for primary care. Second, we found that scarce resources and high resource requirements led to two different responses -- recentralization and municipal association -- suggesting that the issue to be addressed is more one of making sufficient resources available rather than recentralizing. Third we found that community participation through the electoral process appears to have been important to pressure local governments to provide more health services in marginalized areas.

"Mimicking" Effect

We found that two of the three areas where the central government is responsible for the provision of all primary care (Santiago, Maipu and Aysen), local governments in the richer municipalities provided resources for primary health care even though they were not legally responsible. In Santiago and Maipu the local governments allocated additional funds and in one case municipally administered clinics and staff in addition to the Regional Servicio services provided by the Ministry of Health. In this case they may have been "mimicking" the trend of all the other municipalities. It appears that there was considerable social and political pressure in these municipalities for the local government to take a more active role and to complement the regional Servicio services.

Recentralized Services vs. Associations of Municipalities

In the case of the two extremely poor regions, Aysen and Nuble, the small rural municipalities, appear to have been unable alone to assume full responsibility for their primary health care. The dispersal of the population, difficult terrain, and the lack of own-source revenues meant that more financial resources than were being transferred through FAPEM were needed to maintain the services. The response to this situation in the two areas was however quite different. In Aysen, at the initiative of the Servicio, the municipalities banded together to insist that the central Ministry return control to the Regional Servicio. In this case, the recentralization of the health services resulted in restoration of previously good performance.

A different response in Nuble was to create an Association of Municipalities, initiated and subsidized by the central Ministry of Heath. Although the municipalities did not initiate or fund the association (and were somewhat reluctant participants), the mechanism did avoid the need to recentralize the services.

The fundamental problem appears to have been the need to adjust the intergovernmental transfer so that sufficient resources would be available to the municipalities since their resource needs were greater than other municipalities and their resource base was insufficient to expect local counterpart funding to make up the gap.

In Santiago, one of the municipalities had been decentralized to a private service which was a failure. The Servicio took back control over the services. The experience in relation to

the two Servicios that serve the Metropolitan area suggest that in municipalities where there are sufficient resources to complement regional Servicio Oc provision, that service improvements can be achieved at the municipal initiative. The failure of the Servicio MC to improve services alone suggests that receontralization alone was not the solution.

Matching Grants

The one example of matching grants, the Integrated Health Program in the Province of Ñuble, demonstrates that the central authorities can effectively use matching grants to promote their own program objectives and to use the program to mobilize local resources from the municipalities. The Ñuble experience suggests that this mechanism was effective in part because the local health committees and councils were able to identify local priorities as well as central priorities and were then able to lobby the municipal governments to gain local resources.

Community Participation

The participation of the local community seems to have encouraged the municipality of Santiago to provide its own services, even though it had no legal requirement to do so. Community participation also seems to have been crucial to significant allocations to health in the second largest city in Chile, Concepcion, where physicians were also local politicans and were able to gain significant increases in local funding for heatlh services. As noted above, in Ñuble local community committees were effective in lobbying municipal authorities for increased allocation of funds for special activities through a matching grant program. The local mechanisms of direct community participation in health facilities seem also to be functioning on more operational levels.

Combining Services for Efficiency

In several cases one of the principal innovations was the use of contracts among municipalities or between municipalities and the Regional Servicio to reduce duplication of effort and combine resources to produce more efficient services. In one case, this cooperation was the result of a matching grant from the central government that resulted in an increase in local allocations to health.

Innovations in Salary Payments

In some municipalities, local resources were used to provide salary bonuses in order to reduce the rotation of staff at municipal services.

CONCLUSIONS

Chile is one of the major cases of decentralization in Latin America, and one that involves the more extreme form of "devolution" to municipal authorities. Our analysis however shows the "decision space" allowed local municipalities, while significant in the initial period, was reduced over time. The actual range of choice allowed to the municipalities becomes quite limited by 1996. One possible effect of this narrow "decision space" is that decentralization may not have had much of an impact on the performance of the system.

Studies which were completed previous to ours suggest only limited differences before and after decentralization and our data confirm this finding. When local governments have control of resources it does not appear that they make significantly different decisions from those made before decentralization. Per capita inequalities which existed before decentralization continue after. Wealthier municipalites assign greater per capita allocations to health than do the poorer municipalities. Interestingly, increases in municipal allocation to health are directly related to increases in municipal wealth., suggesting that health retains its priority at a similar level. However, our evidence suggests that the gap between wealthy and poor municipalities is narrowing over time – a surprising finding that may go counter to the experience of decentralization in other countries and other sectors. In addition, Chilean inequalities are not as great as they might have been because of an innovative equalization fund that reallocates general local revenues among municipalities on a population and income basis.

We also find that there is a somewhat negative effect of "fiscal laziness" in municipalities where central government regional hospitals provide some primary care to a portion of the population. In these municipalities local per capita spending (adjusted for an estimated catchment population) is lower than it is in municipalities with sole responsibility for their populations.

Decentralization has resulted in a variety of innovative practices – including the creation of mechanisms of coordination among municipalities and between municipalities and Regional Servicios. We also found an effective use of matching grants by the central government for an association of municipalities. We also found that several municipalities which did not have responsibilities for their primary health care system, nevertheless, "mimicked" other municipalities, and provided additional municipal resources to fund their own municipal services or contributed to the centrally funded services.

Matching grants may be an effective means for the central authorities to promote their own priorities and mobilize local resources. They may require local participation in the priority setting for local contributions.

There was some evidence that community health committees were able to participate more in allocation decisions after decentralization and were often effective in lobbying for assignment of municipal resources to health care priorities.

