



Medical tourism and health worker migration in developing countries[☆]



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ABSTRACT

In developing countries of tourist destinations, an increase in medical tourism raises the wages in the medical tourism sector, thereby retaining skilled medical workers who otherwise leave the country. However, the expansion of medical tourism contracts the domestic healthcare services sector, causing lower labor productivity in the economy. Medical tourism can increase domestic welfare if the benefits from migration retention and tourism exports outweigh the losses in revenue and productivity declines.

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1. Introduction

The healthcare system in developing countries is primarily a mix of publicly and privately owned providers, with a majority of them publicly owned. For example, the shares of public hospital beds are around 79% in Asia, 84% in Africa and 71% in Latin America.¹ The publicly owned providers are mainly non-profit organizations with the aim of welfare consideration. This renders overwork but under-pay in the public healthcare sector. Skilled health professionals therefore migrate abroad to high income countries (so-called external brain drain): Asians move into North America, Africans into the United Kingdom, and Eastern Europeans into the European Union. This wage push effect of external migration leads to a shortage of medical staff in the public healthcare sector in developing economies.² How to retain skilled health workers is a tough task for policy makers in most developing countries.

In contrast, due to high costs of healthcare services in advanced countries, medical tourism to developing countries, ranging from dental care to cosmetic surgery, for potential cost savings has emerged in the past 15 years.³ Nonetheless, the trend was really starting to take off in

the past few years because the internet communication becomes more efficient and more people are touring abroad.⁴ The surge of medical tourism can not only retain skilled medical professionals in the host country but also yield a positive impact on the economy since it transforms formerly non-traded to tradable medical services for foreign buyers.⁵ However, medical tourism can crowd out the domestic public healthcare sector and hence reduce healthcare services to productive workers in the economy. This 'internal' brain drain by diverting resources from the public to the private healthcare sector could exacerbate the gap in the two-tier healthcare system, often observed in Thailand, Malaysia and India,⁶ in which foreign medical tourists have access to high-end private healthcare services while public healthcare to domestic patients is under-provided.

The detrimental effects to the effective labor supply caused by internal and external brain drains cannot be overlooked for a country that considers medical tourism as a policy option to retain skilled health professionals and at the same time to boost the economy. The optimal size of the medical tourism sector is thus determined by the benefits of tourism exports and migration retention relatively to the associated costs of the fall in labor productivity from the declined productive sectors. The determination of the optimal size of the medical tourism sector should be of interest to policy makers for planning medical tourism. However, theoretical research on the impacts of medical tourism

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¹ See Hanson and Berman (1998).

² See Antwi and Phillips (2013).

³ Medical tourism contributes 2% to the world tourism and 4% to the hospital admissions in the world. See Freire (2012).

⁴ See Bookman and Bookman (2007) and Ehrbeck et al. (2008). The top five medical tourism destinations are Thailand, Mexico, United States, Singapore and India.

⁵ Vijaya (2010) provides a case study on the revenue effect of medical tourism in India.

⁶ See Chee (2008), Hazarika (2010) and Pocock and Phua (2011) for related studies.

Table 1
Price comparison of medical procedures (in US\$).

Medical procedures	Price* (in US\$)				Price comparison against US (%)		
	United States	India	Thailand	Mexico	India	Thailand	Mexico
Heart bypass	144,000	5200	15,121	27,000	3.61	10.5	18.75
Hip replacement	50,000	7000	7879	13,000	14.00	15.75	26
Knee replacement	50,000	6200	12,297	12,000	12.40	24.59	24
Breast implants	10,000	3500	2727	3500	35	27.27	35
Rhinoplasty	8000	4000	3901	3500	50	48.76	43.75
Face lift	15,000	4000	3697	4900	26.67	24.65	32.67
Liposuction	9000	2800	2303	2800	31.11	25.59	31.11

(*Source: 2013 MedicalTourism.com).

on the economy remains deficient in the literature. The purpose of this paper is to fill up this lacuna.

It is noted that external migration of health workers has been extensively studied in the empirical literature. While [Chen and Boufford \(2005\)](#) describe the global trend of the migration of medical professionals from developing to developed countries, [Vujcic et al. \(2004\)](#) examine the role of wage differentials on the supply of migrant healthcare professionals in African countries, and [Antwi and Phillips \(2013\)](#) investigate the impact of wage increases in public sectors on retention of skilled health workers in Ghana. However, little attention has been paid to the theoretical analysis of medical migration, except for [Rutten \(2009\)](#) and [Oda et al. \(2014\)](#), in which the former addresses the output effect of medical immigration on the receiving country and the latter focuses on the welfare impact to the receiving country. In their studies, healthcare services are aggregated into a single product in the neo-classical, competitive trade frameworks via Heckscher–Ohlin and specific-factor based models.

