
The Impact of the World Bank on Health Care Reform in Transitional Economies

DAGMAR RADIN

Department of Political Science, University of North Texas

Summary

Why do some countries still experience high mortality rates and low health care sector effectiveness, thirteen years after the post-communist transition? Why have some been successful at addressing their health care needs while others left their public health in decay? This study attempts to answer the puzzle by looking at the role of World Bank assistance in the health care reforms of the Central and Eastern European countries during the transition period. It does so by focusing at the type of reform undertaken by countries, as well as at the significance of the loan amount and the ability of the countries to “absorb” the loans successfully, that is, to use the resources given effectively. The results indicate that those countries that reformed earlier and developed strong institutions, were also more likely to use the World Bank loans more efficiently to reform their health care sector. Thus, the effectiveness of their health care system was higher than that of countries that undertook gradual reforms, received less World Bank assistance, and whose institutions were weak.

Key words: health care reforms, institutions, transitional economies, World Bank



Mailing address: Department of Political Science, University of North Texas,
125 Wooten Itall, P.O. Box 305340, Denton, TX 76203-5340, USA.
E-mail: istrad@hotmail.com

Introduction

In the past thirteen years of the transition process undertaken by the Central and Eastern European Countries¹(CEEC), most of the attention in the economic transition

¹ The countries referred here as CEEC (Central and Eastern European) include both the Central and Eastern European countries and many of the countries of the former Soviet Union while acknowledging that some of the former Soviet countries are partly located in Asia.

has been paid to the processes of price liberalization, macroeconomic stabilization, and privatization. This was due to agenda-setting by international organizations such as the International Monetary Fund and the World Bank², the most fervent supporters of rapid economic reforms in the post-communist countries. In the research community, most deliberations have been between the advocates of fast versus gradual reforms, and partial versus complete privatization. At the same time, the social welfare aspects and consequences of the transition process have been disproportionately addressed, and it is only in the past few years that researchers have focused their limited attention to social and health insurance issues. With the advance of time, the deteriorating public health conditions in these countries have drawn the attention of the same international organizations, and a few regional specialists in this area³. Drawing on a number of studies, it has been found that some of the CEE countries have been more successful at reforming their healthcare system than others, evidenced by less drastic declines in life expectancy, and improvements in other measurements of health care success.⁴ The question that this study seeks an answer is: Why were some CEE countries more successful in reforming their health care system than others?

The study attempts to answer this question by looking at the impact of the World Bank support on the health care reforms in the CEEC. Given the significant role the World Bank has played in the overall financial support of the region, and has been the only agency to have made significant financial and otherwise contributions to the health reforms in particular, the timing of this study seems appropriate to find whether or not the support offered by the World Bank has significantly improved the success of those reforms. The theory presented here proposes that the success of the health care reform, supported by the World Bank, depends not only on the timing and amount of aid provided by the World Bank, but also on the strength of the institutions in the particular country. The sooner the country received support, the less deterioration of health care would occur before reforms were implemented, and the more financial support was given, the better equipped would the country be to implement those reforms. Furthermore, the willingness of the World Bank to provide support depends on the agency's evaluation of the country past performance based upon its successful implementation of other reforms such as macroeconomic stabilization, and privatization. Thus, a country that had implemented its initial reforms rapidly and successfully was more likely to receive the World Bank support earlier and in a larger amount, which in turn made the health sector more effective, as witnessed by increased life expectancy, and other indicators. Finally, the impact of the World Bank's success in promoting reforms could be either promoted or inhibited by the institutions of the country. While strong institutions, which made the reform process transparent, would further the World Bank support by

² The World Bank will be used interchangeably with IBRD (International Bank for Reconstruction and Development) throughout the paper.

³ Janos Kornai (2001), Christopher Davis (2000), and Paolo Belli are among the few who have produced viable research in the area of healthcare in transitional economies. Others have focused on the general role of international agencies on the transition process.

⁴ Among the most widely used measurements of health care system effectiveness is life expectancy, infant mortality, and birth weight.

allocating the funds appropriately, weak institutions could inhibit the reform process by misallocating the funds, where some of them would never serve their initial purpose.

The theory is tested with a sample of twenty-three countries over a time period from 1990 until 2002. The study is structured in the five sections: the first section analyzes the literature that so far has addressed the issues of World Bank and health care reforms, as well as the general impact of World Bank loans on the transition economies; the second part develops the theory, derives a model and outlines the main hypotheses tested. The third section outlines the variables, sample and data, and shows the results of the empirical tests. Comments on the results follow in the fourth section, while the final section makes concluding remarks on the study and implications for future research.

Literature review

The literature describing the impact of international organizations on health care reforms is scarce in general, and almost nonexistent with regards to transitional economies. This is due to the fact that the only international organization, the World Bank, that has contributed significantly to the health care reforms in the CEEC region, has begun its lending process for the purpose of health reforms in general only in the past ten years. The scarce attention paid by the international organizations to the health sector in the years prior to the collapse of the Cold War is due to the fact that there was a lack of knowledge about the social costs of economic transitions, and the degree of their severity. However, as the life expectancy in the CEE countries, and in particular in Russia, started declining rapidly, the outcry for reforms was moved up the priority list.⁵ Additionally, because health care systems vary so widely even among wealthy nations, there was no blueprint for a successful reform plan worth undertaking (Nelson, 2001). Nonetheless, there is some literature that has analyzed the process and impact of international organizations⁷ and in particular World Bank's lending on the transitional economies, as well as the impact of transition of the state on the health care sector of these economies. It is from this literature that this study draws the ideas and concepts in order to build and test the relevant hypotheses.

Among the literature that focuses on the health care sector in transitional economies, Christopher Davis has focused on a range of topics from the analysis of health production in command economies to the analysis of the medical system effectiveness in general and what factors influence its ability to sustain a health population. The second stream has primarily described the consequences of the transition process and the process of deterioration that has been brought upon the health care sector as reflected in the declining health of the population (Belli, 2002; Výborná, 1995; Ellman, 1994; Brainerd, 2001; Kornai/McHale, 2000).

