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## **ABSTRACT**

### **A Labor Market Approach to the Crisis of Health Care Professionals in Africa**

This paper adopts a labor market economics perspective to understanding the crisis of health care professionals in Africa. Five challenges resulting from this crisis are identified: a production challenge, an underutilization challenge, a distributional challenge, a performance challenge, and a financing challenge. Differences between the labor market approach and others used in the health field are noted. We conclude that more empirical data, a full labor market analysis, and the use of social benefit-cost criteria are all needed before policy recommendations to address any of these challenges can be confidently offered.

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## **I. Introduction**

Drawing on the existing literature on the traditional perspectives on the labor markets for health care professionals (HCP), this chapter poses the existence of at least five challenges associated with the crisis in Africa.<sup>1</sup> These are referred to as the production, underutilization, distribution, performance and financing challenges.

1. There is a production challenge because the number of well-trained health care professionals produced in Africa is below a benchmark of “needs”, as determined by policy objectives.
2. The underutilization challenge exists because not all of those trained as health care professionals in Africa work as health care professionals in Africa. Some of them emigrate, change jobs, remain unemployed or decide to not participate in the labor force (e.g. retire early).
3. The distribution challenge arises because residents of certain regions of the country (most commonly rural residents) or certain groups of population (i.e. the poor) get less than their proportionate share of health service professionals of a given performance level.
4. The performance challenge refers to the fact that the quality of the work performed by health care professionals is suboptimal.
5. There is a financing challenge because the resources for addressing the production, underutilization, performance and/or distribution challenges any time soon vastly exceed the resources available to African countries.

We argue in this chapter that labor market economics enables a better understanding of the functioning of the labor markets for health care professionals in Africa and the

dynamics leading to a specific labor market outcome. That is, labor economics is powerful in explaining why workers are paid what they are, why employers hire as many or as few people as they do, or why the number of health service professionals who are employed is what it is, and not necessarily what is “needed” to meet a given policy objective.

In an attempt to introduce the reader to basic labor market analysis, the chapter briefly discusses how the characteristics of the labor market, the interaction of the labor supply and demand, and the labor market policies in the health sector and in other sectors in Africa and in other countries yield the observed low employment levels in Africa.<sup>2</sup> It also outlines the labor economist’s views on the performance challenge.<sup>3</sup>

This chapter concentrates on the labor markets for health care professionals. Health management and support workers are also important for the success of a health system, but that is not our focus here. Still, health care professionals constitute the majority (two-thirds) of the 59.8 million health workers worldwide (WHO, 2006).

## **II. The Five Challenges Associated with the Health Worker Crisis in Africa**

One key challenge that policy makers in African countries face is to ensure that there are enough human resources to deliver a certain health care service delivery objective. The required numbers of health care professionals needed for these purposes is referred to as the benchmark of needs, which is commonly derived from the needs-based approach (see, for example, Chapter 2 Scheffler and Fulton). Despite the fact that countries are advised to set own benchmarks following nation-specific health care policy objectives, cross-country comparisons are often based on a benchmark of 2.28 well-trained health

care professionals including doctors, nurses, and others in one single figure. 2.28 is the number of health care professionals per 1000 population that is estimated to be necessary to achieve 80 percent coverage of deliveries by skilled birth attendants, a health intervention that is clearly associated with the achievement of the Millennium Development Goals (WHO, 2006).<sup>4</sup>

The number of HCP working as HCP falls short of the WHO benchmark of needs in 36 of the 46 African countries. Of all African countries, only Gambia, Mauritius, Seychelles, and South Africa have 3.9 or more HCP per 1,000 inhabitants. Table 1 shows that the number of health care professionals per 1,000 population working in both the public and private sectors in Ghana, Zambia and Nigeria is lower than 2 and that the density of HCP in many other countries is actually less than 1. There are 1.9 HCP per 1,000 inhabitants in the whole African region. In comparison, the density in the American continent is 14.21.

