Improving the Effectiveness of TalentCorp's Initiatives

Assessment of Returning Expert Programme & Residence Pass - Talent

Social Protection and Labor Global Practice

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OVERVIEW OF THE REPORT

As part of the country's strategic plan to become a high-income economy, the government of Malaysia designed a Talent Roadmap, which focuses on leveraging the talents of all Malaysians—living in the country or abroad—and highly educated expatriates, to meet its growth objectives and development goals. The roadmap included the creation of Talent Corporation Malaysia Berhad (TalentCorp) with the mandate to assess and fulfill Malaysia's talent needs. Given this clear objective, TalentCorp has two major initiatives that attract and retain global talent (including the Malaysian diaspora) to fill the country's human capital and skill needs.

The information contained in this summary report reflects the analysis and assessment that have been undertaken beginning January 2013 mainly to assess the effectiveness of TalentCorp's efforts to attract and retain global talent through its Returning Expert Programme (REP) and Residence Pass-Talent (RP-T). The initial research included various activities aimed at improving the client's ability to meet its mandate. The main activities completed were as follows: (1) creation of a platform to identify and monitor local labor market conditions and human capital/talent needs; (2) creation of a profile of the Malaysian diaspora living abroad; (3) creation and implementation of two surveys—both surveys focused on gauging the attractiveness of working in Malaysia and were targeted at the Malaysian diaspora and foreign talent living in Malaysia; (4) an impact evaluation of the REP, which aims to facilitate highly skilled members of the Malaysian professionals abroad back to Malaysia; and (5) an assessment of the effectiveness of the RP-T Program, which aims to retain foreign talent in Malaysia. In both the impact evaluation and the assessment, the main questions investigated are whether these programs effectively attract/retain talent.

Various support activities and capacity-training activities were completed as part of this research to support TalentCorp in fulfilling its mandate. Apart from creating the workforce dashboard, the World Bank team conducted various training sessions to replicate the diaspora heat maps as well as to manage and update the contents of the workforce dashboard. Another support input was a policy note reflecting the main lessons learned in this research (mid-way) and featured in the December 2014 Malaysia Economic Monitor. A third example is the undertaking of a multi-stakeholder workshop, where experts from various countries were invited to share their experiences of improving the quality of technical skills in the Technical and Vocational Education and Training (TVET) systems in their countries. The Bank team helped to present to the Government evidence to support the creation and management of a critical skills list to be used to better coordinate the Government's talent interventions. This proposal was accepted and mandated to ILMIA and TalentCorp in the recent 11th Malaysia Plan.

Summary of the Research

1. REP impact evaluation and RP-T assessment

The main activities conducted under this research included the creation and implementation of two surveys used to assess the effectiveness of the two TalentCorp programs that aim to attract to and retain talent (Malaysians abroad and expatriates) in Malaysia. The rest of the report presents the technical details, findings, and recommendations of two analytical exercises that aim to measure the effectiveness of two of TalentCorp's most important programs.

It is important to note that there are different ways to measure whether TalentCorp's programs effectively meet their objectives; in the following sections, two approaches are used. The first is an impact evaluation of the REP, and the second is an assessment of the RP-T program. In the case of the REP impact evaluation, the data available and the application process allow for the use of a methodology that establishes a causal relationship between the program and the outcomes observed. In other words, the results obtained establish whether the program affected (or caused) the decision of highly skilled/educated Malaysians to return to Malaysia.

On the other hand, the application process and data available for the RP-T program limited the empirical techniques that can be used to assess the program. It is not possible to measure whether the program caused talent to apply to the program because of the way data were collected and the program was administered. The empirical technique used cannot discard other factors outside the program that contributed to people's decision to apply. However, the analysis is able to assess whether the current selection system correctly accepts highly skilled expatriates or not and also what factors within the selection process most accurately predict whether the expatriates is highly skilled or not. The bottom line is that regardless of the technique used, both approaches have merits and both analytical exercises yield results that provide insight into the functioning of the programs, which can be used to make operational improvements to them.

The impact evaluation of the REP, which offers certain services and fiscal incentives to the approved Malaysian professionals who return to Malaysia to work, investigates two guiding questions: first, whether the program affects the return decision of Malaysian professionals living abroad and, second, whether the program is cost-effective. In response to the first guiding question, **the evaluation finds that the REP is in fact effective in attracting people with the skills that Malaysia needs**, but it is most effective for individuals who already have a job in Malaysia when they apply. This group is over 40 percent more likely to return as a result of the program. **With respect to the cost-effectiveness question, the analysis shows that there are large net benefits to the REP**; in monetary terms, the net fiscal benefits are about RM 27,000 ($9,000) per applicant who returns to Malaysia. This estimate is pure fiscal benefit and does not include the positive economy-wide externalities generated by the presence of a highly skilled and educated workforce.

The assessment of the RP-T program, which allows skilled expatriates to work in Malaysia and offers them a set of benefits, answers two guiding questions: first, whether the beneficiaries of the program are genuinely talented expatriates who potentially fill skill gaps in Malaysia and second, whether the selection process can be streamlined to be more effective.

In response to the first question, **the RP-T assessment reveals that individuals approved by the program are genuinely talented global professionals**. Analysis between RP-T beneficiaries and comparable Malaysians shows that there is a significant wage difference of about 4.3 times between these groups. This gap implies that foreign talent earns over four times more than comparable professionals in Malaysia. Occupations in the oil, gas, and energy (OGE) sector; business services; and manufacturing sectors offer the highest wage premiums of all the economic sectors active in Malaysia. Further (decomposition) analysis reveals that even though some of the wage premiums can be attributed to the individual's characteristics, a large part of the wage premium is a result of factors that are tangible to employers but not easily observable and measurable with standard administrative data. One can speculate that part of the premium is likely to be derived from having experience in foreign labor markets. Many of these professionals gained their experience in developed western countries and Asia. By virtue of being a global asset with international exposure to global markets, new technologies, and broader know-how, they are perceived as being more likely (than locals) to contribute to the profitability of the firm.

With regard to effectiveness, the analysis reveals that the RP-T is effective in retaining genuinely talented individuals. However, only some of the observable characteristics included in the eligibility criteria and accounted for in the selection criteria are actually used in the decision-making process. This indicates that the seemingly rigid selection criteria are adaptable to changing needs in the economy (and labor market). This is arguably a positive finding. However, it is unclear what the country gains from having rigid and detailed criteria that appear to prioritize aspects that are not prioritized in practice. The assessment proposes an adjusted approach to processing and approving applications to the program. For example, the current criteria stipulates a minimum of 3 years experience in Malaysia to be eligible for RP-T, whereas years of experience in Malaysia is less relevant to the evaluation of an applicant's talent. **The Government can enhance the effectiveness of the RP-T by expanding eligibility to expatriates applying from abroad, who have the skillsets the economy is in acute shortage of.**

Overall, the analysis concludes that both REP and RP-T are successfully attracting individuals who are filling some of Malaysia's skill gaps; moreover, these individuals tend to earn a wage premium in the labor market, which is further evidence of their value to employers in terms of experience and expertise. The analysis also revealed a set of lessons and policy implications for consideration that could improve the effectiveness of both programs in the future.

I. ***Connecting talent (in-country and abroad) to job opportunities in Malaysia:*** Both Malaysian and foreign talents are highly mobile and responsive to job opportunities. As such, to improve the effectiveness of TalentCorp's programs, there needs to be a **greater**

and improved focus on connecting talent to attractive job opportunities by tackling information barriers and facilitating interactions between applicants and recruiters. This is particularly relevant for the **REP** program. Potential measures to be considered are:

a. **Structured, permanent channels of communication between employers, skill providers and job seekers are essential**, such as a jobs portal, making applicants' CVs available to employers, or even career fairs abroad.

b. Given that Malaysians abroad are well networked, TalentCorp should **optimize these information channels, reaching out to families in Malaysia**, as well as diaspora associations abroad.

c. Expedited applications and **prioritized approvals for individuals with existing job offers**, particularly those in areas of skills shortages.

d. **Engage all REP applicants, including those rejected**, providing them labor market related information and connecting them where relevant with both employers and executive search firms.

e. **Continuous refinement of the approval criteria for both REP and RP-T to better align with the talent Malaysia needs**, adapting to the changing demands of the market and economy.

II. ***Developing a common platform to identify and monitor skills shortages:*** While both the REP and RP-T programs have achieved positive results so far, they would benefit from the development of a common platform to identify skills shortages. An example of the **skills shortages list** is featured in the **Annex** section of this report. Countries such as Australia and the UK have already embarked on this effort, and some of the main lessons learned about well-functioning skills monitoring systems are the following:

a. **Transparency** is crucial for the system to be widely accepted. As such, the skill gaps identification exercise needs to be data-driven and rigorously evidence-based (top-down analysis), paired with a "bottom-up" system of consultations.

b. **Involvement of key stakeholders such as top employers**, as well as SMEs, is important to ensure that the skills monitoring system reflects the needs of the whole economy (bottom-up approach). A broad consultation system, coupled with a top-down approach, would help identify gaps across the skills spectrum.

c. **Regularity of the process** is fundamental to guarantee that the monitoring system reflects the current situation in the labor market and, as such, partnerships with all the different providers of labor market data is key in order to ensure a timely release of the shortage list.

d. Similarly, program **eligibility criteria should be continuously refined** or adapted to evolving labor market demands.

III. ***Meeting broader family needs*:** International experience shows that countries successful in attracting talent adopt measures to ensure that the needs of talents' families are met. As such, TalentCorp should facilitate the integration of approved applicants' family members into the Malaysian labor force and society more broadly; in other words, they should ensure that the benefits allotted to returning families or foreigners actually translate into full integration into Malaysian society, For example, **enabling non-national spouses to work and facilitating schooling for children are essential to retaining expatriate talent as well as returning Malaysian professionals.**

2. The Workforce Dashboard

Stakeholders such as jobseekers, future workers, employers, the government, and institutions of higher learning have limited labor market information to make decisions and monitor their progress. To address this concern, the Bank team, under this research, worked closely with the ILMIA and TalentCorp to develop a labor market information platform, known as the workforce dashboard. Similar tools exists in other countries. The Australian Labor Force Information Portal is one example; it is geared to give employers a broad set of labor market information to help them get an overview of the workforce. The United States has various examples, many of them at the subnational level. At the national level, it has the *Myskillsmyfuture* portal, which is geared to provide an insight to job seekers looking for occupational information (for example, types of skills required for a specific job and wage rates). This portal links to the subnational portals. The United Kingdom's National Statistics office has Nomis which is the official labor market statistic system. The United Kingdom's Center for Economic and Social Inclusion has a parallel system that relies heavily on featuring labor market information on geographic maps. This one is a comprehensive system of employment-related information.

The Malaysian workforce dashboard was created using a variety of databases, including employer surveys, administrative surveys, and individual surveys. Its design considered trade-offs such as specificity of content (versus simple content) and ease of use (versus sophisticated use) (see figure 1). The final product contains as much specific information as is available and the interface prioritizes ease of use.

Figure 1: Trade-offs Considered in the Design of the Workforce Dashboard
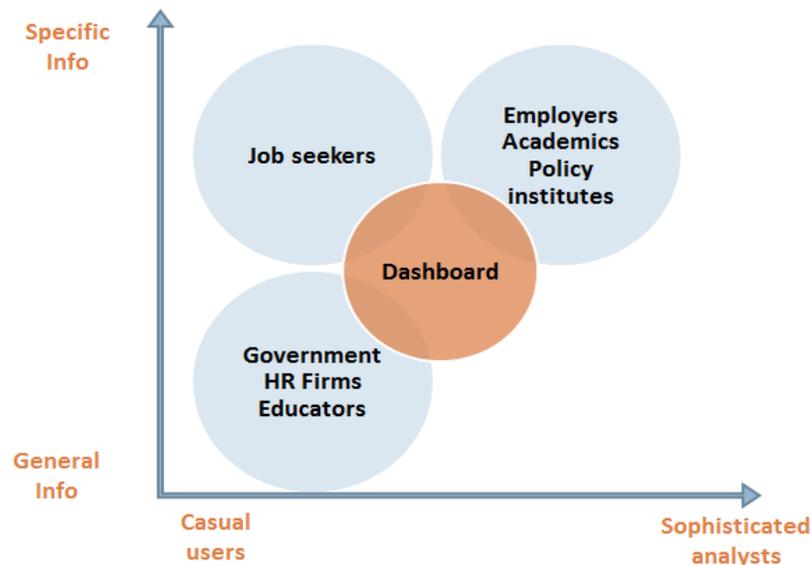
Source: World Bank.

The Bank team identified over a dozen distinct workforce dashboards across the world and extracted lessons from them to be applied to the beta version for Malaysia. For instance, the Malaysian dashboard provides something for everyone by making many indicators available. It also includes on-site visualizations and allows (some, very limited for now) downloading for further analysis. The data presented are well-defined and explained in plain terms. In some cases, data sources and cautionary phrases are included. To further enhance the dashboard, it was proposed to revise the back-end architecture design for uploading information and managing the contents going forward (see figure 2). The current beta platform is structured using a version of this approach.

Figure 2: Back-end Architecture for Malaysia's Dashboard
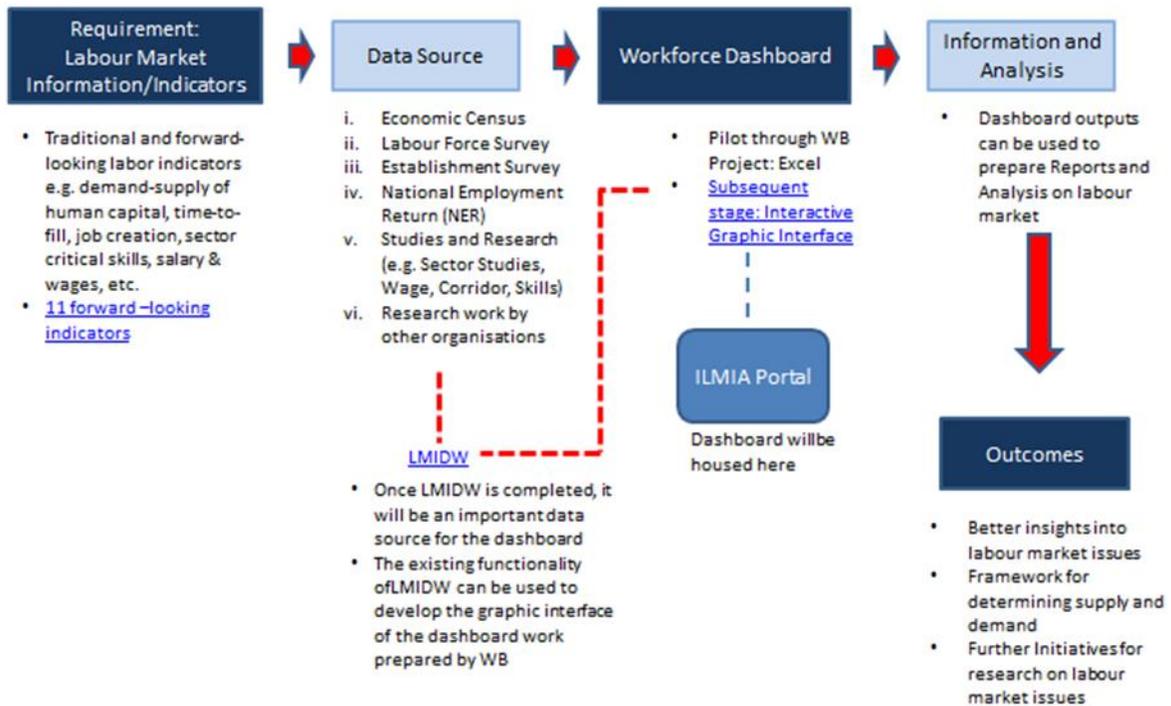
Source: ILMIA & TalentCorp.

The workforce dashboard had a soft launch in December 2013. ILMIA continues to improve it; and the Bank has offered its continued assistance to keeping up the dashboard. In its current form, students can use the tool to make career decisions and institutions of higher learning can use the tool to modify curricula, update programs to reflect labor market needs, and, to some extent, rationalize programs. **The workforce dashboard tool is meant to help various stakeholders continuously improve their responsiveness to labor demand.** Students can select a career that is in demand and institutions of higher learning can offer courses aligned with market demand. Employers can also use it to have a clearer picture of the skills available in the workforce and wage details in their sector and to identify skills in deficit. Academics wanting to do research can use the labor market information that is provided in the dashboard. Lastly, **government agencies can monitor critical labor market information using the dashboard and use the contents as a source for evidence-based decision-making in planning.** Figure 3 shows the main screen of the dashboard.

The creation and launching of the workforce dashboard under this research is a great achievement. However, going forward, many challenges remain to fully benefit from the usefulness of this tool. For instance, it will be imperative to regularly update the content of the information system, market it broadly across potential users, and use it to evaluate the effectiveness of distinct educational courses/programs and make necessary reforms. Also, the dashboard currently contains information on labor markets; going forward, new content should be added. For instance, currently the tool contains some (but limited) information on the actual skills in demand and details on the supply or information on the quality of educational and training institutions (for example, rankings). Continuing to add such

information, and regularly updating the content, will help stakeholders wanting to reduce skill gaps in Malaysia, especially TalentCorp, ILMIA and the Ministry of Education, to meet their objectives.

Figure 3: Home Screen of Malaysia's Workforce Dashboard
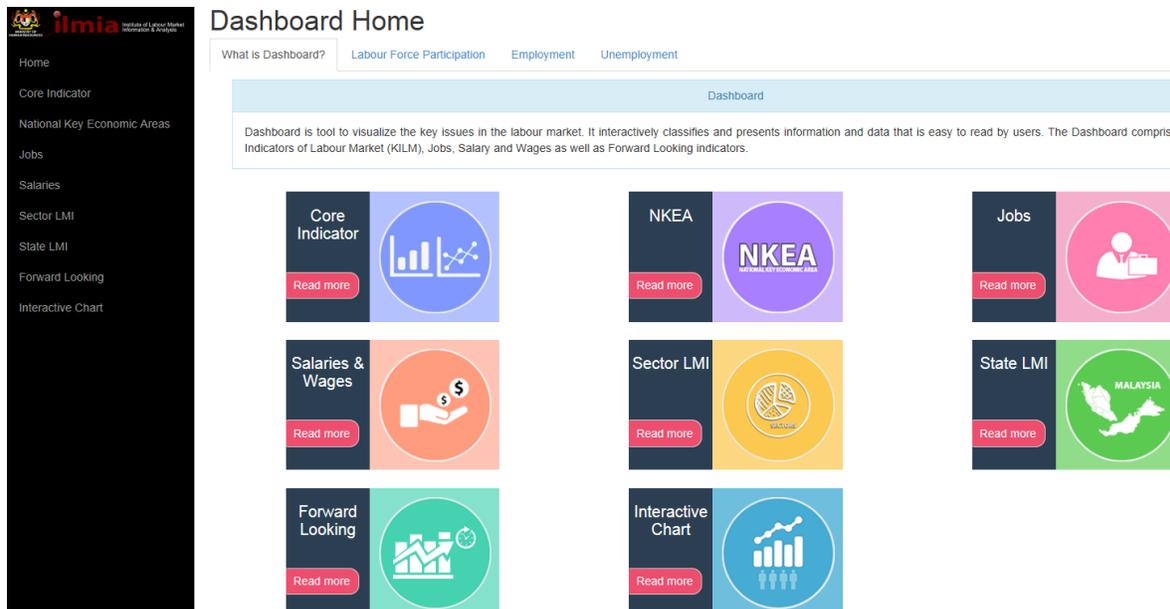
Source: ILMIA website.

3. The Heat Maps

Diaspora can be strictly defined as people from a given source country who have emigrated and are living abroad. However, in development literature, the definition is more nuanced to include all emigrants and their descendants who keep ties with their country of origin and ancestry. Diaspora groups can become potential sources for an important and diverse set of investments and skill flows back to the country of origin. In fact, many developed and developing countries such as South Korea, China, and India have benefited from contributions from their diaspora around the world. Among the examples of diaspora externalities are transmission of technical and professional expertise from abroad, transfer of physical and intellectual investments, mentoring of compatriots and providing them with opportunities abroad, serving as ambassadors of their country, and sending monetary and other types of remittances back home. Diaspora contributions are not necessarily dependent on the physical return of diaspora members back to their home country; in fact, many see themselves as citizens of the world and prefer to live abroad while keeping ties with and providing help to their home country.

One of the mandates of TalentCorp is to reach out to the Malaysian diaspora and keep them engaged with their home country. In fact, TalentCorp conducts many regular outreach events with skilled Malaysians in key countries and cities around the world, where they introduce TalentCorp and make them aware of career opportunities for them to consider in Malaysia. Embassies, consulates, and formal diaspora organizations are among the main conduits of information that TalentCorp uses to plan their outreach campaigns and

disseminate information. However, these institutions and organizations only have data on people who are formally registered with them, possibly missing large numbers of people not linked through formal means.

The Bank's assistance was sought to use other sources of data (and techniques) to get a better measure of the number of Malaysians in key countries (and cities). The Bank was also asked to provide better information on professional, personal, and occupational profiles of the diaspora members. To that end, the Bank **developed heat maps of Malaysians living in four key countries: United States, United Kingdom, Australia, and Canada.**

In most countries, the Bank team used the population censuses and labor force survey data to identify where Malaysians live and analyze their profile. The census for the United States, Australia, and Canada provide the best basis for constructing heat maps. Table 1 presents a summary of some of the data obtained about the Malaysian diaspora in these four countries, by metropolitan area (cities with the largest Malaysian populations), sector, and occupation.

As seen in Table 1, the U.S. census identified over 60,000 Malaysians. Figures 4a and 4b show the distribution of Malaysians in the United States, and the main cities in the United States where Malaysians live. Over 75 percent of them have tertiary education. As shown in Figure 4c, a large segment of Malaysians in the US are highly educated. Even in states such as Montana, North Dakota and West Virginia, Malaysian inhabitants have high levels of education and high income levels, indicating that they are most likely living in those states because of the work opportunities. The main cities where Malaysians with tertiary education are concentrated are San Jose-Santa Clara and Sacramento in California, Dallas Fort worth-Arlington in Texas, and Minneapolis-St. Paul and Bloomington in Wisconsin. As for professions, many of Malaysians in the US work in managerial or professional occupations; over half of them are female; and many live in California, New York, and Texas.