⁵ Life expectancy in Russia between 1985 and 1987 was 70 years, while it rapidly declined to 57.5 by 1995 (McKee/Leon, 1997).

Davis (2000) states that the production of health by a medical system can be measured by the ability of the medical service in offsetting the negative effects of illnesses.⁶ National health status effectiveness can be assessed by looking at the medical system's "achievement of target values of invalidity and mortality indicators" (Davis, 2001: 177). Thus, a rise in the mortality rates or decrease in life expectancy indicate that the medical sector is unable to limit the incidence of illnesses in a population, such as that in many Eastern European countries throughout the 1990s. The case of transitional economies is different from other non-market economies in that the health care system under the command economies was and still is considered to an extent as a non-productive sector of the economy, and as thus kept at the bottom of the priority scale of the state.^{7,8} As a consequence of its low priority status, the health sector, as compared to other sectors such as defense, was largely underfunded (as a share of GDP) and uncoordinated, leading to undersupply, and shortages which all became obvious in the late 1980s when the system, now pervaded with obsolete technology and run down facilities, was experiencing rising mortality rates. Although the system could function under such shortage constraints, it soon became apparent that it was increasingly further behind its western counterparts (Kornai, 1992; Davis, 2000).

At the advent of the 1990s when the economic transition process started, the health care sector experienced further drastic declines in effectiveness due to several factors: the liberalization of prices brought about hyperinflation and high unemployment, which resulted in the drop of GDP, and the consequent need to focus on macroeconomic stabilization programs to offset such negative effects. As the income per capita dropped and people found themselves struggling to survive, their health also declined (Cornia/Paniccia, 2000). Part of the reason for the erosion of health was the increase in an unhealthy lifestyle such as consumption of alcohol, but these explanations, although not false, fail to account for the underlying reasons (Brainerd, 2001). Namely, the most relevant research focuses on the analysis of "acute psychosocial stress" due to the spread of poverty and other types of deprivation, and changes in the institutions (Cornia/Paniccia, 2000: 4). In most CEE countries this was evidenced by the increase in cardiovascular disease and terminal illness, while in Russia in particular part of the high mortality was the increase in suicide rates.⁹ Another important reason for decaying

⁶ He expresses this relationship by the function $H = f(T, M)$, where the production of health (H) is a function of disease (T) and medical system success (M). Thus, the relationship between H and T is negative, while that between H and M is positive.

⁷ In some countries like Croatia, the health care spending is still considered an extra-budgetary item, and its funding is not transparent leading to undersupply and misallocation of funds.

⁸ Marxist-Leninist philosophy of the political economy justified the low priority of the health care sector since one of its claims was that the national income is generated by productive sectors of the economy such as industry and agriculture, which was in turn consumed by non-productive sectors of the economy such as health institutions.

⁹ As suicide rates are highly sensitive to the state of the macroeconomy, steep prolonged declines in GDP may have been in part responsible for the suicide epidemic. An interesting observation from some studies is that only male suicide rates are sensitive to the changes in GDP, while female suicide rates remained unchanged (Brainerd, 2001). Other countries of the Eastern European region such as the Czech Republic, Hungary or Slovakia, where the economic decline was not as pronounced did not reflect such trends.

health was the inability of the obsolete and ineffective health care system to offset the effects of the struggling economy. The economic crisis naturally had an impact on the ability to finance the medical sector. The unreformed medical system in an economy that had reformed its other sectors has seen declining wages in the health care sector, which lead to preferential treatment in a supposedly egalitarian system. Thus, although some degree of corruption of medical care professionals, as manifested in gratitude payments to medical doctors, was present in the pre-transition, command period, this became more pervasive in the 1990s and lead to additional economic inefficiency¹⁰ (Kornai, 2001). As Davis (2001) shows, the efficiency of the medical system is dependent upon the organization, management, and financing of the system. During the transition period, the poor organization and lack of effective management were due to the lack of or ineffective health reforms, while the failed financing was the result of malfunctioning economies (Davis, 2001). The longer the reforms are delayed, the more the consequences of the declining health care system are felt by the people.

The neglected position of the health care sector in the command economy continued into the transitional period for several reasons: the main reason was the influence of international organizations, which supported the shock therapy approach. This approach required economies to focus on liberalization and macroeconomic stabilization by lowering the government's budget deficit since it directly affects fiscal stability and growth, as well as the state's ability to invest in social infrastructure (Sachs, 1996). Thus, not only was the health care sector not part of the prioritized policy, but the cutting in government spending affected it severely, given that it was mainly financed by the government. This, coupled with the falling tax base due to double digit and still rising unemployment rate, drained the available resources.

The second strand of literature used in the preparation of this study is focused on the role of international organizations, such as the International Monetary Fund and the World Bank, in the reform process of transitional economies. Although most of the literature either entirely circumvents or minimally touches upon the World Bank assistance of the health care sectors, some principles used by the World Bank to offer funding, as well as the repercussions that it may have on the recipient countries are useful.¹¹ The focus of this literature is predominantly on the World Bank as it has been the only agency to have directly given loans and other types of support for the identified purpose of reforming the health care sector of these countries. Although the World Bank has been more aggressive in its participation of other social reforms such as the pension system in Poland, it has been comparatively shy in its assistance to the healthcare sec-

¹⁰ Undeclared side payments have several negative effects on the efficiency of the economy: since the side payments can represent up to sixty percent of a doctor's income (such as in Hungary), he does not have the incentive to change the system as to make it more effective; the consumer is worse off because they are paying for preferential treatment in addition to having their health insurance payments supposedly already deducted from their income; third, although paying more for better treatment is not per se inefficient, side payments lead to dead weight loss when they are not channeled back into the system providing them with the service (hospitals, ambulances, etc.)

