



THE ROLE OF PUBLIC HEALTH IN FOSTERING ECONOMIC GROWTH IN NIGERIA

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Abstract

Public health improvements and economic growth are closely interrelated. In discussing such issues, a large number of both theoretical and empirical questions, and social policy issues are obvious. The issue of bi-directional causality between health and development has contributed to one of the liveliest debates in the last two decades in development economics, with an alternation of mainstreams rather than a real dialogue. We offer four pathways to overcome these limitations, some of which are not new but

have not been integrated together: reconcile the microeconomic and macroeconomic analyses; explore the

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channels of influence to better resolve the ambiguity of the relationship; establish a dialogue with the epidemiology and biomedical sciences – the definition of a good or bad health is not

neutral in this debate, neither are the health indicators used; develop a supply side analysis, while so far the demand side has received more attention. The paper used secondary sources of data as its methodology of data collection.

INTRODUCTION

We have seen an unprecedented decline in mortality rates and historic economic growth in industrialised countries (Fogel, 1990, 2004,). Simultaneous technological and physiological advances seem to have resulted in a positive spiral between the “thermodynamic” and “physiological” aspects of economic growth. According to Fogel, the combination of these two effects – namely improving food and increasing the efficiency with which food energy is converted into productive labour – makes it possible to explain 50% of British economic growth since 1790. The explanation he puts forward is relatively simple. An exogenous technological shock in the agricultural sector is thought to have enabled an increase in initial food production, which in turn increased human production capacity based on a thermodynamic effect; this also prompted a decrease in childhood malnutrition and consequently, lower prevalence of chronic illnesses, an increase in levels of basic education and an improvement in public health.

More recently, Birchenall (2007), showed the causal relationship between economic development and mortality since the 18th century, in both developed and developing or emerging countries. The first observation is that at the end of the 20th century, even countries with the lowest levels of life expectancy had mortality rates well below those found in countries in western Europe in the 18th century. The second is that in both developed and developing or emerging countries, the age group which is the most vulnerable (young children, who are more vulnerable to problems of malnutrition and contextual

aspects) and under working age is the one where the decline in mortality is the fastest and contributes to the general decline in mortality in statistical terms. The final significant result emphasises the fact that economic development could explain between 30 and 50% of the recent decline in mortality, in line with findings by Preston (1980) or Easterly (1999) Medical progress unquestionably remains important at an individual level (Preston, 1975) but is thought to have only a marginal effect overall, particularly given the fact that most medical discoveries took place in the second half of the 19th century (except for the smallpox vaccine; Easterly, 2004), therefore providing little or no explanation for the decline in mortality before this period in western European countries or the United States.

The question of bidirectional causality between health and development has contributed to one of the liveliest debates in development economics in the last two decades. Interventionists support the thesis of the predominantly negative effect of health on economic growth and recommend an exogenous “big push” to get people out of poverty traps. Sceptics, on the other hand, consider that the inability of a country to deal with health problems is the result of ineffective action arising from institutional problems rather than poverty traps, and that it is development that leads to progress in health rather than the opposite. Finally, there is a third category of economists who could be characterised as empiricists as they rely almost exclusively on social experiments in the field to provide answers to these questions in a particular microeconomic context and at a particular time. Note that many of the examples used in this paper are borrowed from the economic literature on malaria. This bias is easily justified on the basis that malaria has acted as a catalyst for the debate for around ten years, but it would be restrictive to limit health to this purely vertical view.

Macroeconomic studies comparing spending on health with improvements in the state of health remain, however, less than convincing on the positive impact of aid. It is difficult to identify the effects of public spending on health, in particular because of problems of endogeneity. Both Filmer and Pritchett (1999) and Wagstaff et al. (2004a, 2004b), taking these problems into account, found non-significant results in respect of the elasticity of health indicators (child mortality and maternal mortality) compared with public spending on health. Bokhari et al. (2007) find significant elasticity when they control for official development assistance received in the health sector, but in their regressions the variable associated with official development assistance is not significant. Their result may, however, be marred by a new endogeneity bias insofar as the aid variable is not instrumented in this study.

Literature Review and Theoretical/Empirical Framework

The renewed interest in methodologies derived from biomedical sciences and a multidisciplinary openness have probably contributed to the development of the discipline since the first research carried out by Arrow (1963), and have in turn fuelled the debate. Numerous behavioural questions, in particular, have been the subject of particular attention, considering not only that these behaviours represented a hindrance to the effectiveness of interventions (and therefore a waste of resources) but also given the impasse to which empirical models for analysing the determinants of high-risk behaviours, belief models for health and models inspired by social learning theories led (Moatti et al., 1993). Indeed, the risk of falling into a “disciplinary bias” is high (as each has a tendency to insist on a particular type of variable) in empirical models. Furthermore, all these models often result in tautological results that effectively lead to impasses. Rational choice models came to dominate in the 1990s, to

explain the persistence of high-risk behaviours relating to diseases that are transmitted between humans (mainly HIV/AIDS) and to some extent provided a way out of the impasse. The most well-known concept is prevalence-elasticity, which has been developed in economic epidemiology since Geoffard and Philipson (1996). A positive prevalence-elasticity implies that when the risk of illness decreases, it prompts a decline in prevention or treatment behaviours, leading in turn to a fresh increase in risk and consequently so-called “rational” epidemics. When prevalence-elasticity is low and incidence declines, the reduction in prevention or treatment is less than proportional, thus increasing the chances of success of an exogenous treatment for eradication objectives (such as a universal vaccination campaign, for example). We should note, however, that eradicating an illness is not always possible and eradication is sometimes not the objective public-health decision makers are seeking or even want to achieve. Furthermore, low elasticity limits, conversely, the positive effects of prevention behaviours on restricting an increasing incidence.

