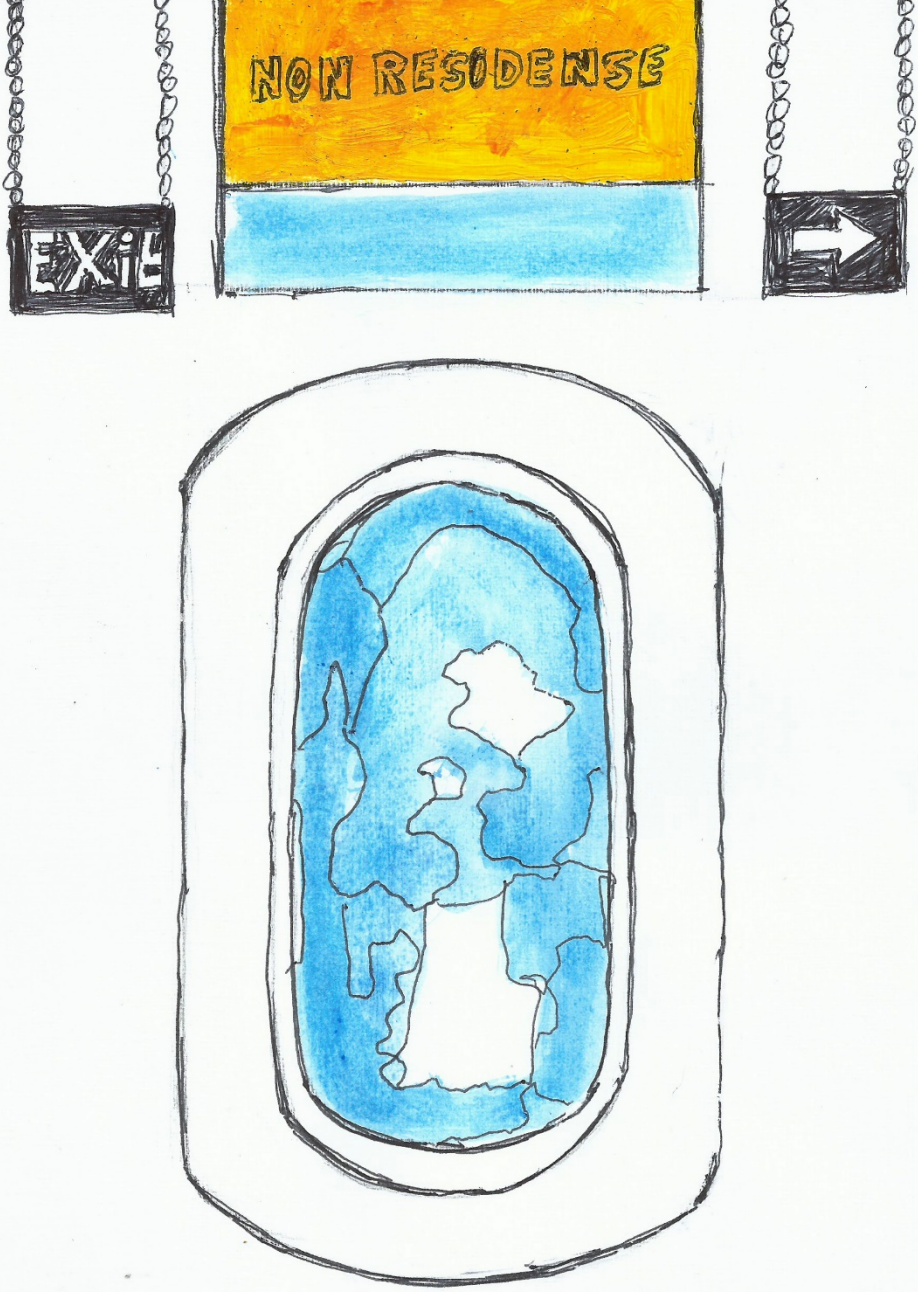


Tina Dulam

# Brain Drain or Brain Gain:

## The case of Suriname

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**Erasmus University Rotterdam**
Erasmus School of Economics

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# Brain Drain or Brain Gain: The case of Suriname

## Migratie van hoogopgeleiden: de Surinaamse casus

*Proefschrift*

ter verkrijging van de graad van doctor aan de
Erasmus Universiteit Rotterdam
op gezag van de
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**Tina Warsha Dulam**
geboren te Paramaribo, Suriname

Erasmus University Rotterdam

Promotiecommissie

| | |
|---|---|
| Promotor: | Prof.dr. Ph.H.B.F. Franses |
| Overige leden: | Prof.dr. H.B. Entzinger |
| | Prof.dr. J. Hartog |
| | Prof.dr. H.D. Webbink |

# Preface

My PhD journey started when at the end of my master's study prof.dr. Philip Hans Franses posed the idea of attaining the PhD degree at the Erasmus University Rotterdam (EUR). At that time I could not imagine that pursuing the highest university degree was ordained for me. But after my graduation I started looking for a research topic, and for the rest I immersed myself in my new job as a lecturer at the Anton de Kom University of Suriname (AdeKUS). When prof. Franses visited Suriname in 2010 the only thing I knew, was that I was interested in a topic about development economics. Hence he proposed the idea to study brain drain. After some literature review I soon came across the brain gain theory, a new theory which was not yet tested on Suriname. And so the first article of my thesis was born. Although Suriname was known to have a brain drain problem, microeconomic research on the emigration of the highly skilled was yet a relatively unexplored area of study. This thesis investigates whether Suriname ends up with more high skilled individuals or less, as a consequence of emigration. Furthermore, it identifies the determinants of high skilled emigration from Suriname to the Netherlands, discusses the determinants of return migration, and addresses the question how skilled migrants can be attracted back to Suriname. The research results might be of relevance for policy makers who want to embody the human capital formation policy as mentioned in the government development plans of Suriname for the period 2006-2011 and 2012-2016. The various econometric techniques exploited in this thesis may provide insight to scholars and students about the brain drain problem upon which more sophisticated research can be build.

Although the responsibility of this thesis lies on my shoulders only, I was fortunate to have stood on the shoulders of several individuals without whom this end product would not have been realized, and I am glad for this space in my thesis to profess my thankfulness.

The first and foremost person to whom I would like to express my deepest gratitude is my promotor, my mentor, prof.dr. Philip Hans Franses, for offering me the opportunity to write my dissertation and for guiding me so exquisitely and diligently throughout the whole process. Prof. Franses, I am immensely grateful to you for meticulously reviewing every part of the thesis I sent you via e-mail, for the many meetings at the EUR despite your busy schedule, and for visiting Suriname several times to support the Economics study programme at the university and to guide the external PhD students in Suriname. Your guidance, ingenious insights, encouragement, and trust have greatly inspired me to write the research articles which made up this dissertation. It has been an absolute privilege to write these articles in collaboration with you. I have learned a lot from you, much of which I can apply in my own life and especially when supervising students.

I thank the members of the inner doctoral committee, prof.dr. H.B. Entzinger, prof.dr. J. Hartog, and prof.dr. H.D. Webbink, for their time and effort to review my

thesis. Furthermore, I thank drs. Patrick van Thiel of the EUR, for his help to have my dissertation printed in book form.

My heartfelt appreciation goes to the almost 500 respondents who participated in the surveys regarding skilled migration. Truly speaking, the research results would never have been produced without your input. Moreover, designing the sampling frame would have been very arduous without the cooperation of the principals of the high schools: mr.dr. J.C. de Miranda Lyceum, Ewald P. Meyer lyceum, Algemene Middelbare School, Arthur A. Hoogendoorn Atheneum, VWO-4, Havo 1, Havo 2, Henry Hassankhan Scholengemeenschap Lelydorp, and Scholengemeenschap havo/wvo Nickerie. Therefore I would like to extend my gratitude respectively to Balram Soemeer, Joan Doelwijt, Edmund Stuger, Judit Asgarali, Helianthe Hew-A-Kee, Marcel Tjon Kon Hong, Joyce Veira, Denny Wongsodimedjo, and Nino Tjon A Njoek. I also thank Sheila Baran and Nishita Gajadien for assisting me in designing the sampling frame. Thesistools.com, the online tool I used to survey my research group free of charge, also deserves special recognition.

I am indebted to my employer, the AdeKUS, for the opportunity to pursue the doctoral degree. It is worth mentioning the role of my superiors especially in the final year of my PhD research. I thank drs. Ramdath Dwarka, the coordinator of the Economics study programme at the Faculty of Social Sciences, for his support, and drs. Louise Monsels, the dean of the Faculty of Social Sciences, for her trust in me and for approving my study leave in order to finish my thesis. In this regard I would also like to thank drs. Patricia Coronel, head of the Human Resources department of the AdeKUS, for her help throughout the study leave application procedure.

I remember the day that drs. Zsa Zsa Leysner-Lenting, my economics lecturer at the time I was a student of the AdeKUS, asked me whether I was interested in a Master's scholarship programme at the EUR. Now looking back at that moment 8 years ago, I am very indebted to Zsa Zsa for showing me the path to my academic career which led me to prof.dr. Franses who accepted me as his PhD student. Thank you Zsa Zsa for identifying me as an eligible student and for encouraging me to apply for the scholarship. I am also thankful to Max Ekhorst MSc. for his guidance with respect to the partnership between the two universities.

A bunch of thanks goes to my colleagues who were willing to take over my tasks during my absence. Thank you dr. Madesta Lede and ir. Ronald Assen for continuing respectively the courses in Methods & Techniques and Applied Statistics. My appreciation also goes to ir. Carmen Chin Kwie Joe for her effort to continue the Mathematics courses on her own as ir. Assen who was co-responsible for Mathematics was entirely appointed for the courses in Applied Statistics.

My heartfelt gratitude goes to my aunt Carla Autar-Jaggoe and her family for their hospitality during my visits to the Netherlands. Thank you for the big space in your home where I could calmly study for many days and hours. My sincere thanks goes to my brother and sister-in-law, Roy and Sushma, for their love and support during this course

of my life. Special thanks goes to their daughter Simran for cheering me up whenever I visited her. I also thank Roy and my friend Anju for being my paranymphs. Moreover, I would like to extend my earnest gratitude to my parents, Frank Dulam and Sabitrie Dulam-Jaggoe, for their abiding encouragement and for being the cornerstone of my accomplishments.

I cordially thank all the persons, including those not mentioned in this preface by name, for their considerable contribution to the success of this study.

This dissertation would not have been realized without the input of so many powers, ergo I deeply acknowledge the role of the Almighty Creator in my life.

Gran Tangi!

Commewijne, October 2015
Tina Dulam

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# 1

# Introduction

## 1.1 Background

Brain drain refers to the emigration of highly educated individuals from one country to the other, thereby reducing the fraction of highly educated individuals in the total population and impeding the capacity of the sending country to make economic progress (Fan & Stark, 2007b). It is evident why this situation, in which mostly engineers, physicians, scientists, and other highly skilled individuals in search for better welfare and personal growth depart from developing countries to developed countries, is coined as brain drain.

As developed countries gradually adopted quality-selective immigration policies to attract skilled migrants, a new theory entitled the brain gain theory or beneficial brain drain theory started to gain ground in the literature. This theory contends that the prospect of migrating to a developed country and earning higher income instigates people in the home (sending) country to pursue higher education. As not all highly educated individuals emigrate, the home country may end up with more highly educated individuals than in the absence of the emigration possibility (Beine *et al*., 2008; Fan & Stark, 2007b). Brain drain may entail other benefits as well, such as remittances, return migration after obtaining additional knowledge and skills abroad, and circulatory migration which may result in transfers of knowledge, technology, and capital (Beine *et al*., 2008).

According to Beine *et al.* (2008) the brain gain theory seems to work for large developing countries, but not for countries where the emigration rate of the highly educated is higher than 20% and or where the percentage of highly educated individuals is higher than 5%. High rates of skilled emigration were especially observed in small developing countries in the Caribbean, Central America, and Sub Saharan Africa (Beine *et al*., 2008; Docquier *et al.*, 2014). Empirical evidence suggests that small developing countries are the greatest sufferers of brain drain. According to Docquier (2014, p. 1): "the growth in the number of migrants was driven largely by emigration from developing countries to developed countries, which increased from ten million to 55 million between 1960 and 2000, faster than trade". He also found that the emigration rate of the highly skilled was higher than the low skilled especially in developing countries.

At the macroeconomic level, Docquier *et al.* (2007) documented that countries that are close to the Organisation for Economic Cooperation and Development (OECD) countries and that have colonial links with the OECD countries, exhibit higher brain drain rates. The quality-selective immigration programmes in developed countries also attract potentially skilled migrants from developing countries, whereas political instability, poor economy, and ethnic fractionalization in the home country pushes the skilled workers away.

At the microeconomic level, Gibson and McKenzie (2011) designed a unique survey to identify the determinants of emigration and remigration concerning former top students of three Pacific countries (Papua New Guinea, Tonga, and New Zealand). They determined that high skilled emigration was associated with pure science subjects taken

in school, risk aversion, patience, and foreign language command, and that return migration was associated with having family in the home country and lifestyle preferences. For these three countries and two other countries (Ghana and Micronesia), Gibson and McKenzie (2010), also assessed the gains from emigration. Although brain drain rates are high, these countries benefit from attained (post)graduate education abroad and remittances. They also found that migrants benefit from income gains, but are not much involved in trade and foreign direct investments to the home country.

Suriname, a small developing country along the north coast of South America, is often cited as a case of brain drain (Docquier & Marfouk, 2006; Nurse, 2006; Domingo, 1995). With a brain drain rate of 48%[1], Suriname belongs to the top thirty countries in the world experiencing high skilled emigration (Docquier & Rapoport, 2007). To our best knowledge however, detailed data-based research on the determinants of emigration and return migration of the highly skilled Surinamese has remained absent so far. The essays in this dissertation aim to fill in this gap, and to propose concrete policy recommendations in order to gain brain for Suriname. In the first part we test the brain gain hypothesis for Suriname. To formulate policies to curb brain drain we next study the determinants of emigration and return migration, and finally we address the potential of specific recruitment policies.

Because of the colonial links ensuing common language, akin jurisdiction, and education system it is not surprising that around 74% of the emigrants from Suriname choose the Netherlands as the country of destination[2]. The migration flow between Suriname and the Netherlands is particularly interesting to investigate, as this relationship seems to contain all the features with respect to the causes of brain drain mentioned earlier. Based on Gibson & McKenzie's (2011) survey we investigate what determines the emigration of the (potentially) highly skilled individuals from Suriname to the Netherlands. By restricting the research to these two countries we are able to focus on specific determinants of migration addressed in two country models. Our findings improve the understanding of the sources of brain drain and how to potentially attract high skilled individuals to curb brain drain.

## 1.2 Research overview and methodology

This dissertation contains four studies. Based on the brain gain theory, Chapter 2 examines whether Suriname is a case of brain drain or brain gain. In this chapter the effect of emigration on schooling is examined by means of the error correction model which estimates short-run as well as long-run effects. Time-series data on the emigration rate, primary and secondary school enrolment, and the university graduation rate for the period

[1] The number of highly educated emigrants as a percentage of the total number of highly (tertiary) educated individuals in the country.

[2] The number of migrants from Suriname in the Netherlands (source: cbs.nl) in year 2000 divided by total number of migrants from Suriname to the world (source: Docquier & Marfouk, 2006): 132,850/ 180,156 = 0.74

1972-2009 was collected. This novel method of analysing Suriname's case confirmed earlier indications that Suriname is indeed a case of brain drain.

To understand the sources of brain drain it is important to investigate what differentiates high skilled migrants from high skilled non-migrants, and this is pursued in Chapter 3. Based on Gibson and McKenzie's (2011) unique survey we collected microeconomic data among 283 former top students from Suriname who permanently or temporarily left for the Netherlands. A sampling frame of high skilled or high educated individuals is non-existent. Hence names of high school top students (best graduates) were collected. They are most likely to continue to excel in live and to attain higher education and are relatively easily identifiable by consulting school records, newspapers, or other media that announce the names of the best graduates. Three groups of former top students who enjoyed secondary education in Suriname and now either live in Suriname or in the Netherlands were compared, and these are emigrants from, remigrants to, and non-migrants of Suriname. Indeed, the respondents were found to be highly skilled individuals. They attained higher education if not the highest education and have professions requiring high cognitive skills, such as doctors, engineers, lawyers, and scientists. As the dependent variable (being a migrant or a non-migrant) was measured at binomial level, binary logit regressions were performed in Chapter 3 to identify the determinants of high skilled emigration.

Chapter 4 aims to identify the determinants of return migration of the highly skilled and continues with the analysis of the collected survey data of former top students. Here the remigrants are compared with the stay migrants (current migrants) and the determinants of return migration are identified by means of the binary logit model. Respondents were also asked to indicate what the chance was that they would live and work in Suriname in the future (in one year, in ten years, and after retirement). This chance, indicated with a percentage between 0 and 100%, was the outcome variable. Because a chance of zero percent was not uncommon, censored regression models were estimated to identify the determinants of the outcome variable.

Chapter 5 discusses practical policies to attract high skilled migrants to bolster the human capital of the home country. The focus is on policies regarding remigration benefits packages (such as offering housing, land, education subsidies for the children, parental care, higher salaries, and research funding). A survey in which several hypothetical offers were proposed was conducted among 209 highly educated migrants of Surinamese origin. The willingness to return if several provisions were offered, was measured at ordinal level. The ordered probit model, which is useful for estimating the effect of several explanatory variables on an ordinal level response variable, was used to know which type of migrants are attracted towards which kind of proposals.

The last chapter reviews the research outcomes, concludes, and discusses the policy implications and the limitations of the studies.

## 1.3 Results in brief

Chapter 2 tests the hypothesis whether emigration positively affects the human capital formation of the home country. The primary schooling enrolment rate of Suriname remains unaffected by the emigration rate, but the higher education levels are negatively affected. In the long-run emigration drains out the enrolment at secondary schooling level, and, even worse, it drains out the rate of university graduation in the short- and long-run. Hence Suriname is a case of brain drain and not brain gain.

The survey results in Chapter 3 shows that 63% of the high school former top students of Suriname ever migrated to the Netherlands of which a third returned. The estimated rate of brain drain is thus 42% for Suriname. Attaining higher education was the main motive to move abroad. High skilled migration from Suriname to the Netherlands is positively associated with the socio-economic class and the education level of the migrants' parents. Furthermore it becomes clear that former top students who studied pure science subjects (chemistry, physics, and biology) in high school are more likely to emigrate than those who studied another set of subjects. Migrants also tend to choose the country where their family reside. The main motives to return to Suriname was because of their family there, patriotism, and lifestyle preferences for the country.

Chapter 4 documents that return migration is negatively related with the migration duration, the Dutch citizenship, and preferences for the Netherlands regarding salaries, job contentment, and safety. Study scholarships seem to be effective as this positively affects return migration. The chance to live in Suriname in the future is negatively affected by obtaining the Dutch citizenship, the education level of the migrant and that of the life partner. High skilled women are more likely to return than high skilled men. Individuals who perform management tasks at work and who are more in touch with clients exhibit higher chances to live in Suriname in the future.

Chapter 5 evaluates which policies might be effective in attracting highly skilled expatriates from Suriname. Around a quarter of the migrants would definitely return if they were offered a luxurious house in a gated community in or around the capital of Suriname, education subsidies for the children, parental care, land property, and easy access to mortgage. Adding the migrants who are uncertain but may accept these offers, shows that the majority is positive towards these provisions. The offers mentioned here mostly attract young engineers to return to Suriname. Offering funds for research and innovation would also attract health professionals. Eliminating political interference in profession might even attract the majority to return.

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# 2

# Emigration, wage differentials and brain drain: The case of Suriname


**Abstract**

In this chapter, we examine two hypotheses concerning emigration. The first hypothesis is that emigration is positively correlated with wage differentials. The second hypothesis concerns a positive correlation between emigration and higher education in the sending country (the so-called brain gain hypothesis). We analyse unique time-series data for Suriname for the period 1972–2009, for which we fit error correction models to disentangle short-run from long-run effects. We document moderate support for the first hypothesis, but we find strong support for the brain drain (and not brain gain) hypothesis. We conclude with implications of our findings for Suriname.



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## 2.1 Introduction

The consequences of migration from developing countries to developed countries have been subject of research in many studies. In particular, there is an interest in examining the effects on the formation of human capital in the sending countries. An established and frequently documented consequence is summarized in the brain drain theory. This theory predicts that emigration of highly skilled individuals from developing to developed countries would reduce the ability of the home country to build up human capital and hence would reduce its welfare. Recently, new insights have challenged this theory, and theoretical and empirical evidence has been presented for the so-called brain gain theory; see Fan and Stark (2007a, 2007b), Boucher *et al*. (2005) and Beine *et al*. (2001, 2007). In short, the main argument is that prospective migration opportunities stimulate education levels in the sending country since higher skilled individuals can earn higher wages in developed countries than in sending countries. This in turn could have a positive effect on the welfare of the sending country.

In the present chapter, we put these theories to an empirical test, using time-series data for the South American country of Suriname. The case of Suriname is particularly useful as the receiving country (usually) concerns the Netherlands (for historical and language reasons) so that we can collect annual time-series data for a reasonably long stretch of time.

The outline of this chapter is as follows. In Section 2.2, we give a concise discussion of the relevant literature, and we formulate two testable hypotheses. In Section 2.3, we discuss the data collection and the construction of the relevant time-series variables. In Section 2.4, we review our methodology, which amounts to the calibration of the so-called error correction models. These models are useful as they allow discerning short-run and long-run effects.

In Section 2.5, we present our empirical results. Our main conclusions are that emigration from Suriname is positively correlated with wage differentials and that we obtain strong support for the brain drain hypothesis. In Section 2.6, we discuss issues for further research and also the implications for Suriname.

## 2.2 Background

The literature on brain drain effects and, more recently, on possible brain gain effects is very large. With the advent of more and better data, recent studies can rely on large samples and detailed information, and this had led to a renewed interest to testing the hypotheses on brain drain or brain gain.

Beine *et al.* (2001) examined the brain gain hypothesis using cross-sectional data for 37 developing countries, and they found some support for this hypothesis. These authors suggested that it would be best to compile and analyse panel data, that is, data

with a cross section and a time-series dimension. Most important is time-series data for human capital levels as that would be a key variable to be explained. Boucher *et al.* (2005) used longitudinal data covering the period 1980 to 2002 to examine the brain gain hypothesis for Mexico, which thus amounts to a cross section of size 1. These authors used the average years of schooling of adults as a proxy for human capital (Boucher *et al.*, 2005, p. 8). In our study, we also consider a single country, although we rely on various measures for human capital.

Batista *et al.* (2012) tested the brain gain hypothesis using household survey data for Cape Verde. These authors can rely on full histories of migrants. Although Batista *et al.* (2012), like us, examined a small developing country, they cannot draw firm conclusions as the time-series dimension of the data is missing. In our empirical study below, we can examine the brain gain hypothesis in a dynamic setting for the small developing country of Suriname and we use multiple measures for human capital formation.

According to Eggert *et al.* (2010) and Beine *et al.* (2001), skilled people are better off in developed countries than in developing countries, as developed countries pay higher wages. The prospect of emigrating and acquiring higher wages abroad when being high skilled can stimulate people to achieve higher education levels. Hence, higher wage differentials between the home country (sending country) and the destination country should increase the emigration rate. Our first introductory hypothesis is thus that the wage differential between the sending and receiving countries is positively linked with the emigration rate.

Stark *et al.* (1998), Boucher *et al.* (2005), and Beine *et al.* (2001, 2007) amongst others put forward the brain gain hypothesis. In short, the main argument is that prospective migration opportunities stimulate education levels in the sending country as higher skilled individuals can earn higher wages in developed countries than in sending countries. This in turn could have a positive effect on the welfare of the sending country. So, our second hypothesis is that the emigration rate of highly skilled people increases the education level of the home country. In other words, the level of human capital of the sending country is positively correlated with the emigration rate.

## 2.3 Data

For many years Suriname has experienced high rates of emigration, especially to the Netherlands. With an emigration rate of 56.3% in 2000, Suriname is one of the top 10 countries in the world with the highest emigration rate (International Organization for Migration, 2010, p. 156). The number of immigrants from Suriname to the Netherlands in percentage of the Surinamese population was 38.8% in 2000 (UN DESA, 2009). The Surinamese amount to the largest group of immigrants living in the Netherlands.

According to Docquier (2006), the European Union has been the 'main source of human capital flight from Suriname'. Nurse (2006, p. 2) states that 'The brain drain from the Caribbean is the highest in the world, with migration rates among the tertiary educated in excess of 60% in Trinidad and Tobago, Jamaica, Guyana, and Suriname'.

The small developing country of Suriname is situated along the Atlantic Ocean on the mainland of South America. Suriname was a colony of the Netherlands for many years and it gained its independence in 1975. Its current population size (measured in 2004) is 492,829 and the surface area is 163,820 $km^2$. Economic growth was negative for most of the years after the independence from the Netherlands in 1975, but since 2003 the country is experiencing positive economic growth per capita with an estimated growth of 4.5% in 2010 (IMF, 2011). Although economic growth is on the rise, poverty and inequality levels are high. Soedhwa (2005) estimated the percentage of Surinamese living below the national poverty line to be 65% in 2001. The income share held by the richest 20% in 1999 was 57%, while the poorest 20% had an income share of 3% (World Bank, 2011).

Data on the emigration rate by educational level are not available. Therefore, we use the gross emigration rate, that is, the yearly number of emigrants from Suriname to the Netherlands as a share of the population of Suriname, as a proxy for the emigration rate. (We use the acronym 'mig_emig'.) Another proxy for the emigration rate that could be used is the difference between the yearly number of first generation immigrants (Dutch: allochtonen) in the Netherlands from Suriname as a share of the population of Suriname in year t and year $t-1$. The first proxy for the emigrate rate is calculated using data from the Central Bureau for Civil Affairs of Suriname (Centraal Bureau voor Burgerzaken; CBB) and the latter from the Central Bureau of Statistics of the Netherlands. When analysing the overlap between the two variables, we see that the correlation is close to 1. Hence, we consider only the mig_emig variable.

Yearly data on the completion rate at the primary and secondary schooling level for the full period 1972 until 2009 were not available. However, yearly data on the number of graduated students at the Anton de Kom University of Suriname were acquired from the library of the university. Yearly data on the number of enrolled pupils and students at primary, secondary, and tertiary levels were acquired from the General Bureau for the Statistics in Suriname. Unfortunately, for some years the data are missing. We use the following proxies for the educational levels. First, we have the yearly gross school enrolment rate at primary level (% gross), that is, the number of enrolled pupils in primary schools as a share of the school age population at the primary level (variable name: schlenrlpr). The data were obtained from the UNESCO UIS database. Next, the yearly gross school enrolment rate at the secondary level (% gross) is the number of enrolled students in secondary schools as a share of the school age population at that secondary level (variable name: schlenrlsc). Again, the data were obtained from the UNESCO UIS database. Further, the yearly gross school enrolment rate at the tertiary level is the number of enrolled students at the university in percentage of the school age population

at that tertiary level. These numbers were obtained from the Anton de Kom University of Suriname and from the General Bureau for the Statistics in Suriname (variable name: schlenrltr). Note that there is only one university in Suriname. Finally, we have the yearly graduation rate, that is, the number of graduated students from the university as a share of the school age population at the tertiary level (variable name: afgest_pop).

The wage differential is the ratio of the GDP per capita in PPP US dollars of Suriname to the GDP per capita in PPP US dollars of the Netherlands. We used data from the World Bank to calculate this ratio. Appendix 2.A provides an overview of the used variable names and their sources for the above mentioned proxies. Figures 2.1 to 2.6 in Appendix 2.B give a graphical impression of the data. Appendix 2.C gives some summary statistics of the growth rates of these variables. Appendix 2.D explains a few of the abbreviations.

## 2.4 Methodology

As can be seen from the graphs, the data are trending, either upwards or downwards. We also would like to allow for the possibility of long-run relationships, as it is most likely that such variables as emigration and education have a long-run relationship with each other and also that shocks may last for a long time, perhaps even permanently. To allow for the estimation of long-run effects, we therefore rely on an error correction model.

We have two models, one in which the emigration rate is linked with the wage differential, and one in which education levels are linked with emigration rates. We denote the left-hand side variable as, $y_t$, which is the log-transformed emigration rate in the first model and which is the log-transformed education level (one of the four) in the second model. The explanatory variable on the right-hand side is denoted as, $x_t$, which is the log-transformed wage differential in the first equation and the log-transformed migration rate in the second model. The econometric time-series model for both cases is given by

$$y_t = \mu + \lambda y_{t-k} + \beta_1 x_t + \beta_2 x_{t-k} + \varepsilon_t \tag{2.1}$$

where *k* can be 1, 2, 3 or 4 to allow for various time effects. Equation 2.1 can be written in the so-called error correction format, which is given by

$$y_t - y_{t-k} = \mu + \beta_1 (x_t - x_{t-k}) + (\lambda - 1)\left( y_{t-k} - \frac{\beta_1 + \beta_2}{1-\lambda} x_{t-k} \right) + \varepsilon_t \tag{2.2}$$

The short-run effect of the explanatory variable is $\beta_1$ and the long-run effect is

$$\frac{\beta_1 + \beta_2}{1-\lambda}$$

We use the nonlinear least squares routine in EViews to directly estimate these long-run and short-run effects and their associated SEs. Diagnostic tests for residual autocorrelation show that the model in (2.2) adequately fits the data.

## 2.5 Results

We start with the supposed link between wage differentials and the emigration rate. From Table 2.1 in Appendix 2.E, we see that there is no significant short-run effect of a wage differential on the emigration rate but there does exist a positive long-run effect. (See the cases where k in (2.1) is equal to 3 and 4.) So, we obtain moderate support for the first hypothesis.

When we link the education levels with the emigration rate, we see from Table 2.2 in the same Appendix that there is a strong negative effect of emigration on the number of graduated students from university. This effect is there for the short-run within the range of -0.14 to -0.32 (average -0.25), and for the long-run in the range of -1.52 to -1.80 (average -1.68). Hence, the long-run effect is about 7 times as large as the short-run effect. We also obtain evidence for negative long-run effects for education at the tertiary and secondary level, approximately of size -0.2. For these two education types, no short-run effects are statistically significant. Finally, as primary education is obligatory in Suriname, we would expect no effects of emigration on enrolment at that level. When we look at the final panel of Table 2.2, we indeed find results that match our expectations as no significant effects are found.

As concerning the robustness of our results, one may question that the sample size is too short to draw conclusions. However, as the power of unit root tests increases with sample size, and we do find significant results, our finding of significant coefficients shows that our analysis does not suffer from low power. At the same time, as is discussed in Campbell and Perron (1991), Perron (1991), and Shiller and Perron (1985), the power of unit root tests increases with the time span (in years) and it is less dependent on the sample size.

In sum, our main conclusion is that there are strong signs of brain drain effects for Suriname, and not of brain gain. Brain drain seems to most effect the education at the university level.

## 2.6 Conclusion

The purpose of this study was to test the brain gain hypothesis for Suriname using time-series data for the period 1972–2009. The prospect of emigrating and acquiring higher wages abroad when being high skilled might stimulate people to achieve higher education levels in the home country. Using an error correction model, we arrived at the conclusion that higher wage differentials between the home and destination country increase

emigration from Suriname to the Netherlands in the long run. Additionally, contrary to the hypothesis that emigration prospects increase the level of education, we find negative long-run effects of emigration on human capital formation at secondary and tertiary schooling levels. The effect of emigration on the rate of graduation from the university is negative in both the short and long term. Unsurprisingly, no effect was found at primary schooling level, as education at the primary level (for the age of 7 to 12) is compulsory.

The key finding of our study is that Suriname concerns a case of brain drain, and not of brain gain. The stock of the higher educated Surinamese decreases as emigration increases, and of course, when emigration decreases, education levels in Suriname increase.

From our study, it is evident that emigration is fuelled by higher wages paid abroad. Policy makers in Suriname should attract highly skilled people to stay in Suriname or to return to Suriname by offering them job opportunities from where they can build on their own career and earn higher wages. Two main problems might obstruct the implementation of this policy and therefore they need attention.

Firstly, as also noted in Rosenzweig (2005), poor institutions in the home country might induce highly skilled individuals to emigrate. In general, elderly highly positioned people are reluctant to grant the opportunity to younger and high educated people to build on their career into top positions and this may also hold in Suriname. Ethnic fractionalization could also induce the highly skilled to emigrate (Docquier *et al*., 2007). Due to its ethnic and political fractionalization, Suriname is prone to patronage politics. Jobseekers might be mainly judged by their political background (and ethnic background since political parties are mainly based on ethnic idealism) and not as much on their diplomas and capabilities. Easterly and Levine (1997) and Alesina *et al.* (2003) already showed that ethnic fractionalization has a negative impact on the economic growth in Africa.

Secondly, technological constraints in the home country (Fan and Stark, 2007b) could discourage young highly skilled individuals to stay in the home country or to return from the destination country. An environment in which the educated cannot utilize their acquired skills might push them away to a foreign country. Technological change could therefore be a catalyst for brain gain.

We do not recommend restrictive migration policies as these might reduce innovation, increase illegal migration, fuel brain waste, and lead to a situation where highly educated individuals cannot find suitable employment opportunities in the home country and thus remain unemployed or overeducated. International collaboration between Suriname and especially the Netherlands on developing tertiary education opportunities, improving institutions through technical training, and transferring technology can help reducing the brain drain effects. At the political level, countries should support policies that encourage return migration.

Further research on the above-mentioned policy recommendations and identified problems is necessary. Interviewing subjects on the characteristics of emigration and their

experiences on the abovementioned issues can provide information to build micro data sets for further research.

## Acknowledgement

We thank an anonymous referee for helpful comments.