¹¹ This is, as mentioned earlier in the paper, partially due to the fact that health care reform financing of the World Bank is a relatively recent phenomenon.

tor. In the period between 1990 and 1993, the share of the World Bank lending that was dedicated to the health care sector was only three percent, and this measure included financing for nutrition and population sectors as well (Wallich, 1994). Nelson (2001) identifies a few reasons for such behavior: while the reforms of the pension system have clear examples to follow such as that of affluent western countries after which their systems can be modeled, the health care systems of various affluent countries vary significantly, and there is no consensus on a blueprint that should be used to conduct the reform. Thus, the first reason for the lack of participation of the World Bank was a lack of knowledge, or internal conflict within this organization, on what a health care reform ought to look like. Second, as Nelson mentions, the political disagreements and conflicts of interest¹² tended to be higher when it comes to healthcare issues, and coupled with the higher complexity of reforming a health care system (as opposed to a pension system), the IBRD chose not to get involved in reforms where success was not foreseeable.

Brada/Schönfeld (1995), Wallich (1995), and Zecchini (1995), among others, analyze the factors the World Bank takes into consideration and the process used when the organization decides to give support to countries in their health reforms. The process starts with the country requesting the needed assistance from the World Bank. Typically, countries have been refraining from requesting assistance from the World Bank for the health sector reform. They have preferred to borrow for more traditional investments such as the infrastructure development and the key factor in the decision on whether to borrow for social sector reforms has been the “economic efficiency of the investment” or economic returns, since this kind of projects do not yield financial returns (Wallich, 1994: 74).¹³ Thus, it is harder to repay investments that do not yield a financial growth in income and the reforms of social sectors are one such investment. Correspondingly, a number of loans the World Bank secured for the purpose of the health care sector were either mixed loans, or the scarcer sector reform loans where 100 percent of the funding was dedicated to the health sector reform.¹⁴

When evaluating the request of a country to receive a loan, the World Bank uses data collected from IDA Country Performance ratings where the agency evaluates the country by a number of different factors.¹⁵ The most important one is the ability of the institutions to implement the economic and political policies of the reform process and other eligibility factors (World Bank, 2003).¹⁶ The ability of a country to implement the

¹² In the case of Poland, the ministries of health tended to reflect the interests of particular groups of doctors, and there was tension between the ministry and the state health fund about who will manage the funds (Nelson, 2001).

¹³ Economic returns, as opposed to financial returns, incorporate both the social benefits, such as a healthier, better educated population, but also social costs, such as pollution (Wallich, 1994).

¹⁴ A mixed loan is a loan where a portion of the fund is given for the purpose of some macroeconomic stabilization or infrastructure growth while the remaining portion was for the health care sector.

¹⁵ These ratings are based upon the Country Policy and Institutional Assessment Questionnaire (CPIA), which include evaluations on the following areas: economic management, structural policies, policies for social inclusion/equity, and public sector management and institutions.

¹⁶ Eligibility factors include: relative poverty, and lack of creditworthiness.

economic and social politics that promote growth and poverty reduction gives the World Bank an assessment in integration of aid into macro stabilization efforts already under way (Howell, 1998). This necessarily implies that countries, which have achieved GDP growth and were able to lower inflation and unemployment more successfully, were also more likely to receive World Bank support. The requests for assistance are screened selectively given the observation that the impact of assistance on reforms and sector problems is most effective in countries that advance most rapidly in the economic transformations (Zecchini, 1995). Such an evaluation process does not come as a surprise, given that the IBRD is a bank and behaves as to maximize and guarantee its investment returns. Thus, where growth and reforms are not advancing rapidly, involvement and funding may be very limited.

This finding goes hand in hand with the literature on shock therapy reforms where the main promoters of the radical reforms of macroeconomic stabilization were and still are organizations such as the World Bank and IMF (Jones/Kummsa, 2000). In fact, according to Sachs (1991), the countries that undertake radical reforms are able to reverse the process of decline in production and growth much faster because, by implementing all reforms sooner, they are able to avoid the lengthy hyperinflation and absence of growth, and are also able to implement policies before existing interest become mobilized to react against the costs of reform.¹⁷ Thus, the sooner after the transition the countries achieve stability and growth through the implementation of reforms, the sooner and more funds they are likely to receive. Namely, international financial institutions' financial assistance has rewarded mostly those countries that started their economic transformation earlier than others (Zecchini, 1994).

Finally, the success of the financial support of the World Bank, and others' assistance, will be affected by the type of the institutions present in the country at stake. Ablo and Reinikka (1998) show how budgetary allocations for public spending, such as health spending, can be misleading in the context of weak institutional settings. Where the institutions are weak and the policy implementation process breaks down and in the case of resources delegated for public spending, the actual inputs do not reach the intended facilities, as expected. This occurs in societies where the democratic process of transparency is lacking and thus there is no accountability for the government officials. Others, such as Svensson (1997), find that the control of public policy is less effective in highly polarized societies and where there is some degree of social conflict. Given that the process of democratization is a long-term process, in particular for CEE countries where the government policy choice implementation was never a transparent process, the institutional strength or weakness may play a significant role in its successful health reform implementation.

Based upon the literature reviewed in this section, the following section advances hypotheses and a model that attempts to explain the instances when World Bank funding of the health care sector would be successful, and why there is such difference between CEEC.

