Commonwealth Scholarship Commission in the UK

Successes and complexities: the outcomes of UK Commonwealth Scholarships 1960-2012

Full report

COMMONWEALTH SCHOLARSHIPS

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Finally, and most importantly, our sincere gratitude is extended to all those Commonwealth Scholars and Fellows who have generously given their time to complete evaluation surveys.

In 1984, following my studies on the efficacy and acceptability of homemade oral rehydration therapy as an affordable and effective means of reducing drastically the mortality and morbidity of childhood diarrhoea, I was selected by the Federal Government of Nigeria as the country representative to attend the meeting of interested parties on the Control of Diarrhoeal Disease (CDD) in Bangkok, Thailand. I briefly presented my findings at that meeting.

A year later, I was appointed the National Coordinator of the Oral Rehydration Therapy (ORT) programme in collaboration with UNICEF. As a Professor of Paediatrics and a Consultant Paediatrician, my employers – the University of Nigeria and the University Teaching Hospital, Enugu – gave me two years' leave of absence following the request by the Federal Ministry of Health to implement the ORT programme. With the support of three other professors of paediatrics and UNICEF staff, we travelled throughout most urban and rural areas of Nigeria giving talks, lectures in health institutions, and training and demonstrations of ORT – especially in primary health care centres, to health workers, women's groups, and administrators. We also held special seminars with doctors.

As past President of the Paediatric Association of Nigeria, I ensured that the programme was highlighted in the Annual Conference of the association, and it was well received by the paediatricians and other health workers. Implementation of the ORT programme has been included in the curricula of medical and nursing schools, as well as the schools of pharmacy. To enhance the impact, we published booklets on ORT for doctors, nurses, and other health workers, as well as posters and pamphlets which were freely distributed. The electronic and print media also put on advertisements and special jingles about the programme over the radio and television.

The outcome of the programme was very impressive. Some doctors initially doubted its efficacy, but were later convinced, since it was based on known scientific principles. By the second year of the ORT programme the mortality rate of childhood diarrhoea declined significantly, as shown by the extensive country-wide evaluation. We were aware that many of the affected children also had secondary problems of malnutrition and this required detailed nutrition education. In spite of this, the impact and success of the programme was published in several scientific papers.

The programme also attracted attention outside Nigeria. We were invited to attend the Second International Conference of Oral Rehydration Therapy in Washington, DC (USA), sponsored by USAID. In 1986, I was also invited to facilitate at the World Health Organization (WHO) supervisory skills workshop on the control of diarrhoeal diseases, held in New Delhi (India). I also attended and facilitated meetings and gave papers on ORT in Geneva (Switzerland), Nairobi (Kenya), Yamoussoukro (Ivory Coast), and New Delhi (India). The ORT programme itself also spread outside Nigeria. Later, in 1986, the WHO Africa Regional Office requested that I facilitate the ORT Programme in Malawi, where I spent ten days in training of trainers, demonstrating and establishing ORT units in health centres and hospitals in Lilongwe and Blantyre. After that, I served as facilitator at a WHO supervisory skills programme on diarrhoeal diseases in Ghana.

Thirty years ago, diarrhoea used to be a major cause of death of Nigerian children under five years of age, due to severe dehydration, which used to be treated mainly by intravenous fluid therapy. Most doctors and nurses are now aware of the efficacy of ORT as a simple first-line treatment; there is no need for costly intravenous therapy which inflicts pain to the child and requires time for monitoring by trained staff, except in a few serious situations. The majority of Nigerian mothers are now familiar with ORT, either as a homemade solution or by using oral rehydration salts which are readily available in all pharmacies. Following the impact of the initial ORT Programme 30 years ago, pharmaceutical industries have taken advantage of this and produced oral rehydration salt packs – some flavoured and containing the important ingredient zinc – which are now affordable by most families. This has been a step in the right direction. I feel very fulfilled as a paediatrician that my work over thirty years ago has turned out to be an important strategy for saving the lives of many Nigerian children.

Professor Theodore Okeahialam
University of London, 1961

Foreword

Higher education makes a critical contribution to international development. However, it was not a significant feature of educational targets in the Millennium Development Goals (MDGs), which, with justification, focused on primary education. During the course of the MDGs, analysts observed that a shortage of skilled professionals in many low and middle income countries limited progress across a range of goals in education, health, and other areas. The new Sustainable Development Goals (SDGs) address this need, with specific targets for increasing higher education provision, focusing education on development priorities, and, significantly, increasing the number of scholarships for professional training available to developing countries.

Over the years, many high income countries have offered scholarship programmes to strengthen the professional workforce in low and middle income countries. While the broad value of such investment is rarely challenged, there is a paucity of evidence regarding the specific contribution to development of these scholarship programmes. This evidence base is needed today as aid budgets decline and demands on them diversify. Further, the range of approaches proposed for supporting higher education in development is growing. How can we make decisions whether to invest aid funds in scholarships, local university capacity building, north-south university partnerships, mass online learning, or other interventions, if we have little information about the development impact of any of these?

The Commonwealth Scholarship and Fellowship Plan (CSFP) has been operating – and the UK contributing – since 1959. It is one of the longest running schemes in the world and provides a unique resource for the evaluation of scholarship programmes aimed specifically at international development outcomes. Between 2009 and 2013, the Commonwealth Scholarship Commission in the UK (CSC) produced a series of studies on the impact of its contribution to the Plan on development outcomes, with a focus on different sectors and geographic regions. This was a landmark contribution to impact evaluation of scholarships schemes; yet, like many such efforts, it relied substantially on individual case studies and less on quantitative data collected about the development contributions of scholars.

Since then, the CSC has invested considerable energy into developing its approaches to evaluation. This report represents a new milestone in that effort: it analyses over 50 years of data on the careers of recipients from each of the CSC's scholarship schemes. From this data, it produces an analysis of many outstanding questions about scholarship impact, including:

- Do scholars return home after completing their scholarship?
- How have the careers of scholars unfolded after their scholarships have concluded?
- To what extent are appreciable gains in knowledge and skills realised, and are these put into practice within the workplace?
- Are links maintained between scholars and their UK host institutions and colleagues?
- How far are scholars' activities catalysing wider development impact in their communities and countries?

The conclusions drawn strongly support the development value of scholarships schemes such as the Commonwealth Scholarship and Fellowship Plan, and challenge a range of preconceptions about them.

This is a valuable report not only for its analysis, but also for its methodology. Evaluating scholarship programmes is extremely difficult; dependency on self-report survey responses, retrospective analysis over varying periods, a lack of counterfactuals, and other limitations pose challenges for both statistical analysis and the interpretation of findings. The methodology introduced in this report should make an important contribution to the work of a growing community of specialists involved in the evaluation of international higher education and of development interventions.

Professor Jeff Waage OBE
Commonwealth Scholarship Commissioner
Director of the London International Development Centre

1. Evaluating Commonwealth Scholarships and Fellowships

We started a hospice facility in Lucknow by the name of Aastha, which was the first palliative care facility in north India. Before, terminally ill patients in our state were admitted to intensive care units (ICUs) at tertiary care hospitals and were compelled to take acute medical care/intensive care instead of palliative/ supportive care during their final stages of life. Those who could not afford this care took their last breath in their houses, in lots of pain and suffering.

Initially, it took us a lot of time and effort to explain to people the need for palliative care and how could people benefit from our hospice. We organised several health camps, discussions on media forums, and training programmes for caregivers of terminally ill patients, and made the masses feel how important hospice care is for both the patient as well as the family. After the hospice facility came into existence in our state of Uttar Pradesh, more and more people started realising the need and the benefits of palliative care. Now even the oncology clinics and hospitals refer their patients to us for hospice care. Patients have also realised that there is no benefit to admitting a terminally ill patient with a limited life expectancy to a tertiary care hospital, as firstly it's very expensive, and secondly it blocks a bed for a patient who may die due to the unavailability of an ICU bed.

Before we started the hospice facility, in our state almost 50% of patients who were terminally ill died in their houses in pain and distress. They had no other option, as ICU care at a tertiary care centre was not affordable for most people because we have no health insurance system in our county for old people. But now Aastha Hospice has emerged as an option for all people who want social, emotional, spiritual, mental, and medical support during the final journey of life. Now family members of the terminally ill don't prefer to take their loved ones to ICUs and acute care hospitals, and by our efforts hospice care facility has been well accepted and recognised by various government and corporate organisations in our country. We have the privilege to be the first hospice in north India to be recognised by the Ministry of Defence, Government of India.

Dr Abhishek Shukla
Cardiff University, 2010

1.1. Commonwealth Scholarships and Fellowships in the United Kingdom

The Commonwealth Scholarship Commission in the United Kingdom (CSC) is an executive non-departmental public body created in 1959 for the purpose of administering the UK's contribution to the Commonwealth Scholarship and Fellowship Plan (CSFP). The Plan, an international programme of bilateral scholarships and fellowships, was discussed and agreed at the first Conference of Commonwealth Education Ministers (CCEM) in 1959, with the first beneficiaries commencing their studies in 1960. Since then, over 30,000 Commonwealth citizens have held scholarships or fellowships through the CSFP, which to this day remains based on five main principles:

a) The Plan should be additional to, and distinct from, any other plan in operation.

b) The Plan should be based on mutual cooperation and the sharing of educational experience among all the nations of the Commonwealth.

c) The Plan should be sufficiently flexible, to take account of the diverse and changing needs of Commonwealth countries.

d) While the Plan will be Commonwealth-wide, it should be operated on the basis of a series of bilateral agreements to allow for the necessary flexibility.

e) Awards should be designed to recognise and promote the highest standards of intellectual achievement.

The UK has since the outset been a committed contributor to the CSFP, offering over 25,000 awards to Commonwealth citizens since 1960 and currently offering around 900 awards annually for study at postgraduate and doctoral level as well as for shorter mobility opportunities for professional, academic, and medical staff.

The initial focus of the CSFP was on supporting individuals and encouraging international collaboration and understanding through education. This remains the case; however, over time, and since the late 1990s in particular, international development objectives have become increasingly influential in shaping the outlook of donor governments and in the operations and policies of the various programmes. In the UK, for example, CSC policy and application requirements explicitly emphasise the need to demonstrate potential development impact alongside intellectual and leadership skills. Applicants for awards are thus expected to display high levels of academic merit and submit well thought-out study proposals, but also to outline the intended development impact of their work on their home countries. A changing political climate has also led to a reduction in awards for individuals from developed Commonwealth countries, further emphasising the development focus of CSC activity as a whole.

Intended beneficiaries:

‘ High-quality graduates who have the potential to become influential leaders, teachers, or researchers in their home countries, and whose proposed research topic has been described to the satisfaction of the selection committee as having a developmental and leadership focus’.

Commonwealth Scholarships for Master’s and PhD study, 2016 Prospectus (CSC, 2016)

1.2. Overview of scholarship schemes

In the early days of the CSFP, the CSC offered scholarships for study leading to doctoral and Master’s level qualifications, as well as separate fellowships for medical training and academic staff. Medical Fellowships for senior and junior medics were merged with the broader scholarship and fellowship programmes in the 1990s, reducing the number of programmes on paper, if not in practice. In the past 15 years, however, and as of 2015, the range of schemes has once again expanded to include not only the reintroduction of a separate Medical Fellowship scheme, but also Professional Fellowships of typically three months in length, Split-site Scholarships for doctoral students registered for PhD study in their home country allowing for a period of research at a UK university, and Distance Learning Scholarships for Master’s study. The former Overseas Development Agency Shared Scholarship Scheme was also brought under the umbrella of the CSC in 2002, adding a further Master’s study scheme to the overall portfolio of awards.

Each type of award offered involves a different funding arrangement with institutions, level of study, government department providing funding, length of tenure, or primary focus. Throughout this report, we refer to the various scholarship schemes by a short title, such as ‘Academic Staff’. To better understand our analysis, it is useful to understand the different characteristics and histories of these scholarship schemes, and for this purpose each has been outlined briefly below.

Split-Site Doctorate – Commonwealth Split-site Scholarships: Introduced in 1998, a scheme in which PhD students registered at a ‘home institution’ in another Commonwealth country apply to spend up to one year at a UK institution. Applicants were previously nominated by their home institution but can, as of 2015, apply directly.

Academic Staff – Academic Staff Scholarships: Scheme for Master’s (prior to 2015) or doctoral study in the UK. Applicants are academics nominated by their higher education institution.

Fellows – A series of short-term mobility schemes. Although each fellowship scheme is distinct, we have combined them into a single category for the current report, as often there were too few Fellows from each individual scheme to include as a separate category. The constituent elements of the Fellows category are the participants in:

1. Commonwealth Academic Fellowships: Short-term mobility scheme for established academic researchers and medical professionals to build skills and contacts at a UK institution. Eligible lengths of tenure have varied from 12 months to six months to three months at different times across the history of the scheme; currently, as of 2015, awards are offered for a period of 10-12 months.

2. Commonwealth Medical Fellowships and Senior Medical Fellowships: historical scheme for medical training fellowships, subsequently merged with Commonwealth Academic Fellowships scheme or discontinued in some elements; reintroduced as a separate programme as of 2015.

3. Commonwealth Professional Fellowships: Introduced in 2001, a short-term mobility scheme for professionals to build skills and contacts at a UK host organisation.

Agency: Developed – ‘General’ Commonwealth Scholarships: Broad scheme for Master’s or doctoral study in the UK for citizens of developed countries. Applicants are nominated by an agency partner in the home country, often within ministries of education, training or human resources, or in some cases by a university or other higher education body.

Agency: Developing - 'General' Commonwealth Scholarships: Broad scheme for Master's study, doctoral study, or medical training in the UK for citizens of developing countries. As before, candidates apply through a national nominating agency, most often within ministries of education, training or human resources.

Shared Scholars – Commonwealth Shared Scholarships: Scheme for Master's study in the UK with different cost-sharing arrangements between the CSC and universities. Applicants are put forward by UK universities.

Distance Learners – Commonwealth Distance Learning Scholarships: Introduced in 2002, a scheme for Master's courses run by UK institutions and studied at distance (i.e. in home countries). Awards are offered for selected courses.

Since 2007, the CSC has through its evaluation programme actively sought to investigate the specific outcomes and impacts of its various programmes, building on longstanding monitoring and alumni tracing work. As a result, from 2015, the various programmes outlined above are now explicitly structured into eight distinct schemes, each of which has a clearly articulated set of outputs and outcomes. These outcomes have been informed by the wealth of information we have collected, informally and formally from our Scholars, Fellows and alumni over the years, including for the survey exercise discussed in this report.

1.3. Survey methodology

Data was collected for the current analysis through an online survey designed and administered by the CSC evaluation team. The survey was sent to members of the CSC's alumni network between 2012 and 2015. Data was collected on the following broad topics:

1. Current employment trajectory
2. Perceptions of knowledge and skills gained from Commonwealth awards
3. Involvement in development activities
4. Scientific collaboration and international business or personal networks
5. Attribution and counterfactual scenarios

The majority of items within the survey involved either selection among multi-choice categories, or rating statements against 5-point or 10-point Likert-style scales. Some elements of the survey also called for respondents to reply in text (e.g. to give examples or clarifications). In our interim report (Mawer, 2014b), we examined some elements of these topics in detail and, in absence of substantial additional contribution from the current analysis, these aspects have been omitted from this report.

To organise the survey, the population of award holders was divided into subcategories based on the year in which their Commonwealth Scholarship or Fellowship was awarded. Four surveys were then administered, in the years 2012, 2013, 2014, and 2015: these years are referred to as 'iterations' in the report. There were no anticipated differences between the populations for the survey iterations: the division of award holders by their award year was entirely for administration purposes. As such, the survey data has been treated as one census collected over four years, not four samples of the same population.

The main survey was sent to a population of 6,764 alumni, divided across the four survey iterations. Additionally, a catch-up exercise in which one group of Fellows – Professional Fellows – were surveyed using a similar instrument was conducted in 2012, yielding a further cohort of respondents that were included in the dataset for analysis. Almost a fifth (18.3%) of survey invitation emails failed to be delivered due to incorrect contact details; we have excluded these recipients from our calculations of response rates. The aggregate response rate from the remaining survey emails was 36.6%.

Table 1 Aggregate response data

Year of survey	Respondents
Total respondents	2090
2012	361
2012 'Fellows catch-up'	114
2013	445
2014	427
2015	751

The survey population was a non-random and non-stratified census of current alumni network members. Although the methodology did not apply any specific criteria for participation, the total population was restricted insofar as the CSC needed to hold current contact details and permission for their use in order to send the survey to an award holder. Those in contact with the CSC fall into one (or several) of the following categories:

- Recent Commonwealth Scholars and Fellows
- Retrospectively traced alumni, disproportionately likely to be those for whom contact details were available online or through similar public means, or who were referred by a fellow Commonwealth Scholar/Fellow
- Those who are willing for the CSC to hold (and use) their correspondence details and have not declined further contact – a group which is disproportionately likely to exclude those who had a poor experience (either with the CSC, the UK, or their institution) and would rather not remain in contact

In order to examine potential response bias, we conducted an analysis of the representativeness of our survey respondents in relation to the population of all Scholars and Fellows (both alumni network members and non-members). The comparisons indicate a high level of representativeness in most areas, including selection scores/grades, age at award uptake, gender, doctoral submission time (where appropriate), scholarship scheme, and degree type, with slightly larger variation between respondents and population in their region of origin (specifically, Australasian and North American (Canadian) Scholars are somewhat overrepresented in the survey respondents).

Data has been analysed through descriptive and inferential statistical techniques and, where appropriate, free-text coding. Unless otherwise stated, percentages reported are always calculated based on those who answered the question under consideration, not the entire survey dataset. For inferential tests, the Type 1 error rate (alpha level) is 0.05 (5%) throughout the analysis. To understand the results of the regression analyses specifically, it is useful to bear in mind the following three notes:

1. *Coefficients* and *odds ratio* indicate the effect size: the positive or negative sign for a coefficient indicates the direction of the effect (e.g. negative coefficients reduce the likelihood of the outcome being measured) and the size of the coefficient indicates the magnitude of the effect. An odds ratio conveys similar information but in a comparative fashion (e.g. doctorate vs postgraduate degree type). An odds ratio has a base value of 1.0 and so a value below 1.0 indicates a reduced likelihood of the outcome being measured and vice versa. As with coefficients, the size of the odds ratio indicates the magnitude of the effect.

2. The *confidence interval* shows the 'accuracy' of an estimate by indicating the margin of error, with lower and upper boundaries, larger margins being worse.

3. The *R-squared* value indicates the overall 'fit' of the regression model. R-squared is percentile and a higher percentage indicates more variation explained by the model.

Additional methodological commentary is included in Annex 1.

1.3.1. Survey respondents

The survey dataset includes respondents from each scholarship programme operated by the CSC, who are currently residing in 84 countries, having studied over 100 academic disciplines, hosted at over 300 UK institutions. Remarkably, the survey gathered responses from Scholars and Fellows who had held scholarships as far back as 1960 and in *every subsequent year* until 2012, with the volume of responses for each award year ranging from 4 to 188.

Table 2 Survey respondents by decade

Decade	Respondents	Proportion of all respondents	Average respondents per year
1960s	75	3.6%	8
1970s	133	6.4%	13
1980s	215	10.3%	22
1990s	354	16.9%	35
2000s	993	47.5%	99
2010s	320	15.3%	107

As Table 2 indicates, the largest proportion of respondents held their awards in the 2000s, primarily because their contact details were more readily available and likely to be correct. Conversely, participation by those from earlier decades of the scheme – particularly the 1960s – was much lower, because contact details were less readily available or incorrect, or the population less willing to respond (e.g. having retired). Additionally, the proportion of 1960s or 1970s Scholars and Fellows who are currently alumni members is, understandably, lower than in more recent decades and thus the population that could be surveyed was lower. This trend highlights a potential sampling bias generated by surveying only alumni network members, although it is likely that surveying non-members from the 1960s would mainly yield more failed contact addresses, not successful survey responses.

The period that had elapsed between completing a Commonwealth Scholarship or Fellowship and responding to the survey differed between respondents, depending on when they held and thus subsequently completed their award. The elapsed time between the conclusion of an award and responding to the survey is referred to here as the 'time since completion'. The median time since completion was nine years; i.e. nine years had elapsed between finishing a scholarship or fellowship and participating in the current survey.

By the time of the survey, most Scholars or Fellows that responded were in their 40s and thus likely to be mid-career (excepting changes of profession). Despite being the youngest group at the take-up of their award, Agency: Developed Scholars were one of the older groups at the point of the survey, reflecting their disproportionate participation in the earlier years of the scheme (e.g. 1960s and 1970s). As might be expected, this group also had the longest time since completion. Distance Learners, conversely, had a much shorter time since completion because their participation has been more recent; the CSC distance learning scheme was launched in 2002, while the Agency: Developed scholarships have been ongoing since 1960.

Table 3 Age and time since completion statistics by scholarship scheme

Scholarship	Average age at award	Average age at survey	Average time since completion
Academic Staff	33	48	13
Distance Learners	34	42	4
Split-Site Doctorates	33	41	7
Agency: Developed	25	47	19
Agency: Developing	29	43	13
Fellows	41	52	10
Shared Scholars	27	35	7

The majority of survey respondents held citizenship in either Sub-Saharan Africa or South Asia, these two regions[1] constituting just over two-thirds of the survey respondents.

Table 4 Survey respondents by region of citizenship

Region of citizenship	Respondents	Proportion of all respondents
Sub-Saharan Africa	794	38%
South Asia	630	30%
Australasia	204	10%
North America	165	8%
Caribbean	119	6%
Southeast Asia	103	5%
Europe	64	3%
Pacific	10	1%

A small percentage (3%) of respondents held citizenship in Europe, the majority of whom were either Cypriot or Maltese, although some were naturalised or dual citizens of the UK. The Pacific region states (e.g. Fiji) provide only a small cohort of survey respondents and are excluded in most of the analyses that use geographic region of citizenship as a variable.

By programme studied, the largest single group of respondents had undertaken postgraduate degrees (e.g. Masters' degrees) as part of their Commonwealth Scholarship. In our current analysis, all distance learning Masters' degrees are considered 'postgraduate', but it is important to note that a substantially higher proportion of CSC Distance Learners complete their course with a diploma or certificate than is the case for CSC residential Masters' degrees.

Table 5 Survey respondents by degree type

Type	Respondents	Female	Male	Proportion of all respondents
Postgraduate	882	38%	62%	42%
Doctorate	599	30%	70%	29%
Fellowship	473	32%	68%	23%
Split-site PhD	61	51%	49%	3%
Undergraduate	55	18%	82%	3%
Other	20	25%	75%	1%

The survey yielded sufficient responses for analysis for each scholarship scheme, with the exception of the individual fellowship schemes. As such, these schemes have been collated into a single category ('Fellow'). Although some fellowship schemes had a substantial corpus of survey respondents, others, such as discontinued fellowship programmes, has fewer than ten respondents and thus were not suitable as analytic groups. The relative similarity of fellowship programmes, especially in contrast to scholarship programmes, means that the 'Fellows' category is still analytically useful.

Table 6 Survey respondents by scholarship scheme

Scheme	Respondents	Female	Male	Proportion of all respondents
Agency: Developing	583	32%	68%	28%
Fellows	495	31%	69%	24%
Agency: Developed	344	39%	61%	16%
Shared Scholars	343	36%	64%	16%
Academic Staff	174	25%	75%	8%
Distance Learners	94	39%	61%	5%
Split-Site Doctorates	57	49%	51%	3%

[1] See Annex 1 for the composition of each region

The majority of survey respondents were male (66%), although this differed considerably by scholarship scheme and degree type as Tables 5 and 6 indicate. The gender balance within the survey data is similar to that within the scheme more widely, but it is important to situate this information in historical context.

Table 7 Survey respondents by decade of award

Decade	Respondents	Female	Male
1960s	75	5%	95%
1970s	133	17%	83%
1980s	215	20%	80%
1990s	354	31%	69%
2000s	993	41%	59%
2010s	320	38%	63%

The number of female Commonwealth Scholars and Fellows has been increasing decade on decade since the inception of the programme, facilitated in recent years by overt gendered participation targets within the CSC selection process. Lower female participation in the 2010s is a distortion in the data caused by the inclusion of a disproportionate corpus of Professional Fellows in the survey exercise (the 2012 'Fellows catch-up' noted in Table 1 above). The population level data does not show a similar trend; 41% of all CSC award holders between 2010 and 2012 were female.

2. Individual trajectories

I designed the undergraduate and postgraduate agricultural statistics programmes at the then Institute of Statistics and Applied Economics, now School of Statistics and Planning, of Makerere University. In 1990, I was the Founding Secretary of the Uganda Statistical Society, which played a critical role in the revival of statistics in Uganda after the Amin government years (1971-1979).

As a statistician, in the Central Statistics Office and the Central Bank, I have been involved in designing and carrying out surveys and censuses to provide data to decision-makers, the private sector, and other stakeholders. For example, while heading the Central Statistics Office (CSO) between 1994-1998, there was a revival of data collection in several areas related to economic growth, including the Uganda National Household Surveys. Efforts also started for the provision of data on gender and poverty. This data was critical for any gender equality and poverty reduction. I was also a consultant for the censuses of agriculture in 1990/1992 and 2002.

My work has improved the availability and accessibility of data in Uganda. The Uganda Statistics Abstract (giving various data on Uganda) was revived in 1996 during my tenure as Head (Commissioner) of the CSO; the last abstract had been published in 1987! Similarly, my work has led to the enactment of the Uganda Statistics Act 1998 and the creation of a semi-autonomous Uganda Bureau of Statistics in 1999, where I served as Chairman of the Board of Directors from 2008 to 2014. I have also served as a consultant to several national and international organisations, including the World Bank and the United Nations Food and Agriculture Organization.

All of these activities can be directly attributed to my training at the University of East Anglia under the Commonwealth Scholarship between 1983-1987.

