Dying of Corruption

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Bribing in the Health Sector

The minute after she had given birth to her first child at one of the public hospitals in the city of Bangalore in India, Nesam Velankanni wanted the midwife to put the crying baby on her chest. However, before even getting a glimpse of her newborn baby, a nurse whisked the infant away and an attendant asked for a bribe. Nasam Velankanni was told that the customary price if she wanted to hold her child directly after giving birth was 12 USD for a boy and 7 USD if it was a girl. The attendant told her that she wanted the money immediately because the doctors were leaving for the day and wanted their share before going home. For Nasam Velankanni and her family, 12 US dollars was a substantial amount of money since her husband was working for less than one dollar a day. Eventually, the poor woman’s mother-in-law solved the problem by promising to pawn a set of gold earrings and so Nasam Velankanni got to hold her newborn baby. Even if the government of India have established fierce measures to combat such forms of petty corruption and extortion in the health sector, the custom remains partly because many poor people are afraid that their babies will receive bad treatment from angry health care workers if they do not pay (Dugger 2005).

This story, told in The New York Times on August 30th, 2005, is but one of innumerable descriptions of corruption and similar forms of dysfunctional government practices that exist in many countries in the health care sector. Survey data about perceptions of corruption from 23 developing countries shows that corruption in the health care sector is ranked as number one among nine sectors in three countries, as number two in three other countries and within the top four most corrupt sectors in another four countries. In many of these countries, over 80 percent of the population has experienced corrupt practices in the health sector. Another survey study from former communist countries in Eastern Europe has shown that in most of these countries, well over 50 percent of the population thinks that corruption among doctors is widespread (Lewis 2006). In Hungary the practice is to leave an envelope at the doctor’s desk with a sum that for an ordinary Hungarian family is quite substantial (Kornai 2000). Another example is the very high level of absenteeism among health personnel in

1 Moldova, Slovakia and Tajikistan.
2 Bangladesh, India and Sri Lanka.
3 Kazakhstan, Kyrgyz Republic, Madagascar and Morocco.
many national health care systems in developing countries. For various reasons (low pay, bad control, low sense of public duties, greed), health care workers in developing countries simply do not show up at work. Instead, they decide to earn extra money by working “on the side” (Lewis and Lloyd-Sherlock 2009; Widmalm 2008).

**Corruption kills?**

In 2006, the leading international anti-corruption organization *Transparency International* published a special report about the devastating effects that corruption have on people’s access to health care and on health in general. The report documents the existence of corruption and similar practices in many different areas of the health care sector such as the administration of hospitals, “under the table” payments to doctors in many Eastern European countries, the existence of counterfeit drugs in Nicaragua and overbilling to insurance companies in the United States. The report indicates that while the type of corruption illustrated by the “Bangalore case” above is unusual in the OECD countries, other forms of corrupt practices in the health care sector plague many developed countries. A survey of deaths caused by malaria in rural Tanzania reported that nearly eighty percent of the children that died had been to modern health facilities. The reason that they were not cured was because to a large extend due to corrupt practices in the form of drug pilfering, provider absenteeism, stolen equipment and very low levels of diagnostic efforts (World Bank 2010:2)

Recently, *The New York Review of Books*, one of the world’s most influential literary magazines, published a lengthy article (and a following “exchange”) titled “Drug Companies and Doctors: A Story of Corruption” in which the author Marcia Angell claims that medical doctors in the U.S. are evaluating the effects of new drugs manufactured by companies in which they also have an economic interest. One interesting part of this “exchange” is that the author of the article does not equate corruption with criminal behaviour. Instead, she argues that corruption should be understood as “undermining the impartiality that is essential both to medical research and clinical practices”. As Marcia Angell argues, “judges do not hear cases in which they have a financial interest. Reporters do not write stories about companies in which they have a financial interest. By the same token, doctors should not have a financial interest in treatments they are evaluating” (Angell 2009).
Studying the Relationship Between the Quality of Government and Good Health

