

Tonoyan, Tamara

**Working Paper**

## Poverty, Inequality and Health: A case study of Armenia

Diskussionsbeiträge, No. 124

**Provided in Cooperation with:**

Department of Economics, University of Goettingen

*Suggested Citation:* Tonoyan, Tamara (2005) : Poverty, Inequality and Health: A case study of Armenia, Diskussionsbeiträge, No. 124, Georg-August-Universität Göttingen, Volkswirtschaftliches Seminar, Göttingen

This Version is available at:

<https://hdl.handle.net/10419/22149>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# **Diskussionsbeiträge / Discussion Paper Series**

**Volkswirtschaftliches Seminar  
Universität Göttingen**

**/ Department of Economics  
/ University of Goettingen, Germany**

Beitrag Nr. 124 / Issued No. 124

## **Poverty, Inequality and Health: A case study of Armenia**

**Tamara Tonoyan  
University of Goettingen  
February 2005**

**ISSN 1611-7522**

# Poverty, Inequality and Health: A case study of Armenia

Tamara Tonoyan  
Armenian Medical Institute  
February 1, 2005

## Abstract

The paper describes the issue of the impact of poverty and income inequality on the health of the population using Armenia as a case study. In the framework of this paper author provides an overview of research relating to inequalities in health to the disadvantage of the poor, and to changes in impoverishment and income inequality associated with payments for health care.

After demonstrating the logic of the investigation, the paper recapitulates the information about results of reforms that do not appear to meet all the objectives of health care policy. The paper indicates that the gains in freedom have been accompanied by the losses of many basic economic and social services that the population had come to enjoy and expect. At the same time the success of reforms applied in Armenia is often evaluated against improvements in the health status of the population. Funding shortages often means that even vulnerable groups have to pay. Thus, the principle of equity with respect to financing and access is undermined.

It is emphasized that reducing poverty and income inequality should be grounded in a pro-poor growth approach, i.e. for equality to be achieved economic growth in the development process should be deliberately adapted to the needs of the poor.

The paper concludes that there is undoubtedly a large gap in our knowledge on how best to reach the poor in the health sector. In order to fill this gap, more work is needed along the lines of the above studies related to health sector inequalities and public policy. There is necessity to encourage the development of insurance companies, pension funds, and funds for public health care education, which have not yet been properly undertaken.

**Keywords:** poverty, inequality, health, income distribution

**JEL Classification:** D63, I11, I12, I18

---

Address correspondence to: Tamara Tonoyan, Armenian Medical Institute, Department of Health Organization, Charents 24, 375025, Yerevan, Armenia. e-mail: [tonoyan@yahoo.com](mailto:tonoyan@yahoo.com)

I am very grateful to the Department of Economics University of Goettingen and especially to its senior chair in Development Economics, Professor Stephan Klasen, for their invitation, for their hospitality, and for the intellectual stimulation offered to me.

# 1. Introduction

We are living in a dynamic time, as the new millennium promises new social and economic challenges, one of which being the increasing rate of income inequality and poverty in the world, mainly caused by globalization.

Globalization pushed communities against one another, opening old wounds and historic hatreds. “It would be up to public health to find ways to bridge the hatreds, bringing the world toward a sense of singular community in which health of each member rises or falls with the health of all the others”.<sup>1</sup> A massive effort is required from the public health community to develop strategies, based on principles of social justice, to establish a world where health for all is a reality rather than a receding dream.<sup>2</sup> Even though countries that have become more open or ‘globalized’ have faster growth there are often strong societal reactions against globalization, particularly when it is believed that the benefits from globalization are not shared in an equitable manner.

The issue of inequalities is now the major problem of public health thinking and for anyone interested in public health, social inequalities in health must be a major concern. But we know that the solution is not to invest more in the health system or in new technologies. These inequalities must rather be met head-on; and well-targeted actions must be undertaken to ensure that they will not become worse. Inequalities in health and well-being can be traced back to socioeconomic inequalities, that is to the harsh living conditions which marginalize so many of people, not only limiting their access to essential goods, but depriving them as well of any meaningful role in social life<sup>3</sup>.

Inequality is intimately connected with development and poverty. Insufficient development leads to poverty and adversely affects the health condition of many people. Poverty and health inequality are intertwined.

In both the industrialised and the developing worlds, there is a good deal of interest in-and commitment on the part of policy-makers to reducing-socioeconomic inequalities in health. The gaps in health status between the poor and the better-off can be remarkably large, especially in the developing world. Poor countries tend to have worse health outcomes than developed ones and health inequalities are more emphasized in areas where deprivation is more severe.

Much of the evidence in favour of a link between poverty, inequality and health has been widely analysed in several empirical works in the international economic literature. The association between poverty and ill-health reflects causality running in both directions. Illness or excessively high fertility may have a substantial impact on household income<sup>4</sup> and may even make the difference between being above and being below the poverty line.<sup>5</sup> Furthermore, ill-health is often associated with substantial health care costs (4).<sup>6</sup> But poverty and low income also cause ill-health.<sup>7</sup>

The following key findings in the literature on empirical data are worth highlighting. Firstly, inequalities in health are almost always to the disadvantage of the poor, as in average the poor tend to die earlier and to have higher levels of morbidity than the better-off.

Secondly, inequalities tend to be more pronounced for objective indicators of ill-health, such as anthropometric measures of malnutrition and mortality, than for subjective indicators. But this tends to occur with indicators that are highly subject to the influence of transitory factors.<sup>8</sup> A similar pattern

---

<sup>1</sup> Laurie Garret, *Betrayal of trust: the collapse of Public Health*, NY, 2000, p.585

<sup>2</sup> Baum F., *Health, equity, justice and globalisation: some lessons from the People’s Health Assembly*, NY, 2001.

<sup>3</sup> Lessard R., *Social inequalities in health: Annual report of the health of the population*. Montreal, 1997, pp.20, 60.

<sup>4</sup> World Bank. *Confronting AIDS: public priorities in a global epidemic*. Oxford: Oxford University Press; 1999.

Bloom D, Sachs J. *Geography, demography and economic growth in Africa*. *Brookings Papers on Economic Activity* 1998; 2: 207-95.

<sup>5</sup> Eastwood R, Lipton M. *The impact of changes in human fertility on poverty*. *Journal of Development Studies* 1999; 36: 1-30.

<sup>6</sup> Narayan D, Patel R, Schafft K, Rademacher A, Koch-Schulte S. *Voices of the poor: can anyone hear us?* New York: Oxford University Press; 2000.

<sup>7</sup> Pritchett L, Summers LH. *Wealthier is healthier*. *Journal of Human Resources* 1996; 31:841-68.

<sup>8</sup> Baker J, van der Gaag J. *Equity in health care and health care financing: Evidence from five developing countries*. In: Van Doorslaer E, Wagstaff E, Rutten F, editors. *Equity in the finance and delivery of health care: an international perspective*. Oxford: Oxford University Press; 1993.

emerges in industrialized countries in relation to such indicators.<sup>9</sup> In the developing<sup>10</sup> as in the industrialized world<sup>11</sup> longer-term illness indicators, e.g. limitation of a major activity, long-standing illness and self-assessed health tend to show inequalities to the disadvantage of the poor.

Thirdly, there are large variations in the extent of health inequalities across countries, although these variations themselves vary with the indicators of health and socioeconomic status used.

Overall population health is one of the major indicators of life quality. The simple idea of ensuring a better quality of life for us and for generations to come is the heart of further sustainable development. Sustainable development for future generations will be a non-starter unless poverty is radically reduced, and extreme poverty eliminated. Focusing on sustainable poverty alleviation is inseparable from bringing about greater equity, and focusing on equity is a step towards social justice. As it is one of the greatest of contemporary social injustices that people who live in the most disadvantaged circumstances have more illnesses, more disability and shorter lives than those who are more affluent.<sup>12</sup>

There are no societies without inequalities. Inequality in health care distribution occurs when individuals receive services primarily according to their place in the social structure, their enabling characteristics, or the characteristics of the health system instead of according to their need. More intensive interventions are used for upper-middle-class groups and less intensive treatment is more frequently used for low income and minority groups. The continuing social-economic disequilibrium and widening gap between poor and better-off foster inequality in health and accentuate the existing public health problem. Poor countries, and poor people within countries, suffer from a multiplicity of deprivations that translate into high levels of ill-health.<sup>13</sup>

It is obvious that poverty is a key factor underlying whether other determinants of health can be attained. Poverty can affect health in a number of ways. Income provides the prerequisites for health, such as shelter, food, warmth, and the ability to participate in society; living in poverty can cause stress and anxiety which can damage people's health; and low income limits peoples' choices and militates against desirable changes in behaviour.<sup>14</sup>

The increases in poverty means that specific attention be devoted to the health effects of poverty. This exploration is assisted by numerous studies that document both the short and long-term health effects of poverty.<sup>15</sup>

Peter Townsend provides a useful definition of poverty as follows: People are deprived if they cannot obtain, at all or sufficiently, the conditions of life – that is, the diets, amenities, standards and services – which allow them to play the roles, participate in the relationships and follow the customary

---

<sup>9</sup> Van Doorslaer E, Wagstaff A, Rutten F, editors. Equity in the finance and delivery of health care: an international perspective. Oxford: Oxford University Press; 1993.

<sup>10</sup> Wagstaff A. Poverty and health. Boston (MA): WHO Commission on Macroeconomics and Health; 2001. Working Group No.1, Working Paper No. 5. Wagstaff A. Poverty and health. (CMH Working Paper Series, Paper No. WG1: 5. Available at: URL: [www.cmhealth.org/wg1\\_paper5.pdf](http://www.cmhealth.org/wg1_paper5.pdf)). Wagstaf, Adam, Causes of inequality in health: who are you? Where do you live? or Who your parents were? Policy Research Working Paper, 2001.

<sup>11</sup> Kunst AE, Geurts JJ, van den Berg J. International variation in socioeconomic inequalities in self reported health. Journal of epidemiology and Community Health 1995; 49:117-23.

Van Doorslaer E, Wagstaff A, Bleichrodt H, Caonge S, Gerdtham U-G, Gerfin M, et al. Income-related inequalities in health: some International comparisons. Journal of Health Economics 1997; 16: 93-112.

Blaxter M. A comparison of measures of inequality in morbidity. In: Fox J, editor. Health inequalities in European countries. Aldershot: Gower; 1989, pp. 199-230.

<sup>12</sup> Benzeval, M., Judge, K., & Whitehead, M., Tackling inequalities in health: An agenda for action. London: Kings Fund, 1995, p.1.

<sup>13</sup> World Bank. World development report 2000/2001: attacking poverty. Oxford and New York: Oxford University Press; 2000. Claeson M, Griffin CG, Johnston TA, McLachlan M, Soucat ALB, Wagstaff A, et al. Health, nutrition and population. In: Poverty reduction strategy sourcebook. Washington (DC): World Bank; 2001.

<sup>14</sup> Benzeval, Judge, & Whitehead, Benzeval, M., Judge, K., & Whitehead, M. (1995). *Tackling inequalities in health: An agenda for action*. London: Kings Fund, 1995, p.xxi.

<sup>15</sup> Pantazis, C. & Gordon, D. , Tackling inequalities: Where are we now and what can be done? Bristol UK: Policy Press., 2000. Shaw, M., Dorling, D., Gordon, D. & Davey Smith, G. The widening gap: health inequalities and policy in Britain. Bristol UK: The Policy Press, 1999, Townsend. M., Health and wealth: How social and economic factors affect our well-being, 1999.

behaviour which is expected of them by virtue of their membership in society. If they lack or are denied the incomes, or more exactly the resources, including income and assets or goods in kind, to obtain access to these conditions of life they can be defined to be in poverty.<sup>16</sup>

No examination of the health effects of poverty can ignore the relationship between economic inequality and poverty. Societies that are economically unequal have higher levels of poverty. The effects of poverty on health have been known since the 19 century.<sup>17</sup> More recently, the issue was heightened by the publication in the United Kingdom of the Black and the Health Divide reports.<sup>18</sup> These reports documented how those in the lowest employment groups showed a greater likelihood of suffering from a wide range of diseases and having a greater likelihood of death from illness or injury at every stage of the life cycle.<sup>19</sup> Indeed, this work on poverty and health is the most advanced among industrialized nations and an excellent source of research ideas and potential courses of action.

Wilkins, Adams, and Brancker found individuals living within the poorest 20% of neighbourhoods to be more likely to die of just about every disease from which people can die of, than the better-off. These included cancers, heart disease, diabetes, and respiratory diseases among others.<sup>20</sup> Even with the inevitable slippage that occurs since some poor people live in well-off neighbourhoods and vice versa, it was conservatively estimated that 22% of premature years of life lost could be attributed to income differences. A study by Ross and Roberts provides further evidence on the health effects of poverty upon children and families.<sup>21</sup>

How can poverty-related health differences be explained? Many studies have found that poverty usually does not result from poor health, but is usually a precursor to it (artificial argument).<sup>22</sup> Poor individuals engaged in behaviours that essentially brought illness upon them by smoking, drinking to excess and poor nutritional habits (lifestyle argument).<sup>23</sup> People living in poverty suffer actual material deprivations related to poor diet, housing, and sanitary conditions which contribute directly to poor health (materialist argument).<sup>24</sup> Similar studies have also documented the health-related impacts, including lack of control and feelings of hopelessness, that result from hunger and lack of food.<sup>25</sup>

How inequalities in health depend on the impact the various underlying determinants and why the efforts to improve population health must address the important socioeconomic determinants of health?

According to the research of the World Health Organization, health is to one half determined by the life conditions and style, for one-fifth – by the environmental conditions, to the same extent – by genetic makeup and only for 10% - by the healthcare services.<sup>26</sup>

---

<sup>16</sup> Townsend. P. The international analysis of poverty. Milton Keynes: Harvester Wheatsheaf, 1993, p. 36.

<sup>17</sup> Sram, I. & Ashton, J. Millennium report to Sir Edwin Chadwick. *British Medical Journal*, (1998), pp. 317, 592-596. On line at: <http://www.bmj.com>

<sup>18</sup> Townsend. P., Davidson. N. & Whitehead. M. Inequalities in health: The Black report and the Health Divide. NY: Penguin., 1992.

<sup>19</sup> Pantazis, C. & Gordon, D. , Tackling inequalities: Where are we now and what can be done? Bristol UK: Policy Press., 2000. Shaw, M., Dorling, D., Gordon, D. & Davey Smith, G. The widening gap: health inequalities and policy in Britain. Bristol UK: The Policy Press, 1999. , Acheson, D., Independent inquiry into inequalities in health. Stationary Office: London: UK, 1998. On-line at: <http://www.official-documents.co.uk/document/doh/ih/contents.htm>

<sup>20</sup> Wilkins, R., Adams, O., & Brancker, A Changes in mortality by income in urban Canada from 1971 to 1986. *Health Reports*, 1, 2, 1989, pp. 137-174.