## Appendix 2.A Variables and sources

| Acronym | Variable | Source |
|---|---|---|
| Schlenrlpr | School enrolment rate at primary level (as a share of the school age population at primary level) | UNESCO (2011) |
| Schlenrlsc | School enrolment rate at secondary level (as a share of the school age population at secondary level) | UNESCO (2011) |
| Schlenrltr | School enrolment rate at the university (as a share of the school age population at tertiary level) | AdeKUS (2011) and GBS |
| Afgest_pop | Number of graduated students as a share of the school age population at tertiary level | AdeKUS (2011) |
| Mig_emig | Number of emigrants from Suriname to the Netherlands as a share of population of Suriname | CBB (2000, 2011) and CBS (2011) |
| Wage_diff | Real GDP per capita of Suriname in PPP dollars to real GDP per capita of the Netherlands in PPP (in 2005 international dollars) | World Bank (2011) |

## Appendix 2.B Figures

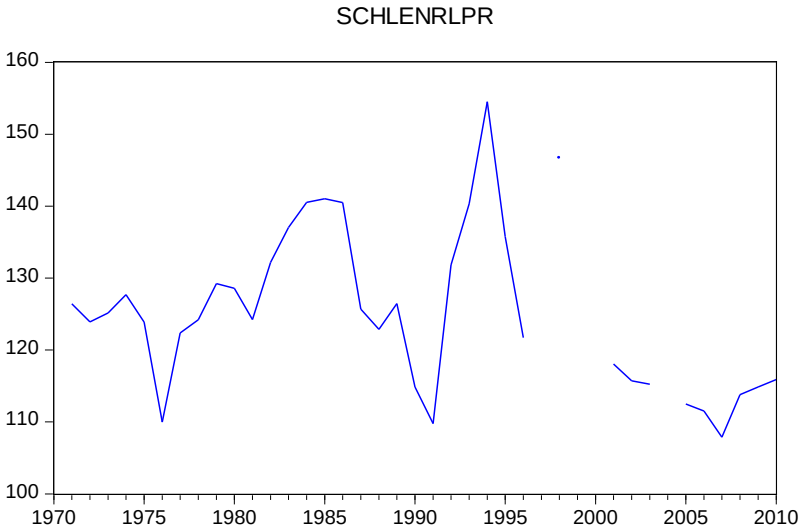


Figure 2.1: School enrolment rate at primary level

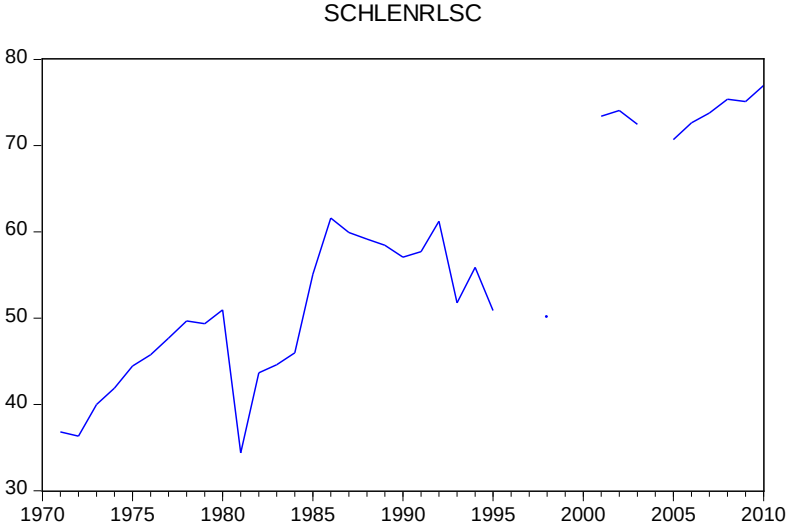


Figure 2.2: School enrolment rate at secondary level

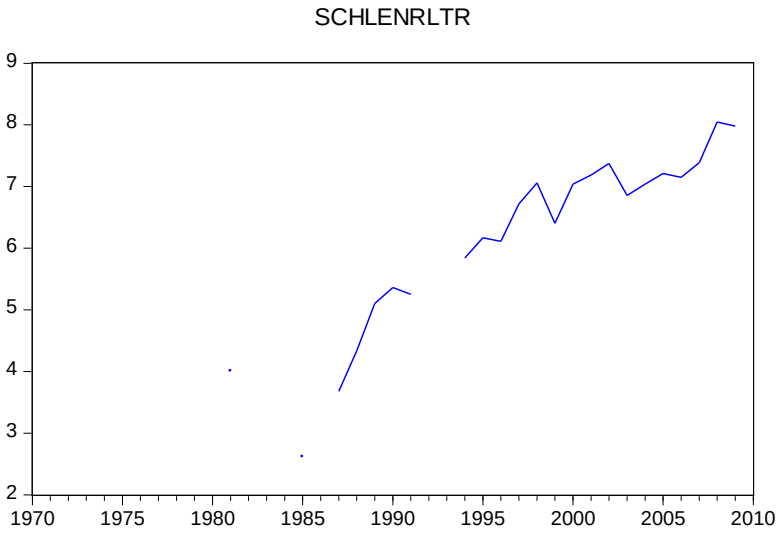


Figure 2.3: School enrolment rate at the university

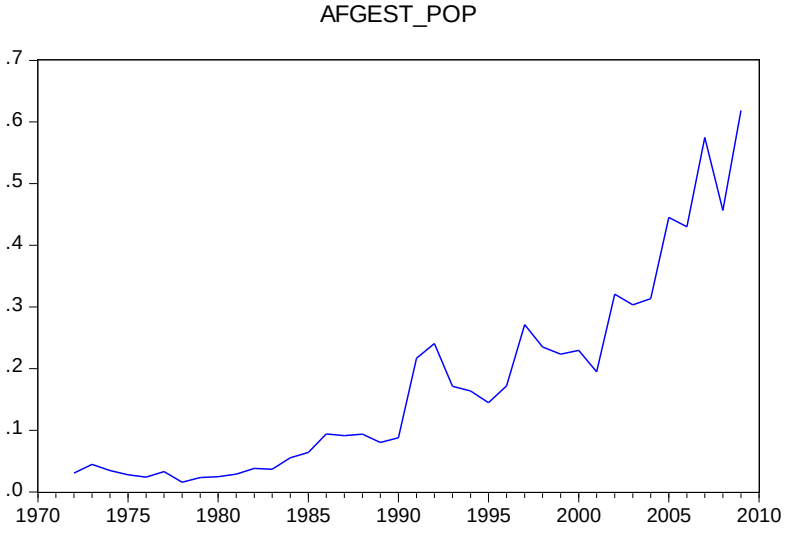


Figure 2.4: University graduation rate

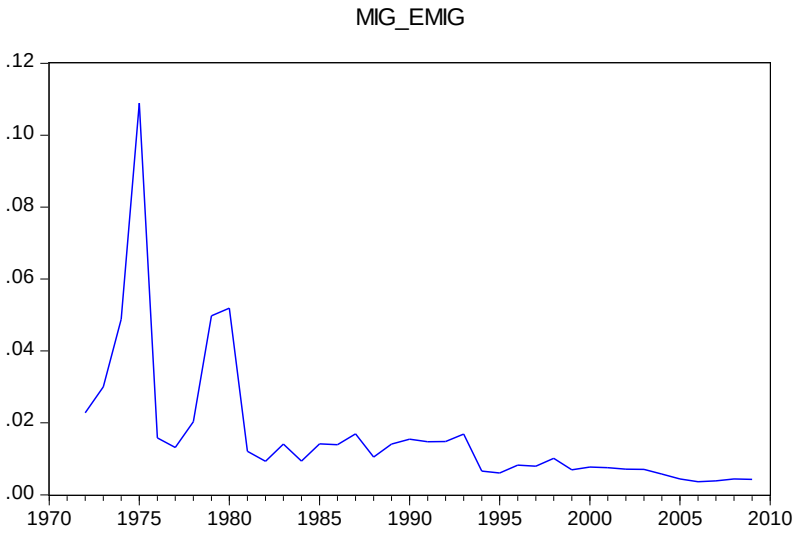


Figure 2.5: Emigration rate from Suriname to the Netherlands

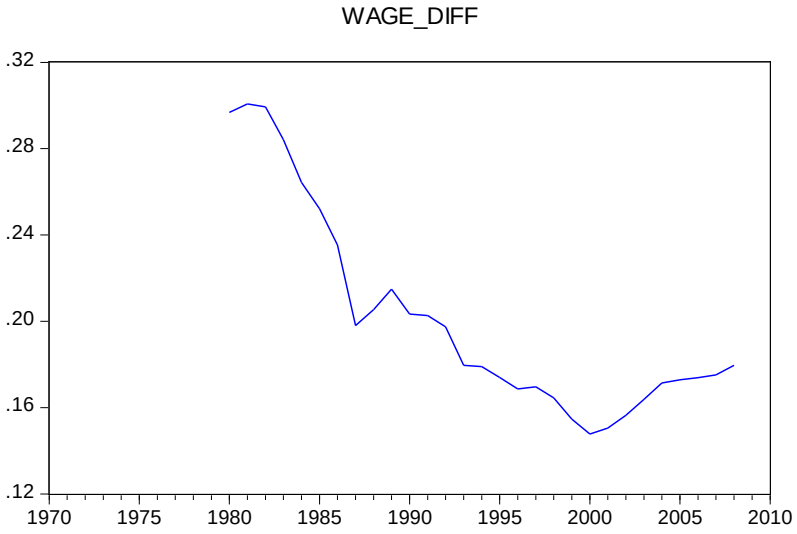


Figure 2.6: Wage differential Suriname-Netherlands

## Appendix 2.C Descriptive statistics of various growth rates

| Variable | Mean | Median | Minimum | Maximum | SD |
|---|---|---|---|---|---|
| Mig_emigr | -0.045 | -0.008 | -1.928 | 0.897 | 0.529 |
| Schlenrlpr | -0.001 | 0.000 | -0.129 | 0.183 | 0.067 |
| Schlenrlsc | 0.013 | 0.021 | -0.394 | 0.240 | 0.104 |
| Schlenrltr | 0.035 | 0.026 | -0.098 | 0.164 | 0.068 |
| Afgest_pop | 0.081 | 0.032 | -0.749 | 0.904 | 0.298 |
| Wage_diff | -0.018 | -0.004 | -0.173 | 0.046 | 0.050 |

## Appendix 2.D Abbreviations

| | |
|---|---|
| AdeKUS | Anton de Kom University of Suriname |
| CBB | Central Bureau for Civil Affairs of Suriname |
| CBS | Central Bureau of Statistics Netherlands |
| GBS | General Bureau for the Statistics in Suriname |
| IMF | International Monetary Fund |
| UIS | UNESCO Institute for Statistics |
| UN DESA | United Nations Department of Economic and Social Affairs |

## Appendix 2.E Tables

Table 2.1 Estimation results for the correlation between the emigration rate and the wage differential

| *k* | Short-run effect | | Long-run effect | | $R^2$ |
|---|---|---|---|---|---|
| 1 | -1.432 | (-1.046) | 0.230 | (-0.720) | 0.687 |
| 2 | -0.200 | (-1.028) | 0.717 | (-0.557) | 0.667 |
| 3 | 0.790 | (-1.087) | **1.320** | (-0.216) | 0.684 |
| 4 | 0.984 | (-1.185) | **1.390** | (-0.323) | 0.768 |

Notes: Newey West HAC estimated standard error in parentheses.
Boldface estimates are significant at the 5% level.

Table 2.2 Estimation results for the correlation between the education enrolment and the emigration rate

| Variable | *k* | Short-run effect | | Long-run effect | | $R^2$ |
|---|---|---|---|---|---|---|
| Graduated university students | 1 | **-0.141** | (-0.037) | **-1.522** | (-0.280) | 0.108 |
| | 2 | **-0.236** | (-0.043) | **-1.640** | (-0.274) | 0.186 |
| | 3 | **-0.324** | (-0.117) | **-1.743** | (-0.185) | 0.432 |
| | 4 | **-0.284** | (-0.169) | **-1.795** | (-0.370) | 0.276 |
| Enrolment tertiary level | 1 | 0.033 | (-0.053) | **-0.257** | (-0.052) | 0.629 |
| | 2 | 0.007 | (-0.053) | **-0.214** | (-0.075) | 0.789 |
| | 3 | 0.005 | (-0.024) | **-0.204** | (-0.054) | 0.928 |
| | 4 | -0.208 | (-0.219) | **-0.429** | (-0.230) | 0.306 |
| Enrolment secondary level | 1 | 0.024 | (-0.042) | **-0.213** | (-0.054) | 0.339 |
| | 2 | 0.002 | (-0.027) | **-0.230** | (-0.056) | 0.523 |
| | 3 | -0.027 | (-0.026) | **-0.203** | (-0.052) | 0.443 |
| | 4 | -0.015 | (-0.039) | **-0.172** | (-0.069) | 0.448 |
| Enrolment primary level | 1 | 0.020 | (-0.020) | 0.020 | (-0.047) | 0.177 |
| | 2 | 0.016 | (-0.017) | 0.026 | (-0.039) | 0.320 |
| | 3 | 0.014 | (-0.022) | 0.026 | (-0.036) | 0.399 |
| | 4 | 0.023 | (-0.031) | 0.046 | (-0.039) | 0.424 |

Notes: Newey West HAC estimated standard error in parentheses.
Boldface parameters are significant at the 5% level.

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# 3

# Microeconomic determinants of high skilled emigration from Suriname


**Abstract**

Suriname witnesses a brain drain, in particular to the Netherlands. We study the determinants of high skilled migration, where we rely on an adaptation of the survey constructed by Gibson and McKenzie (2011). We managed to interview 283 former top students, who studied in Suriname and now work and live either in the Netherlands or Suriname. We find that important determinants for skilled migration are (1) education level and the social economic status of the migrant's parents, (2) the place of residence of the migrant's parents and family, (3) whether the student enjoyed education in the capital city of Suriname, (4) the pure science courses taken at high school, and (5) patience. We discuss the implications for policy makers.



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## 3.1 Introduction

The South-American country of Suriname ranks as the 20th country in the world (out of 195 countries) with the largest highly skilled emigration rate (Docquier & Rapoport, 2007). The number of Surinamese individuals living outside Suriname is around half the size of its population of approximately 540,000 inhabitants (Docquier & Marfouk, 2006; IOM, 2010). 48% of the highly skilled people[3] of Suriname were living abroad in 2000 (Docquier & Marfouk, 2006) of which two third in the OECD countries (Docquier *et al*., 2009). With a net outflow of 5711 skilled labourers in 2000, Beine *et al.* (2008) categorize Suriname as a country experiencing a detrimental brain drain. While new literature on brain gain indicates that prospective migration opportunities stimulate education levels in sending countries, this does not seem to be the case for Suriname. In fact, Dulam and Franses (2015a) found a strong long-run negative effect of emigration on the number of graduated students from the University of Suriname, which implied that Suriname is a case of brain drain rather than brain gain.

In order to develop policies to curb the brain drain and to attract the highly skilled back to Suriname it is essential to find out which factors determine skilled migration. In this study we use a microeconomic approach, where we rely on a detailed survey amongst the highly skilled Surinamese non-migrants and migrants, with the aim to find out the individual motivations and characteristics related to migration.

Around 176,000 emigrants, which is 74% the total emigrants stock[4] from Suriname, live in the Netherlands. 90% of the highly skilled migrants went to the European Union (Docquier & Marfouk, 2006), and then mainly to the Netherlands considering the same official language of both countries and the colonial heritage. Using an online survey, with questions based on Gibson and McKenzie (2011), our paper identifies several microeconomic factors that explain the emigration of highly skilled Surinamese individuals to the Netherlands. As the majority of the highly skilled migrants went to the Netherlands, our research is limited to respondents living in the Netherlands or in Suriname. To our best knowledge until now no microeconomic research has been carried out to find out what explains the brain drain of Suriname. Starting from the Roy model of self-selection, we discuss several explanatory factors as they are proposed in the literature.

The remainder of this chapter is organized as follows. Section 3.2 presents the basic theoretical model to explain migration. Section 3.3 describes Suriname's migration history with the Netherlands. Section 3.4 gives an overview of the data, sample selection,

[3] A highly skilled emigrant is an emigrant who has at least tertiary education (Docquier and Marfouk 2006).
[4] Total number of migrants from Suriname in 2000 was: 180,156 (Docquier and Marfouk, 2006). In 2000 the number of immigrants from Suriname in the Netherlands was: 132,850 (www.cbs.nl); thus 74% of the total migration stock from Suriname went to the Netherlands. 90% of the 33,059 highly skilled migrants in the world went to the EU (Docquier and Marfouk, 2006).

and the methodology. Section 3.5 discusses the results of the survey. The last two sections draw conclusions and discuss policy implications.

## 3.2 Theoretical framework

Many studies have adapted the Roy model of self-selection (for example, Sjaastad, 1962; Borjas, 1987; Clark *et al.*, 2002; Dustmann *et al*., 2011; and Grogger & Hanson, 2011) as a starting point for examining the factors affecting the decision to migrate. According to the Roy model (Borjas, 1987) an individual will emigrate if

$$(\mu_1 - \mu_0 - \pi) + (\varepsilon_1 - \varepsilon_0) > 0 \qquad (3.1)$$

In words, this expression says that when the mean earnings of an emigrant in the destination country, $\mu_1$, minus the mean earnings in the source country, $\mu_0$, and minus the costs of migration (that is the time-equivalent costs denoted by $\pi$, with $\pi = C/w_0$, in which C is the costs of migration and $w_0$ is the wage one would earn in the home country) plus the differences between unobserved earnings in the destination country, $\varepsilon_1$, and that of the source country, $\varepsilon_0$, is positive, that then the individual will emigrate. The home country is the country from where the emigrant departs, and is also called the source country. The destination country is the country where the emigrant goes to.

The potential migrant generally expects to receive a higher wage in a high income country. Eggert *et al*. (2010) and Beine *et al*. (2001) discussed that higher wage differentials between the sending and destination country encourage people to migrate from low-income to high-income countries. According to Borjas (1987) the probability that an individual will migrate is

$$P\,(v > -(\mu_1 - \mu_0 - \pi)) = 1 - \Phi\,(z), \qquad (3.2)$$

whereby $v = \varepsilon_1 - \varepsilon_0$; $z = \dfrac{-(\mu_1 - \mu_0 - \pi)}{\sigma_v}$, $\Phi$ is the standard cumulative normal distribution function, and $\sigma_v$ is the standard deviation of $v = \varepsilon_1 - \varepsilon_0$. Hence, income maximization is supposedly the main reason for migration. According to Borjas (1987), positive selection of migrants (highly skilled) will occur when the income dispersion in the destination country is higher than in the home country and negative selection of migrants (lower skilled) will occur when the income dispersion in the destination country is lower than in the home country, as in the latter case low-income workers are "subsidized" and high-income workers are "taxed" to obtain a more equal economy. In

both[5] cases skills must be portable. The correlation between the unobservable characteristics of the natives (home country) and the migrants must be sufficiently positive.

Next to income dispersion, migration also depends on migration costs (Borjas, 1987). The migration cost ($\pi$), both monetary and mental, is determined by several factors. Being born in the destination country and mastering its official language lower the adjustment costs of working or studying in that country (Gibson & McKenzie, 2011). Furthermore, wealthier families can easily afford to pay for the costs of migration (Gibson & McKenzie, 2011). Also the size of the family and friends network abroad (Borjas, 1987; Clark *et al*., 2002) might affect the migration decision. Family and acquaintances who live in the foreign country may help to reduce the migration costs (for instance when the family offers a place to stay).

Individual characteristics and the socio-political situation might also affect the migration decision. The survey research that Gibson and McKenzie (2011) carried out, points out that risk aversion and patience, as well as the subjects chosen in secondary school, are strongly associated with skilled migration, even more so than the financial reasons as widely presumed. They also found that family ties and lifestyle influence the decision to return home rather than income maximization[6].

According to Gökbayrak (2009) the main reason for skilled emigration from Turkey is the lack of coordination between the education system and employment opportunities. Limited possibilities for gaining further experience in the chosen field of study and an inadequate business start-up environment are the main pushing factors of migration (Tansel & Güngor, 2003). Beine *et al.* (2008) found that the socio-political environment (that is, ethnic diversity, government ineffectiveness, and the violation of property rights in the origin countries) induces individuals to migrate as well.

Indubitably, the literature discusses many determinants of migration. In the next sections we classify several determinants of emigration and discuss their roles.

### *Socio-economic status*

The income, education, and occupation define the socio-economic status of an individual. As we are looking for determinants of the migration decision, and thus for pre-migration traits, we will look into the socio-economic status of the parents of the migrants and non-migrants.

[5] A third case is "refugee sorting", where below-average immigrants are selected but outperform the natives of the destination country (Borjas, 1987).

[6] See also Lu, Zong & Schissel (2009) on the migration intentions of students from China in Canada. Factors affecting the migration decision include family structure, economic background, parents' education level, parents' expectation, and academic performances in China. These are the so-called pre-move traits. The post-move traits include: year of residence, academic performance in Canada, friendships and kinships in Canada, marital status, and social activity participation. This study and De Jong (2000) also reflect on the influence of parents on the migration decision.

Individuals who have parents that are well-off will be more likely to emigrate as they are more able to pay the costs of emigration (Findley, 1987; Gibson & McKenzie, 2011). On the other hand, low-income families with dire perspectives in the home country and thus better income and job expectations abroad might also exhibit high migration rates. Therefore, Findley (1987) expected a curvilinear relationship between migration and the economic class, whereby individuals from lower or higher class would be more likely to emigrate than those from the middle class.

Parents with high education will be more likely to have a white collar[7] job and thus higher income (Gibson & McKenzie, 2011) and hence their children will have higher migration prospects. Higher education opportunities are generally scarce in small developing countries, and hence individuals may migrate to obtain foreign tertiary education, especially if those individuals have parents from a high socio-economic class. Tertiary education in medical, social, as well as technical science became available in Suriname[8] only since 1976, which is why parents who attained tertiary education mostly attained this abroad. So it is likely that those parents encouraged their children to pursue foreign tertiary education as well. The children might follow the footsteps of their parents even when tertiary education opportunities in the home country no longer are scarce. Having obtained foreign tertiary education as a parent also indicates the higher financial status of the family and thus a higher ability to send the children abroad for their studies.

According to Gibson & McKenzie (2011), having been on holidays abroad as a child is an indicator of family wealth and thus of the social-economic status; the better-off parents are more likely to go on holidays abroad with their children. Having travelled before facilitates migration (as these children will have less difficulties to adjust), which is analogous to Ajzen's (2005) argument that having bought a product in the past facilitates the experience of buying that product again.

*Place of upbringing*

Someone who grew up in the capital city or in the urban area (of a developing country) may find it easier to adjust in a foreign developed country than someone who grew up in a rural area. The capital city of Suriname is Paramaribo and it is the most developed district of Suriname. It is expected that individuals who were brought up in Paramaribo were more likely to emigrate than those who were brought up in another district of Suriname.

[7] A white collar job refers to a professional or managerial job, such as: doctor, engineer, economist, university lecturer, bank employee, lawyer, politician, managing director, etc.

[8] Suriname's first and only university was founded in 1966, but started solely with a law school. The medical school was incorporated in 1969. The faculty of social science and the faculty of technical science were proclaimed in respectively 1975 and 1976.

*Social attachments*

One becomes socially attached with the place where one was born and where the parents and many family members live. Having been born in a foreign country facilitates migration to that country at later age, as this may lower the costs of migration (Gibson & McKenzie, 2011). For instance, there will be no visa or housing arrangement costs.

Someone who has family and friends abroad, may find it less difficult to migrate than someone who has no kinship abroad (Findley, 1987). In this regard one can also think of parents living abroad and running a business.

*Language command*

Another factor that reduces the costs of migration is the language command of the destination country. Having a good command of the official language of the destination country facilitates migration (Grogger & Hanson, 2011; Güngör & Tansel, 2008) and cultural integration into that country. The official language of Suriname is Dutch from the time when Suriname was a colony[9] of the Netherlands. Mastering the official language (which is the same in the Netherlands) implies lower adaptation costs and thus easier emigration. Although Dutch is the official language of Suriname, not everyone speaks it at home as the first language due to the different ethnic identities in the country. We expect that individuals who mainly spoke Dutch at home while being in high school, were more likely to emigrate.

*Pure science*

Pure science refers to the courses psychics, chemistry, and biology taken in high school. Individuals who studied these subjects in high school probably are more likely to migrate to a more developed country due to better scientific laboratories and facilities there (Gibson & McKenzie, 2011). Güngör and Tansel (2008) and Van Bouwel *et al*. (2011) established a relationship between academic discipline and migration status.

*Risk and patience*

Gibson & McKenzie (2011) argued that individuals who are willing to take risks may be more likely to migrate. They measured risk preferences using a questionnaire from the German Socio-Economic panel on an 11 point scale (following Jaeger *et al.*, 2010). They also argued that because migration can be seen as an investment with short-term costs, which is needed to achieve longer and higher gains, it is expected that the more patient individuals will be more likely to emigrate. To measure the degree of patience they asked the survey subjects whether they would choose between accepting a certain amount of money today or after a year. The choice concerned (hypothetically) accepting 1000 Euros

[9] Suriname was colony of the Netherlands since 1667 and gained independence in 1975.

today or 1500 Euros after a year, where the second option indicates that the respondent is patient.

*Macro economy*

Economic and political instability might also induce migration (Gibson & McKenzie, 2011; Güngör & Tansel, 2008). Analogous to Gibson and McKenzie we choose two macroeconomic variables. The first is the real exchange rate[10] at the age when emigration was most likely. An increasing real exchange rate implies an overvaluation of the local currency and thus a deteriorating economy. This was especially the case in the 1980's in Suriname. Secondly, we include the wage differential, which is the ratio of the real gross domestic product (GDP) of the home country (Suriname) to the real GDP of the destination country (Netherlands) at the age when the migration probability was the highest (22 years). The higher the difference in the GDP between the two countries the more likely emigration will be.

## 3.3 Background on Suriname

Suriname is a small developing country in the north coast of South America with 541,638 inhabitants (Algemeen Bureau voor de Statistiek in Suriname (ABS), 2013a). The Netherlands has around 16.8 million inhabitants and a GDP per capita (in PPP dollars) of almost 5 times to that of Suriname (World Bank, 2014). 21 percent of the population of the Netherlands is of foreign origin[11], of which 347,631 immigrants are of Surinamese origin (CBS, 2014). The largest group of non-Western immigrants in absolute terms in the Netherlands after Turkey and Morocco is from Suriname. Note that Turkey and Morocco are much larger countries in terms of population size (respectively 74 million and 32.5 million). The third largest group of immigrants (after China and Indonesia) that receive work permits in the Netherlands is also from Suriname and the sixth largest group of foreign students is from Suriname as well (Overmars & Hendriks-Cinque, 2012). Compared with other groups of non-Western immigrants in the Netherlands, the Surinamese are generally higher educated. 21 percent of the Surinamese immigrants (with some education) obtained university or higher vocational education (CBS, 2014), whereas only 9 percent of the schooling population in Suriname itself obtained tertiary education (ABS, 2013b).

[10] The real parallel exchange rate index is the amount of local currency needed to buy 1 US$ in the market divided by the ratio of local consumer price index over the price index of the United States of America. Exchange rate data was obtained from the Central Bank of Suriname and consumer prices data from the World Bank. Data for the difference in the real economic growth between Suriname and the Netherlands were obtained from the World Bank.

[11] First and second generation immigrants.

Based on recent census data (ABS, 2013a) Figure 3.1 in Appendix 3.A presents the main motives of emigration from Suriname. The main reason to go abroad for Surinamese was to attain education. 25% of 2241 emigrants who went abroad between 2004 and 2012 indicated that studying was the main motive.

*History*

Suriname was a colony of the Netherlands for three centuries and obtained independency in 1975. During the years preceding the independency many Surinamese started to migrate to the Netherlands. The year 1973 was characterized by labour unrest and strikes in Suriname (see http://www.vijfeeuwenmigratie.nl). In 1973 around 60 thousand (first and second generation) Surinamese lived in the Netherlands. Now 40 years later, anno 2013, this number is 6 times higher (CBS, 2014). In Figure 3.2 we see that migration peaked in 1975; mainly due to little confidence in the new government after independence (Vezzoli, 2014). In that year about 40,000 Surinamese migrated to the Netherlands. By means of the "Toescheidingsovereenkomst", a convention signed by both countries, Surinamese individuals were allowed to choose between the Dutch or Surinamese citizenship in the period from 1975 to 1980 (Oudhof *et al*., 2011). At nearly the end of this five-year period many Surinamese seized the opportunity to migrate to the Netherlands. After 1980 a visa would be required to enter the Netherlands. The political situations after the "December murders"[12] and during the interior war between 1983 and 1987 also prompted migration. In the 1990's Suriname's economic situation deteriorated and this triggered another flow of emigration to the Netherlands (Vocking, 1994; Oudhof *et al*., 2011). In this period some 30,000 Surinamese migrated to the Netherlands. Since 2004 we see a downward trend of the migration rate, which coincides with Suriname's positive economic growth. According to Chotkowski *et al*. (2014) the introduction of more stringent entry requirements for family formation in 2004 by the Netherlands may have dissuaded migration from Suriname in recent years. Today around 182,000 in Suriname born individuals and 165,000 Surinamese descendants live in the Netherlands.

## 3.4 Methodology

Based on Gibson and McKenzie's questionnaire (2011) we surveyed former top students from the high schools[13] of Suriname, who currently live in Suriname or in the Netherlands. Our goal is to find out what determines brain drain. Brain drain is broadly defined as the departure of high skilled individuals to a foreign country (mainly to a more

[12] On 7 and 8 December 1982 fifteen prominent Surinamese individuals were executed under the ruling military regime of Suriname.

[13] The high school is also called the senior secondary school in Suriname which is attended by students of normally 15 to 18 years of age.

developed country) for at least one year. As top students at high school level have the potential to become high skilled (at least tertiary educated) and there is no sample frame available of tertiary educated individuals with a Surinamese background, we surveyed the relatively easily identifiable former top students from the high schools. Our population consists of former top students who graduated between 1976 and 2006 from a high school of Suriname and now live in the Netherlands or in Suriname. University education in medical, social, and technical science in Suriname became available since 1976 which is why we choose 1976 as a starting point. This will make students who chose to continue their studies in Suriname comparable to those who opted for the Netherlands. The survey also contained job-related questions, which is why we chose individuals who finished their senior secondary schooling by 2006 and thus must have started working by 2013.

Due to historical ties with the Netherlands we surveyed emigrants (former top students) to the Netherlands, remigrants from the Netherlands, and non-migrants of Suriname. We compare the characteristics of these three groups to identify the drivers behind emigration. Extending the sampling frame by including emigrants from Suriname to other countries would complicate the survey (in terms of the language and the diverse motives for emigration) but yet at the same time, there is no other country in the world with which Surinamese individuals have such a long and strong bond.

Since 1985 the Rotary club yearly organises the Best Student Award in Suriname by inviting the top three high school graduate students to participate in a speech contest. Generally the names of the participants are publicized in the newspapers. Using this information we started collecting the names of the top students for our sampling frame. We also visited the high schools of Suriname and asked for the names of the best graduates (top students) of the schools. All the VWO and HAVO high schools[14] were thankfully willing to cooperate (see Appendix 3.B). Ex-students from the VWO schools who graduated with a score of at least 52 points for seven courses at the final examination were classified as top students. As the average scores of the HAVO students were in general lower than those of the students of the VWO, we used a minimum total score of 42 points (for 6 courses) to identify the top students of the HAVO. Using these criteria we constructed our sampling frame.

Next, using the internet and the phonebook we traced the identified top students and sent them a request to fill in the survey online (mostly via LinkedIn and Facebook). Using the phonebook and the last name of the respondent we tried to reach those we were not able to reach through the internet. In cases where we found any connection with the intended respondent we asked to provide an e-mail address through which we could ask

[14] VWO schools are senior secondary schools (high schools) that prepare students primarily for university education. VWO stands for Voorbereidend Wetenschappelijk Onderwijs, which means pre-university education. HAVO schools are senior secondary schools that prepare students primarily for higher vocational (professional) studies. HAVO stands for hoger algemeen voortgezet onderwijs, which means higher general continued education.

the respondent whether we could send the questionnaire via e-mail and if the person would be willing to participate.

735 names of top students were obtained. We were not able to trace back around 20% of the top students. We found 586 people of which only 9% lives or lived in a country other than the Netherlands or Suriname (most of these persons went to the USA and some went to the Dutch Antilles). The number of people that should have received the invitation to take part in the survey is 535 (the "not applicable", "not found" and "deceased" ones excluded). We sent the survey invitation to everyone we could find through the internet or phonebook, and of whom we believed the place of residence to be Suriname or the Netherlands (mostly decipherable from Facebook of LinkedIn). In the invitation it was noted that the survey was meant for those living in Suriname or in the Netherlands. So, in case the invitation arrived at someone not living in these two countries, the receiver would know that the questionnaire was not intended for him or her.

We were able to invite 497 people to take part. The overall response rate was 58% with a higher response rate for the VWO schools than the HAVO schools (see Appendix 3.B). This is not unsatisfactory considering the response rate of similar studies and the current position of many of the former top students. Our population mainly consists of professionals and career oriented individuals.

The questionnaire included many personal questions which might have discouraged the invitee to take part in the survey. And the fact that the questionnaire was not intended for everyone who received the invitation (for instance for individuals residing in USA), may also have led to the relatively high non-response rate.

The survey consisted of 99 mostly close-ended questions of which in particular the first 30 questions were analysed for this chapter to find out what determines high skilled emigration from Suriname to the Netherlands. The questions were taken from the survey developed by Gibson and McKenzie (2011). Appendix 3.C provides an overview of the variables used in our analysis below and some of the statistics of these variables.