Since the late 1990s, issues about the quality of countries’ public institutions have been put forward by a large number of development and international aid organizations, as well as by many scholars, as the most important explanation for variation in economic performance and social well-being (for an overview of the argument see Acemoglu and Robinson 2008). Theoretically, this reflects the “institutional turn” in economics, political science and sociology connected to scholars such as Elinor Ostrom (1990), Douglass North (1990), James March and Johan P. Olsen (1989) all arguing that the ultimate causes of a societies well-being is related to how their institutions (understood broadly as “the rules of the game”) are structured. The implication from this research is that factors such as a society’s access to technology and skills as well as various forms of capital are seen only as proximate causes behind their level of development while the quality of the institutions is seen as the “ultimate cause” behind how a country can make use of the former type of assets (Acemoglu and Robinson 2008). Although there are several ways in which government institutions can be said to have low quality (see Rothstein & Teorell 2008), corruption is clearly one of them and as we have indicated it has a significant negative impact on population health. For instance, Gupta et al (2000) have demonstrated that corruption indicators are negatively associated with for instance child and maternal mortality. The purpose of this study is to try to give a preliminary overview of the relation between variables that measures what have been defined as quality of government (QoG) and a number of standard measures of population health in the light of how much and what type of (private or public) money is spent on health care in different countries (Bloom and Canning 2000). In addition to the academic interests study like this will have, an analysis like this one may be important to policy makers in both the health care and development sector. Simply put, if you want to improve population health (measured as infant mortality and expected life time at birth), what works? More precisely, is it better to simply increase spending on health care (and if so, should this be public or private money), or is it better to improve the overall quality of the countries government institutions? Following Rothstein & Teorell (2008) we define quality of government as when the exercise of public power is based on impartiality as the basic norm. As such a basic norm, impartiality in the exercise of public power is the equivalent to “political equality” for the access to political
power in a democracy. Their definition of impartiality in the exercise of public power is the following: “When implementing laws and policies, government officials shall not take anything into consideration about the citizen/case that is not beforehand stipulated in the policy or the law” (Rothstein & Teorell 2008, p 170), such as for example money in the form of bribes, personal relationships, ethnicity, religion or gender. This idea is certainly related to the notion of “the rule of law” but it is wider since it includes also professional corpses in the public sector that are supposed to follow professional standards and not precise legal rules when they implement public policies. There is yet no country based precise measurement of QoG as we define it here, instead we will use a number of available measures that all come reasonably close to our definition. The relation to efficiency and effectiveness is twofold. First, impartial (that is, meritocratic) recruitment to the civil service and of professionals working in the public sector will improve efficiency and effectiveness. Secondly, QoG as impartiality will lower transactions costs in the economy in a very substantial way since citizens and companies will be able to predict the outcomes of their interactions with government authorities (North 1990).

As for our dependent variables, it should be added that indicators of population health such as the ones we use here, can be interpreted as telling us more about a society than just how healthy its population is. As argued by Hall and Lamont, there are good arguments for taking population health as a measure of how successful different societies are. Based on the idea of “capabilities” launched by Amartya Sen, and criticizing various strands of “post-enlightenment thought for leading to a balkanization within (and between) the social science disciplines”, they argue that all else being equal, health enhances individual’s capabilities “to pursue their the goals important to their lives, whether through individual or collective action” and that this is what according to them defines a successful society (Hall and Lamont 2009, p. 2).

The empirical case studies and illustrations noted above are important for increasing our knowledge about the great variety of corrupt practices that can take place in the health care sector. They are also very valuable for laying bare the “micro-level” logic in these practices and give insights into how the agents’ behaviour can be understood. However, like all case studies, they can be questioned because of the difficulty to generalize from the data. One reason for why many health economists have refrained from studying the impact of QoG on
the performance of the health sector in their countries has been the lack of intra-country comparable data. However, by using available measures of indicators on the quality of government institutions in a large number of countries, a small group of scholars have started to analyze this problem at a more generalizable level. The general finding, which we will refer to below, is that the “quality of government factor” is statistically positively related to standard measures of population health such as infant mortality and life expectancy from birth. Moreover, in some studies it has been shown to be more important than the level of public spending on health care. Before summarizing this literature, it is necessary to make a few arguments for why the health care sector may be especially prone to problems of corruption and similar forms of dysfunctional government practices.

**Ways of Causality**

There are several reasons for why population health should be related to the quality of government. The indirect links are that since a country’s QoG is positively related to economic performance, high QoG should result in more economic growth which should imply better food, better housing, access to safe water and sanitation, less strenuous working conditions, fewer people living under destitute conditions, and so forth (Bloom and Canning 2000). However, the link between a country’s economic prosperity and population health is by no means clear cut. The “wealthier is healthier” proposition has difficulties handling the fact that there is great variation in for example infant mortality and life expectancy between equally poor and (albeit to a lesser extent) equally rich countries (Evans 2009).