Dr Elijah Muwanga-Zake
University of East Anglia, 1983

To understand the outcomes of a scholarship programme means, at its most fundamental level, to understand the career trajectory of its recipients. While many scholarship programmes rightly champion the high profile successes of their Nobel laureates, government ministers, renowned authors, and others, it is often more informative to scrutinise the outcomes of scholarships through the broader lens of overall trends. Although all scholarship programmes involve a degree of 'risky' investment in individuals, it is our contention that the CSFP yields broader-based positive outcomes than merely a few 'superstars' across its history – not so much 'high risk, high reward', but rather an investment in a system that more generally works. We test that proposition – and, in particular, explore some of its nuances – using the survey data collected since 2012.

The starting point of our analysis was to address three fundamental questions:

1. What careers have Commonwealth Scholars undertaken?

2. What has been gained from Commonwealth Scholarships and, as a corollary, how has this been applied to careers?

3. Have the careers of Commonwealth Scholars been undertaken within their home countries?

We have not sought to provide simplistic answers to these questions, but rather to examine what the survey data can tell us – and, conversely, what it cannot tell us – about each. In some cases, the results are relatively straightforward, whereas in other instances they are both complex and clearly in need of further data to clarify.

As we noted in chapter 1, the median time since completion was nine years, and thus in most cases we have gathered a snapshot of employment outcomes a substantial period after completion of the scholarship or fellowship. An advantage of this situation is that when we discuss 'outcomes' we do not mean only in the immediate years after a scholarship has been completed, but almost a decade hence. For much of the analysis, this confers the benefit of being able to reflect on the longer-term outcomes of scholars in a way that has often been difficult for scholarship programmes. Conversely, a disadvantage of this situation is that we lack data to 'fill in' the years between completing a scholarship and responding to the survey. The surveys have not been conducted longitudinally and as a result we often have only two data points: the situation when a recipient applied for a scholarship, and the current situation. This latter concern recurs at various points within this (and other) chapters, and we note how it may be overcome in section 4.4.1.

2.1. Employment trajectory

In this section, we explore some of the most important aspects of employment data collected through the surveys, notably pre- and post-scholarship employment and the sectors in which alumni currently work. The analysis presented here is primarily descriptive and is designed to set the context for much of the discussion that follows.

2.1.1. Pre- and post-scholarship employment

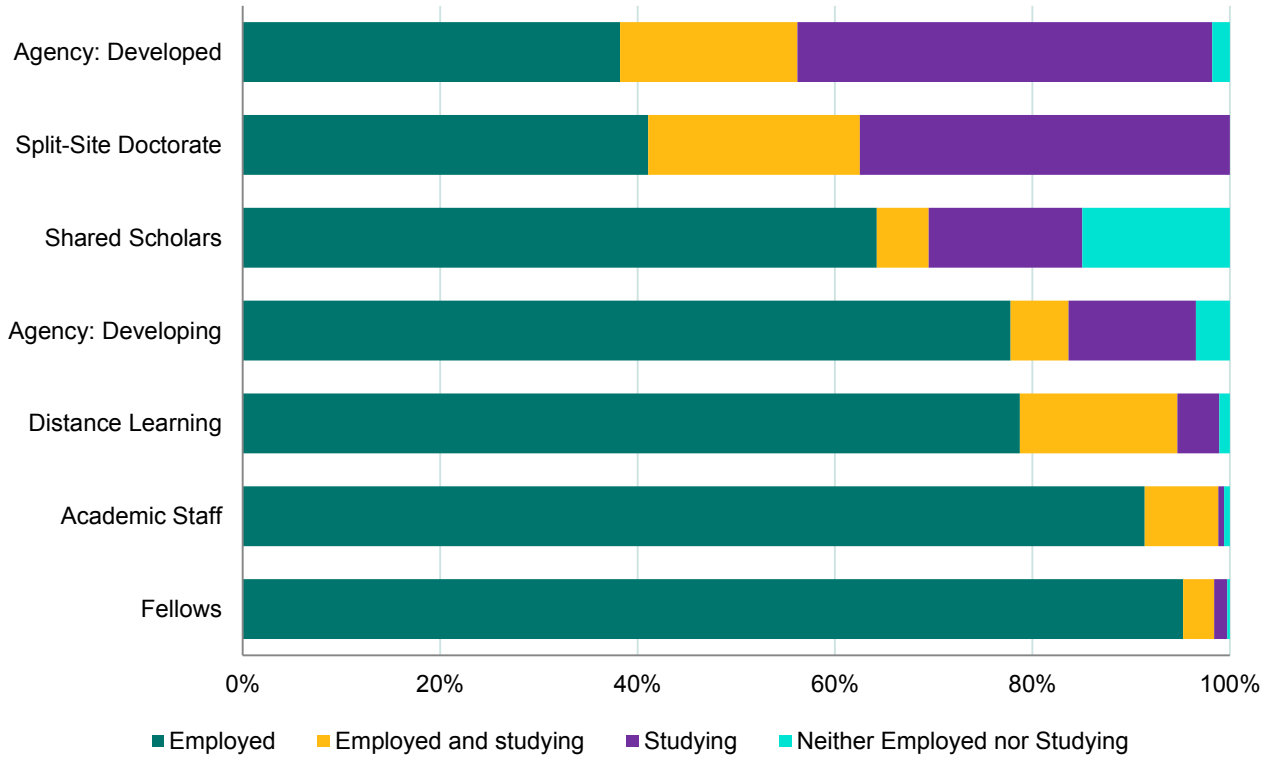
Prior to taking up their Commonwealth Scholarship or Fellowship, the majority of respondents were employed (72%), of which almost all (90%) were in full-time paid work. A sizeable minority of Scholars were studying prior to their Commonwealth award, either full-time or in addition to paid work. Very few Distance Learners or Fellows were studying prior to their Commonwealth award, as might be expected, but also relatively few of those who undertook postgraduate study were studying immediately before their Commonwealth Scholarship. As the average age calculations in chapter 1 also indicate, there are only a minority of Scholars who enter Commonwealth Scholarships immediately from previous degrees; in many cases, Scholars return to study later in their working life and thus the scholarships provide a source of funding for professional development.

Table 8 Survey respondents by pre-scholarship employment status

Employment status	Proportion
Employed	72%
Employed and studying	8%
Neither employed nor studying	4%
Studying	15%

Employment status pre-scholarship also differed substantially by scholarship scheme. Some of these trends follow the points made above about studying prior to undertaking a Commonwealth Scholarship, while others seem to indicate trends related to nominating routes rather than degrees studied. The relatively large proportion of Agency: Developed Scholars who were studying prior to undertaking their Commonwealth Scholarship, for instance, highlights those most likely to follow a 'traditional' study route between bachelors' and postgraduate and/or doctoral degrees.

Figure 1 Survey respondents by pre-scholarship employment status, disaggregated by scholarship scheme



Another intriguing aspect of the data is that the proportion of Shared Scholars who were employed prior to their scholarship is surprisingly low: 14% fewer were solely employed than was the case for Agency: Developing Scholars. This statistic is surprising because the Shared Scholarship scheme is generally noted to offer professional training for skilled personnel who would not otherwise have been able to study in the UK, and thus a reasonable a priori assumption would have been very high levels of pre-scholarship full-time employment among the Shared Scholars group. An ambiguous aspect of the data is the large minority of Shared Scholars listing their status as 'neither employed nor studying'. One interpretation of this data is that these Scholars were on a 'gap' after finishing study (or possibly employment) while they sought funding to undertake further study, although there is no further information in the survey to confirm this supposition.

At the time of the survey, the majority of Scholars and Fellows were in full-time employment, with the remainder mainly either currently studying or having retired. The percentage of respondents having retired is, unsurprisingly, closely related to the year in which a Commonwealth award was received. As such, larger proportions of respondents from earlier decades of the scholarship programme are currently retired: 59% of those who held awards in the 1960s and 23% of those in the 1970s.

Table 9 Current employment status of survey respondents

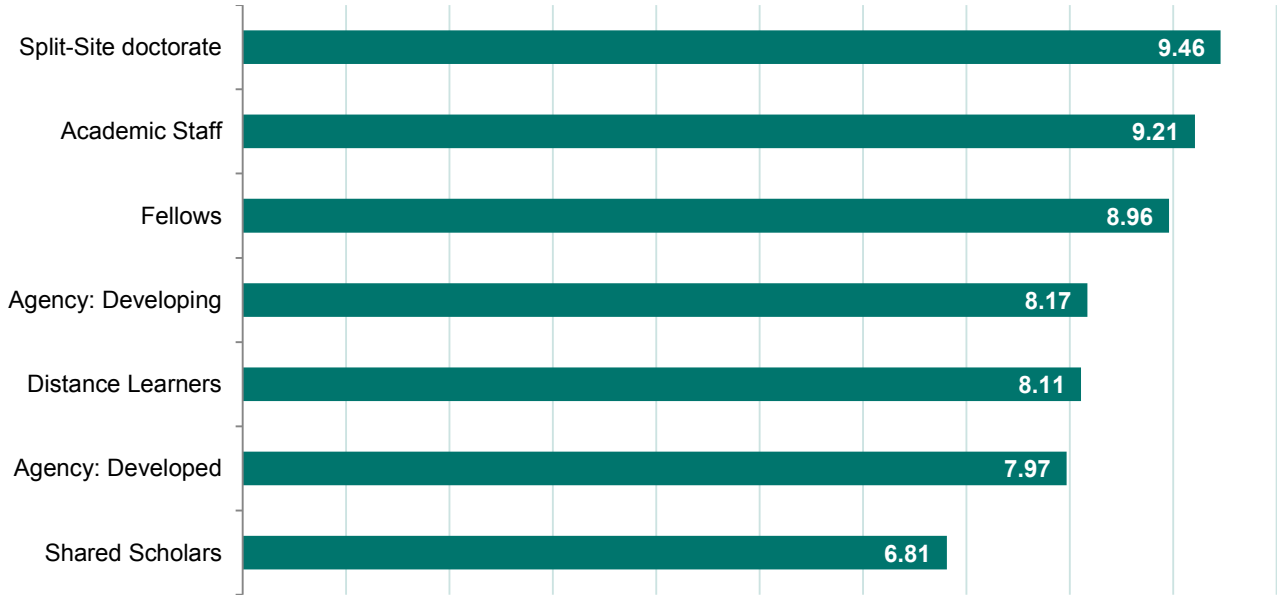
Employment status	Proportion
Employed	88%
Retired	5%
Studying	4%
Unemployed	2%
Other status	1%

Another temporal trend emerging from the survey is that those currently studying held their Commonwealth Scholarship only in the 2000s or 2010s. Many of these respondents are undertaking a doctorate (sometimes with CSC funding) after having completed a Commonwealth Scholarship for Master's study as an agency-nominated or Shared Scholar. As might be expected, for the 'middle' decades, with lower levels of both study and retirement, the percentage employed is much higher: 96% in the 1990s, for instance.

2.1.2. Employer supportiveness and return to post

Perceived supportiveness of employers for applying for a Commonwealth Scholarship or Fellowship was generally high, reflecting a widespread trend towards recognition of Commonwealth awards as an important professional development tool. Employer supportiveness was highest among those scholarship schemes in which the recipient's employer had a direct role in their nomination, such as for Academic Staff Scholars or Fellows. In these cases, it is doubtful that candidates who did not enjoy the support of their employers would be nominated for a scholarship or fellowship.

Figure 2 Average rating of employer supportiveness (out of 10) by scholarship scheme



Shared Scholars reported the lowest level of support from their employers for undertaking their scholarship. The average rating ($\bar{x}$ = 6.81) is representative of Shared Scholars from both Sub-Saharan Africa and South Asia, and is thus unlikely to be a regional variation; however, female Shared Scholars did report somewhat higher employer support than male Shared Scholars ($\bar{x}$=7.11).

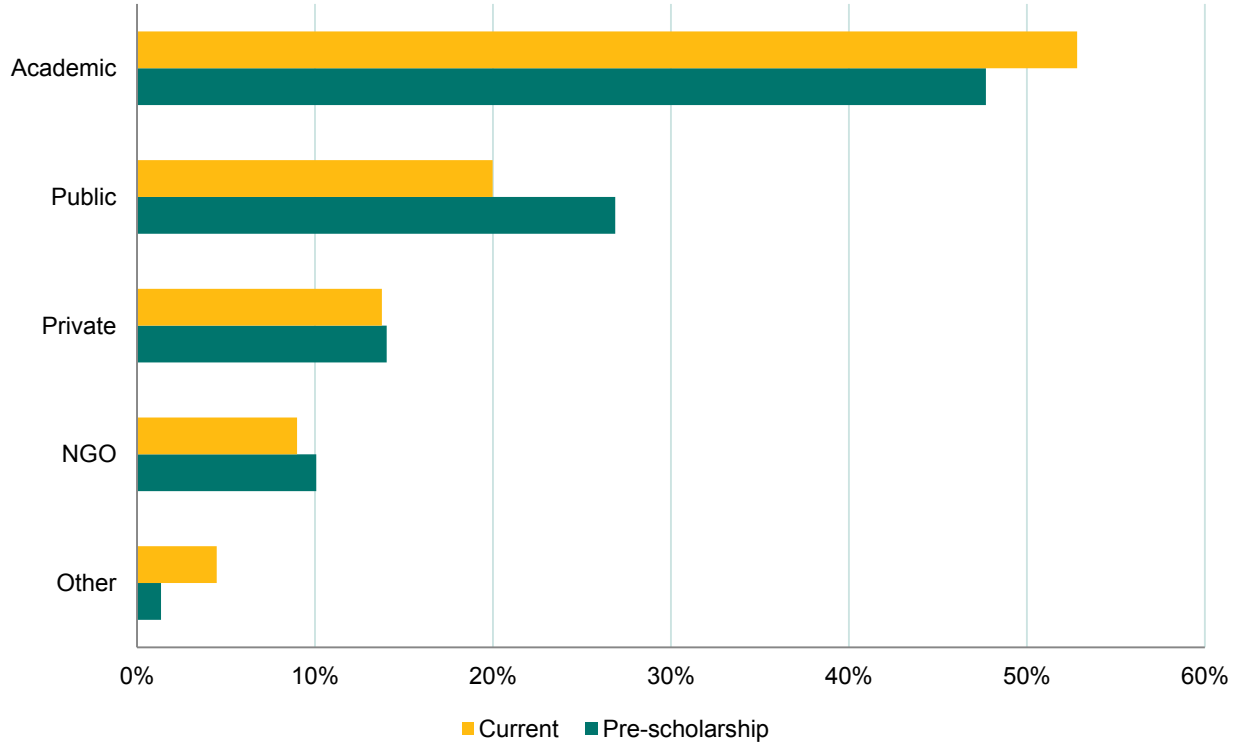
After completing their scholarship, a majority of Scholars and Fellows who were employed pre-scholarship returned to their post (63%). Again, this differs notably by scheme; 95% of Fellows and 84% of Academic Staff Scholars returned to their pre-scholarship employment upon completion, whereas only 14% of Agency: Developed Scholars did so. Since Fellows usually undertake programmes only a few months in duration, it is unsurprising that the rate of return to employment for this group is very high. Those Fellows not returning to their pre-scholarship employment likely include some historical award holders who studied degree-length awards (e.g. a PhD) under a fellowship programme, a practice now discontinued for many years. Only a minority (31%) of Shared Scholars returned to their pre-scholarship employment. The lesser extent of employer support for Shared Scholars is a facet of the data that may merit further investigation; it seems highly likely that the low return rate to previous employment and low level of perceived employer support for undertaking a Commonwealth Scholarship are related facets of the Shared Scholars' experience.

Of the 37% of Scholars and Fellows who did not return to their previous employment, 81% found employment within a year of completing their Commonwealth award. We asked respondents to consider the extent to which they felt that their Commonwealth Scholarship contributed to gaining this employment, and the average rating was $\bar{x}$=8.39 (out of 10). In sum, we can conclude that reintegration to the labour force generally occurs within the first year post-scholarship, either with a pre-scholarship employer or elsewhere.

2.1.3. Trends in employment sector

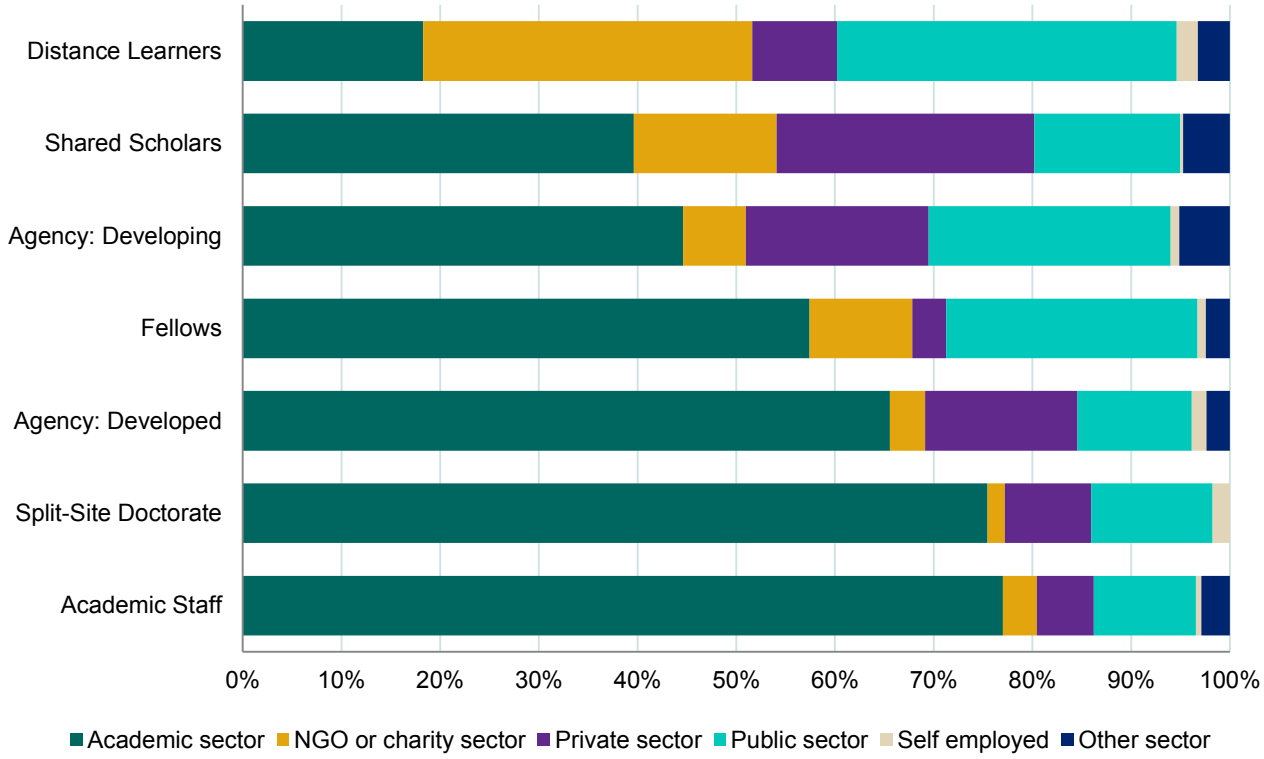
Prior to undertaking their Commonwealth Scholarship, respondents worked primarily in the academic or public sector, with small minorities also in the private and NGO sectors. While the majority of those working in the academic sector did so within universities, some respondents worked within independent research institutes or within agencies in the broader academic sector.

Figure 3 Primary employment sector of survey respondents pre-scholarship and currently



Similar sectoral participation continued post-scholarship, with some variations. In comparison to pre-scholarship employment, the proportion of alumni currently working in the public sector is somewhat lower (20% vs 27%), and the proportion in the academic sector somewhat higher (48% vs 53%). Similar proportions of Scholars were employed in the private and NGO sectors presently as were employed in these sectors prior to their scholarship, although only 55% and 67% respectively were employed in these sectors *both* pre-scholarship and currently, indicating some mobility between sectors across the course of respondents' careers.

Figure 4 **Current employment sectors of survey respondents, disaggregated by scholarship scheme**



Variations in current employment sectors reflected the differences between the scholarship programmes run by the CSC. Taking the academic sector as an example, Academic Staff Scholars and Split-Site Doctorate Scholars who were employed prior to taking up their scholarship almost all worked within the academic sector. Similarly, those Scholars were disproportionately employed in the academic sector at the time of the survey.

At the opposing pole, very few Distance Learners were employed in the academic sector either pre-scholarship or currently. This group worked predominately in the public or NGO sector – about one-third in each. Interestingly, only around one-third of Distance Learning Scholars who were employed in the private sector pre-scholarship were also currently working in that sector, compared to 95% continuing employment in the NGO sector and 75% in the public sector.

Table 10 **Current employment sector of survey respondents disaggregated by scholarship scheme**

Scheme	Academic	NGO	Private	Public	Self employed	Other
Academic Staff	77%	3%	6%	10%	1%	3%
Distance Learners	18%	33%	9%	34%	2%	3%
Split-Site Doctorate	75%	2%	9%	12%	2%	0%
Agency: Developed	66%	4%	15%	12%	1%	2%
Agency: Developing	45%	6%	19%	25%	1%	5%
Fellows	57%	10%	3%	25%	1%	2%
Shared Scholars	40%	14%	26%	15%	0%	5%

More generally, employment in the private sector is low across all of the scholarship schemes. Only for Shared Scholars is private sector employment higher than 20%, with this group of Scholars tending towards more evenly distributed participation across the employment sectors than the other scholarship schemes. Whether lower participation in the private sector is of further policy relevance depends on the objectives of the particular awards granted. Doctoral Scholars, for instance, primarily go on to work in the academic sector, helping to address the shortage of doctorate-qualified personnel in this sector in many Commonwealth countries. As such, any movement of doctoral Scholars from the academic to the private sector may be deleterious to the overall outcomes of the scholarship programme.

Yet, while the proportion of doctoral Scholars employed in the private sector post-scholarship is marginally higher than pre-scholarship, this is not at the expense of the academic sector (in which participation also increased post-scholarship). Of those doctoral Scholars who were not employed in the academic sector prior to undertaking their Commonwealth Scholarship, just under half (44%) were currently working in the academic sector. Additionally, the retention rate of pre-scholarship academic staff was high; of those who were working in the academic sector, 86% were still working in that sector. Rather, it is the public sector in which employment has reduced sharply from pre- to post-scholarship: 40% fewer doctoral Scholars are employed in the public sector post-scholarship than pre-scholarship. The majority of these Scholars (just over two-thirds) held current employment in the academic sector.

2.2. Perceived gains

Beyond merely noting that Scholars are employed and active in sectors important to the aims of Commonwealth Scholarships, it is crucial to analyse the extent to which they have realised gains from their scholarship experience and to what extent these gains have translated into productivity within the labour force.

The basic analysis presented in our interim report (Mawer, 2014b) is expanded in this section, but ultimately the 'headline' conclusions remain the same: while there are many incremental differences, overall Scholars indicated robust knowledge and skill gains and subsequent opportunity to apply these gains. Our purpose in this section is thus to explore what trends in ratings of perceived gains can be detected and how these may be of relevance for both understanding the historical outcomes of scholarships and informing current CSC policymaking.

Ten topical statements about the specific gains from Commonwealth Scholarships and Fellowships were answered on a five-point Likert scale. The statements were:

[1] I accessed equipment and expertise not available in my home country

[2] I gained knowledge in my field of expertise

[3] I increased my analytical/technical skills

[4] I learned techniques for managing and organising people and projects

[5] I have been able to transfer or pass on to others the skills and knowledge gained during my award

[6] As a result of my Commonwealth award my ability and confidence to make changes in my workplace has increased

[7] My workplace enables me to make full use of my skills, knowledge and expertise

[8] As a result of the knowledge acquired through my Commonwealth award I have been able to introduce new practices/innovations to my workplace

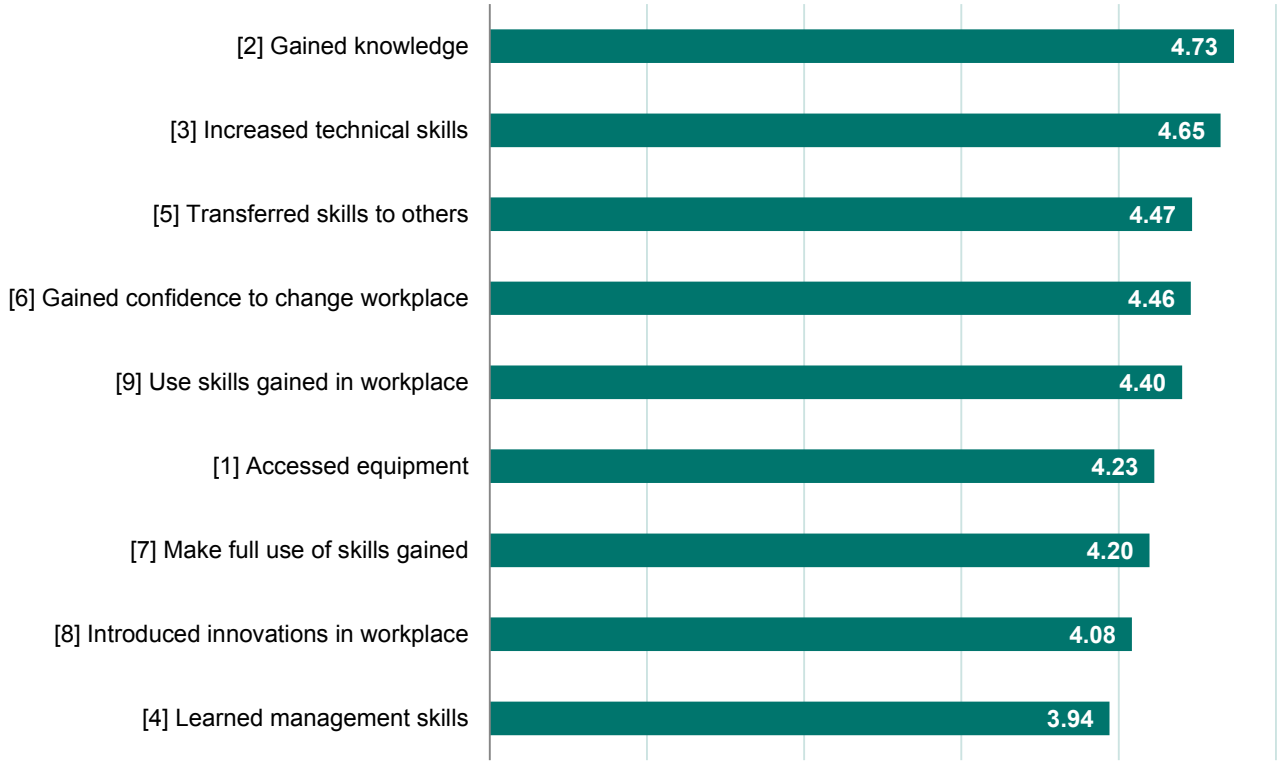
[9] In my workplace I use the specific skills and knowledge gained during my award

In this analysis, we interpret the data primarily based on the average ratings across all respondents (or particular groups) for a particular statement, interpreting this as an indication of the extent to which those particular gains have been made. It should be noted that the interpretation of these categories is sometimes different; statements one to four are specifically scholarship gains, whereas statements five to nine are more closely related to the application of gains post-scholarship. In this analysis, and bearing in mind the limitations of the data, we have investigated trends that may be indicative of differences either between expected and reported outcomes or between particular groups of respondents.