Table 1: Number and Density of Health Service Professionals per 1000 Population For Selected African Countries

<b>Countries</b>	<b>Number</b>	<b>Physicians Density per 1000 population</b>	<b>Number</b>	<b>Nurses Density per 1000 population</b>	<b>Year</b>	<b>Total Density per 1000 population</b>
Ethiopia	1,936	0.03	14,893	0.21	2003	0.24
Ghana	3,240	0.15	19,707	0.92	2004	1.07
Nigeria	34,923	0.28	210,306	1.70	2003	1.98
Tanzania	822	0.02	13,292	0.37	2002	0.39
Uganda	2,209	0.08	16,221	0.61	2004	0.69
Zambia	1,264	0.12	19,014	1.74	2004	1.86
Rwanda	227	0.03	4,344	0.48	2005	0.51

Source: Ministry of Health (MOH) Ethiopia (2007, p. 11). The numbers for Rwanda are calculated based on Herbst (2007, Annex Table 4).

Based on Africa's current population, meeting a target of 2.3 health care professionals per 1,000 population would require a 139% increase of health service professionals

working in the field from about 600 thousand to 1,400 thousand (WHO, 2006). This huge gap between the observed level of employment in African countries and the benchmark of needs, which we name a shortfall of health care professionals, can be explained in part by not enough health workers being produced as well as by less than full utilization of those that have been produced. We discuss these two challenges in turn.

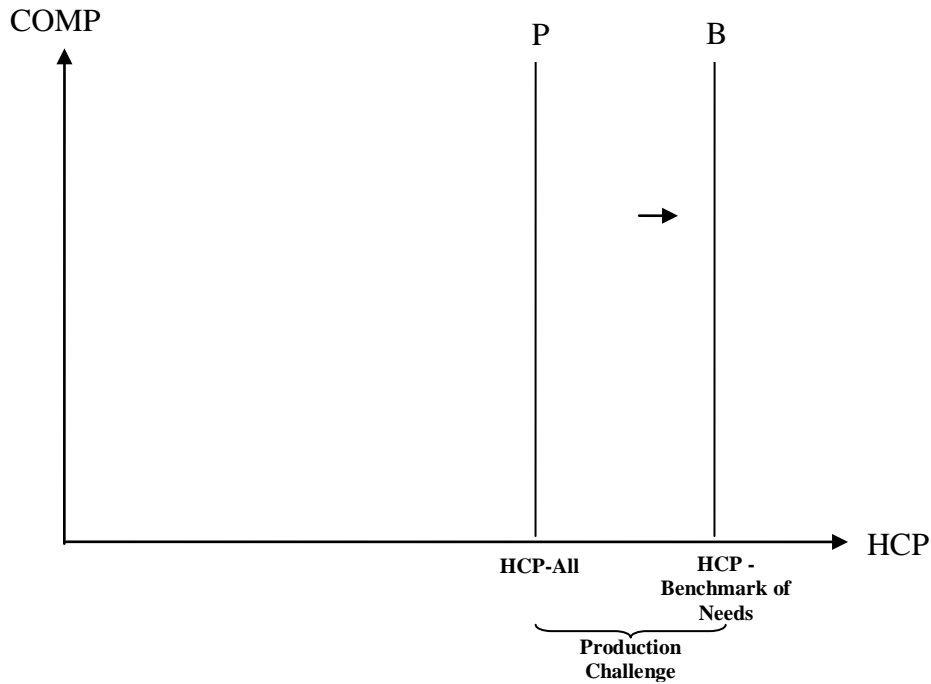
### **1. The Production Challenge**

The production challenge arises because there is a deficiency of Africans who have been trained as health service professionals relative to a benchmark of needs (see Chapter 16 Tulenko and Neusy). Data on the total number of health care professionals trained in Africa is not readily available in most African countries. Still, based on the available information, the best available estimates suggest that the total prospective quantity of health care professionals in Africa - the number of health workers who have been trained in Africa - is below the benchmark of needs. Hence, even if African countries could devote whatever resources were needed to recruit all of their health care professionals who are not now working in the health field in the country it would still be necessary to train a substantial number of additional professionals to reach the WHO benchmark.