The magnitude of how an institutional factor like QoG indirectly has an effect on population health can be illustrated by the following example. According to a conservative estimation by the World Health Organization, 1.3 billion people lack access to sufficient quantities of safe water, and nearly 3 billion people are without adequate sanitation. Consequently, 80 percent of all illnesses in the developing world are the result of waterborne diseases. A conservative estimation is that about 12,000 people die every day from water and sanitation related illnesses (Anbarci, Escaleras, and Register 2009; Stockholm International Water Institute 2006). This problem is by an increasing number of experts in the area no longer seen as an engineering problem that can be solved by more investment in technical equipment. It is not a
lack of technical solutions (dams, sewages, water cleaning stations, etc.) or natural supply of clean water that is the main problem in providing people with safe water. Instead, the problem lies mostly in dysfunctional administrative institutions. More precisely, the problem is seen as caused by a lack of adequate institutions for maintenance, pricing and distribution of rights to land and water (Bruns and Meinzen-Dick 2000; Transparency International. 2008, Sjöstedt 2008). Cross-comparable empirical assessments of how different institutional frameworks perform comparatively in providing safe water are however in short supply and more research is widely asked for (Bayliss 2003; Bruns and Meinzen-Dick 2000).

Other such indirect causal chains is that QoG is positively related to social capital (a combination of extended social networks and generalized trust) which in turn has been shown to have a positive impact on health (Lindstrom and Mohseni 2009; Schultz, O’Brien, and Tadesse 2008). Hall and Taylor argue that not being able to cope with various life challenges often leads to emotional as well as physiological health problems. Lacking networks and relations based on mutual trust is one important factor why people lack capabilities to handle various challenges (Hall and Taylor 2009). Using an experimental approach, Rothstein and Eek (2009) have shown that experiencing corruption in public authorities does not only diminish people’s trust in these authorities, but also their trust in “people in general”. Thus, one can argue for a causal chain that goes from corruption to low trust/low social capital to health problems (Hall and Taylor 2009). Moreover, based on data from the World Value Survey and WHO, Helliwell and Huang (2008) have shown that living under corrupt, unreliable and untrustworthy government institutions is a very important explanation for low subjective well-being (a.k.a unhappiness), especially in poorer countries, controlling for a number of other variables such as divorce rate, income/capita and religiosity. Since low life satisfaction is causally related to health problems, there could thus also be a causal chain running from corruption to unhappiness to low population health.

High levels of QoG should also make people more willing to pay taxes since they would have more confidence in how well their tax money will be used by various government agencies (Scholz and Lubell 1998). Since there is a positive correlation between public spending on health care and the standard measures of population health, high QoG should result in more public spending on health care and thus better population health.
Furthermore, as shown by research in social epidemiology, there is a strong causal link between social and economic inequality on the one hand and low levels of population health on the other hand. For example, Wilkinson and Pickett show that this relation between equality and well-being exist both when they compare Western OECD countries and when they compare the fifty states in the U.S. What is striking about their findings is that mental illness, physical health problems and shorter life expectancy is not only hitting poor people in unequal societies. Instead, they show for example that “across whole populations, mental illness is five times higher in the most unequal compared to the least unequal societies” (Wilkinson and Pickett 2009. p 181). The same goes for problems like obesity, life expectancy and various forms of physical illnesses. As they point out, the Nordic countries together with Japan are the ones that are doing best in their sample. This shows that low levels of inequality (and the following higher level of population health) can be reached without an encompassing high-spending welfare state (Japan). However, as they also point out, most of the countries that have high levels of population health are countries with encompassing welfare states (the Nordic countries). Thus, there may be another indirect causal link between QoG and population health because in countries with low QoG, people will not entrust the government with enough money (taxes) and without economic resources, there will be a shortage of social policies that ameliorate high levels inequality which, according to this type of research, is a major causal factor behind low population health (Marmot 2004; Siegrist and Marmot 2006; Wilkinson and Pickett 2009).