The average rating given across all nine categories ('grand average') was $\bar{X}$=4.35, the equivalent of a rating between the 'Agree' and 'Strongly Agree' categories on the five-point scale. Ratings of gains were thus very high when measured in aggregate, suggesting that the respondent group felt they had both gained from the degree itself (e.g. through increasing technical skills) and had been able to apply these gains post-scholarship (e.g. through introducing innovations in the workplace).

Examining the categories individually, there is some variation evident, although by less than a scale point between the categories with the highest and lowest average ratings.

Figure 5 Mean ratings for categories of perceived gains



The categories of perceived gains most highly rated were those related to gaining knowledge and technical skills. Certainly this might be expected, given that all of the Commonwealth awards were for either academic study or professional training and thus involve a considerable pedagogic component, even in the case of most fellowships. In a second 'tier' of slightly lower, although still very high, perceived gains were those relating to application of skills and knowledge: gaining confidence to make changes in the workplace, using the specific skills learned from the scholarship at work, and transferring those skills to others. The latter is an especially important policy issue for Commonwealth Scholarships – and for international scholarship programmes generally – and that Scholars and Fellows were widely involved in transferring skills gained from their scholarships is a notable outcome. Similarly, the application of skills gained while on scholarship subsequently within the workplace is an important facet of avoiding 'brain waste' (see, for instance, Uwaifo Oyelere, 2007) and thus high ratings for categories such as 'Use skills gained in workplace' indicate positive outcomes.

The categories that received the lowest average ratings concerned learning management skills and introducing innovations in the workplace. The former reflects that Commonwealth awards do not include an overt focus on management skills beyond that within the degree programme studied (or fellowship programme followed), which is likely to vary considerably between academic disciplines. The slightly lower rating of having introduced innovations in the workplace is an interesting contrast to the (more highly rated) category of gaining confidence to make changes in the workplace. Whether this distinction reflects a divergence between perceived ability and opportunity in practice is an important question for future study, although the divergence between the two categories remains rather small: less than half of a scale point.

A correlation analysis of the perceived gains grand average by Scholar time since completion[2] showed no support for a relationship, but several correlations with the individual categories of perceived gains were statistically significant.

[2] Time since completion is grouped for the purpose of this analysis; see Section 2.3.2 for details on the groupings.

Table 11 Analysis of correlations between perceived gains and time since completion of scholarship[3]

Category	Coefficient (r_s)	Sig. (p)
[1] Accessed equipment	0.004	0.864
[2] Gained knowledge	0.028	0.228
[3] Increased technical skills	0.045	0.051
[4] Learned management skills(*)	-0.201	<0.001
[5] Transferred skills to others(*)	0.088	<0.001
[6] Gained confidence to change workplace(*)	-0.089	<0.001
[7] Make full use of skills gained(*)	0.096	<0.001
[8] Introduced innovations in the workplace	0.016	0.481
[9] Use skills gained in workplace	0.044	0.056
Grand average	*-0.007*	*0.754*

Four categories of perceived gains were significantly correlated with time since completion: [4] Learned management skills; [5] Transferred skills to others; [6] Gained confidence to make changes in the workplace; and [7] Make full use of skills gained. Of these correlations, only the relationship between [4] Learned management skills and time since completion exhibits a sufficiently large effect size (r_s= -0.201) to be noteworthy within the present analysis. The negative association indicates that ratings of having learned management skills tended to decline as time since completion increased, or put differently: those who completed their scholarship longer ago tended to offer lower ratings of having learned management skills. A plausible explanation for this trend is that the proportion of scholarship schemes offered by the CSC with some component of project or personnel management has increased in the recent history of the scheme – the introduction of Commonwealth Professional Fellowships providing a notable example. Additionally, ratings for having learned management skills were lowest among those who undertook scholarships through the Agency: Developed Country route (i.e. individuals from North America and Australasia), and in recent decades the proportion of scholarships offered through this route has declined considerably.

There was no statistically significant difference between the grand average rating of perceived gains for Scholars residing in their home country compared to those residing in another country.[4] Further exploration of residency trends and influences on residency at home or abroad is detailed below in Section 2.3.

2.2.1. Variations within demographic groups

To explore whether perceived gains varied by the gender of the Scholar, their region of citizenship, or the type of degree studied, we conducted a series of ordinal logistic regression analyses.

In order to analyse the three variables simultaneously, some data had to be recategorised to provide sufficiently large group sizes. Firstly, the regions of Australasia, North America, and Europe were combined into a new category named ‘High income Commonwealth’, and the Pacific region was removed from the analysis because of the limited group size. The degree types included in the analysis were limited to Doctorate, Postgraduate, and Fellowship; Undergraduate, Split-site PhD, and ‘Other’ degrees were excluded due to limited group size. Similarly, because respondents tended to rate perceived gains very highly, it was necessary to recode the rating scale to create sufficiently large groups for analysis. The original 5-point Likert scale was recoded into a cognate ordinal scale:

1. Original rating 1, 2, or 3 became ‘Low’
2. Original rating of 4 became ‘Medium’
3. Original rating of 5 became ‘High’

The outcome variable in each of the regression analyses was the new scale of ‘Low’, ‘Medium’, or ‘High’ ratings. Finally, the regression analyses used a ‘reference category’ against which each other category of the demographic variables was compared. For region of citizenship, the reference category was ‘Sub-Saharan Africa’; for gender, the reference category was ‘Female’; and for degree type, the reference category was ‘Doctorate’.

[3] Coefficients with (*) are statistically significant at 0.05 level
[4] Kruskal-Wallis One-Way ANOVA (Factor = Residency status; Response = scholarship gains grand average): H=0.10, DF=1, P=0.748

Initially, our analysis focused on the average rating across all perceived gains (the 'grand average'). This model was statistically significant.[5]

Table 12 Ordinal logistic regression results of grand average of perceived gains ('Low', 'Medium', and 'High') by region of citizenship, gender, and degree type[6]

Variable	Odds ratio	95% confidence interval
Region of citizenship		
Caribbean	0.77	(0.52, 1.15)
High income Commonwealth(*)	0.47	(0.36, 0.61)
South Asia	0.86	(0.69, 1.07)
Southeast Asia(*)	0.57	(0.38, 0.87)
Gender		
Male(*)	1.28	(1.06, 1.55)
Degree type		
Fellowship(*)	0.70	(0.54, 0.91)
Postgraduate(*)	0.61	(0.49, 0.76)

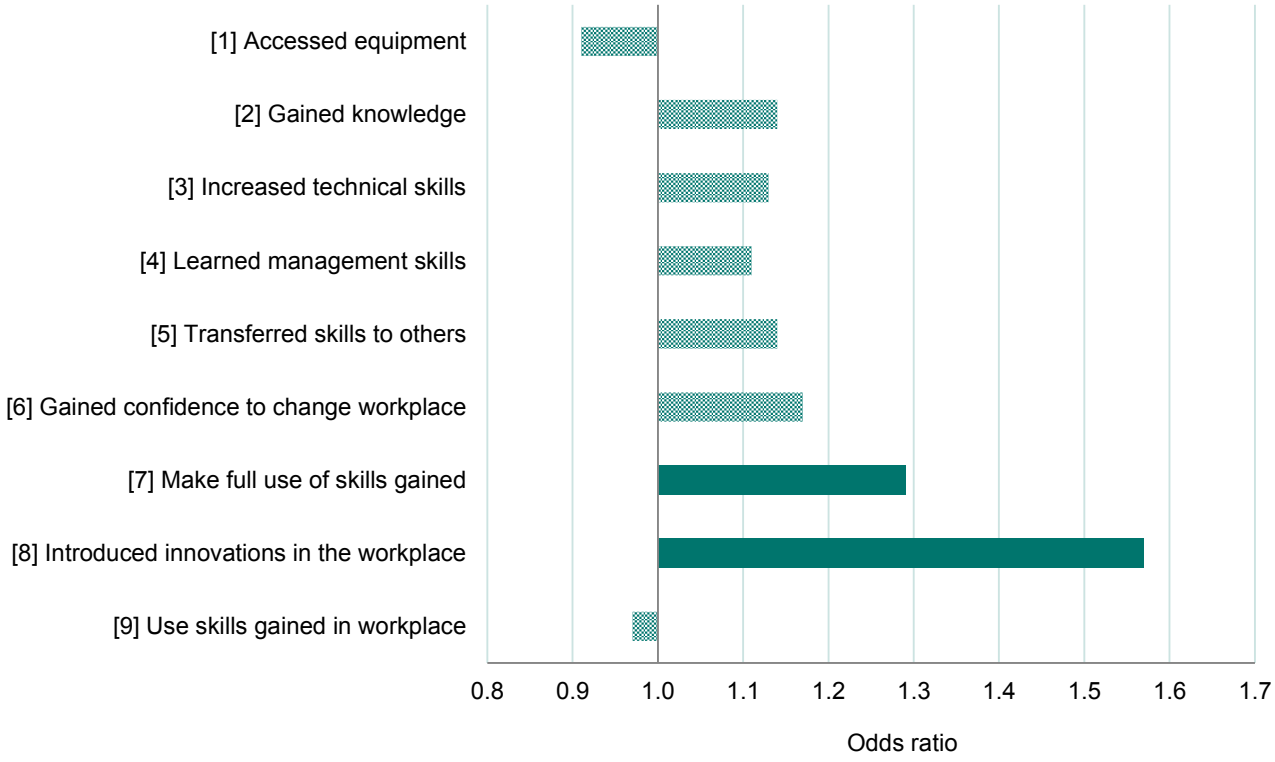
The results indicate that, although all regions of citizenship tend to report lower grand average ratings than Sub-Saharan Africa, this effect is only statistically significant for the High income Commonwealth and Southeast Asia regions. For the other regions, there is insufficient evidence to indicate a systematic influence on perceived gains that is independent from the degree type studied and gender of the Scholar. It is important to remember, particularly when examining regional findings, that the results shown are *in comparison* to Sub-Saharan Africa; they do not show an 'average effect' (as will be the case in section 3.2, for instance). However, by comparing to the region with the greatest reported perceived gains ratings in most instances, it is possible to infer the hierarchy of regional effects by their odds ratios in Table 12. It is clear, for instance, that, while holding citizenship in South Asia is associated with a slight (non-significant) negative effect on reported perceived gains,[7] citizenship in the High income Commonwealth region (e.g. Australia) is associated with a much larger (statistically significant) negative effect on reported perceived gains. Again, the scale of this difference should not be exaggerated. While citizens of High income Commonwealth countries might have greater odds of reporting lower perceived gains, reported gains across all groups were very high; what is being assessed in this section are *relative* differences between demographic groups. Overall, citizenship in Sub-Saharan Africa was associated with the highest perceived gains ratings.

Both postgraduate and fellowship degree types were associated with a *lower* perceived gains grand average than doctorates. From another angle, the results indicated that having studied a doctorate significantly increased the odds of subsequently reporting *higher* perceived gains than having undertaken either a fellowship or a postgraduate degree. The effect was independent of the effect of either region of citizenship or gender of the Scholar. This finding is particularly important because funding doctorates constitutes a substantially greater investment than either fellowship or postgraduate studies.[8] Whether the scale of additional investment in doctorates relative to, for instance, postgraduate degrees is reflected in a like-for-like increase in outcomes is difficult to determine. The analysis explores the likelihood of reporting higher perceived gains and the magnitude of any difference in odds between the groups; the model estimates 39% lesser odds of a postgraduate Scholar reporting an equal or higher level of perceived gains than a doctoral Scholar. Translating this finding into terms amenable to cost-benefit analysis – e.g. as a ratio of the difference between outcomes against the difference in pecuniary inputs – is somewhat more difficult and beyond the scope of this report.

The Scholar being male was also significantly associated with having reported a *higher* perceived gains grand average. Male Scholars had 28% greater odds of reporting higher gains than female Scholars within the regression model, independent of any effects of region and degree type. It is helpful to examine this effect by breaking down the perceived gains grand average into its nine constituent categories.

[5] Ordinal logistic regression: G=40952, DF=7, p<0001
[6] Odds ratios with (*) are statistically significant at 0.05 level
[7] From a technical perspective, an odds ratio lower than 1.00 is associated with *greater odds* of reporting *lower perceived gains*, not simply associated with lesser perceived gains. For brevity we have mostly omitted the reference to odds in this section.
[8] For the CSC, the approximate cost ratio of a single doctorate to a single Master's degree is three to one.

Figure 6 **Odds ratio of male survey respondents (relative to female respondents) in each category of perceived gains[9]**



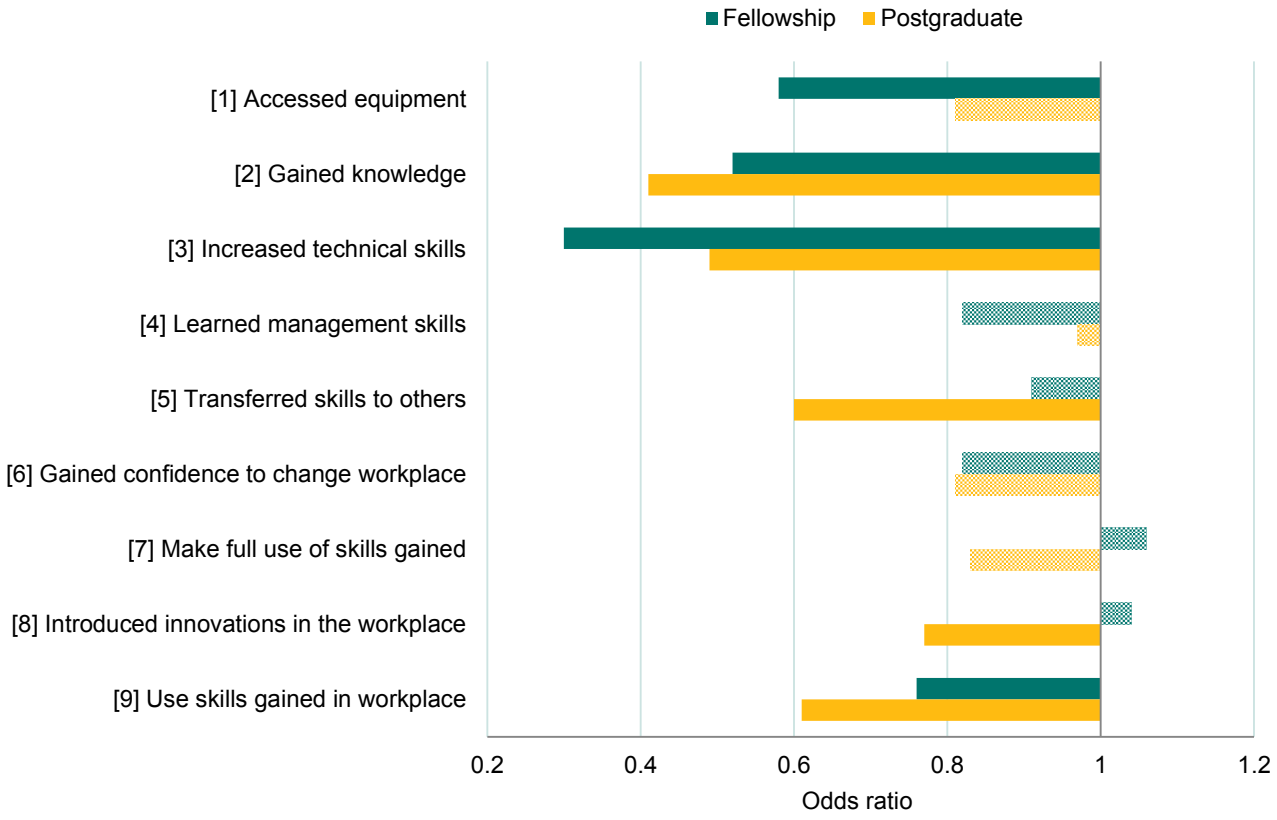
As Figure 6 indicates, only two categories of perceived gains showed a statistically significant difference between male and female Scholars. Both of these categories – [7] Make full use of the skills gained, and [8] Introduced innovations in the workplace – relate to the subsequent application of skills after the conclusion of a Commonwealth Scholarship. As such, there is no evidence from the analysis to indicate that male and female Scholars derive differing direct benefits from the scholarship itself (e.g. in accessing equipment or gaining knowledge). Conversely, the difference in odds of reporting a higher rating for category [8] (Introducing innovations in the workplace) is substantial and raises the important question of whether barriers in the workplace may prevent some female Scholars from realising the full potential of their scholarship for aiding institutional development. As the survey data is aggregated across several job sectors – and respondents at different stages of their careers – it is difficult to assess the nature of any such barriers from the data available. Extant research may provide some guidance; Morley's (2013) detailed review of literature on gender and leadership within higher education, for instance, points to the underrepresentation of women at the senior levels from which institutional change (i.e. category [8]) may be expected to be directed.

In the case of [7] Making full use of skills gained, the findings point to a more general effect that female Scholars feel they are less able to deploy the full gamut of gains from their scholarship than do male Scholars. In understanding the individual outcomes of Scholars, this finding may point to substantively the same trend as discussed above: barriers to female Scholars realising their full potential in the workplace. These effects should not, however, be overstated. Female Scholars still reported high ratings for each category and many offered compelling examples of institutional and wider development impact. Nonetheless, the analysis suggests that in the two categories most closely associated with applying the gains from their scholarship, there is a significant gender disparity in the reported experiences of Scholars.

Breaking down perceived gains for degree type, it is evident that, like gender, there are some categories in which differences are more profound.

[9] Statistically significant results are in block colour; non-significant results are in hatched shading.

Figure 7 **Odds ratio of Fellowship and Postgraduate survey respondents (relative to Doctorate respondents) in each category of perceived gains[10]**



For degree type, there were more categories in which statistically significant differences emerged. Only for [4] Learned management skills, [6] Gained confidence to change workplace, and [7] Make full use of skills gained was the evidence from the analysis insufficient to indicate differences between the three degree types. Summarising the findings across the other categories, it would seem that those studying doctorates tend towards rating the direct gains from their scholarship more highly than other Scholars – especially Fellows – but that disparities in ratings of subsequently applying those skills are less pronounced.

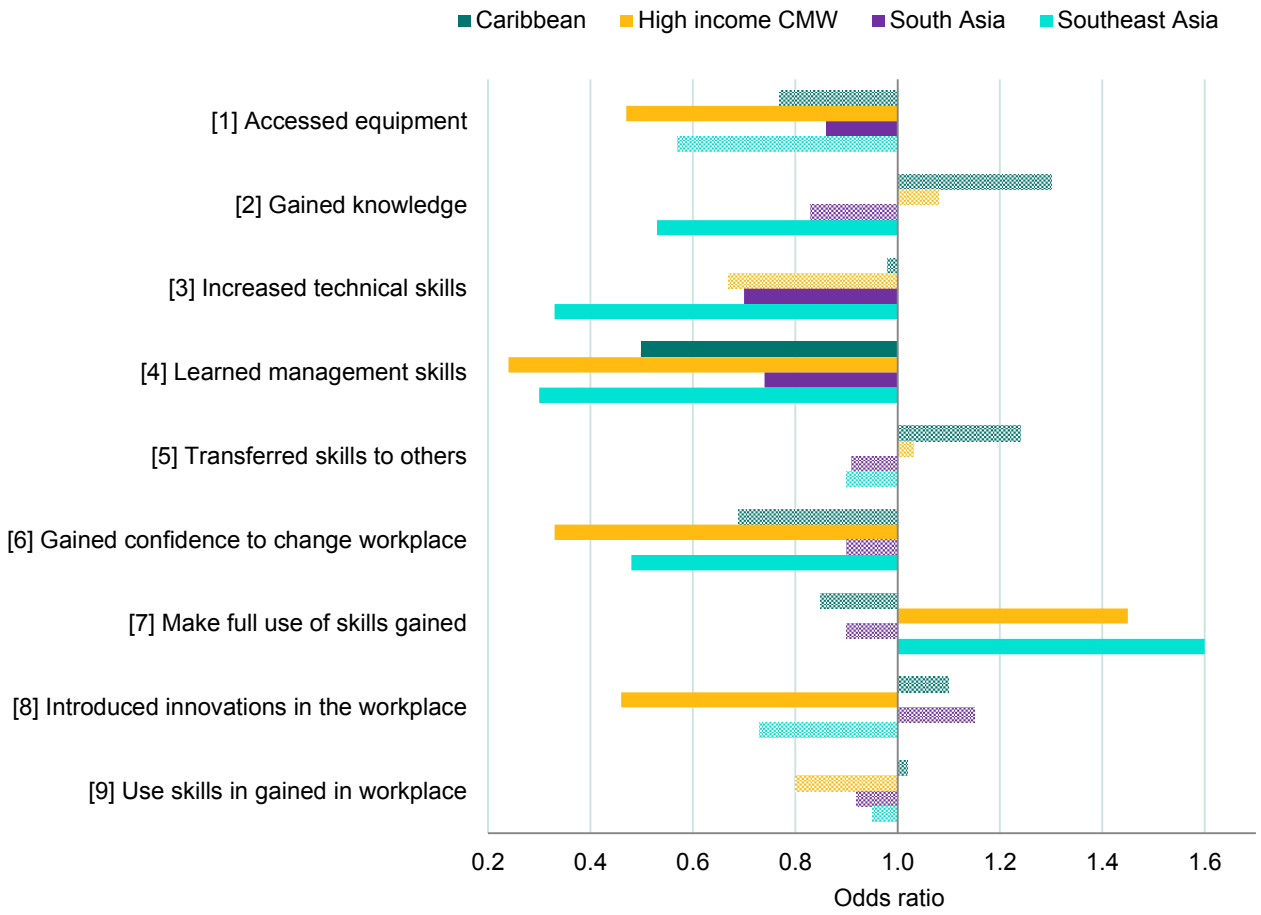
We might reasonably expect that doctoral Scholars, by definition undertaking advanced studies over a protracted period, would experience greater gains in technical skills and knowledge than other Scholars. Interestingly, there is no statistically significant difference between degree type in ratings of learning management skills [4], which was also the lowest rated of all perceived gains ($\bar{x}$=3.94). This result indicates that the degree type is actually somewhat less important than, for instance, the region of citizenship (see below) in having learned personnel and project management skills.

Differences in the application of gains – particularly through transferring skills to others [5], introducing innovations in the workplace [8], and using those skills in the workplace [9] – highlight variations in the outcomes of postgraduate and doctoral Scholars. In each of the three areas, doctoral study is associated with higher reported gains in comparison to postgraduate study, although only in the final category ([9] Use skills gained in workplace) is the difference between doctorates and fellowships statistically significant. Many of those who had studied doctorates in the UK now worked in academia (72%) and thus may have been in an ideal position to transfer knowledge through their teaching at undergraduate, postgraduate, and doctoral level. Fellows share this position to an extent, particularly because of the Commonwealth Academic Fellowships, and this may help explain the greater disparity between doctoral and postgraduate Scholars in category [5] in comparison to the difference between doctorate Scholars and Fellows. Explaining differences in reported ratings for [9] Use skills gained in workplace is not straightforward, but it is important to note that many academic staff will build careers based (initially at least) on the skills and research foci developed during their doctoral study. As current academics constitute a large proportion of those who undertook Commonwealth doctoral Scholarships, it seems plausible that the founding of research and teaching careers partly on the experience of their UK PhD contributes to the stronger perception that doctoral Scholars more often make use of their scholarship-related skills in the workplace.

[10] Statistically significant results are in block colour; non-significant results are in hatched shading.

Regional differences indicate many specific variations and, more usefully, a broad trend indicating lower perceived gains for the High income Commonwealth.

Figure 8 **Odds ratio of regions of citizenship (relative to Sub-Saharan Africa) in each category of perceived gains[11]**



In four of the nine categories ([1], [4], [6], and [7]), citizenship in the High income Commonwealth region was associated with lower ratings of perceived gains than citizenship in Sub-Saharan Africa. Southeast Asian citizenship was similarly associated for several of these categories (and additionally [2]) but, due to the lower group size for Southeast Asia, this latter finding should be treated with caution as the margin of error (confidence interval) for each result is substantially larger.[12] The categories in which High income Commonwealth citizenship is associated with lower reported gains do not include increased knowledge or technical skills, but do, as we might expect, include accessing equipment not available in their home country. Given the higher income and developed state of the higher education and scientific infrastructure in countries such as Canada and Australia, it would be surprising to find that access to otherwise unavailable equipment was experienced as readily by this group as, for instance, Scholars from Sub-Saharan Africa or South Asia.

The association between High income Commonwealth citizenship and lower ratings in having gained confidence to change the workplace [6] may reflect a difference in 'baseline' and post-scholarship trajectory for Scholars from these regions. Relatively few Scholars who were sponsored under the Agency: Developed scholarship route – who constitute the majority of Scholars from the High income Commonwealth region – returned to their former employment (14%), and the confidence of Scholars to implement changes at their organisation may potentially have been already high. Alternatively, the 'status gain' from a UK higher education award – and possible increased confidence to lead change – may be lesser from other high income countries (e.g. Canada), where international study may be more readily available and UK (or equivalent) qualifications more common.

[11] Statistically significant results are in block colour; non-significant results are in hatched shading.