Table 1: Number of Malaysians by Country, State/City, Sectors and Key Professions

Country	Total Number of Malaysians	Selected State/ City	Key Sectors	Key Occupation
US	61,765	• New York – 10,413 • Los Angeles – 5,833 • San Francisco – 3,660 • San Jose, CA – 2,387 • Washington – 2,362 • Others – 37,110	• Professional and Related Services – 15,593 • Manufacturing – 5,667 • Finance, Insurance and Real Estate – 3,731 • Business and Repair Services – 3,616	• Managerial and Professional Specialty Occupations – 23,926
Australia	116,193	• Melbourne – 37, 840 • Sydney –24,170 • Perth – 23,942 • Brisbane –9,233 • Adelaide – 6,691 • Others – 14, 317	• Healthcare and Social Assistance – 12,346 • Professional, Scientific and Technical Services – 9,582 • Financial and Insurance Service - 5,147	• Professionals – 30,010 • Managers – 7,886 • Technicians and Trade Workers – 5,353 • Community and Personal Service Workers – 4940
Canada	23,530	• Ontario –9,905 • British Columbia – 8,550 • Alberta – 3,695 • Quebec – 845 • Manitoba – 370 • Others – 165	• Professional, Scientific and Technical Services – 1,820 • Healthcare and Social Assistance - 1,820 • Finance and insurance – 1,480 • Manufacturing - 1,250	• Business, finance and administration occupations -3,315 • Management occupations – 2,010 • Natural and applied sciences and related occupations – 1,955 • Occupations in education, law and social, community and go government services – 1,425
UK	69,939	• London –18,000 • South East – 11,000 • East of England – 5,000 • Scotland – 5,000 • North West – 4,000 • Others – 26,939	Not available	Not available

Source: World Bank Analysis, American Community Survey 2007-2011*, Australia Census 2011, Canadian 2011 National Household Survey (NHS), 2012 UK Annual Population Survey

Figure 4a: Distribution of Malaysians in the United States
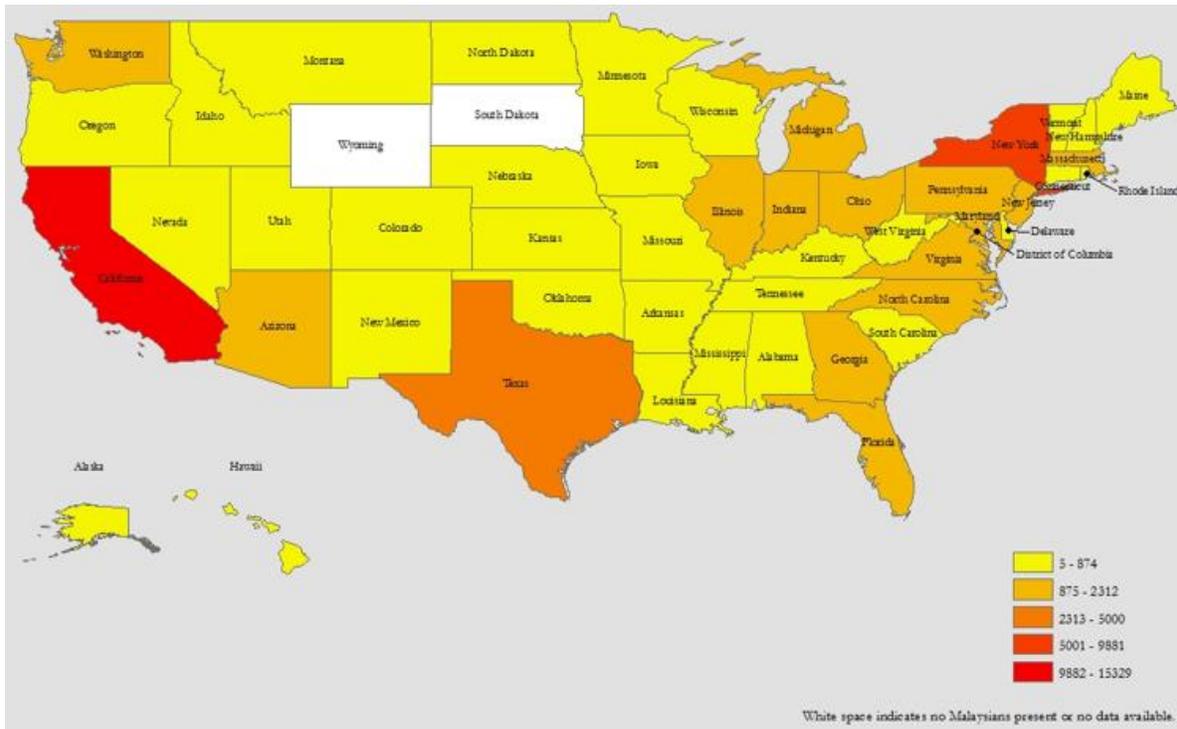
Source: World Bank calculations using the U.S. census, 2007–2011.

Figure 4b: Number of Malaysians in Twenty U.S. Metropolitan Areas
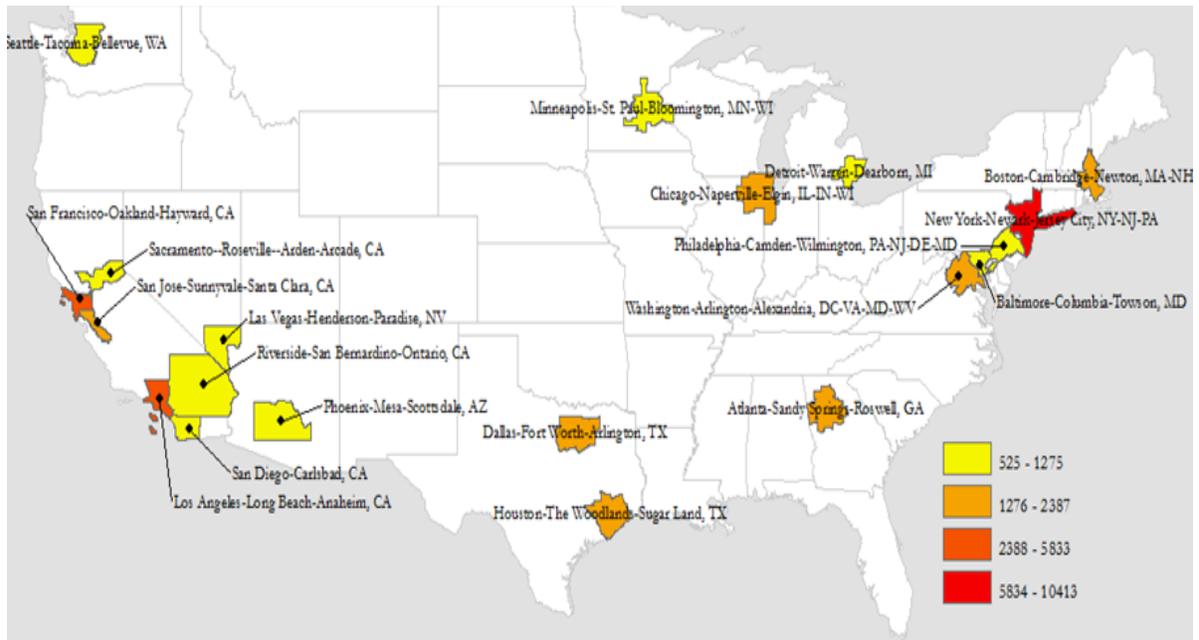
Source: World Bank calculations using the U.S. census, 2007–2011.

Figure 4c: Proportion of Malaysians in the US with Tertiary Education

Legend:
- 0.00 - 0.51
- 0.52 - 0.70
- 0.71 - 0.84
- 0.85 - 0.92
- 0.93 - 1.0
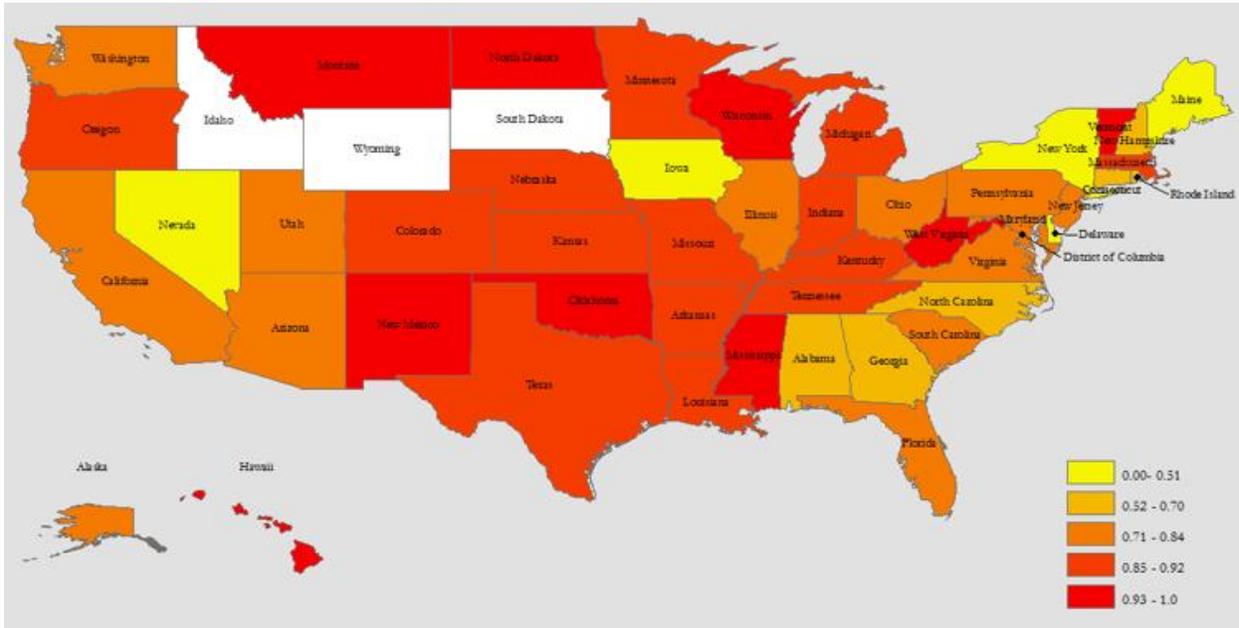
Source: World Bank calculations using the U.S. census, 2007–2011.

Figure 4d: Proportion of Malaysians in the US with Tertiary Education

Legend:
- 0.47 - 0.48
- 0.49 - 0.73
- 0.74 - 0.85
- 0.86 - 0.95

Source: World Bank calculations using the U.S. census, 2007–2011.

Source: World Bank calculations using the U.S. census, 2007–2011.

The Australian census includes around 120,000 Malaysians; and they are mostly living in the South East and Western part of the country (Figure 5a), in cities such as Perth, Melbourne and Sydney (Figure 5b). Patterns in Australia are similar to the United States.

Figure 5a: Malaysians in Australia

Source: World Bank calculations using the Australian census, 2011.

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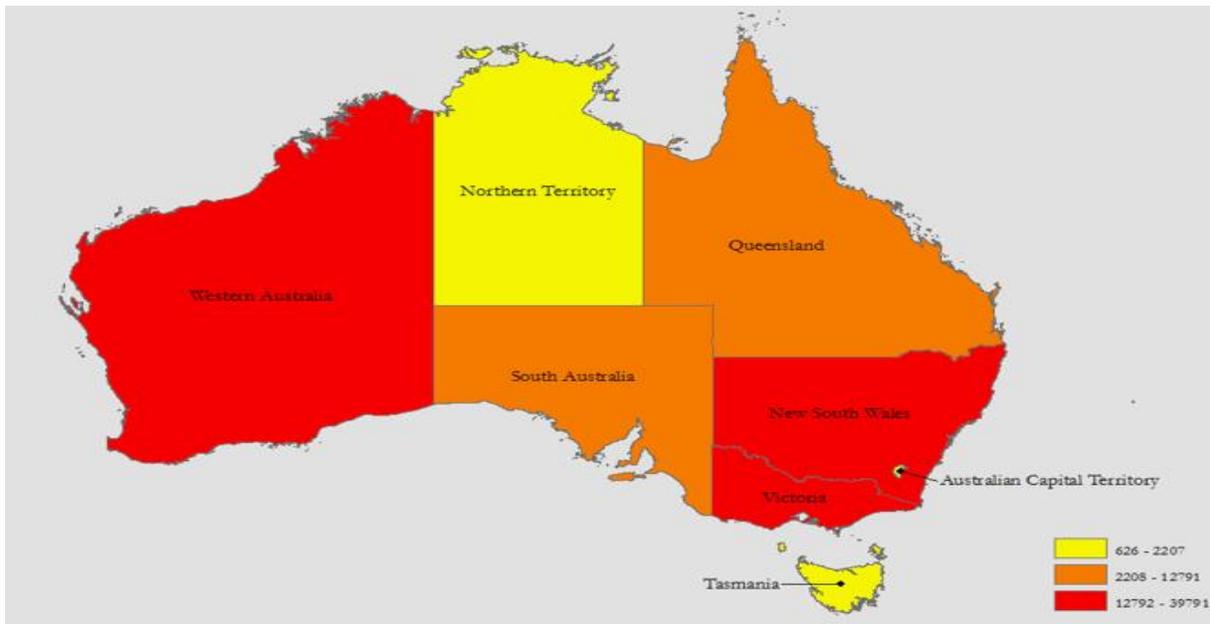
Figure 5b: Number of Malaysians in Ten Australian Metropolitan Areas
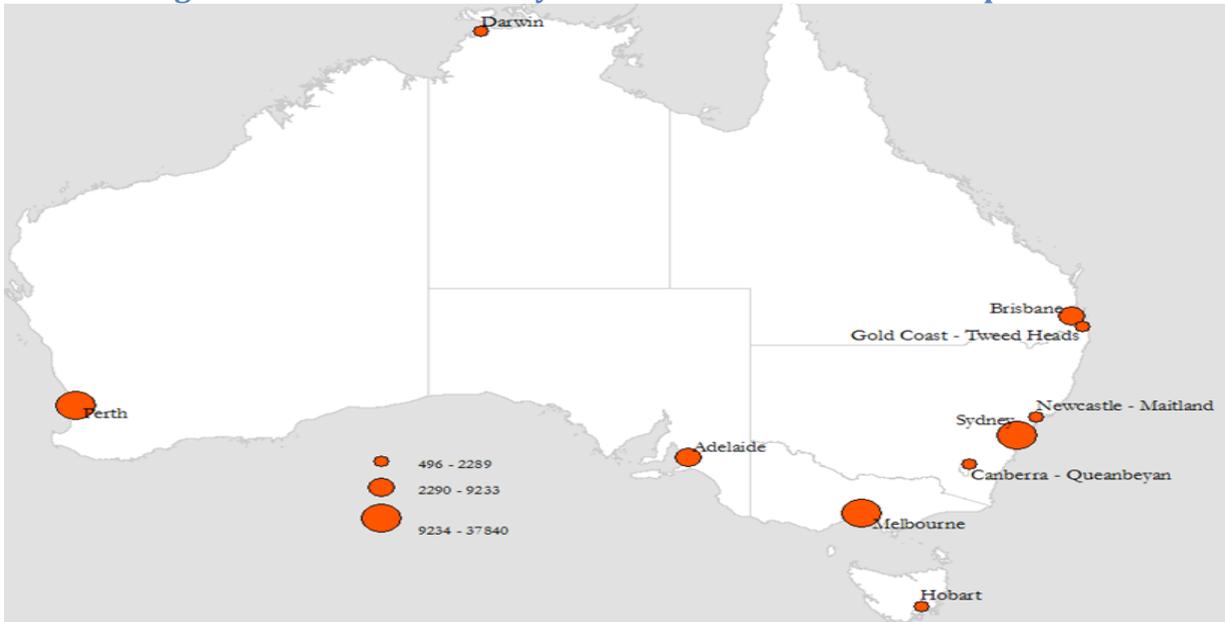
Source: World Bank calculations using the Australian census, 2011.

Over 70 percent have completed secondary education or above; well over half work in professional or managerial occupations. Malaysians living in South Australia, Tasmania and Victoria have among the highest levels of education levels (Figure 5c). As shown, Malaysians with higher levels of education live in cities such as Adelaide, Hobart, Melbourne and Canberra, but also in the western city of Perth (Figure 5d).

Figure 5c: Proportion of Malaysians with 12th grade (or equivalent) and above

Source: World Bank calculations using the Australian census, 2011.

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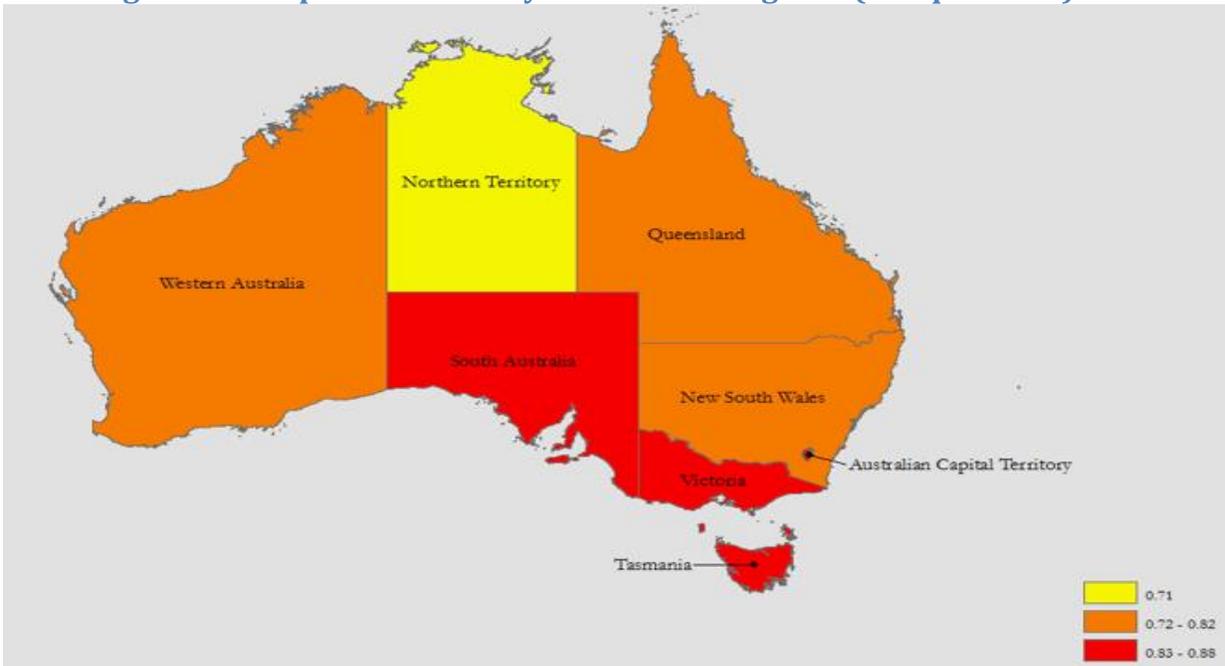
Figure 5d: Main Cities Where Well Educated Malaysians Live
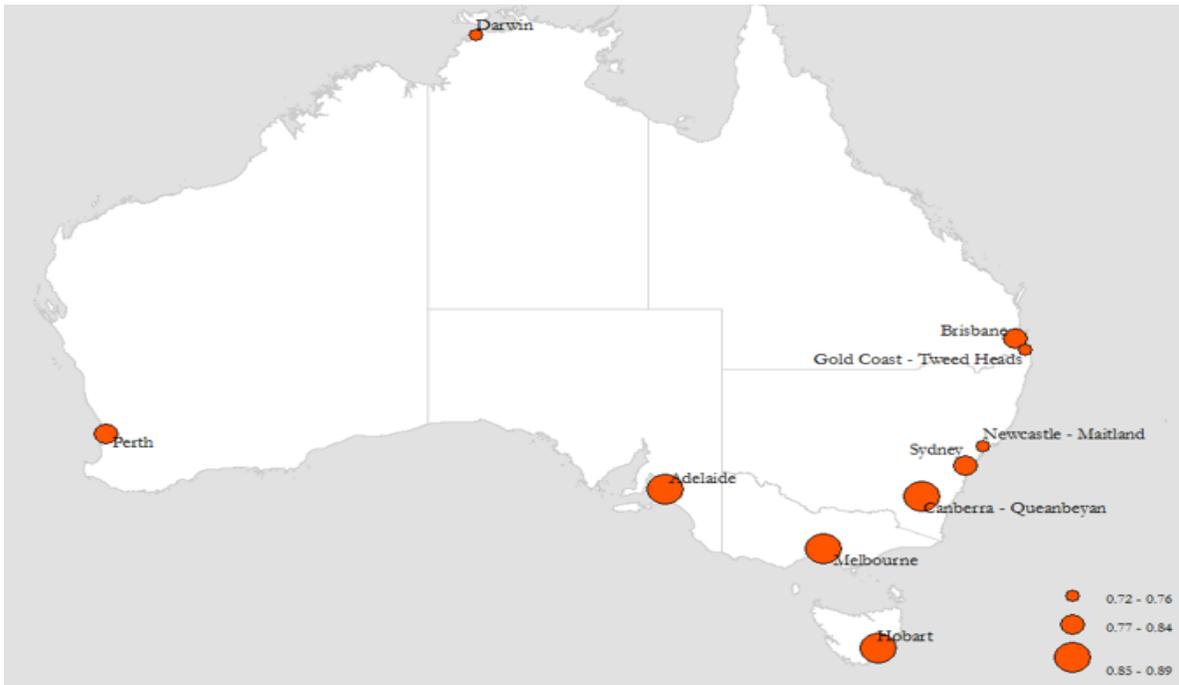
As shown in Figure 5e, Malaysian inhabitants in cities such as Perth, Melbourne, Canberra, Sydney, Brisbane and Darwin have relatively high levels of earnings; those living in Hobart (Tasmania) and the Gold Coast have lower earnings.

Figure 5e: Median Annual Income of Malaysians in Australia
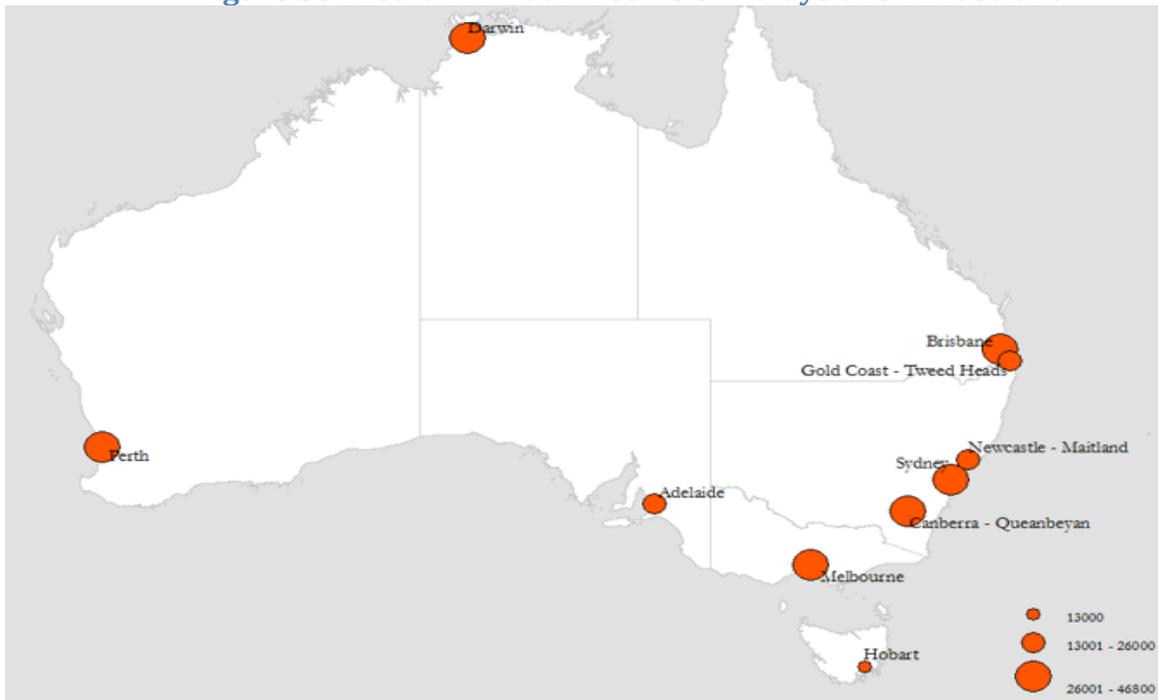
The Canadian 2011 National Household Survey (and the Canadian metropolitan census) includes around 25,000 Malaysians (Figure 6a). Most live in British Columbia (Vancouver) and Ontario (Toronto) (Figure 6b).