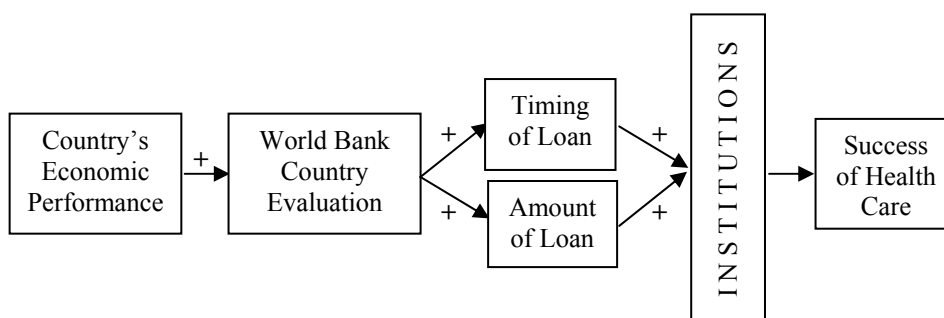
¹⁷ In his 1996 study, Sachs found a positive and significant relationship between the economic growth and reform progress.

Theoretical framework

The literature analyzed in the previous section serves as the building block for the theory developed here. The theory presented here proposes that the success of the health care reform, supported by the World Bank, depends not only on the timing and amount of aid provided by the World Bank, but also on the strength of the institutions in the particular country. Figure 1 describes the relationship between World Bank financial support and success of health care reforms.

The willingness of the World Bank to provide support depends on the agency's evaluation of the country past economic performance (growth of GDP) based upon its successful implementation of other reforms such as macroeconomic stabilization, and privatization. Thus, a country that had implemented its initial reforms rapidly and successfully was more likely to receive the World Bank support and do so earlier than later. A country with good economic performance is also more likely to receive a larger amount of funding given that such performance reflects the likelihood that the country will be able to take advantage of the loan effectively and be able to repay it as agreed.

Figure 1. Impact of World Bank on Health Care Success



With respect to timing, the sooner a country receives support immediately after the transition, the less deterioration of health care would occur before reforms were implemented and it would be easier to rehabilitate the sector. Here, the mechanism behind this relationship is given by the fact that the ability to reform the sector is a function both of time because it will not only stop the decay of the health care infrastructure in terms of the financing, management and functioning of the hospitals and the insurance system, and this will be reflected in lower mortality rates. In terms of the amount of the loan, the more financial support is given, the better equipped will the country be to implement those reforms faster and more comprehensively.

Finally, the impact of the World Bank's success in promoting reforms could be either promoted or inhibited by the institutions of the country.¹⁸ While strong institutions would, by holding the government accountable and the process more transparent, increase the benefit from World Bank support by allocating the funds appropriately, weak institutions could inhibit the reform process by misallocating the funds because of corruption or lack of skills to implement it, where some of them would never serve their initial purpose.

Model and hypotheses

First, a full model is presented and explained, and then five hypotheses are derived and explained. The basic model derived from the theory shows that, if a country requested help by the World Bank to reform its health care sector, it would succeed in the health reform if it had implemented its other reforms early and successfully. This is because the World Bank is more likely to grant help to countries that reformed early, and were successful at it, which in turn determined when and how much assistance would be granted. The timing and amount of assistance, then, directly affects the success of the reforms, depending on the strength of institutions in place at the time of the reforms.

Model

$$\text{Log } Y_{\text{Success}} = \beta_1 + \beta_2 X_{\text{Reform}} + \beta_3 X_{\text{Evaluation}} + \beta_4 X_{\text{Timing}} + \beta_5 X_{\text{Amount}} + \beta_6 X_{\text{Institution}} + \varepsilon_i$$

Hypothesis 1: The sooner a country undertakes economic reforms, the more likely it is to receive assistance from the World Bank.

The underlying argument states that when a country undertakes fast and comprehensive reforms early (i.e. shock therapy approach to reforms), it achieves economic stability and growth early because it is able to first implement all the necessary reforms, which initially lead to an unstable situation (high inflation, negative growth, etc.), and then it implements stabilization procedures (fiscal rigidity, zero balance of payments, etc.) which leads to a growing GDP (Sachs, 1996; Murrell, 1993). Given that the World Bank is one of the main supporters of such approach to reforms, it evaluates the ability of a country to take on more assistance by measuring its success in the reforms implemented to date (Kornai, 2000; World Bank, 2003). The macroeconomic stability and reform implementation of the country indicates how well the country will be able to absorb the new assistance dedicated at sector reforms such as the health care sector (Howell, 1998; Zecchini, 1994).

¹⁸ The institutions variable is an intervening variable.

Hypothesis 2: A country that is evaluated more favorably by the World Bank will receive health sector assistance sooner.

This relationship is more intuitive rather than explicitly stated and it follows from the previous hypothesis: given that the World Bank evaluates countries based upon past reform performance, the sooner the countries are able to implement successful reforms and show macroeconomic stability and growth, the sooner will the World Bank be willing to lend them the necessary resources to implement health care sector reforms when requested (Zecchini, 1994).

Hypothesis 3: A country that is evaluated more favorably by the World Bank will receive more generous health sector assistance.

Even though it has a different function than other traditional banks, the World Bank still behaves according to the banking principles of returns on their investment, and avoidance of high-risk loans. This means that the bank will be leary of lending to countries that do not rank very high on their evaluation of past economic performance with respect to reform success, and will be less willing to lend them any resources. Thus, when the bank lends resources for the purpose of the health care sector reform, it will be more likely to give less assistance to those countries who score lower on the evaluation list to minimize the potential loss in case the country fails to implement the reforms successfully and/or defaults on the loan repayment. If that country experiences high growth and has achieved fiscal stability, it is more likely to repay its debt to the World Bank than a country whose fiscal deficit is not under control and whose growth has been stalled by poor reforms (Howell, 1998). Furthermore, these types of loans, as opposed to loans meant for infrastructure development, do not bring financial returns to the borrower, and are thus harder to repay (Wallich, 1994).

Hypothesis 4: The sooner a country receives World Bank assistance, the more successfully it will reform the health care sector, ceteris paribus.