[12] It is also worth noting that at least one contributor to the Southeast Asian region – Hong Kong – is high income and Scholars from Hong Kong might reasonably have been grouped under High income Commonwealth. In practice, doing so would have made the remaining group size for Southeast Asian Scholars untenable and so the regional groups were constructed as seen in the analysis.

In making full use of skills gained [7], conversely, citizenship in the High income Commonwealth region was associated with *higher* perceived gains ratings in comparison to Sub-Saharan Africa, South Asia, and the Caribbean. There are several possible explanations for this trend, but one plausible reason is that Scholars from higher-income countries – particularly, but not exclusively, those working in subjects that require substantial physical infrastructure (e.g. biosciences) – are likely to find the necessary institutional support and funding more readily available than those working in lower-income countries. Mouton (2010), for instance, has noted the relative fragility of scientific institutions in Sub-Saharan Africa that elsewhere function to support production of scientific knowledge and capitalisation of scientific discovery. Additionally, for those working within academia, pursuing research activities that draw upon skills gained while in the UK may be obstructed by the prioritisation of teaching and administration duties within higher education systems experiencing rapid growth in student enrolment (Cage, 2016).

Finally, it is notable that all other regions were associated with lower reported gains in learning management skills [4] in comparison to Sub-Saharan Africa. The magnitude of this effect was quite large for some regions: citizenship in the High income Commonwealth region, for instance, was associated with 76% greater odds of reporting *lower* gains in learning management skills than citizenship in Sub-Saharan Africa. As noted above, the region in which a Scholar holds citizenship is far more strongly associated with the ratings observed in this category than the degree type (postgraduate, doctorate, or fellowship) undertaken. The regional influence provides some explanation as to why gains reported in learning management skills demonstrated a substantial negative correlation with time since completion of scholarship: the participation of the High income Commonwealth countries in the scheme has declined considerably, and participation from Sub-Saharan African countries increased, in recent decades. Explaining why certain regions are associated with greater gains in this area is difficult. The effect of Professional Fellowships – a potential source of higher gains and predominately taken up by citizens of South Asia and Sub-Saharan Africa – is not separable from other fellowships due to the limitations placed on the analysis by the number of respondents from individual fellowship schemes. More generally, it is possible that the subjects studied by Scholars from Sub-Saharan Africa, and to a lesser extent South Asia, include greater focus on the development of personnel or project management skills than those undertaken by other Scholars. Another possibility is that Scholars from some regions have lower initial competency in these skills – e.g. through lesser opportunity to develop them in undergraduate education and employment – and so tend to experience greater relative development as a result of their Commonwealth Scholarship. To explore these possibilities in more detail will require focus in future analysis.

2.2.2. Scholarship gains and current employment

Another facet of understanding perceived gains is the link between the career trajectories of Scholars and the application of skills gained through their Commonwealth Scholarship. To examine whether any such links were evident in the data, we examined associations between current employment sector and ratings of perceived gains in the five categories related to the application of skills:

[5] Transferred skills to others

[6] Gained confidence to change workplace

[7] Make full use of skills gained

[8] Introduced innovations in the workplace

[9] Use skills gained in workplace

It was not possible to include demographic variables and current employment sector in a single analysis, because this would have reduced the group size in each category unacceptably. It is thus important to bear in mind that the findings discussed below do not account for differences in other variables (e.g. gender, region of citizenship) when estimating the influence of current employment sector.

Table 13 Ordinal logistic regression results of perceived gains categories ('Low', 'Medium', and 'High') by current sector of employment (reference level = Academic sector)[13]

Category	Odds ratio	95% confidence interval
[5] Transferred skills to others(*)		
NGO	0.69	(0.51, 0.95)
Private	0.41	(0.32, 0.53)
Public	0.59	(0.47, 0.74)
[6] Gained confidence to change workplace		
NGO	1.33	(0.97, 1.83)
Private	1.01	(0.78, 1.31)
Public	1.27	(1.01, 1.60)
[7] Make full use of skills gained(*)		
NGO	0.95	(0.70, 1.27)
Private	0.58	(0.45, 0.74)
Public	0.70	(0.56, 0.86)
[8] Introduced innovations in the workplace		
NGO	1.02	(0.76, 1.36)
Private	0.75	(0.58, 0.95)
Public	0.99	(0.80, 1.22)
[9] Use skills gained in workplace(*)		
NGO	0.76	(0.56, 1.03)
Private	0.51	(0.40, 0.66)
Public	0.84	(0.67, 1.05)

In each regression model, the influence on perceived gains ratings of employment in the NGO, private, and public sectors is compared to employment in the academic sector. The results show that, for three of the perceived gains categories, there is a statistically significant difference between the sectors, while for two – [6] Gained confidence to change the workplace, and [8] Introduced innovations in the workplace – there is no evidence for an association between perceived gains and current sector of employment. The divide between the categories is distinct: current sector of employment is significantly associated with variations in perceived gains for categories that involved the use and transfer of skills, but not for categories that related to directly catalysing institutional change. This does not imply that the latter two categories necessarily received lower ratings, but rather that there was no evidence to support a systematic difference related to current sector of employment.

Within the categories that were significantly associated with employment sector, we can infer the effect of each sector by examining the odds ratios.[14] In each case, the private sector is associated with reporting a lower rating of perceived gains than any of the other categories. Scholars currently working in the private sector were less likely to report higher gains in either making full use of the skills they gained, using those skills in the workplace, or, somewhat separately, transferring skills to others. The results thus suggest a potential level of 'brain waste' within the private sector in relation to the outcomes of the scholarship, or a misalignment of scholarship allocations (e.g. in degrees studied) to the subsequent career trajectories of the Scholars currently working in the private sector. Alternatively, the trend may represent some Scholars moving away from practitioner roles and into private sector management or consultancy; a research-active academic who had taken up a faculty management position at a private university may, for instance, regard that they use their research skills to a lesser extent within their current job role.

More generally, those currently working within the academic sector tended to report higher gains than those currently working within the NGO or public sectors, although the magnitude of this effect varied somewhat

[13] Categories of perceived gains with (*) are statistically significant at 0.05 level.
[14] Some of the effects are statistically significant in relation to the academic sector, others are not. For the purposes of the analysis in this section, the statistical significance of individual coefficients is less relevant, since these may change if a new reference level is chosen (e.g. Public).

between the categories. In transferring skills to others [5], for which many academic staff are uniquely placed due to their teaching commitments, employees in the public and NGO sectors had substantially greater odds of having reported *lower* perceived gains. For using skills gained on scholarship subsequently in the workplace [9], however, the scale of the difference was somewhat lesser between the sectors. Taking the public sector, the analysis estimated 41% greater odds of reporting *lower* perceived gains in transferring skills to others, in comparison to employees of the academic sector. The equivalent figure for using skills gained on scholarship in the workplace was only 16% greater odds.

It is possible to draw conclusions from the preceding analysis in four levels, from macro to micro:

1. All Scholars gave high ratings in the categories of perceived gains related to applying the skills gained during their scholarship.

2. For three categories – [5] Transferred skills to others, [7] Make full use of skills gained, and [9] Use skills gained in workplace – there is evidence to indicate a difference in perceived gains based on the current employment sector of Scholars.

3. Those currently working in the academic sector tended to give the highest ratings of perceived gains in these three categories, and especially in [5] Transferred skills to others.

4. Scholars working within the private sector tended towards reporting the lowest gains in these three categories.

A limitation in analysing current employment, however, is that data is not available to account for seniority or job role in the analysis. Thus, while statistically significant differences have been found between, for instance, the perceived gains reported by academic and private sector employees in transferring knowledge and skills gained while on scholarship, it is not currently possible to examine whether there is a systematic difference in the job roles and responsibilities undertaken by respondents in these sectors. It is highly plausible, for instance, that level of seniority is associated with capacity to make changes in the workplace, and, similarly, that some job roles within a profession (e.g. university lecturing) are more amenable to transferring skills than others (e.g. academic management).

2.2.3. Perceived gains and return to employer

Another key question often of relevance to scholarship programme policymaking is whether gains are likely to be higher for those returning to their previous employers. Some scholarship programmes have stipulated that recipients resume employment at their pre-scholarship organisation for a period post-scholarship (e.g. the Kazakh Bolashak scholarships: Perna, Orosz, & Jumakulov, 2015). Although these provisions are not only aimed at maximising application of skills by scholarship recipients – avoiding 'institutional brain drain' is a concern for some programmes – they underpin the importance of understanding any potential differential impact between resumption with previous employers and new employment elsewhere.

The majority of Scholars (63%) returned to their previous employer immediately after completing their Commonwealth Scholarship or Fellowship. Initially, we compared the perceived gains reported by those who returned to their pre-scholarship employment post-scholarship and those who did not. From the employment data, it was evident that return to post varied considerably between scholarship schemes, and so it would be necessary to control for this variable in an analysis of perceived gains in order to isolate the unique effects of returning to post from the effect of scholarship scheme. To do so, ordinal logistic regression was conducted for each category of perceived gains, using return to post and scholarship scheme as the predictor variables following the same procedure outlined in Section 2.2.2.

Table 14 Ordinal logistic regression results for independent effect of returning to pre-scholarship employment post on perceived gains[15]

Model	Odds ratio	95% confidence interval
[5] Transferred skills to others	1.20	(0.94, 1.55)
[6] Gained confidence to change workplace	1.18	(0.91, 1.54)
[7] Make full use of skills gained	0.98	(0.77, 1.25)
[8] Introduced innovations in the workplace	1.18	(0.93, 1.50)
[9] Use skills gained in the workplace(*)	1.30	(1.01, 1.67)

Only in one case – [9] subsequent use of skills gained on scholarship in the workplace – was return to post independently associated with having reported a higher perceived gain rating. Although the size of this effect was notable, the margin of error in the statistical estimate was quite broad, and so the result should be considered with some caution. For each other category, the return to post variable was not significantly associated with different ratings of perceived gains; variations in perceived gains were more readily attributable to participation in different scholarship schemes or other factors not included in the analysis.

The broad absence of support for a link between Scholars returning to their pre-scholarship employment post and higher (or lower) perceived gains does not necessarily mean that no relationship exists. There are many unknown elements to the data, such as whether Scholars are still employed by the employer to whom they returned, and whether ratings of perceived gains have changed alongside any changes in employer. At present, the most robust conclusion available from the data is that there is *currently* very little support for differential outcomes in perceived gains from those returning to post and those not doing so, but further data is required for a more insightful analysis. Nonetheless, the relationship between application of scholarship gains and return to previous employment is an important topic, not least since some employers are often the sponsors of applicants for Commonwealth Scholarships or Fellowships (e.g. Academic Staff Scholarships).

2.3. Residency analysis

One of the most commonly asked questions of scholarship programmes is whether recipients return home after their studies (Dassin, 2009). Commentators in some quarters have been critical of scholarship programmes for their potential to induce brain drain (e.g. Mouton, 2010) and thus part of any reflection on the outcomes of Commonwealth Scholarships and Fellowships must include examination of these issues. In our interim report, we presented data on the current residency and residency flows of Commonwealth Scholars and Fellows, and in this section we update and extend that analysis.

Before examining the details of residency, it is important to reiterate a notable limitation of the data available to us in the present survey exercise. While we have data on the current country of residence and the country of citizenship for most (although not all) respondents, we do not have data on the length of time spent outside of a respondent's country of citizenship. As such, although we can examine current residency, we cannot tell, for instance, if someone currently resident in the USA moved there the year after their scholarship, several years after, or even a few months before the survey. We can set some parameters, for instance, by examining residency groups – e.g. those only five or less years after their scholarship – but ultimately we cannot make substantive comments about the residency trajectory of particular individuals. This limitation of the current survey programme has been one of the drivers for the CSC to employ longitudinal survey research with Scholars in the future.

2.3.1. Residency overview

Overall, 81% of respondents were currently resident in their country of citizenship ('Home country'), with a further 1% within a different country in the same geographic region. Thus 18% were currently resident in another country outside of their home region. If those who were currently studying internationally full-time (including with further CSC funding) are excluded from the analysis, then the proportion outside of their home region falls to 15%.

[15] Results with (*) are statistically significant at 0.05 level.

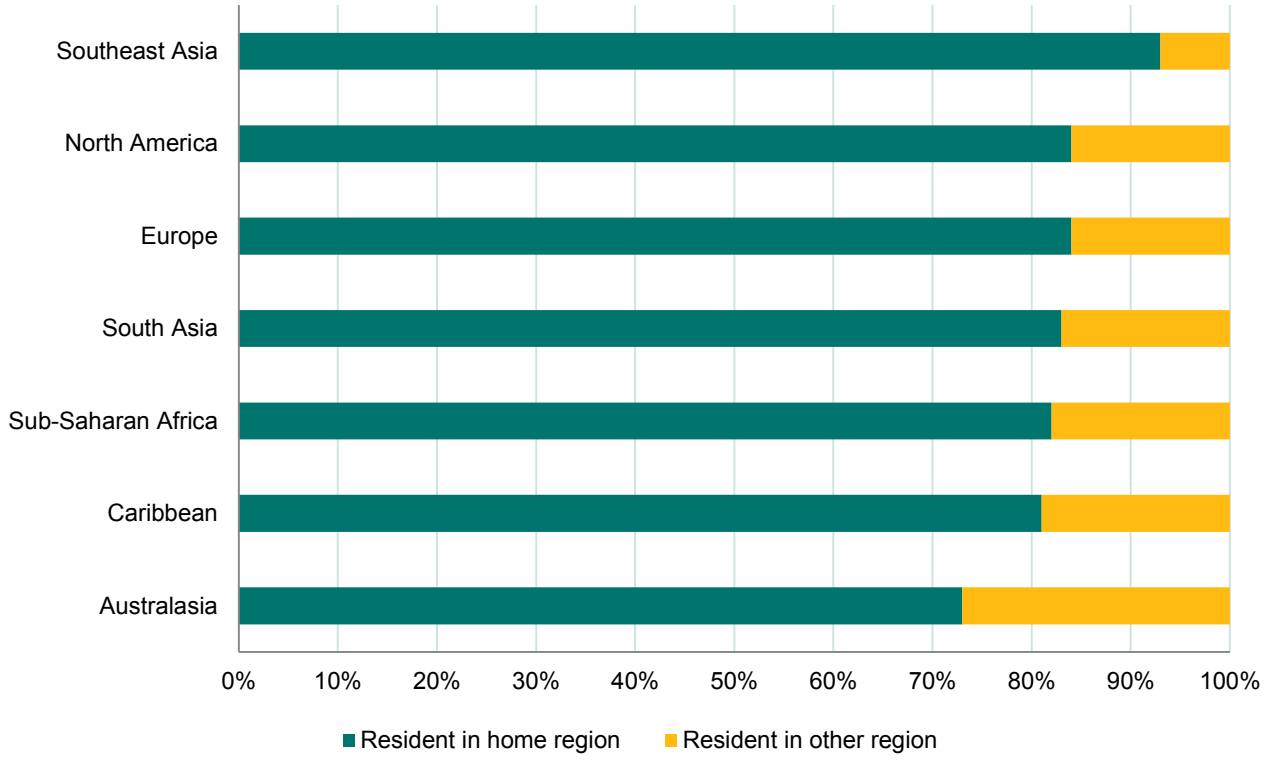
Table 15 Current residency status of survey respondents

Residency status	Proportion
Home country	81%
Other country in home region	1%
Other country outside of home region	18%

For the purposes of the following analyses, we collate the categories 'Home country' and 'Other country in home region', examining differences in *regional residency* between Scholars.

Delineating current residency by region of citizenship, it is evident that residency abroad was more common for Scholars who hold citizenship in certain regions. Scholars from Australasia were the most frequent residents outside of their home region, with the lowest home region residency by a considerable margin. By contrast, Southeast Asian Scholars were almost all currently resident in their home region.

Figure 9 Current residency status of survey respondents by region of citizenship

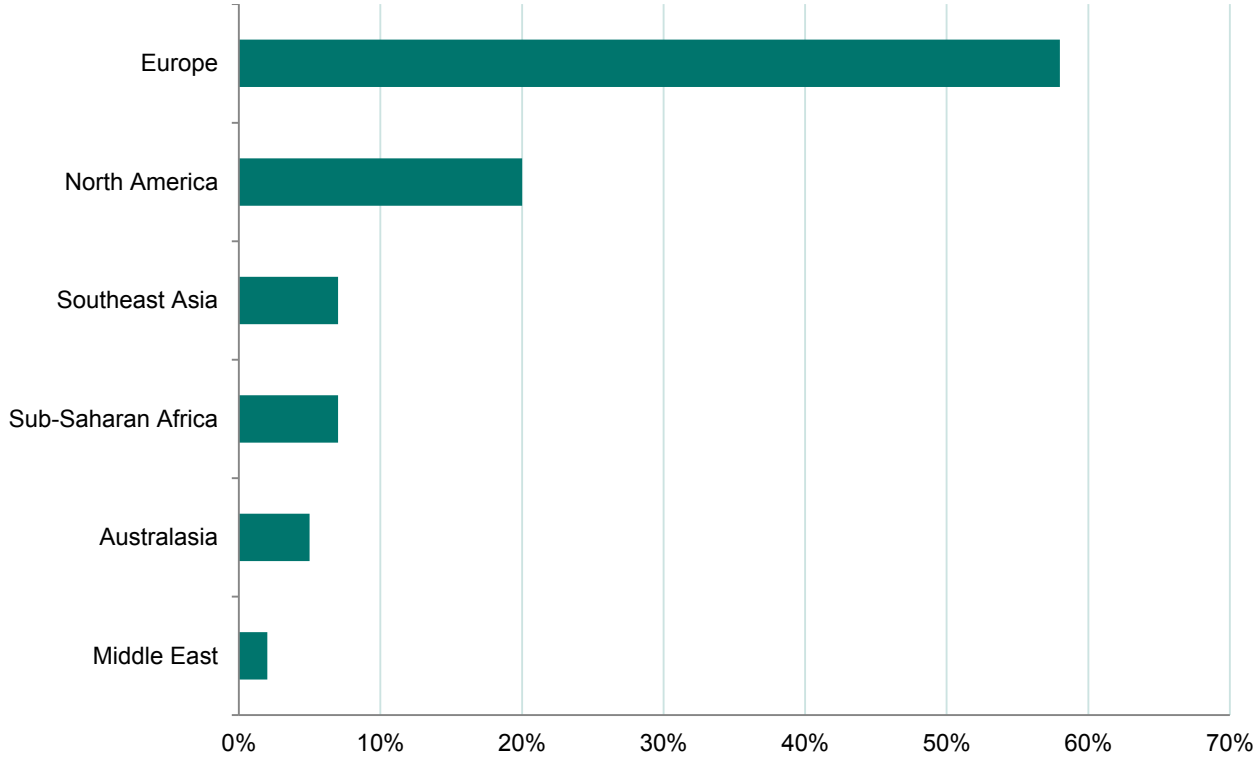


The regional residency differences are statistically significant,[16] although the effect size is very small and unlikely to be meaningful in our analysis. It is notable that some countries were disproportionately represented in residency abroad. Nigerian Scholars, for instance, made up 7% of the survey respondents but 12% of those currently resident outside of their home region. Conversely, Indian Scholars made up 17% of the survey respondents, but only 15% of Scholars resident outside of their home region. Whether variations between individual countries demonstrate a greater effect size than variations between regions is difficult to gauge, due to the small dataset from many of the countries, although higher rates of return migration and, more generally, 'brain gain' in countries such as India would be consistent with other commentaries on residency (e.g. Collier, 2015).

Of those currently resident outside of their home region, the main destination was Europe, followed (at some distance) by North America. A substantial minority of those currently living in Europe, North America, and Australasia also reported that they were presently undertaking further study, in almost all cases after having been previously funded for postgraduate study by the CSC.

[16] Pearson chi-square: $X^2 = 15.214$, DF = 6, p= 0.019, Cramer's V 0.009

Figure 10 Region of residence for survey respondents currently living outside their home region



Examining the Human Development Index (HDI) (Malik et al., 2013) for both citizenship and residence country and calculating the difference in country HDI rank, it is possible to examine the direction of 'HDI flow' in residency patterns. A small minority (20%) of those currently residing outside their home country had moved to country with a lower HDI ranking. This group was almost entirely composed of Australians, New Zealanders, and Canadians currently resident in the UK (the latter having the lower HDI) and thus represented a movement of Scholars between high income nations. The majority (80%) of those currently residing outside of their home country, however, had moved to a country with better or, in one case, the same HDI ranking. Excluding the Australasians (predominately in the UK) momentarily, the main 'sending' regions were the Caribbean, Sub-Saharan Africa, and Southeast Asia, and the main 'receiving' regions were Europe and North America. The trend is, as might be expected, migration towards the highly developed countries from the less developed countries, although the magnitude of the trend varies by region.

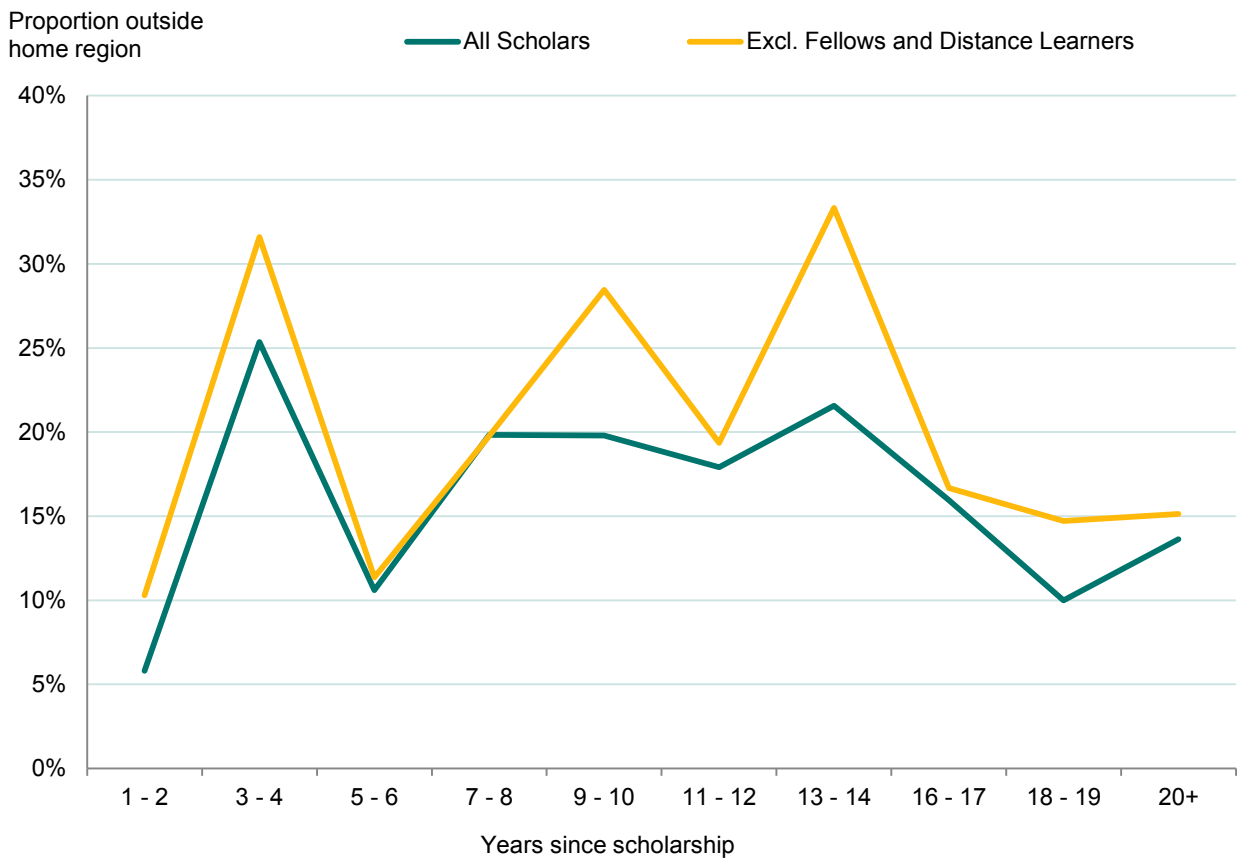
2.3.2. Residency trajectory

Although the current data does not track individual alumni over time, and thus cannot provide data on residency trajectory directly, it does include respondents who received Commonwealth awards in many different years and who thus have varied time since completion. By grouping Scholars by their time since completion, it is possible to form a type of time series that refers to Scholars at different periods post-scholarship.

To ensure sufficiently large groups for analysis, time since completion was grouped into periods of two years, running from 1-2 years to 18-19 years; there were no respondents with a time since completion of 15 years and so this year was excluded. The group sizes for each period are uneven, but all are sufficiently large to include in the analysis.[17] Those with a time since completion of 20 or more years were excluded because insufficient data was available. For each group, the regional residency was calculated and visualised as a time series, as shown in Figure 11.

[17] The minimum group size for any period was N=34, for respondents excluding Fellows and Distance Learners with time since completion of 18-19 years. Most groups were substantially larger (60+).

Figure 11 **Time series of residency in other region by time since completion, for all survey respondents and survey respondents excluding Fellows and Distance Learners**



The time series illustrates several interesting trends in residency, including notable differences between the results for all Scholars and the results when Fellows and Distance Learners are excluded from the analysis.

Few of the Scholars in the immediate years post-scholarship (i.e. 1-2 years) were residing outside of their home region. Conversely, a substantial minority of Scholars who finished their Commonwealth award 3-4 years prior to the survey reside outside of their home region. Included within the group outside of their home region at 3-4 years post-scholarship are 54 Scholars currently undertaking either full-time or part-time study, out of a total of only 106 currently abroad (i.e. 51%). In some cases, those currently studying have previously held Commonwealth awards for postgraduate study and are now continuing, with Commonwealth or other funding, to doctorate level. This relatively large cohort of international students at 3-4 years post-scholarship contrasts sharply with the situation 1-2 years post-scholarship, where residency outside of the home region is very low (5%) and only one Scholar – out of 133 – was currently studying (while also working).