Figure 6a: Number of Malaysians in Canada
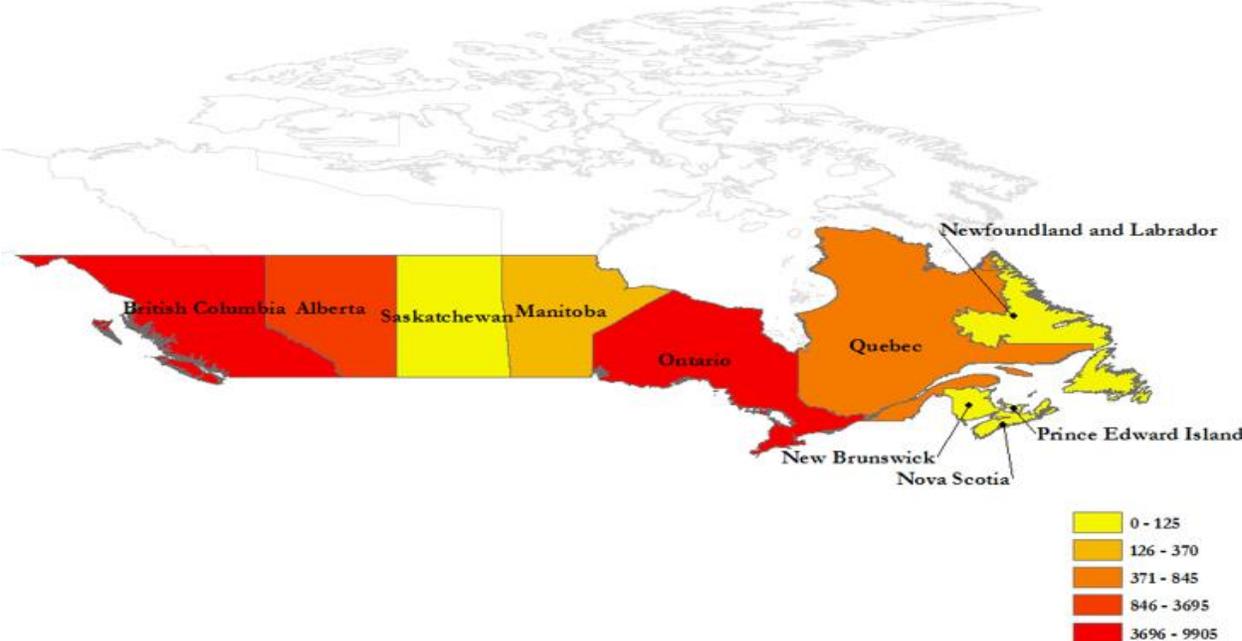
Source: World Bank calculations using the census of metropolitan areas, 2011.

Figure 6b: Number of Malaysians in Canadian Metropolitan Areas
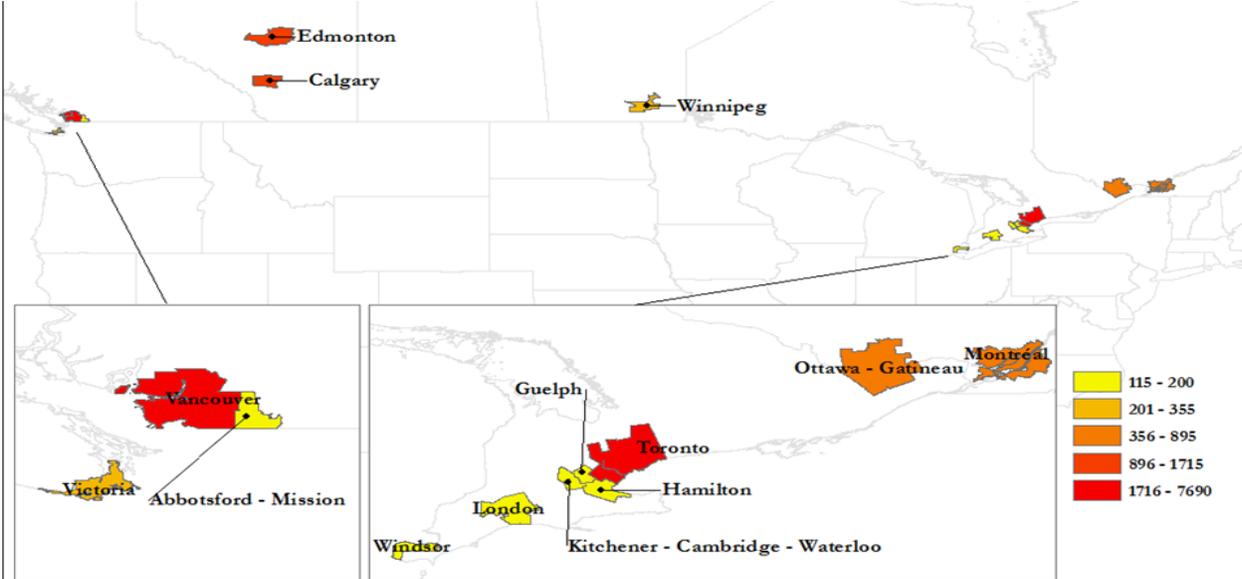
Source: World Bank calculations using the census of metropolitan areas, 2011.

Patterns in Canada are similar to the United States and Australia. Over 70 percent have tertiary education; 35 percent work in business or finance professions or managerial occupations; over half are female. Figure 6c shows that among those that live in British Columbia and Ontario (where the largest metropolitan areas are located) a high share have postsecondary education. The share of Malaysians with postsecondary education living in the most Eastern parts of the country is even higher, indicating that Malaysians in that part of the country are most likely working in jobs and sectors which require higher education level.

Figure 6c: Proportion of Malaysians with Postsecondary Education in Canada
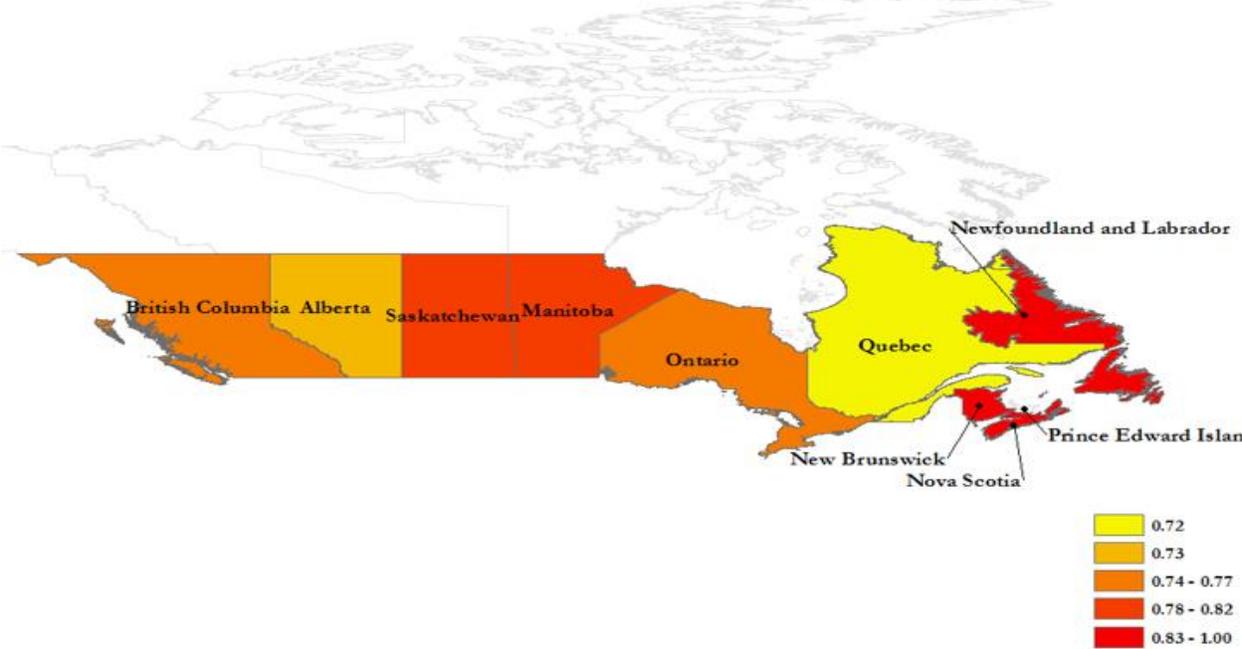
Source: World Bank calculations using the census of metropolitan areas, 2011.

For the United Kingdom, the dataset used to draw up the heat maps was derived from aggregated numbers from the census instead of drawing them from raw numbers from the census, as was the case in the other three countries. Therefore, the profile information is limited compared to the other three countries. Most Malaysians in the United Kingdom live in London and the South East. Figure 7 shows the main cities/localities where they are concentrated; Westminster, Lancashire, and Kent emerge as the most populated localities.

Figure 7a: Number of Malaysians in the U.K.

Source: World Bank calculations using the U.K. annual population survey

Figure 7b: Location of Malaysians in the U.K. Metropolitan Areas

Source: World Bank calculations using the U.K. annual population survey

Tapping into the highly educated Malaysian diaspora could help to fill the skills gap. The creation of the heat maps and profiles provides a solid foundation, of content and a methodological approach, for TalentCorp to locate Malaysia's skilled diaspora in key countries and plan its outreach efforts accordingly. However, going forward, many challenges remain to fully benefit from the usefulness of the heat maps.

Approximately half of more than 300,000 Malaysians living in OECD countries in 2010 had completed tertiary education or a higher level of study (World Bank Group et al, 2011). Through the heat maps, it has been shown that Malaysia's diaspora is a rich human capital resource for filling skill gaps. As mentioned, leveraging their diaspora is a possible way for countries to try and meet their needs for skilled labor. As a share of total emigration, the rate of tertiary educated migration has been stable over the past decade, falling slightly from 56.5 percent in 2000 to 54.5 percent in 2010 (Table 2).[1] Moreover, many Malaysians abroad still retain close ties to the country. One survey of the diaspora shows that nearly half of the respondents visit Malaysia three to five times a year, while 41 percent are members of a diaspora association, an indication of their interest in the country despite being abroad (TalentCorp, 2014).

Table 2. Malaysians in OECD Countries by Educational Level in 1990, 2000 and 2010

	1990			2000			2010		
	Total	**Tertiary**	**Percent**	**Total**	**Tertiary**	**Percent**	**Total**	**Tertiary**	**Percent**
Canada	12,150	8,480	69.8%	17,150	12,170	71.0%	23,530	14,240	60.5%
Australia	44,984	35,366	78.6%	56,961	38,620	67.8%	116,193	65,554	56.4%
UK	31,130	15,328	49.2%	38,146	12,898	33.8%	69,939	39,631	56.7%
US	17,725	13,745	77.5%	36,995	24,085	65.1%	61,765	34,508	55.9%
Other OECD	15,101	6,265	41.5%	21,516	8,710	40.5%	39,418	15,545	39.4%
TOTAL OECD	**121,090**	**79,185**	**65.4%**	**170,767**	**96,483**	**56.5%**	**310,845**	**169,478**	**54.5%**

Source: Global Bilateral Migration Database (World Bank Group et al, 2011), World Bank staff calculations

Going forward, it will be imperative to regularly update the heat maps using censuses and surveys. It will also be very important to add other key countries, such as Ireland and China, and countries in the United Arab Emirates. It is also important to recognize that census data and survey data alone do not provide the full picture; therefore, it will be important to complement the information with other data sources already used by TalentCorp, such as embassy and consulate records. Lastly, **these maps can be most useful to increase the efficiency of TalentCorp if they are used as a basis for undertaking digital virtual engagements and planning physical outreach events.**

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[1] Table does not include migration to Singapore due to the absence of reliable data. The Department of Statistics of Singapore states that approximately 691,000 Malaysians were residing in Singapore in 2010, approximately a fifth of whom are tertiary-educated. However, data is not publicly available on the country's 1.3 million-odd non-residents/migrants, many of whom are presumably Malaysian. Since Singapore is one of the main destination countries for Malaysian migrants, it is difficult to provide a complete picture of the skilled Malaysian diaspora at this time.

REP AND RP-T: MEASURING THEIR EFFECTIVENESS IN ATTRACTING AND RETAINING TALENT

The REP with an income tax incentive and RP-T programs were introduced in 2011 and are managed by TalentCorp. TalentCorp was keen to know whether these programs are effective in attracting and retaining the right talents and skills needed in the country.

The Bank undertook to assess whether these programs work effectively and whether any changes can be made to their structure to improve their effectiveness. To that end, new data were collected in 2013–14 to assess the effectiveness of the programs and to assess how they contribute to complementing the Malaysian workforce. The new data are used extensively in the two analytical exercises presented in the following two technical sections of the report.

I.   Assessing the Effectiveness of the REP

1. Introduction

Brain drain, the emigration of high-skilled workers, is one of the central challenges facing developed and developing countries alike. Most countries face large-scale emigration of high-skilled workers (see figure 8). The United States, Canada, and Australia are among the main exceptions and are the most important magnets for highly skilled migrants. While emigration of talented workers is a major concern for source countries, there is growing evidence that it also represents long-term opportunities. In particular, there is mounting evidence that return migration of high-skilled workers, otherwise known as 'brain circulation', has considerable economic benefits.[2] Thus, encouraging return migration may be one of the most promising ways to ameliorate the effects of brain drain and indeed for origin countries to benefit from international labor mobility. Among the main challenges to effective design of policies to encourage 'brain circulation' is a complete lack of evidence on the efficacy of potential policies (McKenzie and Yang 2015).[3]

This analysis presents the first evidence, globally, on the efficacy of a comprehensive program designed to encourage the return migration of high-skilled individuals. The Malaysian REP targets Malaysians abroad who are at the top end of the skill/education distribution and provides them with fiscal incentives and legal benefits to return to Malaysia. The key features of the program during the period of review are a 15 percent flat income tax rate on employment income for five years, the purchase of two tax-free locally assembled cars, and eligibility for permanent residency status for a foreign spouse and children within six months.

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[2] Return migrants come back with physical and human capital earned abroad (Dustmann and Kirchkamp 2002 and Mesnard 2004) may transfer skills and knowledge gained abroad (Dos Santos and Postel-Vinay 2003). See also Gibson and McKenzie (2012) and Thom (2010).

[3] This analysis is related to a small literature on tax-induced mobility of people. On international mobility, see Kleven et al. (2013) on professional football players and Kleven et al. (2014) on the impact of tax reductions for high-skilled foreigners in Denmark. On tax-induced mobility within a country, see Liebig et al. (2007) for Switzerland and Bakija and Slemrod (2004) and Young and Varner (2013) for the United States.

In the period 2011–2013, the program processed applications from approximately 4,000 people; this represents a substantial fraction of high-skilled Malaysian migrants. For example, using information from the American Community Survey (ACS), the analysis shows that on average 565 high-skilled Malaysians migrate to the United States annually, while the REP on average attracts 122 applicants from the United States per year.

Figure 8. Emigration Rates of the Highly Skilled to OECD Countries (Aged 15 Years and Above)
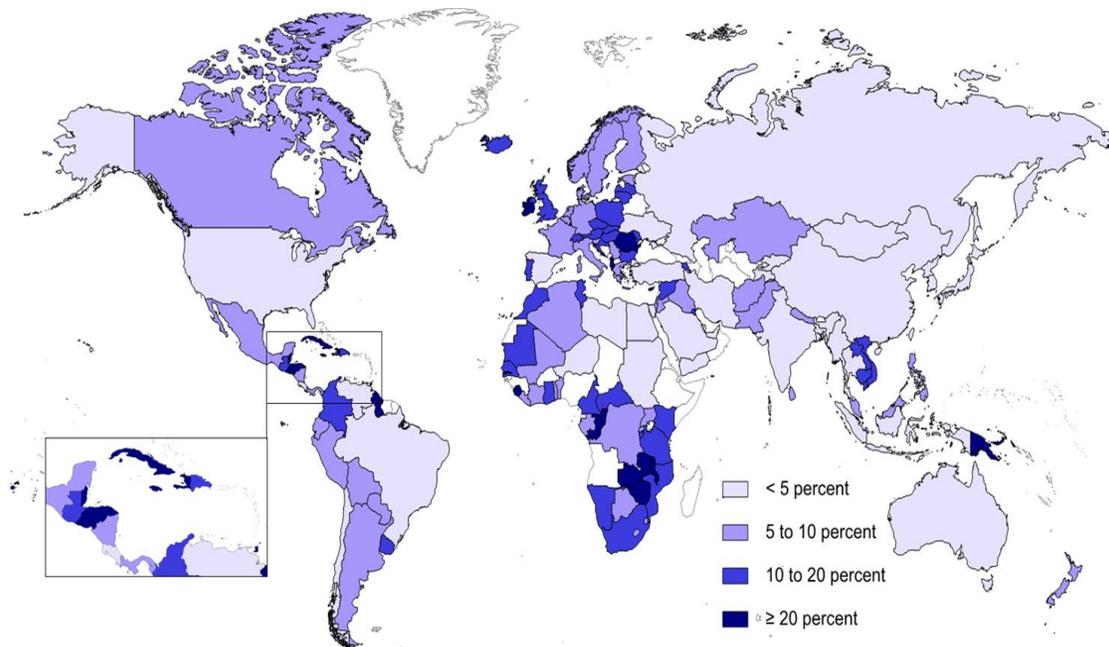
Source: Global Migration Database 2010.

Once the basic criteria for approval to the REP have been satisfied (the applicant is employed abroad, is under no obligation to return, and has been continuously residing and employed abroad for the last 3 years), the key determinant for approval is whether the applicant has had sufficient work experience abroad (which varies according to education level). To identify the overall impact of acceptance to the REP, the analysis uses the probability of acceptance into the program, which increases discontinuously at a (education dependent) threshold that depends on the total years of work experience abroad.

Despite the fact that the eligibility requirements for the REP are to a large extent public knowledge, there is sufficient uncertainty in the application process to ensure that marginal applicants (just below the work experience threshold) cannot fully predict whether they will be accepted or not. The analysis finds no evidence of discontinuities in other observable characteristics or of sorting of applicants around the threshold. These observations suggest that the REP can be evaluated using a special technique known as a fuzzy regression discontinuity (RD) design.

Since months of work experience abroad (the so-called assignment variable) are measured discretely, the analysis uses a two-stage least squares technique to identify the (local) effect

of approval to the REP on the probability that applicants will return. In the full sample of applicants, the estimated effect of the program is positive in every specification considered, but the point estimate is never statistically significant. However, the evidence suggests that **the REP is likely to be most effective for those applicants who already have an employment offer in Malaysia when they apply.** The other group for whom REP approval is particularly salient is female applicants either single or married to a foreign spouse. For these groups, the analysis finds that the causal impact of approval is about 40 percentage points, in other words, the probability of returning increases by around 40 percentage points.

The analytical exercises conclude with a cost-benefit estimate of the fiscal impacts of the program. The fiscal costs of the REP arise from the fact that a lot of people would have returned even in the absence of the REP, but they can still take advantage of the flat tax offered. The fiscal benefits arise from the fact that some additional people return to Malaysia due to the REP and pay income tax and consumption tax. The results show a net benefit in present discounted value of, based on the 2SLS estimates, about RM 27,000 ($9,000) per applicant. In other words, **the REP offers a positive monetary value to Malaysia rather than a cost.**

2. The REP

The REP is administered by TalentCorp and targets high-skilled Malaysians abroad who are interested in returning to employment in Malaysia. Figure 1 provides the basic eligibility criteria for the REP benefits as depicted on the program website.

As shown in Figure 9a, first level eligibility for the REP requires that an individual (i) is a Malaysian citizen, (ii) has been residing and employed abroad continuously for at least the past three years at the time of the application submission, (iii) is under no obligation to a company or government agency to return, and (iv) has no outstanding scholarship bonds or loans from the Malaysian government. The application has to be submitted while the applicant is still residing and employed abroad and remains an employee of the foreign entity while abroad. There are several other dimensions considered during the evaluation of the application. These are meant to determine whether the individual can be considered high skilled with sufficient work experience abroad in high-priority national key economic areas (NKEA)[4] or sectors.

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[4] According to the Economic Transformation Program of Malaysia, there are 12 NKEAs in Malaysia which comprise economic sectors with opportunities for private sector to drive the economy to high income levels. They are: OGE; Palm Oil and Rubber; Financial Services; Tourism; Business Services; Electrical and Electronics; Wholesale and Retail; Education; Healthcare; Communication, Content, and Infrastructure (CCI); Agriculture; and Greater Kuala Lumpur.

Figure 9a: REP Eligibility Criteria for 2011 - 2012

Citizenship
- Malaysian citizen
- Residing and employed abroad for at least 3 years

Employment
- Not earned income from employment in Malaysia for the last 3 years at application
- Not under obligation to return

Other
- Does not hold and outstanding scholarship or loan from the government
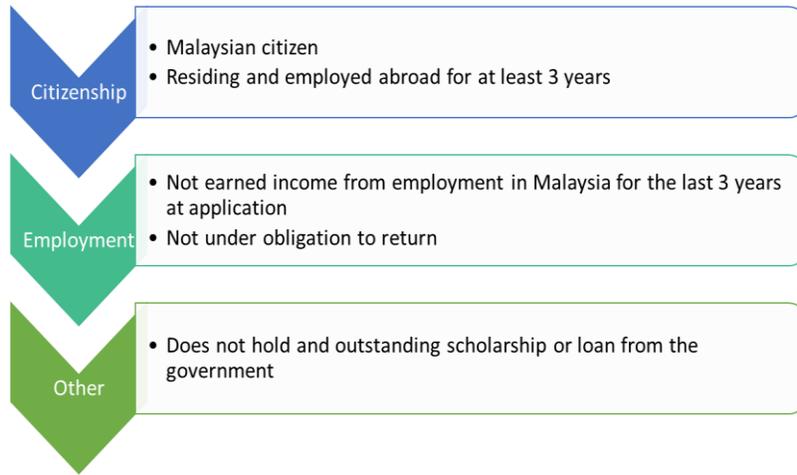
Source: TalentCorp

The key element of the eligibility criteria is that the individual needs to have some education beyond high school completion and a sufficient number of years of work experience abroad. The required years abroad vary by the highest education obtained by the individual as presented in figure 9b. For the sample used in this analysis, the applicants in 2011 and 2012, the minimum experience thresholds were two years for those with a PhD, four years for people with a masters or professional qualification, six years for people with a bachelor (or first) degree, and ten years for people with a diploma.[5]

The work experience abroad by education threshold is not the only determinant for approval. **Applicants can also be approved if their skills are considered vital to the Malaysian economy such that they are designated as an 'expert' in a high-value area.** This designation depends on the applicant's industry, profession, income, and any other criteria that TalentCorp takes into consideration during the evaluation process.

Figure 9b: REP Eligibility Criteria 2011 and 2012 – Experience Abroad Thresholds by Education

Academic Qualifications	Cumulative work experience abroad
☐ Diploma	☐ 10 years
☐ Bachelor degree	☐ 6 years
☐ Master's degree/member of a professional body	☐ 4 years
☐ PHD	☐ 2 years

Source: TalentCorp.

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[5] These work experience criteria have been enhanced effective April 2014 as a more holistic criterion of income level as well as working experience in Malaysia (prior to going abroad) has been introduced.

After the approval, applicants have a two-year window during which to find a job, return to Malaysia, report to TalentCorp, and exercise the benefits. Only upon their return and employment can they take advantage of four incentives provided through the initiative. First, they can use the optional 15 percent flat tax rate (instead of the standard progressive tax schedule) on employment income for the next five years. Second, there is a tax exemption for all personal effects brought back to Malaysia. Third, the purchase of two locally assembled Complete Knocked-Down (CKD) cars. Fourth, foreign spouses and children are eligible for permanent residency status within six months.

The value of these benefits, of course, depends on the characteristics of the recipient. The top marginal income tax rate in Malaysia is currently 25 percent. To benefit from the 15 percent flat tax, an applicant would have to earn more than RM 135,000 annually, which is about US$45,000. The tax exemption on the import of personal effects is unlikely to have substantial monetary benefits but is likely to reduce the bureaucracy considerably. The tax exemption on cars is potentially very valuable since Malaysia has one of the highest import taxes on foreign cars in the world in an attempt to support local car manufacturing, with taxes in excess of 100 percent on most vehicles. Finally, Malaysia has restrictive citizenship laws as Malaysian citizenship is normally only acquired by birth while permanent residency is granted mainly to very high-skilled individuals. Thus, the permanent residency for foreign spouses and children born abroad is potentially an important benefit of the program.

