
Modernization, Globalization, Trends, and Convergence in Health Expenditure in Latin America and the Caribbean

ABSTRACT Are health care systems converging in developing nations? We use the case of health care financing in Latin America between 1995 and 2009 to assess the predictions of modernization theory, competing strands of globalization theory, and accounts of persistent cross-national differences. As predicted by modernization theory, we find convergence in overall health spending. The public share of health spending increased over this time period, with no convergence in the public-private mix. The findings indicate robust heterogeneity of national health care systems and suggest that globalization fosters human investment health policies rather than neoliberal, “race to the bottom” cutbacks in public health expenditures. **KEYWORDS** Development, Health Systems, Convergence, Globalization, Modernization, Latin America

The emphasis on child mortality, maternal health, and primary care in the Millennium Development Goals secured health care as a cornerstone of global development policy (Freedman 2005; Kruk et al. 2007; Sachs 2004; Wagstaff 2004). Health care systems in developing nations have come under increased scrutiny as scholars, policy makers, and health practitioners seek to understand the relationship between health policy and health outcomes (Baltussen 2006; Fay et al. 2005; Hafner and Shiffman 2013; Hipgrave et al. 2014; Kruk and Freedman 2008; Shillcutt et al. 2009; Travis et al. 2004). The primacy of health care provision and financing in global development discourse and the ongoing pursuit of best practices have important implications for the organization, financing, and spending levels of national health systems.

More generally, the common pursuit of the Millennium Development Goals adds to ongoing debates about whether national health systems are converging within regions and worldwide (Barros 1998; Castles 2004; Hitiris and Nixon 2001; Narayan 2007). While some scholars highlight the path-dependent nature of health care systems and policy feedback mechanisms that nurture persistent differences (Giaimo and Manow 1999; Hacker 1998; Pribble 2008; Wilsford 1994), others point to powerful pressures for homogenization (Carpenter 2012; Rothgang et al. 2010). Two primary mechanisms are identified for this convergence: first, the “natural” progression of modernization; and second, the economic,

political, and normative pressures that globalization and global actors exert on states (Esping-Andersen 1999; Glatzer and Rueschemeyer 2005).

Modernization and globalization imply different processes, causes, and consequences for changes in health systems and expenditures. Therefore, investigating whether differences in health expenditures are the result of domestic processes of development or economic and political integration between countries provides important insight into the drivers of changes in national health systems. We argue that the convergence in demand for health care services predicted by modernization theory is not incompatible with the persistence of distinct institutional arrangements for the provision and financing of health care. Even as overall demand for health services is converging because of modernization and development, national policy makers may implement country-specific health policy reforms. Indeed, if modernization alone accounts for improved health outcomes, international development organizations may find that the pursuit of the Millennium Development Goals may be best served by promoting overall economic growth rather than by focusing specifically on health sector expenditures. If, on the other hand, globalization is driving changes in health care financing it is important to hold international organizations accountable for their influence on health policy. Our research therefore seeks to address questions of “friendly” versus “hostile” globalization in developing regions that can promote or retard, respectively, human capital investments in health and education by individuals and governments alike.

Modernization theory posits an increase in demand for health services as per capita income and life expectancy increase. Newfound affluence increases individuals’ demand for care and their access to expensive advanced medical technology. Health expenditures also rise with a shifting epidemiological profile: as countries develop, acute diseases become less prevalent than chronic diseases, which are more costly to treat. Although the pace of development and the accompanying internal pressures to expand health services vary across nations, modernization theory suggests that over time these differences are attenuated. As countries reach higher levels of development, income growth slows and the age structure of the population stabilizes, leading to convergence as less developed countries “catch up” with richer countries.

Where modernization theory predicts convergence as the outcome of independent but parallel processes within nations, globalization theory posits convergence as the outcome of an increasingly dense web of interactions across national borders. Globalization processes imply cross-national convergence in consumer demand for health services as individuals look to health systems and behaviors in neighboring countries and as new medical technologies diffuse across national borders. In this way globalization accelerates the health sector convergence predicted by modernization theory, especially within regions and among trading partners. But the most substantial and contested effects of globalization on national health systems occur at the level of social policy. At the state level, government expenditures on health care may be influenced by international organizations or by regional and/or global models for health care provision (Anand and Hanson 1998). One prominent perspective holds that globalization, and in particular neoliberal globalization, drives down public health spending in a “race to the bottom” as governments cut back on social spending in an effort to increase international economic competitiveness.

Other scholars counter that globalization may have the opposite effect, promoting public spending in health. Following the logic of human capital investment and bolstered by the increasing primacy of human rights discourses, proponents of “human investment globalization” note that all nations, and especially developing nations, are coming under increasing pressure from international organizations to invest more public resources in population health. In contrast to theorists of neoliberal globalization, human investment theorists expect that developing nations will respond to the human rights discourse of international organizations by devoting more public expenditures to the health sector in pursuit of a qualified, healthy workforce (Mayer 2001). Although they predict different trends, both neoliberal and human investment variants of globalization theory lead us to expect convergence in health spending. Comparative health scholars have long suggested that wealthy countries are becoming more similar in their health spending and policies, citing mechanisms such as learning from peers, globalization of particular norms, responses to similar structural conditions and pressures, and other diffusion agents such as international organizations (Mechanic 1975; Mechanic and Rochefort 1996), but as we demonstrate below the evidence is mixed and is contingent on the measures used. Moreover, convergence studies have largely overlooked the health systems of developing nations.

We address this gap through a detailed examination of cross-national variation in health spending in Latin America in recent years. We focus on Latin America because past research demonstrates that the impact of globalization varies across regions or development clusters (Pribble 2008; Rothgang et al. 2010) and because many Latin American countries were pursuing health sector reforms during this time period (Kaufman and Nelson 2004; Weyland 2006). Our analysis of trends and convergence in health expenditure makes several contributions to the literatures on modernization, globalization, and health sector reform in developing countries. First, we describe overall patterns of health sector change in Latin America during a key period of regional development. Second, we identify shifts in total and public health expenditures in the region. Third, we examine multiple components of health expenditures to assess whether, where, and how convergence in health spending is occurring and whether trends and convergence in the region are consistent with modernization and/or globalization theories. Our analysis of convergence allows us to arbitrate between two broad approaches to the political economy of social policy, spending, and development: the first argues that countries are indeed becoming more similar in response to structural pressures and/or because of powerful organizations diffusing models for emulation (Armada, Muntaner, and Navarro 2001); the second highlights the uniqueness of states and cites historical institutionalist legacies as conditioning subsequent spending levels and explaining the continued persistence of robust differences between countries (Hay 2000). In addition to modernization theory and scholarship on the persistence of national variation, we assess the applicability of two important variants of globalization theory as they relate to health expenditure: a neoliberal, “race to the bottom” approach and a human investment approach.