In a country that has been undergoing economic reforms accompanied by initial economic decay and consequences related to it (negative or slow growth, high unemployment, hyperinflation, poverty), in addition to the obsolete and inefficient health care sector inherited from the command system, timing of aid and reform is crucial in their ability to reverse the process of increased mortality and health decay (Davis, 2000). As shown, one of the reasons of such an increase in mortality and decrease in life expectancy has been the fact that the reforms of the health care sector have been placed on the backburner when the economic transition process started. This was partly due to the international pressures to reform other sectors, thereby neglecting the welfare sectors, and in part because of the secondary position that the health care sector occupied in the command economy, which translated this relationship to the transition period. Thus, as Davis (2000) mentions, given that the effectiveness of the health sector depends on the financing and effective management, the sooner the financing is received, the better it will perform and recover from the down sloping effect of transitions.

Hypothesis 5: The larger the amount of assistance a country receives, the more successful it will be at reforming the healthcare sector, ceteris paribus.

Among other factors such as management and organization, financing is one of the most important factors influencing the quality of the health care sector in delivering the optimal amount of health (Davis, 2001). Although not the only important factor, in developed capitalist economies the amount of money spent per capita on health care is a reflection of the quality of care due to technological advancement. It has also been found that an increase in medical care spending has a direct positive relationship to the level of health (in this paper measured by the infant mortality) (Phelps, 2002). According to Janos Kornai, the health care spending in former command economies was not unusually high, as some have suggested (due to its inefficiency). Rather, it was not funded properly in comparison to other sectors. Thus, the more financial assistance is available for the purpose of reforming the sector¹⁹, the more successful is the health care reform is likely to be, all other things being constant.

Hypothesis 6: The stronger the institutions are in a country, the more successful the reforms of the health care sector will be, ceteris paribus.

The success of policy (i.e. reform implementation), holding all the other factors constant, is dependent upon the ability of the government to translate the policy into actual effect (Ablo/Reinikka, 1998). In order for the implementation to be successful, the process must be transparent and there must be a structure of accountability of the government officials. In other words, the institutions in place must be strong to implement the reforms fairly and effectively.

Variables, data and case selection

The model depicted above is an intrinsically linear equation, where the natural logarithm of the dependent variable is taken in order to measure the percentage change in the health care effectiveness. This is done in order to control for the differences in the initial condition of the health care sector, so as to capture only the change in the medical sector of each country.

The dependent variable Y_{Success} is the success of the health care reforms operationalized in terms of the effectiveness of the health care sector and measured by the infant mortality rates. This measure has been commonly used in health care studies because it is more sensitive, since using other measures such as adult mortality only may omit the influences of many factors such as current and past income, consumption patterns, and medical care use (Phelps, 2002). Since there is a strong relationship between income and medical care spending, the impact on infant mortality will be the same. Thus, a de-

¹⁹ The assistance is needed not only for the renovation and technological update of hospitals, but also in the restructuring of the wage system of health care employees and the reforming of the health insurance system, which became underfunded and very inefficient, causing moral hazard and deadweight loss for the society.

crease in the infant mortality is an indicator of more health care efficiency, i.e. successful reform. Conversely, an increase in health success will be indicated by a decreased infant mortality. The independent variables are measured in the following manner: the success of all reforms (X_{Reform}) is measured by GDP growth (indicating macroeconomic stability), so an increase in the growth should be associated in a decrease in infant mortality (that is, the effectiveness of the health care sector), indicating that the coefficient, β_2 , is expected to take on a negative value; World Bank country evaluation ($X_{\text{Evaluation}}$) is measured by using three different sets of data: the economic liberalization score collected by the Heritage Foundation, where more economically liberal countries should experience more healthcare success and β_3 is expected to be positive; the democracy score from Polity IV, where more democratic countries are expected to experience more health success (the coefficient is supposed to be negative), and by Freedom House, where more freedom is expected to have a positive effect on health care success (the higher score is an indication of less freedom and β_3 is expected to be negative).^{20,21} The reason for using these three measures for separate testing is the inability to acquire the Country Policy and Institutional Assessment (CPIA) data used by the World Bank due to their “no release policy”.²² Taking into consideration the limitation that the absence of such precise measure creates for the results in this study, an attempt is being made to find a measure that will most closely resemble the factors evaluated in the CPIA (reform progress, social equity, etc). The coefficient β_3 , depending on which dataset is used (Polity, Freedom House, or Heritage Foundation), is expected to take on a positive or negative value, but the direction of the relationship between $X_{\text{Evaluation}}$ and Y_{Success} is expected to be positive. The timing of assistance, represented by X_{Timing} , is measured by the number of years passed between the year the country initiated the transition and the year in which assistance was granted. The greater the number of years between the two periods, the worse the health care reform outcome will be. Thus, the coefficient, β_4 , is expected to take on a positive value. The amount of assistance, X_{Amount} , measures the amount of World Bank assistance given to the country and its measure has been divided by the population in each country in order to account for size of the population, so that it is a U.S. dollar per capita measure. Since the assistance data is usually given in a package with resources intended for other sectors, the exact amount was calculated by using the percentage allocated to the health care sector and multiplying it by the total amount. The greater the amount of per capita assistance, the lower the infant mortality is expected to be and thus the coefficient β_5 is expected to take on a negative value. Finally, the variable representing the institutional strength, $X_{\text{Institution}}$, is measured by subtracting the World Bank loan per capita from the actual health care spending per capita for the individual country. The final value can take on a negative, zero, or positive value. A negative number indicates that the less is being spent per capita than the World Bank loaned and is an approximate indicator for weak institutions. A value of zero

²⁰ Please see the appendix for a detailed explanation of the meaning of Heritage Foundation liberalization scores.

²¹ Please see the appendix for detailed explanations about the meaning of the Polity scores.

²² The World Bank’s “no release” policy is a contractual agreement between the World Bank agents that have worked on research project using the CPIA data that forbids them do release any of the data used in the projects, even after they no longer work with the Bank.

means that the country is using the World Bank loan for health care spending but is not spending anything beyond that. Finally, a positive number means that the government is spending beyond what the World Bank loaned, indicating strong institutions. The greater the number, the stronger the institutions are, and the more successful the health-care effectiveness is likely to be (β_6 is positive), *ceteris paribus*. This measure has been adopted from Ablo and Reinikka (1998) where they apply the same measure of institutional strength for health care spending of Third World countries.