<sup>21</sup> Ross, D. P. & Roberts, P. Income and child well-being: A new perspective on the poverty debate. Ottawa: Canadian Council on Social Development, 1999. On-line at: <http://www.ccsd.ca/pubs/inckids/es.htm>

<sup>22</sup> Townsend, P., Davidson, N., & Whitehead, M. Inequalities in health: The Black report and the Health Divide. New York: Penguin, 1992. Wilkinson, R. G. Unhealthy societies: The afflictions of inequality. NY: Rout ledge, 1996.

<sup>23</sup> Travers, K. D. The social organization of nutritional inequities. *Social Science and Medicine*, 1996, pp. 43, 543-553. Marmot, M. G. Social inequalities in mortality: The social environment. In *Class and health: Research and longitudinal data*. Edited by R.G. Wilkinson. Tavistock, London, 1986.

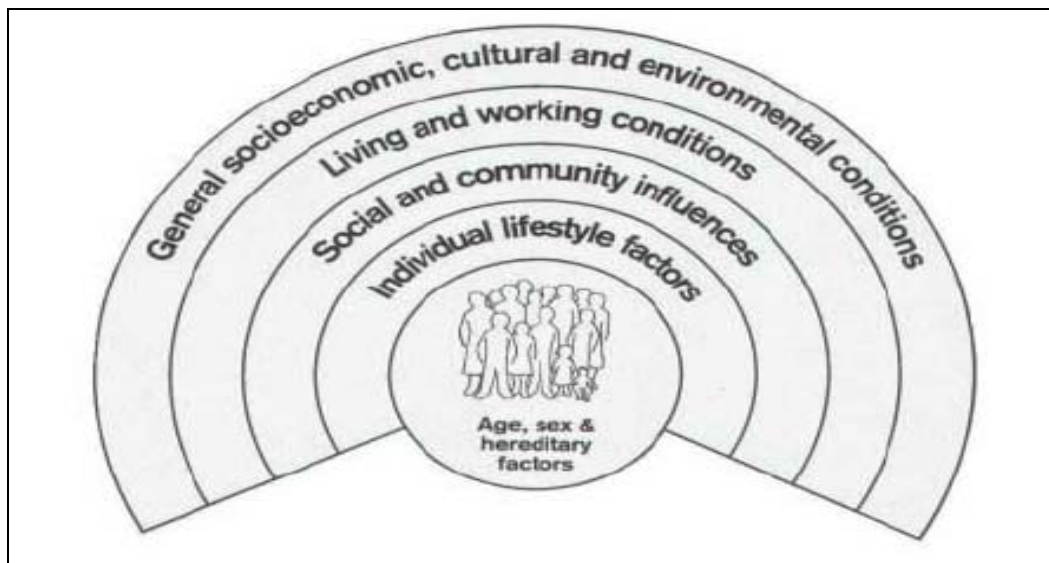
<sup>24</sup> Golden, A. Taking responsibility for homelessness: An action plan for Toronto. Toronto: City of Toronto, 1999.

<sup>25</sup> Tarasuk, V. & Woolcott, L. Food acquisition practices of homeless adults: Insights from a health promotion project. *Journal of the Canadian Dietetic Association*, 1994, 55, 5-19.

<sup>26</sup> World Bank. World development indicators 2001. Washington (DC): World Bank; 2001.

There is abundant evidence that population health is related to features of society and to social and economic conditions.<sup>27</sup> Figure 1 shows the main determinants of health as concentric circles, with layers one over another based on Dahlgren.<sup>28</sup> At the centre is the individual, with his or her personal characteristics such as age, sex, genetic makeup, etc.; these factors are important but cannot be changed. The individual's health is influenced by his or her lifestyle and health behaviour (the second layer). However, individual lifestyles are influenced by social norms and community networks (the third layer). These, in turn, are influenced by living and working conditions, education, health care, etc. (the fourth layer). All these layers of factors are affected by the overall macroeconomic and environmental conditions of society (the outer layer). Figure 1 illustrates the limitations of the usual reductionist approach to public health, such as focusing on smoking in isolation from other factors.

**Figure. 1. Conceptual model of determinants of health as concentric circles.**



Source: based on Dahlgren, 1995.

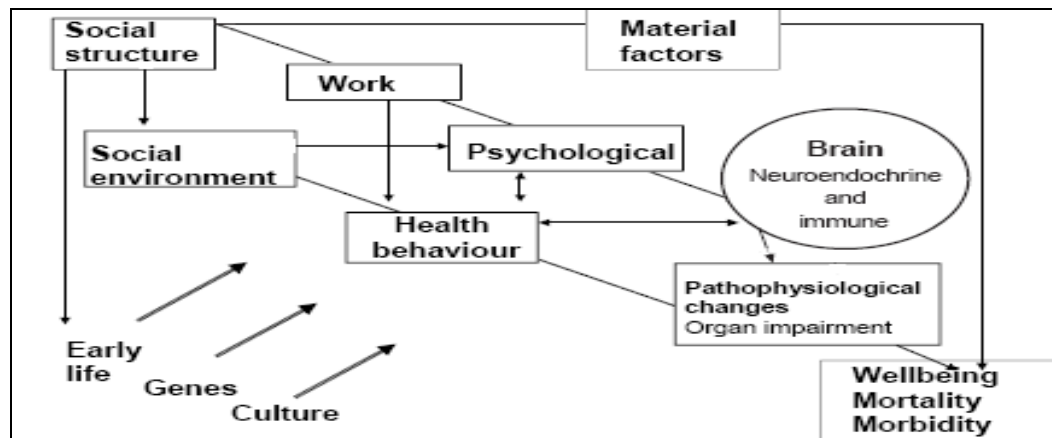
Figure 2 shows a complementary model of the determinants of health based on Marmot and Wilkinson.<sup>29</sup> As in the model shown in Fig.2, the chain of causation starts with the social structure and then follows different pathways to the health outcome(s). The advantage of this model is that it also suggests different points for intervention. Curative services, for example, usually intervene at the level of pathophysiological changes or morbidity, in order to prevent death or disability. Many typical preventive programmes intervene at the level of health behaviour (aiming, for example, to encourage people to stop smoking or to increase their physical activity) or at the level of pathophysiological changes (such as screening for high blood cholesterol and reducing it by dietary or pharmacological means). Policy, by contrast, usually aims to influence the dimensions in the upper left corner of the diagram: social structure, environment, material conditions and work.

<sup>27</sup> Marmot M, Wilkinson RG, *Social determinants of health*. New York, Oxford University Press, 1999. Mosley W, and Chen L. An analytical framework for the study of child survival in developing countries. *Population and Development Review*, 1984; 10:25-45. Cebu Study Team. Underlying and proximate determinants of child health: The Cebu longitudinal health and nutrition study. *American Journal of Epidemiology* 1991; 133: 185-201. Schultz T. Studying the impact of household economic and community variables on child mortality. *Population and Development Review*, 1984; 10:215-35.

<sup>28</sup> Dahlgren G. *European Health Policy Conference: opportunities for the future*. Volume II - Intersectoral action for health. Copenhagen, WHO Regional Office for Europe, 1995.

<sup>29</sup> Marmot M, Wilkinson R.G, *Social determinants of health*. New York, Oxford University Press, 1999.

**Figure 2. Conceptual model of determinants of health**



Source: from Marmot & Wilkinson, 1999.

Both models show that, while such downstream interventions are important, their effect will be limited as long as they ignore the underlying determinants of health – that is, the upstream factors related to the social and economic environment and living conditions. Public health services should set up and conduct downstream interventions (for example, changing health behavior) but public health professionals also need to propose and advocate upstream policies. A wide range of such upstream policy options is given in the independent inquiry into inequalities in health in the United Kingdom.<sup>30</sup>

There is a good deal of evidence on the impacts of health system broad determinants on health outcomes and health service utilization, as well as the multiple deprivations of the poor.<sup>31</sup> Availability, possibly defined in terms of staff in local health facilities, often emerges as an important determinant of service utilization and health outcomes.<sup>32</sup> Accessibility, i.e. the ease with which people can reach facilities, is also important. Distance is the most frequently encountered variable in empirical studies of utilization and often has a significant impact on it.<sup>33</sup> A higher money price tends to reduce or at least delay utilization, especially among the poor, unless accompanied by improvements in service quality.<sup>34</sup> Insurance tends to raise the usage of health services; however the poor, who are the most price-sensitive users of health services, frequently face a higher price at the point of use because they are less likely to

<sup>30</sup> Acheson D., Independent inquiry into inequalities in health. Report. London, Stationery Office, 1998.

<sup>31</sup> Evans, R. G., M. L. Barer and T. R. Marmor, Eds. (1994). Why are some people healthy and others not? New York, Aldine de Gruyter, World Bank (2000). World Development Report 2000/2001: Attacking Poverty. Oxford, NY, Oxford University Press.

<sup>32</sup> Lavy V, Strauss J, Thomas D, de Vreder P. Quality of care, survival and health outcomes in Ghana. *Journal of Health Economics*, 1996; 15:333-57. Panis C, Lillard L. Health inputs and child mortality. *Journal of Health Economics*, 1994; 13:455-89, Rosenzweig M, Wolpin K. Governmental interventions and household behavior in a developing country: anticipating the unanticipated consequences of social programs. *Journal of Development Economics* 1982; 10:209-25.

<sup>33</sup> Benfeto K, Schultz T. Fertility and child mortality in Ghana. *World Bank Economic Review* 1996; 10:123-58. Mwabu G, Ainsworth M, Nyamete A. Quality of medical care and choice of medical treatment in Kenya: an empirical analysis. *Journal of Human Resources* 1993; 28: 838-62. Thomas D, Lavy V, Strauss D. Public policy and anthropometric outcomes in the Côte d'Ivoire. *Journal of Public Economics* 1996; 61:155-92. Wong E, Popkin B, Guilkey D, Akin J. Accessibility, quality of care and prenatal care use in the Philippines *Social Science and Medicine* 1987; 24:927-44.

<sup>34</sup> Alderman H, Lavy V. Household responses to public health services: cost and quality tradeoffs. *World Bank Research Observer* 1996; 11:3-22., Gilson L. The lessons of user fee experience in Africa. *Health Policy and Planning* 1997; 12:273-85.



have insurance coverage, whether private or public.<sup>35</sup> Quality, or, more exactly, perceived quality, also increases the demand for health services.<sup>36</sup> In most of these areas the poor are disadvantaged.

Two main schools of thought have emerged concerning the mechanisms by which economic inequality contributes to poor health. Kawachi, Kennedy and Wilkinson<sup>37</sup>, in the published collection of readings *Income Inequality and Health*, emphasize psycho-social and social cohesion explanations for health inequities with less attention devoted to material deprivation issues and the role social policy decisions play in supporting health.

The British authors of the *Widening Gap* however, explain socioeconomic differences in health in terms of how "...the social structure is characterized by a finely graded scale of advantage and disadvantage, with individuals differing in terms of the length and level of their exposure to a particular factor and in terms of the number of factors to which they are exposed". This study carefully defined the parameters of how poverty influences health. The authors then examined area differences on a wide range of health and socio-economic indicators. Their analysis took place within a life-span perspective whereby health differences were seen as resulting from an accumulation of material disadvantages that reflect widely differing economic and social life circumstances. Importantly, the authors continued their consideration of how these health inequalities came about by drawing upon an extensive collection of research studies that relate material disadvantage to poor health outcomes. A key finding was that magnitude of health inequalities increases in apparent response to increasing disparities in wealth and income. The authors concluded that the key means of reducing inequalities in health was reducing inequalities in income and wealth. "Poverty can be reduced by raising the standards of living of poor people through increasing their incomes 'in cash' or 'in kind'. The costs would be borne by the rich and would reduce inequalities overall – simultaneous reducing inequalities in health".<sup>38</sup>

We have known for a long time that in its turn ill-health leads to poverty. Illness may have a serious impact on household income and may even make the difference between being above and being below the poverty line. Hence, poor people are caught in a vicious circle. Thus, increase in health inequalities can be interpreted as a result of increase in poverty.

While inequalities in health have evolved, sufficient attention is not always given to explaining why imbalance in health or health recourses might be unfair. The criterion for analysing socioeconomic inequality in health usually adopted is based on horizontal equity principle (individuals with equal healthcare needs should be treated in the same way). Based on such principle, health care services should be distributed in accordance with the healthcare needs of each individual, independently of his/her socioeconomic characteristics. Basically, there are two ways of verifying if the healthcare system follows the equity principle.

The first consists in measuring inequality in the access of healthcare services. Initially, empirical works reported in the international literature were based on the construction of concentration curves relating the access to healthcare services to morbidity incidence in each socioeconomic group.<sup>39</sup> Le Grand pioneered the use of such a methodology which was further developed by Doorslaer and Wagstaff.<sup>40</sup> Based on such a methodology, Campino measured the social inequality in the access to

---

<sup>35</sup> Gertler P, Sturm R. Private health insurance and public expenditures in Jamaica. *Journal of Econometrics*1997; 77: 237-58.  
Schwartz J, Akin J, Popkin B. Price and income elasticities of demand for modern health care: the case of infant delivery in the Philippines. *World Bank Economic Review*1988; 2:49-76. World Bank, Swedish International Development Cooperation Agency, Australian Agency for International Development, Royal Netherlands Embassy, Ministry of Health of Viet Nam.  
*Growing healthy: a review of Viet Nam's health sector*. Hanoi: World Bank; 2001. Leighton C, Diop F. *Protection of the poor under cost recovery*. Bethesda (MD): Abt Associates;1999.

<sup>36</sup> Akin J, Hutchinson P., Health care facility choice and the phenomenon of bypassing. *Health Policy and Planning*1999; 14:135.

<sup>37</sup> Kawachi, I., Kennedy, B. O., & Wilkinson, R. G. *The society and population health reader*. Volume I: Income inequality and health. New York, The New Press, 1999.

<sup>38</sup> Shaw, M., Dorling, D., Gordon, D. & Davey Smith, G. *The widening gap: health inequalities and policy in Britain*. Bristol UK: The Policy Press, 1999, p.102, 169.

<sup>39</sup> Le Grand, Julian. The distribution of public expenditure: the case of health care. *Economica*, v.45, 1978 pp. 125-142.