3. Data and Preliminary Evidence

3.1 Data

Administrative data on the applicants to the REP have been provided by TalentCorp. The data contain applicant characteristics that are relevant to the approval process as well as the application status, and return status (only for approved). Available personal information on applicants includes their work experience abroad in months, education, income while abroad, industry, profession, job title, marital status, nationality of spouse, number of children, whether the applicant has an existing job offer in Malaysia, and salary in Malaysia (for those with a job offer and those who eventually return).

Administrative data on the applicants for the years 2011–2014 are available. However, as mentioned earlier, approval of the application is valid for two years. The applications from 2013 to 2014 still have an unexpired validity period to return. Hence, the focus of this analysis is on the applications that were processed in 2011 and 2012.

Applicants who do not fulfill the basic eligibility requirements (as far as it can be determined) are excluded from the analysis. Most importantly, the analysis excludes people who (i) have already returned to Malaysia when applying, (ii) are under an obligation to return as part of their employment contract abroad, (iii) are not Malaysian citizens, and (iv) have not been abroad for an uninterrupted period of three years.[6]

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[6] TalentCorp carefully checks whether an applicant has received income in Malaysia in the past 3 years.

Crucial for the analysis is determining whether those who were *not* approved by the REP returned to Malaysia or not. This information is critical since the impact of REP approval on return likelihood is basically determined by comparing the return rates of the approved and rejected applicants. This information was obtained by calling every applicant who was not approved at his or her contact numbers in Malaysia and abroad (provided at the time of application) up to three times to ask them about their return status. For the remaining applicants who could not be contacted through the telephone, the team searched for them on LinkedIn (which is very popular in South East Asia, more so than in the United States) and if their account appeared active, the team verified whether they were in Malaysia or not. In this manner, return information for 96.2 percent of the entire sample of applicants and information on 85.6 percent of individuals whose application was not approved was obtained.[7]

3.2. Descriptive Statistics

The final sample includes everyone for whom key variables necessary for the analysis were available. These key variables are approval and return status, education, and months worked abroad. Given that more information was needed, a complementary online survey was undertaken in 2013; applicants were emailed and asked to fill in the additional information. The new survey provides additional information, which is very useful in getting more details about the individuals and their motivations. Table 3 provides statistics for the final sample of 1,654 applicants.

Applicants are typically male (76 percent); have a bachelor or master degree (89 percent); are on average 38 years old; have 7.3 years of experience working abroad; are in their current job (abroad) for an average of 3.2 years; and have an average annual income of US$61,269 when abroad and US$59,924 when in Malaysia.[8] Most applicants are married (88 percent) and around half of them have a foreign spouse.

Only 19 percent of individuals apply with an existing job offer in Malaysia. More than a third of applicants work in business services. Being in an engineering profession is the most common (28 percent), followed by finance and banking (14 percent). About half of the applicants are categorized as technical experts.

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[7] The observed characteristics of those whose return status was not determinable are nearly identical to the overall sample, suggesting that a representative sample was obtained.

[8] Since the measurement error in salaries are of concern, the top and bottom 5 percent income observations (abroad and Malaysia) are excluded. As a consequence, median salaries are only somewhat higher than mean salaries.

Table 3: Descriptive Statistics (Main Sample = 1,654)

	%		%
Diploma	4	Business Services	35
Bachelor	47	CCI	13
Master	42	Healthcare	11
PhD	7	OGE	11
		Electronics & Electrical	9
Female	24	Education	7
Married	68		
Foreign Spouse	52	Engineering	28
Job offer in Malaysia	19	Finance/Banking	14
		Accounting	11
	Mean	Medical/Healthcare	11
Age (years)	38.4	Information and Communication Technologies (ICT)	10
Foreign work exp. (years)	7.3	Building/Construction	10
Current job duration (years)	3.2		
Foreign Salary	US$61,269	Technical Experts	51
Malaysian Salary	US$59,924	Top Management	11

Source: REP administrative data.

To assess how representative applicants to the REP are of the high-skilled Malaysian diaspora, table 4 shows a comparison of the characteristics of applicants from the United States with those of Malaysians in the ACS (used in the creation of the heat maps shown in the overview section of this report). The sample is limited to those with more than high school education, are at least 25 years of age, have been in the United States for at least three years, and do not have American citizenship.

Table 4: Comparison of the REP with ACS

	REP (U.S. Origin)	ACS
	%	%
Female	30	48
Married	47	70
Bachelor	43	47
Master	33	38
PhD	12	8
Years in the U.S. (mean)	7.2	13.7
Age (mean)	36	39.1
Income (mean)	US$82,036	US$76,096
Income (median)	US$72,000	US$63,957
Business Services	32.5	26.3
Other (Manufacturing)	9.4	23.4
Education	8.1	13.7
Electronics & Electrical	10.6	11.4
Healthcare	10	10.9
Wholesale and Retail	2.2	10.5
CCI	14.1	1.9
OGE	10.3	1.6
Total	368	10,690

Source: REP administrative data and ACS.

In line with the objectives of the REP, applicants have higher income than comparable Malaysians in the United States, with mean (median) annual incomes of US$82,036 (US$72,000) compared to US$76,096 (US$63,957), respectively. This is despite the fact that REP applicants from the United States are somewhat younger on average (36 years compared to 39.1) and have spent less time in the United States (7.2 years compared to 13.7 years).

The education profiles of the two groups are quite similar though REP applicants are slightly more likely to be PhD holders than the average Malaysian diaspora in the United States. Applicants are much less likely to be female; 30 percent compared to 48 percent in the ACS. There are also some differences in the industry profiles of the two samples (though many differences are not statistically significant). Applicants are disproportionately in business services, OGE, and CCI; they are less likely to be in retail services and the 'other' category, which includes manufacturing.

3.3. Preliminary Evidence

Table 5 shows the number (and fraction) of applicants who returned to Malaysia, by approval status. In terms of approvals, around 20 percent of the applicants are rejected by TalentCorp. It should be emphasized that this is the rejection rate after the sample is restricted to individuals who seem to meet the minimum eligibility requirements stated inFigure 9a, except for the total duration abroad. More specifically, they meet the criteria of having been employed abroad, are under no obligation to return, and have been abroad for at least 3 years. The overall return rate of all applicants is very high at 72 percent. This is evidence that people tend to apply to the program only if they are seriously considering returning to Malaysia. The return rate of the approved applicants is 73 percent while it is 64 percent for those rejected. In other words, **those approved by the REP are about 9 percent more likely to return than those rejected, suggesting that the program may increase the likelihood that high-skilled Malaysians from abroad return to Malaysia.**

Table 5: Approval and Return Decision

	Not Approved	Approved	Total
Not Returned	122	350	472
	36%	27%	29%
Returned	215	969	1,184
	64%	73%	71%
Total	337	1,319	1,656
	100%	100%	

Source: REP administrative data.

The correlation between approval and return status of applicants is robust to the inclusion of a large set of covariates as shown in Table 6. Only two additional covariates, of the large set available, predict whether an individual will return to Malaysia and affect the correlation between approvals and return status. **First**, **having an existing job offer in Malaysia at the time of application to the REP increases the probability of return** by about 22 percent. **Second**, **older applicants are less likely to return** with each additional year of age (at a decreasing rate). Since those approved by the program are less likely to have a job offer and more likely to be older than those rejected, the inclusion of these controls in the linear probability model (LPM) increases the correlation between approval and return status to 12 percent.[9]

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[9] Results from a probit specification are nearly identical. In light of the later RD design which uses a local polynomial specification in a two-stage least squares model, the ordinary least square results are presented here.

Table 6: Correlation between REP Approval and Return Probability, LPM

	(1)	(2)	(3)	(4)	(5)	(6)
REP Approval	0.093***	0.107***	0.129***	0.126***	0.126***	0.120***
	(0.026)	(0.025)	(0.026)	(0.029)	(0.029)	(0.031)
Job Offer		0.216***	0.223***	0.238***	0.238***	0.225***
		(0.020)	(0.020)	(0.021)	(0.021)	(0.022)
Age (years)			- 0.008*	- 0.009*	- 0.010**	- 0.010*
			(0.004)	(0.005)	(0.005)	(0.005)
R-Squared	0.008	0.043	0.049	0.06	0.062	0.078
Controls:						
Education	No	No	No	Yes	Yes	Yes
Experience Abroad	No	No	No	Yes	Yes	Yes
Income	No	No	No	Yes	Yes	Yes
Personal Characteristics	No	No	No	No	Yes	Yes
Industry and Occupation	No	No	No	No	No	Yes

Source: REP administrative data.
Note: *, **, and *** indicate statistically different from control mean at the 10, 5 and 1 percent levels respectively.

Table 7 depicts, by approval status, the number (and fraction) of applicants who returned to Malaysia for those individuals who at the time of their application already have an employment offer in Malaysia compared to those who do not have an offer. Irrespective of the approval decision, applicants with an existing job offer are considerably more likely to return to Malaysia than those without an offer. Return rates are 76 percent and 60 percent, respectively, among the group not approved by the REP.

Table 7: Approval and Return Decision by Existing Job Offer

	With Job Offer		Without Job Offer	
	Not Approved	Approved	Not Approved	Approved
Not Returned	18	17	104	333
	24%	7%	40%	31%
Returned	56	231	159	738
	76%	93%	60%	69%
Total	74	248	263	1,071

Source: REP administrative data.

More importantly, approval status is correlated with a particularly large increase in the likelihood of return for those with an existing job offer. REP approval is associated with a 17 percent increase (from 76 percent to 93 percent) among those with a job offer, as opposed to a 9 percent increase (from 60 percent to 69 percent) among those without a job. These differences presumably reflect the fact that undertaking the costly process of searching for and finding a job is a good indicator of an individual's unobserved motivation to return to Malaysia. They also reflect the less than perfect probability of finding an attractive job in Malaysia within the two years that the REP approval is valid. Specifically, the return rate of those approved by the REP is 93 percent for those with an existing employment offer and only 69 percent for those without. This suggests that the rate at which applicants find attractive job offers in Malaysia within two years is around 74 percent (the range is between 69 percent and 93 percent) while 7 percent of these offers are still rejected for other reasons.

4. *Regression Discontinuity Design*

The key concern with a causal interpretation of the preliminary findings is that there may be unobserved characteristics of applicants that are correlated with both the return and approval decisions. Most importantly, an applicant's individual desire to return to Malaysia is not observed in the data. The unobserved propensity to return may be correlated with the approval decision. For example, those who are eager to return may make additional efforts to be approved, resulting in a spurious positive correlation between approval and the return decision. Alternatively, since applying is costly (with regard to time and effort) only highly motivated applicants will apply if their probability of acceptance is low, thus resulting in a spurious negative correlation between approval and return. This and other endogeneity concerns are addressed using a technique known as RD design. In this section, the analysis first demonstrates the existence of discontinuities in the likelihood of acceptance at certain thresholds based on years of work experience abroad. Then these discontinuities are used to estimate the causal effect of acceptance to the REP on the return decision. Two seminal papers by Imbens and Lemieux (2008) and Lee and Lemieux (2010) provide excellent overviews of the latest research and advances on the RD technique and evaluation designs using this technique. This analysis follows their proposed approach to establish whether the impact of the program causes the Malaysian diaspora to return.

4.1. Discontinuities in the Probability of Approval

The eligibility requirements for the REP are to a large extent public knowledge, available to the applicants on the website through which they submit their application to the program.However, the application of the assessment criteria (see figure 9b) provides for the REP Committee to exercise discretion to accept or reject marginal candidates. Lee (2008) shows formally that even when individuals have some control over the likelihood of acceptance they will be accepted into the program (or treated), as long as this control is imprecise, the consequence will be local randomization of the treatment. Such an approach can be properly used in this case as it precisely describes the approval process for the REP.

Once the basic criteria for approval have been satisfied, the key determinant for approval is whether the applicant has had sufficient work experience abroad. Applicants have to provide extensive details on all their educational attainment and work experience abroad and TalentCorp invests considerable effort into verifying the accuracy of an applicant's declarations. The eligibility threshold, in years of experience abroad, depends on the applicant's educational attainment, as discussed above and presented in figure 9b.

Even though these thresholds are public knowledge, in practice TalentCorp does not rigidly adhere to them, especially for those people who are just below the cutoffs. First, it gives most applicants some leeway on the assumption that they will continue working abroad until they actually relocate to Malaysia. Based on the data, it seems as though, on average, applicants get up to six months leeway though there is considerable variability. Second, a major source of this variability is the determination whether an applicant whose skill set is determined to be particularly important for the Malaysian economy can be considered an 'expert'. This determination is intrinsically judgmental and creates subjectivity in the application process.

Figures 10a and 10b plot the probability of approval to the REP against the applicant's months of work experience abroad, normalized by the education dependent threshold (minus six months leeway). Consequently, the threshold for acceptance for all applicants has been normalized to zero. In Figure 10a, the data is by months of experience and a locally weighted scatterplot smoothing (LOWESS) has been fitted. In Figure 10b, experience is measured in quarters and a linear best-fit line is included.

The figures show clear evidence of a considerable discontinuity in the probability of acceptance at the threshold. Above the threshold, the probability of acceptance is nearly flat at around 94 percent. Just below the threshold, the probability of acceptance is still a very high 60 percent and then drops rapidly to around 10 percent for applicants whose work experience is two years below the threshold.

Figure 10a: Discontinuity in REP Acceptance Probability by Normalized Work Experience Abroad, Monthly Bins.
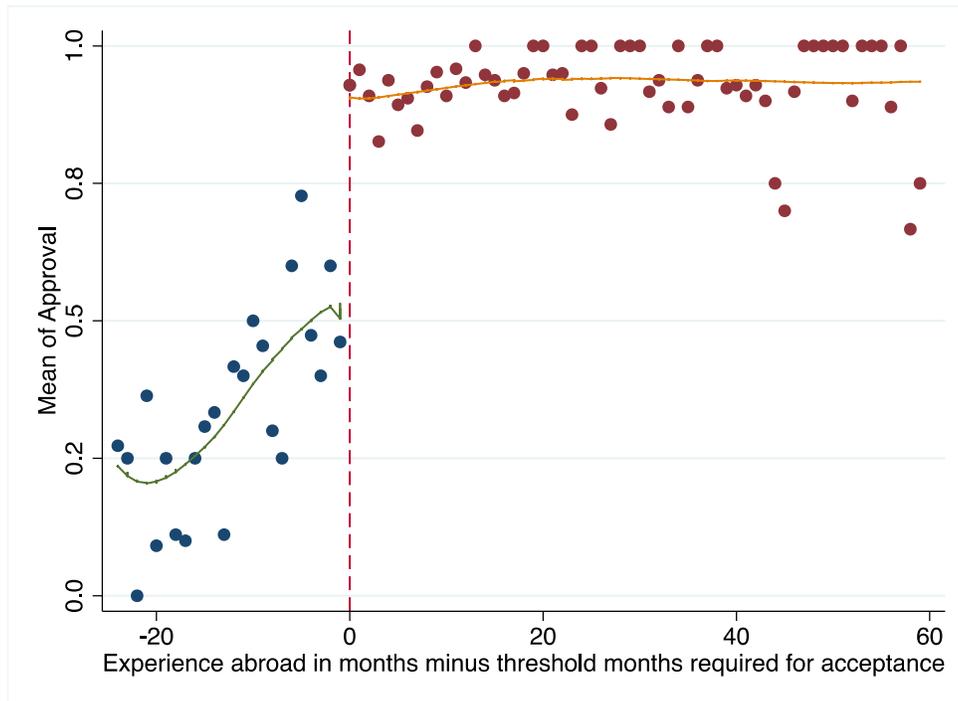
Source: World Bank

Figure 10b: Discontinuity in REP Acceptance Probability by Normalized Work Experience Abroad, Quarterly Bins.
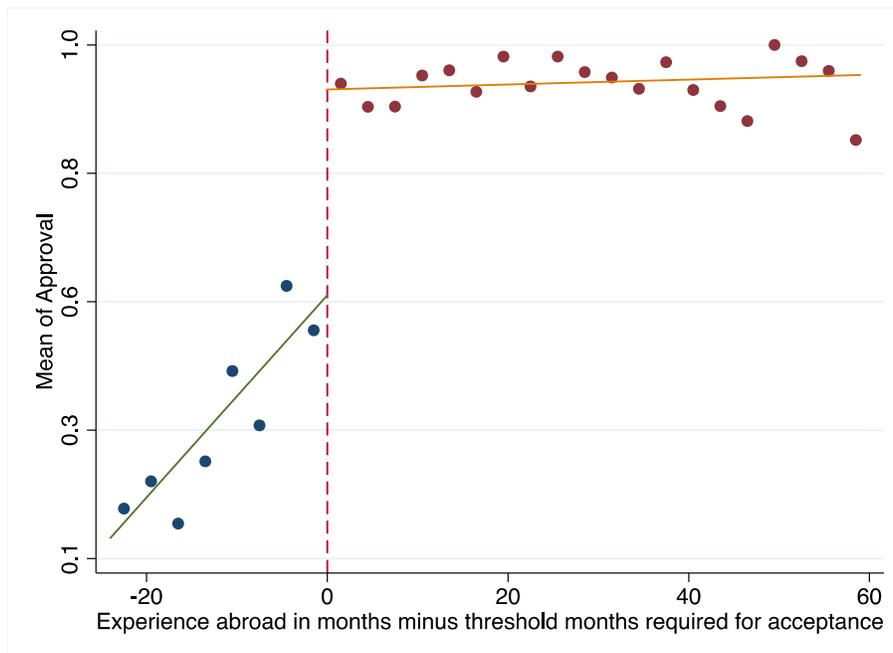
Source: World Bank

There are no corresponding discontinuities in the observed characteristics of applicants. Figures 11a and 11b depict the mean probability of having an existing job offer and the mean age (minus 25) by months of experience, respectively. Recall that these are the only two variables that predict the return probability. Figure 11c depicts mean income abroad by months of experience. The threshold is normalized to zero for each education group, and the figures include a quadratic best-fit line. None of the figures show any statistically significant discontinuities at the threshold.[10]

Figure 11a: Probability of an Existing Employment Offer in Malaysia by Normalized Work Experience Abroad, Monthly Bins.
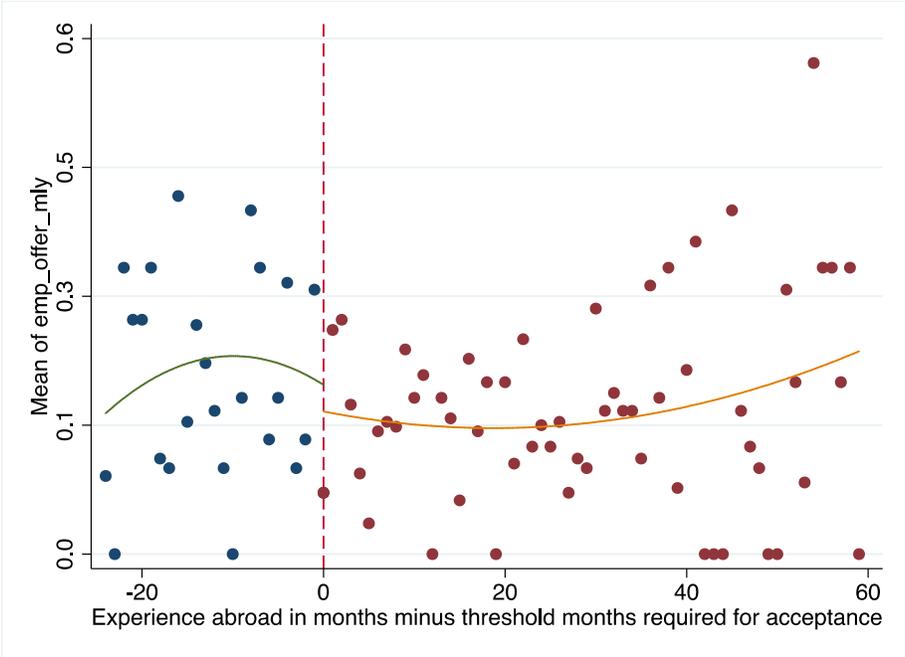
Source: World Bank

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[10] This is formally tested by running a least squares regression of the approval probability on a dummy for the threshold and separate quadratic polynomials of months of experience on either side of the threshold. Including different order polynomials does not affect this result. Also, discontinuities are not found in any of the other observable applicant characteristics.

Figure 11b: Mean Age (minus 25) by Normalized Work Experience Abroad, Monthly Bins.
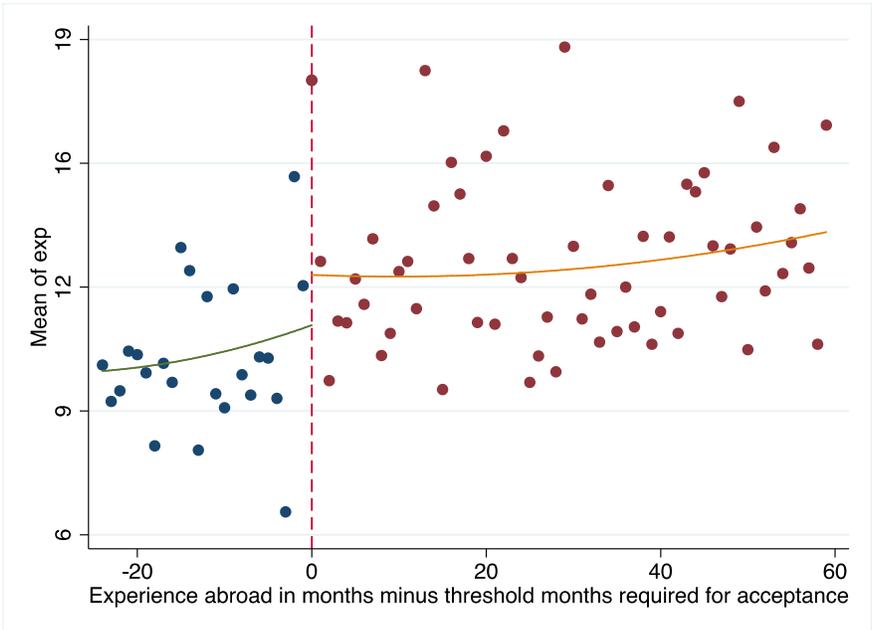
Source: World Bank

Figure 11c: Mean Income Abroad by Normalized Work Experience Abroad, Monthly Bins.
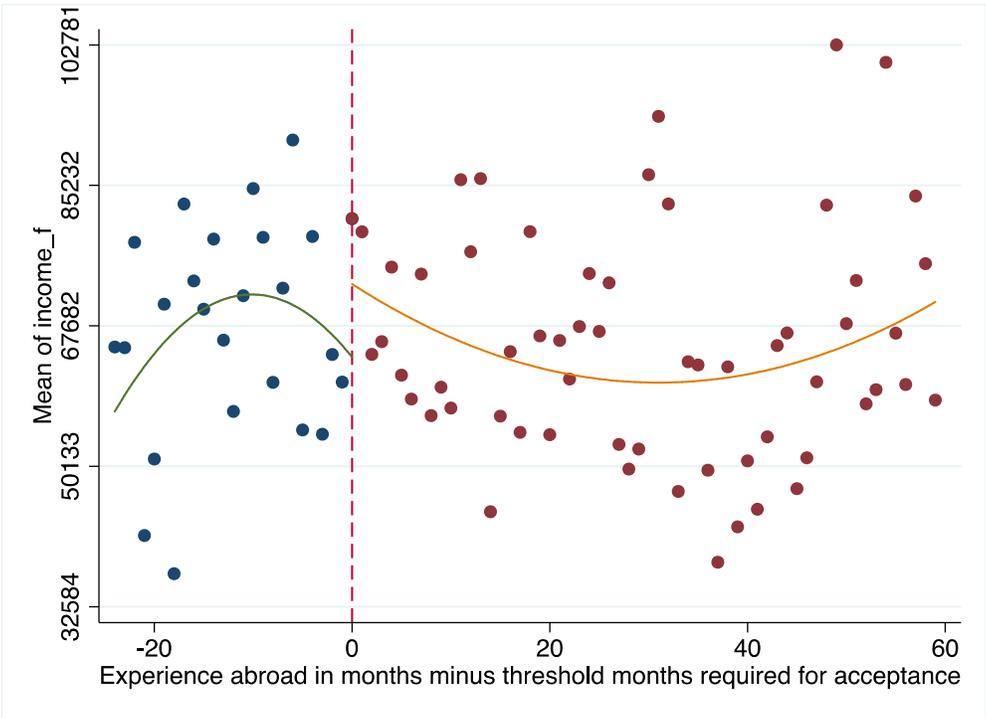
Source: World Bank

While there are no discontinuities at the threshold in observable characteristics, the primary concern is that there are discontinuities in unobserved characteristics that affect the return probability. McCrary (2008) suggests that a way to test for discontinuities in unobserved characteristics is to look for evidence of sorting around the threshold. Recall that each individual is likely to have imprecise control over whether they will be admitted to the REP or not, in which case both observed and unobserved characteristics should be continuously distributed across the threshold. This cannot be tested directly, but an intuitive test of this assumption is whether the aggregate distribution of the applicants by months of experience abroad is discontinuous at the threshold.