As indicated by the empirical illustrations mentioned above, one could also hypothesize a number of more direct causal mechanisms between QoG and population health. The health care sector produces a type of service in which what economists call “problems of asymmetric information” are common. The source of the funding for medical treatment, be it the patient herself, a government agency or a private insurance agency, cannot have anything close to “perfect information” if the treatment the doctor(s) suggests is motivated by medical reasons or by an interest for personal enrichment. Moreover, when there is a “third party” that pays, something that is common in most developed countries, patient and doctor can collaborate to use treatments that cost more than what is medically motivated. The health care sector is special since the provider of the service usually determines what the “customers” should buy (Savedoff and Hussmann 2006). The consequence of these information problems is that the health care service is a classic case for “market failures” implying that governments usually
have to be involved in order to avoid massive inefficiency (Barr 2004). This implies that the production of an efficient health care sector often involves a complex mix of public, semi-private and private providers as well as regulatory agencies. Taken together, the problems of the economic magnitude of the health care sector in many countries, the complex mix of actors and the information problems may make this sector especially prone to corruption (legal or illegal) as well as other forms of low QoG.

**QoG and Health: The State of the Art**

Surprisingly, there are only a handful of studies in the health and governance literature that systematically have analyzed the relation between population health, health care and QoG. Employing data from 91 countries, Rajkumar and Swaroop analyzes the impact of public health spending on child mortality by modelling the interaction between public spending and QoG variables such as “quality of bureaucracy” and “control of corruption”. Controlling for a number of other variables, such as income inequality and ethno-linguistic division, they conclude that QoG is central in determining the effectiveness of public spending on health care. The empirical analysis reveals that a one percentage point increase in the share of public health spending of GDP lowers the child mortality rate by 0.32 % in countries with high QoG, 0.20 % in countries with average QoG and has no effect in countries with low QoG. (Rajkumar and Swaroop 2008)

One of the few meta-analyses of the relation between QoG and health has been carried out by Maureen Lewis for the Center for Global Development. The main finding is that “good governance” is a critical factor in making national health care systems work and that public spending on health care is inefficient in countries with low QoG. Unless governments shift their attention to the institutional factors that affect performance in the health sector, it is doubtful that mortality rates will decline (Lewis and Lloyd-Sherlock 2009). Wagstaff and Claeson (2004) have shown that an increase in the levels of public health funding in countries that have received a medium or low CPIA (Country Policy and Institutional Assessment) that measures the quality of policies and institutions) score by the World Bank would not by itself necessarily lead to a reduction in child mortality. Conversely, they demonstrate that in countries with high levels of QoG, an increase in government health budgets would reduce mortality rates for children and mothers based on the assumption that the additional funding is
distributed to programs and institutions according to the same ratio as current allocations. A similar result is reached by a study with data from 118 developing countries (Baldacci et al. 2008). Regarding the specific question of HIV, an analysis of 149 countries shows that the prevalence of HIV is significantly related to low QoG (Menon-Johansson 2005). Lastly, in a recent study, Klomp and de Haan have undertaken the most advanced study so far in this area in terms of data and methods. The authors criticise the above mentioned type of studies for only taking a few control variables into account and that their conclusions about the positive effect of QoG on population health therefore are in doubt. They furthermore argue that the relationship between governance and the (quality of) the health care sector is arguably a key variable in explaining differences in health outcome across countries. In addition to a wealth of data from 101 countries for measuring QoG, Klomp and de Haan use sixteen indicators for measuring health. In addition to the standard indicators mentioned above, they add for instance the prevalence of a number of diseases such as HIV, Polio and Tuberculosis. Moreover, they measure the standard of the health care sector by using ten indicators such as, for example, number of health care personnel per 1,000 inhabitants and immunization rates for four different illnesses (Hepatitis, Diphtheria, Measles and Tuberculosis).

Klomp and de Haan’s main finding is that governance influences health through its indirect positive effects on the standard of the health care sector and on income. They estimate that a one percent increase in governance leads to an increase of 0.55 % in the quality of the health sector and 3.54 % in the health of individuals. Moreover, the study shows that it is through the indirect positive effects on income that governance can contribute most to an improvement in health. However, the authors also argue that the significance of these indirect effects varies between country groups. For countries with a relatively healthy population, QoG will have a positive indirect effect through the quality of the health care sector, but not via income. On the other hand, for countries with a poor population health, the case will be the opposite; QoG will have a positive indirect effect through income, but not via the quality of the health care sector (Klomp and de Haan 2008). Lazarova and Mosca (2008) have a similar argument when they make the case that absolute income is what matters the most in terms of improving health indicators in countries below a certain threshold (5,000 PPP international dollars per capita), whereas in the countries above this threshold it is QoG that is the most important determinant of health.
One conclusion from this study is that the influence from QoG on the standard of the health care sector may be explained by the fact that it is only in countries with a relatively high level of general QoG that people are willing to pay the taxes at the level needed to have a high standard in the health care sector. However, the causality may also run in the opposite direction. In countries where people perceive that the quality of the health care sector is low (for example because they experience various forms of corruption by the health care staff), they will not be willing to pay taxes at the level needed to increase the general QoG (Rothstein and Eek 2009). Another conclusion is that the small amount of research in this area and the variation in the results point to the need for more research.