Figure 1 gives a graphical description of the production challenge in a national labor market for health care professionals of a given African country, which, for the sake of concreteness, we will call AFR. Since we plot the monthly real compensation level (y-axis) as a function of the density of health care professionals (x-axis) the WHO benchmark is the vertical line B (i.e. the density of HCP needed to achieve a particular health intervention is independent of the compensation level). The total prospective

quantity of HCP is also a vertical line, in this case represented by P. The horizontal difference between the number of trained HCP, denoted by HCP-ALL and the benchmark of needs represents the production challenge.

Figure 1: The production challenge



Scaling up the training of health care professionals in educational institutions would undoubtedly ameliorate the production challenge. That would be reflected by a shift of the P line towards the benchmark of needs in Figure 1. As a result, the total prospective quantity of workers will be increased. However, whether or not these newly trained HCP end up working in their field in Africa would depend on the labor market conditions for health care professionals there and elsewhere. We discuss this in turn.



## **2. The Underutilization Challenge**

The difference between the number of health care professionals who are trained as HCP in Africa and the number who are actually working in the field – the employment level - is referred to as an underutilization challenge.

In areas of conflict or with high rates of HIV/AIDS some of the trained health service professionals do not work as HCP because they die prematurely. Available information for Lesotho and Malawi indicates that 2.4 percent of the medical doctors are lost each year due to premature mortality (Tawfik and Kinoti, 2006). The impact of HIV on health workers, however, might have peaked in the early years of the epidemic as health workers are increasingly informed, and prevention measures as well as treatment are increasingly available.

Some of the health professionals trained in Africa are not working in that region because they have chosen to work as HCP in other countries (see Chapter 9 Ozden and Sewadeh). One study reported that, in 2004, almost one fourth of the total number of African-trained physicians were working as physicians in OECD countries (Bhargava and Docquier, 2008). Another study found that one-fifth of African-born physicians and one-tenth of African-born nurses were working in developed countries (Clemens and Pettersson, 2008). 34 percent of Zimbabwe's trained nurses are living abroad (WHO, 2006). Dovlo and Nyonator (1999) estimated that more than 60 percent of the doctors trained in Ghana between 1982 and 1994 emigrated to work in other countries, primarily the UK and US. To the extent that HCP are free to sell their labor services to any employer, the fact that some African workers have chosen to work as HCP outside Africa

suggests that the labor market conditions in other countries, at least for these workers, are more beneficial than those in Africa.

It is also often argued that significant numbers of the HCP trained in Africa are unemployed. Although the available evidence does not allow us determine whether this is indeed the case, we have our doubts. To labor economists, a health care worker would be considered to be unemployed if he or she does not have a job and is actively looking for one. By this definition those persons who are not working in one particular sector (private sector, public sector, not-for-profit sector) but who are working in another are counted as employed, not unemployed. Unemployment is unlikely to be a salient problem in Rwanda, where the government argues that “finding suitable staff to fill available posts [is] difficult” (Sy et al., 2008), or Malawi, where over 64 percent of the nurse posts are vacant (Government of Malawi, 2005). To the extent that there is unemployment, it is necessary to diagnose its dimension, the type of unemployment and its causes (For further discussion on this, see Appendix 1).

It is also mentioned that some of the HCP work in non-health sectors or retire early. One cannot discard the notion that the current conditions in African labor markets might have prompted some individuals to do so. However, quality data on the numbers and location of well-trained health care professionals who have left the African health sector over the years and have not returned is not available, which makes it difficult to calculate the dimension of the underutilization challenge and the number of workers who could, at least in principle, be recruited from other places.

In this section we have discussed how the labor market conditions in Africa and elsewhere affect the labor market decisions of trained health care professionals (e.g.