In Figure 3.3 we present the relationships between the variables to be tested. The dependent variable is migration, which takes a 1 or a 0 indicating whether an individual has emigrated or not.

In addition to the variables discussed in the theoretical framework we use age and gender as control variables. Age is expected to be positively correlated with the migration probability because older individuals may have had "*more time over which to emigrate*" (Gibson & McKenzie, 2011). Women are less likely to migrate than men due to cultural norms (De Jong, 2000; Güngör & Tansel, 2008). Women generally have less lifestyle freedom especially in developing countries and thus less freedom of movement from one country to another, and this also holds for Suriname.

## 3.5 Results

### 3.5.1 Demographics

Table 3.1 in Appendix 3.A gives the descriptive statistics of the demographic variables. We observe slightly more current male emigrants than females, which is in accordance with the percentages we see in the remigrants and non-migrants group. This supports the theory that women are less likely to migrate (De Jong 2000; Güngör & Tansel, 2008) because of cultural norms. Next, there is little difference in the distribution of ethnicity among the three groups. Suriname census data does not provide the distribution of the education level by ethnicity. Fortunately, data from the Netherlands (Oudhof & Harmsen, 2011) give information of the education level of people of Surinamese origin and by ethnicity. The distribution of ethnicity among the current migrants does not differ much from the population distribution as described in Oudhof and Harmsen (2011)[15].

The majority of the respondents enjoyed tertiary education in the Netherlands. The proportion of respondents with a Master's or PhD degree is significantly higher among the migrants than the non-migrants. Except for one person, everyone with a PhD attained this degree abroad. Half of the respondents enjoyed two tertiary education studies. Also the proportion of respondents that took a second (or third) tertiary education is higher among the migrants than the non-migrants; the highest among the remigrants (62%).

The mean age of the respondents is 35 years. The current migrants are slightly older on average and the non-migrants slightly younger. We see that the current migrants on average earn three times more than the non-migrants. The remigrants earn more than the non-migrants but less than the current migrants, although they work longer hours than the migrants. Using the multiple regression model we regressed the natural logarithm of income per month (in EURO) on the migration status in Table 3.2. When controlling for age, gender, and education level we estimated that the current migrants earn 115% more than the non-migrants, while the remigrants earn 33% more than the non-migrants.

### 3.5.2 The incidence of migration

Table 3.3 presents the incidence of emigration of the former top students to the Netherlands. Emigration is defined as living (including working and or studying) in the Netherlands and remigration is defined as living in Suriname after having lived in the Netherlands. The percentage of highly educated Surinamese individuals who ever migrated is 63%, and the percentage of current high skilled migration (excluding the

[15] According to Oudhof and Harmsen (2011) out of the migrants of Surinamese origin living in the Netherlands who have at least tertiary education (total number is 20,986) 6.2% are Chinese, 43.5% Creole, 38.5% Hindustani, 5.3% Javanese, 2.3% Maroon, and 2.2% have another ethnicity. Of the rest (2%) the ethnicity is unknown.

remigrants) is 42%. Our survey results are in accordance with the estimates of other studies: a high skilled emigration rate of 60% for Suriname was estimated by Nurse (2006), 66% by Docquier *et al.* (2009), and 48% by Docquier and Marfouk (2006).

We calculated the migration status at each age for the respondents and the results are in Figure 3.4. At each age level we depict the proportion of ever migrants, current migrants, and remigrants with 95% confidence bounds (dashed lines) around the proportions for the ever-migration and remigration lines. The confidence intervals get wider as the number of observations of older respondents decreases. Between the age of 18 and 22 years we see an increase in the emigration rate. At the age of finishing high school, namely 18 years, we see that 42% migrated to the Netherlands, reflecting poor tertiary education opportunities or little hope in the tertiary education of Suriname. By the age of 22 the emigration rate is 50%. Between the age of 23 and 30 years the emigration rate is constant. After the age of 31 years we see a steady increase in the migration rate with a peak of 70% being emigrated by the age of 40. The current migration curve closely follows the ever migration curve. As age increases, more people have been in the Netherlands. The return migration curve is almost constant. We see three peaks in the return migration curve, that is, 28% returned by the age of 34 to Suriname, 31% by the age of 44 years, and by the age of 49 years 35% returned back to Suriname, although we then see a wide discrepancy between the confidence bounds at the age of 49 years.

### 3.5.3 Determinants of migration of high skilled persons of Surinamese origin

We now turn to analysing the drivers behind migration using the binary logit model. Three respondents who were not in employment were excluded from the analysis. Table 3.4 reports the parameter estimates of the determinants of ever-migration. Ever-migration refers to respondents who have once in their lives migrated to the Netherlands (including those who returned to the country of origin, namely the remigrants). The dependent variable is *migration_ever* which takes the value 1 if the respondent ever migrated to the Netherlands and 0 if the respondent never migrated to the Netherlands. In Table 3.5 we focus on the question: Which factors explain current migration? This allows us to assess the determinants of stay migration. The indicator dependent variable here is *migration_current* which takes the value 1 if the respondent is currently living, working, or studying in the Netherlands and 0 if the respondent is a remigrant to Suriname or a non-migrant.

In the first two columns of Table 3.4 and 3.5 we include all relevant variables in the models. The variables age and graduation period are strongly correlated and hence are entered separately in the regressions. We stepwise delete variables that have associated parameters that are not significant at the 10% level. The resultant variables are presented

in the third and fourth column. The regressions met the model assumptions[16] for logit regression proposed by Field (2009). We next turn to analysing the results of the regressions of Table 3.4 and 3.5.

The coefficient for gender is negative and when comparing the current migrants with the residents of the home country (remigrants and non-migrants) in Table 3.5, the coefficient turns significant. The odds[17] to migrate are around 50% lower for women than the odds for men when holding other factors constant. This supports the theory that women are less likely to migrate most likely due to prevailing cultural norms (De Jong 2000; Güngör & Tansel 2008).

As one gets older the likelihood of having resided abroad increases. In Table 3.4 we observe an increase of around 12% in the odds of having ever migrated for a one year increase in the age of the respondent when holding other predictors constant. Furthermore we observe that individuals who graduated between 1981 and 1987 exhibit a higher likelihood to migrate than individuals who graduated in another period. Individuals from this period are elder than individuals who graduated later, but they also graduated in a period of social and political unrest in the home country, which might have triggered their exit.

Former top students who were brought up in the capital city of Suriname were more likely to migrate than individuals who were brought up in a district. The odds to migrate for individuals who used to live in Paramaribo (the capital) are 2 to 3 times higher than the odds for individuals who lived in another district (before they migrated). This supports the theory that it is easier to adapt in a foreign developed country when having lived in the capital of the home country (which is generally more developed than the other districts).

We now turn to the background of the respondents' parents. Former top students whose parents have a business in Suriname seem less likely to emigrate. The coefficient for this variable turns significant in Table 3.5. The odds to migrate for individuals whose parents own a business in Suriname are around 50% lower compared with the odds to migrate for individuals whose parents do not own a business in Suriname. This might be a sign of social attachment with the home country. Children may support the parents with their business and may at later age take over the family business.

In Table 3.4 we observe that parental education is significantly associated with ever-migration, but not with current migration (Table 3.5). Former top students whose parents attained higher than secondary education are 2 or 3 times more likely to emigrate than those whose parents attained lower education. Note that variegated tertiary education became available in Suriname only since 1976, which is why most of the parents who

[16] The tests were: the Hosmer and Lemeshow test for model fit, less than 5% of residuals may be higher than |2|, DFBeta's and Cooks values should be less than 1, VIF test for multicollinearity (Field, 2009), de ROC curve test for model fit and the link test on the link between the squared predicted value and the dependent variable (see: http://www.ats.ucla.edu/stat/stata/webbooks/logistic/chapter3/statalog3.htm).

[17] Conform Field (2009, p. 288) the odds ratio equals: EXP(estimated coefficient)*100-100

continued their studies after secondary education had to go abroad. When replacing parental education with parental occupation (an indicator variable for whether the parent has/had a white collar job) we found similar effects on the migration behaviour (the results are not reported here). The social economic class is also positively associated with migration. Former top students who were in a high income class at the time of being in high school were more likely to emigrate than students from middle or lower class. Another indicator for family wealth: having had holidays (trips) to the Netherlands at the time of being in high school is also significantly and positively associated with emigration. Table 3.4 shows that former top students who had at least two trips to the Netherlands were 2 to 4 times more likely to emigrate to the Netherlands than those who had lesser trips or no trips at all, other things remaining the same. In Table 3.5 the coefficient of this variable turns insignificant suggesting that having had holidays abroad at younger age stimulates migration but not permanent migration. This also holds for the effect of parental education.

Former top students tend to reside where their parents or most of their family members live. Holding other factors constant, the odds to migrate for former top students whose parents (at least one of them) reside in the Netherlands are 4 to 5 times higher than the odds to migrate for former top students whose both parents reside in Suriname. This also applies for the effect on current migration. The effect of the residential location of the family is also positive but not so strong. Having been born abroad (mainly in the Netherlands) though, is not a significant predictor of emigration.

Former top students who studied pure science subjects (biology, physics, and chemistry) exhibit higher odds to emigrate than those who studied another set of subjects. Although the coefficient is not significant in most of the regressions it is positive and in accordance with other results. In a close-ended question we asked the current migrants whether technology and the access to technology in Suriname would be a problem for them if they would return and work in Suriname. 67% of the 108 current migrants indicated that technology or the access to technology in Suriname is inadequate. Apart from this, we asked all the respondents (all three subgroups) which country they would prefer when taking the quality of technology into consideration. Only 7% of the 246 respondents would prefer Suriname, while 74% would choose for the Netherlands. 19% were neutral.

Another strong predictor of emigration is the characteristic that the former top student has patience in life or not. The odds to migrate, holding other factors constant, are around 2 to 3 times higher for patient former top students than the odds for former top students who are not considered to be patient (Table 3.4). This variable is not a significant predictor of current migration (Table 3.5).

The macroeconomic factors (parallel exchange rate and wage differential between Suriname and the Netherlands) were not found to be significantly associated with high skilled migration.

### 3.5.4 Reasons to migrate

We also asked the current migrants an open ended question on what the main reason of their migration decision was. Figure 3.5 presents an overview of the current migrant's main reason to leave for the Netherlands and Figure 3.7 presents their advice to the government of Suriname. Figure 3.6 illustrates the remigrants' main reason to return to Suriname. 84% of the current migrants stated that studying abroad was the main reason to migrate. The other reasons, namely: to go abroad to work, to live together with the life companion, and to leave because of Suriname's political situation in the 1980's, were small but equally important reasons. Patriotism or the urge to contribute to the development of the home country was the most cited reason why the migrants returned (see Figure 3.6). The second most important reason of return migration was family reunification, followed by lifestyle[18] preferences for the home country.

## 3.6 Conclusion

This paper analysed the microeconomic determinants of high skilled migration from Suriname to the Netherlands. Based on Gibson and McKenzie's (2011) questionnaire 283 former top students of Surinamese origin now living either in Suriname or in the Netherlands were surveyed. We tracked down more than half of the population of interest and we found the sample to be representative. 63% of the former top students of Suriname migrated to the Netherlands, of which 33% returned to Suriname. The brain drain rate (current skilled migration) is 42%.

Our overall conclusion is that the main predictors of skilled migration are: the education level and the social economic status of the migrant's parents, the place of residence of the migrant's parents and family, whether the student enjoyed education in the capital city of Suriname, the pure science courses taken in high school, and possessing the quality of being patient. Our survey results are broadly in line with that of Gibson and McKenzie (2011) about three Pacific countries. They too determined that age, the education level, and social economic status of the migrant's parents, pure science courses taken in high school, and being patient, were significantly and positively associated with the emigration of the highly skilled. Though we obtained similar signs for the risk score variable and the language command of the foreign country as Gibson and McKenzie, we did not find significant results for these variables.

Migration will take place when the costs of migration are lower than the earnings (Borjas, 1987). As measuring the costs of migration was not feasible, we looked into factors associated with the costs. Families that are well off have less difficulty in paying

[18] As Suriname has a stable tropical climate it was not surprising to know that many people experienced the country to be more open and free (as in the opportunity of being more outside) and more hospitable than the Netherlands.

the costs than families who are not. Obviously, higher educated parents will earn more and are more likely to take holidays abroad with their children. Our survey results affirmed that being from a higher income class, having parents who took tertiary education (abroad), and having had trips abroad are significant predictors of migration. Migration is also more likely for those who have lower adaptation costs. Having parents or family living in the Netherlands and having enjoyed education in the capital city of Suriname reduce the adaptation costs. These factors are also significant predictors of migration.

Most of the explanatory variables are associated with the position of the former top students' parents, which is in accordance with the results of several other empirical studies (for instance Lu *et al*., 2009; De Jong, 2000; Gibson & McKenzie, 2011). Next to income and costs elements in modelling migration the role of parents and the quality of education should be taken into consideration.

## 3.7 Policy implications

Migration appears to be linked to the desire of pursuing tertiary education abroad. The majority of the respondents migrated to the Netherlands for studying purposes. We found that respondents whose parents took tertiary education abroad followed the footsteps of their parents. In particular, former top students who chose pure science courses in high school left the home country, reflecting poor confidence in the quality of higher education of the home country. Note that Suriname has only one university with very few faculty members with a doctorate and very few Master study programmes, of which only one or two are accredited. The majority of the Bachelor programmes are not accredited. Some respondents remarked that they would rather stay in the Netherlands because of better education opportunities for them and their (future) children. Improvement of the education system was one of the main suggestions given by migrants.

In this regard two main recommendations can be made. Firstly, to contribute to Suriname's human capital formation, Suriname should arrange scholarship programmes (with the condition to return) with developed countries in a systematic way, especially with the Netherlands. Scholarships should in particular be granted to top students from low or middle income class, as they cannot afford to pay for the migration costs and thus miss the opportunity to further educate themselves at international level. Furthermore we saw that the chances to attain higher education at international level are lower for women, which is why policies should focus on a fair distribution of scholarship grants.

Secondly, the University of Suriname should structurally increase its number of qualified faculty members. By sending students and faculty members (with the condition to return) abroad to attain MSc and PhD degrees or to specialize, these individuals could be deployed at the university in order to transfer the gained knowledge and skills to the

home country. This will gradually improve the quality of higher education at home and will also contribute to the accreditation process of the university.

Restricting emigration in the era of globalization, innovation, and international communication is not recommended, especially as migrants and remigrants are generally higher educated than non-migrants and which might result in brain gain. Remigrants may bring back expertise to the home country and as emigrants stay in touch with the home country, they may transfer knowledge and remittances. Furthermore, policies should focus on sending potential candidates intentionally abroad to study with the requisite to return, and on improving professional environments and matching salaries for migrants to make it gainful for them to return. In an open-ended question we asked the migrants what they would advise the government of Suriname to attract them back. Professional environments and compatible salaries were the main recommendations. The second main advice centred on the eradication of corruption, nepotism, and bureaucracy; notice that these are all factors undermining the professional environment and the economic development of Suriname. Other policy recommendations were economic stability, and more importantly, political stability, safety, and accessible and credible land and house procurement. Contact and keeping them informed were also among the recommendations given by the migrants.

Policy measures to contribute to Suriname's human capital formation should be undertaken in cooperation between Suriname and the Netherlands. Policy actions regarding improvement of tertiary education, good governance, and political and economic stability should be undertaken by the Surinamese government so that the country becomes attractive for top students to work and to live in.

## Appendix 3.A Figures and tables

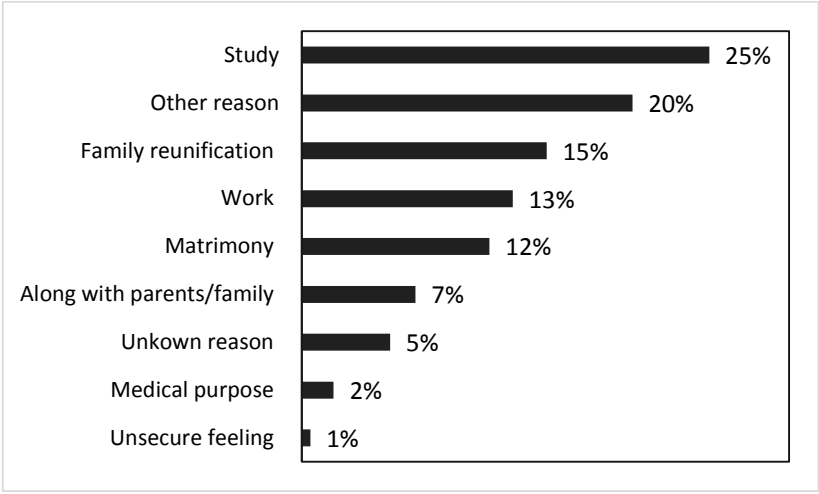


Figure 3.1: Reasons of emigration from Suriname between 2004 and 2012, N = 2241
Source: ABS (2013a)

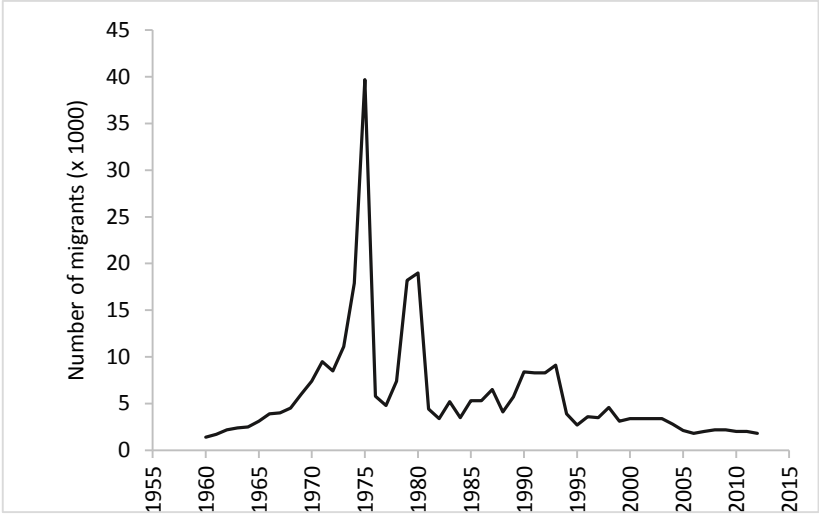


Figure 3.2: Surinamese immigrants in the Netherlands
Source: cbs.nl (2014)

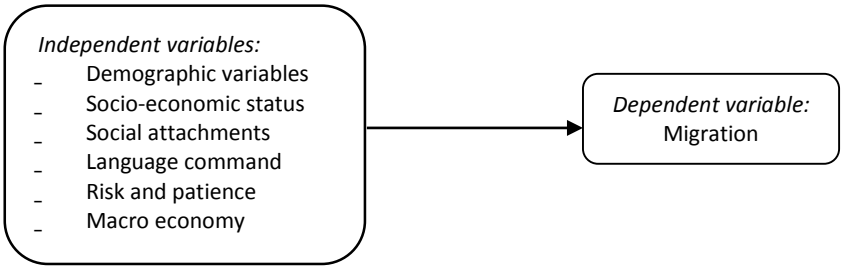


Figure 3.3: Conceptual framework

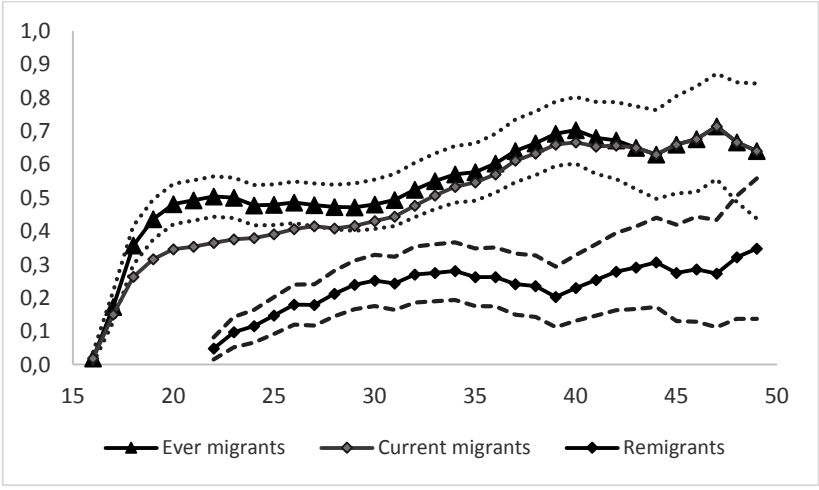


Figure 3.4: Migration and return migration by age

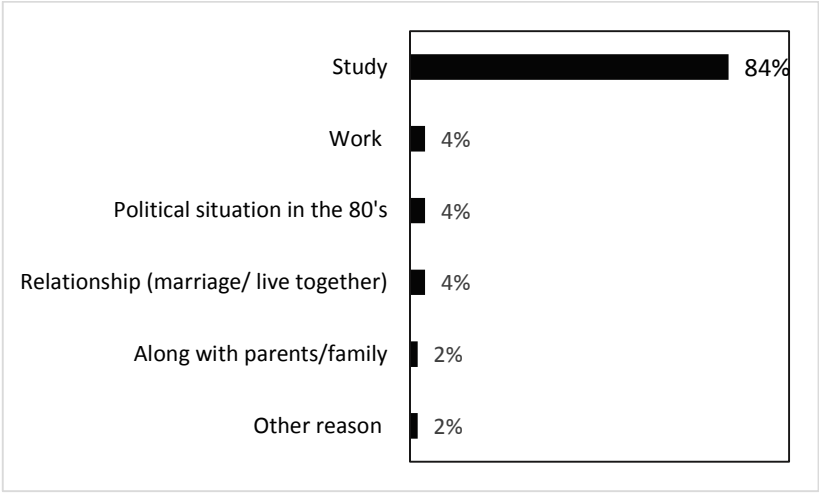


Figure 3.5: Reasons for emigration among former top students; N =166

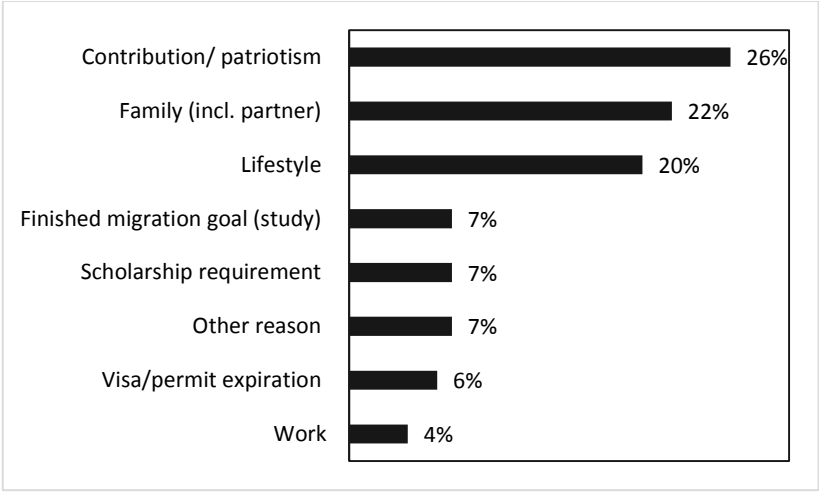


Figure 3.6: Reasons to return former top students; N = 54

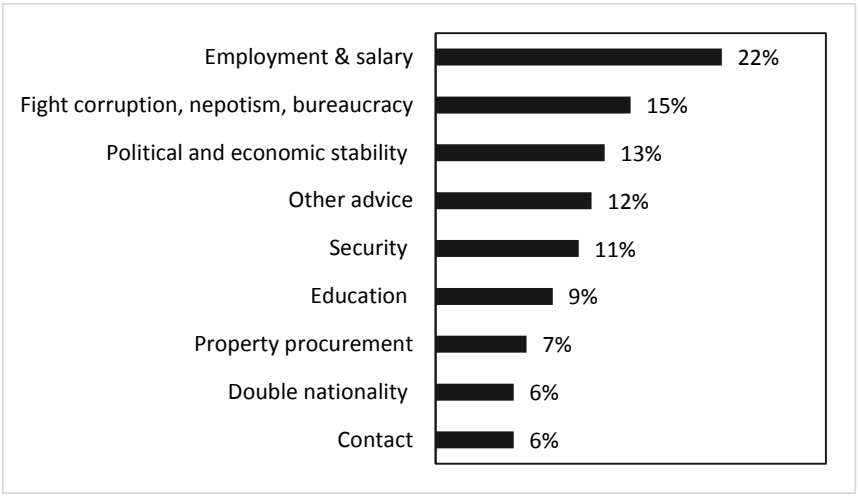


Figure 3.7: Advice to the government to attract skilled emigrants back to Suriname
N=90

Table 3.1: Demographics

| Variable | Item | Overall | Current migrants | Remigrants | Non-migrants |
|---|---|---|---|---|---|
| Gender | Male | 46.3% | 56.0% | 44.6% | 36.0% |
| | Female | 53.7% | 44.0% | 55.4% | 64.0% |
| | N | 272 | 116 | 56 | 100 |
| Ethnicity | Maroon | 0.7% | 0.0% | 0.0% | 2.0% |
| | Chinese | 9.9% | 10.3% | 12.3% | 8.0% |
| | Creole | 11.0% | 12.1% | 14.0% | 8.0% |
| | Mixed | 29.3% | 35.3% | 29.8% | 22.0% |
| | Hindustani | 41.4% | 37.9% | 40.4% | 46.0% |
| | Javanese | 5.9% | 1.7% | 1.8% | 13.0% |
| | White | 1.8% | 2.6% | 1.8% | 1.0% |
| | N | 273 | 116 | 57 | 100 |
| Age | Mean | 35.44 | 38.05 | 37.77 | 31.5 |
| | St. dev. | 8.193 | 8.803 | 7.906 | 5.947 |
| | Minimum | 24 | 24 | 26 | 24 |
| | Maximum | 59 | 59 | 53 | 56 |
| | N | 286 | 116 | 57 | 100 |
| Nett income p/month in EURO | Mean | 2637.81 | 3782.61 | 2628.92 | 1391.05 |
| | St. dev. | 2671.91 | 2927.58 | 2791.97 | 1596.78 |
| | Minimum | 163 | 200 | 200 | 163 |
| | Maximum | 22000 | 22000 | 12000 | 10000 |
| | N | 226 | 92 | 48 | 83 |
| Number of working hours p/week | Mean | 41.75 | 41.02 | 44.41 | 40.97 |
| | St. dev. | 12.56 | 9.98 | 13.75 | 14.44 |
| | Minimum | 8 | 16 | 20 | 8 |
| | Maximum | 100 | 75 | 100 | 90 |
| | N | 243 | 103 | 51 | 86 |
| Highest degree | Bachelor | 21.5% | 9.6% | 8.9% | 44.0% |
| | Master | 67.4% | 78.9% | 75.0% | 48.4% |
| | PhD | 6.9% | 8.8% | 12.5% | 1.1% |
| | Other | 4.2% | 2.6% | 3.6% | 6.6% |
| | N | 261 | 114 | 56 | 91 |
| Place of 1st tertiary education | Suriname | 45.3% | 11.3% | 29.1% | 94.8% |
| | Netherlands | 51.7% | 83.5% | 70.9% | 3.1% |
| | Other | 3.0% | 5.2% | 0.0% | 2.1% |
| | N | 267 | 115 | 55 | 97 |
| 2nd tertiary education attainment | No | 49.10% | 46.10% | 38.2% | 58.8% |
| | Yes | 50.90% | 53.90% | 61.8% | 41.2% |
| | N | 267 | 115 | 55 | 97 |

Table 3.2: Determinants of income

| Dependent variable: the log of income (in EURO) | | |
|---|---|---|
| | Model 1 | Model 2 |
| Predictor | Coefficient | Coefficient |
| Current migrant | 0.768*** | 0.903*** |
| | (0.126) | (0.118) |
| Remigrant | 0.282** | 0.411*** |
| | (0.142) | (0.133) |
| Gender | -0.242** | -0.254** |
| | (0.098) | (0.097) |
| Age | 0.019*** | 0.026*** |
| | (0.007) | (0.006) |
| PhD degree | 0.431** | |
| | (0.215) | |
| MSc degree in social science | 0.068 | |
| | (0.148) | |
| MSc degree in technical science | 0.185 | |
| | (0.150) | |
| MSc degree in medical science | 0.480*** | |
| | (0.155) | |
| Other degree | -0.441* | |
| | (0.245) | |
| Constant | 6.428*** | 6.225*** |
| | (0.234) | (0.233) |
| R-square | 0.435 | 0.397 |
| Adjusted R-square | 0.410 | 0.386 |
| F-statistic | 17.516*** | 35.768*** |
| # Observations | 215 | 222 |

Notes: The migration status (current migrant and remigrant) is with respect to the non-migrant. Gender was coded 1 for female and 0 for male. The study levels (PhD, MSc, other degree) are with respect to a BSc or Higher vocational degree.
***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parenthesis.

Table 3.3: The incidence of migration

| | Percentage | Confidence interval (95%) |
|---|---|---|
| Ever migrated | 63.1% | [57.4%, 68.8%] |
| Remigrated | 32.9% | [27.3%, 38.5%] |
| Current migrants | 42.1% | [36.3%, 47.9%] |
| | | |
| # Observations: 274 | | |

Table 3.4: Determinants of high skilled migration (ever migration)

| | Coefficient | Coefficient | Coefficient | Coefficient |
|---|---|---|---|---|
| Gender | -0.385 | -0.457 | -0.373 | -0.529 |
| | (0.356) | (0.354) | (0.350) | (0.342) |
| Age | 0.118*** | | 0.112*** | |
| | (0.039) | | (0.029) | |
| Graduation period | | 0.821 | | 1.526** |
| | | (0.909) | | (0.702) |
| Grown up in Paramaribo | 0.720* | 0.889** | 0.777** | 0.971*** |
| | (0.397) | (0.391) | (0.379) | (0.368) |
| Parents have business in Suriname | 0.146 | 0.032 | 0.109 | -0.026 |
| | (0.371) | (0.370) | (0.358) | (0.349) |
| High social economic class | 0.583 | 0.578 | 0.621 | 0.714* |
| | (0.443) | (0.442) | (0.430) | (0.418) |
| Had trips two or three abroad when in | 1.284** | 1.020 | 1.323** | 1.104* |
| high school | (0.651) | (0.628) | (0.644) | (0.621) |
| At least one parent has higher than | 1.06*** | 0.980** | 1.196*** | 1.038*** |
| secondary education | (0.399) | (0.393) | (0.379) | (0.368) |
| At least one parent lives in the | 1.285** | 1.411** | 1.423** | 1.665*** |
| Netherlands | (0.604) | (0.597) | (0.584) | (0.578) |
| Location of parents unknown | 0.087 | 0.408 | 0.116 | 0.723 |
| | (0.512) | (0.476) | (0.500) | (0.441) |
| At least half of the family lives in the | 0.534 | 0.600* | 0.604* | 0.625* |
| Netherlands | (0.365) | (0.358) | (0.358) | (0.349) |
| Studied pure science subjects | 0.328 | 0.507 | 0.301 | 0.578* |
| | (0.354) | (0.347) | (0.348) | (0.336) |
| Patience | 0.971** | 1.033** | 0.981** | 0.998** |
| | (0.453) | (0.445) | (0.442) | (0.434) |
| Wagedifferential | 0.311 | 4.493 | | |
| | (3.859) | (3.869) | | |
| Parallel exchange rate | -0.001 | 0.002 | | |
| | (0.002) | (0.002) | | |
| Born abroad | 0.491 | 0.498 | | |
| | (0.769) | (0.734) | | |
| Dutch was main language at home when | 0.322 | 0.273 | | |
| in high school | (0.467) | (0.456) | | |
| Risk | 0.058 | 0.074 | | |
| | (0.081) | (0.079) | | |
| Constant | -6.622*** | -4.805*** | -5.953*** | -2.571*** |
| Nagelkerke R-square | 0.464 | 0.430 | 0.459 | 0.414 |
| Model Chi-square | 97.663*** | 88.781*** | 96.765*** | 85.107*** |
| # observations | 234 | 234 | 235 | 235 |

Notes: ***,** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parenthesis. “Location of the parents is not known” is a control variable for respondents whose parents’ location is not known or whose parents are deceased.

Table 3.5: Determinants of current high skilled migration

| | Coefficient | Coefficient | Coefficient | Coefficient |
|---|---|---|---|---|
| Gender | -0.614* | -0.673** | -0.613* | -0.694** |
| | (0.326) | (0.330) | (0.318) | (0.319) |
| Age | 0.033 | | 0.042* | |
| | (0.034) | | (0.022) | |
| Graduation period | | 1.075 | | 1.047** |
| | | (0.668) | | (0.490) |
| Grown up in Paramaribo | 0.884** | 0.935** | 0.847** | 0.887** |
| | (0.397) | (0.392) | (0.379) | (0.373) |
| Parents have business in Suriname | -0.635* | -0.744** | -0.519 | -0.605* |
| | (0.341) | (0.346) | (0.329) | (0.330) |
| High social economic class | 0.606 | 0.640* | 0.580 | 0.600* |
| | (0.380) | (0.385) | (0.364) | (0.364) |
| Had trips two or three abroad when in high school | 0.657 | 0.629 | 0.614 | 0.567 |
| | (0.473) | (0.477) | (0.463) | (0.466) |
| At least one parent has higher than secondary education | 0.207 | 0.193 | 0.128 | 0.093 |
| | (0.362) | (0.363) | (0.335) | (0.334) |
| At least one parent lives in the Netherlands | 1.532*** | 1.587*** | 1.405*** | 1.501*** |
| | (0.471) | (0.473) | (0.453) | (0.448) |
| Location of parents unknown | 0.167 | 0.254 | 0.156 | 0.313 |
| | (0.434) | (0.428) | (0.424) | (0.396) |
| At least half of the family lives in the Netherlands | 0.790** | 0.774** | 0.716** | 0.713** |
| | (0.362) | (0.362) | (0.351) | (0.350) |
| Studied pure science subjects | 0.312 | 0.425 | 0.338 | 0.459 |
| | (0.325) | (0.327) | (0.317) | (0.314) |
| Patience | 0.434 | 0.471 | 0.516 | 0.561 |
| | (0.449) | (0.454) | (0.439) | (0.443) |
| Wagedifferential | 1.751 | 0.614 | | |
| | (3.407) | (0.233) | | |
| Parallel exchange rate | -0.001 | -0.001 | | |
| | (0.002) | (0.001) | | |
| Born abroad | 0.276 | 0.347 | | |
| | (0.504) | (0.512) | | |
| Dutch was main language at home when in high school | -0.423 | -0.514 | | |
| | (0.457) | (0.458) | | |
| Risk | -0.087 | -0.076 | | |
| | (0.074) | (0.074) | | |
| Constant | -2.693** | -1.457 | -3.631*** | -2.351*** |
| | (1.149) | (1.333) | (0.904) | (0.631) |
| Nagelkerke R-square | 0.332 | 0.34 | 0.321 | 0.325 |
| Model Chi-square | 66.365*** | 66.088*** | 64.052*** | 64.987*** |
| # observations | 234 | 234 | 235 | 235 |

Notes: ***,** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parenthesis. “Location of the parents is not known” is a control variable for respondents whose parents’ location is not known or whose parents are deceased. See Appendix 3.C for the measurement of the variables.