**Charting Basic Relationships**

In this section we will provide some basic statistics for the relation between QoG and population health using the data from the Quality of Government Institute’s open source dataset (Teorell, Holmberg, and Rothstein 2008). Aided by some of the meta-analyses cited above, three QoG variables and five indicators of population health will be analyzed. Since money always matters, not least in this policy sector, some spending variables will also be included. Hence, four measures of health spending were incorporated as well. A pivotal question is to what extent quality of government matters besides, or on top of, spending on health care. A related but largely overlooked question in the literature is whether public or private health spending is best at creating good health? And if one type of health spending is better than the other, does the same still hold in combination with good government?

The three QoG variables we will use are the World Bank’s Rule of Law indicator, the World Bank’s Government Effectiveness measure and Transparency International’s Corruption Perceptions Index. In theory they measure different things, but in practice, as argued above, all three of them are reasonably good measures of QoG. It should be added that empirically, they are highly inter-related with correlation coefficients of around .93.
Four of the five health variables are also highly internally correlated across the sample of some 180 countries. The internal correlations vary between .85 and .97. The four variables are Life Expectancy at Birth, Mortality Rate for Children under Five, Maternal Mortality Rate and Healthy Life Expectancy – all taken from WHO. The fifth health variable is less correlated with the other four (around .10). It is a Subjective Health measure taken from the World Value Survey and it is only available for around 45 countries in the Quality of Government Institute data bank. The money variables measure Total Health Spending (% of GDP), Government Spending on Health (% of GDP), Private Spending on Health (% of GDP) and Private Share of Total Health Spending (%). All spending measures have been put together by WHO.

It should be observed that all the spending variables are relative in the sense that they measure money spent as a percent of GDP (or, in one case, Total Health Spending as a percent of GDP). This means that they are sort of priority or policy variables indicating which kinds of health spending policies different countries have opted for. What they do not measure is how much money different countries spend on health in an absolute sense.

In the Figure Appendix, that is fully published on the QoG Institute’s web page, 35 bivariate scatter plots with regression lines are presented for all of our five health variables and they have been run against the three QoG variables and the four health spending measures. Browsing through all these very informative scatter plots gives an excellent overview of the bivariate relationships around the world between, on the one hand, health spending and good government and, on the other, good health. Five of these instructive plots can be found at the end of this article.

Added to this, we have also included 24 additional scatter plots that demonstrate the connections between two health indicators (Healthy Life Expectancy and Mortality Rate for Children under Five) and three measures of Health Spending and three QoG variables in OECD countries as well as in Non-OECD countries (see the QoG Institute’s web page). This addition was made in order to be able to study the relationships hands on among more developed and rich countries in comparison to less developed and poor countries. In the

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health literature, the degree of economic development is often included as an intervening or interacting variable ultimately affecting levels of population health. The hypothesis is that a better economy leads to better health for the population. The OECD versus Non-OECD classification of countries is used as proxy for the level of economic development and richness.

The results are summarized in a set of tables in the Table Appendix at the end of this chapter. All QoG variables reveal strong and positive bivariate relationships with all five Health indicators. Here a positive relation indicates that more of a QoG variable is positively associated with higher levels of Life Expectancy, lower levels of Mortality Rates for Children and Mothers, higher levels of Healthy Life Expectancies and higher levels of Subjective Health feelings. The positive relationship with QoG is most pronounced for Healthy Life Expectancy and least noticeable for Subjective Health.