<sup>40</sup> Doorslaer, Eddy van, Wagstaff, Adam. Equity in the delivery of health care: some international comparisons. *Journal of health Economics*, North Holland, vol. 11, 1992, pp: 389-411.

healthcare services in Brazil.<sup>41</sup> The authors measured the access to health care services through utilization which allowed them to build two concentration curves: the first non standardized and the second standardized by age, sex, and morbidity. The results encountered suggest the existence of social inequality in the preventive and curative health care services favouring higher income groups.<sup>42</sup>

A second way of evaluating inequality in the access to healthcare services consists in estimating a regression model whose dependent variable encompasses a utilization measure. The first work to employ such a method was developed by Cameron and Trivedi.<sup>43</sup> The authors estimated an equation of health services utilization for Australia, based on a binomial negative model to verify the frequency in which individuals used healthcare services. The major contribution of this paper was to consider the health insurance choice as an endogenous variable.

Some authors have proposed to estimate the model of healthcare services utilization in two stages. In the first stage, the probability of people receiving or not healthcare services would be estimated; and in the second stage, the amount of health care services would be estimated considering only individuals in the sample with positive utilization.<sup>44</sup>

How inequality in the distribution of income affects patterns of population health?

By Angus Deaton<sup>45</sup> a good way to approach health inequality is to start with income inequality. Measures of income inequality are measures of dispersion of the distribution of income across persons. Questions of why such quantities are of interest, or whether some are of more interest than others, can be answered through the theoretical apparatus developed by Anthony Atkinson<sup>46</sup> and Amartya Sen.<sup>47</sup> Inequality aversion or a preference for a more equal distribution is coded into a social welfare function according to which mean-preserving but equalizing transfers increase social welfare or, alternatively, one in which there is diminishing (social) marginal utility to income. As Atkinson showed, these formulations lead to an aggregate measure of welfare which can be thought of as the product of mean income and income equality, which is the complement of inequality. Health promotes well-being, just as income promotes well-being, and some people have better health than others. It is widely understood that a nonlinear (typically concave) relationship between health and income at the individual level will generate an aggregate relationship in which average health depends (negatively) on the degree of inequality.

It is well established that individual income level affects health, but income distribution is a characteristic of social system – it is not measurable in individuals. The link between low income and poor health is highly consistent when individuals are compared within a country, but there is a little association between low income and health status when compared across countries. Countries with higher average incomes do not invariably have better overall health status.

The comprehensive analysis of the data obtained through a micro-level research (families and households) indicates, that poverty, the low level of material provision is a powerful factor contributing to the decline of population health, thus: those with low incomes tend to have a negative “social inheritance”, for the poor produce the poor as the sick produce the sick. The conditions of poverty have a cumulative (comprises a number of factors) effect on health, weaken health potential and immune system,

---

<sup>41</sup> Campino, Antonio Carlos Coelho et al. Poverty and Equity in Health in Latin America and Caribbean: Results of Country-Case Studies from Brazil, Ecuador, Guatemala, Jamaica, Mexico e Peru - Brazil. Washington; The World Bank (HNP-Health, Nutrition and Population), PNUD e OPAS, 1999, pp.1-82.

<sup>42</sup> Cameron A.C., Trivedi, P.K, Milne F., Piggotti J., A microeconomic Model of the demand for health care and health Insurance in Australia. Review of Economics Studies. 1988, vol. 55, pp. 85-106.

<sup>43</sup> Cameron, Adrian Colin, Trivedi, Pravin K. Regression analysis of count data. Cambridge, UK; New York, NY, USA: Cambridge University Press. 1998.

<sup>44</sup> Gerdtham. Ulf-G. Equity in health care utilization: further tests based on hurdle models and Swedish micro data. Health Economics, May - June, 1997, Chichester: John Wiley vol. 6, n. 3, pp. 303-319.

<sup>45</sup> Deaton A. Inequalities in income and inequalities in health, Research Program in Development Studies Princeton University, 1999, p.3.

<sup>46</sup> Atkinson, Anthony B., “On the measurement of inequality,” Journal of Economic Theory, 1970, pp. 2, 244–63.

<sup>47</sup> Sen, Amartya K., On economic inequality, Oxford. Clarendon Press 1973, Sen, Amartya K., 1992, Inequality reexamined, Harvard University Press, Cambridge, Massachusetts, 1992.

cause diseases. Poverty makes it hard for the low-income population groups to overcome diseases, even with medical assistance provided, while free medical services are extremely limited.

Thus the population groups with the lowest incomes mainly have the lowest health potential. And these are the very population groups of the Armenian citizens to have the most problems to obtain a qualified medical assistance and medical goods. The absence of real guarantees for the population groups with the lowest incomes to obtain medical assistance result in the situation when a substantial number of citizens are excluded from a healthcare system. The process of population differentiation and polarization according to the volume and quality of medical services aggravates sharp social stratification, is of destabilizing social effect and is on the rise.

The major health policy goal in most countries has been the promotion of an equitable healthcare distribution. Domestically, and in their international development work, many governments have shown a commitment to closing the gap in health outcomes between the poor and better-off. International organisations-including the World Health Organisation as well as multilateral aid agencies such as the World Bank - have also put the improvement of the health of the world's poor as a priority goal. However, empirical works point out to a general healthcare inequality which favours more privileged social groups. This result can be a consequence of differences in the amount of medical assistance between socioeconomic groups. Empirical evidence shows that there is inequality in the access to healthcare in some countries which is favourable to the wealthy.<sup>48</sup> Such an outcome was even observed in developed countries where economic disparities are not so outstanding and in countries in which healthcare services are free of charge.

The social inequality in health and the way healthcare services supply is organized in Armenia suggest the presence of social inequality in the access to such care. The expected number of medical visits is responsive to income. The greater the income, the greater the number of doctor visits.

How different measures of inequality were related to mortality? Than the greater the extend of inequality, the higher was the mortality. One of the most widely used measures of income distribution is the Gini coefficient.

Flegg A. examined the infant mortality in a sample of less developed countries in terms of per-capita income, and the Gini coefficient, and found that absolute income was negatively related, and the Gini coefficient, positively related to infant mortality.<sup>49</sup>

Weatherby N., Nam C. and Isaac L. in a study of female mortality over the age of 50 years in a sample of 38 countries, found that countries with higher levels of income inequality had higher female all-cause mortality for ages 50-64, although the pattern of cause-specific mortality was not uniform among age groups.<sup>50</sup> They also pointed out that the mortality effects of income inequality may be even stronger at the ages less than 50.

This finding received some support from another analysis of between 34 and 61 developing countries conducted by Crenshaw E. and Ameen A.<sup>51</sup>

Inequalities in the distribution of income are also closely associated with variations in average life expectancy at birth among the richest nations of the world.<sup>52</sup>

Areas that have greater income inequality will have lower overall levels of population health because those at the bottom of the income distribution in a high inequality area will have lost more health than those at the top have gained.

---

<sup>48</sup> Alberts J.F., Sanderman R., Eimers M, Heuvel, Wim J. A. Van Den. Socioeconomic inequity in health care: a study of services utilization in Curaçao. *Social Science and Medicine*, 1997, vol. 45, n. 2, pp. 213-220.

<sup>49</sup> Flegg A.T. Inequality of income, illiteracy and medical care as determinants of infant mortality in underdeveloped countries, *Population Studies*, 1982, pp.36,441-458.

<sup>50</sup> Weatherby N. L., Nam, C.B.,& Isaac, L.W. Development inequality, health care and mortality at the older ages: Across – national analysis, 1983, pp.15, 429-446.

<sup>51</sup> Crenshaw, E & Ameen, A. Dimensions of social inequality in the Third World Population Research and Policy Review, 1993, pp. 297-313.

<sup>52</sup> Wilkinson, R. G. Income distribution and life expectancy, *British Medical Journal*, 1992, pp.304, 165-168.

First, inequitable income distribution may be associated with a set of social processes and policies that systematically under invest in human, physical, health and social infrastructure, and this underinvestment may have health consequences. Second, inequitable income distribution may have direct consequences on people's perceptions of their social environment that influence their health. In developing a conceptual framework for understanding how income distribution affects health, it may be worthwhile to reflect on what mechanisms and explanations have been proposed for how income affects health at the individual level.

Measures of income distribution may vary to the extent they differentiate between changes in the shape of particular parts of the income distribution. The choice of a measure of inequalities would be aided by the development of a conceptual model of how income distribution affects a particular health outcome.

The purpose of this paper is to consider the issue of the impact of poverty and income inequality on the health of Armenians. This paper provides an overview of research relating to inequalities in health to the disadvantage of the poor, and to changes in impoverishment and income inequality associated with payments for health care.

In the framework of this study some analyses have been performed, results of which describe the picture of poverty and income distributions in Armenia, as well as their influence on health of population. Increasing poverty is seen to go hand-in-hand with increasing income inequality. Documentation is provided of the growing incidence of poverty and income inequality and how both of these impact upon the health of Armenians. It is emphasized that reducing poverty and income inequality should be grounded in a pro-poor growth approach, i.e. for equality to be achieved economic growth in the development process should be deliberately adapted to the needs of the poor.

## 2. A Glimpse of Armenia

### **2.1. Background and current situation of poverty and inequality**

In order to achieve a new quality of life we must remember the lessons of the past, improve what already exists in the present, and prepare for the future.

Armenia is an excellent country to study poverty and inequality because during its transition to a market economy it has experienced a precipitous fall in the average standard of living and a dramatic increase in inequality in the distribution of income and wealth. As a result of these two new macroeconomic phenomena of the social-economic situation, the proportion of the population living in poverty has risen to unprecedented levels. At that time, according to the United Nations Development Program (UNDP), widespread poverty and inequality threatened the political stability of the new democratic government of Armenia.<sup>53</sup>

Armenia is a small, landlocked country located in the south Caucasus that has embarked upon a transition from a centrally planned to a market oriented economic system. During the last 20 years of the Soviet Union and prior to the breakdown of the Soviet Union, inequality and poverty were not major political or economic problems in Armenia.

However, transformation, although necessary and desirable, does not come without tears and the transition has not gone smoothly, not least because Armenia has received a series of blows which have seriously affected the economy. First of all, in December 1988, there was a massive earthquake (which covered about 40 per cent of the country and it is estimated that 25,000 people died in the earthquake and 500,000 were left homeless) followed by the collapse of the Soviet Union and accompanied by the dissolution of the Council for Mutual Economic Assistance (CMEA), war in Nagorno-Karabakh and an economic blockade enforced by Azerbaijan and Turkey (in place now for over 17 years), an energy crisis and recession, etc. that had negative impact and have all contributed to social crises in the republic. This combination of events has had severe consequences. Armenia was virtually isolated. There was a small

---

<sup>53</sup> Human Development Report- Armenia 2000, Yerevan, 2001.

corridor in the south for exports to Iran and there was the northern border with Georgia, which itself was afflicted with civil conflict and a poor transport system. Thus Armenia began its transition as a semi-closed economy with high transaction costs and unusually high "natural" protection.

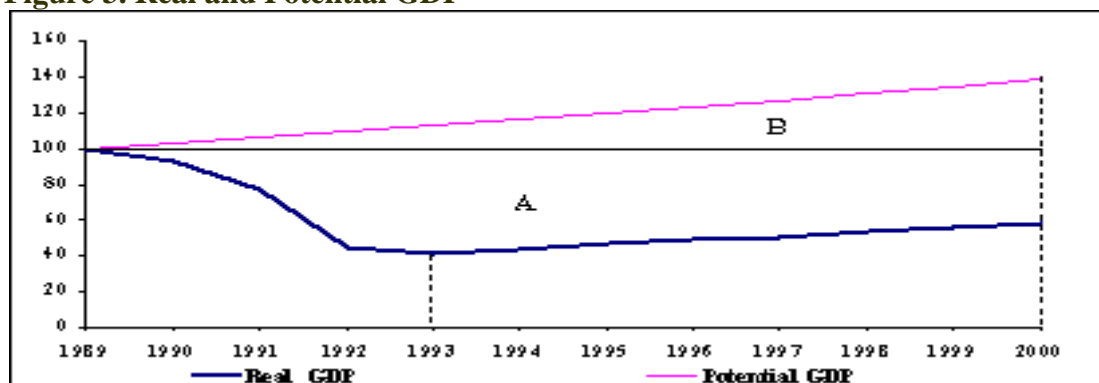
While strong growth in recent years has reduced poverty and inequality, nevertheless they remain a major problem in Armenia, as about half of Armenia's population is still considered poor. Poverty becomes a persistent structural challenge impeding social-economic development. This implies that very little of the additional income generated by growth has gone to the poor since they lack access to productive resources and employment. This helps to explain the so-called "mystery" of growth without poverty reduction.

Thus the reasons for poverty in Armenia are many-sided. Beside non-economic factors, they are conditioned by social relations and are derived from characteristics of decision making and behaviour of different social groups and institutions, as well as individuals. However, the main reason causing poverty in Armenia at large relates with shocks of the transition period: for the most part, poverty is explained by following factors – reduction of the gross product<sup>54</sup> (see Figure 3) and therefore, reduction of level of real consumption and the increase of inequality<sup>55</sup> in the structure of the distribution thereof.

In 1991-1993 economic decline was so deep (about 60 percent fall of the real GDP), that continuing economic growth since then was not sufficient to reach the 1990 output level. Thus the gross output is significantly below the pre-transition level.

The two types of lost income can easily be seen in Figure 3. Area A in the Figure 3 represents the cumulative loss of output while area B represents the cumulative loss of potential GDP. Areas A and B combined represent the total cumulative loss of GDP. Potential GDP is of course a moving target, which is assumed to be growing three per cent a year. Hence even after Armenia regains the level of output and income enjoyed in 1989 it will still be substantially below its potential GDP.

**Figure 3. Real and Potential GDP**



Source: Col. 1: UNICEF, A Decade of Transition, Innocenti Research Centre, Regional Monitoring Report No. 8, 2001.

In 2000 actual GDP was only 57.6 per cent of GDP in 1989 whereas potential GDP was 38.4 per cent above the 1989 GDP. The income gap was thus 80.8 per cent of the 1989 GDP. The actual output grows 10 per cent and even more a year after 2000 and let assume potential output continues to grow 3 per cent a year. This implies that the income gap between actual and potential income would not be eliminated until sometime in 2014. By this measure the transition would take exactly a quarter of a century, and if the actual rate of growth is significantly less rapid than has been assumed, the transition could take much longer.

<sup>54</sup> Sharp decline in real income and depreciation of wealth of many households resulted in quantitative and qualitative reduction of consumption and, therefore, depreciation of human capital and resulting poverty.

<sup>55</sup> There are two arguments for why inequality hinders poverty reduction. First, the higher the level of inequality the smaller are the absolute gains of the poor as the economy grows. Second, inequality hinders sustainable high economic growth.

Before independence and the transition to a market economy, Armenia was a remarkably equitable society. There has been a dramatic rise in income inequality in Armenia since the first decade of transition to a market economy began. This greatly increased the incidence of poverty, which of course would have increased in any case because of the fall in average income. There are many ways to measure inequality and several different definitions of "income" that can be used.