## Appendix 3.B The response rates

| School | Years covered | Population (# that should've received an invitation) | Population (# that received the invitation) | Number surveyed | Survey rate |
|---|---|---|---|---|---|
| AMS | 1975 - 2006 | 105 | 94 | 65 | 69% |
| Lyceum 1 | 1976 - 2006 | 142 | 142 | 76 | 54% |
| Lyceum 2 | 1988 - 2005 | 103 | 93 | 59 | 63% |
| VWO-IV | 1995 - 2006 | 17 | 17 | 11 | 65% |
| Vrije Atheneum | 1975 - 1982, 1992 - 2005, except: 2000-2002 | 25 | 24 | 15 | 63% |
| SGN VWO | 1988 - 2006 | 21 | 22 | 14 | 64% |
| SGL VWO | 2001 - 2006 | 22 | 19 | 12 | 63% |
| *Total VWO* | | *435* | *411* | *252* | *61%* |
| | | | | | |
| SGN HAVO | 1988 - 2006 | 5 | 4 | 2 | 50% |
| SGL HAVO | 2002 - 2006 | 6 | 6 | 3 | 50% |
| HAVO 1 | 1990 - 2005 | 22 | 23 | 10 | 43% |
| HAVO 2 | 1981 - 2006 | 58 | 44 | 14 | 32% |
| HAVO 3 | 2005 - 2006 | 9 | 9 | 5 | 56% |
| *Total HAVO* | | *100* | *86* | *34* | *40%* |
| | | | | | |
| Total | | 535 | 497 | 286 | 58% |

## Appendix 3.C Statistical information on the explanatory variables

| Variable | Measurement | Percentage/ Mean (S.D.) | Min | Max | N |
|---|---|---|---|---|---|
| Age | Years | 35.43 (8.18) | 24 | 59 | 283 |
| Gender | 1 = Female<br>0 = Male | 55.3%<br>44.7% | 0 | 1 | 282 |
| High social economic class | 1 = High or high-mid income class<br>0 = Mid, low-mid or low income class | 26.0%<br>74.0% | 0 | 1 | 277 |
| At least one of the parents has higher than secondary education | 1 = Yes<br>0 = No | 39.3%<br>60.7% | 0 | 1 | 275 |
| At least one of the parents enjoyed tertiary education abroad | 1 = Yes<br>0 = No | 31.5%<br>68.5% | 0 | 1 | 273 |
| At least one of the parents has/ had a white collar job | 1 = Yes<br>0 = No | 31.9%<br>68.1% | 0 | 1 | 270 |
| Had trips two or three abroad when in high school | 1 = Yes<br>0 = No | 15.1%<br>84.9% | 0 | 1 | 279 |
| Grown up in Paramaribo | 1 = Yes<br>0 = No | 70.7%<br>24.7% | 0 | 1 | 270 |
| Born abroad | 1 =Yes<br>0 = No | 12.7%<br>87.3% | 0 | 1 | 283 |
| At least one parent lives in the Netherlands | 1 =Yes<br>0 = No | 18.2%<br>81.8% | 0 | 1 | 280 |
| Location of parents is not known or | 1 =Yes<br>0 = No | 19.3%<br>80.7% | 0 | 1 | 280 |

| | | | | | |
|---|---|---|---|---|---|
| parents no longer alive | | | | | |
| *Continued* | | | | | |
| Variable | Measurement | Percentage/ Mean (S.D.) | Min | Max | N |
| At least half of the family lives in the Netherlands | 1 = Yes<br>0 = No | 64.3%<br>35.7% | 0 | 1 | 280 |
| Parents have/had a business | 1 = Yes<br>0 = No | 38.8%<br>61.2% | 0 | 1 | 278 |
| Dutch was main language at home when in high school | 1 = Yes<br>0 = No | 81.1%<br>18.9% | 0 | 1 | 280 |
| Studied pure science subjects | 1 = Yes<br>0 = No | 52.7%<br>47.3% | 0 | 1 | 283 |
| Risk | 11 point scale to measure whether the respondent is someone willing to take risks in live, where 0 = no risk at all and 11 = always willing to take risks | 7.021 (2.16) | 0 | 11 | 279 |
| Patience | If the respondent was given a certain amount of money, then s(he) may choose to receive €1000 today (coded 0) or €1500 after a year (coded 1) | 80.6%<br>19.4% | 0 | 1 | 268 |
| Parallel exchange rate | Change in real parallel exchange rate in year t with respect to previous year (t-1). The real parallel exchange rate is the number of local currency needed to buy 1 $ in the market divided by the ratio of local consumer price index over the price index of the United States of America. | 0.499 (88.809) | -412.645 | 118.606 | 283 |

| | | | | | |
|---|---|---|---|---|---|
| | Source: Central Bank of Suriname | | | | |
| *Continued* | | | | | |
| Variable | Measurement | Percentage/ Mean (S.D.) | Min | Max | N |
| Wage differential | Change in the wage differential in year t with respect to previous year (t-1). The wage differential is the ratio of the GDP p/capita of Suriname to the GDP per capita of the Netherlands (The GDP was the Laspeyres PPP converted GDP per capita and was measured at 2005 constant prices) Source: Penn world data 7.1 | -0.003 (0.035) | -0.108 | 0.061 | 283 |

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# 4

# Return migration of high skilled workers: The case of Suriname


**Abstract**

In this chapter we study the determinants of skilled return migration from the Netherlands to Suriname. Based on a survey of Gibson and McKenzie (2011) we interviewed 283 former top students from Suriname. This unique database is informative in various dimensions. High skilled workers whose education was funded by a scholarship or by the parents are more likely to return. They tend to choose for the country where their parents, life partner, and children live. Workers who perform management tasks and who are in touch with clients exhibit higher chances to live in the home country. One might think of consultants or business managers. Furthermore we find that preferences towards the Netherlands regarding salaries, job contentment, and safety, lower the likelihood of opting for Suriname in the future. Facilitating high skilled workers in Suriname helps to increase return migration, and policies aimed at facilitating family members can also be beneficial. Scholarships and supply of tertiary education in Suriname remain important.



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## 4.1 Introduction

Recently public and policy debate on Surinamese diaspora from the Netherlands has started to gain ground. Previous research (Beine *et al*., 2008; Dulam & Franses, 2015a) indicates that Suriname is a case of brain drain rather than brain gain, implying that there is a net outflow of high skilled migrants. Yet, specific policy aimed at attracting high skilled migrants to Suriname has been negligible. If migrants bring back financial and human resources accumulated abroad to the home country, brain drain can be counterbalanced.

In order to formulate policies to counterbalance brain drain it is crucial to find out what drives return migration[19]. The relevant literature discusses several motives at the microeconomic level. We identify four types of motives: 1) completion of the optimal life-earnings cycle (Borjas & Bratsberg, 1996), 2) failure to succeed abroad (Borjas & Bratsberg, 1996), 3) individuals' preferences for a specific country (Gibson & McKenzie, 2011; Constant & Massey, 2003), and 4) family or social attachments (De Jong, 2009). The first motive of return migration refers to individuals who consciously choose to move abroad to accumulate wealth and then return. The second motive relates to the selectivity on skills, i.e. when the rate of return to skills is higher in the host country relative to the home country, the most skilled remain in the host country and the less skilled return. Dustmann *et al*. (2011) proposed a two skills model comprising of the educational level and the job tasks to measure selectivity.

Since the 1950's pursuing higher education has been one of the main reasons why Surinamese move to the Netherlands (Bovenkerk, 1981; Vezzoli, 2014). The Netherlands is not only the main emigration destination for Suriname, but also the main immigration country. 60% of the 10,553 Surinamese who ever lived abroad, are from the Netherlands (ABS, 2013a). 10,248 individuals, a third of the 33,053 holders of foreign citizenship who live in Suriname, have the Dutch citizenship of which only 182 are Caucasian and the rest are from ethnicities that are more common in Suriname. According to the 8$^{th}$ census of the General Bureau for the Statistics in Suriname (ABS, 2013a) the main reason of return migration is patriotism. Family reunification is the second reason and the completion of education abroad is the third main reason. While return migration estimates for Suriname are available (Vezolli 2014; ABS, 2013a; Statline data at www.cbs.nl), return migration rates of high skilled Surinamese are not. Dulam & Franses (2014) estimated that a third of the emigrated former top students to the Netherlands returned to their home country. However, as we will see later and as Klaver *et al*. (2010) discussed, moving back to the Netherlands is a very likely option.

Scholars have written much about emigration patterns from Suriname to Netherlands and the motives behind. Return migration of highly educated Surinamese has been of minor interest so far. Our endeavour with this study is to fill in this research gap.

[19] The terms return migration and remigration are used interchangeably in this study.

We surveyed former top students of Suriname, who now either live in Suriname or in the Netherlands. We managed to interview 283 former top students using Gibson and McKenzie's survey, which was extended with questions about job tasks conform Autor and Handel (2009). For their research, Gibson and McKenzie surveyed former top students of three Pacific countries: Papua New Guinea, Tonga, and New Zeeland. Even though their questionnaire contained scale level measurements of migration intention, they did not use these to predict migration but carried out probit regressions on the basis of a nominal indicator for return migration. In this study we use both the nominal and scale measurements of return migration and perform logit and Tobit regressions, respectively.

The remainder of this chapter is organized as follows. The next section reviews the literature of return migration. Section 4.3 describes data collection, the variables used in the data analysis, and the methods of data analysis. Section 4.4 presents the empirical results on the determinants of return migration to Suriname. Section 4.5 concludes and discusses some policy implications.

## 4.2 Theoretical background

Based on the Roy model of 1951, the economic literature (in particular Borjas & Bratsberg, 1996) discusses two main reasons of return. The first is the optimal life-earnings cycle, where the migrant returns to the home country after achieving the migration goal of increased wealth abroad. The completion of the life-earnings cycle occurs mostly after the prime working age. By conducting a duration analysis to analyse the return migration of immigrants in Germany, Gundel and Peters (2008) determined that migrants, who were in the prime working age (between 30 and 40 years old), were less likely to return as their optimal life-earnings cycle was not yet completed. Through their survival analysis on returning immigrants from Germany, Constant and Massey (2003) established a positive relationship between the oldest age group (retirement) and return migration, reflecting the completion of the life-earnings cycle.

The second main reason to return is failure, i.e. the migrant is disappointed abroad because of worse than expected experience and returns. Borjas and Bratsberg (1996) explain that when the rate of return to skills in the home country is lower than in the destination country, the best of the best will move to the destination country (initial positive selection) and that amongst them the worst of the best will remigrate to the home country. In his study Borjas (1987, p. 21) found that immigrants who did not perform well in the labour market of the United States of America (USA) were more likely to outmigrate or to return to the home country. He also found that the least successful scientists and engineers in the USA were the most likely to return. Performing probit regressions, Gibson and McKenzie (2011) found that PhD degree holders, who migrated from Papua New Guinea, New Zeeland, and Tongo to other countries, had lower

probabilities to return to the home country than those who had no PhD degree. If the initial selection of emigration to the host country is negative, the best of the worst will return (Borjas & Bratsberg, 1996). Gundel and Peters (2008) confirmed that the high skilled immigrants in Germany were more likely to return than the less skilled.

Ambrosini *et al*. (2011) determined that higher income premia for return migrants in the home country, which is Romania in this case, induce return migration. Gibson and McKenzie (2011) found no evidence of this with respect to the Pacific high skilled return migrants. They remarked that Borjas's income maximization motive for migration is based on migration *across* skill levels and that within a *narrow* skill level, other factors may be more important in explaining mobility decisions.

Social and cultural ties (Wang & Fan, 2006; Constant & Massey, 2003) are some other motives for return. Using probit models, Dustmann (2003) analysed the role of children in migration decisions. Parents who perceive the environment and career prospects for their children to be better in the host country are reluctant to return. Gibson and McKenzie (2011) confirmed that having close relatives (parents and or a spouse) living in the home country encourages return migration.

Furthermore Dustmann (2003) and Constant and Massey (2003) found the duration of migration (years of living abroad) to be negatively associated with return migration. Integration with the destination country deepens as the migrant stays longer. Settlement in the destination country along with the acquisition of foreign citizenship become viable options, thereby further reducing the prospect of returning. According to Constant and Massey (2003) the finding that shorter migration duration leads to return migration might be a sign of failure in the destination country. However, the short migration duration in the case of top students may imply that the migrant returns after achieving the migration goals (mainly educational attainment).

The attractiveness of one country with respect to the other may be a good predictor of migration. Gibson and McKenzie (2011) and Gungör and Tansel (2008) also analysed the effect of a range of indicators for country attractiveness (push and pull factors). Most of the indicators were related to salaries, work environment, career and education opportunities, safety, and lifestyle.

## 4.3 Methodology

### 4.3.1 Background

We gathered microeconomic data through an online survey which we sent out to 497 former top students of Suriname, but not all of them responded. The survey was meant for individuals who live in Suriname or in the Netherlands. It was not always clear where the survey candidate lived. Some candidates might have neglected the survey because the survey was not intended for them (as they were former top students but did not live in

Suriname or in the Netherlands). Mortality might also have led to non-response. The survey may have required too much information from the respondents: 99 questions, including questions on marital status, income, and place of residence, which also might have discouraged to respond to the survey. In the end, we managed to survey 283 former top students.

A former top student is defined as an individual who was one of the three best graduates of a high school in Suriname. The Rotary Club yearly organises the best student award and the names of the best students are generally published in local newspapers. We started collecting the names of the former top students by searching throughout the local newspapers of the period 1976 – 2006. Furthermore, we contacted the high schools and asked for the names of the three best graduates of their schools for the mentioned period. Gladly most of the high schools were willing to cooperate. Through extensive search on the internet we found ways, mostly via LinkedIn and Facebook, to contact the former top students.

We confined our research to this period as broad university education in Suriname became available since 1976. Some of the questions in the survey were related to job and income. Hence we chose as final year 2006 so that by 2013 the former top student already must be in employment. Also respondents who now live in another country other than Suriname and the Netherlands were excluded. In this chapter we analyse over 60 questions, including questions about country preferences, education, job, and tasks at work.

### 4.3.2 Data and hypotheses

Return migration is the dependent variable. To measure return migration we use several indicators. The first is an indicator variable "remigration", taking the value 1 if the respondent has ever lived in the Netherlands and 0 if the respondent currently lives in the Netherlands. This enables us to analyse why some former top students returned to the home country while others remained abroad. We also measure the intention to return to the home country by asking the current migrants to indicate, with a percentage between 0 and 100 percent, the chance of returning to Suriname respectively within one year, within 10 years, and after retirement. Comparably, we asked the remigrants to Suriname what the chance was of going back to the Netherlands within the aforementioned time frames and after retirement. To the non-migrants we asked what the chance was of leaving Suriname and going abroad. We converted all the percentages in a way that we could compare the percentages across all three groups, creating respectively our second, third, and fourth construct for the intention to live in Suriname, namely: what is the chance that the respondent will live in Suriname in one year time, within 10 years, and after retirement. Note that in our first construct the non-migrants are excluded, whereas in the latter constructs all three subgroups are considered. Furthermore the first construct is a

binary measure for return migration to Suriname, while the latter ones are continuous variables.

The independent variables can be categorized conform the four identified motives in the literature review section of this chapter. The first is to test whether return migrants are positively or negatively selected on observable skills. In our study all migrants were initially positively selected since they were all top students of high schools. It is expected that the best of the best will be more likely to succeed abroad and that the worst of the best—the less skilled among the highly educated—will return, a sign of failure. To measure the skills we look into the highest education level of the respondent and that of the life partner, the years of education, the years of education abroad, the educational degree, and the tasks the respondent generally performs at work. To measure the education level of the respondent we create 4 dummies for the highest degree completed by the respondent: PhD, and MSc in technical science, medical, and social science. The reference group was formed by the respondents with a BSc. or vocational degree. The highest education level of the life partner ranges between 1 and 6, where 1 stands for primary school, 2 for junior secondary school, 3 for high school, 4 a Bachelor's degree, 5 a Master's degree, and 6 a PhD degree.

To measure the job tasks we asked the respondents to give us some indication whether they were involved in physical, short and repetitive, and management tasks during a workday. These questions were asked on a 5 point scale, where 1 meant almost never, 2: for less than half of the day, 3: half of the day, 4: more than half of the day, and 5: almost the whole day. We also made an attempt to measure some other cognitive tasks, namely whether the respondent had to have contact with patients, students, clients, or suppliers. These questions were measured on a 4 point scale, where 1 indicated no contact at all, 2: little contact, 3: average contact, and 4: much contact. We transformed these variables into dummy variables for easier interpretation, where 1 meant that the respondent performs this task at work and 0 that he or she does not.

The second motive to return is the completion of the optimal life cycle. Here, the migrant reaches his optimal life-earnings cycle after spending the prime working age in the Netherlands and returns thereafter (Borjas & Bratsberg, 1996). We expect migrants from the older age groups to be more likely to return to the home country. We categorize the respondents into three age groups: 24-30 years, 31-39 years, and 40-59 years. We furthermore expect that longer stay duration will reduce the likelihood of returning to the home country. The migration duration is measured as a continuous variable: years spent in the Netherlands. We also use 4 dummies for the migration duration: 1) 0 years, 2) between 1 and 5 years, 3) between 6 and 10 years, 4) between 11 and 20 years, and the reference variable indicating a migration duration of longer than 20 years.

The third motive refers to social attachments with the home country. It is expected that return migration will be more likely if the migrant's parents, children and life partner live in the home country. Parents played an important role in funding the education of their children. 68% of the former top students their education were funded mainly by the

parents and of 11% the education was mainly funded by scholarships. We also test the influence of these funding methods on the return migration intention.

The fourth motive refers to push and pull factors that tell us something about the country attractiveness or the respondent's preferences towards a specific country. Considering specific factors (such as salaries, career and education opportunities, weather, family location, etc.) we asked the respondents on scale of 1 to 5 to which country they were attracted to: Suriname or the Netherlands[20]. We calculated the mean per factor for the current migrants, remigrants, and non-migrants. Next we scaled down the mean values with minus 3 and thus the range of the values became -2 to +2, where the negative values indicate that the respondents prefer Suriname and positive values the Netherlands. Figure 4.1 in Appendix 4.A presents the pull factors towards Suriname and Figure 4.2 the push factors from Suriname, and a detailed discussion of these figures appears in Section 4.4.2 below. For the regressions we used the original values of 1 to 5. Higher values indicate that the respondent is drawn to the Netherlands and lower values towards Suriname. We thus expect a negative effect of country attractiveness on return migration. Following Gibson and McKenzie (2011), for the regressions we consider factors which are differently viewed by the migrants, return migrants, and non-migrants. These are: career perspectives, work possibilities for the partner, job availability, job contentment, cost of living, safety, place of upbringing of the children, job opportunities for the partner, and the place where the family of the partner lives.

We include some background characteristics as control variables in the regressions. These are: gender, age, and citizenship or migration status (ever migrated or not). Following Wang & Fan (2006), we expect women to be more likely to return to the home country, because of the social responsibilities and cultural ties they may have at home. Obviously, former top students who hold the Dutch citizenship must be less likely to return as they must have been settled abroad. Out of 111 Dutch citizenship holders, 80% are current migrants and 20% are remigrants.

Table 4.1 in the Appendix presents the description and main statistics of the various variables we used in the regressions, and we discuss various interesting numbers in section 4.4.

### 4.3.3 Models

In this subsection we discuss the models to estimate return migration and the intention (chance) to live in Suriname in the future. Using the binary logit model (Greene, 2002), we regress return migration on a set of indicators for education, lifecycle and migration duration, social attachments, country preferences, and some background characteristics.

[20] The values and respective labels were: 1 = strongly drawn towards Suriname, 2 = drawn towards Suriname, 3 = this does not matter for me, 4 = drawn towards the Netherlands, and 5 = strongly drawn towards the Netherlands.

Here we do not consider the job tasks, as respondents might have gotten into employment after they returned from the Netherlands. The first econometric model is:

$$P(Y_i = 1 \mid X_i^{'}\beta) = \frac{e^{X_i\beta}}{(1+e^{X_i\beta})} \qquad (4.1)$$

where *i* is an index for an individual who is a current migrant or a remigrant, and $X_i^{'}$ represents a vector of indicators for education, life-earnings cycle and migration duration, social attachments, country preferences, and some background characteristics.

We now turn to the model to estimate the chance to live in Suriname in the future (within 1 year, within 10 years, and after retirement). Current migrants who express the chance to go to Suriname in the future indicate their intention to return to the home country. Remigrants and non-migrants express the chance (intention) to keep on living in Suriname in the future. Research has shown (Klaver *et al*., 2010) that the desire or intention to move to the home country does not imply yet that the migrant will truly return. However we believe that the chance to return within a year is an expectation that is in the near future and that it is very close to realization. When analysing the results we see that most of the regression coefficients remain significant across all three time frames that the different dependent variables represent. Furthermore the range of variation for the dependent variables, measuring the chance or intention to live in Suriname, in our study is larger than in most studies, giving the respondent the possibility to make a conscious choice when answering the question on the chance to live in Suriname.

Table 4.2 shows that the dependent variables contain many zero's (0%) and one's (100%). Hence we use the censored regression (Tobit) to model the intention to live in Suriname with both left and right censoring (Greene, 2002)[21].

$$Y_i^* = X_i^{'}\beta + \varepsilon_i ,$$

(4.2)

$$Y_i = \begin{cases} 0 & \text{if } Y_i^* \le 0 \\ 0 < Y_i^* < 1 & \\ 1 & \text{if } Y_i^* \ge 1 \end{cases}$$

$X_i^{'}$ now also includes the indicators for job tasks. These job characteristics tell us something about the respondent in present time, while the intention to live in Suriname tells us something about the future.

[21] Truncated regression would have been more appropriate but because of a relatively small sample size we chose the censored (Tobit) regression.

Table 4.3 presents the determinants of the binary variable: return migration. Table 4.4 – 4.7 present respectively the effect of family location, migration duration and education funding, educational level and job tasks, and country attractiveness on the intention to live in Suriname.

## 4.4 Results

### 4.4.1 Descriptive information

Out of the 283 surveyed former top students, 55% are women and 45% men (Table 4.1). With the exception of one person, all respondents enjoyed tertiary education, which is why we also refer to them as highly educated or highly skilled workers. At least half of respondents obtained their first tertiary education in the Netherlands and 60% of the 136 respondents, who enjoyed a second tertiary education, obtained this in the Netherlands. Figure 4.3 displays the occupation field in which the highly educated work. Medical doctors, engineers, and accountants or business managers are among the most common professions we observed among the highly educated. The majority of the respondents have a spouse or partner, of which almost half has the Dutch citizenship. 63% of the former top students have ever migrated to the Netherlands (for at least one year), of which a third returned to Suriname.

While former top students currently living in the Netherlands (current migrants) are not very likely to return to Suriname within one year, they are willing to do so on a medium and long term (see Table 4.2). We asked the former top students what the chance was they would live in Suriname within 1 year, within 10 years, and after retirement. Respondents could answer within a range of 0% and 100% (with 21 intervals and each interval 5 percentage point width). 28% of the current migrants consider returning to Suriname within one year. With some probability, 74% of the current migrants intend to do so within 10 years, and 91% have some intention to return after retirement. On the other hand the remigrants and non-migrants do not intend to live in Suriname all their lives. 30% of the non-migrants indicated that the chance that they would live in Suriname within 10 years was less than 50%.

### 4.4.2 Push and pull factors

In Figure 4.1 and Figure 4.2 we present respectively the pull and push factors. The main pull factors are: the weather conditions in Suriname, experiencing the culture, the tax system of Suriname, house- and landownership, the fulfilment of social obligations, and the place where most of the family lives (see Figure 4.1). Current migrants are to a lesser extent than remigrants and non-migrants attracted to these pull factors towards Suriname. Remigrants are especially attracted to the lifestyle of Suriname (as also noted in Dulam

& Franses, 2014) and the fulfilment of social obligations in Suriname. Return migrants especially feel to be of more importance in Suriname as they feel the opportunity to make a difference in their society (more so than in the Netherlands).

Highly educated Surinamese feel attracted towards the Netherlands when taking into account the salaries, education possibilities, the quality of healthcare and ICT, travelling costs, and confidence in the government (see Figure 4.2). When considering the work related factors (such as career perspectives, work contentment, and the cost of living) current migrants prefer the Netherlands, while remigrants and non-migrants to a lesser extent prefer Suriname. Furthermore, current migrants prefer the Netherlands as the place of upbringing of their children, while remigrants and non-migrants prefer Suriname. However, when bearing the children's education in mind, like the current migrants, the remigrants and non-migrants also prefer the Netherlands.

### 4.4.3 Determinants of return migration

In this section we discuss the estimates of equation 4.1. Using the logit regression functionality of SPSS we regressed remigration on a set of indicators for education, lifecycle and migration duration, social attachments, country preferences, and some background characteristics. The results are in Table 4.3.

Having the Dutch citizenship significantly reduces the probability to return to Suriname. The odds[22] to return are around 90% lower for former top students who have the Dutch citizenship than those who have the Surinamese citizenship, given that other factors remain constant. Also those who have a life partner holding the Dutch citizenship are significantly less likely to return than those whose partner has the Surinamese citizenship (column 1). It seems that women are more likely to return to Suriname. Social and cultural ties may be the reason for this (Wang & Fan, 2006). In an open ended question we asked the respondents what the main reason of their return decision was. A couple of women wrote that they returned because their partner returned. Note that column 1 only includes respondents who have a life partner.

Former top students whose parents obtained tertiary education abroad are more likely to return to Suriname. As explained in Dulam & Franses (2014), higher education was not available in Suriname at the time when most of the parents were at the age of entering higher education. Between the 1950's and 1970's many Surinamese received scholarships to go abroad to study. Most of the parents who received scholarships returned to Suriname (Klaver *et al.*, 2010), which is why we think that the children followed the footsteps of the parents, namely to attain tertiary education abroad and to return thereafter.

Return migration is the least likely for the youngest age-group (24-30 years), indicating that high educated individuals of Surinamese origin in that age may not yet

[22] Conform Field (2009, p. 288) we calculate the odds ratio as follows: [Exp(estimated coefficient)*100)-100]

have completed their optimal life-earnings cycle and thus are more likely to remain in the Netherlands. The oldest age group (40-59 years), the reference group, is significantly more likely to return with respect to the youngest age-group.

Column 2 includes the effect of the funding method of tertiary education. The former top students' higher education was funded by: 1) mainly through a scholarship, 2) mainly by the parents, 3) mainly by the respondents themselves or by a study loan. Former top students whose tertiary education was funded through scholarships (from the government or from universities) are significantly more likely to return to Suriname with respect to former top students who funded their education by their own means or via a study loan, given that other factors were constant. The coefficient is significant at the 10% level.

There was a strong correlation (Chi-square test) between the reference variable *Fund_self* (education costs funded by the former top student self or by study loan) and *Nation* and there were only 3 Surinamese citizenship holders who financed their education by themselves. Hence we replaced *Nation* with *YearsinNL* (years of residence in the Netherlands) as the migration duration positively affects the attainment of the Dutch citizenship. The coefficient for migration duration (*YearsinNL*) is significant at the 1% level. The shorter the migration duration, the higher is the probability to return to the home country. The odds to return decrease with 37% for every one year extra that the high skilled Surinamese migrant stays in the Netherlands, given that the other factors remain constant.

In column 3 we include the number of years that the former top students enjoyed tertiary education in the Netherlands (*Yearseduc_nl*) and some background characteristics. Return migration seems to be negatively selected on the number of years of education in the Netherlands. For every one year extra education in the Netherlands the odds to return decrease by 15 percent. We also see that return migration is negatively associated with the education level of the life partner (column 1). These results seem to support the selectivity theory of Borjas, which states that the worst of the best return. Less educated might imply less chances to be successful in the developed country and thus the likelihood of return migration increases. However, we found no significant difference in the total number of years of tertiary education (notwithstanding where the education was attained) between remigrants and current migrants. The remigrants' main reason to go abroad was educational attainment and return thereafter implying that they are not necessarily failure migrants. 50 out of the 54 remigrants (93 percent) mentioned studying in the Netherlands as the main reason to move there. In column 4 we regressed the academic degree (using four dummies *PhD, Msc_tech, Msc_medic*, and *Msc_social* and the reference group was *Bsc_HBO_Other*; see Table 4.2 for the description) on return migration but we found no significant effects.

Business seems to attract return migrants. The coefficient is positive and in column 3 significant at the 10% significance level. Former top students whose parents run a business in Suriname are more likely to return; a sign of attachment to the home country.

Column 5 includes some country attractiveness indicators (push and pull factors). Safety, the fulfilment of social obligations, and job contentment significantly affect return migration. Former top students who believe the Netherlands to be safer than Suriname are less likely to return. Fulfilling social obligations towards parents or the society attracts return migrants. Also former top students who believe to be more content with their job in Suriname than they were or would be in the Netherlands are more likely to return to Suriname. We also included salaries and the tax rate in the regressions. However these turned out to be insignificant and were left out of the final regressions.

### 4.4.4 Determinants of the intention to return or live in Suriname in the future

In this subsection we present the estimation results of equation 4.2. Tables 4.4 – 4.7 contain the censored regression effects on the chance[23] to live in Suriname in the future (within 1 year, 10 years, and after retirement). Using the "censReg" package of R-software, we calculated the marginal effects and present these in the tables.

Table 4.4 displays in particular the influence of close relatives in migration behaviour. The intention (chance) to return to or to live in Suriname is strongly associated with the location of close relatives.

Current migrants who have children are significantly less likely to live in Suriname in the future. For example when evaluating the effect on the intention (chance) to live in Suriname within 10 years (columns 2 and 5) we see that the chance is 38% to 48% lower for current migrants who have children than for remigrants and non-migrants who do not have children, given that the other variables remain constant. Remigrants and non-migrants who do not have children are more mobile than those who have children. Furthermore, we see that former top students whose parents live in Suriname exhibit higher chances to live in Suriname with respect to those whose parents live in the Netherlands. And when the life partner of the former top student has the Surinamese citizenship the chance to live in Suriname in the future is higher than when the life partner has the Dutch citizenship. This is consistent with the result in Table 4.3. We also confirm that former top students who have the Dutch citizenship are less likely to opt for Suriname in the future.

Table 4.5 includes the age effects and the effect of the funding method of higher education. Even though the younger respondents are significantly less likely to return to Suriname, when it comes to intention, the younger Surinamese are more eager to live in Suriname in the future. Former top students who are between 31 and 39 years old have a significantly higher intention to live in Suriname than those who are between 40 and 59 years old. This indicates that relatively young former top students are interested in

[23] We asked the respondents what the chance was they would return to or live in Suriname. The meaning of "chance" here is not the same as "probability". Chance is defined as the possibility of it happening in the (near) future or at the moment when you have the opportunity to do so. The term probability is the statistically computed likelihood that it will occur.

Suriname. Former top students in the age category of 24-30 years intend to return to Suriname within 10 years and after retirement, but no significant effect was found on the return intention within 1 year. To reduce the number of regressors in the subsequent regressions we used the continuous indicator for age instead of the categorical variables (the dummies). The continuous variable *Age* is not significant. We also squared this variable and analysed its effect. No significant effect of the squared Age was found and hence we dropped this from the regressions.

An important implication from Table 4.5 is the positive effect of scholarships on the return intention. The chance to live in Suriname within one year is 33 percentage points higher for former top students who received a scholarship to complete tertiary education compared with those who financed their tertiary education by themselves or through a loan. This effect weakens over time, implying that former top students who received a scholarship might move abroad within 10 years or after retirement. Also former top students whose education was mainly financed by the parents exhibit higher chances to live in Suriname in the future. Even though the effect is only significant in the second column, the results confirm the essence of social bonding for return migration.

The chance to live in Suriname in the future is significantly lower for former top students who ever migrated to the Netherlands (current migrants and remigants) than those who did not migrate at all. This effect weakens over time, implying that the chance to live in Suriname in the medium or long term increases for migrants in particular.

Columns 4-6 in Table 4.5 contain the effect of migration duration on the intention to live in Suriname in the future. The shorter the migration duration, the higher the chance to live in Suriname. This supports the result of Table 4.3. Former top students who lived between 1 and 5 years in the Netherlands have the highest chance to live in Suriname in the future. The effect on the intention to live in Suriname within 10 years for individuals with a migration duration of between 11 and 10 years in the Netherlands, is 30-40 percentage points lower than a duration of between 1 and 5 years.