The assumption of a single product in the competitive trade framework is rather restrictive in the context of medical tourism as most countries promoting medical tourism offer a wide range of healthcare services to the medical tourists. For example, Thailand's Bumrungrad International Hospital, which is popular with international patients, offers a range of healthcare services, including health screening, cardiology, orthopedics, ophthalmological surgery and cosmetic surgery. To capture reality, in this paper we take into account a variety of healthcare services offered to foreign tourists within an imperfectly competitive market framework. This specification captures tourist demands for various medical services, ranging from dental care to cosmetic surgery, provided in developing countries through medical tourism. Furthermore, in contrast to [Rutten \(2009\)](#) and [Oda et al. \(2014\)](#), which focus on the welfare impact of skilled health worker migration on the receiving country, we examine both the income distribution and welfare impacts of skilled health worker migration from the perspective of a sending country.

The paper is organized as follows. [Section 2](#) provides an overview of the current status and future outlook in the medical tourism industry. [Section 3](#) develops a general-equilibrium, differentiated products model along the line of [Krugman \(1979\)](#) to study the welfare impact of medical tourism via its costs and benefits to the economy of the destination country. In addition, the effect of medical tourism on income distribution of unskilled productive workers and skilled medical staff will be examined. Concluding remarks are provided in [Section 4](#).

2. The medical tourism market

Medical tourism has experienced an exponential growth in recent years. According to [Euromonitor International \(2011\)](#), the estimated value of the medical tourism market was US\$19.5 billion in 2010, accounting for 0.8% of tourism expenditure globally, and the revenue was projected to reach US\$100 billion by 2012 ([Herrick, 2007](#)). Approximately 750,000 Americans traveled to other countries for medical care in 2007, while this number was forecasted to reach 1.6 million in 2012, with an annual growth rate of 35% ([Deloitte, 2009](#)). The growth

of medical tourism is driven mainly by rising domestic healthcare costs in developed nations. [Table 1](#) indicates that the costs of some medical procedures performed in developing nations such as Thailand and India can be as low as 10–30% of what patients would pay for comparable procedures in the United States.

The rising demand for medical services from developing nations represents an emerging opportunity for a number of countries in Asia, Latin America, Middle East and Central Europe. These countries have actively promoted medical tourism as a strategy to boost economic growth.

The medical tourism market in Asia is currently dominated by three countries: Thailand, Singapore and India. By launching a new medical tourism strategy, Thailand government has targeted to increase the annual medical revenue to \$6 billion per year by the end of 2017 ([IMTJ, 2010](#)). Singapore has also firmly established itself as a leading medical destination for patients from the neighboring countries and the Middle East. The medical revenue generated for Singapore is forecasted to reach SGD2.03 billion by 2016, growing at a compound annual growth rate of 13.6%.⁷ Furthermore, India was projected to attract 1.3 million foreign patients by 2013 with a growth rate of 19% within the period 2011–2013, while the revenue generated from medical tourism was expected to reach \$3 billion by 2013, growing at the compounded annual growth rate of 26% from 2011 to 2013 ([Datta, 2011](#)).

Latin America is another popular region for medical tourism. Of the 23 million US patients projected to travel abroad for medical treatments by 2017, it has been estimated that about 50% of them will visit Latin America ([Vequist et al., 2009](#)). The major medical tourist destinations include Mexico, Brazil, and Colombia. Among them, Mexico is the most frequent medical destination for patients from North America due to its location. Medical tourism in Mexico produced annual revenue of MXN38 billion in 2013, and the amount is projected to increase to MXN50 billion by 2018. Brazil and Columbia are famous destinations for cosmetic surgery. The medical tourism revenue generated for Brazil and Columbia is expected to reach BRL458 million and COP365 billion, respectively, by 2018.⁸

The medical tourism niche is also booming in the Middle East. The main medical tourism destinations include Jordan, Turkey, and United Arab Emirates (UAE). Jordan is the top medical tourist destination in the region and fifth globally. In 2010 the country treated about 200,000 foreign patients, earning approximately \$1 billion in revenue.⁹ Turkey is viewed as the second largest country in the region in terms of the medical tourist arrivals and medical tourism revenue generated. In 2012, of the 37 million tourists who visited Turkey, 270,000 were medical tourists and the revenue generated was \$1 billion ([Reuters, 2013](#)). To attract patients from neighboring countries, UAE has planned to invest heavily in its healthcare infrastructures. UAE's medical tourism revenue in 2012 was Dh652 million with 107,000 patients treated there. The number of foreign patients is expected to

⁷ See a report on 13 July 2012 in [Singapore Business Review \(2012\)](#).

⁸ See [Euromonitor International \(2014\)](#).

⁹ See [Oxford Business Group \(2012\)](#).

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