**Table 1. Indicators of Inequality: Gini Coefficients, 1989-1999.**

Year	Income	Distribution of Expenditure	Consumption	Earnings
1989	0.251			0.258
1991				0.296
1992				0.355
1993				0.356
1994				0.321
1995				0.381
1996	0.602	0.444		
1999	0.593	0.372		
1996-1999	0.59		0.32	

*Source:* World Bank, Making Transition Work for Everyone: Poverty and Inequality in Europe and Central Asia, Washington D.C., 2000, Tables 4.1 and 4.2, pp. 140 and 144. UNICEF, A Decade of Transition, Innocenti Research Centre, Regional Monitoring Report No. 8, 2001. National Statistical Service, Statistical Yearbook of Armenia 2001, Yerevan, 2001, Tables 64 and 67, pp. 85 and 88.

In Table 1 we have assembled many of the indicators of inequality that can be encountered in the published literature and that are frequently cited. As a summary measure of inequality we have used the Gini coefficient, perhaps the most widely used indicator worldwide. The last column in the table contains Gini coefficients of the distribution of earnings. Earnings refer to earned incomes and exclude income from property, e.g., interest, profits, rent, etc. The Gini coefficient of earnings thus indicates the degree of inequality in the distribution of wages and salaries. In 1989 the Gini coefficient for earnings was exceptionally low (0.258), indicating that the wage and salary structure was highly compressed and that earnings differentials were narrow. During the transition to a market economy, however, wage differentials widened and the Gini coefficient increased steadily. By 1995, the last year in our series, the Gini coefficient had risen to 0.381. That is, between 1989 and 1995, earnings inequality as measured by the Gini coefficient increased 47.7 per cent. This is an enormous change in just six years and it is highly likely that the greater dispersion in wages that occurred during this period contributed to poverty among employed wage earners.

In the first column of Table 1 we have observations for three years, including a pre-independence year (1989) and two years in the 1990s (namely, 1996 and 1999). We also have a figure which is said to be the average for the period 1996-99. These Gini coefficients measure the degree of inequality in the distribution of income as conventionally defined and in principle include earned income, earnings from self-employment and income from property. It is noteworthy that the Gini coefficient for income in 1989 was unusually low (0.251) and that it was almost identical to the Gini coefficient for earnings. This is reassuring since there was very little income from property in the Soviet period and hence the two coefficients should have been about the same.

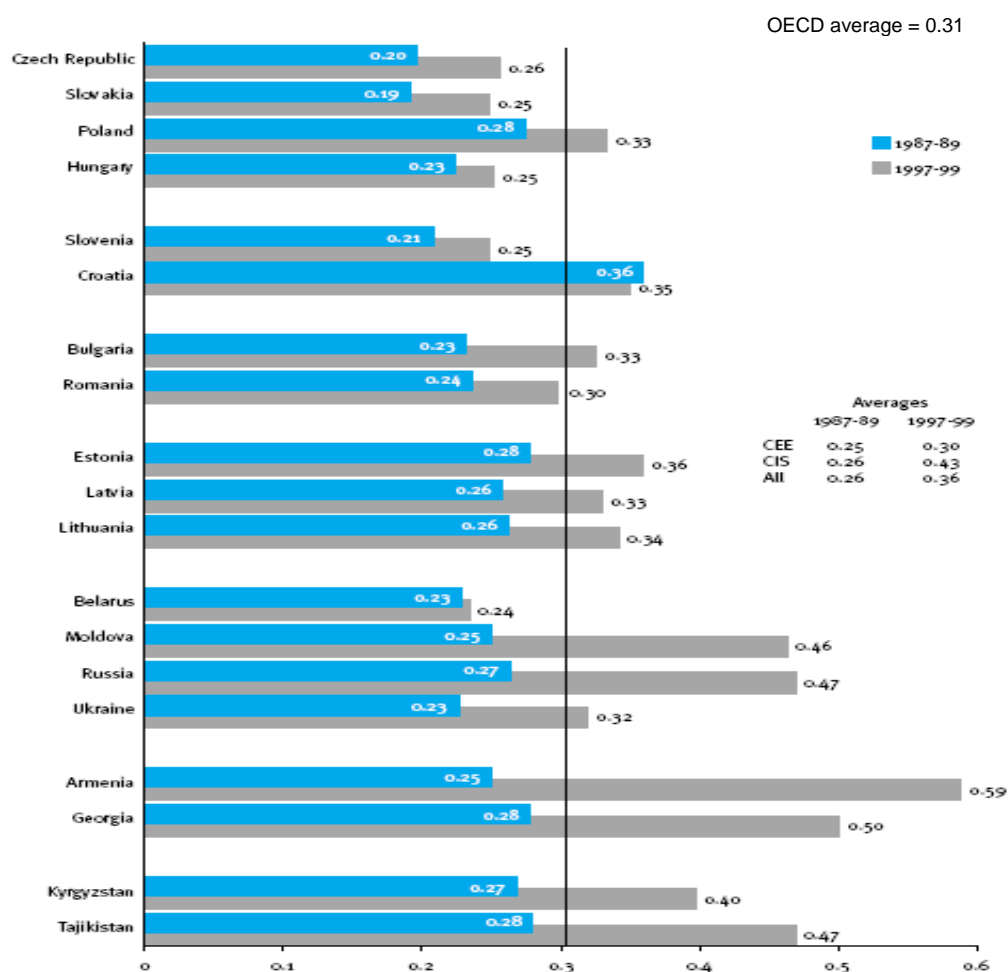
The privatisation of state owned enterprises, the emergence of new private enterprises and the introduction of market forces had two effects: they made it possible for people to have income from property and they made it certain that income from property would be unevenly distributed, indeed highly concentrated. This, in combination with greatly increased earnings inequality, resulted in a highly unequal distribution of overall income. By the second half of the 1990s the Gini coefficient had increased to 0.59 or 0.60. That is, between 1989 and the late 1990s, income inequality increased by 136 per cent or more! If these figures are accurate, they imply that the distribution of income in Armenia at that time was among the most unequal in the world.

Figure 4 also shows that according to the World Bank estimations, the income-based Gini coefficient which was 0.25 prior to transition (1987-90) increased to 0.59 (the highest amongst all the 27 transition countries) in 1996-99.<sup>56</sup>

Figure 4 gives values of one common summary measure of inequality in household incomes, the Gini coefficient, for 19 countries with available data from both the end of the 1990s and the late 1980s. The vertical line at the value 0.31 provides a benchmark from advanced market economies – the average value for countries in the OECD area in the mid-1990s. The level of measured income inequality at the end of the 1990s in Russia, Moldova, Tajikistan, Georgia and especially in Armenia, resembles more that found in several Latin American countries.

The distribution of expenditure tends to be less unequal than the distribution of income. The reason for this is that high income households do not spend all their income but put some income aside as savings whereas low income households often spend more than their income and try to sustain their consumption by selling some assets, drawing on previous savings or borrowing. The data for Armenia are consistent with this behaviour, since the Gini coefficients for expenditure in 1996 and 1999 (reported in the second column of the Table 1) are lower than the Gini coefficients for income for the same years.

**Figure 4. Income inequality, 1989 and 1999 (Gini coefficients)\***



\*Source: A Decade of Transition, UNICEF, Italy, 2001

Note: The distribution in each case is that of individuals ranked by household per capita income.

<sup>56</sup> A Decade of Transition, UNICEF, Regional monitoring report, No. 8 – 2001.

Finally, the third column contains an estimate of the Gini coefficient for "consumption" for the years 1996-99. It is not clear how "consumption" differs from "expenditure", nor is it clear how the estimate was obtained. The value of the coefficient is not consistent with other indicators in the table and appears to be much too low. The reader is advised to ignore this estimate; it is included in the table for the sake of completeness. It is increasingly becoming accepted, as the World Bank puts it, that "high inequality is bad for growth."

This high level of inequality appears to be caused by the extreme concentration of incomes in the top decile of Armenian households. Table 2 provides a more detailed picture of the income distribution for the year 1999. Here the extraordinarily high concentration of income among the richest households is evident. The top decile of the population receives 45 per cent of all income and the bottom half (poor) of the population receives just 15 per cent.

**Table 2. Income Distribution by Decile, 1999.**

Decile	Share of Gross Income (per cent)
I	0.7
II	1.9
III	2.9
IV	4.0
V	5.0
VI	6.4
VII	8.1
VIII	10.7
IX	15.3
X	45.0
<b>Total</b>	<b>100.0</b>

Source: Oxfam, Growth with Equity: Policy Choice for Poverty Reduction Project, Yerevan, 2002.

There are many measures of inequality that summarize the way income is distributed across the population and many ways to paint this picture for Armenia: one half of all income accrues to just the richest 12 per cent of the population; the income of the wealthiest quintile is 32 times higher than that of the poorest quintile; and the poorest 55 per cent of the population - those whose fall below the poverty line - receive just 16 per cent of the total income. All these measures point to the same conclusion: income inequality in Armenia has been extremely high.

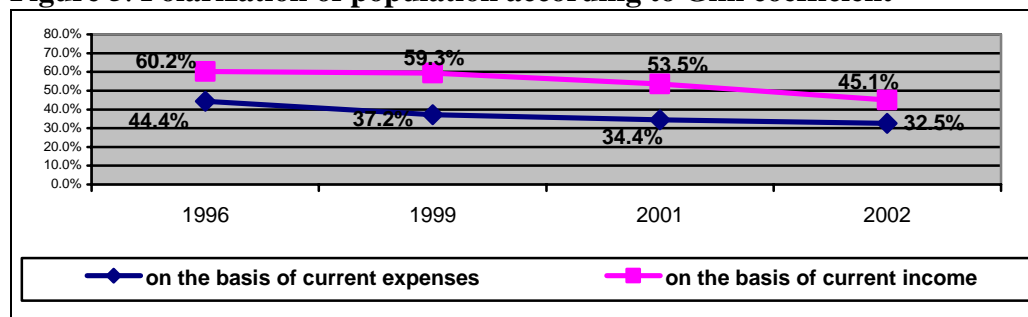
There is also a great deal of inequality as measured by the Gini coefficient for per capita income. It should be noted, that in spite of there is a slight reduction in the Gini coefficient both by consolidated and current incomes: however even these indicators prove that disparity and polarization are quite high in the society. Distribution of income and expenditures by deciles shows that extreme polarization is the main determinant of poverty. The expenditure-based Gini coefficient in Armenia is substantially lower than the one based on income (See Figure 5).

Polarization of income distribution is much higher than polarization of expenditure, which could be explained by the fact that average propensity to consume against income is much less by the rich than the poor. An analysis of the findings is sufficient to argue that smooth distribution of income in Armenia is far more important for reducing poverty than economic growth is. In terms of poverty reduction, one percentage point decrease in the Gini index is the equivalent of about 3.5-4% economic growth provided that growth were distributed in the same manner as total income. Still, economic growth is not favourable of improving distribution, and most often, it reinforces polarization.

It has been estimated that in Armenia, poverty would be less, if income were distributed as it is distributed in the Russian Federation or in the Kyrgyz Republic. At the same time, there would be no poverty problem in Armenia, if the income was distributed as it distributed in Poland or in Latvia. Beside, such a difference in Gini measurements is mostly attributed to the large shadow economy.



**Figure 5. Polarization of population according to Gini coefficient\***



\* Source: Social Snapshot and poverty in the republic of Armenia

The growing informal sector of the economy has caused a near collapse of the old social insurance and safety nets mechanisms. At the same time, the economic decline and complex social changes that have happened during the last ten years have caused numerous social problems.

Since 1999 owing to continued strong economic growth and the implementation of the Poverty Reduction Strategy policies, many of the poverty and inequality indicators have improved and over the past years the poverty level was slightly reduced (See Table 3).

**Table 3. Income Poverty Main Indicators in Armenia\***

	1996	1999	2001	2002	2003*
GDP Per Capita (USD)	512.1	608.2	705.5	792.1	934.3
GDP Per Capita (PPP USD)	1,408.3	1,672.6	1,940.2	2,178.2	2,569.4
Economic Growth (cumulative, 1996=100)	100.0	114.5	132.9	150.4	171.3
<b>Poverty Incidence (%)</b>	<b>54.7</b>	<b>55.1</b>	<b>50.9</b>	<b>49.7</b>	<b>42.9</b>
<b>Extreme Poverty (%)</b>	<b>27.7</b>	<b>22.9</b>	<b>16.0</b>	<b>13.1</b>	<b>7.4</b>
<b>Poverty Gap (%)</b>	<b>21.5</b>	<b>19.0</b>	<b>15.1</b>	<b>13.5</b>	<b>8.9</b>
Poverty Severity (%)	11.1	9.0	6.1	5.2	2.8
Poverty Line (USD per month)	24.8	22.4	21.7	21.4	21.8
Extreme Poverty (Food) Line (USD per month)	15.2	13.7	13.3	13.1	13.4
<b>Gini Coefficient by Current Expenditures</b>	<b>0.444</b>	<b>0.372</b>	<b>0.344</b>	<b>0.325</b>	<b>0.271</b>
<b>Gini Coefficient by Current Incomes</b>	<b>0.602</b>	<b>0.593</b>	<b>0.535</b>	<b>0.451</b>	<b>0.438</b>
<b>Gini Coefficient by Total Incomes</b>	<b>0.653</b>	<b>0.57</b>	<b>0.528</b>	<b>0.449</b>	<b>0.435</b>
Share of Income of poorest 10% in the Total (%)	na	0.7	0.8	na	na
Share of Income of poorest 20% in the Total (%)	na	2.6	3.2	na	na
Share of Income of richest 10% in the Total (%)	na	45.0	41.8	na	na
Share of Income of richest 20% in the Total (%)	na	60.3	57.7	na	na

\* Source: NSS 1996, 1998/99, 2001 and 2002 household surveys data. NSS "Food Security and Poverty" for 2004 January-June. Note: PPP for all periods is assumed 2.75. Per Capita GDP are EDRC calculations.

The income-based Gini coefficient for Armenia has been decreasing and, it was estimated to reduce to 0,438<sup>57</sup> in 2003 compared to an average of 0.34 for all transition economies. However, our studies on the current character of distribution in Armenia and international experience as well has shown that no market economy has yet succeeded in reducing the Gini index in a short period to such an extend. Moreover, measures that may significantly improve the distribution are not scheduled in the Interim Poverty Reduction Strategy Paper (IPRSP).