Table 4.6 presents the effect of the educational level on the intention to live in Suriname. In the short and medium term there is no significant effect. However when considering the effect on the intention to live in Suriname after retirement we observe negative effects of educational attainment. PhD degree holders are the least likely to live in Suriname after retirement. The chance to live in Suriname is 18 percentage points lower for PhD degree holders than for BSc. or vocational degree holders, given that the other variables remain constant. MSc degree holders in a technical or social science also exhibit significant lower chances to live in Suriname in the future. The coefficient for medical master's degree holders is insignificant throughout all three columns. We also regressed the years of education in the Netherlands on the respective dependent variables. The coefficient is negative and significant as was earlier the case in Table 4.3.

Columns 4 – 6 of Table 4.6 display the marginal effects of job tasks. The first thing to notice here is that when holding the citizenship, age, and job tasks constant, gender becomes significant. Women have a higher probability to live in Suriname in the future.

This is consistent with the results found in Table 4.3 and with existing literature (Wang & Fan, 2006; De Jong, 2000).

When forecasting the intention to return or to live in Suriname in the future, we see that former top students who perform management tasks, and who are in touch with clients exhibit higher chances to live in Suriname than those who do not demonstrate these tasks at work. Note that while individuals who are in touch with clients are more likely to live in Suriname in the future, and those who are in touch with suppliers are less likely to live in Suriname within 10 years. Former top students who are not involved in work that requires contact with suppliers may be doing less complicated work; work that may be dispensable in a small economy as Suriname.

Table 4.7 contains some country attractiveness indicators. All these indicators have negative coefficients in the table, implying that preferences towards the Netherlands reduce the chances to live in Suriname in the future. Former top students who prefer the Netherlands when considering the place of upbringing of their (future) children and the education opportunities for their children have lower chances to live in Suriname in the future. These effects weaken when considering the intention to live in Suriname after retirement, but remain significant.

Another important preference indicator is job contentment. Former top students who feel that they are more content with their job in the Netherlands than they would be in Suriname have lower chances to return or to live in Suriname in the future. Also when considering career opportunities, the effect on the intention to live in Suriname within one year or 10 years is negative (results not presented in table). Former top students who prefer career opportunities in the Netherlands rather than Suriname are less likely to live in Suriname in the future. The preference for a country when considering salaries is not a strong determinant of the intention to live in Suriname. The coefficient for this variable is only significant in the second column. We observe in Figure 4.2 however that the majority of the respondents prefer the Netherlands when it comes to the level of salaries.

Columns 4 – 6 of Table 4.7 include preferences concerning the life partner and the education opportunities for children. The partner's job opportunities in a certain country and the place where the partner's family lives also determine the intention to live in Suriname. If the opportunities are believed to be better in Suriname (but this might the case simply because the partner lives in Suriname), the effect is positive. And if the partner's family lives in Suriname, the intention to live in Suriname also increases.

## 4.5 Conclusion and implications

The purpose of this study was to identify the determinants of return migration of high skilled Surinamese individuals. We surveyed 283 former top students of Suriname, who now either live in the Netherlands or in Suriname. The focus of this chapter was the effect of educational attainment, job tasks, the optimal life-earnings cycle, migration duration,

citizenship, close relatives, education funding method, and push and pull factors on the return migration decision or the intention to live in Suriname in the future. Four indicators to measure the response variable, return migration, were used. These were: return migration as a binary variable, and the chance to live in Suriname within 1 year, within 10 years, and after retirement.

This study shows that return migration is negatively correlated with educational attainment, in terms of the years of education and the educational level of the respondent's life partner. There is thus some support for Borjas and Bratsberg their theory that return migration tends to amplify the initial migration flow, namely that the best of the best emigrate and the worst of the best return. However the evidence does not strongly support the theory, as we did not find significant effects of the academic degree on return migration. The academic degree seems to have a negative effect on the chance to live in Suriname after retirement, that is, MSc degree holders in technical and social sciences and PhD degree holders are significantly less likely than BSc or vocational degree holders to live in Suriname after their retirement.

An interesting result was the effect of the education funding method. Scholarships seem to positively affect return migration and the intention to live in Suriname in the future. Also former top students whose education was funded mainly by the parents have more the intention to live in Suriname than former top students who financed their education by their own means or by a study loan.

When evaluating the effect of job tasks, we found that former top students involved in management tasks at work and in work that requires at least some contact with clients had a higher chance to live in Suriname in the future. We did not find any significant effect of job tasks involving more complicated tasks such as mathematical problem solving at work or interaction with patients at work.

We found some evidence of the optimal life-earnings cycle as former top students of between 40-59 years of age were more likely to return than the youngest age group (24-30 years), indicating that the former top students return after completion of tertiary education, work experience, or accumulated savings. When looking at the future, we found that former top students from the youngest and middle age groups do have the intention to live in Suriname. The obvious question arises: they do want to live there, but will they really? Former top students from the oldest age group on the other hand are the least likely to choose for Suriname in the future. This seems contradictory to the previous statement about this age group. But the reason is that the majority of the former top students who currently live in Suriname have some intention to live abroad after retirement, while the current migrants intend to go to Suriname after retirement.

With respect to the push and pull factors, we learned that safety, job contentment, and social obligations significantly affect return migration. Those who believe that the Netherlands is better for the future of their children were less likely to choose for Suriname. Surinamese tend to choose the country where their close relatives live. Former top students whose parents, life partner, and children live in Suriname are more likely to

live in same country. Former top students who hold the Dutch citizenship are less likely to return to Suriname.

Although many former top students went to the Netherlands to pursue higher education, the majority did not return after completing education. Suriname risks losing the highly skilled individuals to a country which is highly developed and offers more perspectives to them. The young high skilled are interested in Suriname, but they do not intend to return in the short term. The return decision is mainly driven by social attachments and job related factors. Radical changes (such as technological advancement and positive work attitudes) to create attractive work environments in Suriname are needed, but not feasible in the near future. Government policy should focus on housing, safety, and also on facilitating household members of the highly educated. Policies to attract the high skilled back to Suriname should also focus on diversification. Former top students working in the health sector and academic sector are indifferent to the choice between the two countries, while there is much need for the highly skilled workers in those sectors of Suriname.

Furthermore, as scholarships are a proven to be a success, the government and relevant institutions should focus on providing scholarships to bright students in a more systematic way (see also Dulam & Franses, 2014). Moreover the Netherlands could play an important role in providing education in Suriname itself.

## Appendix 4.A Figures and tables

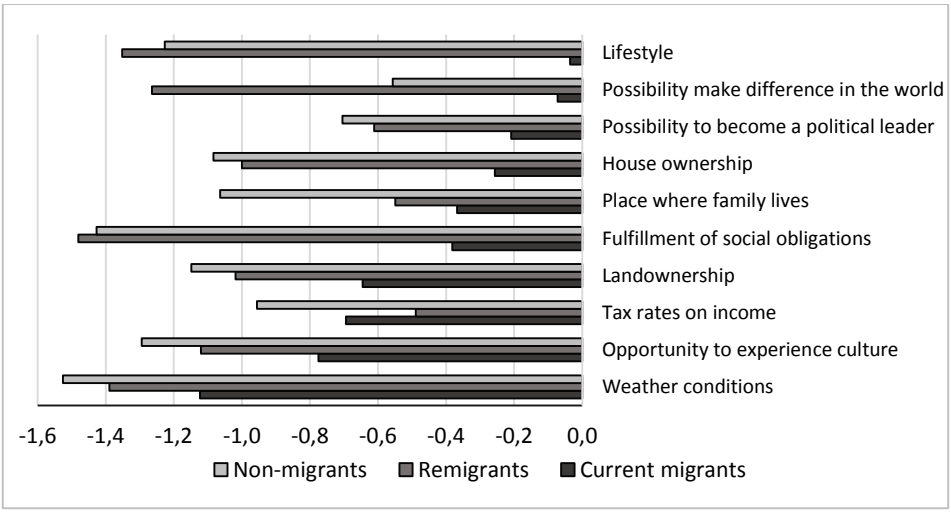


Figure 4.1: Pull factors

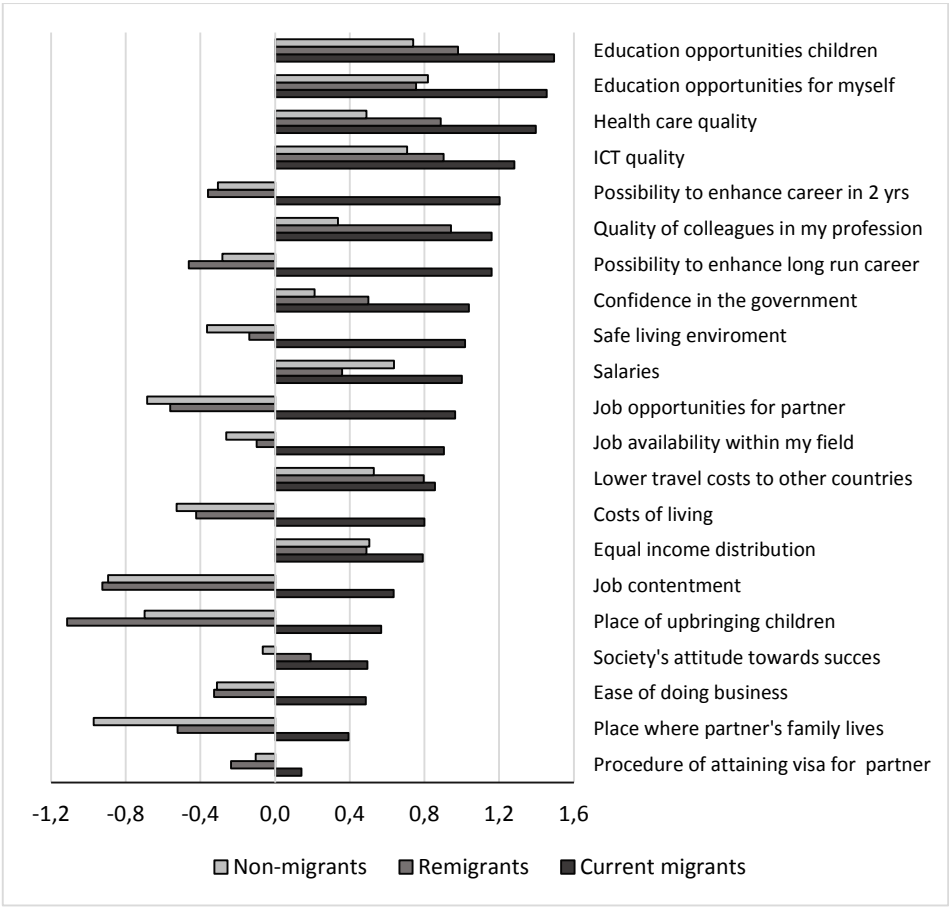


Figure 4.2: Push factors

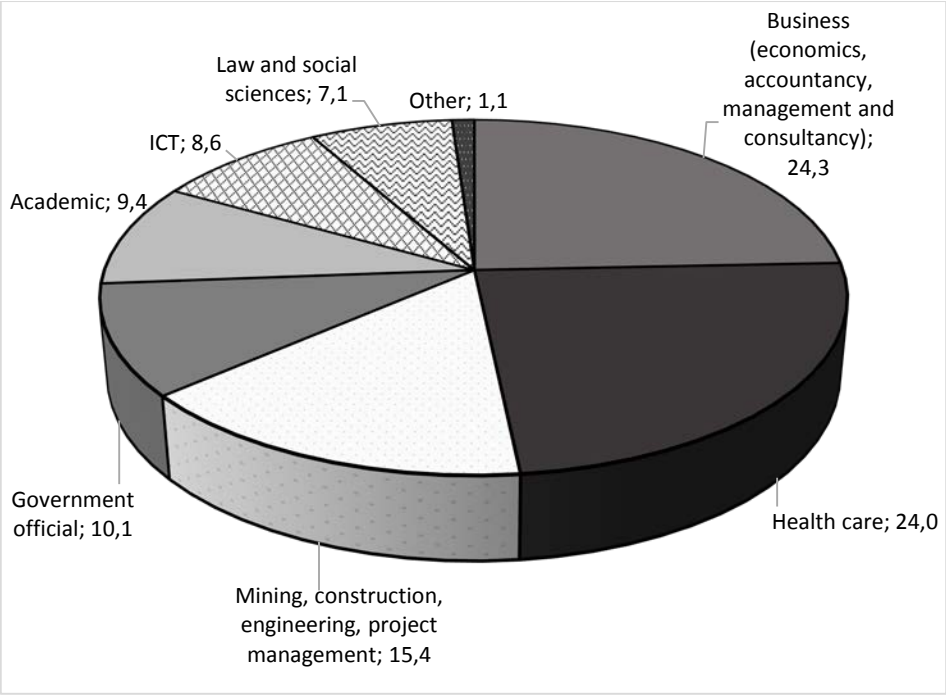


Figure 4.3: Field of occupation (in %), N=267

Table 4.1: Descriptive statistics main variables

| Variable | Label | Mean | S.D. | N |
|---|---|---|---|---|
| Gender | equals 1 if respondent is female and 0 otherwise | 0.553 | (0.498) | 282 |
| Age_24_30 | equals 1 if respondent is between 24 and 30 years and 0 otherwise | 0.382 | (0.487) | 283 |
| Age_31_39 | equals 1 if respondent is between 31 and 39 years and 0 otherwise | 0.307 | (0.462) | 283 |
| Age_40_59 | equals 1 if respondent is between 40 and 59 years and 0 otherwise | 0.311 | (0.464) | 283 |
| Nation | equals 1 if respondent has Dutch citizenship and 0 if Surinamese | 0.434 | (0.497) | 265 |
| Nation_partnr | equals 1 if respondent's partner has Dutch citizenship and 0 if Surinamese | 0.494 | (0.501) | 178 |
| Migration_ever | equals 1 if respondent has ever migrated to the Netherlands and 0 if not | 0.624 | (0.485) | 274 |
| Remigration | equals 1 if respondent has remigrated from the Netherlands to Suriname and 0 if not. | 0.208 | (0.407) | 274 |
| Parent_nl | equals 1 if at least one of the parents live in the Netherlands and 0 if not | 0.182 | (0.387) | 280 |
| Parent_un | equals 1 if the respondent's parent is no longer alive or if the location is unknown and 0 otherwise | 0.193 | (0.395) | 280 |
| Parenttertiary | equals 1 if at least one of the parents had tertiary education abroad and 0 if not | 0.319 | (0.467) | 270 |
| Business | equals 1 if the parents had/have a business in Suriname and 0 if not | 0.388 | (0.488) | 278 |
| Child_cm | equals 1 if the respondent is a current migrant with children and 0 if not | 0.193 | (0.396) | 274 |
| Child_rm_nm | equals 1 if the respondent is a remigrant or nonmigrant with children and 0 if not | 0.234 | (0.424) | 274 |
| Nochild_cm | equals 1 if the respondent is a current migrant with no children and 0 otherwise | 0.223 | (0.417) | 274 |
| Fund_scholarsh | equals 1 if the tertiary education was funded via a scholarship and 0 otherwise | 0.11 | (0.314) | 245 |
| Fund_parnt | equals 1 if the tertiary education was mainly funded by the parents and 0 otherwise | 0.682 | (0.467) | 245 |
| Fund_self | equals 1 if the tertiary education was funded by the respondent or via a loan and 0 otherwise | 0.208 | (0.407) | 245 |
| Years0_nl | equals 1 if the respondent spent 0 years in the Netherlands and 0 otherwise | 0.375 | (0.485) | 267 |
| Years1_5_nl | equals 1 if the respondent spent between 1 and 5 years in the Netherlands and 0 if not | 0.131 | (0.338) | 267 |
| Years6_10_nl | equals 1 if the respondent spent between 6 and 10 years in the Netherlands and 0 if not | 0.161 | (0.368) | 267 |
| Years11_20_nl | equals 1 if the respondent spent between 11 and 20 years in the Netherlands and 0 if not | 0.131 | (0.338) | 267 |
| YearsNL | The number of years the respondent spent in the Netherlands | 9.234 | (10.512) | 267 |

Table 4.1 (continued)

| Variable | Label | Mean | S.D. | N |
|---|---|---|---|---|
| Yearseduc_nl | The duration of tertiary education in the Netherlands in years | 4.511 | (4.231) | 266 |
| Educ_partnr | The highest educational level of the life partner where 1 stands for primary school, 2 for secondary school, 3 for high school, 4 a Bachelors degree, 5 a Masters degree and 6 a PhD degree | 4.050 | (1.048) | 178 |
| PhD | equals 1 if the respondent's highest degree is a PhD and 0 otherwise | 0.068 | (0.252) | 266 |
| Msc_tech | equals 1 if the respondent's highest degree is a MSc in technical science and 0 otherwise | 0.214 | (0.411) | 266 |
| Msc_medic | equals 1 if the respondent's highest degree is a MSc in medical science and 0 otherwise | 0.199 | (0.400) | 266 |
| Msc_social | equals 1 if the respondent's highest degree is a MSc in social science and 0 otherwise | 0.218 | (0.414) | 266 |
| Bsc_HBO_Other | equals 1 if the respondent's highest degree is a degree in BSc, higher vocational education, or some other education and 0 if s(he) has an MSc or PhD degree | 0.300 | (0.210) | 266 |
| Physical_task | equals 1 is the respondent performs physical tasks at work and 0 if not | 0.269 | (0.444) | 249 |
| Shortrep_task | equals 1 is the respondent performs short repetitive tasks at work and 0 if not | 0.389 | (0.488) | 247 |
| Manage_task | equals 1 is the respondent performs management tasks at work and 0 if not | 0.703 | (0.458) | 269 |
| Contact_student | equals 1 if the respondent has at least some contact with students for his work and 0 if not | 0.804 | (0.398) | 240 |
| Contact_patient | equals 1 if the respondent has at least some contact with patients for his work and 0 if not | 0.316 | (0.466) | 234 |
| Contact_client | equals 1 if the respondent has at least some contact with clients for his work and 0 if not | 0.884 | (0.321) | 241 |
| Contact_supplier | equals 1 if the respondent has at least some contact with suppliers for his work and 0 if not | 0.740 | (0.439) | 235 |
| Math_solving | equals 1 if the respondent has to perform mathematical problem solving tasks at work and 0 if not | 0.266 | (0.443) | 244 |
| Intend_1yr | The chance that the respondent thinks to live in Suriname within 1 year | 0.546 | (0.455) | 260 |
| Intend_10yrs | The chance that the respondent thinks to live in Suriname within 10 years | 0.574 | (0.375) | 259 |
| Intend_retire | The chance that the respondent thinks to live in Suriname after retirement | 0.685 | (0.331) | 249 |

Note: Standard errors are in parentheses. N is the number of observations.

Table 4.2: Chance to live in Suriname in the future

| | Categories | Current migrants | Remigrants | Non migrants | Total |
|---|---|---|---|---|---|
| Chance (intention) to live in Suriname within 1 year | 0% | 71.8% | 0.0% | 2.0% | 31.2% |
| | 5-50% | 26.4% | 3.8% | 10.2% | 15.8% |
| | 55-95% | 0.9% | 17.3% | 22.4% | 12.3% |
| | 100% | 0.9% | 78.8% | 65.3% | 40.8% |
| | N | 110 | 52 | 98 | 260 |
| Chance to live in Suriname within 10 years | 0% | 25.7% | 1.9% | 2.1% | 12.0% |
| | 5-50% | 56.9% | 9.4% | 27.8% | 36.3% |
| | 55-95% | 14.7% | 37.7% | 43.3% | 30.1% |
| | 100% | 2.8% | 50.9% | 26.8% | 21.6% |
| | N | 109 | 53 | 97 | 259 |
| Chance to live in Suriname after retirement | 0% | 8.7% | 0.0% | 0.0% | 3.6% |
| | 5-50% | 57.3% | 16.7% | 8.7% | 30.5% |
| | 55-95% | 28.2% | 44.4% | 44.6% | 37.8% |
| | 100% | 5.8% | 38.9% | 46.7% | 28.1% |
| | N | 103 | 54 | 92 | 249 |

Table 4.3: Determinants of the binary variable return migration

| Variable | (1) Coefficient | (2) Coefficient | (3) Coefficient | (4) Coefficient | (5) Coefficient |
|---|---|---|---|---|---|
| Gender | 1.462** | 0.630 | 0.695 | 0.778* | 0.909 |
| | (0.710) | (0.655) | (0.427) | (0.429) | (0.683) |
| Age_24_30 | -3.298*** | -5.023*** | -1.822*** | -1.388** | -3.185*** |
| | (1.353) | (1.328) | (0.624) | (0.626) | (1.173) |
| Age_31_39 | 0.329 | -1.078 | 0.566 | 0.458 | -0.199 |
| | (0.717) | (0.990) | (0.508) | (0.514) | (0.804) |
| Parenttertiary | -0.007 | 2.331*** | 0.992** | 0.919** | 1.207* |
| | (0.713) | (0.841) | (0.431) | (0.424) | (0.699) |
| Nation | -2.684** | | -2.144*** | -2.156*** | -2.803*** |
| | (1.145) | | (0.516) | (0.520) | (0.833) |
| Educ_partnr | -0.819** | | | | |
| | (0.369) | | | | |
| Nation_partnr | -2.926*** | | | | |
| | (0.926) | | | | |
| YearsinNL | | -0.466*** | | | |
| | | (0.088) | | | |
| Fund_scholarsh | | 2.059* | | | |
| | | (1.190) | | | |
| Fund_parent | | -0.464 | | | |
| | | (0.750) | | | |
| Business | 0.710 | | 0.825* | | |
| | (0.666) | | (0.446) | | |
| Yearseduc_nl | | | -0.166** | | |
| | | | (0.072) | | |
| PhD | | | | 0.767 | |
| | | | | (0.875) | |
| Msc_tech | | | | 0.248 | |
| | | | | (0.684) | |
| Msc_medic | | | | 0.197 | |
| | | | | (0.720) | |
| Msc_social | | | | -0.707 | |
| | | | | (0.753) | |
| Safety | | | | | -1.173*** |
| | | | | | (0.401) |
| Social_obligations | | | | | -0.953*** |
| | | | | | (0.343) |
| Jobcontentment | | | | | -1.248*** |
| | | | | | (0.343) |
| Intercept | 6.703*** | 5.490*** | 0.832 | 0.238 | 10.422*** |
| | (2.316) | (1.582) | (0.719) | (0.805) | (2.293) |
| Chi-square | 54.819*** | 122.662*** | 51.921*** | 47.301*** | 109.980*** |
| Nagekerke $R^2$ | 0.605 | 0.786 | 0.399 | 0.367 | 0.753 |
| N | 94 | 148 | 154 | 155 | 142 |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parentheses. *Age_40_59* (age between 40 and 59 years) is the reference group for the age dummies. *Gender* equals 1 if the respondent is a female and 0 if male. *Fund_scholarsh* and *Fund_parent* are with respect to *Fund_self*, which indicates that the education was mainly funded by the respondent or by studyloan. The odds ratios are obtained by exponentiating the coefficients.

Table 4.4: Close relatives

| Variable | (1) in 1 year Coefficient | (2) in 10 years Coefficient | (3) after retiring Coefficient | (4) in 1 year Coefficient | (5) in 10 years Coefficient | (6) after retiring Coefficient |
|---|---|---|---|---|---|---|
| Gender | 0.006 | -0.037 | 0.041 | 0.003 | -0.042 | -0.008 |
| | (0.055) | (0.042) | (0.035) | (0.070) | (0.054) | (0.041) |
| Nation | -0.062 | -0.125** | -0.134*** | -0.043 | -0.072 | -0.104* |
| | (0.078) | (0.059) | (0.051) | (0.104) | (0.078) | (0.061) |
| Age_24_30 | -0.063 | -0.096 | 0.016 | -0.072 | -0.143* | 0.001 |
| | (0.087) | (0.067) | (0.055) | (0.106) | (0.082) | (0.063) |
| Age_31_39 | 0.080 | 0.028 | -0.011 | 0.082 | 0.035 | -0.001 |
| | (0.078) | (0.060) | (0.052) | (0.096) | (0.073) | (0.056) |
| Child_cm | -1.053*** | -0.475*** | -0.241*** | -1.055*** | -0.378*** | -0.273*** |
| | (0.118) | (0.087) | (0.075) | (0.149) | (0.113) | (0.096) |
| Nochild_cm | -0.928*** | -0.291*** | -0.229*** | -1.042*** | -0.199* | -0.233*** |
| | (0.081) | (0.066) | (0.061) | (0.143) | (0.103) | (0.085) |
| Child_rmnm | 0.150* | 0.126** | 0.097* | 0.099 | 0.087 | -0.019 |
| | (0.079) | (0.059) | (0.049) | (0.096) | (0.075) | (0.061) |
| Parent_nl | -0.098 | -0.103* | -0.185*** | -0.001 | -0.085 | -0.166*** |
| | (0.081) | (0.060) | (0.054) | (0.096) | (0.073) | (0.059) |
| Parent_un | 0.001 | -0.101* | -0.039 | 0.082 | -0.066 | -0.006 |
| | (0.077) | (0.059) | (0.050) | (0.095) | (0.073) | (0.055) |
| Nation_partnr | | | | -0.061 | -0.223*** | -0.113* |
| | | | | (0.115) | (0.084) | (0.065) |
| # observations | 245 | 244 | 233 | 162 | 162 | 160 |
| # uncensored | 68 | 162 | 164 | 42 | 106 | 113 |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parentheses. *Age_40_59* (age between 40 and 59 years) is the reference group for the age dummies. The dummies indicating the migration status and whether or not the respondent has children are with respect to being a remigrant or nonmigrant with no children. *Parent_nl* and *Parent_un* are with respect to *Parent_sme*, indicating that the parents live in Suriname.

Table 4.5: Migration duration and education funding

| | (1) in 1 year | (2) in 10 years | (3) after retiring | (4) in 1 year | (5) in 10 years | (6) after retiring |
|---|---|---|---|---|---|---|
| | Coefficient | Coefficient | Coefficient | Coefficient | Coefficient | Coefficient |
| Gender | 0.058 | 0.024 | 0.056 | 0.065 | 0.017 | 0.058 |
| | (0.059) | (0.046) | (0.039) | (0.059) | (0.043) | (0.037) |
| Nation | | | | -0.152 | -0.202*** | -0.124* |
| | | | | (0.094) | (0.072) | (0.064) |
| Migration_ever | -0.483*** | -0.155*** | -0.277*** | | | |
| | (0.077) | (0.054) | (0.060) | | | |
| Age_24_30 | 0.041 | 0.118* | 0.129*** | | | |
| | (0.079) | (0.060) | (0.049) | | | |
| Age_31_39 | 0.243*** | 0.243*** | 0.165*** | | | |
| | (0.078) | (0.060) | (0.048) | | | |
| Age | | | | 0.023 | 0.015 | 0.009 |
| | | | | (0.103) | (0.061) | (0.077) |
| Years0_NL | | | | 1.039*** | 0.519*** | 0.553*** |
| | | | | (0.104) | (0.078) | (0.053) |
| Years1_5_NL | | | | 0.969*** | 0.724*** | 0.466*** |
| | | | | (0.123) | (0.089) | (0.069) |
| Years6_10_NL | | | | 0.603*** | 0.473*** | 0.379*** |
| | | | | (0.104) | (0.079) | (0.060) |
| Years11_20_NL | | | | 0.218** | 0.195** | 0.235*** |
| | | | | (0.108) | (0.076) | (0.059) |
| Fund_scholarsh | 0.327*** | 0.257*** | 0.200*** | | | |
| | (0.110) | (0.085) | (0.071) | | | |
| Fund_parent | 0.160 | 0.178*** | 0.052 | | | |
| | (0.075) | (0.059) | (0.049) | | | |
| # observations | 237 | 236 | 227 | 246 | 245 | 231 |
| # uncensored | 65 | 155 | 152 | 69 | 163 | 161 |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parentheses. Age_40_59 (age between 40 and 59 years) is the reference group for the age dummies. *Fund_scholarsh* and *Fund_parent* are with respect to *Fund_self*, which indicates that the education was mainly funded by the respondent or by studyloan. Migration duration of longer than 21 years (*Years21_nl*) is the referencegroup for the dummies measuring the migration duration (*Years0_nl, Years1_5_nl*, etc.).

Table 4.6: Education

| | (1) in 1 year | (2) in 10 years | (3) after retiring | (4) in 1 year | (5) in 10 years | (6) after retiring |
|---|---|---|---|---|---|---|
| | Coeffi-cient | Coeffi-cient | Coeffi-cient | Coeffi-cient | Coeffi-cient | Coeffi-cient |
| Gender | 0.127** | 0.022 | 0.066 | 0.169** | 0.051 | 0.101** |
| | (0.062) | (0.047) | (0.040) | (0.065) | (0.048) | (0.040) |
| Nation | -0.613*** | -0.438*** | -0.343*** | -0.605*** | -0.421*** | -0.328*** |
| | (0.080) | (0.060) | (0.066) | (0.089) | (0.064) | (0.062) |
| Age | 0.009 | 0.004 | 0.002 | 0.004 | 0.005 | 0.000 |
| | (0.036) | (0.018) | (0.023) | (0.017) | (0.016) | (0.002) |
| PhD | -0.101 | 0.011 | -0.184** | | | |
| | (0.137) | (0.102) | (0.086) | | | |
| Msc_tech | 0.007 | 0.067 | -0.099* | | | |
| | (0.084) | (0.063) | (0.058) | | | |
| Msc_medic | -0.045 | 0.089 | -0.018 | | | |
| | (0.091) | (0.067) | (0.059) | | | |
| Msc_social | -0.134 | -0.009 | -0.136** | | | |
| | (0.088) | (0.068) | (0.063) | | | |
| Physical_task | | | | 0.114 | 0.120* | 0.063 |
| | | | | (0.089) | (0.065) | (0.053) |
| Shortrep_task | | | | 0.054 | 0.080 | 0.042 |
| | | | | (0.075) | (0.055) | (0.045) |
| Manage_task | | | | 0.140* | 0.121** | 0.114** |
| | | | | (0.078) | (0.058) | (0.049) |
| Contact_student | | | | 0.053 | 0.070 | 0.030 |
| | | | | (0.089) | (0.064) | (0.054) |
| Contact_patient | | | | -0.049 | -0.058 | -0.033 |
| | | | | (0.075) | (0.057) | (0.048) |
| Contact_client | | | | 0.187* | 0.163** | 0.141** |
| | | | | (0.107) | (0.078) | (0.167) |
| Contact_supplier | | | | 0.021 | -0.115* | -0.058 |
| | | | | (0.803) | (0.063) | (0.052) |
| Math_solving | | | | -0.027 | -0.002 | 0.011 |
| | | | | (0.077) | (0.057) | (0.048) |
| # observations | 238 | 237 | 226 | 207 | 207 | 211 |
| # uncensored | 66 | 156 | 160 | 59 | 135 | 147 |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parentheses. The academic degrees are with respect to *Bsc_HBO_Other*, indicating respondents who have a Bachelor or vocational degree or another kind of tertiary education instead of an MSc university or PhD degree.

Table 4.7: Country attractiveness

| Variable | (1) in 1 year Coeffi-cient | (2) in 10 years Coeffi-cient | (3) after retiring Coeffi-cient | (4) in 1 year Coeffi-cient | (5) in 10 years Coeffi-cient | (6) after retiring Coeffi-cient |
|---|---|---|---|---|---|---|
| Gender | 0.091 | 0.017 | 0.044 | 0.126* | -0.005 | 0.048 |
| | (0.066) | (0.045) | (0.036) | (0.071) | (0.049) | (0.039) |
| Nation | -0.450*** | -0.250*** | -0.155*** | -0.437*** | -0.246*** | -0.200*** |
| | (0.087) | (0.057) | (0.051) | (0.106) | (0.067) | (0.063) |
| Age | 0.007 | 0.003 | 0.001 | 0.008 | 0.005 | -0.002 |
| | (0.024) | (0.011) | (0.006) | (0.041) | (0.018) | (0.012) |
| Salaries | -0.041 | -0.055** | 0.005 | | | |
| | (0.033) | (0.022) | (0.022) | | | |
| Safety | -0.061* | -0.015 | -0.051* | | | |
| | (0.036) | (0.023) | (0.028) | | | |
| Jobcontentment | -0.091** | -0.043* | -0.075** | | | |
| | (0.036) | (0.023) | (0.034) | | | |
| Place_children | -0.082** | -0.119*** | -0.062* | | | |
| | (0.039) | (0.035) | (0.034) | | | |
| Education_ children | | | | -0.039 | -0.057** | -0.036 |
| | | | | (0.036) | (0.026) | (0.029) |
| Work_opportun_ partner | | | | -0.159** | -0.126*** | -0.063 |
| | | | | (0.072) | (0.039) | (0.042) |
| Place_family_ partner | | | | -0.050 | -0.061** | -0.073* |
| | | | | (0.036) | (0.026) | (0.043) |
| # observations | 203 | 203 | 197 | 169 | 171 | 169 |
| # uncensored | 64 | 138 | 143 | 45 | 112 | 114 |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parentheses.

# 5

# How to gain brain for Suriname


## Abstract

This chapter investigates whether high skilled migrants of Surinamese origin would be willing to return to the home country if they were offered a remigration benefits package. We surveyed 209 highly educated individuals of Surinamese origin who live in the Netherlands. A quarter of them is willing to return to Suriname if they were offered a house, land property, and easy access to credit. Eliminating political interference in profession would even attract the majority. The willingness to accept the offer diminishes over time. The offer mostly attracts engineers to return to Suriname. Offering funds for research and innovation attracts health professionals as well. We also explore some other proposals and discuss the policy implications.