DEVELOPMENT AND HEALTH SECTOR REFORM

Recent efforts have sought to integrate the literature on health by medical sociologists with welfare state theories. Within medical sociology the study of health systems focuses on the

ways in which capitalism may adversely affect individual health and health provision. Several welfare state scholars and medical sociologists are working to remedy this gap and have turned their attention to particular domains of social spending in order to examine differences across sectors, such as health (see Bambra 2005, 2007, 2011; Beckfield et al. 2013b; Huber, Mustillo, and Stephens 2008; Noy 2011; Ruggie 1996).

Health sector reform is an inherently political process, and institutional and regional analyses can contribute much to our understanding of health reforms (Molyneux 2008). Existing research indicates that health spending patterns do not neatly map onto existing typologies of welfare states (Ruggie 1996) and that their determinants do not necessarily echo those of general social spending (Huber et al. 2008; Noy 2011). Indeed, the development of the health system is sometimes incongruous with other sectors of social provision and protection, in both established welfare states and developing countries. Even as welfare state scholars are turning their attention to health, health researchers are highlighting the importance of looking beyond the individual to the societal level for health outcomes (Bambra 2005, 2007, 2011; Beckfield et al. 2013a, 2013b; Link and Phelan 1995, 2000; McKinlay 1981, 1996; Olafsdottir and Beckfield 2011; Waitzkin 2000, 2011; Waitzkin et al. 2001). An important line of health research is concerned with the implications of economic and social institutions for health outcomes, and a number of empirical studies have concluded that capitalism itself is harmful to individual health (Kaplan et al. 1996; Kawachi and Kennedy 1999; Kawachi, Kennedy, and Glass 1999; Kawachi et al. 1997; Waitzkin 2000; Wilkinson 1996).

Health researchers and welfare state scholars alike are increasingly interested in modernization and globalization as processes that might lead to homogenization of national arrangements for social policies and expenditures. Below, we discuss each of these processes in turn. We follow with a discussion of the literature on the persistence of national policies in the face of homogenizing pressures. Together, these perspectives form the theoretical approach guiding our analysis.

MODERNIZATION AND WELFARE REGIMES IN LATIN AMERICA

The defining characteristic of modernization theory is the assumption that all nations will tend to follow the same evolutionary progression toward liberal economic and democratic political institutions (Deutsch 1961; Parsons 1964; Rostow 1960). A modernized state is, generally, one that has achieved some absolute level of industrialization and economic wealth and has instituted sufficiently liberal and democratic economic and political institutions. Modernization is associated with a demographic transition, an aging society, which is a function of higher life expectancy and lower birthrates. These demographic changes are also associated with an epidemiological transition from a high prevalence of infectious diseases to a rise in noninfectious, chronic diseases, which are significantly more costly to treat. In addition, democratization and economic development may inspire populations to demand increasing social protections from the government and the development of welfare policies. Thus modernization theory suggests increasing overall health expenditure and convergence of health expenditures over time, driven by rising demand.

The current state of public social spending and welfare regime reform in Latin America provides an exciting new arena for welfare state research. According to Huber (2005), who

defines *welfare state* as a system of social protection that provides some form of social security coverage to at least 60 percent of the economically active population, only six Latin American countries (Argentina, Brazil, Chile, Costa Rica, Cuba, and Uruguay) and three Caribbean countries (the Bahamas, Barbados, and Jamaica) could boast a full-blown welfare state as of 1980. Yet limited forays into social provision can be seen as early as the 1920s in Argentina, Chile, and Uruguay, followed by a second wave in the 1930s and 1940s (including Brazil, Colombia, Costa Rica, Mexico, Panama, and Venezuela), with some countries adopting “occupational based welfare systems modeled along European lines, with defined-benefit pension plans, health services, and family allowances” (Kaufman and Segura-Ubierno 2001:559).

Latin America offers a unique opportunity to examine welfare state development and the determinants of government health spending because of the conditions associated with the so-called lost decade of the 1980s. Marked by economic crisis and recession, and followed by inflation in many instances, the 1980s were a period of political instability in the form of democratic-authoritarian transitions and neoliberal pressures from international financial institutions (IFIs). Furthermore, social policy in Latin America underwent profound changes in the 1980s and 1990s, largely in the direction of state retrenchment and market expansions in the financing, delivery, and administration of social services and transfer payments (de Mesa and Mesa-Lago 2006; Huber 2005; Huber and Stephens 2012; Jordana and Levi-Faur 2005; Kaufman and Nelson 2004; Mesa-Lago 2006, 2008; Mesa-Lago and Müller 2002; Waitzkin 2011). In particular, many Latin American countries were pursuing health sector reforms during this time period (Kaufman and Nelson 2004; Noy 2011; Weyland 2006). Past research demonstrates that the impact of globalization is similar within regions or development clusters (Pribble 2008; Rothgang et al. 2010), which further motivates our regional examination of convergence within Latin America and the Caribbean.

NEOLIBERAL AND HUMAN INVESTMENT GLOBALIZATION PRESSURES

Modernization and development, however, do not occur in a vacuum. Researchers have become increasingly concerned with how economic and financial globalization (largely identified as the integration of countries into the world economy) has affected developing nations (Ezcurra and Rodriguez-Pose 2013; Portes 1997; Rodrik 1997). This concern arises from the recognition that now, more than ever, development, growth, and state building are occurring in an interconnected world, with powerful actors that influence states’ decisions (Mishra 1999).

Neoliberal “Race to the Bottom” Globalization

Existing research on globalization and social spending indicates that the relationship between openness to markets and social spending is largely negative (Dobbin, Simmons, and Garrett 2007) and describes a “race to the bottom” among developing countries. As developing countries compete for international investments, they are induced to create better incentives for investment (Beeson 2001; Esping-Andersen 1999; Glatzer and Rueschemeyer 2005; Huber and Stephens 2012; Navarro 2007). This global competition for investment and foreign capital creates downward pressures on wages, working conditions, and business taxation (Yeates 2001). Therefore, there is an expectation that public expenditures on social

services, including health, will be reduced in the interest of economic competitiveness and in the face of lower tax revenues. This does not preclude, however, a rise in private health expenditure as economic growth occurs.

Another mechanism driving neoliberal globalization is the “market fundamentalism” model of limited state involvement being promoted globally, particularly by IFIs via structural adjustment programs. IFIs advanced structural adjustment programs in many Latin American countries in the 1990s and 2000s, and, in particular, conditions attached to loans allocated by the World Bank and IMF mandated that states reduce the size of both their state apparatus and public expenditures (Brooks 2004; Grugel and Ruggirozzi 2012; Weyland 2005, 2006). Existing studies of public policy in Latin America have focused on the importance of regional and diffusion dynamics (Brooks 2004; Heinsz, Zelner, and Guillen 2005; Weyland 2005, 2006). The importance of regional dynamics, with Latin American governments looking to neighbors and exemplars in considering health sector reform, together with IFI pressures, suggests that globalization might play an especially important role in promoting convergence in health sector reform in developing countries.