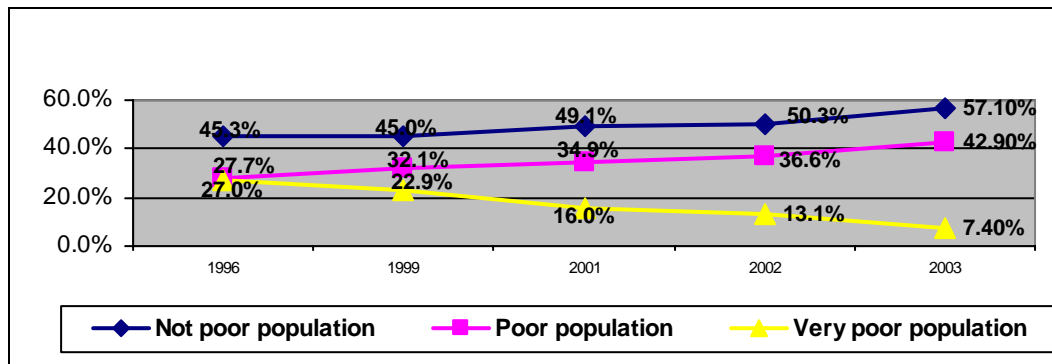
<sup>57</sup> Poverty Indicators, EDRC, Economic Policy and Poverty Periodical, N 1, 2004.

Table 3 shows that the poverty gap was 8.9 percent in 2003, which indicates that if the country could mobilize resources equivalent to 8.9 percent of the poverty line for each individual (both poor and non-poor) and if these resources were allocated to the poor, poverty would be theoretically eliminated. The severity of poverty, indicator which takes into account that some poor faced higher depth of poverty than others and are thus further away from the poverty line, was 2.8 percent in 2003. Together with the poverty incidence, both the poverty gap and the severity of poverty decreased between 1996 and 2003. However, in 2001 with comparison 1999 share of income of the poorest 10% of the population increased only on 0,1%.

Target indicators for reducing poverty, including extreme poverty, as set in the PRSP are fully compatible with the targets envisaged in the Millennium Development Goals: to reduce the number of people living on less than 1 USD per day to half, by the year 2015 (compared to 1990). In other words, the number of people living with less than USD 1 per day should be reduced to 14.5 % of the total population. According official estimations Armenia will achieve this indicator by 2005, and in 2015 this indicator will be 2.7 percent.<sup>58</sup>

The following figure shows the dynamics of the main poverty indicators in the Republic (See Figure 6).

**Figure 6. Dynamics of the main poverty indicators\***



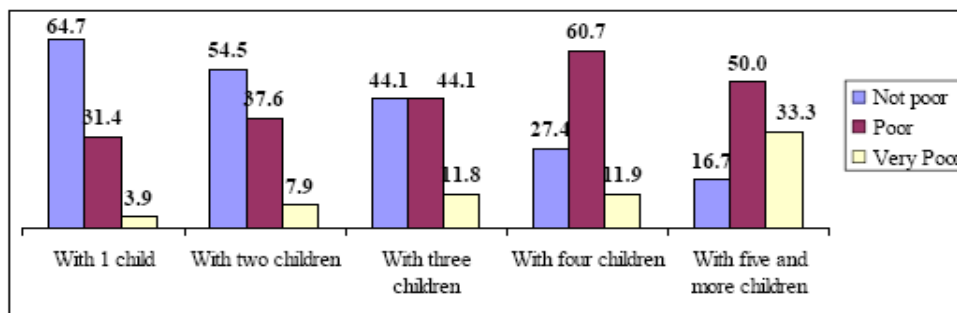
\* Source: Data of National Statistical Service

Poverty and the character of income distribution in Armenia will be much dependent on demographic developments in the future. Although population growth is seen as a positive factor, in this case increase in the number of children under given distribution function increases the risk for inequality and vice versa. According to experts' evaluation, improvement in income distribution conditioned by the demographic factor is not expected within the first decade of the 21<sup>st</sup> century.

It is known that at the present in Armenia the large households and households with many children or are consisting of elderly people, are exposed to the risk of poverty and have limited participation in the income distribution process. See figure 7.

<sup>58</sup> Republic of Armenia: Poverty Reduction Strategy Paper, International Monetary Fund, Washington, D.C., p.37.

**Figure 7. Distribution of Households with Children Under 18 Years of Age by Level of Poverty**



Source: NSS RA Social Snapshot and Poverty in Armenia

Other main cause of the rise in inequality from the early 1990s to 1998 is the decline of the share of wages, pensions and increase of the share of profit in total income, which worsened income distribution. Before the transition this was set at 78 rubles per month per capita (equivalent to USD 87), while the average monthly monetary income was 134.4 rubles per capita (USD 149.9). The composition of the income sources was the following: 76% salary, 11% formal transfers, 13% income generated from the sale of agricultural produce and other incomes. Expenses were distributed in the following way: 41% for the acquisition of food, 28% to buy non-food products, and 9% to purchase services.

Since the first stage of transition employment fell and productivity - and therefore wages - plunged (see Table 4). Health sector workers, as well as, other public sector workers were much less likely to lose their jobs, but with the decline in government expenditure, their already low wages fell even further.

**Table 4. Average Wages by Sector and Gini Coefficients for Wages**

Average Wages (current US dollars/month)	1989	1995	2000
Construction	364	27	77
Industry	249	19	54
Transport, Communications	229	25	73
Education, Culture, Arts	149	7	23
Trade, Public Catering	147	24	38
Health	139	8	24
Gini Coefficients	0.20	0.38	0.41

*Note:* The wages for 1989 are in 1989 current rubles converted into USD at the official exchange rate. Gini coefficients are calculated for wages in the non-agricultural sector.

*Source:* Author's calculation based on The economy of Armenian Soviet Socialist Republic in 1989, Yerevan, 1991; Statistical Yearbook of Armenia (1997,1998), Yerevan 2001, pp. 45-46, 63-64; Statistical Yearbook of Armenia (1999, 2000), Yerevan 2001, pp. 49-50, 69-71.

As can be seen in Table 5, the Gini coefficients for wages more than doubled from a remarkably low 0.20 before the transition to 0.41 in 2000. This increase in wage inequality was an important contributor to overall inequality. A further result of the structural changes in the economy was a change in the functional distribution of income. The share of wages in total income fell dramatically; profits, transfers, and remittances have all become much more important sources of income than before the transition.

In many transition and developing economies pensions play a critical role in supporting the poorest households and have great potential for equalizing income. Unfortunately, Armenian pensions have fallen relative to average wages and now it is the lowest among NIS countries. The number of

pensioners is large (about 18 percent of the population) and the decline in pensions is clearly an important contributing factor to inequality.

Thus the income of the population is derived from various sources. The main source of income for all the groups of the population surveyed remains income received from work performed. The proportion of this source of income is almost the same for all decile groups; however only earned income is not adequate enough to maintain a proper level of welfare, since it forms less than the half of total income. The structure of the population income by the poverty level is presented in the table below. (See Table 5).

**Table 5. Income Structure by Level of Poverty in 2003**

In percents

	Total	Including		
		Not poor	Poor	Very poor
<i>Total income, including from</i>	100	100	100	100
Salaried work, including in-kind reimbursement	42.5	42.1	43.9	40.7
Social transfers	9.1	6.9	12.5	18.6
Sale of agricultural goods	5.0	4.7	5.5	5.9
Sale of real estate	0.8	1.2	0.1	0.0
Sale of valuable goods	1.4	1.4	1.3	2.1
Property	0.1	0.1	0.1	0.0
Monetary assistance from relatives	15.3	17.9	10.1	8.8
Humanitarian assistance	0.1	0.1	0.2	0.1
Savings	0.8	1.0	0.4	0.4
Food of own production	18.0	16.9	21.6	17.2
Other	6.9	7.9	4.3	6.2

There are low living standard indicators (See Table 6).

**Table 6. Living standard indicators\***

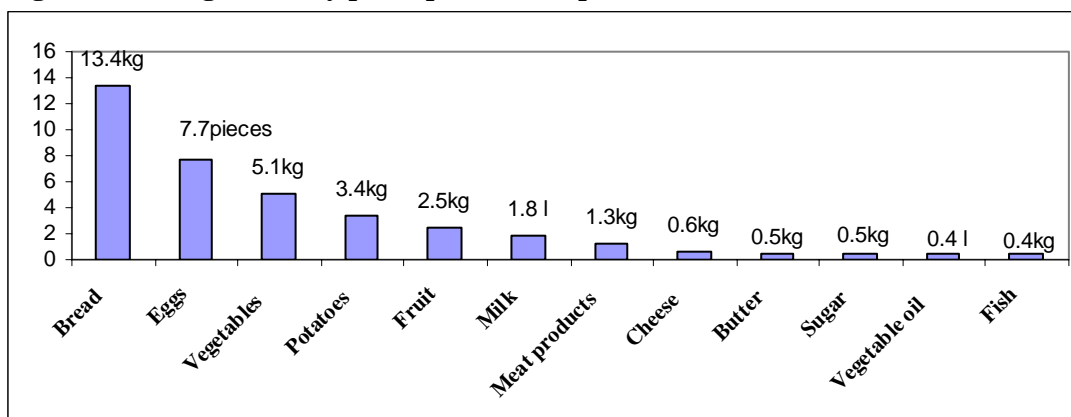
	1996	2001	2003
GDP per capita, US \$	491	705	835
Average monthly salary, US \$	23.1	43.1	53.6
Average monthly pension, US \$	7.7	8.3	11.2
Pension as % of average salary	33	19	21

\* Source: Data of National Statistical Service

Comprehensive household surveys of 1996 and 1998-1999 provide extensive data for studies of the social situation and quantitative assessment of poverty in Armenia. In order to estimate poverty, the minimum consumption basket was assessed and used as a general poverty line. The value of the consumption basket in the survey was 22.4 USD per month, including the value of the food basket 13.7 USD. Those households with consumption expenses per capita below the minimum consumption basket, i.e. the general poverty line, are considered as poor households. Those households with consumption expenses per capita below the minimum food basket are considered as very poor households.

The value of the consumption basket that does not provide an appropriate level of living standards. The data presented above show that the population of the Republic consumed high-priced food products, such as meat products, milk products, fruits and eggs in small quantities (See Figure 8).

**Figure 8. Average monthly per capita consumption of Basic Food Products 2002\***



\* Source: Social Snapshot and poverty in the republic of Armenia

Moreover, the number of people who can afford the minimal consumer basket is low. According to a World Bank survey, the minimal consumer basket needed in Armenia in 2002 cost \$20 per person or \$0.7 a day (64.1% of the employed receive less than the minimal consumer basket).<sup>59</sup>

## 2.2. An overview of the Armenian health care system

Indeed, the high level of inequality and poverty of population income distribution and wealth distribution had negative impact on health of population and has lead also to an increasing gap in the quality of medical care between the poor and better-off in Armenia.

There has been a dramatic decline in the share of public resources devoted to the health care system. Over the 1990s, public spending on health fell from 7.21 per cent of the national budget in 1991 to just 0.95 per cent in 2000. Economic decline has placed Armenian health institutions in jeopardy, indirectly hindering the entire reform process. During the transition to market relations population health became extremely severe in Armenia, as the situation is was getting complicated.

Prior to 1991 Armenia had acquired large stocks of medical supplies and equipment, thanks mostly to Western aid projects following the 1988 earthquake. By 1992, however, the trade blockade enforced by Turkey and Azerbaijan had made the supply of such basic items as surgical gloves, syringes, and chlorine for water purification unreliable. The resulting medical crisis put the elderly and newborns at great risk. In late 1992 and early 1993, healthy infants reportedly were dying in hospitals because of the cold and a lack of adequate equipment. The slow pace of economic development in Armenia led to decline in funding for the health care system. So gains in freedom have been accompanied by the losses of many basic economic and social services that the population had come to enjoy and expect. Some of the general social post achievements were the free health care and leisure that have become sweet dreams.

Increase in inequality was partially due to decline of state revenues resulting from institutional drawbacks, as well as economic developments. Decrease in state revenues led to limitations of public funds for financing of public services, including health and redistribution programs. Armenia possesses very limited resources, and only a very small amount of government support is granted to certain groups in the form of free medical care and there has been a loss of public and professional confidence in access to and funding of state guaranteed health care services.

The State Budget allocations to the Health care sector are still insufficient and the reforms in this sector are not efficient yet because of economic difficulties in the country. The level of public expenditures for health care was the lowest in the region. During this period, budgetary spending on health care plunged from about 2.7% of the GDP in 1990 to 1.3% in 1997. Since then the expenditures channelled from the state budget to the health sector are rather low (see Table 7).

<sup>59</sup> Armenia: Poverty Assessment. World Bank Report, Washington D.C., 2003.

**Table 7. Public expenditures in the health sector\***

	1998	1999	2000	2001	2002	2003
Total, in million US Dollars	24.9	24.7	17.8	28.5	29.0	38.1
<i>% of GDP</i>	1.43	1.38	0.95	1.34	1.18	1.4
<i>% of state budget expenditures</i>	6.7	5.6	4.4	6.4	6.0	6.5
Per capita of population, in US Dollars	8.9	8.4	6.1	9.4	9.3	31.2

\*Source: Ministry of Finance and Economy, NSS

In the international practice, the determining index of the volume of financial means on health care is the share of resources spent from GDP of the country, which according to the recommendation of WHO should not be less than 6-9%. As you can see, during 1998-2003 the highest indicator of state health budget was 1.4% of GDP (for comparisons note that even in the years of collapse of the NIS this was 3-4% and in countries with an average income level, this indicator is 3%) and accounted for approximately 25% of total health care expenditure (total expenditure on health from all sources accounts for only \$50-70 million), 15% of health care expenditure came from humanitarian aid contributions, with the remaining 60% financed through private out-of-pocket payments. Thus, expenses for health care are mostly shouldered by individual citizens. The severity of the situation would not be eased; even if the significant role of humanitarian aid received to finance the health sector recently is taken into consideration.

The difference becomes more obvious if the basis for comparison were selected to be the per capita public expenditures in the sector. As to the health care financial resources per capita a year - minimal level should not be less than \$15 a year. Health expenditures in Western Europe in average make 8-10% of GDP and per capita a year exceeds the recommended standard more than 100 times. Armenia does not provide this standard and spends twice less. In 1998-2002 Armenian government could only spend \$6-9.5 per capita on health services (even in low-income countries it makes \$12), compared with per capita spending of \$2,000-\$2,500 in Europe, \$1,785 in Canada and \$4,235 in the USA.<sup>60</sup> Given the current social-economic situation, it is clear that an essential increase in the budget for health care cannot be expected in the near future.