In contrast to the strong relationships between the QoG variables and the Health indicators, the relationships between the Health Spending measures and population Health is weaker most of the time and occasionally non-existent. The connection to Health levels is positive, but semi-weak for Total Health Spending and only semi-strong for Government Health Spending (see Table 2). However, for Private Health Spending as well as for Private Share of Total Health Spending, the relation to good Population Health is close to zero or slightly negative. A negative relation in this context means that more Private Health Spending (as a percentage of GDP) is coupled with lower Life Expectancy, higher Mortality Rates among Children and Mothers, lower Healthy Life Expectancies and lower Subjective Health assessments.

Controlling for being an (rich) OECD or a (not so rich or even poor) non-OECD country does not change any of the relationships. The QoG variables are all positively related to good Health among OECD as well as among Non-OECD countries. However, if anything, the relationships are somewhat stronger among OECD countries. Not withstanding this, it is worth emphasizing that the connection between QoG and Good Health is rather strong and positive among the less economically developed Non-OECD countries as well. The conclusion is that Quality of Government matters for good Population Health among poor as well as among rich countries.
Even the relationships between Health Spending and levels of population Health stay the same after taking OECD membership into consideration. All correlations are weak if at all existing. But the relationship between Total Health Spending and good Health as well as the relation between Government Health Spending and good Health is positive among OECD and Non-OECD countries. For Private Health Spending there is no relation, or a negative one, with Health indicators like the Mortality Rate of Children under Five and Healthy Life Expectancy. Thus, how money is spent matters for good Health, but only to a limited extent. And preferably it should be spent publicly, not privately.

Testing the results for overlapping or confounding effects in multivariate analyses further strengthens these conclusions. For example and as in Table 5, regressing a Health indicator (Healthy Life Expectancy) on a QoG variable (Government Effectiveness) and two Health Spending variables (Government as well as Private Expenditures on Health and controlling for GDP/capita) underscores the previous finding that Quality of Government as well as Public Health Spending – independent of each other - is significantly and positively connected to high levels of population Health. The results remain basically unchanged when we introduce interaction terms between the QoG variable and the Health spending variables in the regression model in Table 5. The independent effect of Government Effectiveness in combination remains strong, but on top of this there is also an effect of Government Effectiveness on Health. The impact of Government Effectiveness is most evident among countries with less Public Health spending. Thus, to a degree good Quality of Government can compensate for lower levels of public money spent on health care. Private Expenditures on Health, however, is not significantly associated with good Health.\(^6\) This result stays unaltered when we include an interaction variable combining Government Effectiveness and Private Expenditure on Health in our regression analysis. The QoG variable and Government Expenditure on Health retain there independent effects while Private Expenditure on Health has no effect neither on its own nor in combination with Government Effectiveness. Thus,

\(^6\) When we in the regression model in Table 5 test another QoG variable and substitute the corruption variable for the government effectiveness variable, all the results stay the same when we use the World Bank’s corruption index (covering 185 countries).
Private Health Spending does not compensate for poor Quality of Government. If there is any connection it tends to be negative, not positive.\(^7\)

Consequently, the policy recommendation coming out of this study to improve Health levels around the world, in rich countries as well as in poor countries, is to improve the Quality of Government – corruption kills – and to finance health care with public, not private, money. We readily admit that there is no “quick fix” for improving QoG and that the international anti-corruption and “good governance” reform movement so far can count very few real successes. As argued elsewhere, this may be caused by a misspecification of “the nature of the problem” which seems to have been too much geared towards changing the incentives by increasing law-enforcement resources and setting up specific anti-corruption units. However, low levels of QoG, such as systemic corruption, may instead be a problem of changing deeply entrenched mutual expectations in a society about how, in general “other agents will play” which may require more fundamental social changes than just changes the incentives (Rothstein 2010). As the prominent democratization researcher Larry Diamond puts it: “Endemic corruption is not some flaw that can be corrected with a technical fix or a political push. It is the way that the system works, and it is deeply embedded in the norms and expectations of political and social life. Reducing it to less destructive levels—and keeping it there—requires revolutionary change in institutions” (Diamond 2007, p 19).

**Conclusions: Why Quality of Government Impacts Population Health**

Our main findings are three. First that Quality of Government has a negative impact on population health in rich as well as in poor countries. Secondly, that when it comes to money, it is only public spending that has a significant effect on population health. The analyses of interaction effects show that to some degree, increasing QoG can compensate for lack of economic resources for increasing population health. The conclusions holds also when we check for various interaction effects between QoG and public spending.