Human Investment Globalization

A competing perspective points to the ways in which international organizations and global discourse may be promoting increased public expenditures on health. This variant of globalization, which we call human investment globalization, is embodied by the many international governmental and nongovernmental organizations that promote increased investment in health either for human rights or for efficiency and growth purposes. There are two primary variants of the human investment argument: the first rests on increased public spending on health, education, and other social services as part of the framework of promoting and enforcing basic human rights. Such is the rationale behind the Millennium Development Goals, which aim to reduce infant mortality, improve maternal health, and combat HIV/AIDS, among other diseases.

The second variant also promotes increased public expenditure on health, but the logic behind increased expenditure is economic rather than rights based. In this conception, expenditure on health and education is important for human capital development, which in turn results in a more competitive labor force. A healthier and more educated labor force is seen as an engine for increased economic growth. While they differ in the logics underlying the promotion of public expenditures on health, both the rights-based and growth-based approaches of human capital investment imply increased public expenditures in health. More broadly, the implication of both neoliberal and human investment globalization is convergence, though the former implies downward convergence in public health expenditure while the latter suggests upward convergence.

COMPARATIVE HEALTH SYSTEMS AND THE PERSISTENCE OF CROSS-NATIONAL VARIATION

Unlike the literatures on globalization—both the neoliberal, “race to the bottom” and the human investment variants—some scholarship on comparative health systems suggests that national variation in countries’ health and other policies is path dependent and slow-changing.

In particular, historical institutionalism in sociology suggests that early policy decisions constrain later policy options, creating persistent policy legacies (Hall 1993; Pierson 2000, 2004). Theoretically, while convergence pressures may be powerful, national path dependence retards convergence in health policies—either it precludes convergence entirely, or, more likely, it slows its progression as present choices are constrained by past policies and decisions, making it difficult (even for enthusiastic reformers) to move in a common (convergent) direction. This perspective does not preclude increases and convergence in overall health spending, as rising individual demand due to modernization may be met by a variety of health system arrangements in terms of public-private mix.

Empirically, while many scholars studying health systems have found convergence in expenditures, as detailed in the following section, other research finds evidence for the persistence of national variation (cf. Giaimo and Manow 1999; Hacker 1998; Pribble 2008; Wilsford 1994). For example, Immergut (1992) provides a detailed historical institutionalist account of actors and reforms in the French, Swiss, and Swedish health systems in the European context, while Noy (2013) finds that historically contingent state autonomy and capacity in health shape the extent to which the World Bank is able to influence health sector reform in Argentina, Costa Rica, and Peru. Overall, the literature on path dependence is consistent with modernization theory's proposal of convergence in overall expenditures. However, it suggests that while globalization pressures toward convergence in health systems are strong they are limited in their influence on national policies and public-private expenditure patterns, especially in the short term (Hay 2000).

EMPIRICAL EVIDENCE ON HEALTH SYSTEM CONVERGENCE

The comparative study of health care financing has centered primarily on developed countries, where the presumption has long been that growth in health expenditures is tied more closely to technological advances in diagnosis and treatment than to conventional measures of mortality and morbidity (Newhouse 1977). The oil crisis of the early 1970s precipitated a slowdown in economic growth in the richest nations, yet health sector expansion continued, prompting increased scrutiny of health expenditures within nations and an increased interest in comparative health care financing and health outcomes (see Cremieux, Ouellette, and Pilon 1999; Hitiris and Posnett 1992).

Studies of Organisation for Economic Co-operation and Development (OECD) nations found that growth in per capita health expenditures slowed in the 1980s, with substantial convergence in both per capita expenditures and the health share of GDP (Barros 1998; Narayan 2007; Panopoulou and Pantelidis 2012).¹ Regional analyses of per capita health spending and the health share of GDP within the European Union (EU) found that expenditures converged to country-specific steady states that were lower, on average, in poorer countries and in countries that relied on national health services as opposed to social insurance to finance their health systems (Hitiris and Nixon 2001). Following the EU enlargement in 2004, there was greater cross-national divergence in financing and health outcomes, but the rate of convergence was more rapid among these transitional economies than in the rest of the EU in the decade prior to the enlargement (Kerem et al. 2008). In much of this research, the predominant explanations for the observed patterns of health

systems expenditures centered on differential levels of development and ongoing technological advances leading to both convergence and expansion of national health systems.

More recently, health scholars turned their attention to cross-national variation and trends in the allocation of public and private resources to the health sector. While recognizing the distinctive features of national health systems, some scholars have proposed that health care systems in the Western, industrialized world are converging (Beckfield et al. 2013b; Cacace et al. 2008; Chen 2013; Elling 1994; Leiter and Theurl 2012; Mechanic 1975; Mechanic and Rochefort 1996; Rhee 2013; Rothgang et al. 2010; Schmid et al. 2010; though see Montanari and Nelson 2013, who find no convergence in coverage and provision of health care in OECD countries). As wealthy nations moved to contain the burgeoning costs of welfare state provision, trends in government expenditures on health were of special interest. Barros (2007) noted a trend toward privatization of health care financing, and subsequent studies reported cross-national convergence in OECD countries in both per capita government expenditures on health and the public share of overall health expenditures (Chen 2013; Leiter and Theurl 2012; Schmid et al. 2010). Increasing privatization can reflect affluence and its attendant demand for expensive medical technologies and elective procedures, which contribute to a rise in out-of-pocket expenses. However, as Chen (2013) notes, convergence in the public-private mix is also the result of a long-term shift from inpatient to outpatient care, deinstitutionalization and the closure of public hospitals, and restrictions on publicly funded health care services, all of which have led to a decline in the share of public financing in some countries. Rothgang and his collaborators propose that wealthy nations that ostensibly embrace markedly distinct health care systems are converging on a “hybrid” model of health care that features increasingly similar shares of public financing along with increasing privatization of service provision (Cacace et al. 2008; Rothgang et al. 2010; Schmid et al. 2010).

Few comparative studies of health systems extend beyond OECD countries. However, a focus on health systems and health expenditures is particularly warranted in developing countries given poorer health outcomes in terms of mortality and morbidity, the prevalence of infectious diseases such as tuberculosis and HIV/AIDS, and pervasive inequalities in health access and outcomes conditioned by socioeconomic status, ethnicity, rurality, and other social characteristics. Health systems, and in particular public health expenditures and programs, are important in reducing these inequalities and improving overall health outcomes. Changes in health systems and expenditures in developing countries deserve attention, as they mediate the relationship between capitalism and other economic systems and health outcomes and are themselves influenced by political, economic, and social changes and globalization (Kawachi and Kennedy 1999; Kawachi et al. 1997, 1999). Evidence from OECD countries indicates that convergence may follow regional logics and patterns and as such is best examined regionally.