Along with the decrease of government's possibilities to socially protect the population an active development of shadow market of paid medical services has been observed. The growing informal sector of the economy has caused a near collapse of the old social insurance and safety nets mechanisms. According to World Bank estimates, the share of patients making 'informal' payments in the health sector in Armenia is the highest among CIS countries, and equals 91%, as compared, for example, to 74% in Russia.<sup>61</sup>

An important source of funding in the health care system continues to be direct payments by the population. Investigations undertaken with the support of the World Bank demonstrate that the real financial flows to the hospital sector including direct payments for drugs, food, medical personnel services etc, are 3.5 to 4 times greater than funds allocated from the state budget alone. As to population 'direct' payments, according to some experts, they are about twice more than budget funding - around 60%, as compared to European countries, where 'direct' payments make only 5-7% of the financial systems. In this situation "the shadow market" offers more valuable incentives and simple financing methods in realization of a mechanism for receiving compensation "from pocket to pocket," which are widely used in Armenia for providing medical care to the population. With the introduction of paid services, health care became unaffordable to most Armenians. Access to health care services has become

<sup>60</sup> Health Care in Transition, Armenia Hit Summary, WHO, Copenhagen, Denmark, 2002.

<sup>61</sup> Lewis, Maureen, Who is Paying for Health Care in Eastern Europe and Central Asia? Human Development Sector Unit, World Bank, Washington, DC., 2000.

increasingly dependant on whether a household can afford the ‘informal’ payments to doctors. Though it is true that ‘health is priceless’, it is also true that it is expensive. Privatization is well underway; health care is most available to those able to pay out-of-pocket. The incorporation of direct out-of-pocket payments into the funding system obviously undermines the principle of equity with respect to both financing and access.

The inequality in access to health care is not exclusively a function of private expenditures. Because patients face significant out-of-pocket expenses even at public institutions, the poor tend to seek out health care - even publicly subsidized care - much less frequently. The ability of the wealthy to pay for these additional expenses - which include medicine and informal payments for service - allows them the leverage necessary to access public services. As a result, the wealthiest quintile captures 40 per cent of public health care expenditures, while the poorest quintile manages to capture just 13 per cent.

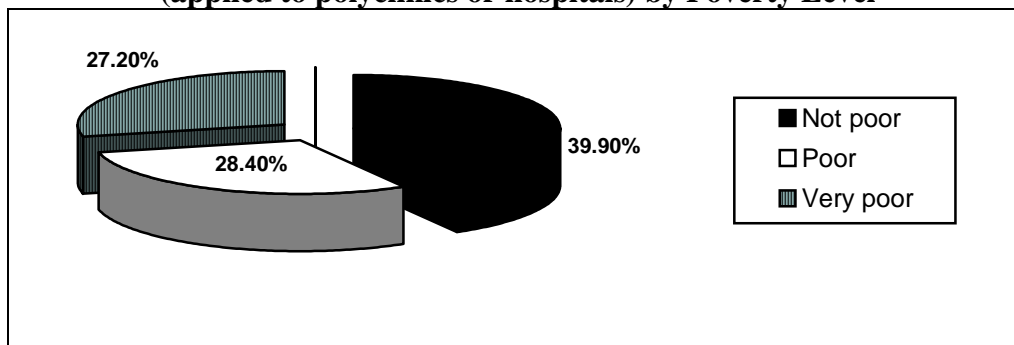
Access to quality health care is also becoming much less equal. As the out-of-pocket costs for health care increase, requiring much higher spending by households, the poor have become much less likely to seek out professional care. In the bottom quintile of the population, only about one quarter of those reporting sickness received professional care, while over half of the sick in the wealthiest quintile received professional attention. The type - and presumably quality - of health care received also varies with income. Increasing inequality in access to quality health care today suggests that key aspects of human capital and hence well-being will become more unequal in future.

The majority of health care spending is private and its distribution across households is highly skewed. The poorest quintile accounts for only two per cent of private health care expenditures, while the wealthiest quintile accounts for over 80 per cent. A pattern has emerged in which the poor rely much more heavily on polyclinics and the wealthy rely relatively more on private physicians.

Thus the introduction of out-of-pocket payments and the increase in informal payments have resulted in sharp a decrease in timely referrals to doctors at a time of increased morbidity. Households experienced an illness but did not seek even medical consultation because it is either too expensive or not easy to reach.

The survey results showed that the number of consultations for heath problem continues to decrease. According to 2002 data, only 32% of respondents who experienced a medical problem consulted a doctor compared to 43% in 2001. The average cost of consultations with a doctor increased by 30 % and now comprised about 25 USD and the average cost of the hospital stay equals to 140 USD. The proportion of households that report an illness and consult a doctor is lower the higher the level of poverty of the household. See Figure 9.

**Figure 9. Proportion of Households That Consult a Doctor (applied to polyclinics or hospitals) by Poverty Level**



The Table 8 below shows that the not poor population spent 12.2 times more money on treatment than the very poor population.

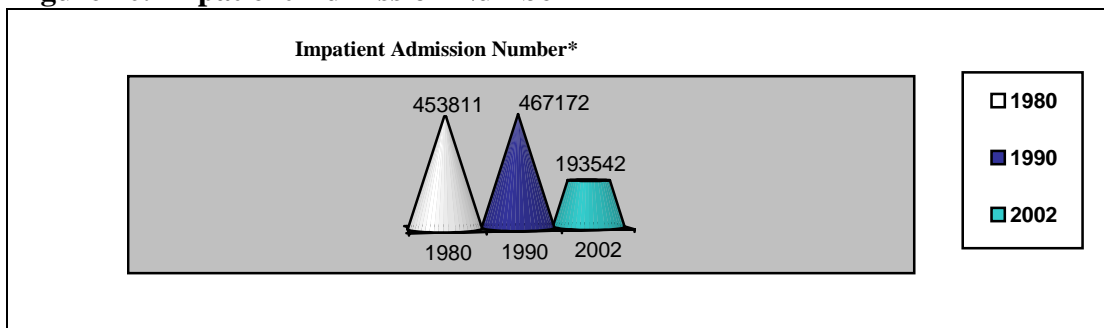
**Table 8. Average Amount of Money Paid for Treatment by Poverty Level**

Poverty level	Average cost of treatment per household member in USD dollar
Not poor	50
Poor	6.5
Very poor	3.8

Serious problems have accumulated in the pharmaceutical and medical technology sector. The essential drug list affordability is not ensured; there are no state regulations on all pharmaceutical pricing and procurement. At present, many patients still do not access to proper pharmaceutical services. Public spending on pharmaceuticals is very low; it makes less than \$2 per capita per year. Drug prices are high and are often unaffordable for the majority of population. The number of them reporting they could afford to purchase their prescribed medicine dropped from day to day. In addition, introducing VAT for medicines since 2001 has led to further prices increase.<sup>62</sup> The medical technology and equipment in health facilities have become outdated; part of the available equipment is used inefficiently and needs to be redistributed.

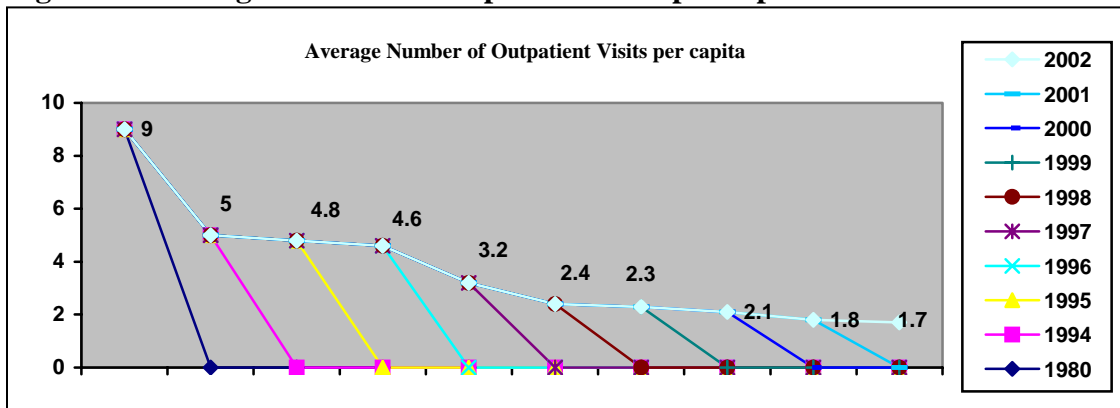
The accessibility of health care has clearly suffered. Compared to the early 1990s, home visits by physicians, referrals to polyclinics, and ambulance calls have all fallen by 40-60 per cent (See Figures 10, 11). This decline is not a reflection of improved health. Statistics show that since 1990 visits to health institutions has sharply declined, due to inaccessibility of such services for most of the population and the poor in particular.

**Figure 10. Inpatient Admission Number**



\*Source: Data of National Statistical Service

**Figure 11. Average Number of Outpatient Visits per capita**



<sup>62</sup>Developing National Drug Policy in Armenia, Kazarian I.,2002,URL:<http://www.policy.hu/kazaryan/project.html>



Low income and relatively high health service fees are preventing almost one-third of the patients from ambulatory health care, while only 20% can afford health fees. Accompanied by malnutrition and the inadequacy of public utilities, this has led to a substantial increase in the so-called "social diseases". As international health assistance programs as well as humanitarian aid is often poorly coordinated and do not always address the country's real needs, or are inappropriately distributed among health care facilities and the population.

The medical network is growing noticeably poorer, while medical treatment, legally or not, is becoming obviously more expensive. One day in hospital in the therapy division, for instance, costs on average \$10. At those prices the number of patients turning to doctors decreases, and hospitals are empty for months. More than half of hospital beds have not been used for years. Bed occupancy rates have fallen more than 200%, and visits by doctors to patients' homes have fallen more than for 30%. At the same time, others argue that the problem is not oversupply of hospitals, but lower demand of health services, under consumption, because about half of Armenia's population is extremely poor or poor and they can't afford to pay the hospital fees. Thus, health care is increasingly considered a privilege for the elite, less and less available for the poorer part of the population.

An increasing gap in the quality of medical care between the rich and the poor ultimately leads to increasing length of illness and chronic pathology. Lack of access to effective medical care is likely to lead to excessive morbidity and suffering. In spite of the rising morbidity rate, there has been a considerable decline in access and public demand for health services, owing to low purchasing power and an absence of state compulsory medical insurance. The consequences of such practice were severe and caused serious problems in the sphere of Health Care. An increasing gap in the quality of medical care between the rich and the poor ultimately leads to increase of the length of illness and chronic pathology. In spite of the fact that, universal access to high quality and effective medical care should be part of advanced civilized society. Lack of access to effective medical care is likely to lead to excessive morbidity and mortality.

Thus, unlike many other transition countries, social-economic factors have prevented the implementation of medical insurance and generated a decrease in subsidized health services and visits for medical aid. Although there has been a sharp fall in timely referrals to physicians, this does not reflect situation, where population morbidity has been increasing. In Table 9 you can see the morbidity rate has increased according to several nosologies (neoplasm, hypertensive diseases, diabetes, endocrine diseases).

**Table 9. Morbidity of population per 100 000 population \***

	1998	1999	2000	2001	2002	2003	% of total
Number of registered diseases with the diagnosis set for the first time – total of which:	15931.6	17202.6	15620.1	13979.2	16194.5	18838.4	100
Infection and parasitic diseases	1828.9	1814.2	1719.0	1608.1	1754.3	1874.0	9.9
Neoplasms	140.0	145.7	155.9	159.3	190.2	211.7	1.1
Diseases of the endocrin system, digestion disorders, disorders metabolism and immunity	256.2	269.6	250.1	248.1	295.0	279.6	1.5
Blood diseases and other hematogenic disturbances	179.4	164.4	146.4	149.1	188.5	194.3	1.0
Psychic disfunctions	124.4	124.9	125.4	122.1	138.1	150.0	0.8
Nervous system disorders and organs of senses diseases	787.0	772.9	891.3	784.9	1006.0	1123.6	6.0

Blood circulation diseases	504.3	525.9	529.8	522.7	699.3	714.9	3.8
Respiratory organs diseases	7155.0	8061.0	7012.0	6187.4	6990.0	9189.5	48.8
Digestive organs disorders	1201.2	1291.3	1133.0	989.7	1146.0	1094.6	5.8
Urogenital diseases	527.1	504.4	542.6	523.0	670.7	758.0	4.0
Complication of pregnancy, child birth and post-natal period	1003.5	1243.9	1230.9	932.3	1192.7	1363.8	7.2
Skin infection and under skin fat diseases	632.1	602.4	566.5	538.2	562.9	601.2	3.2
Osteo-muscular and connective tissue disorders	188.4	191.1	165.0	155.9	181.6	218.7	1.2
Congenital anomalies (developmental defects)	27.5	31.3	30.2	29.3	36.0	37.2	0.2
Symptoms, signs and inexactly identified states	38.4	44.8	48.3	40.7	50.6	44.0	0.2
Injures and poisonings	2002.6	1974.5	1865.6	1565.8	1854.7	1860.9	9.9

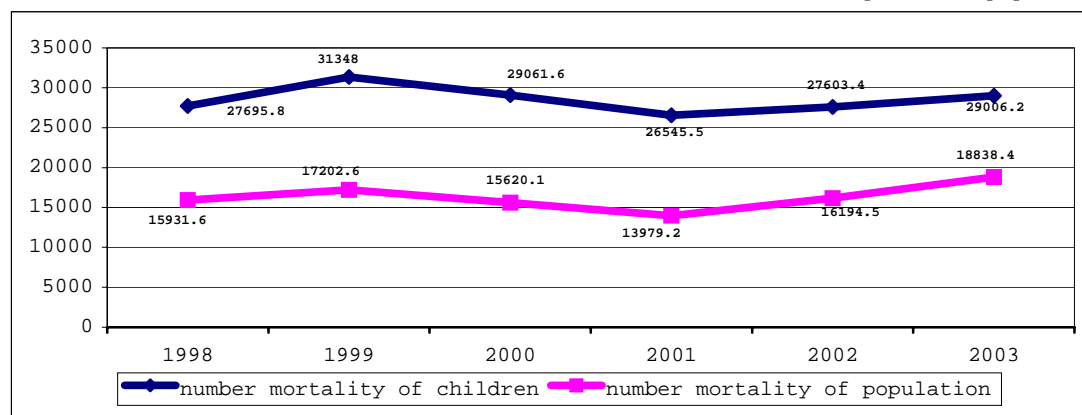
\* Source: Data of National Statistical Service

As you can see in 2003 the morbidity rate has increased according almost by all nosologies (infection and parasitic diseases, neoplasms, nervous system disorders and organs of senses diseases, blood circulation diseases and respiratory organs diseases (especially after 2002), etc.).

At the same time, the number morbidity of population and children at the age of 0 -14 years with the diagnosis set for the first time has increased, especially during 2002-2003. (Figure 12).

**Figures 12. Morbidity of population and children at the age of 0 -14 with the diagnosis set for the first time \***

*per 10 000 population and children*



\* Source: Statistical Yearbook of Armenia, 2003

Meanwhile, the decrease in the number of diseases according to some nosologies can be explained mainly by the decrease in referrals, as population mortality caused by different reasons has not decreased. (Table 10).