Experimental analyses based on the randomised trials popularised by Fisher in the 1920s (Box, 1980) and applied to the field of development economics more recently by Kremer and Duflo (see, for example, Miguel and Kremer, 2004; Duflo and Kremer, 2005; Duflo et al., 2007; Banerjee and Duflo, 2008; Kremer and Glennerster, 2011), represent a real contribution to the identification of a link between health and development through the understanding they provide of exogenous interventions in experimental conditions in a specific context. They also support health and development programmes by providing a rigorous simultaneous evaluation in the field. Quasi-experimental models (discontinuous models, instrumental variables and differences in differences) help cover the gaps in randomised field trials and supplement these models, helping to identify a causal effect. They also

help to reach more reliable conclusions, after applying filters derived from econometric mechanisms to retrospective data in real and non-experimental conditions.

These analyses do not, however, fully resolve the problem posed by Fogel of the emergence of shocks in natural conditions. Bleakley (2010b), who is interested in the economic effects of malaria, uses for example, medical progress (in this case the discovery of the parasite by C. L. A. Lavéran and the malaria vector by R. Ross at the end of the 19th century).

Although apparently exogenous, however it is still difficult to totally exclude other, more societal factors for the progress made at the time. For example, Reiter et al. (2003) conclude in an article on dengue fever that in spite of similar knowledge about this vector-borne disease in different parts of the world and ecological conditions in Texas favourable to the emergence of epidemics, lifestyles provide a more persuasive explanation for the low prevalence of dengue fever in the United States compared with other countries. The article by Bleakley (2010b), of course, takes rigorous account of these aspects in its analysis and contributes in a remarkable fashion to the renewed interest in development economics as applied to health, by identifying empirically, within the confines of the available data, the effects of an improvement in the state of health on income.

The central question nevertheless remains: can progress or economic and social change be reduced to a mechanical growth or decrease of scales (Marshall, 1898)? In other words, are we asking the right questions by focusing all our attention on identifying a causal effect when the relationship is probably bidirectional, given the difficult transition from experiments to public policy and the difficulty of transposing experimental results?

Epidemiology, for example, is less dogmatically attached to identifying causality in this way, not because of a lack of appropriate tools but

undoubtedly because of a more realistic and more systemic view of questions of circular causality as applied to the health field.

Moreover, as with the empirical models referred to previously, the risk of reaching an impasse remains, with each having a tendency to insist on a particular type of treatment. This risk is probably greater in social experiments than in analyses of the societal impacts of clinical trials (the impact of medical interventions on socio-economic factors). Finally, there remains a difference between identifying the impact of a treatment (prompting an improvement in the state of health) on economic variables and identifying the effects of a poor state of health on these same variables. Both questions remain fundamentally different, as a treatment can affect these variables through channels different from the health problem it is designed to eliminate or at least mitigate. Whilst it is possible to compile evidence showing that a medical treatment has a beneficial effect on economic variables, it is undoubtedly more difficult to show that a poor state of health has negative effects.

Health Care Systems in Developing Countries

Finally, it is impossible to address the question of health in developing countries without reminding ourselves of the institutional context in which the main decisions are taken. We will only touch on a few aspects here, as these issues have been dealt with more comprehensively by Moatti and Ventelou (2009).

At an organisational level, healthcare systems in the poorest countries are primarily characterised by their heterogeneity, a pyramidal structure designed to support local medical care and a strategy focused on primary health care as defined at the Alma Ata conference in 1978 and relaunched by the Bamako Initiative in 1987.

Firstly, in terms of providing insurance, existing systems are closer to a Bismarckian-type system in the sense that universal welfare remains

limited. Cost recovery has been replaced by the introduction of prepayment mechanisms and insurance to cover the risk of ill health (Moatti and Ventelou, 2009).

Secondly, in respect of planning and overall visibility objectives, analysis of national strategic plans is increasing in order to identify barriers to achieving the Millennium Development Goals at an organisational level (Travis et al., 2004; Backman et al., 2008;) and organise the development of more homogenous healthcare systems. Thirdly, healthcare systems in developing countries must content with a human resource crisis. Many medical personnel emigrate, partly because of the working and health and safety conditions they are faced with and partly because both developed and emerging countries (such as South Africa) attract expatriate medical staff because of the strong growth in demand for medical care and the shortage of training for qualified personnel in some cases. Bhargava and Docquier (2008) have shown that the HIV/AIDS crisis provides an explanation for the emigration of medical personnel to some extent, alongside more traditional factors such as medical doctors' relative salaries, and that emigration in turn worsens the medical situation in the countries concerned. Bhargava, Docquier and Moullan (2011), moreover, have shown that the existence of some form of compensation for the loss of medical personnel by greater incentives to train in the sector (according to the so-called "brain gain" theory) is illusory.