We were unable to find evidence that decentralization influenced the efficiency or quality of services and found no reason to believe that major differences in use of human resources emerged from the decentralization process.

IMPLICATIONS FOR POLICY GUIDELINES

If these conclusions are supported by the final analysis, the Chile case has several interesting findings that can be included in the Guidelines for Decentralization:

- The range of choice allowed in Chile does not appear to have led to significant changes in performance – suggesting that advocates for decentralization are over optimistic about its potential positive effects and opponents of decentralization are overly pessimistic about its negative effects
- Devolution does not need to be seen as a complete and one-time give away of control to municipalities, rather the "decision space" allowed is subject to narrowing by political and administrative decisions at the center.
- Narrowing of choice over human resources can have a significant effect on the range of choice that decentralized units can exercise over expenditures since salaries are a major component of primary care expenditures
- There are several mechanisms that can be developed to reduce the potential inequity of a decentralized system, although they may not overcome historical inequalities nor prevent richer localities from providing more resources to their populations than poorer communities:
    - An equity fund similar to the Municipal Common Fund can redistribute resources from wealthy to poorer communities and may result in improved equity of allocations to health
    - Per-capita allocation of central transfers potentially can overcome historical inequalities
    - Some mechanism for accounting for the presence or absence of centrally controlled primary care facilities should address the potential disincentive to sufficient funding for local municipal services
- Matching grants are an effective means of promoting central priorities and mobilizing local resources for health, especially if they allow some local priority setting.
- Local municipalities can choose a variety of contracting and coordination mechanisms to reduce duplication and improve efficiency of services
- Central intervention in poorly designed decentralization situations (Aysen and Santiago) is not necessarily the most appropriate response. While positive in Aysen, it is not clear that simply adjusting the national transfer to the local authorities would not have had the same result. In Santiago the recentralization has not appeared to significantly improve services.

ANNEX I. INTERVIEWS

SANTIAGO INTERVIEWS

Dra Andrea Bahamondes	Directora de Atención ambulatoria SSMC
Sr. Mauricio Flores	Subdirector administrativo de APS, SSMC
Dr. Omar Zagmutt	Jefe de unidad técnica del SSMOc
Dra. Ximena Riesco	Directora Consultorio Nº1 SSMC
Sr. Gonzalo Vio	Director Area Social Municipalidad de santiago
Sra. Claudia Serrano	Ex directora area social municipalidad de santiago
Sra Amanda Garrido	Presidenta de union comunal del adulto mayor

MAIPU INTERVIEWS

Dra Andrea Bahamondes	Directora de Atención ambulatoria SSMC
Sr. Mauricio Flores	Subdirector administrativo de APS, SSMC
Dra Teresa Luco	Subdirectora CRS Maipú y directora del Programa de Salud Escolar Municipal.
Dra. Rosa Alvarado	Directora Consultorio Maipú
Sr. Cristián Vítori	Director de Desarrollo Comunitario (DIDECO), Municipalidad de Maipú
Sra. Jeannete Valenzuela	Encargada de Salud de la DIDECO
Sr Jaime Faúndez	Presidente Unión Comunal de Juntas de Vecinos y miembro del Consejo de Desarrollo del Hospital Base del SSMC.
Sra. Filomena Prieto	Vicepresidenta Unión Comunal y Secretaria General del CESCO Maipú
Sr. Enrique Gamonal	Secretario Unión Comunal
Sr. Sergio Castillo	Miembro del Consejo de Desarrollo del Consultorio Dr. Ahués de Maipú y del CESCO.

AYSEN INTERVIEWS

Dra. Rosa Valderrama,	Sub directora médica del Servicio de Salud y ex Directora de la DAP. Reunión con 10 funcionarios de la DAP, de consultorios urbanos de Coyhaique y auxiliares de postas rurales.
Sr. Efraín Asmut,	Dirigente de la unión comunal de juntas de vecino de Coyhaique.

Sra. Marina Jorquera,	Ingeniero agrónomo, profesional de la Gobernación de Aysén y ex directora de salud municipal de la comuna de Aysén.
Sr. Héctor Zambrano,	abogado, encargado de planificación del gobierno regional, ex alcalde de Coyhaique, ex diputado nacional por la zona.
Dr. Mario González,	médico traumatólogo del hospital regional, nacido en la región.
Sr. Luis Pérez,	jefe de la Secretaría Regional de Planificación dependiente del Ministerio de Planificación.
Sra Isabel López,	profesional de la Secretaría Regional de Salud.

NUBLE INTERVIEWS

Sr Juan Riquelme,	Alcalde de Coelemu. Presidente de la Asociación de Municipios del Secano Costero de Ñuble. Fracasó por inasistencia de los alcaldes una reunión del Directorio de la Asociación
Comité Técnico	Operativo de la Asociación, integrado por los directores de salud todas las comunas.
Dr. Ricardo Fuentes,	director del Hospital de Coelemu.
Dr. Raul Franco,	director de atención primaria (DAP) del Servicio de Salud de Ñuble.
Enfermera Viviana Méndez,	integrante de la DAP y asesora de la Asociación de Municipios.
Dr. Jaime Reyes,	Director del Servicio de Salud de Ñuble.
Sra. Sonia Espinoza,	auxiliar de Posta Rural Municipal de Coelemu.
Sra. Agustina Rojas,	voluntaria de salud Posta Rural de Guarilihue, Coelemu.
Sr. Manuel Gutiérrez,	dirigente vecinal Junta de Vecinos de Ranguelmo, Coelemu.

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