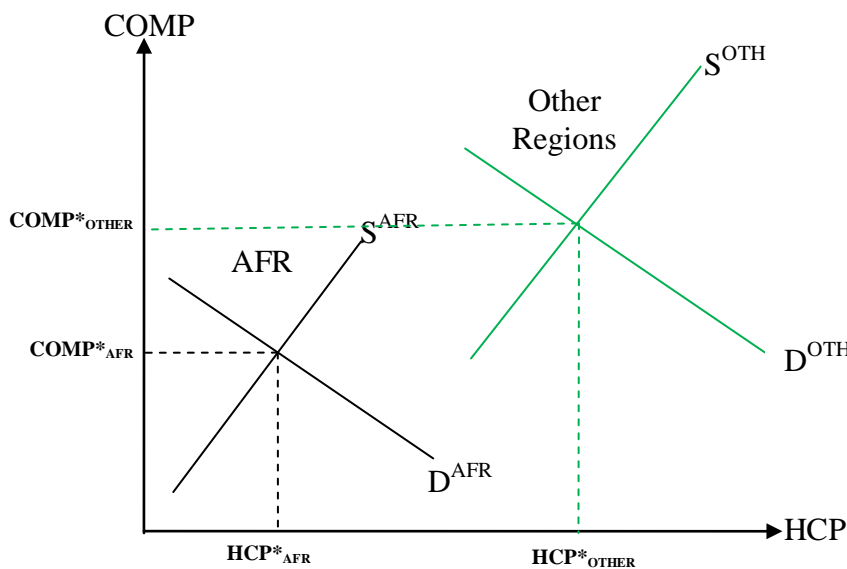
whether to work or not, where to work etc.), which ultimately determine the quantity supplied of labor services at each level of compensation. As discussed in box 1, the determinants of the supply and demand for labor services determine the labor outcome we observe in Africa and consequently the size of the underutilization of HCP.

**Box 1. Labor Markets Outcomes in Africa and Other Regions**

The number of HCP working in Africa, which economists call the employment level, and the compensation that prevails in the market, are the result of the labor market policies in the health sector in Africa, in other sectors of the region and in other countries, and labor market functioning. Appendix 1 provides a short description of ten basic concepts that are key to understanding the functioning of the health care professionals’ labor markets in Africa. Data on wages and salaries and other components of the compensation package for HCP can be found in McCoy et al. (2008).

Figure 2 illustrates how the labor market characteristics in different countries can lead to different employment and compensation levels. Curve  $S^{AFR}$  in this figure depicts a labor supply curve in AFR. It expresses the number of people willing to work as health care professionals in AFR as a function of the monthly compensation, holding everything else constant. The supply curve is upward-sloping because the number of people wanting to work as health care professionals in AFR increases as the level of real compensation rises. Factors other than compensation, such as the conditions in other labor markets, affect the position of the labor supply curve.

Figure 2: Labor Markets of Health Care Professionals in Africa and Other Regions



Curve  $D^{AFR}$  in Figure 2 depicts a labor demand curve. It expresses the number of people employers want to hire as a function of the real compensation paid to each worker, holding everything else constant. One reason that Curve D is downward-sloping is that if the budget is relatively fixed the ability of employers to hire more people decreases as real compensation increases. Factors other than compensation, such as non-monetary and other aspects of the job affect the position of the labor demand curve.

Because we assume that the market equilibrating forces are free to operate, in equilibrium, the number of HCP that are currently working as HCP in AFR is represented by  $HCP^{AFR}$  and the corresponding compensation level by  $COMP^{AFR}$ . If the market equilibrating forces were not all free to operate – for example, because the public sector is relatively large in Africa and public sector salaries are often set in a way that does not necessarily take market levels into account – an even richer story would be required to get the whole picture.