Figures 12a and 12b depict the number of applicants by months of experience abroad. Figure 12a depicts the distribution for all individuals between two years below the threshold and five years above. The distribution is hump-shaped with a particularly high density of applicants around half a year above the threshold (which corresponds to the formal eligibility requirements). Visually it looks like there may be some sorting around the threshold with many applicants just above the threshold and fewer below. Figure 12a magnifies the distribution around the threshold by only considering observations on one year either side of the threshold. In Figure 12b, sorting around the threshold is no longer seen.

Figure 12a: Number of Applicants by Months of Experience Abroad (Seven-year Interval)
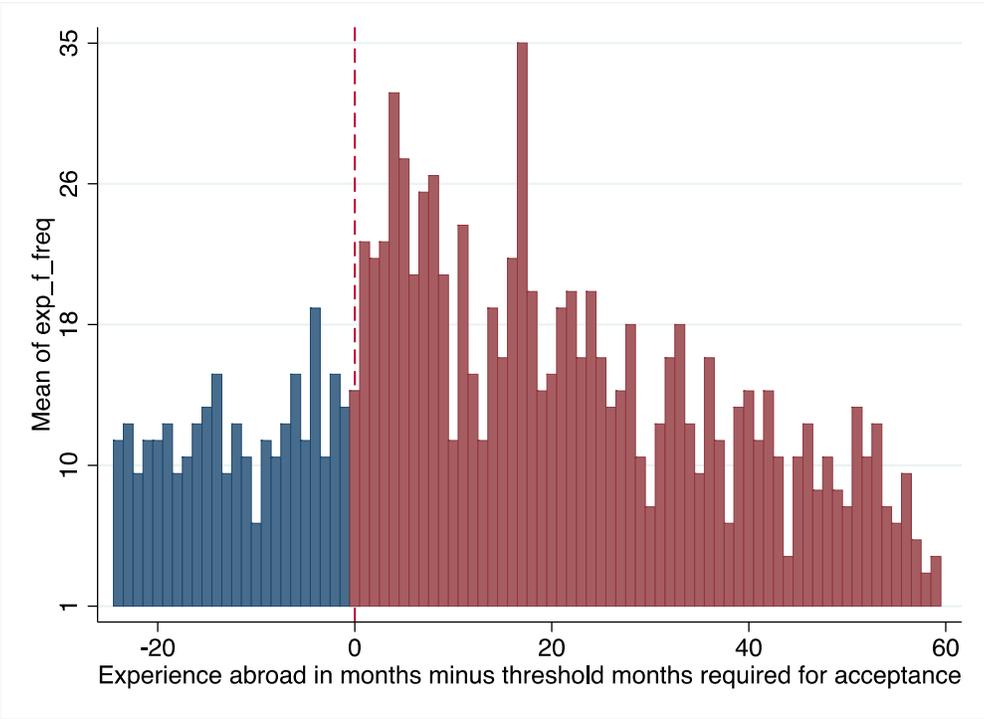
Source: World Bank

Figure 12b: Number of Applicants by Months of Experience Abroad (Seven-year Interval)
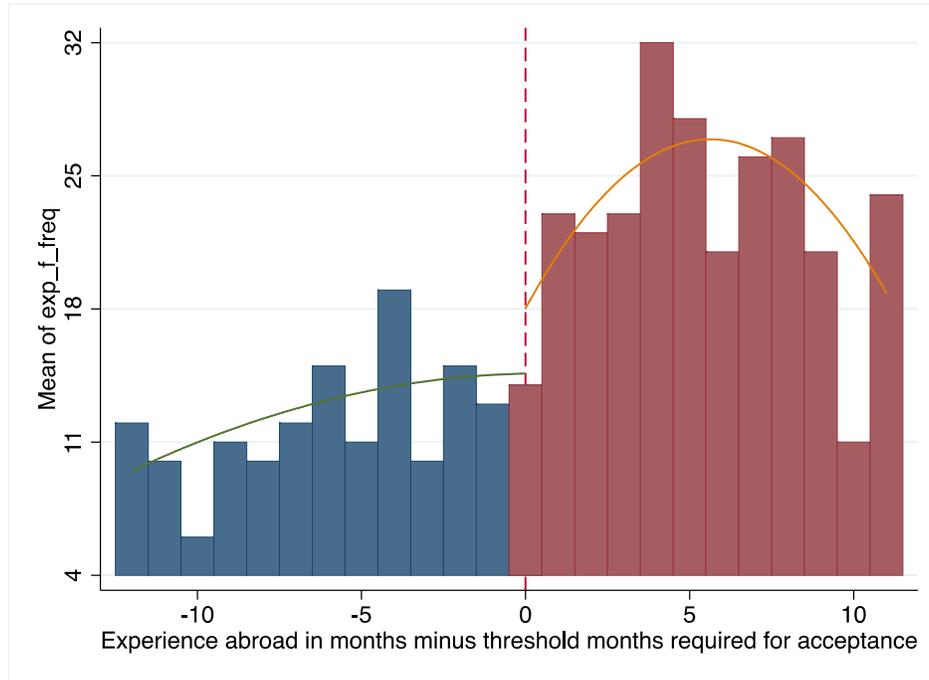
Source: World Bank

Following McCrary (2008), a test for sorting around the threshold was undertaken. Since months of experience are discrete, the analysis does not use a non-parametric test but rather runs a least squares regression of the approval probability on a dummy for the threshold and separate polynomials of months of experience on either side of the threshold. There is no statistically significant evidence of a discontinuity in the number of applicants around the threshold in any of numerous specifications.

The fact that there is no evidence to suggest sorting around the threshold is not surprising given the design of the program. In particular, the eligibility criteria are fuzzy such that 60 percent of applicants who fall just below the acceptance threshold are still approved (see figure 10b).

4.2. Empirical Model

The discussion in the previous section suggests that the REP can be evaluated as a fuzzy RD design. Formally, the fuzzy RD design can be described by a two-equation system:

$$Y = \alpha + \tau D + f(X - c) + \varepsilon, \quad (1)$$

$$D = \gamma + \delta T + g(X - c) + v, \quad (2)$$

where Y, D, and T are binary variables; X is the months of experience abroad (the assignment variable); and v is an error term independent of X. Y is equal to 1 if the applicant returns to Malaysia, D is equal to 1 when the application is approved, and T is equal to 1 when the

assignment variable X is greater than the threshold c ($T = 1[X \geq c]$).

The probability of treatment changes discontinuously at c:

$$\lim_{\varepsilon \downarrow 0} \Pr(D = 1 | X = c + \varepsilon) \neq \lim_{\varepsilon \uparrow 0} \Pr(D = 1 | X = c + \varepsilon).$$

Since the probability of treatment jumps by less than 1 at the threshold, the treatment effect can be recovered by dividing the jump in the relationship between Y and X at c by the increase in the probability of treatment at the threshold (the discontinuity jump in the relation between D and X). In this setting, the treatment effect can be written as:

$$\tau = \frac{\lim_{\varepsilon \downarrow 0} \mathrm{E}(Y | X = c + \varepsilon) - \lim_{\varepsilon \uparrow 0} \mathrm{E}(Y | X = c + \varepsilon)}{\lim_{\varepsilon \downarrow 0} \mathrm{E}(D | X = c + \varepsilon) - \lim_{\varepsilon \uparrow 0} \mathrm{E}(D | X = c + \varepsilon)}$$

A technical paper by Hahn et al. (2001) shows that the interpretation of this ratio as a causal effect requires the same assumptions as in the paper by Imbens and Angrist (1994). One must assume 'monotonicity', that is, approval of the application cannot decrease the probability that any individual returns to Malaysia, and 'excludability', that is, X crossing the threshold cannot affect the return probability other than by affecting the probability of approval. Monotonicity is a very natural assumption in the context of the REP; it is hard to conceive of a situation in which the approval of the application dissuades an individual from returning to Malaysia.[11] The previous section presented extensive evidence in support of the excludability assumption, that is, there are neither discontinuities in other observable variables nor in the frequency of X (the number of applicants) around the threshold.

In a fuzzy RD design it is not treatment (the approval decision) that is randomized, but rather the 'intent to treat' (whether an individual is above or below the threshold) that is locally randomized. Figures 13a and 13b depict the intent-to-treat effect by showing scatter plots of the probability of return plotted against the assignment variable (months of work experience). Figure 13a uses month bins and figure 13b quarterly bins and both figures include a linear best-fit line. It is clear that the data is very 'noisy', making it very difficult to see whether there is a discontinuity in the probability of returning to Malaysia at the threshold, that is, an intent-to-treat effect.

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[11] Unless, of course, Oscar Wilde was to apply since he did claim that "I would never join any club that would have me as a member."

Figure 13a: Probability of Return by Normalized Work Experience Abroad, Monthly Bins.
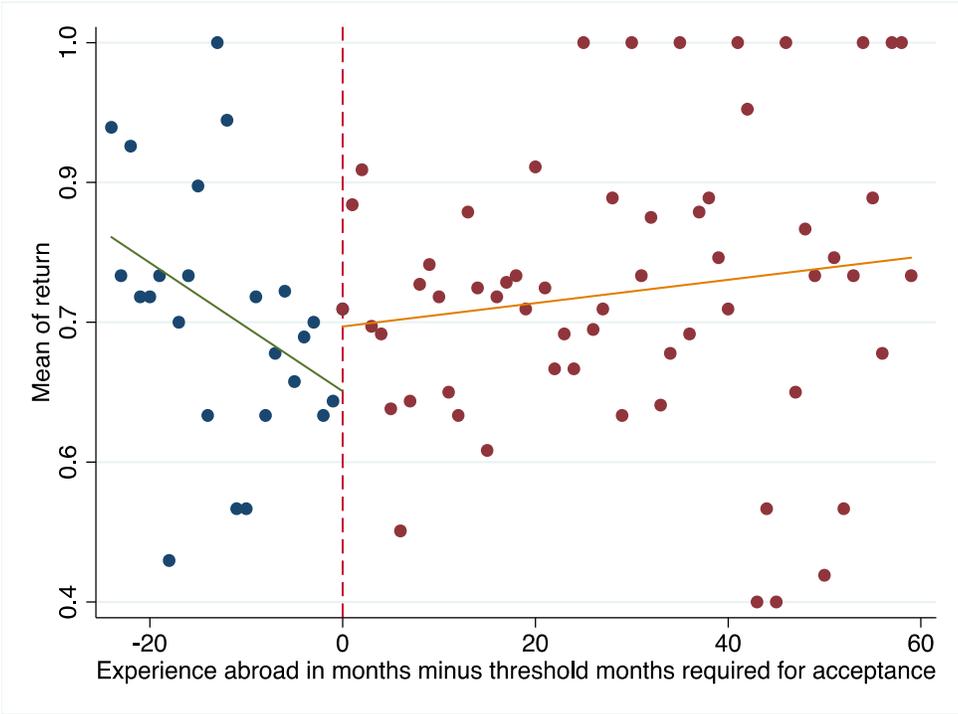
Source: World Bank

Figure 13b: Probability of Return by Normalized Work Experience Abroad, Quarterly Bins.
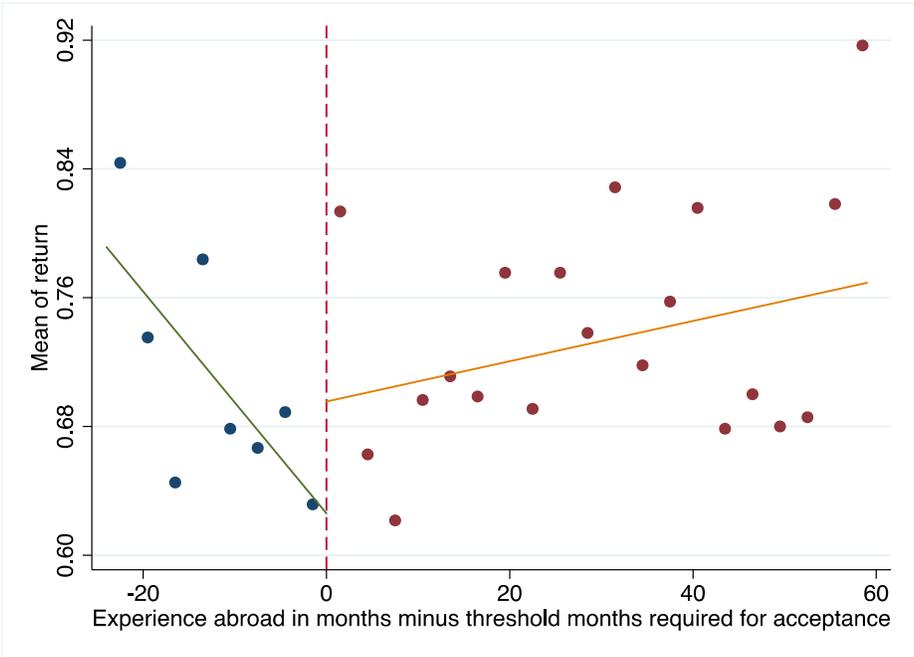
Source: World Bank

Hahn et al. (2001) suggest estimating the treatment effect using two-stage least squares, where equation (2) is the first stage and equation (1) is the outcome equation. The instrumental variables estimate can be interpreted as the weighted average treatment effect for the subpopulation affected by the instrument, that is, a weighted local average treatment affect. The weights reflect the likelihood that an individual's X is near the threshold. Hahn et al. (2001) also suggest local linear regressions as an alternative nonparametric way to estimate the treatment effect. These two estimation techniques have become the standards in the literature (Imbens and Lemieux 2008; Lee and Lemieux 2010). However, our assignment variable is discrete (it is measured in months) and as Lee and Card (2008) discuss extensively, this makes it impossible to compare observations 'just above' and 'just below' the treatment threshold. This requires us to choose functional forms for the relationship between the treatment variable and the outcome of interest and hence constrains us to use two-stage least squares.

There are two central issues in using two-stage least squares to estimate the treatment effect. First, a decision on the order of the polynomials f(.) and g(.) needs to be made. Note that in every specification, the regression function is allowed to differ on both sides of the threshold point by including interaction terms between D and X (Imbens and Lemiuex 2008). Second, a decision needs to be made on the range of X to include in the estimation, specifically to what degree to exclude the X that are far from the threshold.

The analysis follows Lee and Lemieux (2010) on how to choose the optimal polynomial model. Month dummies are added to the polynomial regressions (1) and (2) and to jointly test the significance of the bin dummies. It includes up to order six polynomials, and the findings are corroborated by the Akaike Information criterion. Five different samples are considered: a sample where all the available data are included[12] and samples where the analysis drops 10, 25, 50, or 75 percent of the X at the tails on either side of the threshold, respectively.

The tests provide clear guidance on the order of the polynomial of X to include in the regressions. A linear first-stage regression, equation (2), fits the data best, as is clear from figures 10a and 10b, with no additional benefit to higher-order polynomials. Indeed, a zero-order polynomial fits the data best above the threshold. In the outcome regression, equation (1), a first-order polynomial provides the best fit, except when 75 percent of the X are dropped in which case there is a marginal improvement with a second-order polynomial. The main problem with higher-order polynomials is that they 'over fit' the data. This results in systematically very large treatment effect estimates, frequently above 1. Following the recommendation of Imbens and Lemieux (2008), the same order polynomial as in the first- and second-stage regressions are included as well as either side of the threshold. This also has the advantage that standard errors are easier to calculate.

It is standard practice in RD designs to use heteroskedasticity-consistent standard errors to account for the different number of observations for each X. In the case of a discrete assignment variable, Lee and Card (2008) recommend using cluster-consistent (clustering

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[12] One percent of the observations at the extremes of either side of the threshold are dropped.

on the individual values of *X*) standard errors to correct for measurement error. However, the cluster-consistent standard errors obtained are practically always smaller than the heteroskedasticity-consistent standard errors and consequently, only the robust standard errors are reported.

4.3. Fuzzy Regression Discontinuity Results

The two-stage least square results are presented in table 8. Results are shown without additional covariates and with a full set of covariates[13] and for the five different samples of *X* (where *X* that are far from the threshold are excluded). The first stage is highly significant in every specification though the first-stage F-statistic naturally decreases as the sample size decreases. While the estimated treatment effect is positive in every specification, it is never statistically significant. Including second-order polynomials of *X* leaves the point estimates nearly unchanged though they remain statistically insignificant (not presented here).

Table 8: Impact of REP Approval on Return Probability, Full Sample, Two Stage Least Square Estimates

	Full Sample	90% Sample	75% Sample	50% Sample	25% Sample
			No Covariates		
REP Approval	0.089	0.107	0.123	0.206	0.345
	(0.096)	(0.125)	(0.161)	(0.231)	(0.360)
First-stage F-statistic	115	65	40	19	8
			Full Set of Covariates		
REP Approval	0.091	0.145	0.152	0.225	0.353
	(0.102)	(0.132)	(0.167)	(0.246)	(0.416)
First-stage F-statistic	118	68	43	20	8
Observations	1656	1487	1231	813	412

Source: REP administrative data.

The key source of heterogeneity among applicants, as discussed in section 3.3, is whether they have an employment offer in Malaysia before applying to the REP. It is worth emphasizing that the REP benefits can be claimed only if the applicants receives a job offer in a related field and area of expertise within two years of being approved by TalentCorp and they return to Malaysia. The data suggests that the chances of finding an attractive job offer are around 75 percent for those approved (see section 3.3), resulting in correspondingly

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[13] The covariates are income while abroad, duration in the current job, age, a dummy for an existing employment offer, marital status, female, year, and education and industry fixed effects.

smaller expected impact of the REP on the return probability. Furthermore, those with an existing job offer tend to return to Malaysia far more quickly after approval than those without such an offer. The considerable lag between approval and the return decision for applicants without an existing job offer further dilutes the impact of the REP.

Table 9 presents the estimated treatment effects for those with an existing employment offer in Malaysia. Results without additional covariates and with a full set of covariates are shown[14] and for the five different samples of *X*. The first stage is highly significant in every specification. The estimated causal impact of the program on the return probability is large and statistically significant (except for the smallest sample). The point estimates increase as the sample size reduces, suggesting that the return migration decision of applicants close to the threshold is more sensitive to whether they are approved. The inclusion of a large set of covariates does not substantially affect the estimates; it does reduce the variability of the estimates as the sample size decreases.

Table 9: Impact of REP Approval on Return Probability, Sample of Applicants with Job Offer, 2 Stage Least Square Estimates

	Full Sample	90% Sample	75% Sample	50% Sample	25% Sample
	No Covariates				
REP Approval	0.400**	0.527**	0.596**	0.702*	0.797
	(0.163)	(0.210)	(0.272)	(0.364)	(0.633)
First-stage F-statistic	36	25	17	11	5
	Full Set of Covariates				
REP Approval	0.474***	0.560**	0.565**	0.631**	0.663
	(0.182)	(0.226)	(0.264)	(0.310)	(0.440)
First-stage F-statistic	31	24	19	13	9
Observations	322	280	216	137	70

Source: REP administrative data.
Note: *, **, and *** indicate statistically different from control mean at the 10, 5 and 1 percent levels respectively.

The point estimates suggest that approval to the REP increases the probability of returning to Malaysia by 40 to 70 percent for those individuals who have an existing employment offer in Malaysia. This is clearly a huge impact though applicable to only 19 percent of the REP applicants. Recall that the unconditional return probability of approved applicants in this group is 17 percent higher than those not approved (see table 5).

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[14] The covariates are income abroad, duration in the current job, age, a dummy for the marital status, female, year, and education and industry fixed effects.

Larger Instrumental Variable (IV) estimates suggest that there is a negative correlation between the approval and return probabilities. This is consistent with the idea that individuals with low acceptance probabilities only apply if they have a high probability of returning to Malaysia (for reasons other than the REP).

The other groups for whom we find a statistically significant treatment effect are female applicants who are either single or married to a foreign spouse.[15] Female and male applicants return under considerably different circumstances, which may explain why the program is more salient for women. First, the spouses of 70 percent of female applicants are employed while the same is true for only 34 percent of male applicants. Hence, the fact that the REP provides a spouse with permanent residency status and hence the ability to work is likely more important for female applicants. Second, women on average experience wage losses on returning to Malaysia, unlike men, which may make the financial incentives inherent in acceptance to the REP more important for women.

Table 10 presents the estimated treatment effects for female applicants without a Malaysian spouse. As before, results without additional covariates and with a full set of covariates are shown and for the five different samples of *X*. The first stage is highly significant in every specification. The estimated causal impact of the program on the return probability is large and statistically significant (except for the smallest two sample). The point estimates increase as the sample size reduces, suggesting that the return migration decision of applicants close to the threshold is more sensitive to whether they are approved. The inclusion of a large set of covariates does not substantially affect the estimates; it does reduce the variability of the estimates as the sample size decreases. The point estimates suggest that approval to the REP increases the probability of returning to Malaysia by over 40 percentage points for this sample.

Table 10: Impact of REP Approval on Return Probability, Sample of Women Without Malaysian Spouse, 2SLS Estimates

	Full Sample	90% Sample	75% Sample	50% Sample	25% Sample
			No Covariates		
REP Approval	0.427**	0.596**	0.624**	0.524	1.086
	(0.195)	(0.275)	(0.325)	(0.453)	(1.040)
First-Stage F-Statistic	43	23	16	8.2	2.0
			Full Set of Covariates		
REP Approval	0.516**	0.668***	0.662**	0.534	1.286
	(0.215)	(0.257)	(0.294)	(0.416)	(1.280)
First-Stage F-Statistic	31	22	16	6.9	1.5
Observations	248	220	189	122	64

Note: *, **, and *** denote significance at the 10, 5 and 1 percent significance levels respectively.

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[15] The point estimates of the treatment effect for these two groups are very similar, but separately are not statistically significant. Thus we present results were we pool the two groups. Note that 54 and 72 percent of female and male applicants respectively are married.

The REP works, it increases the probability that applicants return to Malaysia. What is not clear from the results so far is why it works. The survey conducted among REP applicants sheds some light on this question, as well as providing an overview of their overall migration experience and motivations.

Most REP applicants originally migrated abroad for work–related reasons, see Figure 14a below (categories are not mutually exclusive). Initially they did not intend to return to Malaysia soon, see Figure 14b. However, only one third were considering an indefinite length of stay abroad.