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## 5.1 Introduction

Acknowledging the importance of high skilled workers for a nation's welfare and economic development, global competition to entice the best and brightest the last two decades has increased. Whilst many OECD countries have taken several measures to facilitate high skilled immigrant workers in their countries with emerging countries such as China, India, and South Africa following their footsteps, developing countries, the greatest sufferers of brain drain, in general have remained passive. Political debate on facilitating Surinamese diaspora has started only recently (Government of Suriname, 2012). In 2014 the National Assembly of Suriname passed the PSA act[24], with the aim to strengthen the bond between Surinamese in diaspora and Surinamese in the home country[25] by providing the Card of Origin (PSA card) to foreigners of Surinamese origin. Holders of this card are allowed to stay in Suriname for six months and to work in this country without a permit[26]. Although this is a stepping stone to ease the access to Suriname, legislation or policies aimed at attracting the high skilled migrants of Surinamese origin are absent.

Governments in general follow two strategies to attract the highly skilled. The first one is easing the access through law making and the second is actively recruiting the highly skilled by facilitating them and offering them enticing packages, such as housing, subsidies, and higher salaries. The diaspora option, encouraging knowledge transfers between non-residents and residents of the home country, is another option that many countries follow. However, the amount of physical presence and face-to-face contact in the latter case might not be sufficient to attain the desired level of development in the home country (Mahroum *et al*., 2006).

The world's best and brightest are drawn towards advanced economies, in particular because of education and career opportunities, technological progress, higher income, and good life quality. Inasmuch as these virtues are scant in developing countries, governments here should try harder to entice the high skilled expatriates[27] to their country rather than only offering them a Card of Origin.

This chapter studies the feasibility of one attempt to do so by Suriname. We base our proposed policy on the incentive policies that South Korea introduced in the 1960's and on similar policies of other Asian countries. Previous research (Dulam & Franses, 2014, 2015b) has shown that high skilled migrants are drawn towards Suriname because of the family members living there, pleasant weather conditions, and the willingness to

[24] PSA stands for Personen van Surinaamse Afkomst and means: Persons of Surinamese origin.
[25] In this paper Suriname is referred to as the home country or the country of origin and the Netherlands as the host country or the destination country.
[26] The extension of the stay duration is possible in Suriname itself. The fee for the card is €100 for Europeans and US$120 for citizens of other countries. The card is valid for five years.
[27] We use the terms Surinamese in diaspora, migrants of Surinamese origin, or Surinamese expatriates interchangeably. These terms refer to individuals who were grown up in Suriname and migrated to a foreign country at a later point in time.

own property in the country of origin. They are pushed away mainly because of better work environment, education and career opportunities, and higher salaries abroad. The main areas of improvement needed to attract Surinamese migrants are: adequate work environments and salaries, the quality of higher education, including research and development and technological advancement, and facilitating household members along with the returning migrant (Dulam & Franses, 2014, 2015b). Regarding these areas of improvement we surveyed high skilled migrants of Surinamese origin living in the Netherlands to measure the potential of some policy measures. Because of the strong historical and cultural ties Surinamese has with the Netherlands we restrict our research group to residents of the Netherlands who are of Surinamese origin.

## 5.2 Literature review

Educated and skilled labour, also referred to as human capital, is the key element to foster economic growth. Without it the other two elements, capital investments and technological advancement, would be inconceivable. Advanced economies offer world class education and attract the best and brightest from all over the world. Human capital formation of migrants then benefits destination countries. Home countries may benefit through return migration of the highly skilled or through diaspora networks. Many countries have set up special schemes to actively recruit skilled expatriates (brain gain) and to foster diaspora networks (brain circulation).

South Korea experienced severe brain drain in the past. It was estimated that 80 to 90 percent of Korean students, scientists, and engineers emigrated in the early 1960's, especially to the United States of America (Yoon, 1992). In 1966 the government of South Korea, under President Chung-Hee Park, systematically started to repatriate the skilled nationals by establishing the KIST (Korea Institute of Science and Technology) and by making large investments in the industrialization sector. Additionally, the government offered returning scientists and engineers a package of material benefits, which included relocation costs (e.g. travel costs; also for the immediate family members), luxurious housing for free, subsidies for the education of their children, and subsidies for local transport (Yoon, 1992). The government also made large funds available for the KIST research projects on industrial innovation (Saxenian, 2005). Following the government, private companies also started to recruit Korean expatriates by especially offering them low interest (or even no-interest) long term loans.

Some other countries followed similar strategies. The upswing of Bangalore and Hyderabad as hi tech cities in India in the 1990's attracted skilled Indians from abroad. But the state also offered them incentives such as tax rebates, upscale residential communities, financial support in establishing business, and high salaries (Chacko, 2007; Khadria, 2004).

To attract outstanding scholars, China established the 100 Talents Programme in 1994. The initial goal of this programme was to recruit 100 outstanding scholars by the end of the 20th century. The programme, which continues today, offered scholars a chance to win 2 million Chinese Yuan (around 300,000 US dollars). Winners also received "new housing, a new laboratory, imported equipment, and a research team composed of graduate students and talented research staff with a home-based PhD" (UNDP, 2007, p. 9). The returnees were also offered professorship at universities in China notwithstanding their position overseas (UNDP, 2007). Other incentives provided by the Chinese government are: "housing discounts, imported cars, computers, free office or factory floor space, jobs for wives, special schools for the children, and residence permits for foreign passport holders, which allows them to come and go freely, without having to relinquish their foreign citizenship" (UNDP, 2007, p. 9). Other programmes in China are the Yangtze River Scholar Scheme and the One-Thousand-Talents Programme (Gafner & Loehr, 2010). In this programme individuals with a "full professorship or the equivalent in developed countries" are offered one million Chinese Yuan (around at 150,000 US dollars) to work in the home country.

The establishment of the Hsinchu Science Park in Taiwan in 1980 attracted high technological companies and skilled return migrants. Low interest loans, income tax breaks, renewed R&D equipment, and low cost land, were among the financial incentives given to high skilled return migrants (UNDP, 2007). However according to Saxenian (2005) large investments in the capital venture industry were necessary to bridge the gap between high skilled return migration and economic development when the Hsinchu Science Park experienced slow growth.

Malaysia's government likewise provides an incentive package to their returning nationals. The package includes tax relief on personal properties, education incentives for the migrants' children, and permanent residency or citizenship including for the spouse and children (UNDP, 2007). Usually the spouse of the expatriate is also highly educated and in employment abroad, which is why it is important to make work permits available for both spouses in the home country (Papademetriou & Sumption, 2013).

The pitfall of facilitating returning migrants generously is that non-migrants may feel discriminated or that they would also may want to emigrate in order to enjoy the benefits of return migration. To avert the first dilemma it is important to inform the nation's citizens of the advantages of skilled migration and what the deliberations behind the return migration policies are. Secondly, if the recruitment policy encourages others to emigrate as well, the home country will benefit from higher skilled returning migrants. Moreover the government can limit the generous return migration packages only to the best and brightest individuals, who may win remigration packages (such as the 100 Talents Programme) on the basis of the most innovative ideas on research and development. Furthermore it is expected that the presence of highly skilled workers will create positive externalities (e.g. improvement in education, health, and industrial sector), which will be to the benefit of the whole population of Suriname.

## 5.3 Migration policies of Suriname and the Netherlands

The relationship between Suriname and the Netherlands dates back to 1667 with the acquisition of Suriname from the British by the Dutch naval commander Abraham Crijnssen. Yet the Surinamese citizenship originated 40 years ago on the Independence Day, the 25th of November 1975. Suriname and the Netherlands signed the "Toescheidingsovereenkomst", a convention that regulated the citizenship of the residents from Suriname on this day. Article 5, sub 2, stipulated that Dutch citizens of Surinamese origin may return to Suriname at any point in time, that this group would be treated equally as Surinamese, and that by residing for two years in Suriname they would be granted the Surinamese citizenship. This last clause would entail the renunciation of the Dutch citizenship. As citizens risked becoming stateless, since the second half of the 1980's the second sub of article 5 was no longer used by neither governments (Staten-Generaal, 1995). In 1994 this clause was withdrawn from the convention to much disgruntlement of the Association of Surinamese Dutch (Vereniging van Surinaamse Nederlanders, abbreviated as the VSN). The VSN surmised that this article would have provided Surinamese diaspora easier access and facilitation, such as land property entitlements, to live in Suriname (VSN & SP, 2009). Since 1980 citizens of both countries are required a visa to enter each other country's territory (Tractatenblad van het Koninkrijk der Nederlanden, 1980). As of 25 November 2011 the visa to enter Suriname for the purpose of family or tourist visit has been replaced by the Tourist card, which can be bought without much ado at Schiphol airport for 25 US$ or 20 Euro's. A visa is still required for visits with other purposes. In 2014 the Surinamese parliament enacted the PSA law enabling foreigners of Surinamese origin to enter Suriname without a visa and or a work permit[28].

Meanwhile the parliament of Suriname reckons to grant foreigners of Surinamese origin who are considered to be of national interest the country's citizenship. When adopted, the new bill "Wet aanstelling personen om redenen van staatsbelang" may result in dual citizenship for specific individuals of Surinamese origin (Surinaamse Voetbal Bond, 2014; Starnieuws, 2014). Although the bill might also be applied to high skilled persons, it is primarily aimed at attracting Dutch professional footballers to play the World Championship for Suriname[29] in the future. As for the rest no particular policy or law has been adopted to attract highly skilled migrants to Suriname.

The Netherlands on the other hand encourages the entrance of high skilled migrants and researchers from around the world in several ways. Since 2004 a high skilled immigrant, defined as an individual with a minimum gross year income of €46,541 (or €34,130 if younger than 30 years) who has obtained a work contract with an employer in

[28] A decree of 1984 already stated that foreigners of Surinamese origin did not need to apply for a permit to work in Suriname (Decreet Werkvergunning Vreemdelingen, 1981).
[29] This draft bill is quite disputable as accepting the Surinamese citizenship might result in the relinquishment of the Dutch citizenship according to the Dutch jurisdiction (Brinkman, 2015).

the Netherlands, may enter the Netherlands without a work permit. Under a fast procedure the Dutch Immigration Naturalisation Service (IND) grants high skilled migrants a residence permit within 2 weeks (which normally may take 2 months) and the migrants' immediate family members may come along. Moreover, the income criterion does not apply to individuals who have a PhD or postdoctoral position at a research or education institute (OECD, 2008). The Netherlands Organisation for Scientific Research, the government's institution in charge with the implementation of policies regarding the movement of researchers, provides support to international researchers. The support includes facilities, subsidies (such as the Visitors Travel Grant to finance to foreign researchers' stay in the Netherlands), and social and cultural support (such as informing and guidance through internet) for international researchers. Furthermore under the 'zoekjaar afgestudeerde' and the 'regeling hoogopgeleiden' arrangements international students and graduates are allowed to look for a job in the Netherlands for a whole year after obtaining tertiary education in this country (Nuffic, 2013).

## 5.4 Skilled labour shortage in Suriname

The last three censuses of Suriname were held in 1980, 2004, and in 2012. According to the 2012 census only 6% of the population of Suriname (of 15 years and older) is highly educated[30] (ABS, 2013b), compared with 5% in 2004, and 4% in 1980 (see Appendix 5.B). By comparison this percentage was 28% for the Netherlands in 2012 (cbs.nl).

In 1980 there were 178 doctorate degree holders in Suriname (ABS, 1992). Although this statistic cannot be found in the later censuses, anecdotal evidence suggests that the current number of doctorates in the country is much lower. The estimate for the number of lecturers with a doctorate degree at the university of Suriname anno 2015 is around 20, which is less than 10% of the total number of university lecturers. In 2013 the Faculty of Social Sciences of the University of Suriname had 12 doctorates (Leeuwin, 2013), while the university had much more professors and doctorate degree holders in the past (see for example Werners, 1995; Oostburg, 1995; and Sedney, 2005).

Recent information on the supply and demand of skilled labour in Suriname is not available. An extensive study was carried out in the early 1990's by Stichting Planbureau Suriname and another in 2002 by Jack Menke. According to Stichting Planbureau Suriname (1996) in the period 1980-1995, 40% of the highly educated civil servants, 20% of the medical specialists, and 43% of the trained teachers of Suriname left the country. Brain drain entails skilled labour shortage in the home country. Using robust econometric analysis Ooft (2012) found that the university graduation ratio[31] of Suriname did not have a significant effect on its economic growth. One explanation might be that emigration has

[30] A highly educated individual here is defined as an individual who has completed university of higher vocational education (in Dutch: Hoger Beroeps Onderwijs (HBO)).
[31] The university graduation ratio in this study was the number of yearly graduates divided by the tertiary schooling population.

a negative effect on the graduation rate of the university (Dulam & Franses, 2015a), and hence reduces the capacity to bolster economic growth.

Menke (2002) surveyed 186 companies and organizations of Suriname to assess their need for high skilled labour. 42.5% expressed their need for high skilled labour. The average number of needed skilled personnel was 3.5 per institution while 13% of the institutions needed 5 or more skilled personnel. The most demanded were occupations in economics and management (42% for companies and 23% for NGO's, the government and the university). 17% needed technical skilled labour (19% of the private sector and 10% of the non-private sector). 11% needed biological or medical skilled labour and 26% needed skilled labour in social sciences.

According to the health sector plan 2011-2018 of Suriname (Ministry of Public Health, 2011, p. 68) there is a shortage of certain medical specialists (anaesthesiologists, surgeons, and specialists in disciplines such as trauma, infectious diseases, or geriatrics). The report states (2011, p. 69): "The loss of skilled labour due to out-migration has been significant, with the Netherlands remaining the preferred destination. The external migration of skilled professionals is affecting several sectors of the society, particularly health and education, resulting in acute shortages of human resources and the deterioration of some public services." The report also acknowledges that human resource training in the health sector is deficient as there is "no strategic health manpower planning or dialogue between the supply (the university) and the demand side (Ministry of Health)". The medical faculty of the university admits only 30 students per year. According to Marthelise Eersel, the executive director of the Ministry of Public Health of Suriname, there is a shortage of medical specialists. The emergence room of one of the hospitals needs 25 medical doctors and 60 medical specialists. The shortage is temporary filled in by physicians from the Philippines and the Netherlands (Pinas-Agodeba, 2015). Skilled labour shortage is also present in the oil and mining sector (The Economist Intelligence Unit, 2012). In present day the need for recruitment policies to attract the highly skilled has become indispensable.

## 5.5 Methodology

### 5.5.1 Subjects for study

To measure the potential of policies to reverse brain drain we carried out an online survey, entitled: Brain gain policy survey. Our population consisted of individuals of Surinamese origin who completed senior secondary education (high school) between 1976 and 2006 in Suriname, have at least some tertiary education, and now live in the Netherlands. In the first week of February 2015 we pretested the survey. After some corrections we distributed the survey in the second week. We were able to trace back around 700 former high school students of Suriname. At first our target group was to survey the former top

students. We sent the survey to the 110 former top students who also took part in our previous survey (Dulam & Franses, 2014, 2015b). After two weeks this group received a reminder to fill in the survey. The response was 46, a rather high response rate but not in absolute terms. Hence we expanded the target group to not only former top students, but simply to former students who graduated from a high school in Suriname. In addition we invited[32] 600 more individuals to take part in the survey. Some respondents disseminated the survey in their network, though it was not possible to assess the exact number of eligible invitees. In the end we received a response rate of 209.

### 5.5.2 Survey design

The survey includes questions on the background characteristics of the respondents. These are: gender, age, migration duration, ethnicity, education level, country of birth, citizenship, occupation, whether the respondent has a partner and children, and the main migration motive. Table 5.1 in Appendix 5.A presents the relative frequencies for the categorical variables and Table 5.2 the descriptive statistics for the quantitative variables. The most important questions in the survey are:

*Offer 1:*
*"Imagine that the government of Suriname offered you a luxurious house in a gated community in Greater-Paramaribo (capital) or in the surrounding area, full education subsidies for your children up to and including high school in Suriname (with the option to choose between the Surinamese education system or the Dutch one), and parental care for your or your spouse's parents, would you return to Suriname?"*

*Offer 2:*
*"Imagine that in addition to the previous offer the government would provide you free land (1600 square meters) in Greater-Paramaribo or in the surrounding area and a mortgage of up to 80,000 (eighty thousand) EURO's with an interest rate of up to 7%, would you return to Suriname?"*

The answering options for these questions were at ordinal level, namely: 1) no, I do not want to return at all; 2) no, these provisions are not appropriate; 3) maybe; 4) yes, I would definitely return then, 5) I want to return, but these provisions are not necessary for me; and 6) other opinion. With hindsight the latter two options did not fit between the rest of the ordinal categories and hence were excluded from the forthcoming regression analysis, thus reducing the number of observations.

[32] In the third week of February 2015 the majority of the target group received an invitation on the social network website LinkedIn to accept a request to fill in a survey. In one month around 200 individuals accepted the request.

Apart from these we included a set of 11 propositions where on a 7 point scale respondents could indicate the extent to which certain provisions offered by the government would be decisive for them to return. Preceding these and the earlier mentioned two questions we asked the respondents on a 5 point scale how important several aspects were for them in order to return to Suriname. Table 5.3 contains the relative frequencies for these perceptions. Table 5.4 and Table 5.5 respectively, present the willingness to accept the offers and the extent that certain proposals might be decisive for the migrants to return.

Next we added questions to assess whether respondents are acquainted with the PSA law that was enacted in 2014 in Suriname. Since Suriname's independence from the Netherlands in 1975, this is the first time a law was passed with the purpose to ease migration flows from the Netherlands to Suriname. Furthermore the survey contains questions on how much and what kind of contact the skilled migrant has with the residents of the home country. Analogous to Gibson and McKenzie (2010) we included a set of 19 polar questions about whether respondents are involved in certain activities connected with Suriname, and a set of 7 open questions for respondents to indicate the value of the activities concerning money transfers. Our purpose with these questions is to measure the extent of diaspora networking and brain circulation (i.e. knowledge and other transfers) between the residents of the two countries. Table 5.6 presents the survey results concerning these activities.

### 5.5.3 Data-collection method

Every year the names of the graduates from the high schools of Suriname are published in the local newspapers. To construct our sampling frame–a list with the names of the high school graduates of Suriname between 1976 and 2006–we made use of newspaper archives, the internet, and a commemorative book. The forty years commemorative book of Mr. Dr. J.C. de Miranda Lyceum contains all the names of their graduates in the period 1966-2006.

As full names were not always available in the newspapers, we also made use of social network websites (mostly LinkedIn and Facebook). LinkedIn members often publish their curriculum vitae on the website, including the name of the high school and university they attended, and the name of the country and city they currently live in. LinkedIn groups related to Suriname were also useful in our exploration for more names.

Using the internet we managed to trace back at least a third of the former high school graduates. Most of them were on LinkedIn and Facebook. To take part in the 'Brain gain policy' online survey at Thesistools.com, we invited the former high school students of Suriname, who continued their tertiary education and currently live in the Netherlands[33].

[33] Around one in the fifteen traced former high school graduates live in North America and one in the thirty live in the Netherlands Antilles. A few live in Singapore.

### 5.5.4 Ethics of research design

We first explained the research goal to the survey invitee and asked to fill in the survey. Furthermore we ensured the respondents that the survey data will be held confidential. After the data collection all identifiable information was removed to safeguard the privacy of the respondents.

## 5.6 Results

### 5.6.1 Background of the respondents

We managed to survey 209 high skilled migrants of which 51% are women and 49% men. In terms of age, ethnicity, and education, the sample seems representative (see Table 5.1). 7% of the respondents are Chinese, 16% Creole, 37% Mixed (Multiracial), 35% Hindustani, 2% Javanese, and 2% have another ethnicity (mostly Caucasian). We compare the ethnicity distribution with population data. Although the ethnicity distribution of tertiary educated Dutch citizens with a Surinamese background is not available, using the municipalities' registers[34] Oudhof & Harmsen (2011, p. 51) assessed the ethnicities of individuals from the younger age group (25-35 years) and using the surnames they assessed the ethnicities of individuals from the older age group (45-55 years). The sample distribution does not differ much from the population distribution[35], except that the percentage for Creoles in the population is much higher (43.5%), which is not odd as in general many Creoles are also considered Mixed or vice versa. Furthermore we were unable to survey Maroons, but the percentage of this group in the population is very low (2.4%).

All respondents have at least some tertiary education. 95% of the respondents have completed their tertiary education. The Erasmus University Rotterdam and the Technical University Delft are the most preferred universities (see Figure 5.1 in Appendix 5.A). We surveyed engineers, medical doctors, business managers, consultants, and other professionals (see Figure 5.2). Their net-income ranges between 1000 and 22000 Euro's per month. The average net-income is 3683 Euro's per month (N=159; standard deviation=2433), while the median income is 3000 Euro's (Table 5.2).

77% of the skilled migrants were born in Suriname, of which 87% now have the citizenship of the Netherlands. 82% of the respondents live in an owner-occupied house ('koopwoning'), while 18% live in a rented house. Almost half of the respondents live

[34] Gemeentelijk Basisregister (GBA)
[35] The population distribution of ethnicity was: 6.2% Chinese, 43.5% Creole, 38.5% Hindustani, 5.3% Javanese, 2.3% Maroons, and 2.2% other ethnicity, and of 2% unknown.

with their partner and children in the house. Only a couple of respondents have their parents living with them.

The main reason to go to the Netherlands was for studying purposes. 86% of the respondents went to the Netherlands to study. Some 4% emigrated because their parents or life partner moved to the Netherlands. Around 5% left because of the political situation in the 80's in Suriname[36], of which some left because the University of Suriname was closed for one year after the December murders in 1982.

### 5.6.2 Response to the first and second offer

The main goal of the survey was to find out whether the high skilled migrants would be willing to return to Suriname if they were offered hypothetically a remigration package. As explained in section 5.5.2, there were two main offers proposed. The results regarding these questions are in Table 5.4. Firstly, if the government of Suriname would offer the high skilled migrants, a luxurious house in a gated community, education subsidies for their children, and parental care for accompanying parents (offer 1), then 22% of them would definitely want to return to the home country. 39% indicated that they would possibly accept the offer and thus return. This implies that the majority of the respondents perceived the first offer as a reasonable offer. 12% does not want to return at all. 11% of the respondents indicated that this offer is not appropriate. Their return decision depends more on broader social, economic, and political factors and for some their career opportunities. 12% indicated that they do want to return, but that the offer was not needed for them to make them return.

Secondly, if additional to the first offer the government would offer the high skilled migrants a piece of land (of 1600 square meters) in Greater-Paramaribo or in the surrounding area, and a mortgage of up to 80,000 (eighty thousand) EURO's with an interest rate of up to 7% (offer 2), then 18% of them would definitely want to return to Suriname. 38% indicated to possibly accept the offer. We see here similar responses as to the first offer. However the second offer seems less appealing than the first one. An interest rate of 7% in present day might seem too high for Europeans, but in Suriname this is the lowest interest rate and is applied to social groups.

### 5.6.3 Response to the remaining proposals

Here we briefly analyse how the respondents perceived the 11 separate proposals. We assessed whether certain provisions offered by the government would be decisive for the migrants to return to Suriname (see Table 5.5).

[36] Military coup led by Desi Bouterse on 25 February 1980, followed by protests, the closing of the university in 1982, and the murders of 15 prominent Surinamese (most of them highly educated) on 8-9 December 1982.

A quarter of the respondents would be willing to return if the government would offer the respondents luxurious housing, land property, easy access to mortgage, or education subsidies for the children's education. Around 20% would return if the government would offer funds for research and innovation, or if salaries paid in Suriname were at least 70% higher than what non-migrants would normally earn. However the most important action that the government of Suriname could take would neither cost the country money nor time: if the government could guarantee that no political interference would take place in performing one's job, the majority (55%) of the high skilled migrants would return to Suriname.

When adding up the last three answering categories (last three columns of Table 5.5) we observe that the incentives with respect to luxurious housing in a safe environment, land property, mortgage, and funds for research and innovation attract the majority to Suriname. That is around 100 high skilled return migrants. Guaranteeing that no political interference would occur when doing one's job, even attracts 71% of the high skilled expatriates. Paying travelling and relocation costs for skilled migrants and their close family members and providing parental care are not very important for the return decisions of the majority.

### 5.6.4 Other conditions

We asked the respondents the open-ended question which other conditions were necessary in order to return to Suriname. One respondent wrote: "for me progressiveness in the field of technology and education for the entire population is much more important than privileges for highly skilled returnees". Career opportunities are one of the most important elements to consider (in our survey for 92% of the respondents). The same applies for the life partner of the migrant as most of the time the life partner is also highly educated. Available post-graduate education and public transport for the children to attend school were also among the recommendations made by the respondents.

The highly educated migrants also relate the possibility of their return to prospective assurances, such as accumulated pension and adequate health insurance. Referring to local news about health care in Suriname, one respondent stated: "I must not think of getting sick in Suriname". The hospitals in Suriname alarmed the government in March 2015 that it could no longer pay its bills and that certain basic drugs were not available (Starnieuws, 2015). Optimal health is one of the basic necessities for many high skilled migrants. The same applies to safety and security, that is, crime prevention as well as traffic safety. The quality improvement of the health sector is important for 90% of the respondents when considering return migration and almost everyone indicated that a safe living environment is important.

Although no questions were asked about political or ideological beliefs, some respondents remarked that due to his past, the incumbent President of Suriname, D. Bouterse, is not the appropriate person to represent Suriname internationally.

With respect to the corruption perception index, Transparency International ranks Suriname on the 100th place among a list of 175 countries and territories. While the Netherlands is among the top 10 (8th place). Unsurprisingly, respondents also mentioned the fight against corruption as an important condition. One respondent was also concerned about the deforestation and the negative implications of gold mining in the interior of Suriname.

"Moving to a country like Suriname and not prepared to compromise, stay rather where you are", according to one opinion. The highly skilled migrants are aware that their compatriots may not be excited to welcome them and that creating beneficial packages for the remigrants might create animosity between the two groups. Yet some respondents do not perceive this as problematic. The highly skilled migrants may bring a wealth of knowledge and experience along as they have been working for years in a well organised work environment, which may benefit the home country as a whole. Surinamese in diaspora can also make use of their network in the Netherlands to bring positive change in Suriname. Hence both groups (Surinamese in diaspora and Surinamese) can support each other in favour of the development of Suriname, but the will and acceptance of both groups are essential.

To avoid falling prey to cronyism, political interference, and bureaucracy, one respondent remarked that government interference in remigration should be avoided at all and that the government should instead support the private sector to ease the recruitment of the highly skilled. Apart from the material benefits, immaterial virtues are also decisive for return migration. Attracting high skilled migrants to Suriname might succeed when the rule of law is strong in the home country.

### 5.6.5 Brain circulation

Brain circulation refers to the circulation of knowledge between the expatriates and the home country's citizens through short visits or digital communication. For instance Indian and Chinese immigrants working in Silicon Valley, who make up a quarter of the scientists and engineers in that region, temporarily return home to establish business relationships, invest, transfer knowledge, promote technology, or to serve as policy advisors to the government (Saxenian, 2005).

Table 5.6 gives an overview of the activities connected with Suriname in which the respondents are involved. Only 3% of the respondents never went back to Suriname. 42% (N=201) visit the country at least once a year and 30% once every two years. 11% of the skilled migrants travelled to Suriname for their work. 58% travelled for other reasons, most probably to visit family or for holidays. On average the visit lasts three weeks.

A quarter of the respondents took part in congresses organized by Surinamese in diaspora in the Netherlands, which demonstrates their interest in Suriname. 16% took part in events or congresses organized in Suriname. Furthermore, 22% of the respondents advised Surinamese about studying abroad, especially in the Netherlands, and 20% advised Surinamese about working in the Netherlands or abroad.

To attract foreigners of Surinamese origin the government of Suriname introduced the PSA card in 2014. 24% of the skilled migrants are not acquainted with the card at all, while 35% have heard about it, but are not acquainted with it. No one yet holds the PSA card. Only 20% of the Dutch citizens of Surinamese origin intend to apply for the card, while the rest neither hold the card nor intend to apply for it. When asked whether the respondent believes that the PSA card will bring extra opportunities for Suriname, a quarter of the skilled migrants responded positive. Easier access to the home country is the most prevalent advantage that was stated. Some wrote that acquiring land property may become easier and that working in Suriname or exchanging knowledge (consulting and education) may become easier. The majority (58%) however did not believe that the PSA card will bring opportunities for Suriname.

### 5.6.6 Financial flows

Financial flows, such as remittances sent by expatriates and foreign investments, can benefit the home country (Mahroum *et al.*, 2006). In this section we briefly discuss the financial flows from Surinamese in diaspora to the home country.

In the last 12 months 27% of the respondents remitted money to their family and acquaintances in Suriname and 40% sent in kind remittances. The total value of the remittances for the 42 respondents who reported about this was 134,000 Euro's for the last 12 months. Excluding the outliers, the mean amount sent per person was 1418 Euro's and the median amount was 1000 Euro's. According to a survey held by Unger and Siegel (2006) among 100 Surinamese living in de capital city, most of the persons received remittances up to 500 Euro's per year. Our survey results indicate that as theory predicts (Bollard *et al.*, 2011) high skilled migrants remit more than what normally would be the case. The total value of the goods sent by the 64 persons who reported about this was 59,000 Euro's. Excluding the outliers, the mean value of the goods sent was around 320 Euro's per person for one year. The median value was 200 Euro's. Although sending goods instead of money is more common, the mean value of money sent is 4 times the value of goods.

The majority of the respondents (88%) buy Surinamese foods and goods in the Netherlands. The total amount spent on this in one year was 52,000 Euro's; on average 430 Euro's per person per year. 10% of the respondents ordered goods from Suriname. Involvement in business with Suriname is rather low. 13% of the respondents exported goods to Suriname, whereas only 4% invested in a business start-up or helped a

Surinamese business to make a trade deal. The total value of the goods exported to Suriname was 12,400 Euro's for 22 respondents, and the total value of the trade deals was 2,077,500 Euro's.

13% of the respondents helped Surinamese financially to work or study in the Netherlands. The value of the financial help ranged from mostly 500 to 12000 Euro's. Excluding the outliers, the average was around 1300 Euro's per person per year.

## 5.7 Determinants willingness to accept return migration offer

### 5.7.1 Modelling the willingness to accept the offers or proposals

In this section we discuss which type of skilled migrants are attracted towards which brain gain policies. As the policy variables are measured on ordinal scale we turned to the ordered probit regression model technique (Franses & Paap, 2001). Güngor and Tansel (2008) performed this technique to assess the determinants of the return intention of Turkey's students residing abroad.

Regarding the first and second offer the 4 point scale was recoded to a 3 point scale, where 1 and 2 were categorized as 1, that is, not attracted to the offer (the respondent basically says no to the offer), 2 indicates that the respondent might accept the offer but is not certain, and 3 means that the respondent is willing to accept the offer. The 7 point scale proposals were scaled down from 1 to 3, where 1 indicates that the migrant did not perceive the proposal as to be decisive for return migration, 2 indicates that it is possibly decisive, and 3 indicates that the migrant perceived the proposal to be decisive for his or her return.

We construct our model as:

$$Y_i^* = X_i^{'}\beta + \varepsilon_i \qquad (5.1)$$

where $Y_i^*$ is the unobserved willingness to accept the hypothetical offer of the government. $X_i^{'}$ represents a vector of indicators for the background characteristics, the affinity or connectedness the migrant has with Suriname, and how much importance the migrant attaches to certain provisions in Suriname. $\beta$ is a vector of parameters that needs to be estimated in order to assess to factors associated with the willingness to accept the offer, and $\varepsilon_i$ is the error term with a variance set equal to 1 (Franses & Paap, 2001, p. 116).

As *Y** is an unobserved continuous variable, while we observe *Y* (the dependent variable) in discrete form, we have to make use of threshold parameters to model *Y*:

$$Y_i = \begin{cases} 1 & \text{if } \alpha_0 < Y_i^* \leq \alpha_1 \\ 2 & \text{if } \alpha_1 < Y_i^* \leq \alpha_2 \\ 3 & \text{if } \alpha_2 < Y_i^* \leq \alpha_3 \end{cases}$$

As is usual, we set $\alpha_0 = -\infty$ and $\alpha_3 = +\infty$.

We focus on identifying the determinants of the willingness to accept Offer 1 and Offer 2, and on proposals that did not coincide with the offers and that were well received by the majority of the sample. These were the willingness to return if: 1) the government would provide funds for research and innovation (proposal 5), 2) the government would guarantee that no political interference would occur in performing one's job (proposal 11), and 3) salaries paid in Suriname should at least be 70% higher than what normally would be paid to a non-migrant (proposal 3). The independent variables can be categorized in three groups:

1. Background characteristics. These are: the migration duration, gender, living alone or with partner and or children, ethnicity, the educational degree, and the initial migration motive.
2. The affinity or connectedness with the home country. The indicators here are: sent remittances, contact with the home country, financial help or advice provided to citizens of the home country, and the perception about the PSA card.
3. The extent of importance attached to several provisions in Suriname when considering return migration. Examples are the importance of land or house ownership in Suriname, higher salaries paid to returning migrants, research funding, higher quality of the University of Suriname, and easy access to credit. The importance was measured on a five point scale: where 1 = not important at all, 2 = not important, 3 = neutral, 4 = important, and 5 = very important. Analogously to Güngor and Tansel (2008) the so-called importance variables were transformed to indicator variables, where 4 and 5 were coded as 1 (important) and 1, 2, and 3 were coded as 0 (not important).

### 5.7.2 Determinants willingness to accept Offer 1 and Offer 2

We first focus on the offer containing the most migration benefits: a luxurious house in a gated community, parental care, education subsidies for the children up until high school, a piece of land, and a mortgage (Offer 2). These facilities should make it possible for migrants to start their life almost immediately upon return to Suriname. Using Eviews we applied the ordered probit regression to identify the determinants of this offer, that is, we want to know which kind of respondents are more willing to accept this offer so that they would return to Suriname.