Figure 2 also shows that AFR ends up with fewer health care professionals (and consequently less health care) than others elsewhere in the world are able to obtain. A labor economics explanation for this result relies on the fact that Africa is very poor. On the one hand, Africa's poverty makes her unable to provide effective demand for health services: at any given compensation level, fewer health care professionals are demanded than would be demanded if Africa were richer. Therefore, the demand for health care professionals in Africa lies to the left of that in other countries. On the other hand, because African countries lack the means to train many health care professionals, at any given compensation level, fewer health care professionals are available to work in Africa than would be supplied if Africa were richer. Hence, the supply of HCP in AFR lies to the left of the supply of HCP in other countries. As a consequence, Africa ends up with fewer health care professionals per capita than do other richer regions.

### **3. The Distribution Challenge**

Even though the density of health service professionals in some African countries might be close to or even exceed the needs benchmark, there are shortfalls for certain groups. That is, some groups get less than their proportionate share of the available services or resources. This is what we call a distribution challenge. On the supply side, there may be a shortfall for certain population groups because of the desires of HCP to work in particular areas or serve particular types of patients. On the demand side, a shortfall may arise for those population groups that lack purchasing power compared with others. Although our discussion below revolves around the rural-urban dimension (see

also Chapter 8 Lemière et al.), there are other relevant distribution groupings as well such as region, tribe, gender, income, sector (public/private for-profit/ private not-for-profit or a mix of these), public health versus clinical care, treatment of high-risk versus other diseases, and differential health care needs.

On the rural-urban distribution challenge in Africa, one finds a great deal of academic and policy attention in the literature. In 2004, about 20 percent of the total Ethiopian doctors in the public sector were working in Addis Ababa, home to about 5 percent of the population (Hanson and Jack, 2010). In 2006, only 17 percent of the public sector health workers in Rwanda worked in rural areas despite the fact that more than 80 percent of the population live in those areas (Ministry of Health, 2006). In Zambia the density of workers in both rural and urban areas is below the benchmark of needs, but in urban Zambia the density (1.71) is much higher than in rural Zambia (0.77) (Herbst and Gijssbrechts, 2007).<sup>5</sup>

Reluctance to work in rural areas is related to both personal characteristics and wages and other job attributes. Health workers seem to be more likely to accept employment where they were born and raised. In Ethiopia, residents of the capital city prefer to work in urban areas (Serneels et al., 2008). Health workers with altruistic motivations, such as those trained in faith based schools or those expressing willingness to work for the poor, are more willing to move from urban to rural areas for less money or to stay in rural areas (Serneels et al., 2007; Serneels et al., 2010).

Health workers' location decisions are also influenced by wages, other job attributes and location-specific factors. In Rwanda, for example, health care professionals consider salaries and benefits (e.g. housing and access to health care), a whole range of job

attributes (such as access to training, chances of promotion, and opportunities for holding a second job), and location-specific factors such as access to good schools for their children and access to infrastructure like electricity, water, quality housing, food markets, roads and transport (Serneels and Lievens, 2008).

Building upon the evidence on the factors that are relevant for workers when making their location decisions, the methodology of contingent valuation has enabled the design of incentive schemes aiming to attract or retain workers in disadvantaged areas. The schemes are based on the compensation levels that HCP have reported to be willing to accept to stay in or move to rural areas (Hanson and Jack, 2010). For example, an incentive of US\$1000 has been offered to people who agree to move to rural areas in Liberia (Walsh, 2007). Other countries including Ghana, Malawi, Zambia, Mali, Cameroon, and Burkina Faso have launched workforce strategies to improve compensation packages so that more people will want to work in rural areas (GHWA, 2006).

#### **4. The Performance Challenge**

The performance of health care professionals in African countries is judged to be unsatisfactory in a number of dimensions. First, health care professionals are inefficient because they produce fewer health services than what they could potentially produce given their skills and knowledge and the infrastructure available (see Chapter 4 Leonard et al.). Second, the quality of the health services they produce is low compared to the medical protocols that should be followed based on the type of interventions needed by the population being served (see Chapter 12 Mæstad and Mwisongo). And third, the

behavior of health care professionals is inadequate either because they have poor attitudes towards patients (see Chapter 14 Leonard et al.), or because they engage in corruption and embezzlement.