The examination of health expenditure in Latin American countries is especially timely given increased industrialization, modernization, and urbanization. More recently, Latin America’s increased integration into the world economy and expansion of markets and economic growth following deep recession in the 1980s also motivates this research. In particular, research on the ways in which individuals and health systems are adapting to and

coping with shifting epidemiological burdens associated with development (the rise in non-communicable diseases such as heart disease and cancer), in tandem with the traditional challenges associated with communicable diseases and malnutrition (such as high rates of infant mortality, dysentery, and tuberculosis), has important implications for health and other outcomes (see Huber and Stephens 2012). Evidence to date suggests that convergence is also occurring in Latin America, with some scholars citing globalization as largely responsible (see Armada et al. 2001 on the growing presence of transnational private corporations in Latin American health provision; Berman 1995; and, for a more general argument about convergence across sectors in Latin America, Murillo 2002).

In sum, our analysis makes important contributions to the literatures on globalization, development, and comparative health systems. This study represents the first examination of health expenditure trends and convergence in Latin America at a time when many countries in the region were emerging from a period of fitful development followed by economic and political turbulence and entering a period of sustained regional growth. During the time period under study, one of the countries in the region—Mexico—joined the economic elite of the OECD, while Haiti and Guinea ranked among the world's most impoverished countries. Our study overcomes the measurement limitations of past research by incorporating several measures of health expenditure and two measures of convergence. Specifically, an examination of several indicators of health expenditure and an analysis of convergence allows us to arbitrate between theories of homogenizing pressures versus those positing the persistence of distinct national pathways. Contrasting measures of overall health expenditure with those that examine the public-private mix in health spending provides evidence that allows for an examination of claims about modernization and globalization as driving forces in health expenditures. Finally, by utilizing several measures of health expenditure and different measures of convergence we are able to examine regional and national trends as well as whether and how convergence is occurring over time.

EXPECTATIONS

We expect an increase in overall health spending in Latin America owing to modernization, which results in changing demographics and a shift in epidemiological profile, but also owing to the rising costs of medical care. This increase reflects higher individual demand and consumption of health care services, associated with development, but may also be the result of globalization accelerating national modernization processes. We also test whether trends in the public share of health financing are most consistent with human investment or neoliberal globalization approaches. An increase in the public share of health expenditure would support arguments about a newfound emphasis on health and human capital enhancement, as evidenced by the Millennium Development Goals, and increased individual demand for state provision of health and other social services. A reduction in the public share of health expenditure would be consistent with the predictions of neoliberal globalization approaches that suggest a declining role of governments in health and other social expenditures. That is, if human capital investment arguments hold true, an increasing share of public budgets should be dedicated to health, though it is also possible that other domains require more resources as well and that spending in other areas may be prioritized. Finally, both modernization and

globalization arguments suggest convergence in overall health expenditure over time, net of whether public health expenditures are increasing or decreasing.

DATA

We examine whether there has been convergence in health spending in Latin American and Caribbean countries in the aftermath of the so-called lost decade of the 1980s, a time of severe economic crisis in the region, often accompanied by political turmoil. We draw on data from 26 countries over 15 years, from 1995 to 2009, for a total of 390 observations. The data come from the World Bank Health Nutrition and Population Statistics (World Bank HNP Stats). The data series begin in 1995, when the World Health Organization (WHO) initiated the first reliable and cross-nationally comparable national accounts and expenditure data series for the region. The countries included in this analysis are Argentina, the Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

Measures of Health Expenditure

The analyses that follow rely on four measures of health expenditures: (1) total health spending per capita, adjusted to purchasing power parity (PPP); (2) total health spending as a percentage of GDP; (3) public health spending as a percentage of total health spending; and (4) public health spending as a percentage of total public spending. These measures capture different dimensions of health expenditure: total health expenditure weighted by population and by each economy's size, public health expenditure as a share of total health expenditure, and finally the proportion of public spending allocated to health. The descriptive statistics are provided in Table 1.

Health Spending per Capita The first measure of health expenditure we utilize is total health expenditure per capita, adjusted for PPP and reported in 2005 international dollars. Total health expenditure is the sum of public and private health expenditure and covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health. It does not include provision of water and sanitation (World Bank n.d.-a). Establishing PPP, where one dollar purchases the same quantity of goods and services in all countries, allows for cross-country comparisons free of price and exchange rate distortions.² Total health expenditure per capita is a general measure of the size of the health sector and is especially useful as an indicator of whether overall health expenditures are increasing or remain stable over time, weighted by population, which varies widely across the countries in our sample.

Total Health Spending as a Percentage of GDP The second measure of health expenditure also begins with the sum of public and private health expenditures but is then divided by the size of the economy. This is the conventional measure of total health spending as a percentage of GDP, widely used in studies of health expenditures (Anderson and Poullier 1999). This measure has several advantages as an overall indicator of the size of the health

TABLE 1. Descriptive Statistics for Health Expenditures in Latin America and the Caribbean between 1995 and 2009, N = 390

Description	Mean	Standard Deviation	Minimum	Maximum
Health expenditure per capita (PPP, constant 2005 international dollars)	500.92	390.61	45.10	2405.31
Health expenditure, total (% of GDP)	6.36	1.63	3.30	15.60
Health expenditure, public (% of total health expenditure)	52.84	14.27	20.62	89.72
Health expenditure, public (% of government expenditure)	12.78	4.42	3.52	30.61

sector. First, trends in this measure indicate how fast the health sector is growing relative to overall economic growth. Second, this measure is especially useful for cross-national comparisons in Latin America and the Caribbean because GDP varies widely but the proportion of GDP accounted for by the health sector is much more comparable.

Public Health Expenditure as a Percentage of Total Health Expenditure Third, we examine public health expenditure as a percentage of total health expenditure. This measure provides information on the public-private mix of health care financing. The public share of health spending is arguably the most direct indicator of government commitment to the public provision of health care. In addition, information about the share of health spending that is public provides important information in light of findings about increased privatization in European nations and suggestions of such a trend in Latin America and other developing countries by those proposing a trend of “race to the bottom” globalization.

Spending on Health as a Percentage of Total Government Spending Fourth, and finally, we examine public spending on health as a percentage of total government spending. This measure provides an indication of how health is prioritized relative to public spending in other domains. That is, it might be that overall spending on health is increasing but at a slower rate than other domains of social spending (e.g., education). This measure then provides additional insight on how Latin American governments view their role in health provision compared to other policy domains. Examining the share of total government spending devoted to health along with the share of health spending that is public, our third measure, allows us to assess the status and structure of government participation in the health care system.