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\(^7\) We have run the regression test separately among OECD countries and Non-OECD countries. The QoG variable has a strong and significant positive effect on Healthy Life Expectancy in both analyses, among OECD and Non-OECD countries. Government Health Spending has also a positive effect in both cases, but among the few OECD countries the regression coefficient is not significant. Private Health Spending has a not-significant but negative effect on good Health among OECD as well as Non-OECD countries.
As indicated above, there are many reasons for why variations in the level of Quality of Government should have an impact on population health. Some are what have been called the direct factors such as absenteeism of health personnel because they want to earn more money working illegally on the side. Demands of extra “under the table” fees may deter some of those that are in most need of health care to visit health clinics. Corruption in the procurement of contracts and the supply of pharmaceutical may be other such direct factors. However, as shown in the cases of safe water and policies that ameliorate the worst forms of inequality, there may also be strong indirect effects between QoG and population health. The finding that it is public and not private spending that has a positive effect on population health demands further investigations. One possible way for understanding this surprising effect may be the following. According to new research by Anirudh Krishna, what drives people into poverty in many developing countries (and also for the uninsured part of the population in the United States) is that they themselves, or someone in their family, are hit by an illness that requires extensive medical treatment (Krishna 2006). Lacking health insurance, the medical bills they have to pay becomes a financial burden of such a magnitude that they are driven into severe poverty, often because they have to sell land, cattle or other assets that they have used to accumulate income. The effect of the lack of publicly funded health insurance results in severe poverty for many which, in turn, may be the cause for why they a) are hit by the inequality-bad health effect that the social epidemiologists have analyzed or, that they simply will lack resources for even basic forms of preventive health care (Krishna 2007).
Appendix: Tables

Table 1. The Relationship Between Three Quality of Government Variables and Five Indicators of Health

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Rule of Law</th>
<th>CPI</th>
<th>Government Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>Relation</td>
<td>$R^2$</td>
</tr>
<tr>
<td>Life Expectancy at Birth</td>
<td>.38</td>
<td>pos.</td>
<td>.28</td>
</tr>
<tr>
<td>Mortality Rate Children &lt; 5</td>
<td>.38</td>
<td>pos.</td>
<td>.26</td>
</tr>
<tr>
<td>Maternal Mortality Rate</td>
<td>.32</td>
<td>pos.</td>
<td>.24</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.47</td>
<td>pos.</td>
<td>.38</td>
</tr>
<tr>
<td>Subjective Health (WVS)</td>
<td>.14</td>
<td>pos.</td>
<td>.20</td>
</tr>
</tbody>
</table>

**Comment:** A positive relation indicates that more of the QoG-variable is positively associated with higher levels of Life Expectancy, lower levels of Mortality Rates for Children and Mothers, higher levels of Healthy Life Expectancies and higher levels of feeling Subjectively Healthy. A negative relation indicates the opposite on all accounts. CPI stands for Corruption Perception Index. The data come from the QoG Institute Data Bank. All variables are specified in the Figure Section.

Table 2. The Relationship Between Four Measures of Health Spending and Five Indicators of Health

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Total Health Spending (% of GDP)</th>
<th>Gov't Spending on Health (% of GDP)</th>
<th>Private Spending on Health (% of GDP)</th>
<th>Private Share of Total Health Spending (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>Relation</td>
<td>$R^2$</td>
<td>Relation</td>
</tr>
<tr>
<td>Life Expectancy at Birth</td>
<td>.13</td>
<td>pos.</td>
<td>.23</td>
<td>pos.</td>
</tr>
<tr>
<td>Mortality Rate Children &lt; 5</td>
<td>.14</td>
<td>pos.</td>
<td>.20</td>
<td>pos.</td>
</tr>
<tr>
<td>Maternal Mortality Rate</td>
<td>.11</td>
<td>pos.</td>
<td>.19</td>
<td>pos.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.16</td>
<td>pos.</td>
<td>.23</td>
<td>pos.</td>
</tr>
<tr>
<td>Subjective Health (WVS)</td>
<td>.20</td>
<td>pos.</td>
<td>.10</td>
<td>pos.</td>
</tr>
</tbody>
</table>

**Comment:** See Table 1. A negative relation means that more private spending on health as a percentage of GDP or as a percentage of total health spending is associated with lower Life Expectancy, higher Mortality Rates among Children and Mothers, lower levels of Healthy Life Expectancy and lower levels of Subjective Health assessments.
Table 3. The Relationship Between Three Quality of Government Variables and Two Indicators of Health Levels Among OECD and Non-OECD countries.