One explanation that has been advanced to explain the low quality –and also quantity– of health services produced by health care professionals is that they do not have the means to do their jobs in terms of both equipment (e.g., hospitals or medicines) and other health support systems (e.g. health management and support workers or information systems) (Dieleman and Harnmeijer, 2006). In Uganda for example, essential drugs are out of stock more than 50 percent of the time (World Bank, 2008). Hard evidence on the extent of this challenge in other countries is thin. The evidence on whether improving basic infrastructure and supplies in African countries affects the health services delivered is also limited (WHO, 2006).

An alternative explanation for the low quality of health services in Africa is that health care professionals lack necessary skills and knowledge (Dieleman and Harnmeijer, 2006), but the evidence on this point is mixed. In many countries with high maternal and child mortality ratios, basic treatment skills are deficient –particularly among doctors in the bottom part of the competence distribution (Das, Hammer and Leonard, 2008). In contrast, studies in Tanzania (Leonard and Masatu, 2007) and Rwanda (Basinga et al, 2010) show that health workers are generally knowledgeable about the procedures that should be followed, but they do not always follow the protocols.

In African countries where the level of skills and knowledge of health care professionals is poor it is often the case that the quality of education itself is low (Walsh, 2007), or there is an inconsistency between the education received, often based on

Western models, and the epidemiological needs of the country (Soucat et al., 2007). The challenge of low quality of health service professionals is even bigger because many existing workers gain employment on the basis of certificates from unaccredited institutions (Walsh, 2007). Furthermore, there is evidence that employers hire people with less than acceptable qualifications given the difficulty in finding suitable candidates. This is confirmed by structured interviews; a doctor in Rwanda says, “There are health centers where the auxiliary health worker is head of the health center.” (Lievens and Seernels, 2006, p. 37).

Given the existing evidence on the association between years of training and knowledge of medical protocol among doctors (Leonard et al., 2007), in-service training programs are often proposed as strategies to upgrade the knowledge and skills of health service professionals. Recent in-service training interventions have been adjusted to the nature of services delivered (e.g. in rural versus urban areas). For example, between 2005 and 2008, 27,000 new health extension workers employed in rural Ethiopia were trained to provide an essential package of life saving services that are particularly relevant in those areas, such as family planning, bed nets and immunization to its rural population (World Bank, 2007). The effect of these tailored training programs on the knowledge of HCP and quality of health care services delivered has not yet been determined.

The inefficiency of health care professionals is associated with absenteeism and shirking. On any given day, 37 percent of health workers in Uganda are absent from work for no apparent reason (Chaudhury et al., 2006). Box 2 outlines what economists have proposed to address the challenge of the worker’s choice of performance levels and



the effectiveness of the various policy instruments that have already been implemented to tackle this issue.

There is some evidence showing that health care professionals in African countries have poor attitudes towards patients. The poor population in Tanzania says in the later respect: “[The health care professionals] treat us like animals; worse than dogs” (Narayan et al., 2000 p. 76). Weak patient management skills, corruption and embezzlement are also identified as important behavioral problems of health care professionals in Africa, but we were not able to find any evidence supporting this argument.

**Box 2. The Choice of Performance Levels: Economists’ views and policies**

To analyze the dependence of performance on pay labor economists have developed the concept of “efficiency wages” (Stiglitz, 1976). The idea of an efficiency wage is that employers who pay more will induce the existing workers to reduce absenteeism, shirk less etc., and will be also able to attract higher quality workers (i.e. better educated, trained, and/or experienced).