Figure 14a: REP Applicants Reasons for Originally Moving Abroad
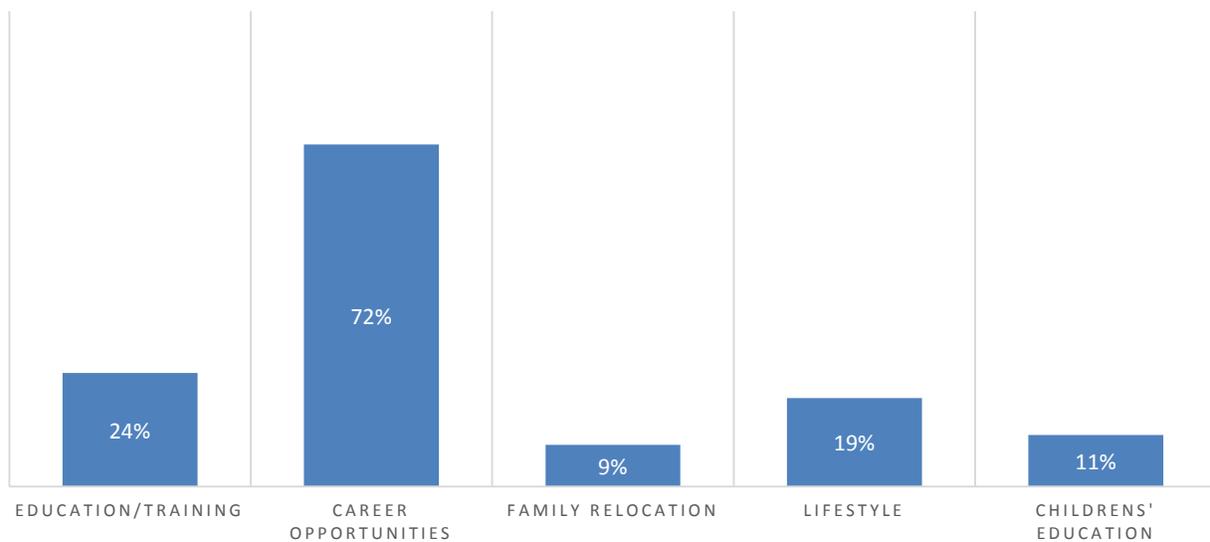
Source: World Bank

Figure 14b: REP Applicants Original Expectation of Duration Abroad

< 1 year
1%

1-3 years
15%

Did not know
33%

3-10 years
39%

>10 years
12%
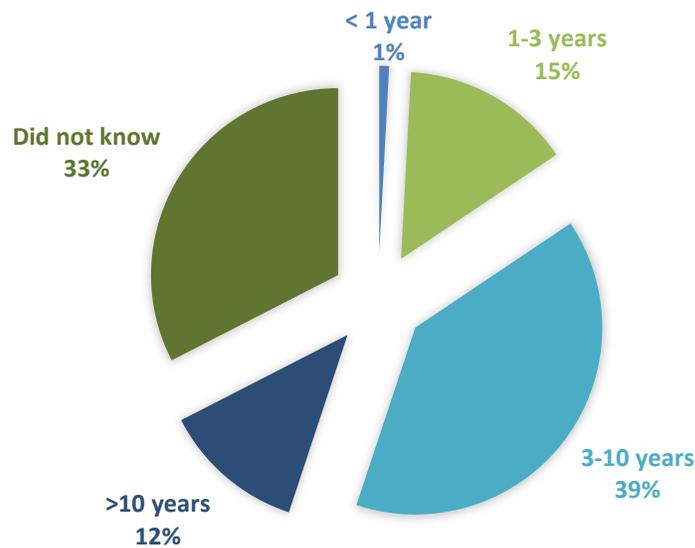
Source: World Bank

While not intending to return soon, REP applicants remained heavily engaged with Malaysia even while abroad. Nearly 60 percent become members of a Malaysian diaspora organization, and overwhelmingly returned to Malaysia at least once a year (see Figure 15a). The links to Malaysia go far beyond visits (see Figure 15b). Nearly half continued to own property in Malaysia, a little less than 40 percent retained investments in Malaysia and continued to foster a professional network there. Only 25 percent had no significant links beyond family.

Figure 15a: Trips to Malaysia Per Year (in %)

Infrequently, 9.7

5 or more, 23.6

1-2 Times, 44.9

3-4 Times, 21.8
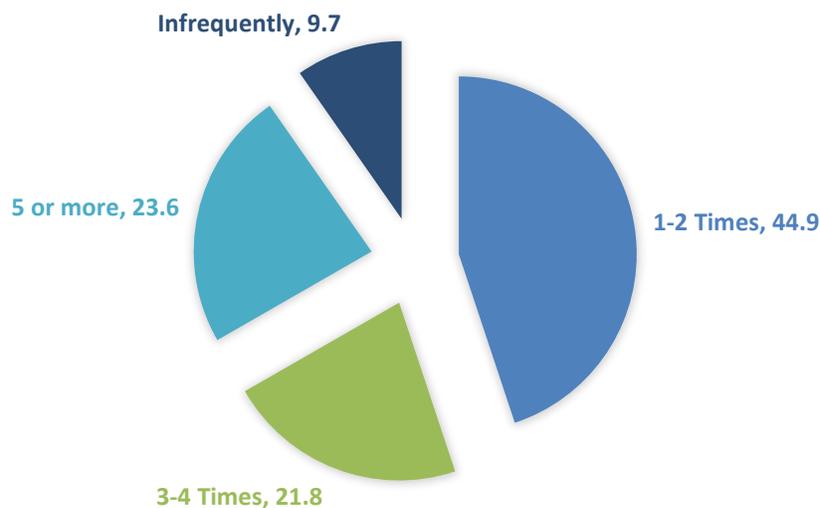
Source: World Bank

Figure 15b: Links to Malaysia
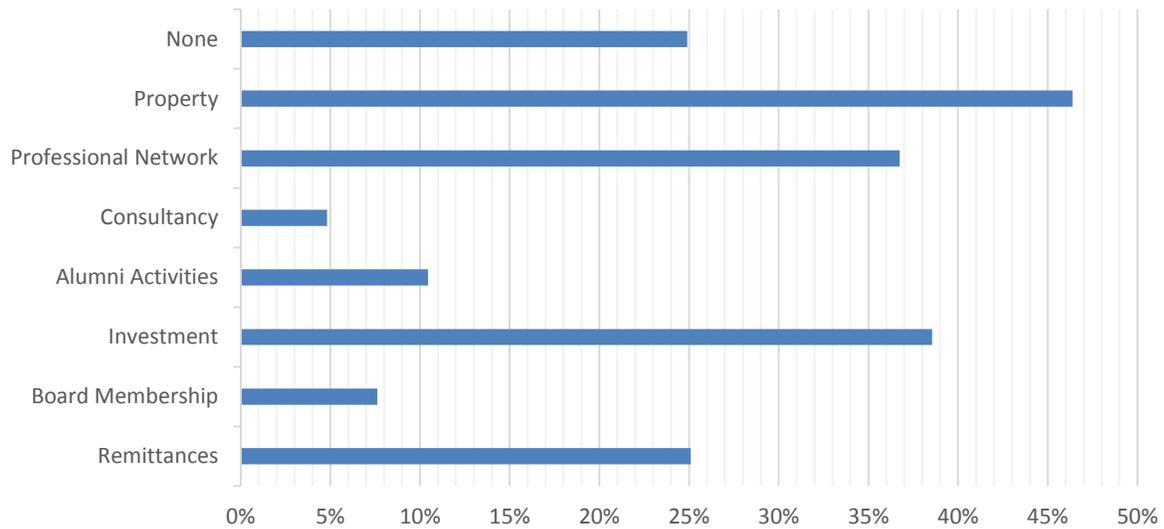
Source: World Bank

The eventual interest in a return to Malaysia was primarily precipitated by a combination of family (85 percent) and professional (40 percent) reasons, see Figure 16a. The REP's influence on the eventual return decision was, according to returnees, at least "moderate" for 75 percent of return migrants.

Figure 16a: Reason for REP Applicants to Return
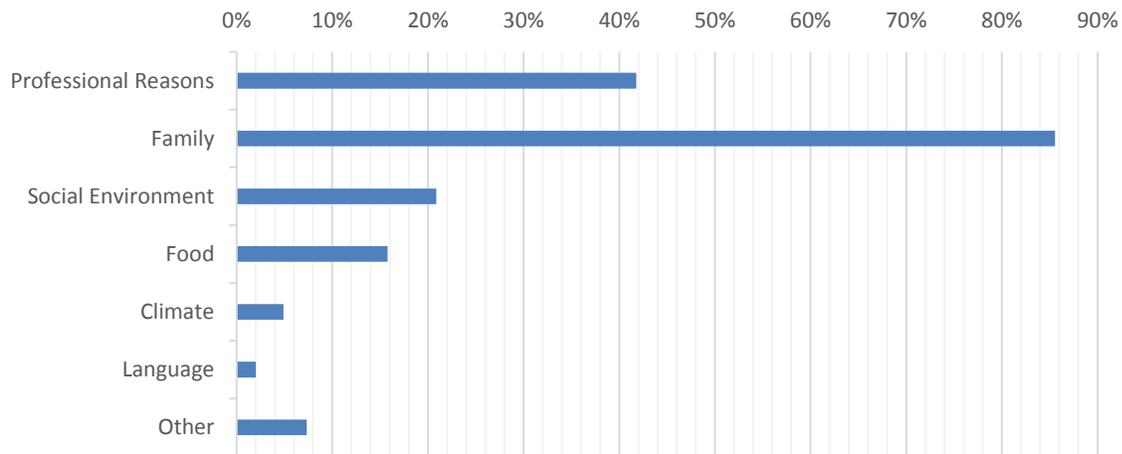
Source: World Bank

Figure 16b: How Important was REP Approval for Return Decision? (in %)
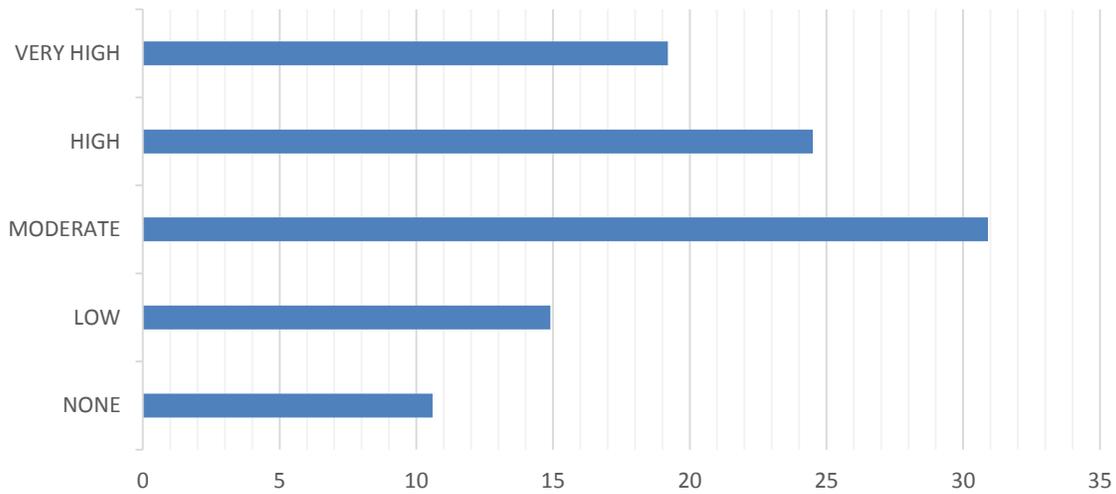
Source: World Bank

Among the incentives offered by the REP, the income tax incentive was considered by over half of respondents as the important incentive impacting their return decision. One-quarter cite the tax exemption on automotive vehicles, and a little less than 20 percent cite the permanent residence status for a spouse / children as the incentives that were most important to their decision.

Figure 17: Most Important Incentive for Decision to Return (%)
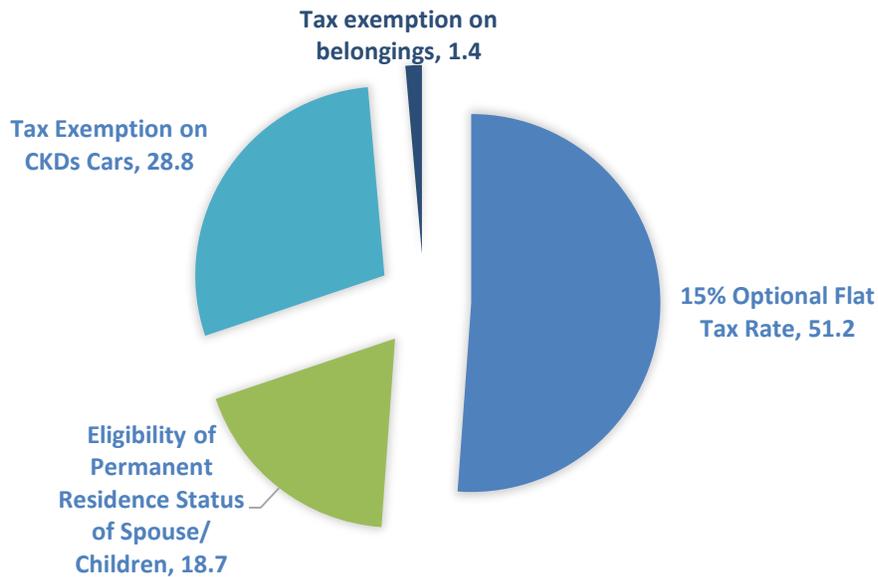
Source: World Bank

5. *The Fiscal Impact of REP*

The REP has a large, positive impact on the probability of an approved applicant returning to Malaysia (at least for the subset of applicants with an existing offer of employment in Malaysia). However, that does not necessarily mean that the program has a positive fiscal impact since it entails considerable costs.

There are four distinct sources of costs that rise from the REP. First, there are the costs of administering the program. Second, Malaysians who would have returned even in the absence of the REP but still take advantage of the flat tax offered by the REP for five years. Third, there is the tax exemption on cars. Fourth, there are additional government expenditures as the REP attracts additional people back to Malaysia.

The fiscal benefits of the REP arise from the fact that some additional Malaysians return to Malaysia due to the REP and pay income and consumption taxes. Moreover, the goal of the REP is to attract individuals who can help Malaysia become a high-income nation by 2020 and so is nearly entirely focused on possible externalities from the program. The REP attracts very high-skilled individuals, who likely also create jobs and raise the productivity of other workers. This section only provides estimates of the direct tax impact of return migrants. It does not attempt to assess the additional (external) benefits that may accrue as high-skilled individuals return to Malaysia.

Income and Consumption Taxes

To construct the estimates, it is assumed that individuals work until they are 64 years of age and that the remigration rate of returnees (from Malaysia) is 1 percent per annum.[16] Further, the assumption is made that the government discount rate is equal to the rate of economic growth, so that the government is assumed to have no pure time preference. In practice, the nominal of return on long-term Malaysian government bonds over the past several years has been around 4.5 percent, significantly lower than the expected growth rate.

For the analysis of the fiscal impact of the REP, the analysis is limited to the sample of applicants who have returned to Malaysia and for whom a wage is observed. Their initial wage on arriving in Malaysia is observed in the administrative data. Their age-specific wage growth is imputed using a comparable sample of individuals from the Malaysian Labor Force Survey (LFS) (2007–10).[17] Finally, the top and bottom 1 percent of wage earners are excluded from the analysis so as to reduce measurement error in the tails of the income distribution. The most current income tax schedule is used to calculate the fiscal impact. The analysis assumes that 70 percent of people's income is consumed (the savings rate for high

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[16] The remigration rate is found with the help of a survey conducted in 2014 in which REP applicants are asked whether they are currently living in Malaysia. Matching the survey to the TalentCorp administrative data allows estimation of a remigration rate.

[17] The sample from the Malaysian LFS includes only individuals between the ages of 25 and 64 years, with an educational qualification beyond high school completion, and employment in the same 3-digit occupations as the REP applicants. The (log) wage regression includes a fourth-order polynomial in age (minus 25), a female dummy, and education, industry, and year fixed effects.

income earners in Malaysia is below 30 percent) and around two-thirds of consumption is taxed at the 6 percent sales tax.

Car Taxes

Malaysia has very high tax rates on the import and sale of motor vehicles (around 120 percent for imported vehicles and 90 percent for completely knocked down vehicles). The average tax break provided by REP for these cars areconsiderable: on average estimated for a CBU about RM 375,000 and for a CKD vehicle RM 73,000. Approved applicants used to be able to take advantage of the tax break for two CKD cars (pre-April 2014). Since April 2014 they only receive tax break for one CKD/ Complete Built-Up CBU) car limited to RM150, 000 in taxes and duties. In practice, the average applicant used to take advantage of the tax break for somewhat more than one car. These numbers do not, however, reflect the foregone taxes to the Malaysian government.

To assess the foregone taxes from the tax exemption on vehicles one needs an estimate of the type of car someone who is approved by REP and returns would have bought in the absence of the tax exemption. In the absence of the tax exemption these return migrants would have likely bought considerably less expensive cars and paid accordingly lower taxes. In the absence of estimates of the elasticity of demand across types of cars we assume that the total expenditure of return migrants on cars would have been the same with and without the program (i.e. unit elastic demand). Moreover, the foregone taxes only apply to those people who would have returned to Malaysia in the absence of the REP.

Other Costs

The REP generates two additional costs: administrative costs and government expenditures due to those additional people who return on account of REP. A total cost of around RM 10,000 per month is estimated for the administrative cost to undertake the processing of REP applications.[18] To estimate the public expenditures on goods and services that arise due to the returning expatriates we include all government expenditures except for defense, education, debt service charges and transfer payments. The remaining public expenditures amounted to around RM 2,375 in 2011. We assume that these public expenditures continue to arise for each returnee until age 85 (provided that they do not re-migrate).

Cost-Benefit Analysis

The fiscal impact of REP depends on how many additional Malaysians return to Malaysia on account of the program. Results based on the OLS estimate with a full set of covariates are presented in table 4, which attributes a 12 percentage points increased return probability to those approved by the REP. Results based on the IV estimates are presented in tables 6 and 7. The treatment effect for the two groups that are impacted by REP (those with a pre-existing job offer women without Malaysian spouses) is on average 41 percentage points (the estimate with the full sample and without covariates); for the other applicants a zero

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[18] These costs do not include the overhead that accrues from the operations of TalentCorp, nor does it include the information campaigns to disseminate knowledge about the program.

treatment effect is assumed. Findings on the fiscal impact of the REP are presented in table 11.

Table 11: Fiscal Costs and Benefits of REP per Applicant (in RM)

	Scenarios	
	OLS	**Two-Stage Least Squares**
Additional Taxes Due to REP (in present discounted value)		
Income Taxes	82,958	96,369
Consumption Taxes	11,484	13,340
Total Benefits	94,441	109,709
Additional Costs Due to REP (in present discounted value)		
Processing Costs		
Foregone Income Taxes	35,352	34,573
Foregone Vehicle Taxes	36,111	35,315
Public Expenditures	10,729	12,831
Total Costs	82,193	82,718
Net Benefits	12,249	26,991

Source: Author's calculations

All costs and benefits are the present discounted value in current Malaysian ringgit. The analysis suggests that in terms of direct fiscal costs and benefits the REP pays for itself. The net fiscal benefits, based on the 2SLS estimates, are about RM 27,000 ($9,000) per applicant. Recall that these are the net present discounted value of benefits, accruing on average around 30 years, and hence this is not a lot of money. However, **the purpose of the REP is to attract high-skilled Malaysians in the hope that this will generate external benefits for Malaysia. Hence, the fact that even in the absence of imputing such benefits that the program seems to pay for itself is encouraging.**

6. Concluding Remarks and Recommendations

The REP successfully seeks to encourage the return migration of highly skilled Malaysians by offering transitionary benefit. Using a fuzzy RD design it has been found that acceptance to the program increases applicants' probability of return between 40 and 70 percent for those with an existing employment offer in Malaysia. However, there is no identifiable impact on applicants without an existing job offer. Potentials recommendations to be considered are as follows: **Connecting Malaysians Abroad to Job Opportunities**

The analysis shows that Malaysians abroad are highly educated, professionally opportunistic and well networked individuals who react to career opportunities. Based on the findings from the survey as well, applicants with an existing job offer are considerably more likely to return to Malaysia than those without an offer. If TalentCorp wants to ramp up the program and increase the number of successful returnees, it may want to consider focusing its efforts toward helping to ease any job-related information barriers that prevent Malaysian talent abroad from having job offers and facilitate the interaction between recruiters and diaspora. Some steps in this direction have already been taken by introducing a new an online job board called the Global Malaysians in collaboration with The Star newspaper (*myStarjob.com*). As part of this initiative, employers in Malaysia have the opportunity to advertise jobs targeted to Malaysian abroad in an online jobs board (http://mystarjob.com/globalmalaysians). In addition, as part of the new application process, REP applicants now can agree to share their CVs with prospective employers, hence, further increasing their likelihood to find employment opportunities back home. A further measure that could increase the effectiveness of the program is the introduction of a fast-tracked application process for diaspora members who already have a job offer in Malaysia. Allowing employers to drive the application process would be an important measure to better (and more quickly) respond to the market needs of the private sector.

The Government should continue to review and revise accordingly the eligibility and approval criteria of the REP to adapt to the changing needs of the labor market and to better target talent with skillsets in shortage in Malaysia. For example, in April 2014, the eligibility criteria for REP was revised to take into account the applicant's work experience in Malaysia prior to employment abroad, current salary abroad and the relevance of his/her expertise to the priority economic sector or area of critical skill gap. Such policy refinement is important, as the programs should continuously evolve together with the changing demands of the market and the economy.

Developing a system for Critical Skills Shortage Monitoring

In line with efforts aimed at providing more labor market information to Malaysian talent abroad, an **important step would also be the development of a transparent and easily accessible system to monitor skill gaps in the country.** The existence of this platform would inform diaspora members of the skills in shortage in Malaysia, thereby, giving them the opportunity to assess whether they could fill any of those shortages. Such a platform has proven to be successful when it is the result of an evidence-based, transparent and participatory process. A similar approach has been adopted by the UK's Migration Advisory

Committee (MAC), which combines a data-driven top down analysis with bottom-up regular consultations. A similar mechanism could be introduced in Malaysia, leveraging TalentCorp's vast industry network (bottom up) and ILMIA's labor market data collection efforts (top-down). Initial steps in this direction have been taken by the Government of Malaysia with the establishment of a Critical Skills Committee announced in the 11th Malaysia Plan Document.

Meeting broader family needs

International experience also shows that family needs are important factors affecting workers' location decision. Ensuring that spouses can have the right to work and children have access to quality schooling has been one of the key factors determining the success of countries such as Singapore and Canada in attracting talent. While applicants accepted by the REP are entitled to permanent residence status for their spouses and children, continuous efforts are needed to ensure that these incentives ensure a full integration of returnees' families into Malaysian society.

On the fiscal side, despite the fact that the REP affects only a subset of applicants, the costs of the program are clearly positive. Going forward, and aligned with the previous recommendation, **TalentCorp may want to focus its resources on connecting Malaysian diaspora to job offers to further enhance the efficacy of the REP.**

Engaging all REP applicants

Finally, it would be **extremely important for TalentCorp to stay engaged with applicants not approved by the REP.** While momentarily non-eligible for the program, non-approved applicants could be eligible for the REP in the future and should be provided labor market related information to increase their future chances of acceptance. At the same time, in order to regularly evaluate the program and improves its effectiveness, TalentCorp should also start systematically collecting data on the return and employment status of applicants not approved by the REP. The evaluation conducted by the World Bank was possible because follow-up surveys were conducted by the World Bank team. However, going forward it would be important that TalentCorp creates regular channels to systematically collect basic labor market information about non-approved applicants.

II.   Assessing the Effectiveness of the RP-T

1. Introduction

The labor market for highly educated/skilled professionals is more globalized, with regard to both supply and demand. Technology advancement and ease of transport and communication have increased the frequency of movement and facilitated the targeting of global skills. Apart from filling skill gaps and shortages, foreign talent (and skilled diaspora) brings other benefits. They invest, innovate, share expertise, transfer knowledge, create social capital, increase sectoral standards, and help attract foreign direct investment.