The sample consists of twenty-four countries measured over a period from 1990 until 2002. They were selected based upon received assistance for health care sector aid from the World Bank in the same period. The list includes: Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and Yugoslavia.

There are a few concerns and methodological drawbacks that ought to be addressed. Namely, because of the missing values in the dataset, a number of observations has been diminished significantly (from 276 down to 76 observations). While the results from empirical inference can still be sound, and far from the threat of micronumerosity, there is a possibility that, since typically the poorest countries have most problems with the collection and reporting of statistical data, there could be a bias in the sample towards those countries which have stronger GDP growth, thus concealing some effects. Another observation regarding the data is that a more precise measure of country evaluation by the World Bank could be achieved by incorporating the CPIA data instead of using proxies of freedom, democracy, and economic liberalization, given that the CPIA is the actual measure used by the World Bank to give out loans. Unfortunately, the data is subject to a non-release policy, which affects the preciseness of any research concerning itself with this type of subject, and the hope is that the data would be released in the near future.

Results and discussion

In order to test the hypotheses stated in the previous section, this study used a generalized linear model in order to be able to use a maximum likelihood estimation method on a dependent variable that takes the form of a proportion. The same model was estimated two times, both using robust standard errors but varying on the clustering method in order to control for heteroskedasticity, a common “illness” that afflicts panel data. While the model that does not control for heteroskedasticity yields five cases where the null hypothesis is rejected, when the control is used only three null hypotheses are rejected. The comparing results are presented in the Table 1.

The variable measuring the level of freedom has been dropped from the dataset as it has yielded insignificant results, and is highly correlated with the variable measuring the level of democracy. This could be a result of the fact that the democracy measure maybe already capturing the effects of freedom, and for this reason it has been dropped from the dataset. On the other hand, the democracy variable still yields a significant result. Since heteroskedasticity brings a problem of high correlation among error terms from

one observation to another and is characteristic of panel data, I chose to focus on the analysis of results where clustering is included as a control. Among the variables that yielded significance is the level of democracy, the World Bank per capita loan amount, and the strength of institutions. Three variables were insignificant but in the expected direction: economic growth, level of economic liberalization, and timing of the loan.

Table 1. Maximum likelihood estimation for cross-section time series (1990-2002) sample (24 countries). Dependent variable: health success

Variables	Coefficient (1)	P> z (1) Robust SE	Coefficient (2)	P> z (2) Robust/Cluster
Institutional Strength	0.0025* (0.0003)	0.000	-0.0025* (0.0067)	0.000
Loan Amount	-0.0536* (0.0144)	0.000	-0.0536* (0.147)	0.000
Timing	0.0139 (0.0116)	0.231	0.0139 (0.0122)	0.253
Democracy	-0.0562* (0.0153)	0.000	-0.0562* (0.0165)	0.001
Economic Liberalization	0.2114* (0.1117)	0.058	0.2114 (0.1365)	0.122
Growth	0.0168* (0.0099)	0.089	0.0168 (0.0105)	0.110
Constant	-4.1290 (0.4365)	0.000	-4.1290 (0.5385)	0.000
Observations	76		76	
Log pseudo-likelihood	-5.1781		-5.1781	

* Significant at $\alpha = 0.001$. Standard errors are in parentheses

The first significant variable is the level of democracy. The high χ^2 value of 19.4 and very small p value (0.000) of the Wald hypothesis test fails to reject the null hypothesis that democracy has no significant effect on the probability of health care success. When looking at the marginal effect of democracy on the success of health care, it is evident that democracy has a significant impact: at its minimum value of -9 , the impact of democracy on the predicted mean of health care success is 0.0456, while at its maximum value the mean is 0.0118, a positive change of 25.37%, as shown in Table 2.²³ Thus, it seems that a more democratic country is more likely to have a successful health care sector. Graph 4 shows the relationship between democracy and health care success. The

²³ The change is in the mean of infant mortality, so a decrease in the predicted mean indicates an increase in health care success.

second variable where the null hypothesis is rejected is the impact of the amount of the World Bank loan. In this case, the Wald hypothesis test showed that the null hypothesis is strongly rejected with a χ^2 value of 9.53 and the value of p being 0.0020. The change in the marginal effect on health care success of a country that received no World Bank funding versus one that received its maximum amount is stark: as it is evident from Table 2, this difference in the marginal effect of World Bank loan amount on the predicted mean of health care success is 62.33%. Thus, if a country receives World Bank funding, all other things being equal, it is likely to improve its health care success by 62.33% more than if it did not receive any funding (see Graph 3 in the appendix). This effect can also be evidenced by the fact that, between two countries with an equally low level of democracy, the country that receives World Bank funding will achieve 36.85% more health care success. Similarly, a country that had a low level of democracy and did not receive any funding would experience 78.04% less health care success than a country that had a high level of democracy and funding.

The last variable that yielded significant results is the strength of institutions. While the Wald hypothesis test supports the rejection of the null hypothesis, the impact of institutions seems to be the most significant of all variables in the model.²⁴ The difference between countries that have very weak or very strong institutions, *ceteris paribus*, is that a country with strong institutions will experience 88.16% more success in the health care sector than a country with weak institutions. Furthermore, as Table 2 shows, between two countries that receive the same amount of World Bank loan, the country with strong institutions will achieve 88.44% more health care success than the country with weak institutions. Graph 1 in the appendix shows the relationship between institutional strength and health care success.