Table 5.7 presents the regression results. The Pseudo R-squared to predict Offer 1 is 0.18, and 0.24 for Offer 2. The LR statistic for both regressions is significant at the 1%

level. Regarding the two regressions we can predict respectively 58% and 59% of the observations correctly. The model seems to fit the data well.

Using the results of column 2 of Table 5.7 we estimated the probability that the high skilled migrant would be willing to accept Offer 2. To do this we filled in the value 1 for the significant indicator variables, the mean value for the significant quantitative variables, and the insignificant parameters were set equal to 0. In Figure 5.3 the probability to accept the offer is given for migrants who have an MSc degree in technical science, have affinity with Suriname, and who perceive several provisions to be important when considering return migration. The migration duration and the ethnicity are held variable here. The willingness to accept Offer 2 decreases as the migrant stays longer in the Netherlands.

The three largest ethnic groups of Surinamese origin are significantly more likely to accept Offer 2 than the reference group which is made up of the minority ethnic groups of Surinamese origin (Javanese, Chinese, and Caucasians). Given that the other factors remain constant, the probability to accept Offer 2 and to return between 1 and 5 years after emigration is on average 27% for the Multiracials, 25% for the Hindustanis, 18% for Creoles, and only 4% for an individual from a minority ethnic group.

The migration duration negatively affects the willingness to accept the offer (Offer 2, which includes Offer 1). In column 2 the coefficient is significant at the 10% level. Age and migration were highly correlated (see Table 5.9). Older migrants may have resided for a longer period in the Netherlands, and hence may have become settled there. This result is in accordance with several other studies, such as Güngor and Tansel's study (2008). From Table 5.9 it is evident that most of the migrants went to the Netherlands in their early twenties, which is not odd as this is the age for starting tertiary education and as indicated earlier: education was the main motive for the majority of respondents.

Offer 1 in particular attracts MSc degree holders in social science and in technical science (Table 5.7), which implies that Offer 1 triggers a positive selection of return migrants. These may include professionals in the field of management, business, and economics, lawyers, and engineers. At the 5% significance level and holding other factors constant we observe that MSc degree holders in technical science are significantly more likely to take on Offer 2 than migrants with a BSc or vocational degree (or those with unfinished studies). For instance the probability to accept the offer between 1 and 5 years after emigration is around 17% higher for Multiracials who have an MSc degree in technical science than those who do not have this degree.

High skilled migrants who consider it to be important to own a piece of land and to earn higher salaries in Suriname are significantly more willing to accept the offers than migrants who do not consider these aspects to be important. The majority of the respondents consider these provisions important in their return migration decision.

Skilled migrants who have some affinity or connectedness with Suriname are also more likely to accept this offer. Migrants who have more contact with their family in Suriname and who send remittances to the home country exhibit a higher probability to

accept the offer. However, individuals who travel often (at least once a year) to Suriname have a lower probability to accept the offer than individuals who travel less often. Individuals who visit Suriname with respect to their work may travel more often to the country. These individuals may prefer to exchange knowledge from the destination country instead of getting established in the home country.

### 5.7.3 Determinants willingness to accept other proposals

Table 5.8 presents the ordered probit regression results for the determinants of the three other proposals, that are, 1) providing research funds, 2) guaranteeing no political interference, and 3) offering higher salaries to skilled migrants. The Pseudo-R-squared, LR Statistic, and the percentages for correctly predicted show that the regressions fit the data well.

Ethnicity is no longer significant. We see that individuals, whose main motive to migrate to the Netherlands was to study, are significantly more likely to accept the proposals and to return than those who left for another reason. The importance of landownership is also significant across the three regressions.

*Willingness to accept proposal 5 regarding research funds*

The charts in Figure 5.4 present the probability to return to Suriname if the government would provide funds for research and innovation to the returning migrants. We used the parameter estimates of the first column of Table 5.8 to graph Figure 5.4. The insignificant parameters were set to 0. Here again we observe that the likelihood to accept the proposal decreases over time, while the likelihood to decline the proposal increases.

Except engineers (MSc degree holders in technical science) now health professionals are also attracted to Suriname if the government would make funds for research and innovation available to the skilled migrants. Assuming that migrants consider all the provisional factors named in Table 5.8 important and that they have affinity with Suriname, we see that the probability to accept the proposal and return to Suriname is around 80% for MSc degree holders in medical and technical science during the first 10 years of residing in the Netherlands. For individuals who hold another degree the probability to accept the proposal decreases to around 55% during the first 10 years of residing in the Netherlands. For individuals who do not have affinity with Suriname the probability to accept the proposal becomes much lower: around 40% lower for engineers.

We furthermore see that skilled migrants who consider landownership in Suriname, higher salaries to be paid, the quality of the university, easy access to credit, and research funds to be important in their return decision, exhibit a higher likelihood of accepting the proposal compared with individuals who do not consider these factors to be important.

High skilled migrants who have affinity or a connectedness with Suriname in terms of attending events or congresses in the Netherlands about Suriname, and helping Surinamese financially to work or study abroad, are significantly more willing to accept the proposal than those who do not exhibit such connectedness.

*Willingness to accept proposal 11 regarding no political interference*

The second column of Table 5.8 presents the regression results regarding the willingness to return to Suriname if the government would guarantee that no political interference would occur in performing one's job.

This proposal is particularly interesting for skilled migrants who live with their children in the Netherlands. This group is significantly more willing to accept the proposal compared with skilled migrants who have a partner (and children). Skilled migrants with an MSc in technical science are significantly more likely to accept the proposal compared with migrants who enjoyed other tertiary education. The proposal furthermore attracts individuals who have affinity with Suriname, in terms of providing financial help to Surinamese to work or study abroad, consuming Surinamese foods and products in the Netherlands, and exporting goods to Suriname. Notice that individuals who consider the PSA card to be important for the development of Suriname are also more likely to accept the proposal.

*Willingness to accept proposal 3 regarding higher salaries*

The third column of Table 5.8 presents the regression results to determine the willingness to return if the salaries paid in Suriname would be at least 70% higher than what normally could be expected. Here we see that the negative coefficient for gender turns positive and significant at the 10% level, implying that skilled female migrants would be more willing to accept this proposal than the males. Generally women are paid less than men, which might explain why especially women are attracted to this proposal.

The PhD degree holders however are negatively selected by this offer, implying that BSc or vocational degree holders are significantly more likely to accept this proposal than PhD degree holders. The latter group generally earn high income and may therefore not be attracted towards this proposal.

Clearly individuals who consider higher salaries and landownership to be important in their return migration decision are more attracted towards this proposal than those who do not consider these factors important. Note that affinity with the home country does not matter when higher salaries would be offered to the skilled migrants.

## 5.8 Conclusion and policy implications

This chapter analysed which policies have the potential to attract high skilled Surinamese in diaspora to the home country. As structural policy changes (for example better socio-

economic and political climate) are not feasible without human capital, especially not in the short term, policies regarding remigration benefits packages were the main focus of this study. Developing countries need sufficient high skilled individuals in the first place in order to ensure work and education opportunities, strong rule of law (democracy), a well-developed industry sector, and adequate health care.

We surveyed 209 high skilled individuals of Surinamese origin who reside in the Netherlands and proposed several hypothetical offers to them in order to know whether they would return if they would receive several provisions or benefits. A fifth of the high skilled migrants would definitely want to return if they were offered luxurious housing in a gated community, education subsidies for their children, parental care for accompanying parents, land property, and a mortgage in Suriname. Adding up the high skilled migrants who may want to accept this offer but are yet uncertain shows that the majority is positive towards these hypothetical provisions. Even though the majority of the respondents consider higher salaries to be important in their return decision, many respondents are opposed towards the idea of treating return migrants preferential above non-migrants. They consider this as unfair and may rather want to avoid tensions between the returning migrants and the non-migrants. However if successful, the return of many high skilled migrants may bring positive externalities to the benefit of the country as a whole. Informing the non-migrants about the objectives of such policies may encourage the acceptance and the willingness to cooperate with each other.

Most of the high skilled migrants travel at least once every two years to Suriname. A quarter of the migrants remit money home and 40% send goods. The majority has frequent contact with their friends and family in Suriname, but not with business or work related contacts. Less than a quarter of the skilled migrants are involved in brain circulation activities (such as advising Surinamese, travelling to Suriname for work, or attending events or congresses organized by Surinamese (in diaspora)). The participation in trade related activities is rather low. The majority of the respondents are not well acquainted about the Card of Origin (PSA card) intended to ease the movement of persons between Suriname and the Netherlands, nor do they believe that the PSA card entails extra opportunities for Suriname.

As Surinamese in diaspora are not strongly involved in brain circulation activities and do not (yet) rely on the PSA card to exchange knowledge with the home country citizens, we expect that Suriname may gain more from actively recruiting high skilled Surinamese in diaspora through return migration offers than only offering a Card of Origin to this group.

In this chapter we also identified the characteristics related to the willingness to accept the offers. Providing a luxurious house, education subsidies, and parental care would particularly attract MSc degree holders in social science and technical science. Recruitment policies should focus on the younger skilled migrants or on individuals who are only a few years yet in the foreign country considering that the probability to accept the offers diminishes over time and approaches zero when residing for 30-40 years

abroad. As the majority migrate for tertiary education to the Netherlands, policy campaigns about working in Suriname can at best be provided at Dutch universities. Awareness advertisements may in particular display Multiracials, Hindustanis, and Creoles as they are mostly appealed to the offers, and also individuals with children. As having affinity or connectedness with the home country positively affects the willingness to take on the offers, awareness campaigns may also be useful at congresses related to the home country.

Implementing the proposal regarding funds for research and innovation may have good prospects for the technological and health quality advancement of Suriname as especially MSc degree holders in technical science and medical science are attracted to this proposal.

Incorporating safeguards to prevent political interference in one's job might be the most important step as this can attract at least half of the high skilled migrants. This can be done by disengaging job nominations from election results.

## Appendix 5.A Figures and tables

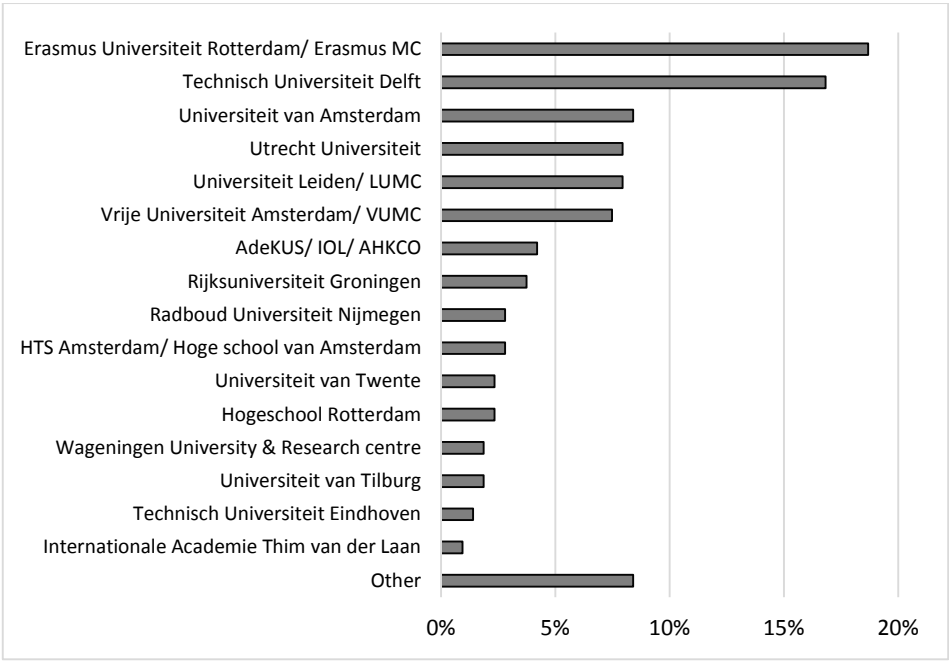


Figure 5.1: Institution where highest education level was achieved (in %)
N=207

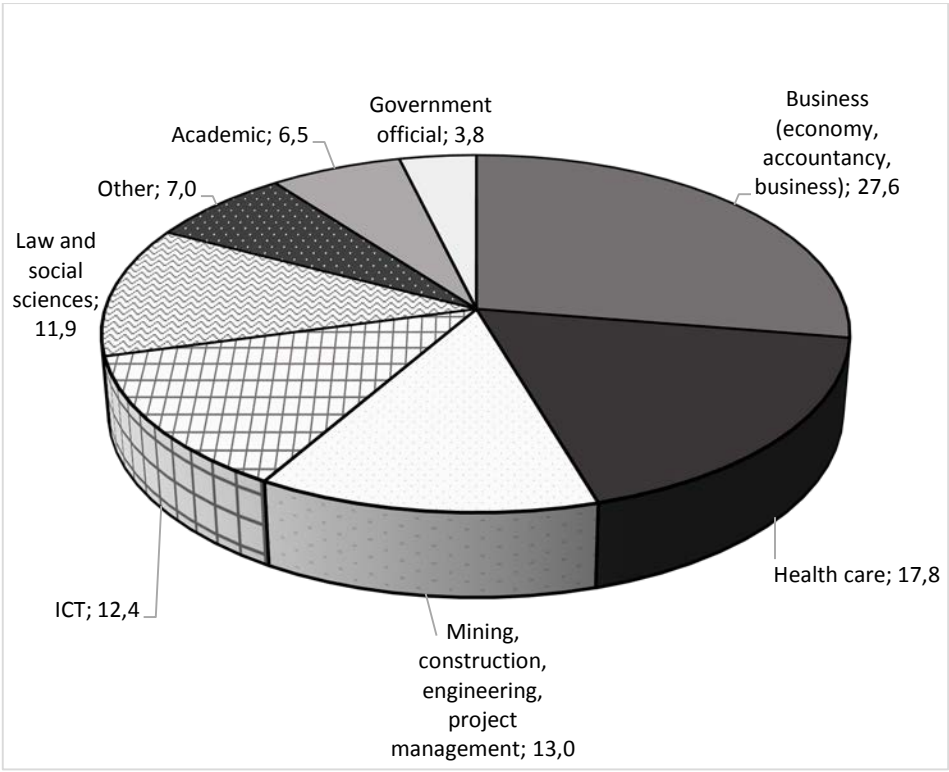


Figure 5.2: Occupation field of the respondents (in %)

N = 185

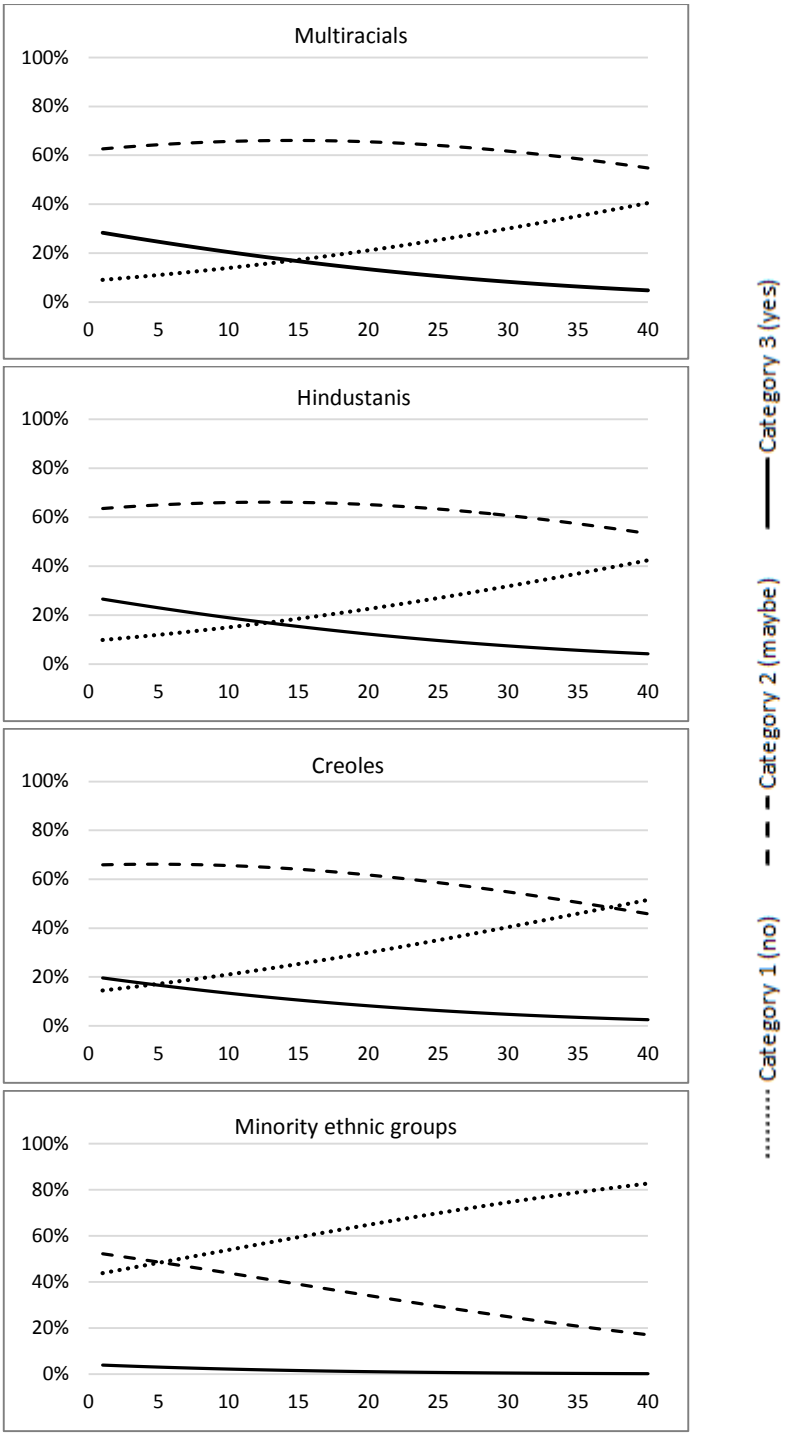


Figure 5.3: Willingness to accept Offer 2: housing, land, and other provisions

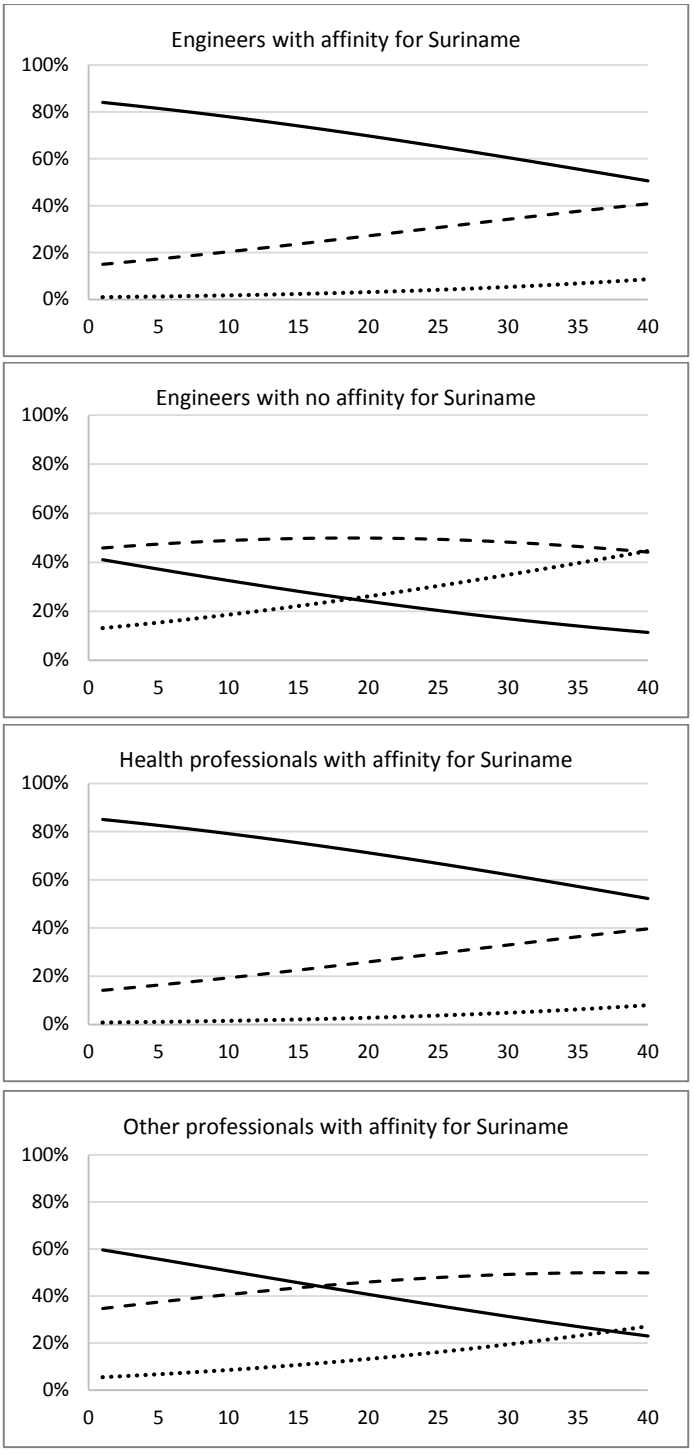


Figure 5.4: Willingness to accept Proposal 5: Funding for research and innovation

Table 5.1: Descriptive statistics categorical background variables

| Variable | Item | Percent | N |
|---|---|---|---|
| Gender | Female | 50.7% | 208 |
| | Male | 49.3% | |
| Ethnicity | Chinese | 6.7% | 208 |
| | Creole | 16.3% | |
| | Mixed | 37.0% | |
| | Hindustani | 35.1% | |
| | Javanese | 2.4% | |
| | Other | 2.4% | |
| Agegroup | 26-30 years | 14.4% | 208 |
| | 31-39 years | 26.0% | |
| | 40-49 years | 37.0% | |
| | 50-61 years | 22.6% | |
| Citizenship | Suriname | 8.7% | 183 |
| | Netherlands | 90.7% | |
| | Other | 0.6% | |
| Living | alone | 22.5% | 187 |
| | with partner | 23.5% | |
| | with children | 8.6% | |
| | with partner and children | 45.5% | |
| Residence | Rent apartment | 17.7% | 186 |
| | Owner occupied | 82.3% | |
| Highest degree | MSc social (incl. postgraduates) | 38.0% | 208 |
| | MSc technical | 23.1% | |
| | MSc medical (incl. specialists) | 12.5% | |
| | PhD | 8.1% | |
| | Vocational degree (Bachelor or Master) | 9.6% | |
| | BSc degree (social, technical, medical) or unfinished | 8.7% | |
| Occupation field | Academic | 5.7% | 209 |
| | Business (economy, accountancy, business) | 24.4% | |
| | Mining, construction, engineering, project management | 11.5% | |
| | Medical | 15.8% | |
| | ICT | 11.0% | |
| | Law and social sciences | 10.5% | |
| | Government official or other | 9.6% | |
| | Unknown | 11.5% | |

Table 5.1 (continued)

| Variable | Item | Percent | N |
|---|---|---|---|
| Migration motive | Education (including career) | 85.8% | 190 |
| | Because of parents or spouse | 3.7% | |
| | Political situation | 4.7% | |
| | Other reason | 5.8% | |

Table 5.2: Descriptive statistics quantitative variables

| Variable | Mean | St. dev. | Median | Min. | Max. | N |
|---|---|---|---|---|---|---|
| Age (years) | 41.92 | 8.455 | 44 | 26 | 61 | 208 |
| Migration duration (years) | 22.58 | 8.62 | 23 | 2 | 40 | 189 |
| Net income (Euro's p/month) | 3683.27 | 2433.44 | 3000 | 1000 | 22000 | 159 |
| Contact with family (days p/year) | 116.87 | 143.40 | 52 | 0 | 365 | 199 |
| Contact with friends (days p/year) | 33.72 | 75.92 | 12 | 0 | 365 | 194 |
| Contact with acquaintances (days p/year) | 10.07 | 29.47 | 2 | 0 | 365 | 188 |
| Contact with business partners (days p/year) | 2.43 | 8.10 | 0 | 0 | 7 | 182 |
| Contact with work related contacts (days p/year) | 4.20 | 15.50 | 0 | 0 | 365 | 181 |
| Holiday duration in Suriname (days) | 13.93 | 15.50 | 14 | 0 | 90 | 193 |

Table 5.3: Importance of several aspects when considering return migration

| Aspects | Not important at all<br>**1** | Not really important<br>**2** | Neutral<br>**3** | Important<br>**4** | Very important<br>**5** | N |
|---|---|---|---|---|---|---|
| a) House ownership in Suriname | 7.2% | 7.7% | 10.0% | 26.3% | 48.8% | 209 |
| b) Landownership in Suriname | 9.6% | 7.7% | 16.8% | 26.4% | 39.4% | 208 |
| c) Safe living environment | 1.0% | 0.0% | 1.0% | 19.2% | 78.8% | 208 |
| d) Access to long term low-interest loans (max. 7% interest) in Suriname | 8.7% | 14.0% | 33.3% | 29.0% | 15.0% | 207 |
| e) Full education subsidies for children up until high school (with the choice option for Surinamese or Dutch curricula) in Suriname | 16.4% | 12.1% | 30.9% | 25.6% | 15.0% | 207 |
| f) Parental care in Suriname | 9.7% | 10.6% | 23.7% | 43.0% | 13.0% | 207 |
| g) Funds for (scientific) research | 12.5% | 13.0% | 35.6% | 29.3% | 9.6% | 208 |
| h) Funds to implement technological improvement (e.g. in the medical, technical and industrial sector) | 6.9% | 8.4% | 21.7% | 39.9% | 23.2% | 203 |
| i) Higher starting salaries for return migrants | 2.9% | 7.2% | 27.1% | 39.1% | 23.7% | 207 |
| j) Quality improvement health sector and institutions | 0.5% | 1.9% | 8.1% | 39.2% | 50.2% | 209 |
| k) Quality improvement university of Suriname | 5.3% | 3.9% | 22.3% | 33.0% | 35.4% | 206 |
| l) Accreditation university of Suriname | 7.7% | 5.3% | 22.5% | 32.1% | 32.5% | 209 |
| m) Career opportunities in Suriname | 2.5% | 1.3% | 4.5% | 27.4% | 64.3% | 157 |

Table 5.4: Willingness to accept offer 1 and offer 2

| | No, I do not want to return at all | No, these provisions are not appropriate | Maybe, I will return then | Yes, I would definitely return then | I want to return but these provisions are not necessary for me | Other opinion | |
|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | N |
| Offer 1: house, education subsidies for children, and parental care | 11.5% | 11.1% | 39.4% | 22.1% | 11.5% | 4.3% | 208 |
| Offer 2: land property, mortgage, and including offer 1 | 12.1% | 13.1% | 38.3% | 18.4% | 12.6% | 5.3% | 206 |

Table 5.5: Willingness accept on proposals

| Proposal | I do not want to return at all<br>1 | This is not decisive for my return<br>2 | This is not really decisive for my return<br>3 | This doesn't matter<br>4 | This might be decisive for my return<br>5 | This is decisive for my return<br>6 | This should definitely be in place upon my return<br>7 | N |
|---|---|---|---|---|---|---|---|---|
| 1) The government pays your return travel and relocation costs | 13.0% | 16.9% | 15.5% | 16.9% | 24.6% | 8.2% | 4.8% | 207 |
| 2) The government pays the travel costs of your household (family) | 13.0% | 19.3% | 17.4% | 16.4% | 20.8% | 8.2% | 4.8% | 207 |
| 3) Salaries that are at least 70% higher than what is normal in Suriname | 14.6% | 18.0% | 9.8% | 19.0% | 19.0% | 12.2% | 7.3% | 205 |
| 4) The government finances a research and development centre which will be staffed with high skilled remigrants | 11.8% | 14.2% | 10.3% | 18.6% | 28.4% | 11.8% | 4.9% | 204 |
| 5) The government provides funds for research and innovation | 10.7% | 11.7% | 8.3% | 18.5% | 30.2% | 13.2% | 7.3% | 205 |
| 6) The government subsidies education for your children | 11.2% | 18.0% | 9.2% | 19.9% | 18.9% | 14.6% | 8.3% | 206 |
| 7) The government provides parental care | 11.2% | 18.0% | 14.1% | 19.4% | 18.4% | 12.6% | 6.3% | 206 |
| 8) The government offers a luxurious house in an elite residential area in the capital city or in surrounding area. | 11.2% | 14.6% | 8.3% | 14.1% | 25.7% | 16.0% | 10.2% | 206 |
| 9) The government offers land (1600 sq. m.) | 11.1% | 15.1% | 10.1% | 13.6% | 25.1% | 16.6% | 8.5% | 199 |
| 10) The government offers a mortgage of 80000 Euro's with 7% interest | 11.8% | 12.3% | 7.8% | 16.7% | 26.5% | 19.1% | 5.9% | 204 |
| 11) The government ensures that no political interference occurs when performing your job | 11.4% | 7.5% | 4.0% | 6.0% | 16.4% | 21.9% | 32.8% | 201 |

Table 5.6: Brain circulation and financial flows

| **Brain circulation (last 12 months)** | **Yes** | **No** | **N** |
|---|---|---|---|
| Travelled to Suriname for your work | 11.1% | 88.9% | 199 |
| Travelled to Suriname for other reasons | 58.0% | 42.0% | 200 |
| Advised the government of Suriname | 1.5% | 98.5% | 197 |
| Advised student to study abroad, especially in the Netherlands | 22.1% | 77.9% | 199 |
| Advised a Surinamese company | 17.6% | 82.4% | 199 |
| Advised Surinamese to work abroad, especially in the Netherlands | 20.1% | 79.9% | 199 |
| Done research with Surinamese | 4.5% | 95.5% | 198 |
| Attended an event (e.g. congress) that was organized by Surinamese in diaspora in the Netherlands | 25.3% | 74.7% | 198 |
| Attended an event (e.g. congress) that was organized by the Surinamese in Suriname | 16.2% | 83.8% | 197 |
| Recommended someone in the Netherlands to go on holidays to Suriname | 82.5% | 17.5% | 200 |
| | | | |
| **Financial flows (last 12 months)** | **Yes** | **No** | **N** |
| Helped a Surinamese financially in order to work or study in the Netherlands | 12.6% | 87.4% | 199 |
| Helped a Surinamese company making a trade deal | 4.0% | 96% | 200 |
| Invested in a business start-up in Suriname | 3.5% | 96.5% | 199 |
| Ordered goods from Suriname | 9.6% | 90.4% | 198 |
| Bought Surinamese goods, food or drink in the Netherlands | 87.4% | 12.4% | 202 |
| Exported goods to Suriname | 13.3% | 86.7% | 195 |
| Sent remittances to family or acquaintances | 26.5% | 73.5% | 196 |
| Sent goods to family or acquaintances | 39.8% | 60.2% | 196 |
| | | | |
| **Acquainted with the PSA card** | | | |
| No, I'm not acquainted with the PSA card | 23.8% | | 202 |
| I heard about it, but I'm not acquainted with the PSA card | 35.1% | | |
| Yes, I'm acquainted with the PSA card | 41.1% | | |
| | | | |
| **Opportunities for Suriname through the PSA card** | | | |
| No | 58.1% | | 201 |
| Yes | 25.7% | | |
| I don't know | 16.0% | | |
| | | | |
| **Travels to Suriname** | | | |
| Once a year or more often | 42.3% | | 201 |
| Once every two years | 30.3% | | |
| Seldom or never | 27.4% | | |

Table 5.7: Ordered probit regression Offer 1 and Offer 2

| Dependent variable | Offer 1 | | Offer 2 | |
|---|---|---|---|---|
| Independent variables | Coefficient | St. Error | Coefficient | St. Error |
| Migration duration | -0.018 | (0.016) | -0.028* | (0.016) |
| Gender | 0.145 | (0.240) | 0.183 | (0.254) |
| Living alone | -0.231 | (0.281) | 0.003 | (0.296) |
| Living with my children | 0.002 | (0.377) | 0.501 | (0.389) |
| Ethnic group: Creoles | 0.613 | (0.435) | 0.902** | (0.451) |
| Ethnic group: Hindustanis | 0.888** | (0.399) | 1.131*** | (0.406) |
| Ethnic group: Multiracial (Mixed) | 1.023** | (0.409) | 1.184*** | (0.411) |
| Degree: MSc in social sciences | 0.722** | (0.325) | 0.515 | (0.333) |
| Degree: MSc in technical sciences | 0.905*** | (0.343) | 0.741** | (0.361) |
| Degree: MSc in medical sciences or specialist | 0.069 | (0.413) | -0.446 | (0.436) |
| Degree: PhD | 0.125 | (0.539) | -0.031 | (0.527) |
| Landownership in Suriname important for me (yes=1) | 0.616** | (0.260) | 0.823*** | (0.272) |
| Higher salaries important (yes=1) | 0.516* | (0.263) | 0.532* | (0.277) |
| Remittances (yes=1) | 0.324 | (0.251) | 0.546** | (0.258) |
| Advised Surinamese company (yes=1) | 0.004 | (0.292) | 0.492 | (0.318) |
| Emigration motive (study=1; other=0) | 0.549* | (0.320) | 0.512 | (0.339) |
| Citizenship (Netherlands=1) | -0.098 | (0.478) | 0.263 | (0.456) |
| Contact with family in Suriname (number of days) | 0.002** | (0.001) | 0.003*** | (0.001) |
| Contact with friends in Suriname (number of days) | 0.001 | (0.002) | -0.001 | (0.002) |
| Travel at least once a year to Suriname (yes=1) | -0.135 | (0.247) | -0.486* | (0.260) |
| | | | | |
| Estimated alpha 1 | 1.504* | (0.810) | 1.975** | (0.789) |
| Estimated alpha 2 | 3.271*** | (0.846) | 3.887*** | (0.840) |
| | | | | |
| Pseudo R-squared | 0.178 | | 0.241 | |
| LR statistic | 47.118*** | | 63.454*** | |
| Max. log-likelihood value | -109.483 | | -99.813 | |
| # observations | 129 | | 128 | |
| % Correct | | | | |
| Category 1 (not decisive) | 43.8% | | 56.4% | |
| Category 2 (might be decisive) | 77.3% | | 70.3% | |
| Category 3 (decisive) | 32.3% | | 36.0% | |
| Total | 58.1% | | 59.4% | |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parenthesis. For the variable Gender female is coded 1 and male 0. The minority ethnic groups were categorized as one group and function here as the reference group. The indicator variables for the educational degree that the respondents hold are with respect to Bachelor of Science degree holders, vocational degree holders or individuals who attained tertiary education but did not graduate. Living alone and Living with my children are with respect to Living with partner or Living with partner and children. Only citizenship holders of Suriname and the Netherlands were included in the regressions.