**Corruption Perception Index**

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>OECD Countries</th>
<th>Non-OECD Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>Relation</td>
</tr>
<tr>
<td>Mortality Rate Children &lt;5</td>
<td>.24</td>
<td>pos.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.49</td>
<td>pos.</td>
</tr>
</tbody>
</table>

**Government Effectiveness**

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>OECD Countries</th>
<th>Non-OECD Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>Relation</td>
</tr>
<tr>
<td>Mortality Rate Children &lt;5</td>
<td>.37</td>
<td>pos.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.55</td>
<td>pos.</td>
</tr>
</tbody>
</table>

**Rule of Law**

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>OECD Countries</th>
<th>Non-OECD Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>Relation</td>
</tr>
<tr>
<td>Mortality Rate Children &lt;5</td>
<td>.44</td>
<td>pos.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.55</td>
<td>pos.</td>
</tr>
</tbody>
</table>

**Comment:** See Table 1. A positive relation indicates that more of the QoG-variable is positively related to *higher* levels of Healthy Life Expectancies and to *lower* levels of Child Mortality.
Table 4. The Relationship Between Three Measures of Spending on Health and Two Indicators of Health Levels Among OECD and Non-OECD Countries

<table>
<thead>
<tr>
<th>Total Health Spending (% of GDP)</th>
<th>OECD Countries</th>
<th>Non-OECD Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Indicator</td>
<td>R²</td>
<td>Relation</td>
</tr>
<tr>
<td>Mortality Rate Children &lt;5</td>
<td>.06</td>
<td>pos.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.13</td>
<td>pos.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government Spending on Health (% of GDP)</th>
<th>OECD Countries</th>
<th>Non-OECD Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Indicator</td>
<td>R²</td>
<td>Relation</td>
</tr>
<tr>
<td>Mortality Rate Children &lt;5</td>
<td>.19</td>
<td>pos.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.28</td>
<td>pos.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Private Spending on Health (% of GDP)</th>
<th>OECD Countries</th>
<th>Non-OECD Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Indicator</td>
<td>R²</td>
<td>Relation</td>
</tr>
<tr>
<td>Mortality Rate Children &lt;5</td>
<td>.01</td>
<td>neg.</td>
</tr>
<tr>
<td>Healthy Life Expectancy</td>
<td>.00</td>
<td>neg.</td>
</tr>
</tbody>
</table>

**Comment:** See Table 2. A positive relation indicates that more of the health spending variable is associated with higher levels of health. A negative relation means that more health spending is related to lower levels of health.

Table 5. Regressing Healthy Life Expectancy on Government Effectiveness and Government and Private Expenditures on Health including GDP per capita as a control variable

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>51.0***</td>
<td>2.1</td>
</tr>
<tr>
<td>Government Effectiveness</td>
<td>3.7***</td>
<td>1.0</td>
</tr>
<tr>
<td>Government Expenditure on Health (% of GDP)</td>
<td>0.5*</td>
<td>0.3</td>
</tr>
<tr>
<td>Private Expenditure on Health (% of GDP)</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>GDP per Capita</td>
<td>0.0005***</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Adj. $R^2 = .53$
p>/$t/> = .01***; = .05**; = .10*

**Comment:** The dependent variable (Healthy Life Expectancy) is measured in years. The Expenditure variables are measured as percent of GDP. The World Bank’s Government Effectiveness variable is standardized and varies in most cases between -2.5 (low effectiveness) and +2.5 (high effectiveness). The variable GDP per capita in US dollars is taken from Gleditsch 2002. The total number of countries is 188.
Appendix Figures
Figure 1

Healthy Life Expectancy vs. Rule of Law

R-squared=0.47
Source: WHO 2003, World Bank Governance Indicators 2002
Figure 2

Healthy Life Expectancy vs. Corruption

R-squared=0.38
Figure 3

Healthy Life Expectancy vs. Government Effectiveness

R-squared = 0.47
Source: WHO 2003, World Bank Governance Indicators 2002
Figure 4

Healthy Life Expectancy vs. Government Spending on Health (% of GDP)

R-squared = 0.23
Figure 5

Healthy Life Expectancy vs. Private Spending on Health (% of GDP)

R-squared = 0.01