For Scholars 5-6 years post-scholarship, the proportion residing outside of their home region is considerably lower than the previous period – only 11%. If Fellows and Distance Learners are excluded, then the relative proportion of those resident outside of their home region is somewhat higher at 3-4 years, but the overall trend is the same across the 1-2, 3-4, and 5-6 year groups.

After this point, the proportion of all Scholars residing outside of their home region is approximately stable: 18-22% for Scholars between seven and 14 years post-scholarship. The proportion residing outside of their home region drops for Scholars 16 or more years post-scholarship, reaching only 10% for the 18-19 year group. For those groups beyond the last period covered in the time series – a time since completion 20 to 53 years (n=286) – the aggregate proportion currently residing abroad is 14%, and this declines further to only 10% if Scholars holding citizenship in North America and Australasia (i.e. high income regions) are excluded. The trend across these years is more erratic if Fellows and Distance Learners are excluded from the data, although at each point the proportion of Scholars residing abroad is higher.

The emerging trend is a series of peaks and troughs, before residency abroad declines slowly (with further peaks and troughs, if the analysis excludes Fellows and Distance Learners). Return rates for the first two years post-scholarship are high, with only a small minority residing abroad, but this increases substantially for Scholars currently 3-4 years since completion. At 5-6 years there is another trough, potentially through the return migration of some of those studying abroad at 3-4 years post-scholarship (see Varma & Kapur, 2013; Ziguras & Gribble, 2015). The decline in levels of residency outside of the home region beginning at

16 or more years post-scholarship may represent a 'late career' effect, in which there is reduced international mobility and a tendency to return to permanent posts in home countries and eventually to retire (a Fellow at the start of this declining trend – 16 years post-scholarship – would be, on average, 57 years old).

The time series is used here as rough descriptive tool to illustrate several possible trends. If a logistic regression of regional residency (home or other) is conducted using this data, then the resultant model is not statistically significant and nor is time since completion a statistically significant predictor.[18] Similarly, in the analysis above we have used the residency data as a time series when strictly it is not, although it can serve to function as a temporal cross-section of the alumni cohort and thus as a time series. Nonetheless, the use of time since completion to facilitate a basic analysis of residency trajectory has highlighted possible time periods of interest for future analyses aimed at better understanding the residency dynamics of Commonwealth award holders in the years post-scholarship.

2.3.3. Influences on residency

The literature on international migration indicates a variety of factors associated with decisions to remain abroad or return home. Often the most important factor noted is the availability of employment and perceived strength of the labour market at home or in the current country of residence (Baruch, Budhwar, & Khatri, 2007; Bijwaard & Wang, 2013; Damvad, 2014), but other factors such as the formation of families while abroad, language, or broader lifestyle issues are also widely cited (e.g. Sykes & Chaoimh, 2012). The current survey data provides only limited insight into some of these variables. We do not, for instance, have data on labour market perceptions or on the family circumstances of respondents, as these were not salient foci within a survey primarily concerned with post-scholarship activity. Nonetheless, our analysis has explored whether pertinent variables within the current survey data were associated with current residency outside of the Scholar's home region.

As migration and 'brain drain' are more acute for lower income countries (Collier, 2015), the focus of our analysis specifically concerned lower income Commonwealth countries. As such, the basic parameters applied to this element of the data analysis were:

1. Respondent country of origin was not within the high income regions (North America, Australasia, or Europe)

2. Respondent had studied full-time in the UK on an academic scholarship; Fellowships, Split-site Doctorates,[19] and Distance Learners were excluded

3. Respondent was not funded under the Agency: Developed nominating route

The following variables were then considered for analysis: 1) Gender, 2) Region of citizenship, 3) Degree type, 4) Scholarship scheme, 5) Candidate selection score (where available), 6) Rating of employer supportiveness, 7) Counterfactual (UK study) rating, 8) Counterfactual (another country study) rating, 9) Current employment sector.

An initial screening process (following Hosmer & Lemeshow, 1989) was conducted to determine which variables should be included in the final analysis. Gender and candidate committee score variables were found to have low association with residency, and so were excluded based on the screening. Additionally, the scholarship scheme variable was removed because several of the categories within scholarship scheme had already been excluded due to the basic parameters of our analysis (see above), and because degree type and scholarship scheme were too closely associated to include both within the final analysis. Finally, region of citizenship was removed, as insufficient data was available to construct a model without statistical problems if the variable was included. After exclusions, the data available for analysis came from N=856 survey respondents.

Our final analysis found that neither rating of employer supportiveness nor counterfactual rating (UK study) were significantly associated with current residency outside of the Scholar's home region. From these results it would seem that, while pre-scholarship employer supportiveness may be linked to initial tendencies towards returning home and to the same employer, it is not associated with residency outside of the home region more generally. A plausible hypothesis that could be investigated in future analysis is that any association between current residence and pre-scholarship employer support is more influential in the

[18] Logistic regression model summary: Outcome = Regional residency (Other): G=3.42, DF=1,p=0.064. Predictor 'time since scholarship' (increment = 2): coefficient = -0.01208, p=0.071.

[19] While Commonwealth Split-site Scholarships involve full-time study in the UK, they are undertaken as part of doctoral study primarily based elsewhere and do not result in a qualification directly; Scholars return to undertake further study at their home institution after leaving the UK.

immediate years after a scholarship and tends to diminish over time (and thus is not meaningful if analysed across Scholars in aggregate).

Table 16 Logistic regression of regional residency (outcome="Other") by employer supportiveness rating, counterfactual scores (UK and another country), current employment sector, and degree type[20]

Variable	Coefficient	Confidence interval
Employer supportiveness rating	-0.06	(-0.13, 0.02)
Counterfactual rating (UK)	-0.02	(-0.11, 0.08)
Counterfactual rating (another country)(*)	0.09	(0.02, 0.16)
Current employment sector		
Academic(*)	0.52	(0.16, 0.88)
NGO	-0.14	(-0.71, 0.43)
Other	0.46	(-0.25, 1.17)
Private	-0.001	(-0.45, 0.45)
Public(*)	-0.84	(-1.38, -0.30)
Degree type		
Doctorate(*)	-0.68	(-0.92, -0.44)
Postgraduate(*)	0.68	(0.44, 0.92)

Unlike the counterfactual (UK) variable, counterfactual (another country) was statistically significant; the direction of the trend observed indicated that a higher counterfactual (another country) rating is associated with a greater likelihood of currently being currently resident outside of the Scholar's home region. The counterfactual rating is a self-assessment of the Scholar's capacity to have studied overseas without a Commonwealth award, and thus the association between this rating and current residency abroad suggests that some of those living outside of their home region would likely have been doing so regardless of whether they had undertaken a Commonwealth Scholarship. Similarly, the finding highlights that those who are able to secure other means of study abroad and those who are able to migrate internationally are groups that overlap considerably. Residency data from scholarship recipients thus needs to be interpreted carefully to avoid erroneously proceeding from the expectation that all Scholars would have remained in the home country but for the scholarship programme.

It might be expected that, following the interpretation above, the counterfactual (UK) rating should also be significantly associated with a greater likelihood of residency abroad. One explanation for the absence of such an effect is that the distribution of responses to the counterfactual (UK) question are the most heavily skewed toward the lower ratings on the scale, with little overall granularity. There may not be enough discrimination between respondents in the counterfactual (UK) rating to usefully contribute to the regression model.

Notwithstanding these observations, the most notable findings emerge from the results for degree type and for current employment sector. In the former case, there is a statistically significant association between having undertaken a Commonwealth award for postgraduate study and a higher likelihood of currently residing outside of the Scholar's home region. Within the context of the model, this is a substantial effect – degree type contributed about two-thirds of the regression model's total explanatory power. Current employment sector is also statistically significant, but only two categories within the variable have statistically significant coefficients: the academic sector and the public sector. These two categories had effects in opposite directions; currently working in the academic sector was associated with a higher likelihood of current residence outside of the Scholar's home region, while currently working in the public sector was associated with a lower likelihood.

One potential explanation for both of these trends is that, at least in part, the findings reflect the activities of Scholars who are studying abroad. Scholars who undertook postgraduate studies may subsequently be residing outside of their home region to complete doctoral studies, while a concurrent – but not necessarily related – trend may be that academic staff are more likely to be on study sabbaticals from their institutions than employees of other sectors. To examine whether these trends were evident in the data, a second

[20] Coefficients with (*) are statistically significant at 0.05 level.

regression model was compiled in which those who were currently studying (either full time or part time) were excluded from the analysis.

Table 17 Logistic regression of regional residency (outcome="Other") by employer supportiveness rating, counterfactual scores (UK and another country), current employment sector, and degree type, excluding Scholars who are currently studying[21]

Variable	Coefficient	Confidence interval
Employer supportiveness rating	-0.06	(-0.15, 0.02)
Counterfactual rating (UK)	-0.04	(-0.15, 0.08)
Counterfactual rating (another country)	0.07	(-0.02, 0.15)
Current employment sector		
Academic	0.15	(-0.29, 0.58)
NGO	-0.01	(-0.65, 0.64)
Other	0.36	(-0.47, 1.19)
Private	0.38	(-0.10, 0.89)
Public(*)	-0.88	(-1.52, -0.24)
Degree type		
Doctorate(*)	-0.29	(-0.56, -0.01)
Postgraduate(*)	0.29	(0.01, 0.56)

In the second regression model, there are several differences to note. Firstly, the counterfactual (another country) variable is not statistically significant in the second model, which indicates that the association between this variable and regional residency is more closely related to study abroad than working abroad. It would be intuitive for this to be the case, since the counterfactual (another country) rating is specifically concerned with the perceived likelihood of studying abroad without Commonwealth funding.

Secondly, only current employment within the public sector – and not the academic sector – remains significantly associated with residency outside of the Scholar's home region. The findings would thus suggest that the relationship observed between current employment in the academic sector and residing abroad was specifically about post-scholarship international study for academic staff (e.g. doctoral study abroad) and not migration to work in the academy elsewhere. Additionally, since the public sector category is still statistically significant – and the measure of its effect is larger in the second model (from -0.837 to -0.881) – the analysis indicates that those currently employed in the public sector are more likely to work in this capacity within their own region than within another region. Similarly, there does not appear to be support for a possible link between public sector employment and study outside of the home region.

Finally, the effect of degree type remains the same as in the first regression model – those who studied postgraduate degrees were more likely to be resident outside of their home region – but the magnitude of this effect is much reduced in the second model. With those currently studying excluded, the coefficient halved in magnitude from the first model. The reduction in the coefficient suggests that some of the variation in residency was likely related to those who had previously undertaken Commonwealth awards for postgraduate study now continuing their studies. However, even once the effect of continuing studies has been accounted for, having taken a postgraduate course was significantly associated with currently residing outside of the Scholar's home region, and having taken a doctoral degree associated with not residing outside of the Scholar's home region.

2.4. Reflections and conclusions

Chapter 2 has analysed the individual trajectories of Commonwealth Scholars and Fellows. Our survey data has included extensive information on employment activities pre- and post-scholarship, perceived gains from a Commonwealth award and the application of these gains in the workplace, and current residency of former Scholars. From this data, we have constructed analyses of employment trends and correlates of stronger (or weaker) perceived gains, both in general and specifically in application of knowledge and skills, and evaluated the tendency towards brain drain in the international movement of Commonwealth Scholars.

[21] Coefficients with (*) are statistically significant at 0.05 level.

In this section, we interpret some of the major trends in the data analysis in the context of both the CSC's ongoing commitment to evidence-based policymaking and the international understanding of scholarship programme outcomes. Our reflections focus on:

1. The contours of employer support

2. Interpreting patterns in employment sector participation

3. Trends in robust gains

4. The ebbs and flows of residency

At appropriate junctures we have indicated specific topics that may merit detailed examination in future evaluation activity.

2.4.1. The contours of employer support

A fundamental finding of the survey analysis is that the perceived level of employer supportiveness for application to Commonwealth Scholarships and Fellowships is very high. Securing employer engagement, in both nominating candidates and recognising the value of undertaking a scholarship, is crucial to successfully operating a programme such as the Commonwealth Scholarships. The reputation of the scholarship programme must be sufficiently positive to overcome concerns about labour shortage during sojourns that have been noted elsewhere (e.g. AusAID, 2011) – and are likely to be particularly acute in the academic sector – and for employers to attach value to the successful completion of a Commonwealth Scholarship in their future employment of individual Scholars. The survey respondents reported not only a general level of passive acceptance, but also, in some cases, active support from employers through salaried leave for the period of stay in the UK. We should reflect that, inevitably, the perceptions being discussed are those of Scholars who successfully gained Commonwealth awards; the current survey data cannot, for instance, offer insight into how many *potential* applicants are unable to proceed due to unsupportive employers.

While the survey findings indicate a high level of perceived employer supportiveness, they do not explore conditionality in employer support, such as through bonds or contractual obligations by which organisations nominating potential Scholars guarantee a period of employment for the Scholar on their return. These arrangements have been documented widely elsewhere (e.g. Mondino, 2011; Perna et al., 2015), and from our baseline survey evidence for current (2015) scholarship holders we know that a significant minority (about one-third) of Commonwealth Scholars also undertake either financial or labour bonds in return for sponsorship by an agency or employer. The current survey did not collect data on the role of bonds in Scholars' decisions to return to employment, yet it is quite plausible that for some Scholars this has influenced their decision to return to their previous employer.

To estimate the influence of bonds without specific data would be very difficult, but some indications can be gained by examining trends in residency outside of the Scholars' home regions. In particular, it is clear that almost all Scholars are resident in their home region immediately in the two years following their Commonwealth award; only 5% of those between 1-2 years post-scholarship were abroad at the time of the survey. By 3-4 years, however, the proportion resident outside of the home region had increased fivefold to 25%. This pattern is consistent with a situation in which Scholars were obliged to return home through a contractual arrangement but, since such arrangements typically last only a few years, were able to work internationally again by 3-4 years post-scholarship. It is important to note, however, that over half of those residing overseas by 3-4 years after completing their scholarship were studying, rather than working. Further analysis may find, for instance, that the initial troughs and peaks in home residency are not defined solely by the tendencies of Scholars returning to their home country and emigrating after a short period, but also include Scholars who enjoy further periods of temporary sojourning and employer-supported study leave.

Certainly not all Scholars return due to contractual obligations; this is evident not least because, although most return to their previous employer, a sizeable minority do not (37%). Within some of the scholarship schemes, the majority do not return to their previous employer; Agency: Developed and Shared Scholars are two examples in which this is the case. The employment and residency trajectory of the latter group is particularly intriguing. Shared Scholars consistently rate the supportiveness of their employers towards applying for a Commonwealth Scholarship to be the lowest among all the scholarship schemes and, unsurprisingly given this lack of support, only a minority (about one-third) return to their pre-scholarship employer. Furthermore, from residency data we also know that, among all of the scholarship schemes, Shared Scholars reside outside of their home region in greatest proportion.

Because Shared Scholars make direct applications to universities and are not nominated by intermediaries – such as their employer – the trajectory of these Scholars is perhaps a reflection of the more limited

anchoring effect of home country institutions. There are, for instance, fewer cases in which a bond arrangement might be entered into when the employer is not actively involved in sponsoring a candidate, both placing a lesser obligation on the Scholar but also removing the potential reintegration tool of guaranteed reemployment post-scholarship. Whilst findings on the utility of guaranteed reemployment of scholarship recipients as part of bonds have been mixed – Perna et al. (2015), for instance, cite cases of underemployment and talent wastage induced through this mechanism – the value of planned reintegration is a topic worthy of further exploration.

2.4.2. Interpreting patterns in employment sector participation

The impacts of Commonwealth Scholarships are differentially felt across the public, private, academic, and NGO sectors. In broad terms, we have observed a movement of labour away from the public sector and towards the academic sector, with participation in other domains remaining relatively static.

A net effect of Commonwealth Scholarships across their duration has thus been to increase the supply of highly qualified academic personnel, both by providing an entry route into the academic sector and also by providing opportunities for professional development of those already within the academy. These activities are undoubtedly highly valuable. There has been increasing emphasis in recent years on strengthening the cadre of PhD-qualified staff within (in particular) the African academy (e.g. Tettey, 2010) and Commonwealth doctoral Scholarships provide one avenue through which doctorates can be studied in a timely manner, making use of the technical expertise and resources at world-class host research institutions, and at relatively little cost to home universities.[22] Our analysis of residency has also demonstrated that having studied a doctorate in the UK is, perhaps contrary to expectations, significantly associated with current residency in a Scholar's home region. Commonwealth doctoral Scholarships are thus less open to the critique of 'brain drain' sometimes directed towards scholarship programmes (e.g. Mouton, 2010; UNESCO, 2015). These findings should, however, be considered alongside the tendency for academic staff to pursue further periods of international study abroad: particularly if they *did not* undertake doctoral-level study during their Commonwealth Scholarship.

Commonwealth Fellowships offered to academic staff have also, in various guises, provided opportunities for international research collaboration, intensive training in new academic fields, and the cultivation of academic networks with institutions in the UK. The ways in which this support is deployed has been remoulded when required to achieve stronger results, such as the recent turn toward early career support in Commonwealth Academic Fellowships following commentaries on the need for more robust mechanisms to facilitate the career progress of junior researchers (e.g. Cage, 2015; Harle, 2011). The extent to which international networks have been formed and maintained through Commonwealth Scholarships is examined in more detail in chapter 3.

Impact on the private sector through increased post-scholarship employment participation is not evident in the survey findings; reported participation in the private sector is approximately the same pre- and post-scholarship. Generally, participation in the private sector was low across all groups of Scholars, both prior to their Commonwealth award and currently, emphasising the extent to which the programme is predominately engaged with the civic institutions and academic infrastructure of Commonwealth states. Lower participation in the private sector is not unexpected given that so many recipients enter into Commonwealth Scholarships and Fellowships through public or academic institutions: Academic Fellows and Academic Staff Scholars are nominated by universities; with the exceptions of several NGOs, the nominating agencies that recommend candidates for Agency: Developing and Agency: Developed scholarships are public institutions (often government bodies); and Medical Fellows tend to be employed at both medical institutions *and* academic institutions in their home countries. Nonetheless, the data shows that some agency-nominated Scholars make the transition into the private sector after finishing their scholarship, indicated by the higher proportion of agency-nominated Scholars listing private sector as their current employment sector than their pre-scholarship employment sector.

The relationship between Commonwealth Scholarships and private sector participation is thus somewhat more complex than merely observing that aggregate levels of employment in that sector were constant pre- and post-scholarship. Nor do any of these trends imply there has been little or no impact on the private sector from Commonwealth Scholarships and Fellowships. Notwithstanding the direct impacts of those Scholars working in the private sector, chapter 3 examines some of the modes by which Scholars' other

[22] Scholarships are not always cost neutral for home institutions. In some cases, institutions continue to provide salaries for sojourning staff, and they may find replacing a staff member for any period of absence challenging because of the limited academic labour force.

activities are relevant to commercial outcomes, for example, through the catalytic effects of innovation in science and technology.[23]

Contrasting levels of pre- and post-scholarship employment highlight that the public sector is the domain from which talent is being, to some extent, redistributed as part of Commonwealth Scholarships, although it is important to note that our evidence is only a snapshot and not a measurement of particular individual trajectories. To a large extent, any movement from public sector to academic sector for doctorate-qualified individuals is a desirable outcome of Commonwealth Scholarships; the academic sector, particularly in the developing Commonwealth, requires a substantial influx of new academic staff in order to thrive (see, for instance, Tettey, 2010). However, the movement of talented individuals away from public sector posts can risk hollowing out governance and public administration capacity, and this is particularly troublesome in contexts where creative and skilled public officials are required to overcome the notable challenges facing many Commonwealth states.

The phenomenon of institutional brain drain has not been widely investigated within analyses of scholarship outcomes, although some evaluations have reflected on the tendency of scholarship recipients to gravitate towards certain facets of the labour market (van der Aa, Willemson, & Warmerdam, 2012) and, particularly, away from public sector occupations (e.g. Webb, 2009). In the broader context of organisations, Rosenblatt and Sheaffer (2001) have noted that exit of skilled employees is a serious concern at all stages of an organisation's lifespan, but is particularly acute in crises, at exactly the time when skilled individuals are required to help in their resolution. The reduction in public sector employment noted in the survey results could hardly be considered an exodus, but, in the context of many scholarship programmes operating in similar geographical spaces, it is certainly conceivable that the 'compound drain rate' (see Mawer, 2014a) for the public sector could become problematic. Conversely, our analysis also suggests that those who do work in the public sector are more likely to do so within their own region and are more likely to be resident in their home region than, for instance, academic staff, for whom there is a trend toward further periods of international study.

More generally, it would be a mistake to interpret a reduction in public sector employment participation as inherently undesirable, as discussion of organisational brain drain might imply. Rather, it is important to monitor the extent to which any reduction in the number of skilled individuals working within the public sector is being offset by the contributions made by those (and other) individual Commonwealth Scholars from their positions within other sectors – particularly the academic sector. As we will see in chapter 3, there is substantial evidence of contributions made by Commonwealth Scholars to a range of public administration activities from positions within government and academia. The quotation that opened this chapter – from Dr Elijah Muwanaga-Zake, a Ugandan Commonwealth doctoral Scholar in the 1980s – illustrates the form that some of these contributions might assume. It is also an aim of Commonwealth Scholarships and Fellowships to increase productivity and capacity, not merely to shift labour between sectors of employment. As is evident from our findings on perceived gains, there is good reason to suspect that Commonwealth awards are successful in achieving in this goal.

2.4.3. Trends in robust gains

To what extent have gains from scholarships been realised and subsequently applied within the employment sectors in which Scholars have made their careers? To assess this question, we examined perceived gains using a series of nine (5-point Likert-style) statements:

[1] I accessed equipment and expertise not available in my home country

[2] I gained knowledge in my field of expertise

[3] I increased my analytical/technical skills

[4] I learned techniques for managing and organising people and projects

[5] I have been able to transfer or pass on to others the skills and knowledge gained during my award

[6] As a result of my Commonwealth award my ability and confidence to make changes in my workplace has increased

[7] My workplace enables me to make full use of my skills, knowledge and expertise

[23] See, for instance, Weinburg et al. (2014) for a discussion of the (often hidden) short-term economic impacts of science research.

[8] As a result of the knowledge acquired through my Commonwealth award I have been able to introduce new practices/innovations to my workplace

[9] In my workplace I use the specific skills and knowledge gained during my award

The general trend from the survey data is clear: perceived gains are high in all areas and these results are robust across various demographic and employment cohorts. Outcomes are thus positive for Scholars both in having developed expertise from the scholarship experience, and in helping to shape their organisations through innovation and the application of their skills in the workplace.

At a more granular level, there are several trends identifiable in the data. The highest average ratings were in categories of perceived gains in knowledge and skills while on scholarship. Although these results are unsurprising, given that most Commonwealth Scholars are by definition undertaking study of new knowledge and skills, examining outcomes on seemingly obvious topics is useful to identify any trends in *lower* ratings. Exactly such a trend did arise from the findings: lower gains were consistently reported by Scholars from the higher income, developed Commonwealth regions.

An important nuance of this trend, however, is that the survey evidence tentatively suggests that the perceived effects of the Commonwealth Scholarship have been more profound for the personal knowledge and skills of Scholars from developed Commonwealth states than for their ability to influence institutional capacity. As we examine in chapter 3, the broader catalytic impact of individuals from these regions has been *lower*, but this must be interpreted within the context of the scholarships for which they applied focusing on leadership and public diplomacy, rather than development impact.

Scholars from the Agency: Developed scholarship route tend towards the highest ratings of fully using the skills from their scholarship, and this is a useful indicator that the programme has been relatively successful in selecting candidates who are well placed to benefit. Given the difficulties of access to time and resources for using, particularly, research skills in many lower income states, it is unsurprising that, by comparison, Scholars from the higher income Commonwealth regions perceive their skills to be more fully utilised [7]. However, while Scholars from higher income, developed Commonwealth states reported higher ratings on this measure, the magnitude of the difference was marginal, particularly when set in the context of high ratings of perceived gains across all regions. Of all categories, the largest divergence between the higher-income and lower-income regions of the Commonwealth was in learning management skills [4], likely because the CSC's funding specifically for 'professional' awards (e.g. Professional Fellowships, Medical Fellowships) are open only to candidates from lower income regions.

Another series of patterns in the data concerned the systematic differences in perceived gains based on the post-scholarship employment of Scholars. Summarising the findings:

1. All Scholars gave high ratings in the categories of perceived gains related to applying the skills gained during their scholarship.

2. For three categories – transferring skills to others [5], using skills fully in the workplace [7], and using the skills gained on scholarship in the workplace [9] – there is evidence to indicate a difference in perceived gains based on the current employment sector of Scholars.

3. Those currently working in the academic sector tended give the highest ratings of perceived gains in these three categories, and especially in transferring skills to others [5].

4. Scholars working within the private sector tended towards reporting the lowest gains in these three categories.

Ratings of perceived gains thus begin to reinforce the sense that the academic sector is a major beneficiary of Commonwealth Scholarship outcomes. Scholars working within the academic sector have reported the highest average ratings of perceived gains in most cases, and particularly in comparison to those within the private and public sectors. In the case of the private sector especially, although employment participation has neither increased nor decreased among the respondents, there is a greater tendency for those currently working within the private sector to indicate that they are underemployed.

An important facet of understanding the application of perceived gains is to analyse the extent to which practice has actually changed. While there are some situations in which it is inherently desirable to help at least maintain the status quo – the training of academic staff to help build a sustainable academy, for instance – the majority of significant gains are expected to be derived from helping to change existing circumstances where they are dysfunctional (Collier, 2015), often through limited technical capacity to conduct services or champion social or technological innovation. Although the survey data has given clear

evidence that most Scholars feel able to apply their skills within their employment, it is important to note that this is only one 'angle' through which to view the impact of those skills. While the survey contains self-report data on the introduction of innovations within the workplace, it does not offer any insight into the effectiveness or durability of those innovations. To assess that impact would require answering two questions:

1. Has practice changed as a result of the Scholar's activities?

2. Has the change been for the better? If not, to what extent (if any) does this reflect a facet of scholarship outcomes (e.g. reintegration difficulty)?