Finally, areas of concern include the fact that the transition the world is experiencing between transmissible and non-transmissible diseases risks having a particularly significant effect on developing countries in the near future (Monteiro et al., 2001; Cavalli et al., 2010).

Public Health and Economic Growth

It is easier to take account of endogeneity problems at a microeconomic level (Strauss, 1986; Strauss and Thomas, 1998;

Thomas et al., 2002; Strauss and Thomas, 2008). In respect of the effects of health on income, either directly or indirectly, Strauss and Thomas (1998) establish a clear relationship between nutrition, health and income. The traditional indirect channels of the impact of health on income at a microeconomic level are: participation in the labour market, labour productivity, technical efficiency and expenditure on consumption and investment. In particular, Strauss (1986) highlights the impact of caloric intake on productivity, with a decreasing but still positive marginal effect for high intakes. Research carried out by Audibert et al. (1986, 1993, 2003a, 2003b) has contributed to research on the effect of health on agricultural productivity. Audibert et al. (2009) show, however, in the case of the impact of malaria on coffee and cocoa production in the forested region of Ivory Coast, that the prevalence of malaria does not always have a significant effect on agricultural production. This result is in line with other analyses by the same authors and suggests the necessity of a highly detailed epidemiological analysis if one wants to show the impact of morbidity on productivity. In this instance, the prevalence of malaria is measured imperfectly, because of its often asymptomatic nature in areas of high transmission, and it would be necessary to be able to observe highly invalidating malarial episodes to obtain significant results. Bartel and Taubman (1979), in an analysis that is non-targeted on developing countries, shows that the effects of health on the labour supply and salaries are positive but vary depending on the diseases analysed. This study offers a somewhat unusual advantage for the time, namely using clinical measurements of health (rather than subjective measurements) and taking account of the effects of selection or simultaneity. A recent study by Levinsohn et al. (2013) shows, having resolved these problems of simultaneity (primarily via poverty) the very significant impact of HIV/AIDS on participation in the labour market in South Africa. Booysen and Arntz (2003), however, show in

the case of HIV/AIDS that the multiplicity of study frameworks and of methods used and the disciplines concerned make comparisons difficult. The same remark could apply to other diseases, hence the need for dialogue to increase harmonisation.

On the demand side (the inverse relationship of income and prices on demand), one of the central questions is the price elasticity of demand, which lies at the centre of the debate on cost recovery. Bates et al. (2012) review the main randomised analyses carried out between 2006 and 2010. The authors show that even a slight increase in prices prompts a dramatic decline in the demand for healthcare products whilst generating limited income for healthcare providers. The high elasticity of demand to prices, however, remains difficult to explain from a theoretical point of view. One explanation could come from the possibility of health traps, along the same lines as the research by Bonds et al. (2010) on macroeconomic data. Berthélemy et al. (2013) show that based on a traditional epidemiological model of malaria, it is possible to arrive at health traps of this kind, by including endogenous rational behaviours in the model. The implication of this model is that for the free distribution of preventive measures to be effective, it is important to subsidise not only access to such measures but also their use. This model therefore explains certain results found in randomised studies (Banerjee et al., 2010).

The effect of income on demand for healthcare products is also well documented (Grossman, 1972b) as is the very high elasticity of demand in relation to the quality, reliability and accessibility of healthcare (see, for example, Lavy et al., 1996).

Conclusion

The relationship between health and economic growth and development cannot be overemphasized. In reality, whilst accepting the bidirectional character of the relationship and the difficulty of

identifying the conditions for the emergence of an initial exogenous shock. The various contrasting currents of thought are highly complementary in terms of the understanding of the relationship they provide from different angles. Nonetheless, there is a risk of getting caught up in a purely academic debate, where one strand of thinking simply replaces another. This paper does not claim to resolve the entire debate on analysing health problems in developing countries. It simply provides a few keys to understanding the problems with which the discipline is faced. “Health and Economic growth” topics raise a large number of both theoretical and empirical questions in terms of understanding the interactions between economics and health. The social challenges around policies in this area are clear. Bi-disciplinary cooperation between economic sciences and biomedical sciences overall is therefore promising, but requires a clear understanding of the two academic cultures. On the one hand, health professionals are becoming increasingly familiar with medico-economic concepts as a way of helping to optimise their capacity for intervention. On the other hand, access to healthcare information, understanding it and using it need specific skills that are difficult to acquire, given the complexity of medical practices and the fact that they are permanently changing. There is no shortage of areas to observe, however, and this is a fruitful period in terms of the international efforts being made to improve health and combat poverty.

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