ANALYTIC STRATEGY

Trends in Expenditure

We begin by examining trends in health expenditure in the region. This allows us to ascertain whether expenditure is increasing, how changes in expenditure are divided by public

and private spending, and the relative emphasis that the state places on spending in health as compared to other public spending. We then proceed to examine whether there has been convergence in spending, using two different measures: one looking at overall variation and a second that allows us to compare the overall trend with countries' trajectories, examining not just whether convergence is occurring but how.

Measuring Convergence

Sigma Convergence To examine patterns of variation and convergence in cross-national spending, we first look for evidence of declining variability or *sigma convergence* by examining changes in the coefficient of variation for these health expenditure measures over time. The coefficient of variation is a scale-invariant measure that allows us to compare dispersion across time periods; it has been cited as the best quantitative measure of homogeneity (Kenworthy 1999). The coefficient of variation in expenditures is calculated for each year in the time series as the standard deviation in cross-national expenditures divided by the mean. If the coefficient of variation decreases over time, this provides evidence of sigma convergence. An increase in the coefficient of variation over time suggests that countries are diverging, or becoming more dissimilar in the health expenditures.

Beta Convergence Second, we use multilevel modeling to examine *beta convergence*, by examining the relationship between patterns of country-specific slopes in expenditures and the overall slope in the region over time (Barro and Sala-i-Martin 1992). Beta convergence describes *how* convergence is taking place, as compared to sigma convergence, which tells us *whether* convergence is taking place (Heichel, Pape, and Sommerer 2005). For example, are low spenders catching up while high spenders remain stable? Or are initially high spenders reducing their spending as low spenders increase their spending or remain constant? To measure beta convergence, the four measures of health expenditure are each modeled as

$$health\ expenditure_{ct} = \beta_o + \beta_{year} \cdot year_{ct} + u_{oc} + u_{1c} \cdot year_{ct} + \varepsilon_{ct}$$

Where $health\ expenditure_{ct}$ represents expenditures for country c in year t ; β_o is the intercept for all countries, that is, average expenditure levels in 1995 (since the health expenditure measures were centered on 1995 for this portion of the analysis); β_{year} is the overall average linear growth for all countries over the time period 1995 to 2009; u_{oc} is a random effect representing the deviation from the overall intercept for country c ; and u_{1c} is a random effect representing the deviation from the overall slope for country c . Finally, ε_{ct} represents the idiosyncratic error for country c in year t , assumed to be uncorrelated with the country-specific error terms u_{oc} and u_{1c} . The country-specific error terms then have the following correlation structure:

$$\Sigma = Var \begin{bmatrix} u_{oc} \\ u_{1c} \end{bmatrix} = \begin{bmatrix} \sigma_{u_o}^2 & \sigma_{o1} \\ \sigma_{o1} & \sigma_{u_1}^2 \end{bmatrix}$$

To assess beta convergence over this period, we estimate a series of nested multilevel models that allow us to test the null hypothesis that σ_{o1} is equal to zero. If the null

hypothesis can be rejected, there is a correlation between initial expenditure levels and growth rates. Beta convergence occurs when that correlation is negative. Our analysis was conducted in Stata12.1 (Statacorp 2011).

RESULTS

Trends in Spending

Trends in these spending measures are displayed in Figure 1. Figure 1 indicates that health spending per capita has increased in Latin America and the Caribbean between 1995 and 2009, doubling over this time period from \$362 to \$740. Total health spending as a percentage of GDP increased over this time period from 6.1 percent to 7 percent. Health spending as a percentage of total government spending decreased, but this has not been a linear process: it begins at 13.8 percent, showing variability but an overall decreasing trend until its low point at 12.2 percent in 2006, and increasing to 13 percent in 2009. Finally, public health expenditure as a percentage of total health expenditure shows a slight increase beginning in 2004: between 1995 and 2004 it is around 52 percent, increasing to 55.6 percent by 2009.

Figure 1 demonstrates rapidly rising health expenditures and growth in the health sector in Latin America during this period. Increases in public sector expenditures are outpacing increases in private expenditures, resulting in an increase in the public share of the health sector. However, public spending increased faster than GDP during this period; the share of total government expenditures allocated to health fluctuated between 12 and 14 percent and was at its highest point in 1995, at the start of this period. As for the public-private mix, over half of total health spending is public and shows a slight increase over this time period. This is contrary to assertions of state retrenchment in social and health spending in the context of neoliberalism (cf. Glatzer and Rueschemeyer 2005). While Figure 1 provides information about regional trends in average spending over this time period, it does not provide information on the variation between countries.

Sigma Convergence: Changes in Overall Variance

Having accounted for regional trends in health expenditure, we now examine whether countries have been converging over time: that is, we ask whether Latin American countries are becoming more similar in their health spending habits over time.

Figure 2 displays sigma convergence between 1995 and 2009 for the health spending measures described above. Sigma convergence captures overall variance using the coefficient of variation. Figure 2 indicates that there is sigma convergence in total health spending per capita and as a percentage of GDP. Health expenditure per capita has seemingly shown the most convergence over this time period and coupled with the information in Figure 1 indicates that overall health expenditure (both per capita and as a percentage of GDP) has been increasing and converges over the entirety of this period. We do not find evidence for sigma convergence in public health spending as a percentage of total health spending. Our indicators for how governments prioritize health as compared with other public spending domains displays variability over this time period, with some convergence and some divergence, where the coefficient of variation remains virtually unchanged from the beginning of the time period to the