To some extent these questions are answered within chapter 3 by the body of evidence on the catalytic impact of Scholars' activities, most usually through their formal employment. At the level of specific organisations, however, measuring institutional capacity development of this kind is often very difficult, particularly in the absence of counterfactual data or detailed information pre- and post-scholarship for the organisation involved. In cases where Scholars do not return to work for their pre-scholarship employers, for instance, anticipating the analysis by collecting baseline data is not possible, but rather would have to be conducted through specific case studies of organisations and retrospective reflection on the change in practice (see Ramboll, 2012, for an example of this kind of analysis).

What is evidently needed to supplement detailed survey data from individuals is thus a series of organisational case studies in which the general trends of perceived gains are examined in a more concrete setting. A useful example might be a university department that has received several Commonwealth Scholarships and in which it might be possible to examine how practices have changed as a result of the Scholars' return. Analysing outcomes in this way could facilitate a richer understanding of how the application of knowledge and skills gained on scholarship is manifest in an organisational context, and the extent to which Scholars' activities are catalytic and sustained.

2.4.4. The ebbs and flows of residency

At the macro level, our findings indicate that 18% of respondents were currently resident outside of their region of citizenship at the time of the survey. Yet this headline figure conceals a pattern of peaks and troughs in residency abroad at differing periods post-scholarship. We found that, while residency outside of the home region was at its lowest (5%) in the two years immediately post-scholarship, it was then at its peak (25%) in the following two years (these figures change to 9% and 31% respectively if Fellowships are excluded). Residency varied at different stages post-scholarship.

Putting any of these figures into the context of other literature is difficult, as our data falls somewhat between the common foci of current research, which largely concerns either 'emigration' rates *from* a country (e.g. Capuano & Marfouk, 2013; Collier, 2015) or 'stay' rates *within* a country (e.g. Sykes & Chaoimh, 2012), and not 'return' rates *to* a country. Broadly, the peak rate of non-return for Scholars (3-4 years post-scholarship) was comparable with the overall rate of non-return for those from developing countries in a programme such as the Norwegian Quota Scheme (Damvad, 2014) or Ford Foundation International Fellowship Program (Enders & Köttman, 2013), while the minimum (5%/9%) is well below what is usually reported. The figures for residency in other regions calculated from our survey data are somewhat higher than the high-skilled emigration rate cited elsewhere. Capuano and Marfouk (2013), for instance, calculated that, in the year 2000, high-skilled emigration rates from Africa were 10.6%, although this could be considerably higher in particular cases; Kenya, for instance, was calculated to have a 39% high-skilled emigration rate to OECD countries in 2000. It is important to note that Capuano and Marfouk's calculations include all high-skilled individuals, while the CSC's survey concerns only high-skilled individuals who have completed international education; we have good reason to suspect that propensity to *remain* abroad (or *return* abroad) is likely to be higher than propensity to emigrate generally (see Oosterbeek & Webbink, 2011).

What is most clearly highlighted by the findings, however, is that residency post-scholarship should not be treated as a static outcome, but rather as a fluid process with peaks and troughs. Analyses thus might usefully go beyond concepts of 'return' and 'non-return' and examine patterns of returning, sojourning, and migratory behaviour across time. We need to be mindful that what influences decisions to return, stay, or leave a particular country at different time periods varies (see Baruch, Budhwat, & Khatri, 2007). Just as the effect of contractual bonds and visa stipulations strongly influences the very high 'return' residency within the initial years post-scholarship, drivers for transnational working, or temporary or permanent migration will likely vary at different stages in an alumnus' career and be influenced by their chosen professions. It was evident from our analysis of variables associated with residency, for instance, that Scholars currently employed in the academic sector had a greater tendency towards further international studies post-scholarship, particularly those who undertook postgraduate (Master's) awards through a Commonwealth Scholarship.

Against this backdrop, it is useful to revisit a policy question raised in our review of scholarship evaluation methodology:

> *'An ancillary strategic question for evaluation is how long is considered a reasonable "return" on the scholarship, before which movement out of the country or into another sector might be considered brain drain. Whilst the time period involved might be arbitrary it bears consideration: does it matter if, for instance, alumni leave their home country 10 years post-scholarship?'* (Mawer, 2014a, p. 15)

Our survey analysis suggests that following this line of thinking may potentially be misleading. We might expect to see, for instance, that some Scholars have indeed left their home country by ten years post-scholarship, yet they may also have returned again within that period or shortly thereafter, perhaps even repeating the pattern several times. A more relevant question may be: what are the consequences for the broader aims of Commonwealth Scholarships of ebbs and flows in home region residency at particular points post-scholarship? Similarly, we see that for some Scholars a Commonwealth award is part of an educational trajectory that continues over the following half-decade. Examining the impact of Commonwealth Scholarships in this context thus means not simply cataloguing what is achieved directly as a result of a particular (usually Master's) degree, but how compound effects are (or are not) realised from the access granted to future educational programmes. Similarly, understanding the impact of the future doctoral programme requires an appreciation of the contingent impact of the prior CSC Master's programme that facilitated access. These complexities highlight the importance of longitudinal analysis in order to unpick the periodic effects of Commonwealth Scholarships as they unfold and to understand the implications of subsequent residency or study decisions made following a Commonwealth Scholarship.

3. Catalytic effects

I was involved in setting up a number of NGOs dealing with torture (Amani Trust), human rights (Zimbabwe Human Rights NGO Forum), and governance (Research and Advocacy Unit).

The Amani Trust no longer functions, but was critical in bringing torture into the open and providing assistance to torture victims, both historical and those from the current human rights abuses of the Zimbabwe government. It assisted hundreds of victims of torture from the Liberation War of the 1970s, the violence of the 1980s, and many hundreds more since 2000. The Amani Trust was one of the very first community-based organisations offering assistance to torture victims, and was an influential member of the International Rehabilitation Council for Torture Victims (IRCT). I was a member of the Council of the IRCT from 1993 to 2003, and a member of the Executive Committee from 2000 to 2003. The Amani Trust itself was awarded the Eclipse Award for Human Rights by the Centre for Victims of Torture in 2002.

The Zimbabwe Human Rights NGO Forum was established in 1998 and continues to date. It is now a coalition of 22 human rights organisations working to prevent torture and human rights abuses. I was the founding Chair of the forum. The forum has provided consistent pressure on the Zimbabwe government for its poor human rights record, and is well respected internationally. It published a very influential monthly report on torture from July 2001 to July 2009, which became internationally recognised as the metric on human rights observance in Zimbabwe. The forum also published a large number of specialist reports, held the first international symposium on human rights abuses in Zimbabwe in 2003, and has now set up a National Transitional Justice Working Group to drive the processes of accountability and challenging impunity.

The Research and Advocacy Unit (RAU) is an independent think tank, providing high quality research, reports, and advocacy in a number of key areas: active citizenship, community security, and influencing policy, with particular emphasis on women and youth. RAU has had a material influence on both women's rights and good governance in the short time it has been operating. It was the first organisation to document politically motivated rape, and its documentation has been used as an amicus brief by the Tides Foundation in important litigation in South Africa. RAU has also had a serious contribution to better governance through its work on elections, the law, and other issues; for instance, it carried out the first independent audit of the voters' roll in 2009, and an even more influential audit in 2013. RAU is highly respected within Zimbabwe, and by international governments and agencies. RAU has published over 180 reports and opinion pieces since its establishment in 2006, including an authoritative report on Zimbabwe and the Commonwealth.

All these organisations have been very influential during the current crisis in Zimbabwe, and all have received high respect (and adverse government attention) from both local and international agencies and governments. It can be said in all due modesty that all three have had a definite effect on the human rights climate and have influenced the government to mitigate its violence. The reports of all three organisations are widely read by governments, both in the Southern African Development Community (SADC) region and in the West, and have helped to maintain pressure on the ZANU PF government for reform.

All the evidence for such politico-social work is, of course, difficult to demonstrate by empirical measures. However, it is fair to comment that thousands of torture victims have been helped since 1993, and that these organisations have provided strong pressure on a human rights-violating government, provided citizens with good role models of courageous and assertive civil society, and had a discernible influence on the foreign policy options of both regional and Western governments in respect of Zimbabwe.

Mr Tony Reeler
University of Leeds, 1976

The rationale for the Commonwealth Scholarship and Fellowship Plan extends beyond individual scholarship recipients. Although supporting talented scholarship recipients to thrive in productive and fulfilling careers is a desirable outcome of Commonwealth awards, ultimately the most important impacts of the programme are garnered when these individuals become social, political, and economic change agents. Through the actions of Commonwealth Scholars and Fellows, the Commonwealth Scholarship Commission aims to catalyse wider development effects that strengthen society, diffusing the benefits of scholarship gains through the actions of recipients and those subsequently empowered by recipients.

Nor are Commonwealth Scholarships designed to be isolated engagements with the UK. Although the CSC anticipates that Scholars and Fellows will return to their home countries – an expectation borne out in our findings, as we saw in chapter 2 – the relationships built within the UK should continue far beyond the experience of returning home. Such connections underpin future collaboration between the UK and the broader Commonwealth, whether through academic research, commercial ventures, or diplomatic relationships.

A series of measures were introduced in the survey to examine the extent to which the ambition of both continued contact and wider development activity are realised in practice. The results from those measures, detailed in the sections below, demonstrate that in many areas there have been broad, robust, and often remarkable impacts reported by Commonwealth Scholars and Fellows. In addition, many of the connections made while in the UK persist for decades and may have significant post-scholarship influence on the professional development of Scholars and Fellows. Nonetheless, we have also found that there are complexities within these findings that merit further consideration. The purpose of evaluating these outcomes extends beyond demonstrating their presence. The goal of our analysis is to understand how development impact and persistent connections can be explained by other factors and, ultimately, to interpret the extent to which scholarship programme policy can be shaped by such evidence.

3.1. Wider development impact

Data on the catalytic effects of Scholars' activities was collected through several related questions within the survey. Most immediately, respondents reported whether they perceived that their activities had either socioeconomic impact (SI) or influence on government policymaking (Gov). Activities were deemed to be of developmental relevance if they fell into one of the following focus categories:

1. Environmental issues
2. Health
3. Governance, security and conflict
4. Gender equality
5. Poverty reduction
6. Education
7. Population growth and development
8. Economic growth and the private sector

For those reporting such impacts, we also collected data on their intensity. In a separate question, we explored the breadth of an individual's impact; that is, their reach at the institutional, local, national, or international level.

Many respondents also gave details of their work and its influence on wider development, some examples of which are included at the start of each chapter within this report. A typology of the activities reported within these additional details is presented in section 3.3. In our analyses, we do not make a distinction between catalytic effects generated through paid work, versus philanthropy, community activities, and so forth, as the data is not sufficiently detailed to support this form of analysis. Our broad assumption – based both on the examples given and the match between respondents' employment and their reported areas of impact – is that the majority of catalytic effects accrue through the paid employment of individual Scholars. This is not universally the case, as an example from one respondent illustrates:

Through the Rotary Club we look after a group of about 40 children in deprived areas of the country. They are aged between 3-15 years old. We meet them 1-2 times per month at a community centre. The main thrust of the interaction with the children is to inculcate a sense of belonging, teamwork, and discipline, and to encourage them to learn through play. A number of activities are held and they include reading sessions (using a 'mobile' library), storytelling, play-acting, dancing, singing, playing games, etc. On occasions, meals and snacks are served to the children.

The children respond very well to the activities and show a lot of enthusiasm and progress. Some of the introvert children become less shy and are able to express themselves more freely and clearly. The attendance is usually very high and this is some evidence that they enjoy what they do at the centre and that it is working out for them. Their writing, reading, and drawing skills are better and may be seen from works assessed over several months.

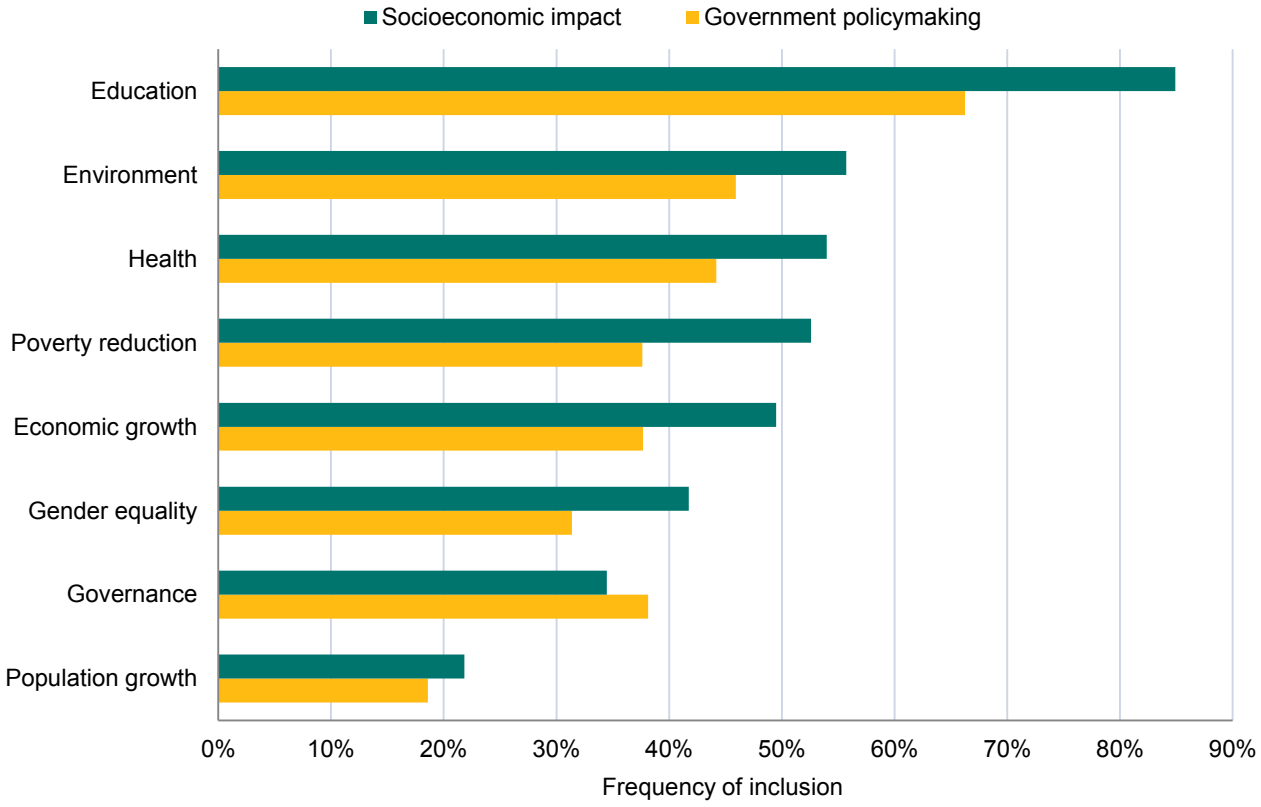
Dr Naraindra Kistamah
University of Leeds, 1996
University of Manchester, 2004

Around a third of respondents reported involvement in voluntary activities in addition to their primary employment, and so there are plausibly many similar examples to the one above, although some Scholars may less readily view their voluntary activity through the lens of socioeconomic development.

Overall, 66% of respondents reported that their activities had socioeconomic impact, while 35% reported influence on government policymaking. The discrepancy between these figures is most readily explained by the scope of the activities involved. Influencing government policymaking is a relatively narrow field of action generally involving either direct policymaking (e.g. while working for a government agency) or advocacy within the policymaking process. Socioeconomic impact, conversely, is a much broader concept and has variously been posited (by respondents) as accruing through educational processes, medical and health interventions, commercial and production activity, and numerous other routes. As we noted in our interim analysis (Mawer, 2014b), the conceptual breadth of these measures is useful insofar as it allowed the survey to capture data on a wide range of potentially important activities, but also troublesome in that lack of specificity has caused the questions to be interpreted in varying ways by respondents.

The aggregate socioeconomic impact and government policymaking impact figures are constituted by involvement across eight sub-categories. Many respondents were active in more than one field, especially for reporting socioeconomic impact, in which respondents averaged involvement in three ($\bar{x}$=3.2) sub-categories. Even within government policymaking, respondents were involved in an average of two ($\bar{x}$=2.4) sub-categories.

Figure 12 Frequency of inclusion in reported socioeconomic or government policymaking impact for each sub-category



Education was the most frequent field in which Scholars reported socioeconomic and government policymaking impact. Given the preponderance of Scholars working in the academic sector, it is unsurprising that the majority of those reporting impact do so within the education sub-category, although, and as section 3.3 notes, the contributions to education are often broader than formal academic teaching. Conversely, population growth was the least frequent field in which respondents reported impact, either socioeconomic or in government policymaking. In seven of the eight sub-categories, the proportion of respondents who reported impact is higher for socioeconomic impact than for government policy making – reflecting the difference, highlighted above, by which average involvement per respondent was wider for socioeconomic impact than governmental policymaking. In the governance sub-category, however, a greater proportion of those who reported government policymaking impact were involved than those who reported socioeconomic impact. While this inversion of the trend seems intuitive, it is important to note that the difference between the proportions reporting involvement for the two measures is not substantial: 34% (socioeconomic) versus 38% (government policymaking). Additionally, because of the difference in the group size for each question – more respondents reported socioeconomic impact than impact on government policymaking – there were

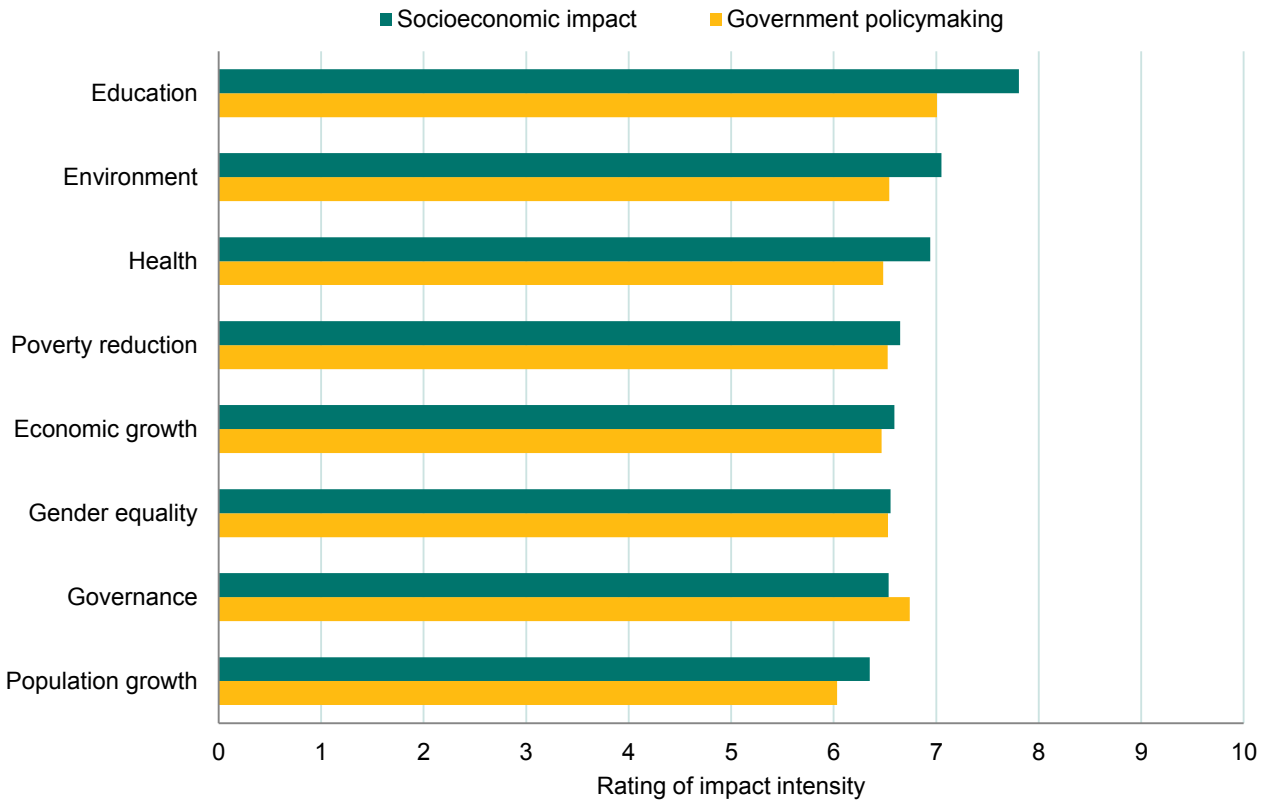
actually *more* respondents who reported socioeconomic impact in the governance sub-category, although these cases made up a smaller proportion of the total.

3.1.1. Impact intensity

The intensity of contributions within each sub-category – that is, the respondents' rating of the level of impact achieved – was also measured for the most recent of the survey cohorts. For each sub-category in which they reported impact, respondents rated the intensity of this impact on a 1-10 scale, in which 10 was 'very high' and 1 was 'very low'. This measure was introduced part way through the data collection, and thus responses are not available for all respondents (only for N=1278), but there are sufficient cases per sub-category (50+) to provide meaningful results.

The average rating of intensity across all sub-categories of socioeconomic impact was $\bar{x}$=6.81, and in government policymaking the average rating of intensity was $\bar{x}$=6.54. Given the considerable difference in the overall proportion of respondents who reported socioeconomic and government policymaking impact (66% versus 35%), it is notable that the perceived intensity of activity is similar.

Figure 13 Average intensity of impact (out of 10) by sub-category



Within the sub-categories, the reported intensity of activity in education is highest in both socioeconomic and government policymaking impact. As such, wider development activity in education was both the most frequently reported and, of all activity reported, perceived to be most substantial impact. The converse is also true of population growth: it is the least widely reported and, of those who do report activity, perceived to have the least substantial impact.

Beyond education, the differences in impact ratings between sub-categories are slight, varying within the range of a single scale point (i.e. between ratings of 6 and 7). The clustering of intensity ratings tends to suggest that – unless the interpretation of 'impact' varies greatly across each sub-category – the scale of impact being reported is very similar. In most cases, the ratings for socioeconomic and government policymaking impact are consistent, but it is notable that in the education sub-category the intensity rating for socioeconomic impact is both higher and, in comparison to other socioeconomic impact ratings in the sub-categories, *relatively greater* than the equivalent rating for government policymaking impact. In education, therefore, both the proportion of respondents who reported impact and their rating of that impact was higher for socioeconomic than government policymaking impact, although in both cases education was the field in which most activity had taken place.

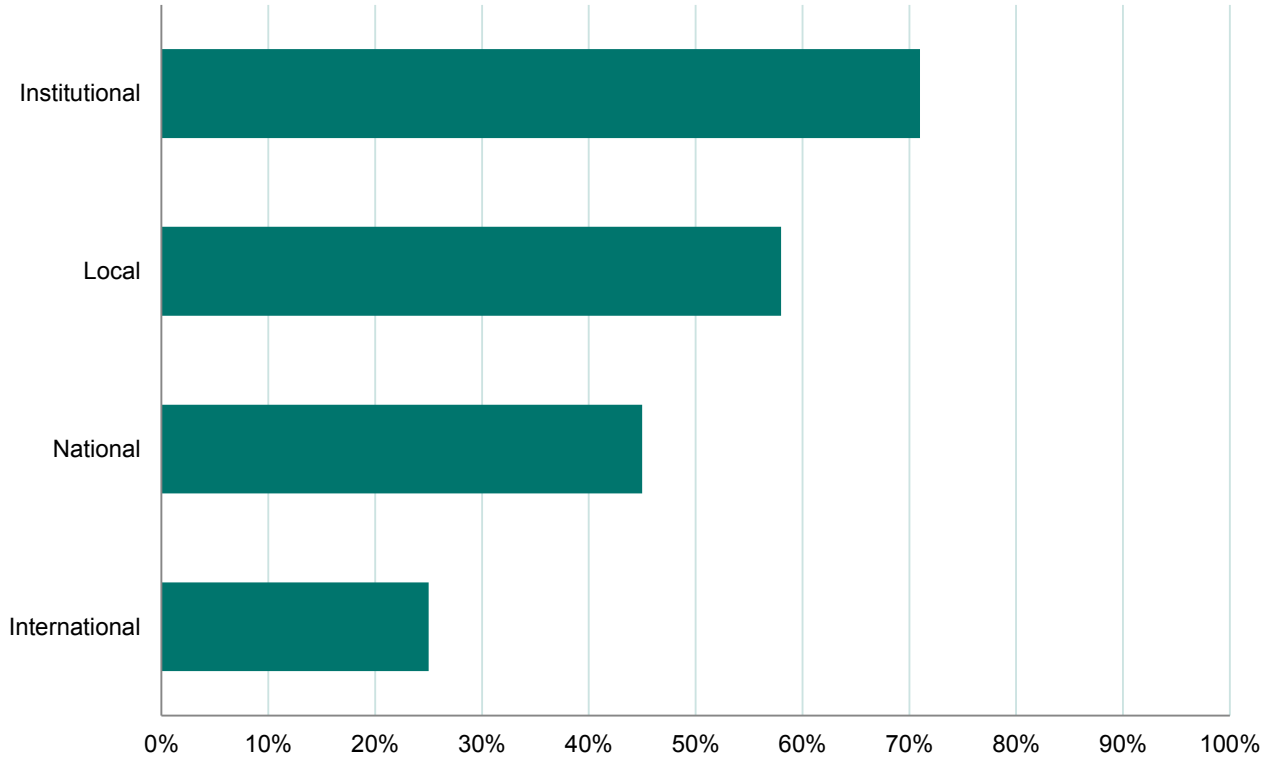
More generally, the average ratings in all areas are above the scale midpoint, which suggests that respondents tend to perceive that their activities are exerting substantial impact. The data is not comparative

and nor is it benchmarked, but rather provides an indication of the scale of involvement in each sub-category as a level of granularity further than proportions of involved or uninvolved respondents. While it is an important methodological point that self-perception of impact is unlikely to produce consistent ratings across a large dataset, the high rating for the education sub-category – in which so many respondents are employed – offers some evidence that the intensity ratings are likely to be meaningful.