Although the aforementioned findings are important and interesting, it is just as important to look at and explain the variables that did not yield significance. Namely, economic growth, the level of economic liberalization, and the timing of the World Bank loan resulted insignificant. Although economic growth and economic liberalization yielded significant results when a less conservative model was used, without controlling for heteroskedasticity or using robust standard errors, they turned out as insignificant, once those factors were included. The reason behind the lack of significance of economic liberalization could be due to the fact that the level of democracy and economic liberalization are strongly correlated as shown in Table 3, which may mean that countries that were more liberal were also more democratic, and the measure of democracy was able to capture better the effect on the health care success.²⁵ On the other hand, the level of democracy is also moderately correlated with the level of economic growth, so it seems that a country that is a more democratic is also more likely to experience economic growth. The timing of the World Bank loan is the third variable that has yielded insignificant results. Since there is a high, positive correlation between the amount of the loan and the timing, it is possible that the effect of timing is being coun-

²⁴ Wald hypothesis test: $\chi^2 = 10.66$, $p = 0.0011$.

²⁵ The level of correlation between economic liberalization and democracy is -0.71. In the economic liberalization score, a higher level reflects less liberalization, and in the democracy score, a higher level indicates a higher democracy level. Thus, the score is negative, although the actual relationship is positive.

teracted by the fact that a country that receives the loan later also receives a larger loan to compensate for greater deterioration of the health care sector that occurred since more time elapsed from the time the reforms were implemented.

Table 2. Marginal Effects on the Success of Health Care

Independent Variables	Predicted mean in health success	Δ predicted mean of health success	$\% \Delta$ predicted mean of health success
<i>Democracy</i> (mean) Value1 (min=-9) Value2 (max=10)	0.0142 0.0465 0.0118	0.0347	25.37
<i>Loan Amount</i> (mean) Value1 (min=0) Value2 (max=8.84)	0.0142 0.0146 0.0091	0.0055	62.33
<i>Institutional Strength</i> (mean) Value1 (min=3) Value2 (max=873)	0.0142 0.0228 0.0027	0.0201	88.16
<i>(Democracy x Loan Amount)</i> Value1: max, max Value2: min, min Value3: min, max	0.0074 0.0337 0.0213	-0.0263 0.0124	-78.04 36.85
<i>(Institutional Strength x Loan Amount)</i> Value1: min, max Value2: max, max	0.0147 0.0017	0.013	88.44

Table 3: Correlation levels between independent variables

	Growth	Economic Liberalization	Democracy	Timing	Loan Amount	Institutional Strength
<i>Growth</i>	1.000					
<i>Economic Liberalization</i>	0.029	1.000				
<i>Democracy</i>	-0.287	-0.705	1.000			
<i>Timing</i>	-0.031	0.076	-0.095	1.000		
<i>Loan Amount</i>	-0.108	0.027	0.005	0.652	1.000	
<i>Institutional Strength</i>	0.081	-0.422	-0.386	-0.008	0.029	1.000

The findings in this study are significant for a number of reasons. First, it seems that the effectiveness of the World Bank loans depends both on the level of democracy and the strength of the institutions, although the conditional relationship is more significant in term of institutional strength. The effect that World Bank funds have on health care success will be greater when a country is higher on the democracy scale, although their effect is still significant, albeit smaller in the case when the country is less democratic. This means that the World Bank should channel its health care loans to countries that have achieved a higher level of democracy, if its funds are to have a greater impact. This, on the other hand, could have serious consequences on countries whose health care sector is in need of a loan but is not very democratic. However, the strength of institutions is crucial for the effectiveness of World Bank loans: namely, results show that even in cases where World Bank loans are substantial, the impact on the health care sector will be insignificant when the institutions are very weak (refer to numbers). The policy implications for the World Bank and its allocation of funds for the purpose of health care reforms are that it should consider the level of democracy and institutional strength when making such choices, and not necessarily discard those that do not meet the traditional targets of economic liberalization and growth, since those many not have as high of an impact on whether the World Bank funds will be effective in promoting health care success.

Finally, a better collection of data that would retain the number of observations close to the initial number in the sample would certainly improve the reliability of the final results that come out of the study. Furthermore, an alternative operationalization of the dependent variable, health care success, is warranted given that different measures such as infant mortality, life expectancy, and illness/disability measurements may capture different aspects of the effectiveness of the health care sector.

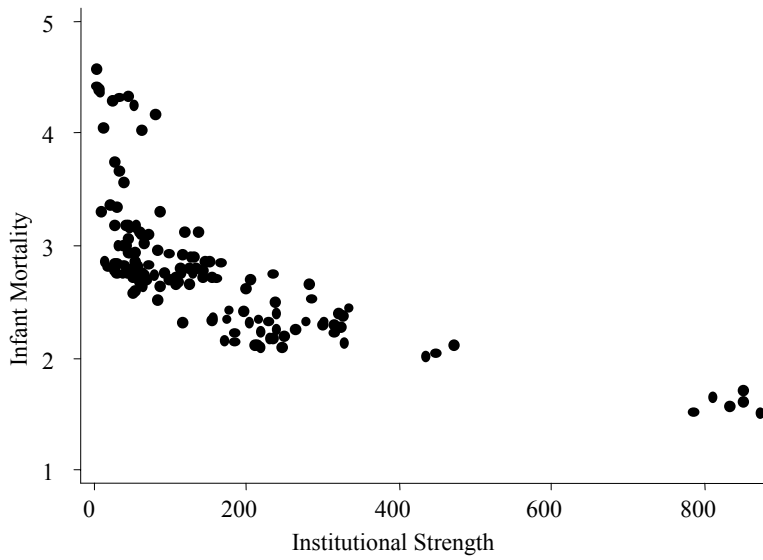
Conclusion

The question that this study poses is whether the World Bank lending for the health care sector reforms in Central and Easter European countries has been successful at improving the declining health sector performance in these countries during the 1990 tran-