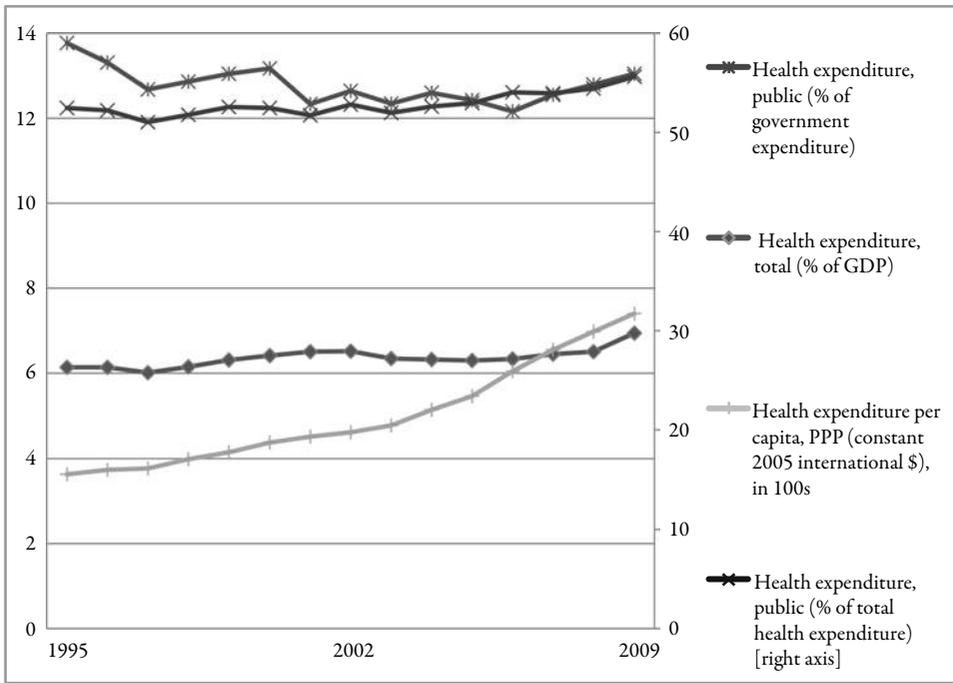


FIGURE 1. Trends in Health Spending in Latin America and the Caribbean, 26 Countries, 1995–2009.

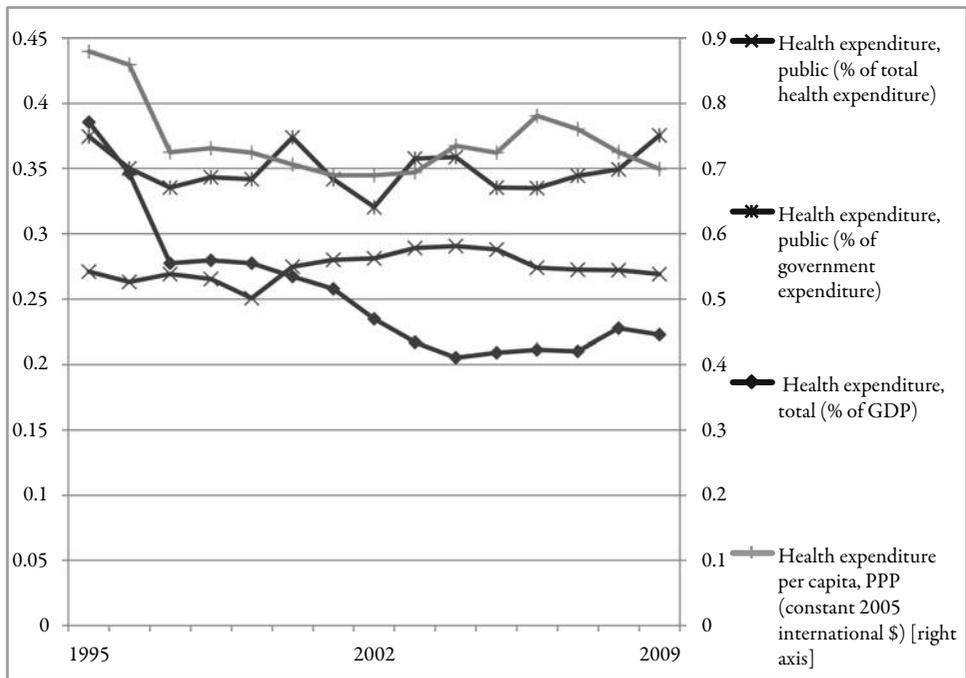


FIGURE 2. Change in the Coefficient of Variation, Sigma-Convergence, in Measures of Health Spending in Latin America and the Caribbean, 26 Countries, 1995–2009.

end. This finding indicates that national institutional and budgetary arrangements and legacies may be more stable over time than much of the globalization literature suggests, providing evidence for approaches that emphasize the persistence of cross-national variation.

Beta Convergence: Patterns of Convergence

Whereas sigma convergence is a more general indicator of *whether* convergence is taking place over the time period, beta convergence is a measure of *how* convergence is taking place. Our analysis of sigma convergence shows that measures of health expenditures Latin America that indicate convergence are spending per capita and total health as a percentage of GDP. We now turn to multilevel modeling to examine how this convergence is occurring. Beta convergence allows us to examine whether there is a correlation between a country's initial expenditure levels and subsequent growth. Convergence can occur because of specific patterns: for example, (a) average growth is positive, but countries that start high grow slowly or decline, while countries that start low increase their spending more rapidly; (b) average growth is negative, but countries that start high decline more rapidly on average than countries that start low; or (c) average growth is flat, but average growth is positive among those that start low and negative among those that start high.³ Beta convergence describes how convergence is occurring via, first, a slope, which indicates whether average levels are rising, declining, or flat over time, and, second, variance components for the intercept, the slope, and especially the covariance between the intercept and the slope.

Table 2 presents the variance components from mixed-effects linear growth models to assess whether there has been beta convergence in the four health spending measures described above. A random intercept model allows us to account for the fact that there may be significant cross-national variation around the regional average in health expenditures in 1995, the beginning of the observation period. The random-slope model estimates linear growth as a function of time between 1995 and 2009, allowing both the intercept and the time trend to vary between countries.

If there is a statistically significant positive time trend and negative covariance between the time trend and the intercept, this indicates that initially high spenders are increasing their spending more slowly than low spenders. If there is a statistically significant negative time trend and negative covariance between the intercept and the time trend, this indicates that initially high spenders are decreasing their spending more rapidly than lower initial spenders. Both indicate convergence. On the other hand, if there is a positive covariance between the intercept and the slope there is significant divergence in spending. Finally, if the covariance is statistically insignificant, we do not have clear evidence about the presence of beta convergence.

We find evidence of beta convergence for total health spending as a percentage of GDP, as indicated in Table 2. We also find evidence of beta convergence for the share of public expenditure allocated to health. For the two remaining measures (total health spending per capita and public share of total health spending), the likelihood ratio test indicates that the variance components of the intercept and time trend are independent and hence that it is not necessary to account for their relationship—that is, there is no need to model their covariance. Figure 3A provides a plot of the fitted line for the entire region compared to

TABLE 2. Coefficients and Variance Components from Mixed Effects Linear Growth Models for Health Spending Measures (natural log) in Latin America and the Caribbean, 1995–2009, N = 390

	Graphic Representation	Time Trend Coefficient	Constant	Variance in Time Trend	Variance in Intercept	Covariance (Time Trend, Intercept)	Chi-squared for Covariance ¹
Health expenditure per capita (constant 2005 international dollars)		0.052***	5.575***	0.0007***	0.522*		0.55
Health expenditure, total (% of GDP)		0.008*	1.764***	0.0003***	0.0856***	0.0073***	19.40***
Health expenditure, public (% of total health expenditure)		0.004	3.903***	0.0002***	0.0658**		0.65
Health expenditure, public (% of government expenditure)		-0.004	2.508***	0.0004***	0.1318***	-0.0027+	3.03+