**Table 10. Mortality of population by different reasons (1985-2002)\***

<b>Mortality reasons</b>	<b>1985</b>	<b>1985 % of total</b>	<b>1990 %of total</b>	<b>1995 %of total</b>	<b>2000 % of total</b>	<b>2001 % of total</b>	<b>2002</b>	<b>2002 % of total</b>
Number of deaths –total of which – reasons:	19561	100	100	100	100	100	25554	100
Blood circulation diseases	9305	47.6	49.3	54.2	55.00	54.6	14027	54.9
From accidents, poisonings and injures including suicides and murders	1438	7.4	8.9	6.9	4.60	4.6	1071	4.2
Neoplasms	2782	14.2	16.1	14.3	16.50	17.3	4242	16.6
Respiratory diseases	2631	13.4	8.1	6.4	5.80	5.1	1462	5.7
Digestive diseases	715	3.6	3.3	3.6	3.30	3.7	1009	3.9
Infection and parasitic diseases	525	2.7	2.1	1.4	1.20	1.0	251	1.0
Other	2165	11.0	12	13.6	13.60	13.7	3492	13.7

*\*(On the basis of NSS and of death certificates received from the CSAR local departments)*

In 2000 with comparison to 1985 there was an increase in death cases attributed to blood circulation diseases and neoplasms, but there was a slight decrease in mortality cases due to accidents poisonings and injuries, respiratory diseases, infection and parasitic diseases. However in 2002 with comparison to 2001 there was an increase in death cases attributed to respiratory diseases, blood circulation diseases, digestive diseases, but there was a slight decrease in mortality cases due to neoplasms, accidents, poisonings and injuries. In 2002 deaths from cardiovascular diseases have increased to 55% of total deaths.

The crisis in the health care sector reflected on the health condition of the entire population, particularly on working age men. During the time period from 1990 to 2002, the absolute number of deaths among the men aged 40-49 increased by 42%. The main causes of deaths are cardiological diseases and neoplasms. High mortality rates of men in this age group lead to the risk of poverty and orphanhood of children.

The increased number of cases of tuberculosis is another indicator of low living standards. During the period from 1990 to 2002, the number of registered new cases of active tuberculosis - a disease virtually unknown in pre-transition Armenia - growing at particularly alarming rates (increased 2.8 times and the total number of registered patients with tuberculosis increased twice). The Government of Germany implements two health grant projects in the RA Health Sector. One of them “Fighting against TB”, which is one of the components of the German project “Caucasian Initiative” it aims at improvement of TB control in the three countries in Caucasus. The German organization GTZ implements the technical part of the project. In 2002 and 2003 anti TB medications were obtained by German Financial Cooperation with Armenia Sub regional Program within the “National TB Control” project.<sup>63</sup>

To provide support to the poor, the government created a program called Basic Benefit Package (BBP), which identified health services that should be provided without charge to a list of vulnerable groups or categories, such as, disabled, orphans under 18, veterans and families of war victims, families with more than three children, and children under 18 with one parent etc, although funding has usually fallen short of targets, thus requiring patient co-payments even in the case of these targeted groups. The result was that between 1996 and 1999 the free of charge health care provided by the government wasn't able to prevent 21% drop in the health care utilization rate among the largest vulnerable group, families with four or more children. Therefore, even the accessibility of the most essential services has become a

<sup>63</sup> Social Snapshot and poverty in the Republic of Armenia, NSS, 2001.

very serious problem mainly for socially vulnerable groups in the population. Members of the vulnerable groups, in principle, were allowed to get free health care at hospitals, while the rest of the public paid fees, except for treatment of emergency cases and diseases of social significance, like Sexually Transmitted Diseases, STDs, tuberculosis and malaria. Basic health services at polyclinics were and still are free for everyone, poor and non-poor, while the lab tests are for fee for those not included in the BBP. Since of January 2001, the Government of Armenia extended the free of charge BBP program eligibility to the beneficiaries of the poverty family benefit system. On behalf of the poor, the State Health Agency makes payments to the hospitals and polyclinics. However the amount of payments by the State Health Agency to the health institutions covers about 45% of the cost of the health services.<sup>64</sup>

The document “National Policy on Population Health Protection of RA,” adopted by RA Ministry of Health, states that the level of access, fairness and equality in health is insufficient in Armenia and the government intends to raise the access to health care for the poor and vulnerable groups only by 2004-2009.<sup>65</sup>

Additionally, in order to improve health care in Armenia, one of the priorities of the government’s health policy is to increase public funds allocated to the health sector. As envisaged in the Poverty Reduction Strategy adopted by the government, for the period of 2004-2015 the public expenditures will display growth, with an average of 14% per annum. In 2015, compared to 2003, public expenditures in the health sector as a percentage of the GDP will increase by 1.1 percentage points to reach the program target of 2.5% of GDP in 2015 (Table 11.) The main sources of such growth in public expenditures in the health sector will be the collection of revenues from domestic sources and projects financed from foreign sources.

**Table 11. Program indicators of state budget expenditures in the health sector\***

	2004	2005	2006	2009	2012	2015
Total, in million US Dollars	45.3	56.0	64.5	95.8	133.3	183.8
% of GDP	1.5	1.8	1.9	2.1	2.3	2.5
% of state budget expenditures	7.6	8.6	9.2	10.2	10.9	11.9
Year-on-year % change	18.6	23.5	15.4	12.4	11.5	11.2

\*Source: Ministry of Finance and Economy, NSS

### 2.3. Mortality Indicators and Income Distribution

It is well known that the network of health care services is well developed especially in Yerevan. In condition of over-saturation of physicians and paramedical personnel (medium - level medical personnel) as well as various health care institutions, the index of mortality of Yerevan population does not decrease. Moreover, the deterioration of indicators both in Yerevan and in the whole republic overlap with the hardest years socio-economic crisis. This kind of connection has been noticed for many times in different levels of state administration; however, up to now scientific research has not been conducted to prove this connection. For this reason, our efforts are directed not only towards Yerevan population socio-hygienic research but also towards detection of statistically approve correlation between general mortality and main macroeconomic indicators of country economy. Such an approach will play an important role for presenting the relationship between population health and socio-economic conditions through the index of the evaluation of life quality changes.

Similar research has been conducted in different countries having various levels of economy development.<sup>66</sup> Thus in similar research the most commonly used macroeconomic index is the Gini

<sup>64</sup> Ter-Grigoryan A. Financing of the Health Care System in the Republic of Armenia. Yerevan, 2001.

<sup>65</sup> National Policy on Population Health Protection of RA, Document Ministry of Health RA, N502, 02.08.2002.

<sup>66</sup> Rodgers, “Income inequality as Determinants of Mortality”, Population Studies. 33(2),343-351,1979.  
Wilkinson, “Income Distribution and Life Expectancy”, British Medical Journal, 304, 165-168,1992.

coefficient, indicates the GDP distribution according to population decile and quintile groups.<sup>67</sup> It is proven that the income distribution has a direct impact on not only on mortality indicators of 10% poor part of population, but also affects the general mortality indicators of the low income population belonging to 7-8 decile group. This means that in condition of equal distribution of the GDP about 70% of population life expectancy will rise in spite of people's income, educational level, social status, etc.<sup>68</sup>

As well known that the Gini is calculated by comparing the area under the diagonal with the area under the actual income distribution, called the Lorenz curve. For creating the Lorenz curve in 1996-2000 expressing the income distribution the RA Statistical service with the financial and expertise support of World Bank a household research has been conducted.<sup>69</sup> A sharp polarization of GDP distribution has been observed during the last ten years among world population (especially urban).

As above mentioned, according to experts' evaluation, in the former Soviet Union if during 1985-1990 the Gini coefficient expressing the GDP distribution grew from 0.26 to 0.42, then in during 1991-2000 the shift noticed in Armenia made 0.42-0.59. According to the evaluations the main change took place during 1991-1993, when a 60% decrease of gross revenue was noticed, and the economic increase of the next 7-8 years, which in total makes 40%, didn't bring essential improvement of income distribution.

We made use of methods of statistical analysis, especially the method of correlation in order to find out the degree of influence of linear connection between general mortality indicators and Gini coefficient. Taking into consideration that the analyzed indicators have quantitative character, Pearson's correlation has been used; moreover, as an independent variable Gini's index has been studied, and as a dependent – the general mortality index. In the course of the conducted research it turned out that during the probability (p) limit of 0.05 the correlation index (r) makes 0.577. The error of the probability limit index in condition of 0.001 makes 0.031. The received results allow us to insist that there is a statistically approves direct linear correlation between the index of population general mortality of Yerevan and the Gini coefficient expressing the income distribution in the republic. The power of this connection, according to the correlation index, is the average degree.

While comparing these two most important indicators separate indicators influencing each individual's life quality are not taken into consideration. The impact assessment of the latter on the individual is not a feasible problem, as even in condition of their monotonous hypothetic time-period their quantity, intension and influence, the influence on the individual greatly depends on different factors characterizing the individual: level of education, social status, psychological and sensible structure, common and ethical customs, etc. The research on the correlative connection between the general mortality index of population and Gini coefficient allows to observe the dependence of social health not only from the degree of social and economic development, but also from income distribution among the society.<sup>70</sup> Therefore, the income distribution among the members of the society together with the incontrovertible importance of economic growth of the country play a great role for social health and expected life duration. On the other hand, it is known that the contribution of the state in the field of health care has a direct impact on the economic growth of the country.<sup>71</sup> It is important to note, that this not only aims at improving the population health but also is the main objective for economic development of the country, which is reflected in the "Millennium Development Objectives" document adopted by the world political leaders in September of 2000 in the United Nations. Health care system is only one of the multitude branches that are meant to realize the goals. However, it cannot and doesn't have the right to take the responsibility of society health alone. Different risen problems need to be solved in the sphere of

---

Kennedy, Kawachi, and Prothrow-Stith, "Income Distribution and Mortality", *British Medical Journal*, 312, 1253, 1996.

<sup>67</sup> Growth with Equity, Economic Development and Research Center, Yerevan, 2002.

<sup>68</sup> Ravallion, M., and S. Chen, 1997, "What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty?" *World Bank Economic Review*, Vol. 11, No. 2, May, pp. 357-382.

<sup>69</sup> World Bank Armenia Poverty Update. Report No. 24339-AM. Washington D.C., 2002.

<sup>70</sup> Lynch, Kaplan, Pamuk, Cohen, Balfour and Yen, "Income Inequality and Mortality in Metropolitan Areas of the United States", *American Journal of Public Health*, 88, 1074-1080, 1998.

<sup>71</sup> Macroeconomics and Health, presented by D.Sachs, WHO, Geneva, 2001.

public health with the help of state developed general long-lasting policy and contributive programs outgoing from it.

### **Conclusion**

The main conclusion of this paper is that the policy implication that government should seek, and expect to find, many measures which simultaneously improve the income distribution among the members of the society together with the incontrovertible importance of the rate of economic growth of the country. As economic growth, more equal income distribution, higher targeted government spending, and good governance have a statistically significant impact on reducing poverty and inequality, as well as, play a great role for social health and expected life duration.

However, the main source of poverty and inequality reduction should be only pro-poor economic growth and targeted distribution and re-distribution of income (the high level of inequality appears to be caused by the extreme concentration of incomes in the top decile of Armenian households), for e.g. by increasing the low level of public transfers or reallocation of public expenditure in favour of health. As it is well known that the contribution of the state in the field of health care, in its turn, has a direct impact on the economic growth of the country. There considerable evidence that the higher is government expenditure as a percentage of GDP is, the lower is the Gini coefficient of the distribution of income.

The success of reforms applied in health care system in Armenia is often evaluated against improvements in the health status of the population. Although one of the primary aims of the reforms has been to bring tangible health benefits to the whole population, their results so far do not meet all the main objectives of national health care policy.

The accessibility of health care has clearly suffered. Visits to health institutions have sharply declined at a time of increased morbidity, due to inaccessibility of such services for most of the population and the poor in particular.

Along with the decrease of government's possibilities to socially protect the population an active development of shadow market of paid medical services has been observed. Therefore, methods of redirecting resources, currently diverted to the informal economy, to the health care sector need to be examined.

Some slight improvements in certain areas mainly depend on the stabilization of the economy and its sustained growth, which will allow generating additional funding for health care system. The continuity of positive developments of economy along with targeted distribution and re-distribution of income would improve the quality and availability of health services in Armenia and provide a better opportunity to the poor to get adequate health care.

It should be mentioned that too little is known about the relative importance of inequalities in the determinants of health and health service utilization. Inequalities in health, and most probably in service utilization, very largely reflect inequalities in variables at the individual and household levels. This indicates that policies aimed at combating health sector inequalities should aim to reduce both inequalities in, for example, the quality and availability of health services (i.e. the supply side), and inequalities in income, knowledge, especially health-specific knowledge, accessibility of health services, the availability of safe drinking-water, and sanitation, and so on (i.e. the demand side).

Health ministries should work more closely with other ministries, but should also take a wider view, e.g. exploring alternative delivery methods to reach the poor and finding improved ways of increasing knowledge among the poor about healthy behaviour.

Moreover, too little is known about the impact of programmes and policies on health sector inequalities. There is undoubtedly a large gap in our knowledge on how best to reach the poor in the health sector. In order to fill this gap, more work is needed along the lines of the above studies related to health sector inequalities and public policy.

There is necessity to encourage the development of insurance companies, pension funds, and funds for public health care education, which have not yet been properly undertaken.