Developed countries have long benefited from attracting foreign talent and creating incentives for their skilled diaspora to return. **Developing countries have begun to liberalize their immigration and labor market policies to facilitate movement of skilled workers.** Many countries see it as a way to stay competitive in the global economic environment. Recognizing these trends, Malaysia, through TalentCorp, seeks to harness the international pool of global talent by facilitating their stay.

TalentCorp introduced the RP-T as a special program to attract and retain foreign talent to work in Malaysia. The RP-T program is the focus of this section of the report. More specifically, this section seeks to answer whether experts rewarded by the RP-T program actually help fill skills gaps in the Malaysian labor market. What can TalentCorp do to make sure that the attracted foreign talent benefits the local labor market?

2. The RP-T Program

The RP-T was introduced in 2011 to retain top expatriate talent in the country. The program is offered to highly qualified expatriates seeking to live and work in Malaysia on a long-term basis. As shown in figure 14, the program offers a range of benefits. Benefits include a ten-year pass to live and work in the country, flexibility to move from one employer to another, eligibility for spouses to work in Malaysia (regardless of their talent status), eligibility for under-age children to study in Malaysia, and a five-year resident pass for dependents (children and in-laws).

As shown in figure 18, **eligibility for the RP-T program is quite strict; the applicants must be deemed an expert in their field,** able to drive results in their field, and possess a postgraduate degree (PhD, MA, or diploma) from a recognized university or professional institute. They should have three years of work experience in Malaysia and at least five years of work experience in total. They must be residing legally in the country, working under an employment pass (which is a short-term permit unlike the resident pass which offers a ten-year legal stay). Their gross taxable income cannot be less than RM 144,000 per year (equivalent to RM 12,000 per month). Also, they must have filed taxes in Malaysia for at least two years.

Figure 18: Benefits of the RP-T Program and Eligibility Criteria

BENEFITS

RP–T helps retain top expatriate talents in Malaysia by providing greater certainty through a long–term pass and by enabling their spouse to work

RESIDENCE PASS–TALENT HOLDERS CAN ENJOY THE FOLLOWING BENEFITS:

ABLE TO LIVE AND WORK IN MALAYSIA FOR UP TO **10** YEARS

ABLE TO CHANGE EMPLOYERS WITHOUT HAVING TO RENEW THE PASS

SPOUSE AND CHILDREN* ARE ELIGIBLE FOR THE PASS

SPOUSE CAN ALSO SEEK EMPLOYMENT WITHOUT THE NEED TO APPLY FOR AN EMPLOYMENT PASS

SPOUSE AND CHILDREN* ARE ELIGIBLE TO STUDY IN MALAYSIA

DEPENDENTS OVER 18 YEARS OF AGE, PARENTS AND PARENTS–IN–LAW ARE ELIGIBLE FOR A **5**–YEAR SOCIAL VISIT PASS

*Children under 18 years old

WHO IS ELIGIBLE?

THE FOLLOWING INDIVIDUALS ARE ELIGIBLE FOR RESIDENCE PASS TALENT:

- Have worked in Malaysia for 3 years
- Holds a valid Employment Pass at the time of application
- Holds a Degree or Professional certificate from a professional institute
- Possess minimum 5 years of total work experience
- Earns a gross taxable income of RM144,000 per annum
- Have filed for Income Tax in Malaysia and paid taxes for a minimum 2 years

Source: TalentCorp.

3. Data and Description of the Applicants

As in the analysis of the REP, the administrative data on the applicants to the RP-T program was provided by TalentCorp. The data contain applicant characteristics that are relevant to the approval process as well as the application status. Available personal information on applicants includes their work experience, education, industry, profession, job title, marital status, nationality and nationality of spouse, number of children, place of work, and salary in Malaysia.

The dataset contains information on nearly 2,000 applicants; the data were collected throughout the life of the program (since 2011) and TalentCorp implemented a new survey which asked beneficiaries to report their satisfaction with working in Malaysia and their satisfaction with the TalentCorp program.

3.1 Description of Applicants

Interestingly, or worryingly, virtually all applicants to the program are male (figure 19, left panel). Even though the talent pool in Malaysia (figure 19, right panel), defined as Malaysians with similar characteristics and employed, is more male (66 percent) than female (34 percent), the bias among RP-T applicants is significantly more pronounced. In other words, the gender of the applicant pool to the program is quite far from the gender

breakdown of the active talent pool in the Malaysian labor market. Instead, the RP-T applicant pool contributes to further biasing the pool in favor of males. Another interesting feature of the applicant pool is that 77 percent are married. This feature may be related to the experience requirements for eligibility to the program, which creates biases by age, thus favoring relatively older people who are more likely to be married.

Figure 19: Gender Breakdown of Applicants and the Global Talent Pool
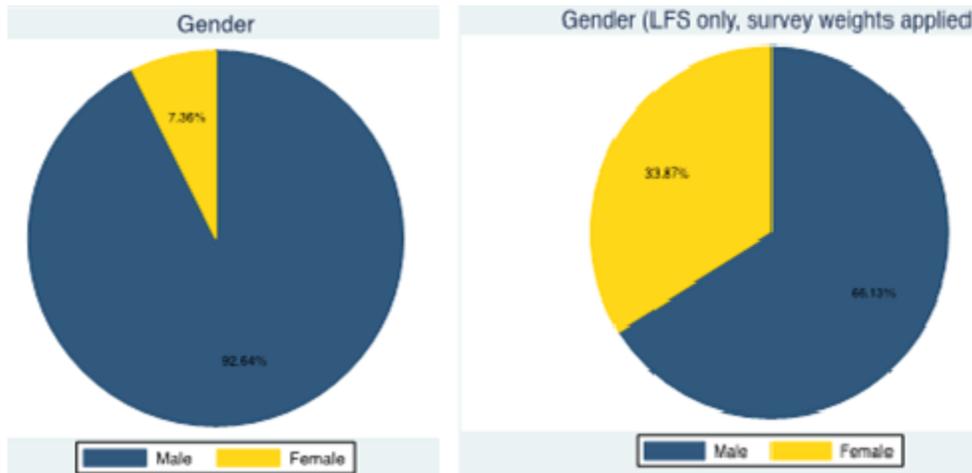
Source: RP-T administrative survey and LFS subsample of comparable people.

It is a requirement that applicants must have at least a post-secondary qualification from a recognized university or professional institution; this is clearly reflected in the applicant pool. Over half of all applicants have a first university degree, diploma, or professional certificate. Also, a substantial share (38 percent) have a postgraduate degree (figure 20).

Figure 20: Education Breakdown of Applicants
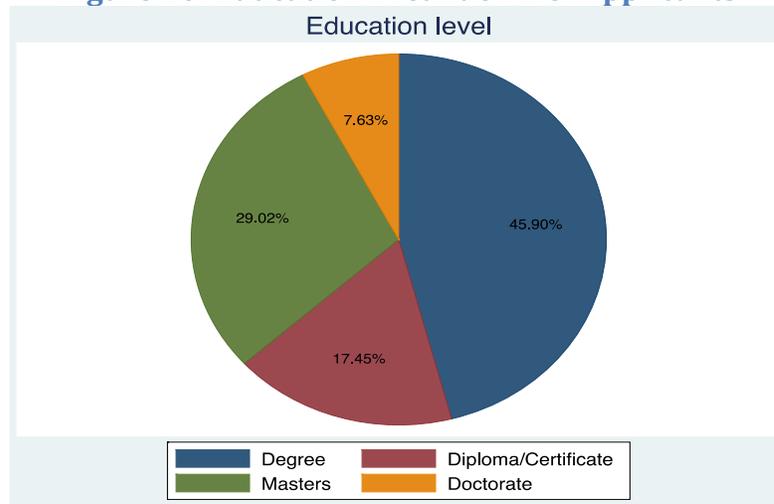
Source: RP-T administrative survey

With regard to the nationalities of the applicants, there is an interesting north to south pattern observed (figure 21, left panel). Over 41 percent of applicants come from western OECD countries in Europe, the United States, and Australia. This is a very important and relatively new trend observed in migration literature that seeks to understand the motivations and trends of global talent mobility. Not surprisingly, foreign applicants apply to work mostly in large metropolitan areas such as Kuala Lumpur, Selangor, Johor, and Penang (figure 21, right panel). However, a non-negligible share apply to work in other parts of peninsular Malaysia but less than two percent seek to work in Sabah or Sarawak (Borneo).

Figure 21: Geographic Matters: Country of Origin and Locality Preference
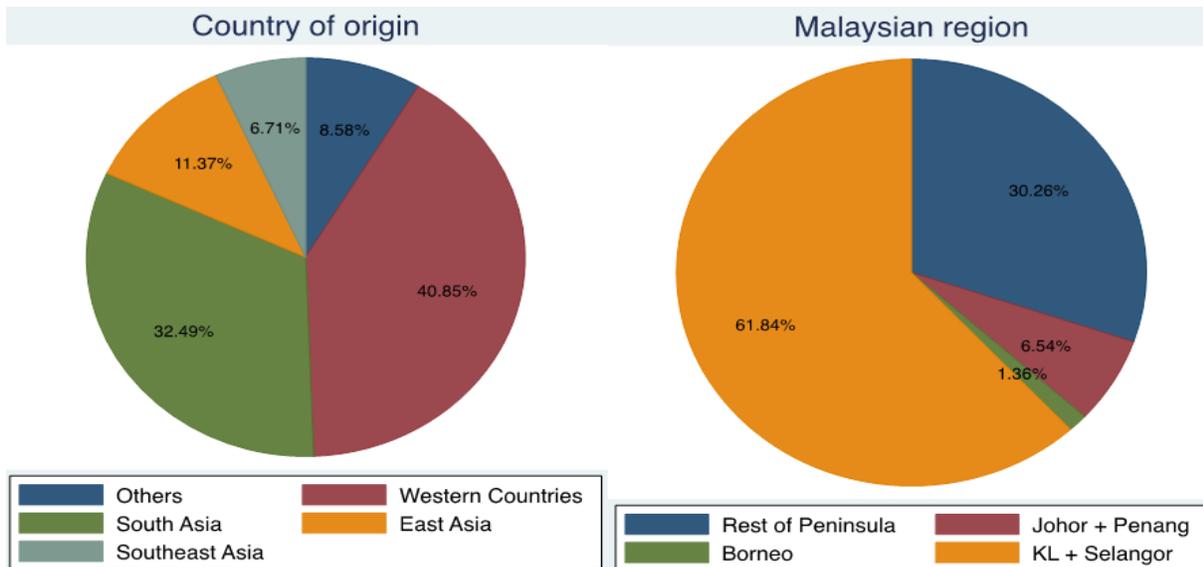
Source: RP-T administrative survey

Applicants to the program have on average twenty years of total work experience (figure 22, left panel); there is a clear skew to the right, indicating that a large number of applicants have well over 30 years of experience. The mean number of years for approved applicants is 23 years. One of the eligibility requirements is to have at least three years of work experience in Malaysia; the right panel of figure 18 shows that applicants satisfy that requirement easily, with 7.5 years of professional experience on average. This indicates that most experience was acquired abroad, which is aligned with TalentCorp's goal to bring skills and innovation to Malaysia.

Figure 22: Work Experience Total and in Malaysia
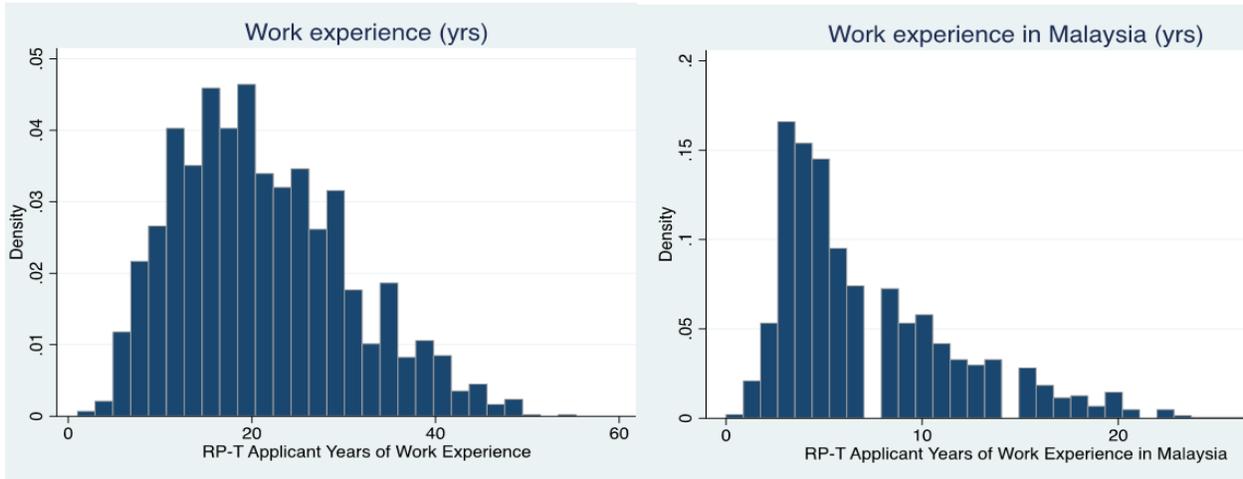
The largest share of RP-T applicants are in business services, OGE, manufacturing, and other sectors. These are all (NKEA) sectors that Malaysia seeks to promote in its economy (figure 23, left panel). Half of all applicants are employed in companies that are foreign owned. An interesting group is the applicant pool that work in government-owned companies; these are foreign experts working not only in health care and education (academia) but also in state-owned enterprises (figure 23, right panel).

Figure 23: Economic Sector and Firm Type
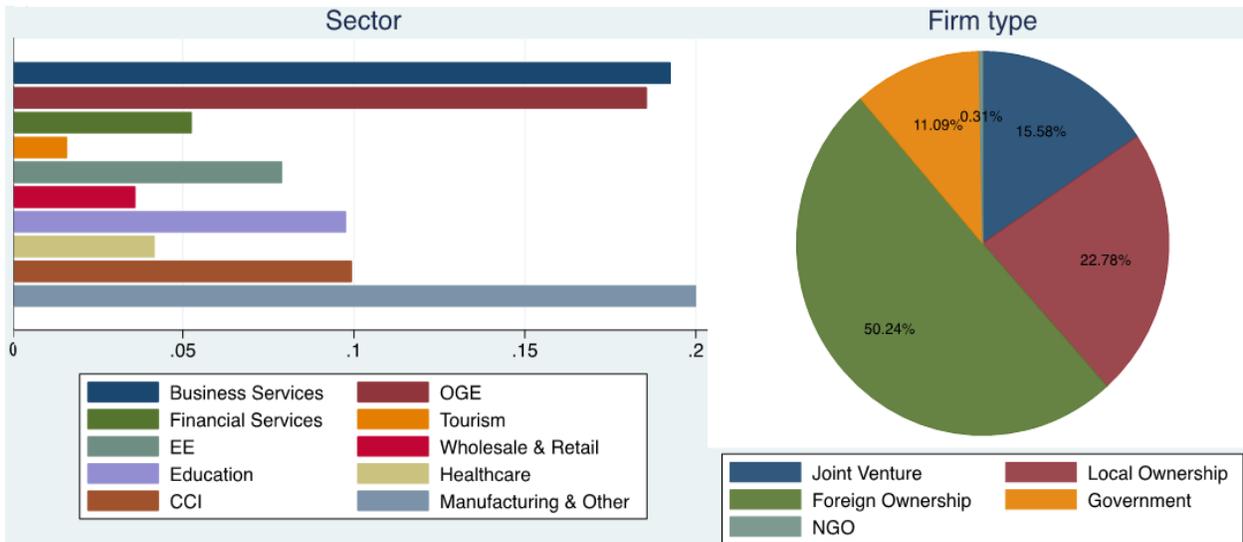
The sectors and occupations of foreign applicants fall very well within the sectors and occupations facing skill shortages in Malaysia. The list was derived using information contained in the workforce dashboard; more specifically, the list is based on a combination of indicators such as level of skill required in an occupation and changes in wage premiums observed for that occupation in the last four years. The annex shows a detailed list of the

specific occupations identified. Among the high-skilled categories, engineers in the OGE sector, managers in various service sectors, medical and science professionals, and professors in the higher-education field emerge at the top of the list. Among the medium-skilled certificate or diploma holders, skilled technicians in the manufacturing sector emerge clearly at the top of the skill deficit list.

Lastly, in terms of compensation, applicant salaries range widely (figure 24). The monthly average is RM 27,500 or RM 330,000 per year; this estimate includes a subset of very high-earning expatriates. The median is RM 17,500 or RM 210,000 per year, still well above the required RM 144,000 per year. **The RP-T applicant salaries are not only well above average salaries earned by comparably talented Malaysians but also well above recently arrived talented diaspora.** Earnings plays a central role in subsequent analysis in this assessment.

Figure 24: Monthly Wages of RP-T Applicants
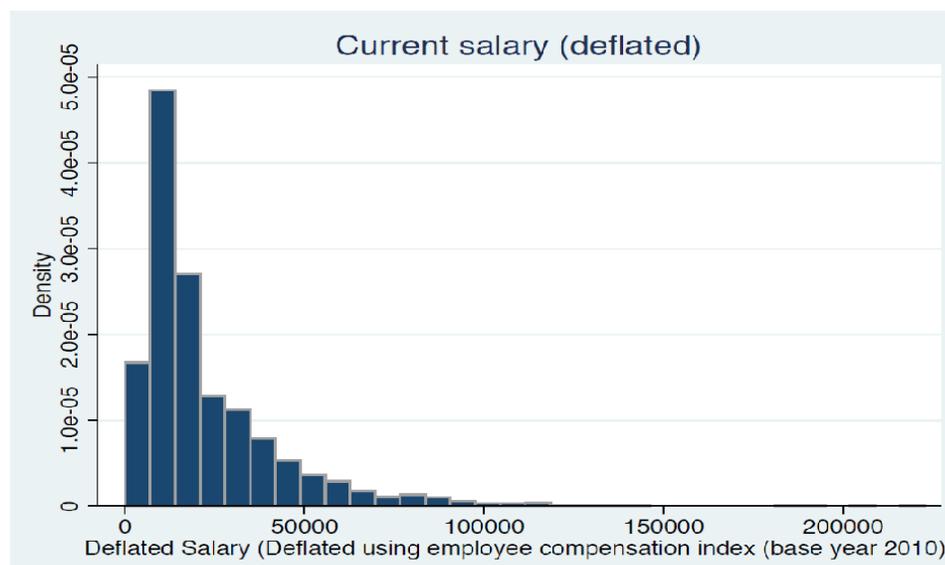
Source: RP-T administrative survey.

4. Assessment of the Approval Process

4.1 Formal Point System, in Theory

The 'current' point system used by TalentCorp to decide on whether an applicant to the RP-T program is accepted, involves a set of points assigned to broad categories, aligned with the eligibility criteria.

Points are distinctly assigned to each level within the broad categories, to reflect a preference for more experience, especially in Malaysia, and higher education levels. Reflecting Malaysia's talent needs, a technical expert has significantly more points in that category as a middle manager. Similarly, an applicant with a PhD has significantly more points in the education category as an applicant with a diploma; therefore, for an applicant with a diploma

to be accepted he or she will need to score a lot of points in other categories to overcome the deficit.

The point system assigns more points for applicants in economic sectors that face greater difficulty finding skilled workers locally. NKEA sectors largely fall within the sectors listed in the Economic Transformation Program (ETP). Those sectors and biotechnology, aeronautics, and ICT are formally favored. So, firms in ETP sectors (or NKEAs) and biotechnology or ICT can expect that the program will favor them because it recognizes that the skills required by them are not likely to be in high supply locally. The same is true for multinational firms; in the formal point system they are favored, likely because they have stricter skill requirements.

Salary also plays a role; with higher income translating to higher points. This enables for example experienced vocational talent with high income to compensate for earning lower points under the education category. In contrast, university professors are among those that get low points in the salary category but are able to compensate with high points based on having a Phd in the expertise and education category.

Similar to the REP, the scoring system also includes an additional subjective category which allow the selection committee and secretariat in the decision process to take into account qualitative information that is difficult to observe through a curriculum vitae (CV).

4.2 Determinants of Approval

As shown earlier, TalentCorp has clearly stated criteria for eligibility to the program but it is only known to the selection committee, not the applicants. As mentioned, the approval process takes a comprehensive approach, and the decision-making body is able to make some exceptions around a certain cutoff point, based on exceptional cases. Using an LPM (commonly used econometric technique), this section analyzes what characteristics best determine acceptance into the program. The model used is as follows:

$$Approved_i = \beta_0 + \beta_1 X_i + \varepsilon_i$$

where X_i is a vector that includes various criteria such as salary, work experience, education, duration working in Malaysia, and sector of designation. It also includes other individual and work-related characteristics such as gender of the applicant, marital status, nationality, and firm type.

Results from the linear probability model show that a 100 percent increase in salary increases the probability of being approved by 10 percentage points. Using three years of experience in Malaysia as a benchmark (which is the minimum required for eligibility to the program) estimates show that for every extra (one) year of additional experience, the probability of acceptance rises by 4 percentage points. For every five years of additional experience, the probability rises by 13 percentage points; thereafter, the probability of acceptance starts falling slowly again.

As shown in figure 25, applicants from East Asian countries, western countries, and South Asian countries have a significantly higher probability of being approved than applicants from other regions; about 20, 17, and 12 percentage points higher, respectively. On the other hand, there is no difference in probability between applicants from Southeast Asia. Applicants working in foreign-owned firms and government companies have a higher probability of approval than applicants working in joint ventures (around 6 percentage points). On the other hand, there is no significant difference in approval rates between applicants from nongovernmental organizations (NGOs) and local firms, and joint ventures.

Figure 25: Increase in Probability of Approval
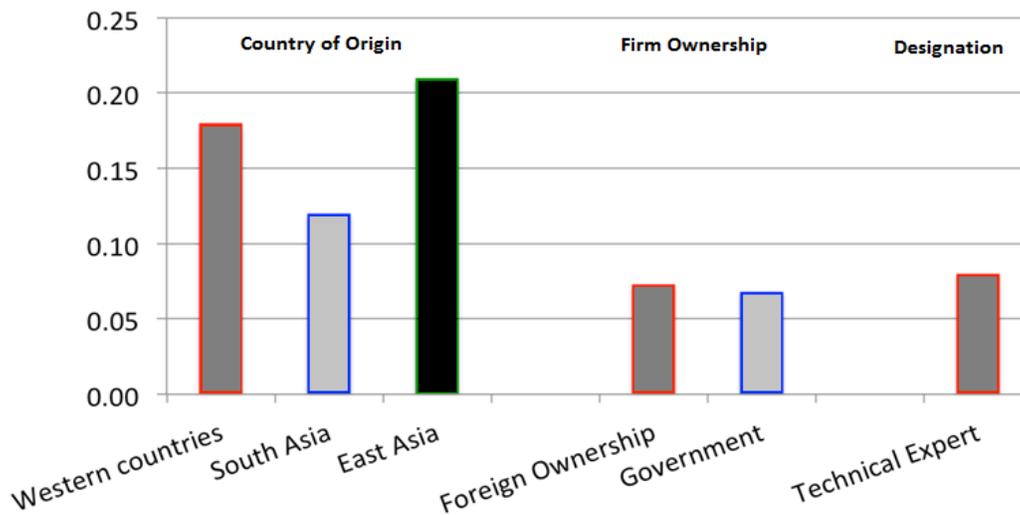
Source: RP-T administration survey.
Note: Excluded categories are other countries, joint venture, and middle management.

Compared to all the potential expertise designations, technical experts have a higher probability (6 percentage points) than middle managers to get approved; there is no difference between middle managers, top managers, and junior management. This highlights the importance placed on technical expertise that is clearly defined and sector specific. The importance of technical expertise is also highlighted in the point system that TalentCorp uses; the next section elaborates on this topic.

Compared to applicants working in business services, applicants employed in financial services, electrical and electronics (E&E), communications content and infrastructure (CCI), manufacturing, and related areas have a higher probability of approval. Education has the highest probability of all economic sectors; about 18 percentage points higher than business services. There is no difference between business services and OGE, wholesale and retail, health care and tourism.