¹Likelihood ratio chi-square versus model that constrains variance components to be independent (df = 1). The preferred model according to the X² test is presented in the table. *** p < 0.001, ** p < 0.01, * p < 0.05, + p < 0.1

Figure 3A. Health Expenditure per Capita

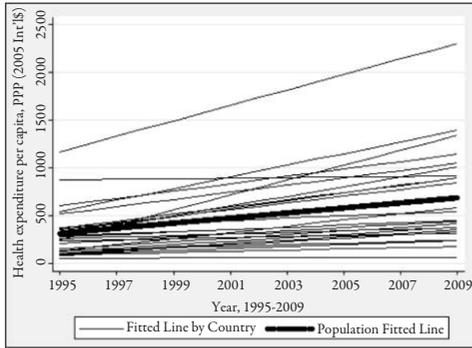


Figure 3B. Total Health Expenditure as a Percent of GDP

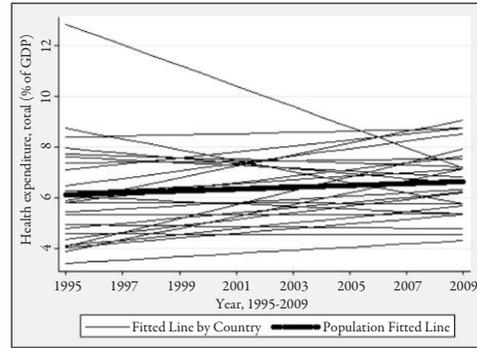


Figure 3C. Public Health Spending as a Percent of Total Health Spending

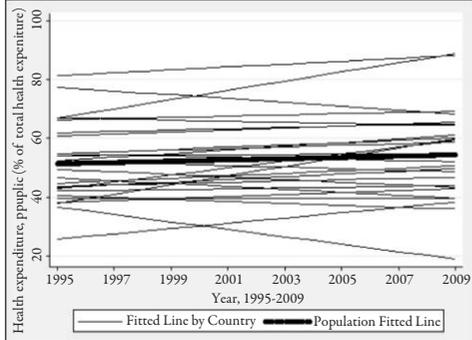


Figure 3D. Public Health Spending as a Percent of Total Government Spending

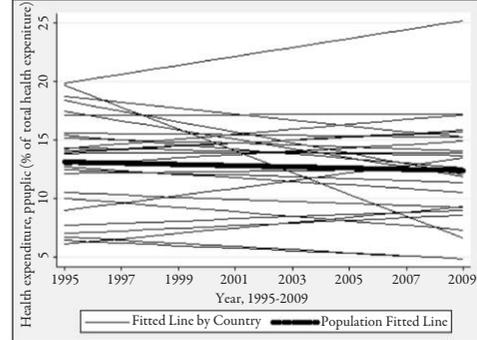


FIGURE 3. Random Slopes from Mixed Effects Linear Growth Models in Latin America and the Caribbean, 26 countries, 1995–2009.

country-specific slopes for spending per capita. It indicates that overall health spending per capita was growing over this time period (as seen in Figure 1), yet we see no indication of beta convergence (see also Table 2).

As apparent in Table 2, we find beta convergence for total health spending as a percentage of GDP. Figures 1 and 3B indicate that total health spending as a percentage of GDP has slightly increased over this time period. Therefore, while Figure 2 indicates sigma convergence in total health spending as a percentage of GDP, Table 2 indicates that beta convergence is also occurring. Figure 3B demonstrates that total health spending as a percentage of GDP increases slightly over this time period and that convergence is occurring because while lower spenders are mostly increasing spending over this time period the higher-spending countries are largely reducing theirs from spending levels in the mid-1990s (with Uruguay as the outlier, showing the highest level of spending in 1995 and the steepest reduction).

Figure 1 indicated that public health spending as a percentage of total health spending has increased over this time period, and Figure 2 indicates some sigma convergence, followed by sigma divergence between 1999 and 2005, followed by slight sigma convergence. Figure 3C indicates that while most countries have remained relatively stable there is much heterogeneity among high and low spenders. Among the highest spenders several decreased public spending—for example, Costa Rica’s and Barbados’s fitted values for public health spending as a share of total health spending began at spending levels of 77 and 67 percent in 1995,

which then decreased to 68 and 64 percent respectively. On the other hand, several high spenders saw an increase in the public share of health spending, as shown in figure 3C. For example, Guyana's predicted values started at 78 percent and increased to 88 percent, whereas Panama's increased from 66 to 69 percent. Similarly, the two lowest spenders at the beginning of the period show conflicting trends: the lowest spender—the Dominican Republic—increased its spending, and the second-lowest, Haiti, decreased its spending, quite dramatically. This together with Figure 1 indicates that there is some movement but no convergence in the ways that health is financed in most countries—overall, the region shows a slight increase in the percentage of total health expenditure that is public. Most countries are stable in their spending, but there is more variation at the margins, among high and low spenders.

Public health spending as a percentage of overall public expenditure shows a slight curvilinear but overall slight decreasing trend (see Figure 1) and slight sigma convergence when 1995 is compared to 2009 (Figure 2). However, Table 2 provides evidence for beta convergence. Figure 3D also shows a slight negative slope for the entire region (consistent with the decreasing trend), and the beta convergence seems to be attributable to above-average spenders reducing spending or remaining flat (with one exception: Costa Rica, where the predicted value for government spending on health in 1995 was 20 percent of its budget but where the value increased to 25 percent by 2009). High spenders that increased their spending did so at a slower rate than low spenders. We summarize the results for sigma and beta convergence in Table 3.

Summary of Results

Average health spending per capita has increased in Latin America, especially in the mid- to late 2000s, more than doubling between 1995 and 2009 (Figure 1). We find evidence for sigma convergence, that is, an overall reduction in variation, but the evidence does not indicate beta convergence to a steady state (Table 2 and Figure 2). Approximately half of the countries included in this analysis show below-average initial expenditures but above-average increases in spending—that is, they are catching up. The rest of the countries are largely high spenders that are also increasing their spending (figure 3A).

Health spending as a percentage of GDP also increased, from 6 to 7 percent, indicating that health sector growth outpaced overall economic growth (Figure 1). However, while overall spending has not changed for the region, countries are becoming more similar: those that began as lower spenders are increasing their spending, while higher spenders are more likely to reduce their health spending as a percentage of GDP (figure 3B). Latin American and Caribbean countries show considerable variation in both their spending and their time trend when compared with the regional average but overall are converging toward the regional mean, which has increased slightly between 1995 and 2009 (figures 2 and 3B).