Table 5.8: Ordered probit regression other proposals

| Dependent variable | Research funds (1) | | No interference (2) | | Higher salaries (3) | |
|---|---|---|---|---|---|---|
| Independent variables | Coefficient | St. error | Coefficient | St. error | Coefficient | St. error |
| Migration duration | -0.025* | (0.015) | -0.012 | (0.015) | -0.012 | (0.015) |
| Gender | -0.258 | (0.235) | -0.130 | (0.245) | 0.439* | (0.260) |
| Living alone | -0.005 | (0.286) | 0.463 | (0.320) | -0.361 | (0.321) |
| Living with my children | 0.489 | (0.394) | 0.977** | (0.494) | 0.875** | (0.433) |
| Ethnic group: Creoles | -0.234 | (0.453) | -0.056 | (0.457) | 0.419 | (0.530) |
| Ethnic group: Hindustanis | -0.496 | (0.409) | 0.284 | (0.430) | 0.383 | (0.487) |
| Ethnic group: Multiracial (Mixed) | 0.460 | (0.415) | 0.216 | (0.425) | 0.475 | (0.489) |
| Degree: MSc in social sciences | 0.142 | (0.344) | 0.248 | (0.359) | -0.244 | (0.377) |
| Degree: MSc in technical sciences | 0.752** | (0.361) | 0.808** | (0.393) | 0.162 | (0.377) |
| Degree: MSc in medical sciences | 0.794* | (0.421) | -0.015 | (0.440) | -0.260 | (0.483) |
| Degree: PhD | 0.695 | (0.497) | 0.098 | (0.520) | -1.469* | (0.778) |
| Emigration motive (study=1; other=0) | 0.691* | (0.375) | 0.576* | (0.334) | 1.062** | (0.456) |
| PSA brings opportunities (yes=1) | 0.194 | (0.268) | 0.718** | (0.302) | 0.276 | (0.279) |
| Sent remittances (yes=1) | 0.190 | (0.269) | -0.157 | (0.316) | 0.245 | (0.306) |
| Helped Surinamese financially to study/work abroad (yes=1) | 0.695** | (0.320) | 1.651*** | (0.488) | 0.085 | (0.385) |
| Attended events connected to Suriname in the Netherlands (yes=1) | 0.528* | (0.276) | -0.005 | (0.301) | 0.223 | (0.320) |
| Advised about working abroad (yes=1) | -0.207 | (0.347) | 0.132 | (0.393) | 0.103 | (0.420) |
| Advised Surinamese company (yes=1) | 0.182 | (0.342) | 0.142 | (0.413) | 0.065 | (0.354) |
| Bought Surinamese food (yes=1) | -0.431 | (0.347) | 0.745** | (0.378) | 0.598 | (0.391) |
| Exported goods to Suriname (yes=1) | 0.468 | (0.317) | 1.060*** | (0.407) | -0.207 | (0.364) |
| Higher salaries important (yes=1) | 0.501* | (0.285) | 0.330 | (0.271) | 1.535*** | (0.343) |
| Landownership important (yes=1) | 0.703** | (0.277) | 0.805*** | (0.278) | 0.717** | (0.325) |
| Quality university important (yes=1) | 0.492* | (0.288) | 0.446 | (0.290) | -0.022 | (0.317) |
| Access to credit important (yes=1) | 0.467** | (0.238) | 0.300 | (0.255) | 0.388 | (0.253) |
| Research funds important (yes=1) | 0.780*** | (0.263) | -0.139 | (0.284) | -0.403 | (0.296) |

Table 5.8 (continued)

| Dependent variable | Research funds (1) | | No interference (2) | | Higher salaries (3) | |
|---|---|---|---|---|---|---|
| | Coefficient | St. error | Coefficient | St. error | Coefficient | St. error |
| Estimated alpha 1 | 1.994** | (0.908) | 2.297*** | (0.869) | 3.806*** | (1.061) |
| Estimated alpha 2 | 3.341*** | (0.928) | 2.986*** | (0.879) | 4.580*** | (1.077) |
| | | | | | | |
| Pseudo R-squared | 0.269 | | 0.259 | | 0.281 | |
| LR statistic | 79.762*** | | 74.132*** | | 75.549*** | |
| Max. log-likelihood value | -108.433 | | -106.036 | | -96.362 | |
| # observations | 144 | | 144 | | 145 | |
| % Correct | | | | | | |
| Category 1 (not decisive) | 88.6% | | 73.2% | | 93.3% | |
| Category 2 (might be decisive) | 59.6% | | 0.0% | | 0.0% | |
| Category 3 (decisive) | 37.0% | | 87.2% | | 63.3% | |
| Total | 69.4% | | 68.1% | | 71.0% | |

Notes: ***, ** and * refer to respectively 1%, 5%, and 10% significance levels. Standard errors are in parenthesis. See also notes beneath Table 5.7.

Table 5.9: The relationship between age and the duration of migration

| | | | Agegroup | | | | |
|---|---|---|---|---|---|---|---|
| | | | 26-30 | 31-39 | 40-49 | 50-61 | Total |
| Migration duration | 1-10 years | Count | 10 | 3 | 1 | 1 | 15 |
| | | % within Agegroup | 35.7% | 6.5% | 1.4% | 2.3% | 7.9% |
| | 11-20 years | Count | 18 | 35 | 2 | 3 | 58 |
| | | % within Agegroup | 64.3% | 76.1% | 2.8% | 6.8% | 30.7% |
| | 21-30 years | Count | 0 | 8 | 59 | 7 | 74 |
| | | % within Agegroup | 0.0% | 17.4% | 83.1% | 15.9% | 39.2% |
| | 31-40 years | Count | 0 | 0 | 9 | 33 | 42 |
| | | % within Agegroup | 0.0% | 0.0% | 12.7% | 75.0% | 22.2% |
| | Total | Count | 28 | 46 | 71 | 44 | 189 |

## Appendix 5.B Percentage of highly educated in the population of 15 years and older

| Census year | 1980 | 2004 | 2012 |
|---|---|---|---|
| University | 0.70% | 3.05% | 2.87% |
| HBO | 3.10% | 2.27% | 3.48% |
| Total | 3.79% | 5.32% | 6.35% |
| Population | 315469 | 75480 | 446174 |

Source: ABS (1992, 2005, 2013b)

# 6

# Conclusion

## 6.1 Discussion

The essays in this dissertation address the brain drain problem of Suriname. This is the first study that quantifies the brain drain problem in terms of the emigration of the best and brightest individuals from Suriname and of the effect on the education level of the country. We collected three unique datasets about the migration flows between Suriname and the Netherlands. The first dataset was analysed in Chapter 2 and contains existing statistics from the library of the University of Suriname, the Central Bureau of Statistics of the Netherlands, and the UNESCO Institute of Statistics. To identify the determinants of emigration and return migration the second dataset was constructed by surveying former top students (the best and brightest) from Suriname on the basis of Gibson & McKenzie's (2011) survey and the results were analysed in Chapter 3 and 4. The third dataset was especially designed to examine which policies might attract high skilled Surinamese in diaspora residing in the Netherlands (Chapter 5). Several econometric models, quantitative as well as limited dependent variable models, were exploited with the new datasets. This research provides new empirical insights for academics and policymakers about the sources of brain drain and how to curb this problem, which is a topic for which econometric analysis for Suriname was scant until now.

The respondents were approached mostly via social networking websites, such as LinkedIn and Facebook, and e-mail. This method of collecting data proved to be effective and cost efficient. However, although the sample seems representative in terms of gender, age, and ethnicity, we may have omitted individuals from certain professions and age. LinkedIn is a business oriented network founded in 2003 and most of its members are young professionals (Conner, 2014). Skeels and Grudin (2009) found that individuals with established careers, families, and real life social networks are less interested in LinkedIn. Nonetheless surveying Surinamese overseas by the use of social networking sites proved to be successful, especially as non-residents use these sites also as a way to stay in touch with residents from the home country. Alternative methods for contacting respondents, for example by approaching organizations or sending written requests via postal, are complementary and welcome.

The second survey may have triggered social desirable answers at questions about hypothetically offering material benefits to migrants. Some respondents pointed out that offering higher salaries and other material benefits than what non-migrants would normally earn might create animosity between the two groups. Furthermore as the survey was carried out in a period in which the incumbent government is akin to the military rulers of the 1980's when many families left the country because of the political situation, the survey might have omitted the highly skilled persons who are opposed to the current government. The percentage of individuals whose main reason to go abroad because of this might have been underestimated in our research.

Chapter 2 shows that the emigration rate negatively affects the human capital formation of Suriname. Error correction models detect that in the long-run the secondary

schooling enrolment rate decreases when emigration increases. University graduation rate decreases in the short- and long-run as emigration increases. This implies that brain drain entails the reduction of the human capital stock of the sending country as Docquier (2014) puts it.

In Chapter 3 we assessed that Suriname has a brain drain rate of 42%. Attaining higher education abroad is the main motive to move to the Netherlands. Surinamese gain higher education levels and higher income when migrating to the Netherlands. Chapter 3 shows that emigration of the highly skilled is positively associated with the pure science subjects studied in high school, the socio-economic class and education level of the parents, having lived in the capital instead of in a district of Suriname, and having many family members in the Netherlands. At the individual level the difference in economic growth between the two countries does not seem to stimulate emigration of the best and brightest. These results are in accordance with the conclusions of Gibson and McKenzie (2011) about three Pacific countries and thus may be generalizable for explaining migration behaviour of the best and brightest of small developing countries.

Chapter 4 examines the determinants of return migration and of the intention to live in Suriname in the future. The longer the former top student lives abroad the lower the probability to return to the home country. Individuals who have settled themselves in the Netherlands and already have established a family are less inclined to return. Although scholarships positively affect return migration, the return migration intention is lower for individuals with an MSc or PhD degree. Career opportunities, also for the life partner, and education possibilities for the children in the Netherlands are negatively related with future return migration intention. Skilled workers involved with management tasks and interaction with clients are more likely to live in Suriname in the future than those who are not involved in these tasks. Job tasks concerning interaction with patients, students, or mathematical problem solving tasks were not found to be significantly associated with future return migration intention.

## 6.2 Policy implications

Interest in the PSA card, a card provided to Surinamese in diaspora to ease travelling to Suriname, seems low among the highly skilled. As Suriname suffers from skilled labour shortage, the government of Suriname should focus on active recruitment policies. Chapter 5 documents that providing funds for research and innovation in Suriname would induce engineers and health professionals to return to Suriname. Skilled workers are especially interested in housing and land procurement in Suriname. Compared with individuals who left Suriname for political reasons or because of the family or life partner, we observe that individuals whose main migration motive was to study in the Netherlands, are more willing return if the government of Suriname would offer them housing, land, and financial support. Compared with minority ethnic groups, Multiracials,

Hindustanis, and Creoles are more likely to accept the offer concerning housing and land property upon return. Individuals who have affinity with Suriname are also more likely to return if certain provisions were proposed.

The main reason to go abroad was to attain higher education. After completing education a Surinamese student in the Netherlands may choose between going back and working in Suriname or to stay in the Netherlands. The probability to return decreases as the migrant stays longer abroad. Therefore if the government of Suriname were to implement the aforementioned recruitment policies, then awareness campaigns should at best be launched at Dutch universities aimed at Surinamese students. Congresses or seminars about Suriname may also be a good forum to attract the highly skilled. Visual campaigns may at best display young Surinamese of different ethnicities, women, and also skilled workers who have children. Individuals with these characteristics are more attracted to the hypothetical recruitment proposals. To encourage cooperation between the returning migrants and the non-migrants, awareness campaigns should also be aimed at the local population of Suriname and should embody the rationale for brain gain. Setting up a database with the names of the highly skilled individuals who have an interest in Suriname may be useful for recruitment and research.

Obviously we cannot jump to the conclusion that the highly skilled would return instantly if they were offered only material benefits. Although the highly skilled exhibit a willingness to return and to contribute to the development of the home country, they also pursue personal growth and enhanced quality of life. Good governance, investments in higher education, and in the industrial and technological sector (see Saxenian, 2005) are also important. As pointed out in Chapter 3, the accreditation and quality improvement of the University of Suriname may reduce the urge to go abroad in search for better education opportunities. Chapter 5 also indicates that eliminating political interference might induce the majority of the highly skilled migrants to return to Suriname. A practical solution to this would be to disconnect professional appointments from election results.

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# Summary

Brain drain refers to the emigration of highly skilled individuals mostly from a less developed (home) to a developed country (destination) thereby reducing the capacity of the home country to generate welfare for its population. In the literature there is much written about this phenomenon, but there is a new theory, entitled brain gain. This theory suggests that the prospect of emigrating and earning higher income when being highly educated encourages the remaining residents of the home country to obtain higher education (so that they can emigrate later as well). Obviously not all highly educated individuals emigrate, and hence the home country ends up with a higher number of highly educated individuals than in the absence of emigration prospects.

In the first part of this dissertation the brain gain theory is tested on Suriname. Yearly data on how many people emigrate, the number of enrolled students at primary, secondary and tertiary education level, and the number of university graduates were collected. Alas, emigration was found to have a negative effect on the number of enrolled students at secondary and tertiary education level and on the number of university graduates. This implies that as emigration increases, the number of highly educated individuals in Suriname decreases. Hence Suriname is a case of brain drain and not brain gain. To reduce brain drain we first need to know: 1) how big is the problem (in other words, what percentage of the highly educated emigrates), 2) what causes brain drain, and 3) what determines the return of the high skilled migrants to the home country.

In the second part of this dissertation a survey was carried out to assess the brain drain problem of Suriname and to identify its determinants. This study was based on a survey that Gibson and McKenzie (2011) carried out regarding skilled migration from three Pacific countries. In order to know what percentage of highly educated individuals emigrate, we would need a list with the names of the highly educated individuals. The next step would be to trace back which individuals from the list emigrated. An almost impossible task, especially when tracing individuals who graduated way back in time. Best graduates or top students from high schools are easier to trace back, as these individuals have great potential to breakthrough in life. Generally they complete university or other higher education and ultimately standout. Therefore names of top students who graduated from the high schools of Suriname between 1976 and 2006 were collected and ‘googled’. Since 1976 a variety of studies in medical, technological, and social sciences are offered at the Anton de Kom University of Suriname. Students who passed the high school could since then choose the University of Suriname or tertiary education abroad. Because of the strong historical bond Suriname has with the Netherlands, which reflects in the language, cultural aspects, and the legal system of Suriname, and above all in the large migration flows between the two countries, this study was confined to former top students from Surinamese high schools who currently reside in either of the two countries. The focus was also on individuals with a job, and hence the

year 2006 was chosen as the final year of the time frame. Individuals who graduated until 2006 must already be in employment at the time they received the invitation to participate in the survey (in 2013).

The survey results show that 63% of the 283 respondents migrated to the Netherlands of which a third returned to Suriname. Hence 42% of the former top students from Suriname stay in the Netherlands; a rather high brain drain rate. The main reason to emigrate was to attain higher education (84% of the respondents mentioned this). For others the main reason was: the political situation in the 1980s, travelling along with the family or with the life partner, or seeking employment. Most of the former top students emigrated in their 20s; the age to attend the university. This implies that top students have little confidence in the tertiary education offered in Suriname. Former top students who chose pure science courses in high school exhibit a higher probability to emigrate. The survey also revealed that compared with non-migrants, emigrants are higher educated and have higher income (on average 115% higher income).

Financial means are necessary in order to emigrate. The survey results indicate that former students from a higher income class and who have/had at least one highly educated parent are more likely to emigrate. The education level of the parents however does not have a significant effect on permanent emigration. Another important determinant of emigration is the location where the parents and most of the family reside. The research also shows that individuals who were raised in the capital city of Suriname (Paramaribo) have a higher probability to emigrate compared with individuals who were raised in the districts. Female former top students have lower probability to permanently emigrate than the males. Presumably, women feel more socially attached to the home country than men.

In the third part of the dissertation the determinants of return migration are examined. The main reason to return to Suriname is patriotism or the desire to contribute to the development of the home country. Also the feeling of being “free” (mainly due to the tropical climate) and being close to family members are important reasons to return. The survey research furthermore reveals that the higher the educational degree of the former top student the lower the probability to return. The same applies to individuals who have a highly educated life partner. Furthermore former top students who hold the Dutch citizenship and have lived for a long period of time in the Netherlands are less inclined to return. Scholarships are proven to be effective. Former top students whose tertiary education was financed through a scholarship exhibit a higher probability to return. And former top students whose tertiary educated was funded by the parents instead of by the students’ own means (or via a study loan) have stronger ties with Suriname and a higher probability to return.

Former top students whose parents enjoyed tertiary education abroad are also more likely to return. University education was not available in Suriname in the past. Parents who obtained tertiary education usually did so via a scholarship to the Netherlands and many returned upon completing the studies. The children possibly follow the footsteps of their parents. Furthermore the survey results indicate that the probability to return is

higher among skilled migrants whose parents, children, and life partner live in Suriname. Also the effect of job tasks was analysed. Especially individuals who perform management tasks at work and are in touch with clients exhibit a higher likelihood to return (one might think of consultants and business managers). Performing tasks that require mathematical solutions or tasks related to contact with patients or students have no significant effect on return migration.

The most important recommendations to make Suriname attractive for the highly skilled migrants are: providing suitable jobs (in a professional environment) and corresponding wages, investments in the quality of higher education, and recommendations related to the macro-economic and political stability in Suriname. Skilled migrants are also concerned with safety and security, and the opportunity to own a piece of land or a house in the home country. However effectuating these recommendations might be very complex. After all, the country would first need sufficient skilled manpower to create strong institutions. Several countries in Asia (especially South Korea) offer high skilled expatriates privileges to work in the home country. These countries were hence able to attract the highly skilled in order to achieve technological progress and economic growth.

In the fourth part of this dissertation the question whether high skilled migrants of Surinamese origin would be willing to return if they were offered certain incentives is addressed. A survey was held among 209 highly educated migrants, who at least completed high school education in Suriname and who currently reside in the Netherlands. A quarter of the emigrants would definitely return if they were offered a luxurious house in Paramaribo (or in a neighbouring district), a piece of land, education subsidies for their children, and parental care. Some respondents are willing to accept this offer but are not yet certain. If we would add up the latter group of the respondents with the respondents who are definitely willing to accept the offer, then we can conclude that the majority of the skilled migrants are positive towards the earlier mentioned offer. Especially individuals who arrived shortly (between 1-5 years) in the Netherlands, engineers, and individuals who have an affinity with Suriname are interested in the offer. If the government would provide funds for research and innovation, then health professionals would also be interested to return. It is essential however that returnees are allowed to exercise their profession freely in the home country.

The probability to accept the offers decreases as the migrants reside longer in the Netherlands. If the government of Suriname would decide to incorporate the set of measures to recruit the highly skilled expatriates, then information sessions could at best be held among Surinamese students at Dutch universities. Also diaspora seminars would be a useful platform especially as individuals who have an affinity with the home country would be willing to accept the offer. Eliminating political interference in profession would even attract the majority of the skilled emigrants to return to Suriname.

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# Samenvatting

‘Brain drain’ betreft het wegtrekken van hoogopgeleiden uit meestal een minder ontwikkeld land (thuisland) naar een ontwikkeld land (bestemmingsland). Hierdoor daalt de capaciteit in het thuisland om welvaart en welzijn te scheppen voor de bevolking. In de literatuur is er veel geschreven hierover, maar sinds kort is er een nieuwe theorie genaamd, de ‘brain gain’. Volgens deze theorie leiden vooruitzichten om als hoogopgeleide te emigreren naar een ontwikkeld land en hogere inkomens te verdienen ertoe, dat mensen in het thuisland gemotiveerd raken om hogere opleidingen te volgen (zodat zij later ook kunnen emigreren). Natuurlijk is het zo dat niet alle hoogopgeleiden wegtrekken, waardoor per saldo het aantal hoogopgeleiden dat achterblijft in het thuisland meer is dan wanneer er helemaal geen emigratieperspectieven zouden zijn.

In het eerste deel van deze dissertatie is de ‘brain gain’ theorie getoetst op Suriname. Hiervoor zijn gegevens verzameld over hoeveel personen jaarlijks emigreren, aantal ingeschreven studenten op primair, secundair en tertiair opleidingsniveau en het aantal afgestudeerden van de universiteit. Helaas blijkt dat emigratie een negatief effect heeft op het aantal ingeschreven studenten op secundair en het aantal afgestudeerden op tertiair opleidingsniveau. Dat betekent dat naarmate de emigratie toeneemt, Suriname op zowel korte als lange termijn minder hoogopgeleiden overhoudt. Suriname is dus duidelijk een geval van ‘brain drain’ en geen ‘brain gain’. Om ‘brain drain’ terug te dringen zouden we eerst moeten weten: 1) hoe groot is het probleem (met andere woorden hoeveel procent van het aantal hoogopgeleiden trekt weg), 2) wat veroorzaakt ‘brain drain’ en 3) wat maakt dat een deel van de geëmigreerde hoogopgeleiden na verloop van tijd terugkeert naar Suriname?

In het tweede deel van de dissertatie is door middel van een survey, gebaseerd op een onderzoek dat Gibson & McKenzie in 2011 met betrekking tot drie landen in de Pacifische Oceaan uitvoerden, nagegaan hoe groot het ‘brain drain’ probleem voor Suriname is en welke factoren bepalen dat hoogopgeleiden wegtrekken. Om te kunnen weten hoeveel procent van het aantal hoogopgeleiden wegtrekt, zou je een namenbestand van de hoogopgeleiden moeten hebben. Daarna zou je moeten traceren wie allemaal uit het bestand is weggetrokken. Dat is haast niet mogelijk om vast te stellen, zeker wanneer je teruggaat in de tijd. Bestgeslaagden van middelbare scholen zijn over het algemeen gemakkelijker te traceren, omdat zij veel potentie hebben om door te breken in het leven en uiteindelijk vallen ze op. Meestal voltooien zij de universitaire of een andere hogere opleiding. Vandaar dat ervoor gekozen is om de namen van bestgeslaagden van Surinaamse middelbare scholen te verzamelen en deze te ‘googlen’. Gekozen is voor de studenten die bestgeslaagden of topstudenten (top 5) waren in de periode 1976-2006. De Anton de Kom Universiteit van Suriname biedt sinds 1976 in zowel de medische, technologische als maatschappij wetenschappen diverse studies aan. Studenten die vanaf toen slaagden konden dus kiezen voor óf de Universiteit van Suriname óf een

buitenlandse universiteit. Vanwege de sterke historische banden die Suriname met Nederland heeft, welke tot uiting komt in de taal, culturele aspecten en het rechtssysteem van Suriname, maar bovenal in de sterke migratiestromen tussen beide landen, is ervoor gekozen om dit onderzoek af te bakenen tot oud topstudenten van Surinaamse middelbare scholen die momenteel in deze twee landen wonen. Onze focus is ook op hoogopgeleiden die al werkzaam zijn. Individuen die in 2006 van de middelbare school zijn geslaagd moeten tegen de tijd dat hen gevraagd werd mee te doen aan de survey (in 2013) al begonnen zijn met werken.

Uit het onderzoek bleek dat 63% van de 283 geënquêteerden naar Nederland emigreerde. Hiervan is een derde deel inmiddels teruggekeerd naar Suriname. Dat betekent dat 42% van de oud topstudenten in Nederland is blijven wonen. Een hoog 'brain drain' percentage dus. De belangrijkste reden om naar Nederland te gaan was studie (84% gaf dat als hoofdreden op). Voor anderen was de hoofdreden: de politieke situatie in de jaren 80, het meereizen met de familie of met de levenspartner, of het vinden van een baan. De meeste oud topstudenten vertrokken ook toen ze begin twintig waren; de leeftijd om de universiteit te bezoeken. Dit geeft aan dat Surinaamse topstudenten weinig vertrouwen hebben in het aangeboden tertiair onderwijs van Suriname. Oud topstudenten die de bètarichting kozen op de middelbare school bleken een hogere emigratiekans te hebben. Uit het onderzoek kwam ook naar voren dat de emigranten over het algemeen hoger opgeleid zijn dan non-migranten en dat zij meer verdienen (gemiddeld 115% meer dan de non-migranten).

Om te emigreren heb je geld nodig. Uit de survey bleek dat vooral oud topstudenten die uit een hoge inkomensklasse afkomstig waren en die tenminste één ouder met een hoge opleiding hadden, naar Nederland vertrokken. Dit laatste bleek geen rol te spelen als het ging om permanente emigratie. Een andere belangrijke bepalende factor voor emigratie is de plaats waar de ouders en de meeste van de familieleden wonen. Verder blijkt dat individuen die uit de stad (Paramaribo) afkomstig waren een hogere kans op emigratie vertoonden dan individuen uit de districten. De kans op permanente emigratie bleek lager te zijn voor de vrouwelijke oud topstudenten dan voor de mannelijke. Mogelijk voelen de hoogopgeleide vrouwen zich sociaal meer verbonden met het thuisland dan de mannen.

In het derde deel van de dissertatie is nagegaan welke factoren de remigratie van hoogopgeleiden bepalen. De belangrijkste reden om terug te keren naar Suriname was vaderlandsliefde en het verlangen om het land te helpen opbouwen. Ook het gevoel om 'vrij' buiten te zijn (mede vanwege het tropische klimaat) en dichtbij van de naaste familie waren redenen om terug te keren. Uit het onderzoek bleek verder dat hoogopgeleiden met een hogere graad (PhD of MSc) een lagere kans hebben om terug te keren naar Suriname. Hetzelfde geldt voor individuen die een hoogopgeleide levenspartner hebben. Ook individuen die de Nederlandse nationaliteit bezitten en langer in Nederland wonen zijn minder geneigd terug te keren. Studiebeurzen blijken hun nut te bewijzen. Oud topstudenten wiens opleiding door middel van een studiebeurs is gefinancierd hebben een

grotere kans op remigratie naar Suriname. De oud topstudenten wiens tertiaire opleiding door de ouders in plaats van zelf (of via een studielening) werd bekostigd, blijken ook een sterkere binding met Suriname te hebben en een hogere kans op terugkeer.

Het blijkt dat vooral oud topstudenten wiens ouders een tertiaire opleiding in het buitenland hebben genoten remigreerden. Vroeger was het niet mogelijk om universitair onderwijs in Suriname te volgen. De ouders die dat wel deden, vertrokken meestal met een studiebeurs naar Nederland. Na hun studie keerden zij terug naar Suriname. Mogelijk treden de kinderen in de voetsporen van de ouders: emigreren voor studiedoeleinden en na verloop van tijd terugkeren naar Suriname.

Verder is naar voren gekomen dat de kans op remigratie groter is onder hoogopgeleiden van wie de ouders, kinderen en/of levenspartner in Suriname wonen in plaats van in Nederland. Ook het effect van werktaken is geanalyseerd. Vooral hoogopgeleiden die managementtaken uitvoeren en die in contact staan met cliënten hebben een hogere kans op terugkeer naar Suriname (te denken valt aan consultants en business managers). Het uitvoeren van taken die een wiskundige oplossing vereisen of taken die te maken hebben met contact met patiënten of studenten, hebben geen significant effect op de kans op remigratie naar Suriname.

De belangrijkste adviezen voor het aantrekkelijk maken van Suriname voor hoogopgeleiden zijn: het aanbieden van geschikte banen (in een professionele omgeving) en bijbehorende salarissen. Verder dient er geïnvesteerd te worden in de kwaliteit van het hoger onderwijs in Suriname. Andere beleidsaanbevelingen hebben betrekking op de macro-economische en vooral politieke stabiliteit, veiligheid en de mogelijkheid om grond en huis te bezitten in Suriname. Het verwezenlijken van deze punten is echter complex. Je zou immers eerst voldoende ontwikkelde menskracht moeten hebben om sterke instituties te kunnen bewerkstelligen. Diverse landen in Azië (in het bijzonder Zuid Korea) bieden hoogopgeleide niet-ingezetenen privileges in het thuisland aan om hen ertoe te bewegen terug te keren. Zo zijn deze landen in staat geweest om menselijk potentieel aan te trekken en mede daardoor technologische vooruitgang en economische groei te bewerkstelligen.

In het vierde deel van dit onderzoek is nagegaan of hoogopgeleide migranten van Surinaamse komaf zouden willen terugkeren naar Suriname indien hen bepaalde incentives aangeboden zouden worden. Hierbij is er opnieuw een enquête gehouden en wel onder 209 hoogopgeleiden, die de middelbare school in Suriname hebben doorlopen en nu in Nederland wonen. Een kwart van de emigranten zou zeker terug willen keren naar Suriname indien hen een luxe gezinswoning in Paramaribo of in een aangrenzend district, een perceel, onderwijssubsidies voor hun kinderen en ouderenzorg voor meereizende ouders aangeboden zou worden. Er zijn ook veel hoogopgeleiden die dit aanbod zouden willen accepteren maar nog niet zeker zijn of ze dan terugkeren. Tellen we deze groep op bij de groep die zeker is, dan mogen we concluderen dat de meerderheid van de emigranten positief staat tegenover het aanbod. Vooral individuen die niet lang in Nederland wonen, ingenieurs en hoogopgeleiden die affiniteit hebben met Suriname zijn

geïnteresseerd in het aanbod. Indien de overheid van Suriname fondsen voor onderzoek en innovatie ter beschikking zou stellen, dan zouden ook medici en andere gezondheidswerkers uit Nederland worden geënthousiasmeerd. Belangrijk is wel dat de remigranten hun beroep vrijelijk mogen uitoefenen.

De kans om het aanbod te accepteren neemt af naarmate de migrant langer in Nederland woont. Mocht de overheid van Suriname het pakket aan maatregelen willen incorporeren en hoogopgeleide migranten van Surinaamse komaf willen rekruteren, dan zouden informatiesessies het beste gehouden kunnen worden onder Surinaamse studenten op Nederlandse universiteiten. Ook tijdens diverse diaspora seminars zou dit van nut kunnen zijn; vooral individuen die affiniteit met Suriname hebben zouden het aanbod willen accepteren. Het elimineren van politieke bemoeienis bij het uitoefenen van het beroep zou zelfs de meerderheid van de emigranten terug laten keren naar Suriname.

# About the author

Tina Dulam (1985) was born in Paramaribo, capital of Suriname, and raised in district Commewijne where she resides to date. She attended the primary schools Openbare School III in Meerzorg, Commewijne and the Frederik Stahelin school in Paramaribo. In 1997 she entered the Hendrik school (junior secondary school), where she leaped the fourth class and then enrolled in Havo I (senior secondary school). In her field she succeeded as the best student from Havo I and from the university transition programme (schakeljaar universiteit). She studied Economics at the Anton de Kom University of Suriname (AdeKUS) and attained her Master's degree in International Economics and Business Studies from the Erasmus University Rotterdam in 2008. Under the auspices of both universities, she enrolled in a scholarship programme with the aim to bolster the academic staff of the AdeKUS. After her Master's study she returned to Suriname and since 2009 she is appointed as lecturer and researcher at the Economics department of the university. Her main courses are Applied Statistics and Research Methods. At the instigation of prof.dr. Philip Hans Franses, the dean of Erasmus School of Economics, she commenced her PhD research in 2010. Apart from her academic path she was involved in community service. She established the social organization United Youth Commewijne and was member of the first National Youth Parliament of Suriname. In 2009 she appeared as an interviewer in several episodes of Suriname Vandaag, an investigative journalism programme, aired by the public television network STVS.

Brain drain refers to the emigration of highly skilled individuals mostly from a less developed (home) to a developed country (destination) thereby reducing the capacity of the home country to generate welfare for its population. According to the 'brain gain' theory, however, the prospect of emigrating and earning higher income when being highly educated encourages the remaining residents to obtain higher education as well. This might ultimately result in a larger stock of highly educated residents in the home country. This dissertation contends that the number of highly educated individuals in Suriname decreases as emigration increases. 63% of the former top students of Suriname emigrated to the Netherlands, of which a third returned. Attaining higher education is the main motive to go abroad. Former top students with parents from a higher social economic class are more likely to emigrate. Individuals who have already established themselves (have the Dutch citizenship, a spouse, and children) in the Netherlands are less likely to return. The main reason to return is patriotism, family, and the pleasant weather in Suriname. The shorter the migration duration the higher the probability to return. Return migration is also associated with the funding method of higher education. Former top students whose education was funded through a scholarship or by the parents are more likely to return than when the education was funded by the student's own means or by a study loan. Also individuals who have a PhD or MSc degree exhibit lower probability to return. Offering material incentives, such as housing and landownership, might trigger a quarter of the highly skilled individuals of Surinamese origin to return to the home country. Especially MSc degree holders in technical science (engineers) are attracted to these offers. Providing funds for research and innovation also attracts health professionals (including medical doctors). Eliminating political interference in professing one's job might even attract the majority of the highly skilled migrants to return to Suriname.

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