The fact that the performance of health care professionals, such as the number of hours of work and the quality of the treatment delivered, depends on pay and also non-pay aspects of the job suggests that there are potential alternatives through which the employer can influence the worker’s choice of performance levels. For example, inducing employees to exert more effort can be achieved by increasing the pay or upgrading the conditions of work (i.e. the quality of the health clinic). There are benefits from improved pay and non-wage conditions of employment, but doing so is also more costly. Policies to maximize health care outcomes need to be formulated accordingly.

Various policies have been implemented to address the issue of low performance. There is no available evidence on the effectiveness of policies such as monitoring and accountability (Bjorkman and Svenson, 2008 and World Bank, 2008), or professional norms. Performance-based financing (a.k.a. pay-for- performance), which is a financial transfer conditional on achieving a predetermined performance target, has been found to be associated with an increase in efficiency of health workers and a boost of enthusiasm and motivation (Basinga et al., 2010; Rusa et al., 2008). Whether the benefits of performance pay outweigh the costs, and therefore whether social welfare increases or decreases, has not yet been assessed (Scott and Jan, forthcoming).

## **5. The Financing Challenge**

The fifth component of the crisis of health care professionals in Africa refers to the limited resources available to African countries for addressing the production, underutilization, distribution and performance challenges.

Verboom et al. (2005) have estimated that bridging the gap of the countries in the world with current shortfalls by 2025 and paying the salaries of the health service professionals requires an increase for the average country of ten U.S. dollars per person per year. We see this figure as way too low because it does not adjust for the attrition caused by migration out of the countries or the investment costs needed to train these people. Even if we accept the ten dollar a year figure, it represents an additional 25% of the current yearly spending on health services in those countries. Ten U.S. dollars per person per year is a lot for a typical African country in which the gross national income per capita is around \$500.

The elimination of the shortfall of health care professionals alone requires very large amounts of resources, which are not available in Africa. In an attempt to address this particular issue, governments can base their interventions on their ability to supplement private sector numbers. That is, they can try to maximize the number of health service professionals subject to the countries' available funding (see Chapter 5 Vujicic et al.). Based on the resources available to African countries and past trends, it is estimated that it would be financially possible to employ a further 600,000 health care professionals by 2015, assuming a fixed labor cost ratio, no wage change and no skill mix shift (Anonymous, 2007). Training these people over 2008-2015 would require additional resources corresponding to about US\$14.2 billion (real dollars of 2006). Data from the

WHO (2009) reveals that this amount represents 36 percent of what is now spent on health in Africa.

A calculation of the costs of eliminating the rural-urban disparity in per capita HCP in Ethiopia has been made and it shows that the health budget would have to increase by 30-42% (Serneels et al., 2007). This too is a large number, one that a poor country like Ethiopia would have difficulty in affording.

In short, the needs are great, the costs of meeting them large, and the available resources few.

### **III. Conclusion**

This chapter has briefly analyzed the national labor market for health care professionals in a given country, which, for the sake of concreteness, we called AFR. National labor markets for health service professionals in African countries can be thought of as consisting of a small number of labor market sectors (or segments). For some purposes, it is useful to think of just two labor market segments, such as private and public or urban and rural. A similar analysis can be applied to labor markets sectors or labor markets for specific cadres (e.g. physicians, nurses, or medical technicians). The concepts reviewed in this chapter form the basis for determining how policy interventions are likely to affect the labor supply, labor demand, compensation levels, equilibrating forces or other features of the health care professionals' labor markets. More empirical data combined with a sound labor market analysis, we believe, will enhance the effectiveness of HRH policies.

Addressing any of the challenges of health care professionals is in itself a laudable goal. However, using scarce resources to address, for example, the quantity challenge in

the health sector means not using the available resources to address the performance challenge in the health sector or other worthy development needs in other sectors. Should additional resources become available, countries should have a criterion for allocating these resources among the different development priorities in the best possible way. The framework we would advise them to adopt is to compare the social benefits of each possible intervention with the social costs. More empirical data, a full labor market analysis, and the use of social benefit-cost criteria are all needed before policy recommendations can be confidently offered.