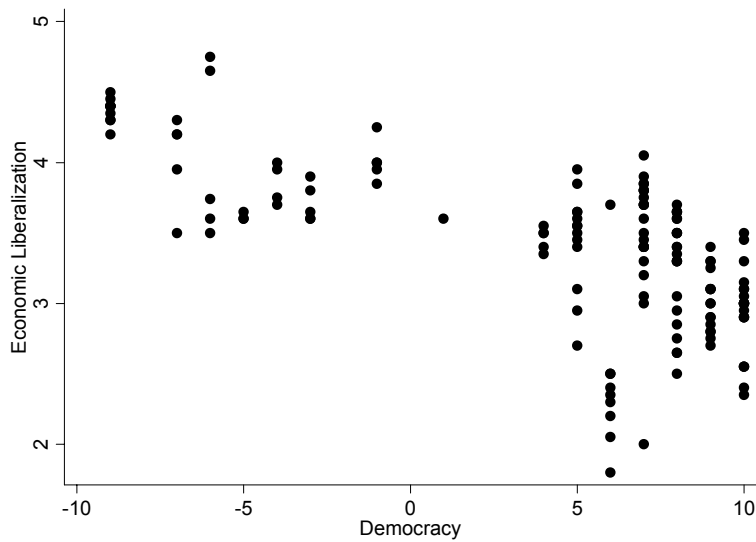
sition. In order to provide a tentative answer to this question the study looks at the speed of reforms that these countries undertook, how it relates to the amount of resources provided by the World Bank, and how this influenced the success of the health care reforms. The theory developed proposes that from those countries that received World Bank support, the ones that were more successful at improving their health care sector were the ones that undertook reforms early and developed strong institutions. The explanation for this is that countries that reformed early and achieved stability earlier were better able to address their health care issues and more effectively use the World Bank loans given to them. Similarly, the countries that had developed strong institutions were able to use the World Bank funds more efficiently and improve their health care success significantly more than countries that received those funds but had weak institutions and were low reformers. At the same time, it seems that the impact of the timing of World Bank support had no significant influence on the success of the health care sector. Furthermore, some of the indicators, such as growth of level of economic liberalization) used by the World Bank to evaluate the countries for funds eligibility may not be the most appropriate if used exclusively; as shown in the results of the study, indicators of the level of democracy and institutional strength should be added to this set of evaluation factors in order to have a complete picture. Despite the missing data, which reduced the number of available observations, the results are fairly significant. Implications for future research should include the possibility of studying the impact of non-financial health care support that the World Bank provides to countries, particularly because this type of support only started increasing in the past fifteen years. This paper focuses on the financial aspects of support for two reasons: the financial support still makes up the larger portion of World Bank assistance, and there is more data readily available on financial assistance than on non-financial. Still, in addressing the other side, research would be able to, hopefully, identify the difference in the success rate between financial and non-financial mechanisms available to the bank and to perhaps determine the optimal amount of each to be given to individual countries.

Appendix

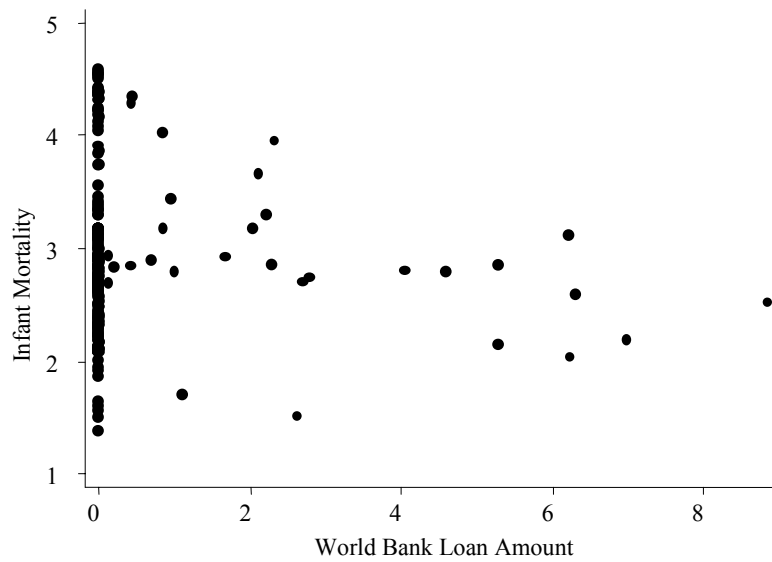
Graph 1. Relationship Between Institutional Strength and Health Success



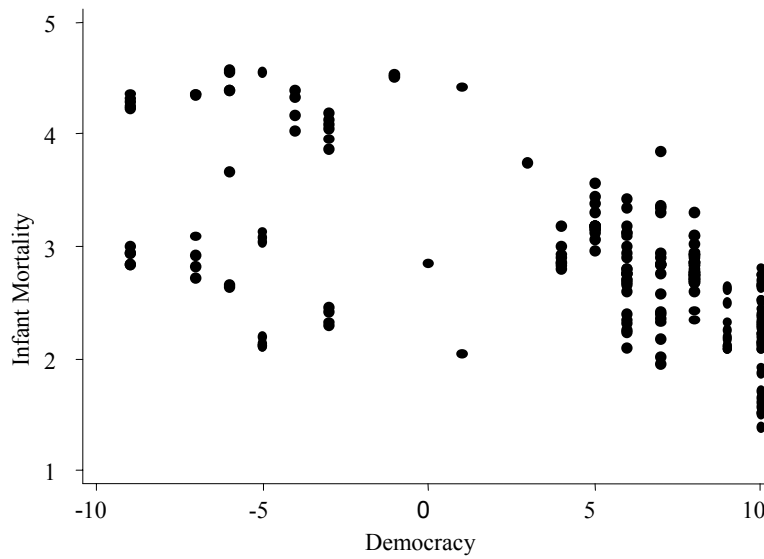
Graph 2: Relationship between Economic Liberalization and Democracy



Graph 3. Relationship Between Loan Amount and Health Success



Graph 4. Relationship Between Democracy and Health Success



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