While overall health expenditures, both per capita and as a percentage of GDP, provide important information about health expenditures in Latin America, the indicator most strongly tied to questions about neoliberalism, privatization, and “race to the bottom” effects of globalization versus human investment globalization is the percentage of health spending that is public. Rather than finding any decrease in public spending on health as

TABLE 3. Summary of Results for Sigma and Beta Convergence

	Graphic Representation	Change over Time	Sigma Convergence?	Beta Convergence?	Beta Convergence/ Divergence Mechanism?
Health expenditure per capita (PPP, constant 2005 international dollars)		Positive, steep	Yes	No	
Health expenditure, total (% of GDP)		Positive, slight	Yes	Yes	Initially high spenders are reducing their spending and/or increasing their spending more slowly than low spenders.
Health expenditure, public (% of total health expenditure)		Positive, steep	No	No	
Health expenditure, public (% of government expenditure)		Negative, slight U	No	Yes	Initially high spenders are reducing their spending while low spenders are increasing or maintaining their spending.

a percentage of total health spending, we find that the public share has *increased* over this time period in Latin America and accounts for over half of health spending—rising from about 53 to 56 percent over this time period (Figure 1). In addition, we do not find evidence of convergence: while there is variation, especially among high- and low-spending countries in 1995, over the subsequent 15 years most countries show only a slight increase in the share of overall health spending that is public (see Table 2, as well as figures 2 and 3C).

Finally, we have examined public spending on health as a percentage of total government spending as an indicator for the prioritization of health vis-à-vis other public expenditures by Latin American governments. Overall, health expenditure as a percentage of total public expenditure has decreased slightly, from approximately 14 to 13 percent of public budgets in the region (Figure 1). While there are periods of convergence and divergence, and while there is some indication of beta convergence, with initially high spenders reducing their spending while low spenders increase or maintain their spending (Table 2 and figure 3D), this measure does not show consistent convergence over this time period, moving between periods of slight convergence and divergence as well as steady variation in spending between 1995 and 2009 (Figure 2).

CONCLUSION

Our analysis of recent trends in health sector financing in Latin America and the Caribbean yields several important conclusions. First, the increase in total health expenditures in the region between 1995 and 2009 is consistent with modernization processes and the broader development literature. Spending on health in the region is still relatively low (increasing from approximately 6 percent of GDP in 1995 to around 7 percent in 2009) compared to OECD countries (with World Bank estimates for the OECD at 9.6 percent in 1995), but per capita health expenditures in Latin America and the Caribbean grew rapidly during this period, outpacing growth in GDP. There was also substantial regional convergence in the health sector share of GDP, as predicted by modernization theory. This convergence occurred despite differences in economic growth, which we interpret as evidence that the global transmission of knowledge and ideas about health is accelerating cross-national convergence in the size of the health sector. Therefore, this finding provides support for theories of modernization but also globalization in propelling increases in overall health expenditures, which include both individual and state spending.

Second, we do not find evidence that “race to the bottom” neoliberal globalization is driving trends in health care financing. Despite the extensive involvement of IFIs in the region via structural adjustment and other programs during this time period, trends in public expenditures run contrary to the market fundamentalism that might drive cuts in public expenditures on health or induce convergence in the public-private mix of health spending. Indeed, our findings are more consistent with arguments about human investment globalization. The public share of total health spending increased during this period, although the health share of total public spending remained stable at 13 percent. Theoretically, then, the implication is either that IFIs are not suggesting and mandating cuts in public health expenditure (as suggested by Noy 2013) or that if they are promoting such reductions in public health expenditure they were not successful in influencing states to do so during this time period.

Third, there is evidently no movement toward any particular model of health care financing. The lack of consistent convergence in the private-public mix in health expenditures and government expenditure on health as a percentage of total public expenditure speaks to the persistence of variable, country-specific patterns of spending. Expansion and reform of the health sector are apparently compatible with diverse country-specific arrangements in health. In part, this robust heterogeneity in governments' expenditures on health may reflect the ongoing processes of health sector reform during this period and the varying capacity of Latin American governments to address health reform. But the overall pattern of results is suggestive of broader, path-dependent national differences: we find persistent variation in the priority given to the health sector across the region. This underscores the utility of examining multiple measures of health systems to reveal the dynamics that may be driving different dimensions of spending. Modernization processes especially, possibly accelerated by technological globalization, have led to convergence in overall spending per capita and as a share of GDP. This convergence in health consumption coexists with robust cross-national variation in the public-private health spending mix. However, the overall increase in public health expenditure indicates that insofar as globalization processes are shaping national health expenditures, the result is oriented toward investments in human capital.

While expenditures can tell us only so much about underlying policies, the fact that the public share of health spending is over half of total spending and has been steadily, if slowly, increasing over this time period suggests that governments may be seeing health financing as within their purview, despite theories of neoliberal globalization and IFI pressures to reduce government social spending. If true, this is especially significant in the context of less developed countries that are characterized by high rates of both poverty and inequality. Our findings bolster the claims of some recent studies that identify a positive effect of IFI involvement on social spending. Clements, Gupta, and Nozaki's (2013) quantitative analysis reported that engagement in an International Monetary Fund program was associated with more rapid increases in social spending among low-income countries, and Noy (2013), in her case study analyses of Argentina, Costa Rica, and Peru, found that the World Bank often promoted public health spending in these Latin American countries. Thus it is possible that IFIs are increasingly prioritizing health, acting as agents of human investment rather than instruments of neoliberal globalization. However, the slight decrease in health spending as a percentage of total public spending indicates that these public budgets are probably being pulled in different directions—possibly (but not necessarily) including housing, education, and other domains.

Our analysis underscores the importance of examining trends and convergence in health expenditure regionally in the developing world and through the use of several measures of expenditure. While there has been convergence in overall spending, as suggested by modernization theory, and an increase in public resources devoted to health, we find that there is significant and persistent variation across countries in the public-private mix. While countries are apparently recognizing the importance of investing in health as proposed by the Millennium Development Goals and the rights-based and human capital-based approaches, there is path dependence in the ways that governments channel public resources toward

health. These results suggest the importance of considering national institutional legacies and cross-national variation in the face of regional and global pressures and even as individuals and states alike respond to increased development and modernization with higher individual demand for health services and increased private and public supply of health care. Future research should examine whether the dynamics we describe are particular to Latin America or indicative of broader modernization and globalization effects in health care, as well as whether these trends are consistent across expenditure domains or limited to health. ■

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NOTES

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1. Studies that include the United States note its outlier status as the biggest spender and come to mixed conclusions as to whether there is convergence to the United States. For example, Narayan (2007:1006) suggests that the United States adopts new technologies more rapidly than other countries but concludes that the United Kingdom, Canada, Japan, Switzerland, and Spain eventually "catch up."

2. See also the World Bank's (n.d.-b) notes on specific data series.

3. In addition, if all countries grow or decline by the same factor, there will be no evidence of sigma or beta convergence because the standard deviation and the mean change by the same factor value and countries are exhibiting parallel movement.