Personal characteristics about the applicant such as gender, marital status, education level, and time and experience in Malaysia are not important determinants of approval.

The probability analysis presented in the previous section reveals that the formal point system is not necessarily applied in a straightforward manner. The data analysis shows that some factors actually carry more weight than others. For instance, the weight for education in holding a masters of Phd is considerably less when compared to factors such as years of experience, economic sector, or earnings.

In fact, earnings and years of total experience, and to some extent the sector, carry the largest weight in the selection process. With regard to the favored economic sectors, the education sector carries the highest weight among all considered; the beneficiaries are professors with specific expertise who are likely to be hired to teach at local universities. A very experienced individual earning a high salary and minimally fulfilling all other criteria is highly likely to qualify for the program. In fact, the decision committee is likely to assign most of its leeway points to one of these two factors: salary and experience. Or in the case of university professors, the committee is likely to push for acceptance of renowned experts as long as they have many years of experience (and reputation) in their field.

The key lessons to emerge from this analysis are that despite a seemingly rigid point system, the decision-making body is able to work within the given criteria to respond to the skill needs of the country. Also, it is able to adapt its assignment of points within the given system as needs change.

On the other hand, it is not clear what the country gains from imposing criteria that carry limited weight. Some examples are type of firm, education level of the applicant, and years of work experience in Malaysia. Perhaps these criteria play a signaling or political role; however, it is clear that they carry minimal weight in the decision-making process.

The latter part of section 5 presents a potential adjustment to the point system that takes these and other lessons into account to make the selection process more efficient.

5. *Assessment of Quality of Applicants: Talented or Not?*

In a competitive labor market, employers seek to attract and retain talented professionals who can offer high levels of productivity and contribute to their profitability. Even in a global labor market, specialized talent is scarce, especially in some sectors where the supply of talented people is low and the portability of that talent across firms (and borders) is possible.

As expected, there is large heterogeneity in how talent is rewarded. In fact, wages and wage premiums observed across economic sectors vary widely. Apart from scarcity of specialized talent, other reasons for such large variability in wage premiums observed is the variability in the content of a person's skill set and the ability to scale the gains from one individual to the whole firm. For instance, a technical expert working in research and development in a lab or a computer programmer is able to create a product or innovation with a lot of positive spillovers on the entire firm (and sector). The evidence shows that the more skill biased the industry is the more a company's productivity relies on owning the

necessary set of skills (Autor et al. 2003). In sectors intensive in information technology, having the required skills is necessary to be competitive. Without such specialized skills the industry cannot survive. The biotechnology, CCI (or ICT), E&E, and health care industries in Malaysia are good examples.

The role of talent in how compensation and contracting are structured is well documented in business and internal organization literature. However, measuring talent is not straightforward because the concept is partly subjective. The previous section of this report provides evidence of this point in the RP-T applicant selection process. The empirical estimation of talent and its relation to wages across different economic sectors is not commonly studied because of the challenge associated with precisely observing talent. This section empirically investigates the source of the wage premium that RP-T program beneficiaries experience compared to local talent. The assumption is that talented people are able to command higher wages, thus, making the wage returns of talent relatively high.

5.1 Measuring Talent

As in all countries, the heterogeneity in the wage distribution observed across economic sectors and talent groups likely comes from differences in wage sensitivity for talent that employers have in Malaysia and everywhere else. **A simple comparison of wages of comparable skilled Malaysians and RP-T beneficiaries shows that wages (not total compensation) differ dramatically, with Malaysians earning significantly lower.** The REP beneficiaries are also compared to selected RP-T beneficiaries and locals.

An artificial database, constructed for this exercise, consists of approved RP-T applicants; approved REP applicants who returned to Malaysia (and whose wages are observed); and a comparable sample of Malaysian professionals from the LFS. Only Malaysians in the LFS who are employed in the same (5 digit) occupational and educational categories are kept in the analysis. The breakdown of the samples in this database is presented in figure 26. As expected, the largest share is the local skilled pool in the relevant occupational categories and sectors. (There is also a small number of comparable skilled foreign workers in the Malaysian labor force.) RP-T applicants account for 16 percent of the total pool while returning diaspora under the REP account for 4 percent.

Figure 26: Shares in the Analysis of Comparably Skilled Groups
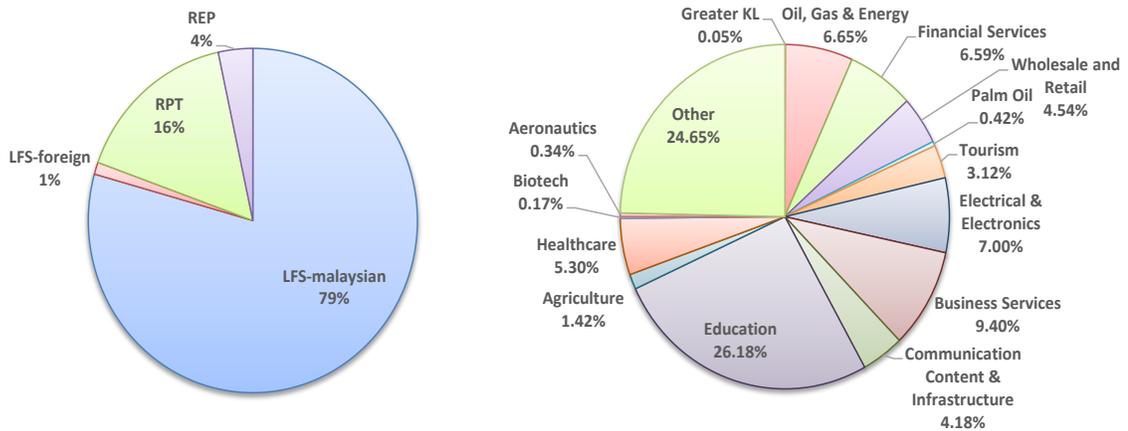
Source: World Bank calculations using LFS, RP-T, and REP administrative data.

To compare wages more rigorously, the analysis in this section relies on a widely used tool in education and economics literature, the Mincer regression, which helps to explain earnings as a function of education, experience, and other characteristics. This technique is measured as follows:

$$\log(wage_i) = \alpha + \beta X_i + \varepsilon_i$$

where *X* includes different sets of variables depending on the regression. In the first scenario, it includes gender and marital status; in the second scenario, it includes gender, marital status, and education level; and in the final scenario, it includes gender, marital status, education levels, and years of work experience. These distinct sets of *X*s are regressed on the log of wages. Separate Mincer regressions are estimated for approved RP-T beneficiaries, REP beneficiaries, comparable expatriates in the LFS, and comparable Malaysians in the LFS.

Results reveal that expatriates in the LFS (not RP-T beneficiaries) get 1.2 times the wage of a local comparable Malaysian. REP beneficiaries earn 2.3 times more, and RP-T beneficiaries earn 4.3 times what a comparable local earns. **It is clear from this analysis that employers are willing to compensate people who have lived abroad, expatriates, or Malaysians with foreign work experience, significantly more than locals.** Also, they do so in certain economic sectors more than other.

Figure 27 shows that in all sectors shown, RP-T and REP beneficiaries receive a wage premium over comparable locals. The OGE sector, business services, and manufacturing sectors offer a wage premium that is close to five times higher for RP-T beneficiaries and two times higher for REP beneficiaries. There are no significant differences in compensation in NKEA sectors not shown in this figure (for example, wholesale and retail, palm oil, tourism, and agriculture).

Figure 27: Wage Differentials by Economic Sector
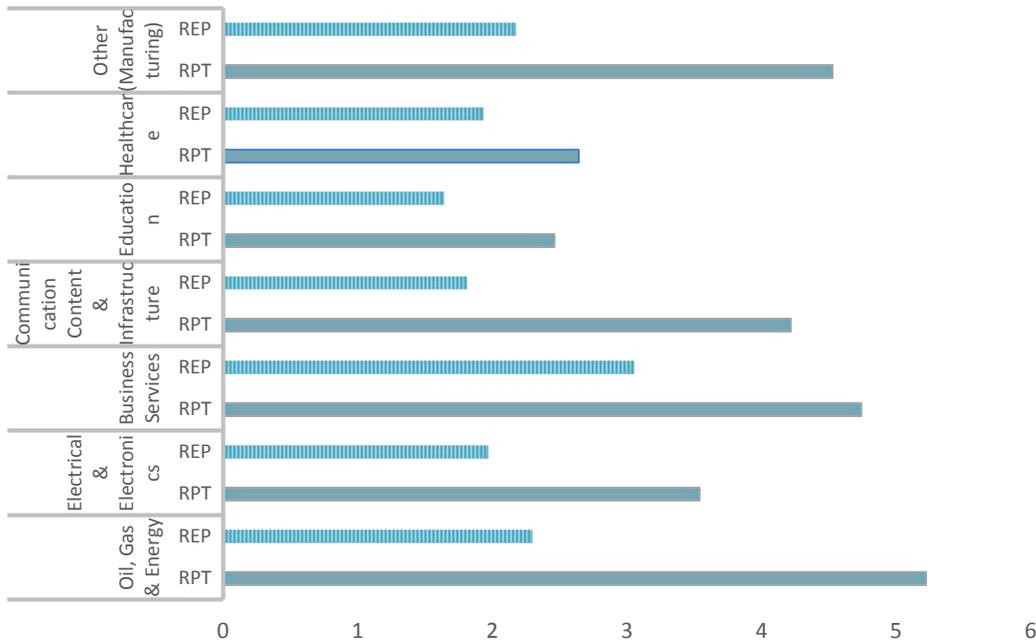
Source: World Bank calculations using LFS, RP-T, and REP administrative data.

5.2 Most-rewarded Characteristics

It cannot be disregarded that the high returns for skills observed among RP-T program beneficiaries (and REP beneficiaries) are not driven by an actual compensation for talent but by their selection into the highest-paying jobs in high-paying industries. However, analytical tools can help at least partially discern why these people are so well rewarded—what characteristics make them so attractive to Malaysian employers. Also, most importantly, whether these characteristics can be learned or emulated by locals so that they can be similarly rewarded when they acquire them.

In this section, the analysis uses a well-known statistical technique of decomposing inter-group differences in the mean levels of wages into those due to different observable characteristics or endowment across groups and those due to different effects of characteristics or coefficient of groups. This technique is known as the Blinder-Oaxaca wage decomposition. More specifically, it identifies which portion of the wage premium that RP-T (and REP) beneficiaries receive is due to personal endowments such as education, experience, and other individual characteristics (for example, age, gender, marital status) and what portion of the premium is due to an unobservable trait, which will be interpreted as talent.

The technique is applied as follows: the analysis first takes two groups, RP-T and local comparable Malaysians. In the equation below, *Y* is the log of wages and $E(Y_{RPT})$ and $E(Y_{Local})$ denote the expected value of the outcome variable, and *X* is a set of predictors such as education level, experience, and individual characteristics. The estimation measures how

much of the mean outcome difference is accounted for by the group difference in the predictors.

*E(Y$_{RPT}$)-E(Y$_{Local}$)= β X$_{RPT}$ - β X$_{Local}$*where *X*s are evaluated at the means for the RP-T and the locals, respectively. The gap in *Y* between the RP-T and locals can be thought of as being due in part to differences in the intercept or differences in the *X*s. Estimates of the difference in the gap in mean outcomes can be obtained by substituting sample means of the *X*s and estimates of the parameters *β*s into the equation. The next step is to identify how much of the gap in wages is attributable to differences in the *X*s (or the explained components) rather than differences in the *β*s (the unexplained component).

The results are shown in table 12. The mean prediction of the RP-T is on the left-hand side and the mean prediction of the REP is on the right-hand side. The groups and their difference are shown next to the first line, Group_1 *(*for locals) and second line, Group_2 (for the RP-Ts, on the left side of the table and for the REPs on the right side of the table). For locals, the mean of log wages is 8.26. The mean log wages for the RP-T is 10.15, yielding a wage gap between locals and the RP-T of 1.89; the mean log wage for the REP is 9.35, yielding a wage gap of 1.09.

In the lower panel of the table, the wage gap is divided into three parts. The first part reflects the mean increase in locals' wages if they had the same characteristics as the RP-T beneficiaries (on the left) and the REP beneficiaries (on the right). The increase of 0.55 indicates that differences in *X*s account for about one-third of the wage gap between the RP-T beneficiaries and locals, and for the REP beneficiaries, 0.26 indicates that differences in *X*s account for one-quarter of the wage gap between the REP beneficiaries and locals. The interaction term measures the simultaneous effect of differences in endowments and coefficients.

The second term is the estimate of interest in this analysis. It quantifies the change in locals' wages if the coefficient of the RP-Ts were applied to the locals' characteristics (or locals and REPs). This is the unobservable characteristic which accounts for the majority of the difference between the wages of the two groups. This is the characteristic that makes those individuals special in the eyes of employers and is interpreted as the talent factor; the results show that the talent factor of foreign workers justifies that their wages are 4.43 times more than comparable locals. As for the REPs, their talent factor justifies that their wages are 2.3 times more than comparable locals.

The main finding from this analysis is that only some of the observable personal characteristics can explain the difference in wage premiums observed between locals and individuals with foreign experience. However, the majority of the difference is derived from factors which are not measurable from the data. Two examples of unobservable differences are (i) international work experience, which signals that the person's credentials are recognized abroad and the individual is a global asset whose wages should be competitive in the international labor market and (ii) experience living in a different culture, which signals the person's ability to adapt to different cultures and potentially speak a different language. There may be other factors that employers value, but these two are obvious and relevant.

Table 12: Decomposition Results

Blinder-Oaxaca Decomposition

RP-T (compared to local)			REP (compared to local)		
	Outcome	Exponential		Outcome	Exponential
Group_1 (Local)	8.26		Group_1 (Local)	8.26	
Group_2 (RPT)	10.15		Group_2 (REP)	9.35	
Difference	1.89		Difference	1.09	
Endowments	0.55	**1.73**	Endowments	0.26	**1.29**
Coefficient 'Talent'	1.49	**4.43**	Coefficient 'Talent'	0.87	**2.38**
Interaction	-0.15		Interaction	-0.03	

Source: World Bank calculations using LFS, RP-T, and REP administrative data.

5.2 A New Approval Process

One of the interests of TalentCorp is to take some of the lessons learned from this assessment and use it to improve their program effectiveness. One potential change to the program can be in the point system used to evaluate candidates. Given the importance of wages and experience as a measure of talent, the new point system can be devised so that these two factors underlay the selection process. The current system has a stated cutoff level; however, several exceptions occur where the selection committee can approve applicants just below the cutoff due to qualitative factors. The suggestion is to use a point system that takes into account lessons from the analysis including factors that contributed to the rejection of applicants throughout the life of the program (about 13 percent since the start of the program).

If TalentCorp seeks to retain a similar rejection rate (13 percent) to the one they currently have, the relevant cutoff using the new point system would be significantly lower. If this new point system was used, from all applicants accepted with the existing point system, about 73 applicants would be rejected and 149 applicants would be accepted. In fact, the new point system would accept a few more people than the existing system, but the skills of the new pool of accepted candidates would be more aligned with the needs identified in the skill gaps list.

As shown in table 13, with the proposed point system, fewer people with a bachelor degree would be accepted (23 percent versus 64 percent) but more people with a master's degree (34 percent versus 16 percent) or technical diplomas (23 percent versus 10 percent). More individuals in top management (31 percent versus 4 percent) and technical expert positions would be accepted, and fewer people in middle and entry management positions would be accepted. As for the type of firm that applicants work in, fewer applicants working in locally owned firms would be accepted, 24 percent instead of 30 percent. On the other hand, more applicants from joint-venture firms would be accepted than currently are, 28 percent versus 25 percent.

Table 13: Estimates with the New Point System, by Education and Designation

Education Level (%)	New Accepted	New Rejected	Designation (%)	New Accepted	New Rejected
Secondary	2	1.4	Technical Expert	29.5	26
Certificate/Diploma	22.8	9.6	Top Management (CEO/CFO/COO)	30.9	4.1
BA Degree	35.6	64.4	Middle Management	6.7	15.1
Master's	33.6	16.4	Entry Level - Junior Management	1.3	1.4
Doctorate	4	2.7	Unknown	31.5	53.4
Other	0.7	5.5			
Unknown	1.3	0			
Total	100	100	Total	100	100

Source: World Bank calculations using RP-T administrative data.

With respect to sectors, the sectors facing higher skill deficits would likely benefit from having more applicants from those sectors accepted. Examples are OGE, ICT, and health care; on the other hand, fewer applicants from non-NKEA sectors as well as education, business service, and E&E would likely qualify. With respect to occupations, applicants from science and engineering, and health professionals would more likely be favored by the new point system while applicants classified as business professionals and education professionals would see a reducing chance (Table 14).

Table 14: Estimates with the New Point System, by Sector and Occupation

Economic Sector (%)	Current	New	Occupation (%)	Current	New
OGE	16.8	1.4	Manager	75.2	65.8
Financial Services	3.4	1.4	Science and Engineering Professional	10.7	4.1
Wholesale and Retail	7.4	4.1	Health Professional	2.7	0
Palm Oil	0	1.4	Teaching Professional	3.4	8.2
Tourism	2.7	1.4	Business Administration Professional	2.7	13.7
Electrical & Electronics	2	8.2	ICT Professional	4.7	4.1
Business Services	12.8	15.1	Technician and Associate Professional	0.7	4.1
CCI	0	1.4			
Education	7.4	11			
Agriculture	2	0			
Health Care	4	0			
Biotech	2.7	0			
Aeronautics	2	2.7			
ICT	18.8	12.3			
Other	18.1	39.7			
Total	100	100	Total	100	100

Source: World Bank calculations using RP-T administrative data.

6. Concluding Remarks and Recommendations

The RP-T assessment reveals that individuals attracted by the program are genuinely talented global professionals. There are large wage differentials observed between RP-T individuals and Malaysian professionals with the same observable characteristics and work experience. The wage differential analysis finds a difference of about 4.3 times, meaning that foreign talent earns over four times more than comparable professionals in Malaysia.

Professionals in the OGE sector, business services, and manufacturing sectors offer the highest wage premiums of all the economic sectors active in Malaysia. The decomposition analysis reveals that even though some of the wage premiums can be attributed to the individual's characteristics, a large part of their wage premium is a result of factors that are tangible to employers but not easily measurable. One can speculate that part of the premium is likely derived from having experience in foreign labor markets; many of them derived their experience in developed economies in western countries and Asia. By virtue of being a global asset with international exposure to global markets, new technologies, and broader know-how, they are perceived as being more likely (than locals) to contribute to the profitability of the firm.

With respect to effectiveness, the analysis reveals that the program is effectively retaining genuinely talented individuals. However, only some of the observable characteristics included as eligibility criteria are actually used in the decision making process. This indicates that the seemingly rigid selection criteria are adaptable to changing needs in the economy (and labor market). This is arguably a positive finding. However, it is unclear what the gains are from having rigid and detailed criteria that appear to prioritize aspects that are not prioritized in practice.

One recommendation made to TalentCorp is to consider revising its eligibility criteria to directly target individuals with the attributes that truly play a role. The analysis shows that a more data-driven approach could significantly improve TalentCorp's ability to better target talent. For instance, the formal criteria seem to prioritize applicants with a certain number of years of work experience in Malaysia or applicants with certain high education levels. Both of these criteria are much less important in actuality than the applicant's years of work experience in priority sectors or the wage levels that these applicants can command from employers. A selection system with less emphasis on academic qualification and more emphasis on work experience (irrespective of where it is obtained) would significantly improve TalentCorp's capacity to fill skill gaps.

Another recommendation for TalentCorp would be to expand eligibility to the RP-T to expatriates applying from abroad; in fact, the analysis suggests that there is no evidence that expatriates already in Malaysia are more talented. Foreign talent living abroad, rather than in Malaysia at the time of application, can be targeted based on their specific expertise (see next recommendation on critical skill list), and to fit a specific skill demand that the country needs for its continued development.

As TalentCorp's main objective is to address the availability of talent in the country, using an evidence-based and participatory approach to transparently identify

occupation in shortage could significantly increase the RP-T effectiveness. As such, another recommendation is to create an official systematic tool that enables TalentCorp to rigorously identify skill shortages in the country and publish a Critical Skill Shortage List that is visible by all, including potential RP-T and REP applicants. Countries such as Australia and the UK have already embarked on this effort, and many lessons can be learned from these countries to design an optimal approach for Malaysia. Four key principles to follow:

a. **Transparency** is crucial for the system to be widely accepted. As such, the skill gaps identification exercise needs to be data-driven and rigorously evidence-based (top-down analysis), paired with a "bottom-up" system of consultations.

b. **Involvement of key stakeholders such as top employers**, as well as SMEs, is important to ensure that the skills monitoring system reflects the needs of the whole economy (bottom-up approach). A broad consultation system, coupled with a top-down approach, would help identify gaps across the skills spectrum.

c. **Regularity of the process** is fundamental to guarantee that the monitoring system reflects the current situation in the labor market and, as such, partnerships with all the different providers of labor market data is key in order to ensure a timely release of the shortage list.

d. Similarly, program **eligibility criteria should be continuously refined** or adapted to evolving labor market demands.

The Critical Skill Shortage List can increase the effectiveness of the Government's various talent interventions in addressing Malaysia's current skill shortages, including in the short term, through TalentCorp's initiatives targeted at foreign talent and talented diaspora, while the education system ramps up its creation of such talent locally. The creation of a Critical Skill Shortage List will provide an important instrument to guide the selection of applicants to the RP-T program. Fortunately, the 11th Malaysia Plan, (launched a month before the official launch of this report) included this initiative as part of its overall initiative to help Malaysia transition into a high income nation. For this initiative to yield results it will be imperative for the tool to take into account the four principles outlined before.

Similarly to the recommendation for the REP, global talent (both Malaysian and expatriate) is responsive to labor market opportunities, but also recognizes the importance of family benefits. As such, continuous efforts should be made to ensure that approved applicants' families are provided the necessary benefits to fully integrate into the Malaysian labor market and society.

ANNEX

OCCUPATIONS IN DEMAND WHERE SKILLS SHORTAGES ARE IDENTIFIED

High Skill Occupations 5-Digit	
12121	Manager, human resource/personnel
12212	Manager, market research / Manager, customer service
12222	Manager, public relations / Manager, communications
13301	Manager, production and operation/communications
13452	Dean / Headmaster / Principal, university / Chancellor, university
14352	Manager, security
21131	Chemist
21342	Biochemist / Chemist, biological / Biochemist, enzymes
21345	Physiologists / Physiologist, neurology / Physiologist, endocrinology
21429	Other civil engineers
21442	Engineer, industrial machinery and tools
21449	Other mechanical engineers, mechanical/agriculture, agricultural
21451	Engineer, chemical
21452	Engineer, chemical/petroleum and gas
21491	Engineer, process
21492	Engineer, quality control
21512	Engineer, electrical/electric power generation
21519	Other electrical engineer
21613	Architect, building
21712	Engineer, marine
21732	Pilot, aircraft/airline
22111	Doctor, medical
22129	Specialist medical practicioner nec
22623	Pharmacist, retail
22642	Therapist, physical
23101	Lecturer, college
24131	Financial analyst
25141	Programmer, computer
25211	Designer, database

Medium Skill Occupations 5-Digit

31133	Technician, engineering/electrical (electric power transmission)
31141	Technician, engineering/electronics
31158	Technician, hydraulic hose
31161	Technician, engineering/chemical
31172	Metallurgy assistant, physics
31312	Operator, electrical switchboard
31322	Operator, compressor
33157	Assessor, insurance
33211	Agent, insurance
33227	Analyst/executive, marketing research
33231	Buyer
33341	Agent, real estate
33435	Executive officer, statutory board
34323	Designer, interior decoration
35112	Technician, semi-conductor
35211	Cinematographer

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