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## **Appendix. Key Concepts from Labor Market Economics**

1. A **labor market** is defined as the place where labor services are voluntarily bought and sold. A worker may sell his labor services to an employer in exchange for compensation. He may also decide to be self-employed; that is, to sell labor services to himself.
2. Mainstream **labor market economics** analyzes the dynamics leading to a specific labor market outcome, which consists of the number of people working and the real compensation they receive for their work.
3. The **fundamental building blocks** for analyzing the workings of any single labor market are labor supply, labor demand, and a compensation-determination process. Underlying these building blocks are several equilibrating forces.
4. The **market labor supply** is the number of doctors, nurses, midwives, traditional healers and other health care professionals wanting to work in the health professionals' labor market.
5. The **market labor demand** is the number of health professionals with the necessary qualifications employers desire to hire and have the means to pay for. The country's public sector, private hospitals and clinics, faith-based organizations, the patients themselves and the self-employed are all employers of health care professionals. The demand for HCP labor is derived from the demand for what that labor produces (i.e., health services). The lower the demand for health services, the lower the demand for health service professionals will be.
6. **Market-clearing** arises when the amount of labor supplied equals the amount demanded. The market clearing quantity HCP\* has a corresponding compensation

level COMP\*. If the compensation is initially below COMP\*, there is a “labor shortage” as there is more labor demanded than supplied. If the compensation level is initially above COMP\*, there will be a “deficient demand unemployment”, which results from the fact that employers lack the resources with which to hire all the health care professionals willing to work.

7. There are three standard **equilibrating forces** in labor markets: i) workers are free to supply their labor to any given labor market or not; ii) employers can operate in the most advantageous location and hire the number of workers that are consistent with their ultimate goals given their available resources; and iii) the compensation level will tend towards the market-clearing level.
8. A compensation-quantity pair is an **equilibrium** if the market tends there, and once there the market tends to stay there. When the equilibrating forces are free to operate, the labor market will be characterized by a **market clearing equilibrium**, regardless of the initial conditions. When the initial situation is characterized by unemployment or shortage, the equilibrating forces will eliminate them via changes in the behavior of employers and employees. When the compensation level is initially at the market-clearing level, neither employers nor employees have incentives to change the compensation level. Thus, the initial market-clearing pair will be an equilibrium.
9. **Non-Market-Clearing Equilibria** occurs when standard equilibrating forces are not free to operate. Compensation might be kept above the market-clearing level because of trade unions, minimum wages, government pay policy, multinational corporations’ pay policy, and/or labor codes. In this situation the unemployment persists in



equilibrium. In like fashion, compensation might be kept below the market-clearing level resulting in an equilibrium characterized by a labor shortage.

10. In addition to the deficient-demand type, **unemployment** can be **structural** and **frictional**. Structural unemployment arises because the types of workers available for work differ from the types of workers that employers want to hire. Frictional unemployment occurs when employers are looking for workers, workers are looking for jobs, but the two sides of the market have trouble meeting up with one another.

## Endnotes

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- <sup>1</sup> Health care professionals are also referred to as health service professionals, health service providers, or health workers.
- <sup>2</sup> For a comprehensive introduction to labor economics, see Ehrenberg and Smith (2009).
- <sup>3</sup> For more on these concerns in modeling labor market policies, see Fields (2007).
- <sup>4</sup> Allowing for uncertainty, countries with 2.02 to 2.54 per 1,000 inhabitants are regarded as failing to achieve an 80 percent coverage rate for deliveries by skilled birth attendants.
- <sup>5</sup> The reader should be warned here. Some authors suggest that a distribution problem (also called geographic imbalance) exists when the percentage of health service professionals with respect to the total number of professionals working in urban areas is greater than in rural areas. This is not a problem if the number of health service professionals is proportional to their share in the total population (e.g., if 80 percent of the health care professionals are working in rural areas because 80 percent of the population lives there).