3.1.2. Impact breadth

Another lens through which wider catalytic impacts can be viewed is the breadth of their influence. To explore this aspect of respondents' activities, we collected data on whether they had generated impact at institutional, local, national, or international levels. In this case we made no distinction between socioeconomic and government policymaking impact, but rather focused on the proportions of respondents reporting impact at each level and the *broadest* impact a respondent reported. We found that the proportion of respondents reporting impact at each level followed the hierarchy of breadth closely, with larger proportions reporting lesser breadth impacts and subsequently fewer respondents reporting impact at each broader level.

Figure 14 Breadth of impacts reported by survey respondents



As such, while almost three-quarters of respondents reported institutional level impact, only one-quarter reported international level impact. Across the dataset, the highest breadth of activity reported by individual Scholars was on average (median) at the national level.

It is important to note that this is a hierarchy of breadth, *not* value; impacts at a national or international level are not inherently superior to those at institutional level merely because of their greater scope. While international impacts may be profound – significant advancements in scientific discovery, diplomatic activities, and so on – it is equally plausible that impacts at the institutional level could profoundly affect the viability, capacity, and sustainability of organisations. We saw in chapter 2, for instance, that many respondents reported contributing to institutional level impacts through the introduction of innovations into their workplace and through knowledge transfer. These outcomes at institutional level closely reflect the aims of several scholarship schemes, particularly the Commonwealth Fellowships (Academic, Medical, and Professional), in which a short sojourn is expected to catalyse professional links between organisations or researchers, generate opportunities for specific projects to be conducted, or yield training in particular skills that can be embedded into home institutions after the fellowship ends. As just over half of respondents worked in the academic sector, many of the institutional impacts reported will involve strengthening of universities through research, teaching, and management activities.

Nonetheless, the substantial proportion of respondents reporting impacts at the national and international levels illustrates the reach of wider catalytic impacts generated by Commonwealth Scholars and Fellows.

Although each individual scholarship aims to empower an individual, the breadth of their achievements frequently extends far beyond individuals, institution, and even nations. In section 3.3, we examine specific ways in which these impacts are generated, assembling a loose typology from our findings. It is important to consider the breadth of impact when interpreting this typology; it highlights how activities such as advocacy or policy design and implementation can be manifest at various levels, from institutional campaigning or policymaking to participation in national and supranational governance frameworks. Across the data, there is evidence that Commonwealth Scholars and Fellows have been active at all such levels, from elected leaders of nations to outreach officers at community NGOs.

3.2. Influences on impact

To explore whether the wider impact activities reported by respondents differed between sub-groups of Commonwealth Scholars and Fellows, we performed a series of logistic regression analyses. To avoid spreading the data too thinly, we limited the variables considered to gender, degree type, and region of citizenship. We also combined the regions North America and Australasia into one region (North America & Australasia), based on these all being developed Commonwealth countries and the only participants in the Agency: Developed scholarship scheme. After exclusions, the dataset consisted of N=1896 survey responses, although this varies somewhat between 1400 and 1896 depending on the specific measure, due to non-responses in the survey.

3.2.1. Influences on socioeconomic impact

For socioeconomic impact, the best fitting regression model included the variables gender and region of citizenship, but not degree type.

Table 18 Logistic regression of socioeconomic impact (outcome="Yes") by gender and region of citizenship[24]

Variable	Coefficient	95% confidence interval
Gender		
Female(*)	-0.12	(-0.24, -0.01)
Male(*)	0.12	(0.01, 0.24)
Region of citizenship		
Caribbean	0.28	(-0.10, 0.65)
North America & Australasia(*)	-1.03	(-1.27, -0.79)
South Asia	0.13	(0.08, 0.34)
Southeast Asia	-0.14	(-0.52, 0.24)
Sub-Saharan Africa(*)	0.76	(0.55, 0.97)

The model explained 7.18% of the variation we observed in reported socioeconomic impact. Given that only two variables are included in the model – and both are demographic variables – magnitude of variance explained (called the 'R-squared' value) is quite substantial.

Several of the coefficients within region of citizenship were statistically significant: those for North America & Australasia and for Sub-Saharan Africa. As Table 18 indicates, these effects are in opposite directions: holding citizenship in the North America & Australasia region was associated with *lesser* likelihood of reporting socioeconomic impact, whereas holding citizenship in Sub-Saharan Africa is associated with *greater* likelihood of reporting socioeconomic impact. The regression model takes an 'average' effect across all of the regions, and in doing so shows that the effects of other regions are non-significant, despite being quite different to the results for both North America & Australasia and Sub-Saharan Africa. A useful way to reframe this data and to show the hierarchy of regional influences is to use the region with the largest positive influence (Sub-Saharan Africa) as a reference level for comparison.

[24] Coefficients with (*) are statistically significant at 0.05 level.

Table 19 Logistic regression of socioeconomic impact (outcome="Yes") by gender (reference level=Female) and region of citizenship (reference level=Sub-Saharan Africa)[25]

Variable	Coefficient	Confidence interval
Gender		
Male(*)	0.24	(0.01, 0.47)
Region of citizenship		
Caribbean(*)	-0.48	(-0.97, -0.001)
North America & Australasia(*)	-1.79	(-2.10, -1.48)
South Asia(*)	-0.63	(-0.90, -0.36)
Southeast Asia(*)	-0.90	(-1.39, -0.41)

After changing the analytic design, the model shows that each region is associated with socioeconomic impact to a substantially lesser degree than Sub-Saharan Africa. Rather than distorting the average effect, the result from North America & Australasia is instead translated into a highly negative coefficient. The hierarchy of regional influences on likelihood to report socioeconomic impact thus descends from Sub-Saharan Africa to the Caribbean, South Asia, Southeast Asia, and North America & Australasia.

The Scholar being male was significantly associated with greater odds of reporting socioeconomic impact, although the effect size was relatively small. The majority of variation explained by the model was explained by differences in region of citizenship (6.88%); gender provided only a very small (0.3%) supplement to this explanation. Thus, although we see a notable difference in the proportions of male and female Scholars reporting socioeconomic impact, the regression analysis suggests this is likely a reflection of disproportionate gender balance within regions of citizenship rather than a specific effect of gender.

The reflection of regional effects was evident to an even greater extent when considering degree type, to the point that degree type was not a useful explanatory variable to include in the regression model. Although some of the coefficients for degree type were statistically significant, the actual contribution of this variable to the R-squared was even smaller than gender. The effect of degree type on reported socioeconomic impact thus appears to be because of the disproportionate distribution of different degree types across regions, rather than a specific effect of degree type. In particular, the observed effect of doctoral degrees on socioeconomic impact actually reverses depending on whether region of citizenship is also included in the analysis, because the measured 'effect' of doctoral degrees on socioeconomic impact is actually better explained as the effect of doctoral degree holders originating disproportionately from North America & Australasia.

The association of North America & Australasia with lesser likelihood of reporting socioeconomic impact is an indirect indicator that the selection processes for Commonwealth Scholarships have been effective. The Commonwealth Scholarships without 'development potential' as a prominent selection criterion are those awarded to candidates from North America & Australasia as part of the Agency: Developed scholarships; the other scholarship schemes feature this criterion in their selection of recipients. The prominence of region of citizenship in explaining socioeconomic impact thus demonstrates that those most likely to report having had wider development impact are those who are selected on the basis of their potential to do so. Similarly, because different regions of citizenship are more strongly associated with differing outcomes for socioeconomic impact than either gender or degree type, we can tentatively conclude that being selected on the basis of potential development impact is a better 'predictor' of realising this potential than the gender of the applicant or the degree undertaken.

3.2.2. Influences on government policymaking impact

The regression results generated from analysing government policymaking impact were much less clear. The best fitting model could explain about two per cent (1.91%) of the variation in reported government policymaking impact. This result is far less compelling than the 7.18% achieved by the analysis of socioeconomic impact and, importantly, the effects being detailed by the government policymaking impact model are less clear than those for socioeconomic impact.

[25] Coefficients with (*) are statistically significant at 0.05 level.

Table 20 Logistic regression of government policymaking impact (outcome="Yes") by region of citizenship and degree type[26]

Variable	Coefficient	95% confidence interval
Region of citizenship		
Caribbean	0.37	(-0.06, 0.79)
North America & Australasia	0.01	(-0.41, 0.43)
South Asia(*)	-0.25	(-0.48, -0.02)
Southeast Asia	-0.10	(-0.50, 0.31)
Sub-Saharan Africa	-0.03	(-0.26, 0.20)
Degree type		
Doctorate	0.09	(-0.16, 0.33)
Fellowship	0.27	(-0.01, 0.54)
Postgraduate(*)	-0.35	(-0.58, -0.13)
Interaction (truncated to significant levels)		
Doctorate and North America & Australasia(*)	-0.56	(-1.04, -0.08)

In addition to lower explanatory power, the model also suffered from wider margins of error[27] that may make the estimates of each variable's effect less accurate. Examining the confidence interval for South Asia (-0.48, -0.02), for instance, the range of possible values for the estimate includes both a relatively substantial effect (-0.48) and almost no effect at all (-0.02). Some caution should thus be exercised in considering these results.

The most robust effect identified in the analysis is that postgraduate degrees were negatively associated with reporting government policymaking impact, independent of any effect of region of citizenship or gender (the latter was tested in a different regression model). This effect is interesting insofar as it both captures and elides some findings illustrated elsewhere. For instance, Shared Scholars always study postgraduate degrees and have reported impact on government policymaking in lesser proportion (23%). Conversely, Distance Learners – who also always undertake postgraduate degrees and of whom there are far fewer cases in the dataset than Shared Scholars (94 versus 343) – have reported impact on government policymaking in greater proportion (46%). As Shared Scholars and Distance Learners originate from the same regions (South Asia and Sub-Saharan Africa) in roughly equivalent proportions, it is unlikely there is any regional explanation for this difference in outcomes. Thus, while postgraduate degrees may be overall negatively associated with impact on government policymaking, there may be some nuances within this effect that, given more data available, could be explored further in later analysis.

The role of gender in explaining government policymaking impact is somewhat complex. Adding gender to the analysis improves the explanatory power of the regression model if it is included alongside degree type or region of citizenship, but still results in a worse fitting model than that presented in Table 20. Including gender *alongside* the variables in Table 20 does improve the R-squared slightly, but at the expense of making the analysis unreliable because the data is spread so thinly across many categories (e.g. there are very few cases of male Caribbean Shared Scholars to analyse). As such, it is reasonable to suggest that gender may have some influence on propensity to report government policymaking impact, but we cannot reliably test this proposition with the data currently available.

A more general point is that, while one region (South Asia) is significantly associated with lesser impact on government policymaking, the link between region of citizenship and impact is much weaker than was the case for socioeconomic impact. North America & Australasia is not nearly as dissimilar to other regions as was the case for socioeconomic impact. Nor is the hierarchy of regional effects the same for government policymaking impact and socioeconomic impact. Sub-Saharan Africa, for instance, is not significantly

[26] Coefficients with (*) are statistically significant at 0.05 level.

[27] Specifically caused by multicollinearity inflating the coefficient standard error and confidence interval: the variance inflation factor (VIF) for the interaction of Doctorate and North America & Australasia was large enough to warrant caution (VIF=9.22). Multicollinearity does not adversely affect the model fit statistics (e.g. R-squared) and so these are a fair reflection of the regression's explanatory power.

associated with substantially greater propensity to report impact, as was the case for socioeconomic impact. Exactly why this should be the case is a topic for further research.

3.3. Types of impact

Commonwealth Scholars and Fellows revealed an array of professional and voluntary activities, ranging from drafting influential government legislation to inventing and commercialising new electronic products. Many examples alluded to catalytic effects, such as the education of future generations of the nation's students, the positive externalities of technological innovations, and the enabling effects of advocacy and policy reform. We sought to create a typology from responses to better understand the forms of activities that our alumni reported when they discussed their socioeconomic impact or influence on government policy. Seven categories of activity emerged from our coding of the examples provided:

1. Analytic research
2. Teaching and training
3. Design, invention, and development
4. Implementation and coordination
5. Policy development and technical assistance
6. Advocacy
7. Publication and dissemination

Within these categories a remarkable multitude of activities could be grouped, anchored variously in local communities, regional and national collaborations, and international associations. The major themes are elaborated below. Several minor themes that reflect other potentially important but less widely discussed pathways to impact are also explored.

3.3.1. Major themes

Analytic research included a broad range of activities aimed at understanding the current state of affairs or establishing the feasibility of activities. Although 'research' may suggest academic work, the breadth of analytic activity was substantial and not limited to universities or research institutes. In this category we included feasibility studies, population and demographic research, diagnostic assessments (e.g. epidemiological 'fact finding'), impact assessments, fundamental research without a design or applied component (e.g. basic science), and the evaluation of government policy. The scope of analytic research varied greatly, from an impact assessment for a specific environmental concern to the evaluation of a multinational health programme.

Teaching and training were among the most widely reported impact activities, and within this category we included any educational activities oriented around teaching, mentorship, or guidance (regardless of the setting). Many examples were related to formal teaching in higher education settings, with Scholars or Fellows who held academic posts often reporting thousands of students taught over the course of an academic career. Some returning academic staff reported that they had changed the scope of teaching and learning at their institutions, introducing new research specialities and setting up institutes that facilitated learning otherwise absent from the university (and sometimes country or even region) teaching portfolio. In addition to university teaching, a variety of professional and workplace training initiatives, including community training (especially as part of development projects), were noted by Scholars. In particular, the role of the Commonwealth Scholar as a 'resource person' within professional organisations and government agencies illustrates how the knowledge transfer goals of the scholarships are met beyond the academy.

Design, invention, and development were also widespread aspects of activities reported. The creation of new initiatives, products, and organisations directly demonstrated how Scholars have helped to shape the intellectual and organisational landscape of their countries across a range of disciplinary fields. In the higher education sector, for instance, many Scholars explained their role in developing new curricula, pedagogy, or university departments, or founding entire universities. Similarly, within the public sector, Scholars helped establish commissions and developed organisational systems (e.g. in the judiciary or health service). In the applied sciences and technology spheres, Scholars invented, patented, and commercialised new technologies, developed new pharmaceuticals or medical procedures, and established new fields of research and development in their country. Across all disciplinary areas were numerous examples of how Commonwealth Scholars and Fellows acted as a generative intellectual force in their field.

Implementation and coordination of programmes, projects, or organisations was another area of activity in which Scholars and Fellows were frequently involved. Especially for Scholars who had attained positions in senior management, it was common to report supervising the implementation of activities or ensuring the effective operation of an organisation. Many also noted that they had previously been at the 'front line' of project design and delivery and were now supporting junior colleagues. The breadth of implementation roles

undertaken was enormous, ranging from project managing a small health intervention to overseeing an entire area of national policy as a government minister. Beyond ensuring that organisations or initiatives functioned adequately, Scholars described their efforts to coordinate new consortia through devising and hosting conferences, forums, and other spaces for intellectual and practical interchange.

Policy development and technical assistance was the major avenue for Commonwealth Scholars and Fellows to shape policymaking within both government and other influential organisations. Scholars sat on strategic boards, contributed to task forces or committees, revised or developed policy, or created entirely new government initiatives. Some alumni worked either directly for the government or within government agencies and so were primarily employed in a policy development or technical assistance position, but the majority involved in policy development or technical assistance worked in other settings and were engaged as consultants by government committees or agencies. In some cases, Scholars shaped policy through their work without being directly engaged to do so. A law specialist, for instance, reported that, although she had not been engaged to consult for the justice system, her work was cited in legal argument and court judgements.

Advocacy activities were in some respects closely related to policy development, although in this case we draw a distinction between 'representational' forms of advocacy (for groups or causes) and the technical assistance noted under 'policy development and technical assistance'. Scholars reported having been involved in various forms of public advocacy: specific-issue campaign groups, petitioning and making representation of groups or causes, scrutiny-focused journalism, facilitating public access to government information, and industrial or commercial representation. Advocacy sometimes meant leading lobby groups concerned with environmental issues or access to resources; in other instances, it involved working with NGOs or multinational organisations to scrutinise political repression or government expenditure. Some Commonwealth Scholars and Fellows have also become members of their national parliament and thus have served as advocates at community, national, and international levels.

Publication and dissemination of information, opinion, and research emerged from both academic and non-academic activities reported by Scholars. Researchers within universities and governmental institutes noted their often substantial volumes of published scientific papers, books, and technical reports. Scholars working outside of the academy had also been involved in a range of publications or dissemination activities, such as awareness-raising campaigns, roles in the print media or television, and authorship of non-academic texts such as novels. From both inside and outside the academy, Scholars had contributed to the popular press as intellectual commentators, activists, and analysts.

3.3.2. Minor themes

Some examples of impact activities could not be coded at all, or could not be included within the categories developed. Usually, this difficulty was due to the example being somewhat vague or phrased as a description of organisational activity from which the respondent's involvement could not be discerned. In some cases, however, the examples given were valid and highly interesting, but either unique (or very few) or difficult to articulate as a form of social or economic impact or government policy influence. Three minor themes that did not fit the typology were:

Philanthropy: Charitable investment or giving; funding others through education

Investment: Business investment or personal investment into local economies

Role modelling: Acting as a role model for others to pursue education, improve their life, realise their potential etc.

Each of these themes could broadly be construed as impact activities and outcomes of Commonwealth Scholarships and Fellowships, although more data would be required to better understand what form they take.

Acting as a role model, for instance, has been an important facet of scholarship outcomes (Dassin, Volkman, & Zurbuchen, 2009) and is often closely linked to activities in employment or the community. Many scholarship programmes, including the Commonwealth Scholarship and Fellowship Plan, operate with the intention of creating 'change agents' or 'opinion leaders' capable of becoming role models (Wilson, 2015). The aim of training and empowering 'change agents' encompasses both the direct involvement of Scholars in impact activities and the 'externality' of inspiring others to pursue similar paths. The difficulty with analysing role modelling is that it can take many forms and, while some Scholars and Fellows have explained quite specifically how their activities inspire others, it is likely that many others have achieved similar effects but do not phrase their responses in this language.

Philanthropic activities also demonstrate a level of commitment to countries or communities that fits well with the logic of scholarship outcomes. Often these gifting activities are small scale (e.g. donating several computers to a school) and the nature of giving can be highly varied. The difficulty in creating a philanthropy category is thus that many disparate activities will be grouped only by the commonality of being motivated by public-spirited giving, and this motivation may easily underpin many other activities across the seven categories identified above. Both business investment and pecuniary philanthropy have been measured, albeit irregularly, as part of other evaluation research (e.g. MACC, 2012). In our surveys, philanthropic activities may well fall between the cracks if they are not listed as voluntary activities (undertaken by about a third of the survey respondents) or a form of impact within the development impact section. Alternatively, it might be best not to consider the minor themes as development activities or as 'activities' at all (but rather outcomes or perhaps side effects), and so they would not be easily grouped with other examples supplied by respondents.

3.4. International networks

An important premise of international scholarships is the opportunity to establish global networks of colleagues, collaborators, and confidants, both for mutual endeavour in tackling development challenges and to increase international understanding between differing cultures (Wilson, 2014). Across different fields these networks manifest in various ways, including as partnerships in joint scientific research, investments in local enterprise, and sources of support and encouragement to advance social change agenda.

Within the current survey, we examined whether contacts established in the UK were maintained by Scholars and the extent to which these contacts had impacted on the Scholars' professional development. Two measures were used:

1. A rating scale for the level of contact maintained, constituting 'none' (1), 'passive only' such as being on a mailing list (2), 'occasional' (3), and 'regular' (4).

2. A 10-point Likert-style scale for the perceived impact of each contact group on the Scholar's professional development to date, completed by those who reported some continued contact.

In the case of the first measure specifically, we have intentionally used a more subjective, ordinal scale ('regular', 'occasional') that does not yield data on specific behaviour – such as the number of times a Scholar was in contact with a particular group – to circumvent the potential problem of lacking baseline comparison data. The average level of contact was calculated by taking the median of the ordered categories. The proportion of Scholars maintaining active contact with a group – i.e. occasional or regular contact – was also calculated.

Table 21 Level of ongoing contact with UK groups and the influence of contacts on subsequent professional development

Group	Scholars maintaining 'active' contact	Impact on professional development ($\bar{x}$)
Academic contacts/supervisors	70%	7.04
Fellow students from the UK	68%	5.24
Social contacts in the UK	65%	4.62
Universities in the UK	55%	6.31
Work contacts in the UK	40%	4.32
UK Professional associations	36%	4.44

For most groups, the average level of contact was occasional. None of the groups had a median level of contact of regular, nor did any have an average level of contact of none. Although these trends were the same across most groups, the actual proportion of Scholars maintaining either occasional or regular contact varied quite substantially. For academic and university contacts, for which the average level of contact was occasional in both cases, the actual proportion of Scholars maintaining 'active' (i.e. either occasional or regular) contact differed by 15%. Ongoing connection with both social contacts and professional associations was less regular than for other groups, although there is a notable overlap between students and social contacts – for whom the average level of contact was higher – that may distort the data somewhat. Scholars have thus tended to remain connected to a variety of contacts made while in the UK; ongoing contact with some groups had been only occasional, but there were no groups with whom Scholars had ceased all engagement.

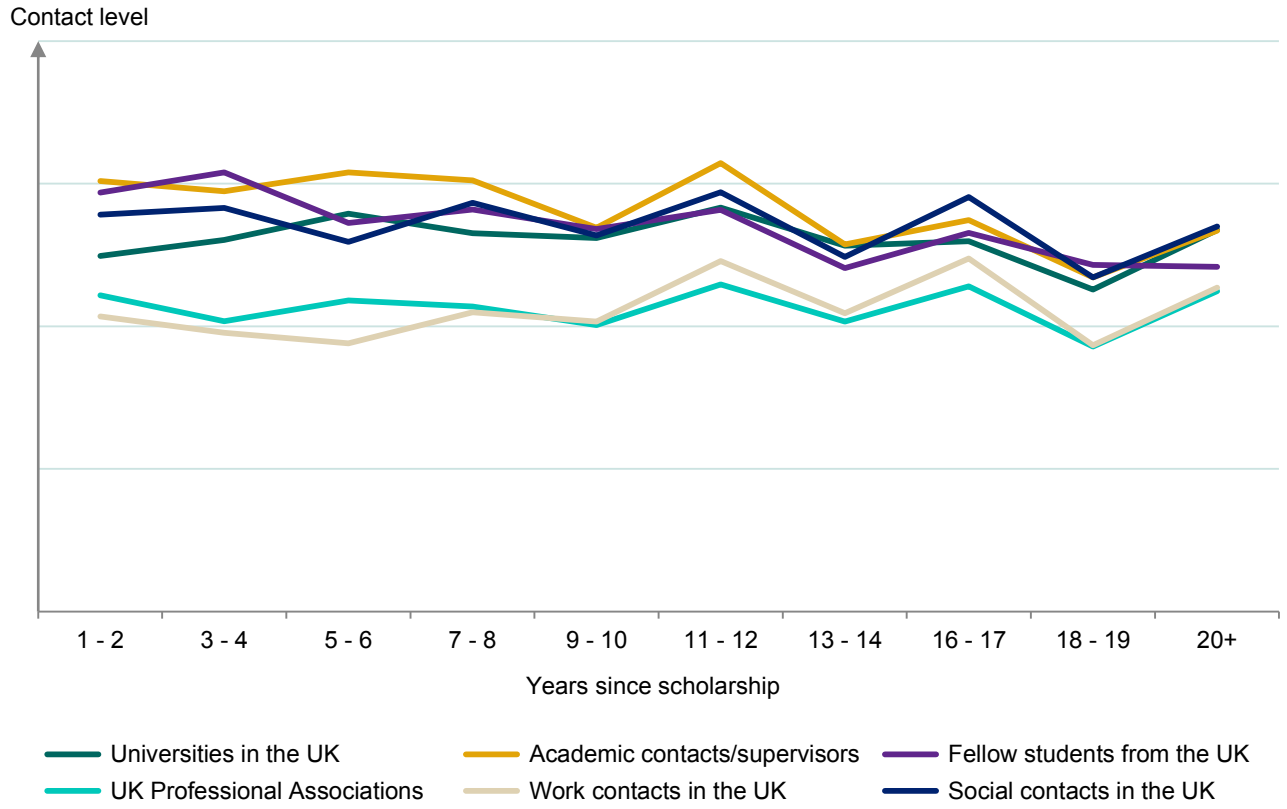
Ratings of the influence that such contacts exerted on Scholars' professional development differed among the contact groups. Some groups, such as academic contacts, received high average impact ratings, while other groups, such as UK professional associations, are not rated as highly influential. Given that the highest average ratings are for the influence of academic and university contacts on professional development, it is likely that connections made through study experiences are most important to the future career development of Scholars.

Several predictable patterns emerge between subgroups, many of which we noted in our interim analysis (Mawer, 2014b). One such pattern is that Distance Learners reported much lower levels of ongoing contact with all UK groups and those who did report maintaining contact with a UK group routinely rate the influence of that contact on their professional development to be lower than do Scholars from the UK-resident scholarships. As such, developing and sustaining contacts with the UK – including academic contacts – is not a notable outcome for Distance Learners. Another expected, but important, pattern is that Academic Staff Scholars who maintain contact with UK universities and academic staff rate these connections as more substantially influential on their professional development than do other Scholars. This ongoing link could be an important outcome for Commonwealth Scholarships, since it reflects the promotion of international academic connections that might yield collaborative research activity.

3.4.1. Persistence of networks

An important topic of analysis is the extent to which networks endure for a protracted period of time. To assess this, we have explored whether maintenance of active contact co-varies with time since completion. Using the same time since completion groups as in chapter 2, we modelled the mean rating for the level of contact maintained with each UK group. The mean, rather than the median, was used to give additional granularity; because few categories were used in the question, the median was quite insensitive to small changes.

Figure 15 Average level of contact maintained with each UK group by time since scholarship completion



For some UK groups there is a downward trend, indicating lesser contact maintained by Scholars who had completed their scholarships longer ago. Correlations were calculated between each contact group and time since completion (ungrouped). Of the five contact groups, two were found to have no significant association with time since completion: UK universities and UK professional associations. The remaining contact groups had statistically significant correlations with time since completion, of which the strongest correlations were with fellow students (-0.221) and academic contacts (-0.134).