## References

- A Decade of Transition*, UNICEF, Regional monitoring report, No. 8 – 2001.
- An analytical framework for the study of child survival in developing countries*. Population and Development Review, 1984.
- Acheson D.*, Independent inquiry into inequalities in health. Report. London, Stationery Office, 1998.
- Ainsworth M, Nyamete A.* Quality of medical care and choice of medical treatment in Kenya: an empirical analysis. *Journal of Human Resources* 1993.
- Akin J, Hutchinson P.* Health care facility choice and the phenomenon of bypassing. *Health Policy and Planning*, 1999.
- Alberts J.F., Sanderman R., Eimers M, Heuvel, Wim J. A. Van Den.* Socioeconomic inequity in health care: a study of services utilization in Curaçao. *Social Science and Medicine*, 1997, vol. 45, n. 2.
- Alderman H, Lavy V.* Household responses to public health services: cost and quality tradeoffs. *World Bank Research Observer*, 1996.
- Atkinson, Anthony B.*, “On the measurement of inequality,” *Journal of Economic Theory*, 1970.
- Baum F.*, *Health, equity, justice and globalisation: some lessons from the People’s Health Assembly*, NY, 2001.
- Baker J, van der Gaag J.* Equity in health care and health care financing: Evidence from five developing countries, Oxford: Oxford University Press; 1993.
- Benefo K, Schultz T.* Fertility and child mortality in and Ghana. *World Bank Economic Review* 1996.
- Benzeval, M., Judge, K., & Whitehead, M.*, Tackling inequalities in health: An agenda for action. London: Kings Fund, 1995.
- Blaxter M.* A comparison of measures of inequality in morbidity. In: Fox J, editor. *Health inequalities in European countries*. Aldershot: Gower; 1989.
- Bloom D, Sachs J.* Geography, demography and economic growth in Africa. *Brookings Papers on Economic Activity*, 1998.
- Cameron A.C., Trivedi, P.K, Milne F., Piggotti J.*, A microeconomic Model of the demand for health care and health Insurance in Australia. *Review of Economics Studies*, 1988.
- Cameron, Adrian Colin, Trivedi, Pravin K.* Regression analysis of count data. Cambridge, UK; New York, NY, USA: Cambridge University Press, 1998.
- Campino, Antonio Carlos Coelho et al.* Poverty and Equity in Health in Latin America and Caribbean: Results of Country- Case Studies from Brazil, Ecuador, Guatemala, Jamaica, Mexico e Peru - Brazil. Washington; The World Bank (HNP-Health, Nutrition and Population), PNUD e OPAS, 1999.
- Gerdtham. Ulf-G.* Equity in health care utilization: further tests based on hurdle models and Swedish micro data. *Health Economics*, Chichester: John Wiley vol. 6, n. 3, May - june, 1997.
- Claeson M, Griffin CG, Johnston TA, McLachlan M, Soucat ALB, Wagstaff A,* et al. Health, nutrition and population. In: *Poverty reduction strategy sourcebook*. Washington (DC): World Bank; 2001.
- Crenshaw, E & Ameen, A.* Dimensions of social inequality in the Third World Population Research and Policy Review, 1993.
- Dahlgren G.* European Health Policy Conference: opportunities for the future. Volume II - Intersectoral action for health. Copenhagen, WHO Regional Office for Europe, 1995.
- Deaton A.* Inequalities in income and inequalities in health, Research Program in Development Studies Princeton University, 1999.
- Doorslaer, Eddy van, Wagstaff, Adam.* Equity in the delivery of health care: some international comparisons. *Journal of health Economics*, North Holland, vol. 11, 1992.
- Eastwood R, Lipton M.* The impact of changes in human fertility on poverty. *Journal of Development Studies*, 1999.
- Evans, R. G., M. L. Barer and T. R. Marmor,* Why are some people healthy and others not? New York, Aldine de Gruyter, 1994.

*Flegg A.T.* Inequality of income, illiteracy and medical care as determinants of infant mortality in underdeveloped countries, *Population Studies*, 1982.

*Gilson L.* The lessons of user fee experience in Africa. *Health Policy and Planning* 12, 1997.

*Golden, A.* Taking responsibility for homelessness: An action plan for Toronto. Toronto: City of Toronto, 1999.

*Growth with Equity*, Economic Development and Research Center, Yerevan, 2002.

*Gertler P, Sturm R.* Private health insurance and public expenditures in Jamaica. *Journal of Econometrics* 1997.

*Health Care in Transition*, Armenia Hit Summary, WHO, Copenhagen, Denmark, 2002.

*Human Development Report*, Armenia 2000, Yerevan, 2001.

*Kazarian I*, Developing National Drug Policy in Armenia, 2002, <http://www.policy.hu/kazaryan/project.html>

*Kawachi, I., Kennedy, B. O., & Wilkinson, R. G.* The society and population health reader. Volume I: Income inequality and health. New York, The New Press, 1999.

*Kennedy, Kawachi, and Prothrow-Stith*, "Income Distribution and Mortality", *British Medical Journal*, 312, 1253, 1996.

*Kunst AE, Geurts JJ, van den Berg J.* International variation in socioeconomic inequalities in self reported health. *Journal of epidemiology and Community Health*, 1995.

*Lavy V, Strauss J, Thomas D, de Vreyer P.* Quality of care, survival and health outcomes in Ghana. *Journal of Health Economics*, 1996.

*Laurie Garret*, *Betrayal of trust: the collapse of Public Health*, NY, 2000.

*Le Grand, Julian.* The distribution of public expenditure: the case of health care. *Economica*, v.45, 1978.

*Leighton C, Diop F.* Protection of the poor under cost recovery. Bethesda (MD): Abt Associates; 1999.

*Lessard R.*, Social inequalities in health: Annual report of the health of the population. Montreal, 1997.

*Lewis, Maureen*, Who is Paying for Health Care in Eastern Europe and Central Asia? Human Development Sector Unit, World Bank, Washington, D.C., 2000.

*Lynch, Kaplan, Pamuk, Cohen, Balfour and Yen*, "Income Inequality and Mortality in Metropolitan Areas of the United States", *American Journal of Public Health*, 88, 1074-1080, 1998.

*Marmot, M. G.* Social inequalities in mortality: The social environment. In *Class and health: Research and longitudinal data*. Edited by R.G. Wilkinson. Tavistock, London, 1986.

*Marmot M, Wilkinson R.G.* Social determinants of health. New York, Oxford University Press, 1999.

*Mosley W, and Chen L. Schultz T.* Studying the impact of household economic and community variables on child mortality. *Population and Development Review*, 1984.

*Narayan D, Patel R, Schafft K, Rademacher A, Koch-Schulte S.* Voices of the poor: can anyone hear us? New York: Oxford University Press; 2000.

*National Policy on Population Health Protection of RA*, Document Ministry of Health RA, N502, 02.08.2002

*Pantazis, C. & Gordon, D.*, Tackling inequalities: Where are we now and what can be done? Bristol UK: Policy Press, 2000.

*Panis C, Lillard L.* Health inputs and child mortality. *Journal of Health Economics*, 1994.

*Penguin*, 1992. On-line at: <http://www.official-documents.co.uk/document/doh/ih/contents.htm>

*Poverty Indicators*, EDRC, Economic Policy and Poverty Periodical, N 1, 2004.

*Pritchett L, Summers LH.* Wealthier is healthier. *Journal of Human Resources*, 1996.

*Ravallion, M., and S. Chen*, "What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty?" *World Bank Economic Review*, Vol. 11, No. 2, 1997.

*Republic of Armenia: Poverty Reduction Strategy Paper*, IMF, Washington, D.C., 2003.

*Rodgers*, "Income inequality as Determinants of Mortality", *Population Studies*, 33(2), 343-351, 1979.

*Rosenzweig M, Wolpin K.* Governmental interventions and household behavior in a developing country: anticipating the unanticipated consequences of social programs. *Journal of Development Economics*, 1982.

*Ross, D. P. & Roberts, P.* Income and child well-being: A new perspective on the poverty debate. Ottawa: Canadian Council on Social Development, 1999. On-line at: <http://www.ccsd.ca/pubs/inckids/es.htm>



*Sachs D.*, *Macroeconomics and Health*, WHO, Geneva, 2001

*Schwartz J, Akin J, Popkin B.* Price and income elasticities of demand for modern health care: the case of infant delivery in the Philippines, *World Bank Economic Review*, 1988.

*Sen, Amartya K.*, *On economic inequality*, Oxford. Clarendon Press 1973.

*Sen, Amartya K.*, 1992, *Inequality reexamined*, Harvard University Press, Cambridge, Massachusetts, 1992.

*Shaw, M., Dorling, D., Gordon, D. & Davey Smith, G.* *The widening gap: health inequalities and policy in Britain*. Bristol UK: The Policy Press, 1999.

*Social Snapshot and poverty in the Republic of Armenia*, NSS, 2001.

*Sram, I. & Ashton, J.* Millennium report to Sir Edwin Chadwick. *British Medical Journal*, (1998), pp. 317, 592-596. On line at: <http://www.bmj.com>

*Tarasuk, V. & Woolcott, L.* Food acquisition practices of homeless adults: Insights from a health promotion project. *Journal of the Canadian Dietetic Association*, 1994.

*Ter-Grigoryan A.* *Financing of the Health Care System in the Republic of Armenia*. Yerevan, 2001.

*Thomas D, Lavy V, Strauss D.* Public policy and anthropometric outcomes in the Côte d'Ivoire. *Journal of Public Economics*, 1996.

*Townsend M.*, *Health and wealth: How social and economic factors affect our well-being*, 1999.

*Townsend P.*, *The international analysis of poverty*. Milton Keynes: Harvester Wheatsheaf, 1993.

*Townsend P., Davidson. N. & Whitehead. M.* *Inequalities in health: The Black report and the Health Divide*. NY: Penguin, 1992.

*Travers, K. D.* *The social organization of nutritional inequities*. *Social Science and Medicine*, 1996.

*Underlying and proximate determinants of child health: The Cebu longitudinal health and nutrition study*. Cebu Study Team. *American Journal of Epidemiology*, 1991.

*Van Doorslaer E, Wagstaff A, Rutten F*, editors. *Equity in the finance and delivery of health care: an international perspective*. Oxford: Oxford University Press; 1993.

*Van Doorslaer E, Wagstaff A, Bleichrodt H, Caonge S, Gerdtam U-G, Gerfin M*, et al. Income-related inequalities in health: some International comparisons. *Journal of Health Economics*, 1997.

*Wagstaff A.* *Poverty and health*. Boston (MA): WHO Commission on Macroeconomics and Health; 2001. CMH Working Group No.1, Working Paper No. 5. URL: [www.cmhealth.org/wg1\\_paper5.pdf](http://www.cmhealth.org/wg1_paper5.pdf).

*Wagstaff, Adam*, *Causes of inequality in health: who are you? Where do you live? or Who your parents were?* Policy Research Working Paper, 2001.

*Weatherby N. L., Nam, C.B., & Isaac, L.W.* *Development inequality, health care and mortality at the older ages: Across – national analysis*, 1983.

*Wilkinson, R. G.* *Unhealthy societies: The afflictions of inequality*. NY: Routledge, 1996.

*Wilkinson, R. G.* *Income distribution and life expectancy*, *British Medical Journal*, 1992.

*Wilkinson, R., Adams, O., & Brancker, A.* *Changes in mortality by income in urban Canada from 1971 to 1986*. *Health Reports*, 1, 2, 1989.

*Wong E, Popkin B, Guilkey D, Akin J.* *Accessibility, quality of care and prenatal care use in the Philippines* *Social Science and Medicine*, 1987.

*World Bank*, *Armenia: Poverty Assessment*, World Bank Report, Washington D.C., 2003.

*World Bank*, *Armenia Poverty Update*. Report No. 24339-A M. Washington D.C. 2002

*World Bank*. *Confronting AIDS: public priorities in a global epidemic*. Oxford: Oxford University Press; 1999.

*World Bank*, *Swedish International Development Cooperation Agency, Australian Agency for International Development, Royal Netherlands Embassy, Ministry of Health of Viet Nam.* *Growing healthy: a review of Viet Nam's health sector*. Hanoi: World Bank; 2001.

*World Bank*, *World development indicators 2001*. Washington (DC): World Bank; 2001.

*World Bank*, *World development report 2000/2001: Attacking Poverty*. Oxford and New York: Oxford University Press; 2000.

## Recent Discussion Papers

98. Gerloff, Axel: Stabilization during the Early Years of Transition - Some Stylized Facts. March 1999
99. Ahrens, Joachim: Governance, Conditionality and the Transformation of Post-Socialist Countries. April 1999
100. Mohsen, Fadi: Technischer Fortschritt und Humankapitalbildung in der Neuen Wachstumstheorie. September 1999
101. Sieg, Gernot: A political business cycle with boundedly rational agents. March 2000
102. Jarchow, Hans-Joachim: Geldpolitik bei extrapolativen, semirationalen und rationalen Inflationserwartungen. June 2000
103. Georgopoulos, Antonios / Salavrakos, Ioannis-Dionysios: Griechische Joint-Ventures in Ost-Europa - Ein erfolgversprechendes Kooperationsmodell? November 2000
104. Haufler, Andreas / Schjelderup, Guttorm / Stähler, Frank: Commodity Taxation and International Trade in Imperfect Markets. January 2001
105. Barbaro, Salvatore: Gibt es eine Umverteilung von den *Armen* zu den *Reichen* durch die öffentliche Hochschulfinanzierung? Tragen Akademiker die Kosten ihres Studiums? Einige methodologische Anmerkungen zum Forschungsstand über die Verteilungswirkungen der öffentlichen Hochschulfinanzierung in der Bundesrepublik Deutschland. May 2001
106. Krieger, Tim: Intergenerational Redistribution and Labor Mobility: A Survey. May 2001
107. Kalbitzer, Ute: Das Schweigen der Ökonomik. Wissenschaftliche Politikberatung als wirtschaftspolitischer Diskurs. May 2001
108. Haufler, Andreas / Pflüger, Michael: International Commodity Taxation under Monopolistic Competition, June 2001
109. Südekum, Jens: Home Goods and Regional Price Indices: A Perspective from New Economic Geography, July 2001
110. Onozaki, Tamotsu / Sieg, Gernot / Yokoo, Masanori: Stability, Chaos and Multiple Attractors: A Single Agent Makes a Difference, November 2001
111. Rühmann, Peter / Südekum, Jens: Severance Payments and Firm-Specific Human Capital, November 2001
112. Krieger, Tim: Immigration, Public Pensions, and Heterogenous Voters, April 2002
113. Lamsdorff, Johann Graf / Sitki Utku Teksoz: Corrupt Relational Contracting, May 2002
114. Barbaro, Salvatore: The Distributional Impact of Subsidies to Higher Education - Empirical Evidence from Germany, September 2002
115. Sauer, Christoph / Schratzenstaller, Margit: Strategies of international fiscal competition for foreign direct investment in a model with impure public goods, December 2002
116. Barbaro, Salvatore: The Combined Effect of Taxation and Subsidization on Human Capital Investment, January 2003
117. Südekum, Jens: Increasing Returns and Spatial Unemployment Disparities, April 2003
118. Krieger, Tim / Sauer, Christoph: Will Eastern European Migrants Happily Enter the German Pension System after the EU Eastern Enlargement? May 2003
119. Thies Büttner / Robert Schwager: Regionale Verteilungseffekte der Hochschulfinanzierung und ihre Konsequenzen. October 2003
120. Barbaro, Salvatore / Südekum, Jens: Reforming a complicated income-tax system: The political economics perspective. January 2004
121. Barbaro, Salvatore: Tax Distortion, Countervailing Subsidies and Income Redistribution. April 2004

122. Cogneau, Denis / Grimm, Michael: The Measurement of Income Distribution Dynamics when Demographics are correlated with Income. January 2005
123. Grömling, Michael: Konjunkturprognosen - Verfahren, Erfolgskontrolle und Prognosefehler. February 2005
124. Tonoyan, Tamara: Poverty, Inequality and Health: A case study of Armenia. February 2005