Table 22 Correlation summary for contact maintained with each UK group by time since scholarship completion[28]

Group	Coefficient (r_s)	Sig. (p)
Fellow students from the UK(*)	-0.22	<0.001
Academic contacts/supervisors(*)	-0.13	<0.001
Social contacts in the UK(*)	-0.06	0.011
Work contacts in the UK(*)	0.06	0.01
Universities in the UK	0.02	0.396
UK professional associations	0.003	0.884

The negative correlation coefficients indicate the downward trend identified on Figure 15: as time since completion increases, the average rating of contact currently maintained decreases. The size of the coefficient for the students contact group would usually be considered a 'small effect' within correlation analysis, although, given that our analysis includes only time since completion and does not account for any other variable that might impact maintenance of contact (e.g. initial cultural difference, ease of communication, international employment), this correlation might be considered more substantial. The non-significant correlations of UK universities and UK professional associations with time since completion indicate that there is no systemic pattern in which ratings of contact decline as time since completion increases. However, contact with UK professional associations is generally low – only 36% maintain contact 'actively' – and so there may not be much activity to decline over time in comparison to contact groups such as UK students. For UK universities, however, the overall contact levels reported by respondents were not generally low; over half maintained active contact of some kind.

One possible interpretation of the results is that maintenance of social ties (with students, academics, other social contacts) has tended to degrade over time, whereas broader professional contacts (with UK associations, universities, or organisations) have tended to remain relatively stable. To view the data from this perspective means that academic contacts are treated as social, rather than professional, ties, which may not be a useful categorisation, given that 53% of respondents were currently employed in academia. However, if the level of contact maintained is analysed only for those currently working in the academic sector, then correlations with time since completion are largely the same: contact with students, academics, and social contacts declines as time since completion increases, while for universities and professional associations there is no significant association. One minor difference is that the correlation between work contacts maintained and time since completion is statistically significant for academic staff: as time since completion increases, so do work contacts maintained. This is a small effect, but it could indicate the rejuvenation of prior work contacts as opportunities develop through academic careers to collaborate or engage with UK organisations.

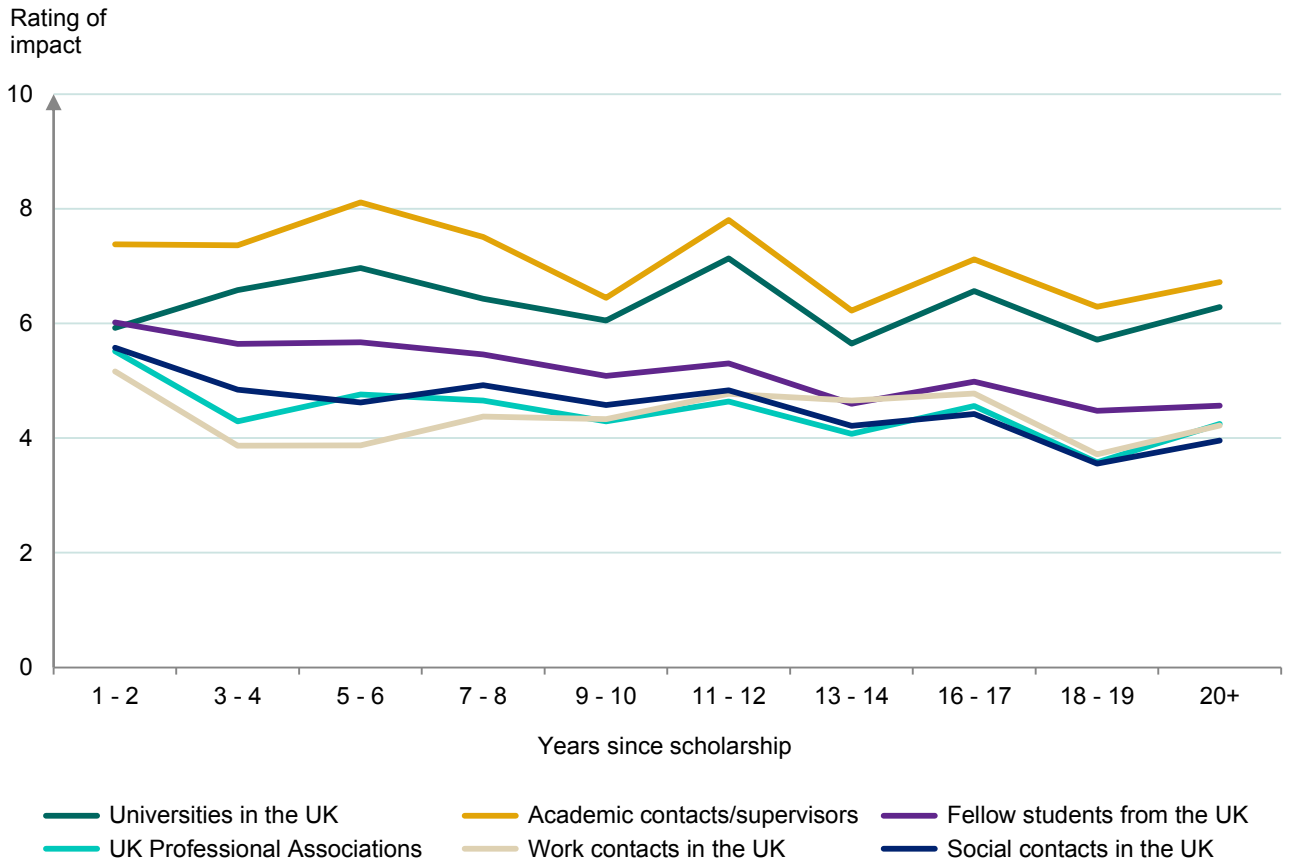
3.4.2. Diachronic impact of networks

Another consideration may be whether contacts between UK groups and Commonwealth Scholars are sufficiently influential on future professional development to warrant concern over their maintenance. While the creation and maintenance of contacts between Scholars and individuals and organisations in their host countries is frequently posited as a beneficial outcome, it is useful to develop this analysis somewhat and consider to what extent these networks are used and, if so, for what purpose.

One approach to examining these questions, taken in the current survey, is to ask respondents to rate the influence of each contact group on their post-scholarship professional development. Only those who report some level of continued contact with a group have given a rating of influence on professional development. The resulting data examines the extent to which contacts that are maintained are important in supporting the careers of Scholars. As with the analysis of contacts maintained, we have set this data in temporal trend by using the time since completion.

[28] Spearman's Rank Correlation Coefficients. Coefficients with (*) are statistically significant at 0.05 level.

Figure 16 **Average rating of impact on professional development of each UK group by time since scholarship completion**



The average ratings of each group's influence tended to cluster, with the exception of academic contacts/supervisors, which had notably higher ratings of influence on professional development. For all groups, the correlation between time since completion and rating of influence on professional development was negative, indicating a tendency for lower ratings to be given by Scholars for whom greater time had elapsed since their scholarship. For four groups this association was statistically significant; the correlation was non-significant for UK universities and UK work contacts.

The latter group, UK work contacts, had the lowest average rating of influence on professional development out of all groups. In Figure 16, there is some indication of an initial dip in the important of continued engagement with UK work contacts, from an initially higher rating for those Scholars 1-2 years since completion, but this trough is not evident later in the time series and the overall correlation between time since completion and influence on professional development is thus non-significant. For UK universities, the ratings are somewhat more variable. The 1-2 year cohort's average rating is rather low in relation to those that follow – for the next five cohorts (3-4 years to 11-12 years) the ratings are higher – but there is no clear linear trend.

Table 23 **Correlation summary for each UK group's rating on professional development by time since scholarship completion[29]**

Group	Coefficient (r)	Sig. (p)
Fellow students from the UK(*)	-0.16	<0.001
Social contacts in the UK(*)	-0.15	<0.001
Academic contacts/supervisors(*)	-0.10	<0.001
UK professional associations(*)	-0.07	0.007
Universities in the UK	-0.02	0.446
Work contacts in the UK	-0.02	0.486

[29] Pearson Product-Moment Correlation Coefficients. Coefficients with (*) are statistically significant at 0.05 level.

For the remaining groups, the correlation analysis indicated a statistically significant negative trend, with the decline in ratings of impact on professional development most pronounced for fellow students and social contacts. Similar to the analysis of contact maintained, a plausible interpretation of this data may be that the relevance of social connections to subsequent career development reduces over time to a greater extent than for professional or academic connections. In combination, the datasets suggest that over time there is likely to be a tendency for social connections to degrade and, in particular, for their perceived influence on career development to decline.

It is important to clarify that respondents were rating the *perception* of impact on professional development, and that this may create some ambiguities in interpretation. For instance, the function of relationships in professional development may not change substantially over time, but their importance may reduce as other influences become more prominent in Scholars' careers. These trends are a broader reflection of an anticipated trajectory of Scholars in which the Commonwealth award *per se* is likely to be a more important influence in their immediate post-scholarship career development than many years later, at which point the catalytic effect of the scholarship in facilitating a particular trajectory may be more important than the degree studied.

Overall, analysing the persistence of contacts reveals several interesting trends. Firstly, for all such connections maintained – to whatever extent they are maintained – the data from the time series suggests that the importance of UK contacts in Scholars' careers will diminish over time. This decline in the importance of connections particularly applies to social contacts, including student peers from the UK. The extent to which contacts are maintained at all is somewhat more complex, with a clear downward trend in the level of continued contact over time for some groups (e.g. social contacts) and a slight upward trend for others (e.g. work contacts). A plausible interpretation of the data may be that continued engagement with social contacts (of all kinds) tends to decline as more time elapses since the end of a Commonwealth award, while professional contacts (e.g. with universities themselves or work contacts) are maintained at a relatively constant level. As we saw in section 3.4.1, however, some contacts are maintained to a greater extent than others; while contact with particular groups may not decline over time, this does not imply contact is very regular.

3.5. Reflections and conclusions

Chapter 3 has analysed the catalytic effects reported by Commonwealth Scholars and Fellows. In the final section of this chapter, we summarise and interpret the major trends within the data analysis, with attention to their implications for both policymaking and the future collection of evidence to evaluate the impact of Commonwealth Scholarships.

Our reflections focus on:

1. The broad development impact picture

2. Explanations for variations in reported impact

3. The value of understanding types of impact activity

4. Building persistent international networks

Across these sections, we build on both the conclusions of chapter 2 and of our interim analysis of survey data (Mawer, 2015b).

3.5.1. The broad picture

Involvement in developmentally-relevant activities was widespread among Commonwealth Scholars and Fellows. Two-thirds of survey respondents reported that their activities had socioeconomic impact, while just over one-third reported that they had influenced government policymaking. In the context of the CSFP, these proportions translate into large absolute numbers of individuals; the programme in the UK alone has funded over 25,000 individuals. Support for the notion that Commonwealth awards exert an impact wider than upon individual recipients is thus relatively strong.

Notwithstanding this, we have noted elsewhere (e.g. Mawer, 2014b) that definitions matter in examining concepts such as 'development impact', and it is clear that the categories 'socioeconomic impact' and 'government policymaking impact' encompass a broad range of activities. Socioeconomic impact, in particular, has been taken by survey respondents variously to mean commercial ventures and direct wealth creation, strengthening education, improving health outcomes, promoting civic institutions and opposing

repressive policy, and scientific research and development. This breadth partly reflects the design of the measure to avoid eliding certain kinds of impact that may not have been initially obvious to the CSC but are nevertheless highly relevant to understanding the outcome of Commonwealth Scholarships. The consequence, however, is a certain level of ambiguity in which activities have, for instance, local or international breadth, and which could be better classified within finer-grained categories of impacts.

The findings indicate that developmentally-relevant activities are being undertaken across a considerable spectrum of fields. In the survey, we specified eight sub-categories for which respondents might indicate their activities had generated wider impact. In all eight sub-categories, substantial proportions of respondents reported impact, but it was notable that in both socioeconomic impact and government policymaking impact education was the most frequent field of activity. In both cases, education was not only the sub-category in which the highest proportion of respondents reported impact, but also the field in which activities were perceived to have the greatest intensity of impact. The profile of development impact in education echoes the widespread current employment of Commonwealth Scholars and Fellows in, particularly, higher education and the high ratings for knowledge transfer through teaching and training.

As might be expected, a greater proportion of respondents reported impact at relatively lesser breadths: 71% at institutional, 58% at local, 45% at national, and 25% at international level. Yet the 25% of Scholars who did report international level impact is by no means insubstantial, particularly, as noted above, in the context of all Commonwealth Scholars and Fellows. It is also important to note that categorising impacts at institutional, local, national, and international levels is a hierarchy of breadth, not a hierarchy of value. For schemes such as Professional Fellowships or Medical Fellowships, for instance, knowledge transfer and institutional capacity building form the core rationale for providing funding. Institutional impacts are thus the primary outcomes of note in evaluating the success of these elements of the CSFP. The depth of institutional impact reported supports the positive findings in chapter 2 on perceived knowledge transfer and workplace innovation. To analyse these trends in greater detail requires that research be conducted 'around' the Scholars and Fellows – e.g. through organisational case studies or direct engagement with employers – to examine institutional impacts in greater depth.

3.5.2. Explaining variation in reported impact

To explore possible explanations for variation in reported development impact, we conducted a series of regression analyses. By focusing on the Scholars' gender, degree type, and region of citizenship, we limited the analysis to those factors that fulfil the dual requirements of being within the ambit of policymakers to affect (through selection of candidates) and having a sufficient volume of data within our current survey to yield a meaningful analysis.

The results of exploring the data were considerably clearer for socioeconomic impact than government policymaking impact. The Scholar's region of citizenship emerged as an important factor in explaining reported socioeconomic impact: Sub-Saharan African citizenship, for instance, was associated with greater likelihood of reporting socioeconomic impact, while the converse was true of citizenship within North America & Australasia. One plausible interpretation of these findings is that they reflect the effects of priorities within the selection of Commonwealth Scholarship recipients. Potential development impact is a prominent criterion for all Scholars *except* those recruited from the high income Commonwealth (e.g. North America and Australasia), for whom leadership potential is the equivalent criterion. As such, the trends we observe in impact by citizenship region tend to follow the patterns predicted by those selection priorities; the reported development impact is higher for the regions in which anticipated development impact was an important criterion for choosing recipients. Notwithstanding the potential ambiguity in how 'socioeconomic impact' is defined by different Scholars, these findings reflect well on the effectiveness of the CSC's scholarship selection policy.

Interestingly, these regional effects were not nearly as pronounced for impact in government policymaking as in socioeconomic impact. Only South Asian citizenship was associated with lower propensity to report impact on government policymaking, but the size of this effect was only slight and certainly not of the same order observed for socioeconomic impact. Rather, there appeared to be little effect of region of citizenship and the hierarchy of regional effects – with Sub-Saharan Africa most positively associated and North America & Australasia most negatively associated with reporting impact – was no longer evident in the data. Exactly why region of citizenship may be less influential in government policymaking impact is not immediately clear, but one speculative explanation may be that involvement in relevant activities is sufficiently narrow across all regions that establishing specific trends *between* regions is very difficult. Another possible explanation is that involvement in government policymaking is largely unrelated to scholarship outcomes, and so is randomly distributed across the respondents in our survey.

For understanding government policymaking impact, the type of degree studied appeared to provide the most – although still limited – insight. In particular, we found that studying postgraduate degrees (i.e.

Masters' degrees) was associated with lesser likelihood of reporting government policymaking impact, independent of any effect of region or gender. This finding both reflected and contradicted effects illustrated elsewhere within our analysis, and so it is clear that a more nuanced interpretation is required. For instance, Shared Scholars always study postgraduate degrees and have reported impact on government policymaking in lower than average proportion (23%), yet Distance Learners – who also always undertake postgraduate degrees – have reported impact on government policymaking in greater than average proportion (46%). That there are fewer Distance Learners represented in our survey data suggests that the negative association of postgraduate degrees with government policymaking impact may be smoothing over a rather more complex reality. There is insufficient data currently available on Distance Learners to run a detailed comparison of reported impact between postgraduate study modes, but this data will likely become available as more Scholars graduate from distance learning programmes.

Neither gender nor degree type, with the exception of postgraduate degrees discussed above, appeared to be robustly associated with greater likelihood of reporting socioeconomic or government policymaking impact. The lack of a gendered trend in reported impact provides some indication that gender-related priorities in other areas – e.g. prioritising selection of female candidates – are unlikely to be deleterious to the overall impact achieved by the programme, provided those candidates have at least as strong credentials for potential development impact as previous scholarship recipients. Similarly, because region of citizenship is much more strongly associated with variations in reported socioeconomic impact than either gender or degree type, we can tentatively conclude that being selected on the basis of potential development impact is generally a better 'predictor' of realising this potential than the gender of the applicant or the degree undertaken.

3.5.3. What do the types of impact tell us?

Constructing a typology of reported impact activities can tell us much about the nature of the work that Commonwealth Scholars and Fellows undertake and which they consider to have an impact on important areas of social and economic development. Our analysis found that Scholars primarily reported impact being generated through one or more of seven activities:

- Analytic research
- Teaching and training
- Design, invention, and development
- Implementation and coordination
- Policy development and technical assistance
- Advocacy
- Publication and dissemination

In the most general sense, the typology tells us that Scholars work in a remarkable range of fields, assuming varied roles and generating impact along diverse channels. As may be evident from the programme's outline, the Commonwealth Scholarship and Fellowship Plan is not a sector-specific training scheme with closely prescribed inputs and outputs, but a broad tool for national governments and individuals to pursue priority areas of study. In this context, it is important to recognise that impacts are generated in a substantial range of intellectual and practical spaces, diffused across geography, discipline, and sector. Yet the findings show that, although Scholars' occupations and disciplinary foci may differ, the types of activities in which they are involved coalesce and include activities both in implementation and to develop the state of the art.

The volume of examples relating to teaching and training and publication and dissemination demonstrate the ongoing relationship between Commonwealth Scholarships and Fellowships and the global academy. Survey respondents working within universities across the Commonwealth have highlighted how their work has helped to generate new knowledge and introduce new areas of speciality to their disciplines, an important aim of Commonwealth Scholarships and a crucial facet of thriving civic and industrial development. The perpetuation and development of knowledge and skills gained while studying in the UK is then consolidated through teaching and training.

Exploring the channels through which impacts are generated also highlights the aspects of Scholars' work about which we do not yet know enough. It is clear, for instance, that Scholars working in higher education produce often voluminous portfolios of academic articles and books, yet we do not yet have a robust basis to assess the impact of this work. Methodological developments in publication metrics and science funding

have shown that scientific work often has diffuse, complex, and yet hugely generative outcomes (Weinberg et al., 2014). Capturing this impact within a single national system and with access to indexed and archived publication material is a complicated proposition (see Neylon & Wu, 2009); to do so across the Commonwealth for our Scholars remains, for the moment at least, an aspiration. Similarly, while we know that many Scholars are academically highly productive, understanding whether Commonwealth Scholarships themselves increase academic productivity requires further detailed analysis.

It is also difficult with the current data to garner insight into the relative importance of philanthropic or community activities and formal employment in wider development impact. Our broad assumption – based both on the examples given and match between respondents' current employment and their reported areas of impact – is that the majority of catalytic effects accrue through the paid employment of individual Scholars. This is not universally the case; around one-third of respondents reported involvement in voluntary activities in addition to their primary employment, although some Scholars may less readily view their voluntary activity through the lens of socioeconomic development. It could be useful to establish more specifically to what extent skills from the scholarship are being leveraged outside of formal employment to achieve impacts and, where this is the case, to determine whether the propensity to become involved in these activities can be traced to any facet of the scholarship experience.

3.5.4. Building persistent international networks

Establishing enduring networks between a host country or institution and an international student is one domain in which scholarship programmes are presumed to excel. Yet often very limited data has been collected on this topic, leaving both the persistence of contacts made while on scholarship and the importance of these contacts for future career trajectories a matter of speculation. Although the importance of particular contacts in the UK may vary depending on an alumnus' career trajectory, the formation and promotion of inter-Commonwealth links between individuals and institutions was an important principle at the founding of the CSFP (Perraton, 2009) and this emphasis continues to the present day in the UK's Commonwealth awards.

Our analysis indicated that the level of continued contact was highest between Scholars and academic and student contacts from the UK, in most cases likely the connections made with tutors, supervisors, and immediate peers through study. As might be expected, social ties tended to degrade over time, with active contact between Scholars and their student cohort and other social contacts less prevalent for those having finished their scholarship many years previously. Professional contacts, conversely, did not tend to degrade over time, although fewer Scholars had established these networks while in the UK.

Data on the impact of UK contacts on post-scholarship professional development yielded several notable trends. The connections deemed most salient to Scholars' career development were the academic and university contacts made with UK institutions and institutional staff. The ongoing connection between UK academics and Scholars – manifest through, for example, collaborative projects, professional recommendations, or joint authorship of research papers – is an important professional outcome for programmes such as Academic Fellowships, for which building international research networks is a major driver. Social ties and contact with fellow students were deemed considerably less important for professional development, and thus the degradation of these connections over time is not necessarily a cause for concern in terms of facilitating Scholars' careers, although it may be considered detrimental to the maintenance of cultural ties. The importance to professional development of all UK contacts appeared to reduce over time, potentially indicating that the more important influences on Scholars' careers shift towards being grounded in their home country, and less in their experience in the UK, as their career progresses.

A trend showing slightly decreasing academic contact maintained over time was observed and raises important policy considerations for ongoing alumni contact with Commonwealth Scholars and Fellows. The maintenance of academic contacts and facilitation of international research collaboration is a noted aim of both doctoral Scholarships and Academic Fellowships, and thus any decline in such contacts over time, while perhaps understandable, is not desirable. Whether the CSC specifically is well placed to help maintain such connections is not entirely clear; CSC alumni activities and events may play some role in doing so, although their scope may be limited in comparison to the personal bonds formed between researchers.

Collecting even relatively limited data on international contacts has helped identify the difficulties in understanding the maintenance and relevance of networks using self-report surveys. It is evident, for instance, that Commonwealth Scholars and Fellows have authored many collaborative scientific papers as a result of their scholarships, yet tracking the authorship and impact of these papers requires a different tool to the self-report survey. In this respect, bibliometric and scientometric analysis of work associated with Commonwealth Scholarships and Fellowships could prove a useful additional approach to understanding the impacts achieved as a result of CSC funding. The value of such an analysis would be both to enrich the understanding of scientific outcomes from Commonwealth awards and to chart the persistent web of

international connections that might exist between collaborating research and academic staff in the UK and in other Commonwealth countries.

4. Persistent themes and ways forward

My training at the Great Ormond Street Hospital for Children and the Institute of Child Health has enabled me to set up the first, state-of-the-art mass spectrometry-based screening facility for inborn errors of metabolism (IEMs) in a government-funded institute in India.

IEMs are a group of about 500 genetic disorders affecting metabolic pathways. Nearly three-quarters of these disorders affect the brain and may lead to mental retardation. Early diagnosis and appropriate therapy can prevent brain damage and mental retardation in many of these cases. Using the screening facility, we are able to screen and identify 30-50 IEMs in newborns, as well as in symptomatic children.

Our facility caters to patients from all over India and neighbouring countries. We have screened over 22,000 symptomatic or high risk subjects and identified 715 patients with an IEM. These patients are being given the appropriate therapy. Screening of asymptomatic newborns showed an incidence of 1 IEM in every 2,500 live births. Many patients have showed clinical and biochemical improvement after appropriate therapy during follow-up, so screening for IEMs is very important.

Professor Rita Christopher
Institute of Child Health, 2003

This report has detailed the analysis of the most comprehensive dataset on the outcomes of UK Commonwealth Scholarship and Fellowships collected to date. Almost 2,100 Scholars and Fellows responded to the survey, representing participants from each scholarship programme operated by the CSC, who are currently residing in 84 countries, having studied over 100 academic disciplines, and having been hosted at over 300 UK institutions. The survey gathered responses from Scholars and Fellows who had held scholarships as far back as 1960 and in *every subsequent year* until 2012.

Our examination of this substantial dataset has focused on four major facets of outcomes and impact: 1) employment trajectory, 2) residency trajectory post-scholarship, 3) perceived gains from the scholarship, and 4) the wider catalytic impact of Scholars' activities. In each of the preceding chapters, we have drawn conclusions from the findings. In chapter 4, we focus on several cross-cutting themes in the data analysis and reflect on methodological insights from the evaluation process.

In the former category – cross-cutting themes – we look to two prominent issues:

1. The relationship between employers and Scholars

2. Complexity and contingency in 'return' trajectories

These topics are by no means a comprehensive coverage of all issues arising from the data analysis pertinent to either CSC policymaking or informing the work of other scholarship programmes. Nonetheless, in addition to the conclusions offered in chapters 2 and 3, the themes discussed below address arguably the most pressing concerns in understanding the outcomes of Commonwealth Scholarships and Fellowships.

4.1. Employers and Scholars

The relationship between Scholars and their employers – both before and after the scholarship – is a factor reflected in many facets of the current analysis. Engagement with employers has often proved challenging for scholarship programmes, particularly through the most practicable (cost-effective) method: self-report surveys (see, for instance, Nuffic, 2009). Nonetheless, the importance of understanding both employers' perspectives on scholarship outcomes and their influence on those outcomes should not be understated. Within the current analysis, there are several analytic threads that point to the need to explore the dimensions of Scholar-employer relationships.

Most directly, employers are key stakeholders in access and reintegration for Commonwealth Scholars and Fellows. At the pre-scholarship stage, employers have great influence over the capacity of individuals to apply for Commonwealth Scholarships, either through the necessity of a direct employer nomination or through control of sabbatical or leave provisions. While some applicants are willing to leave their previous employment to take up a Commonwealth award, many study with the support of their employer and return to that same employer upon completion. Perceived employer supportiveness varied between the schemes, but

was broadly high. However, these ratings encompass only those successful in applying to Commonwealth Scholarships or Fellowships, not those who, whether lacking an employer endorsement or unwilling to resign their post, were unable to take up or even apply for a scholarship.

Scholars returning to their employer post-scholarship also require support for their reintegration, through adequate opportunities to deploy their skills and knowledge, encouragement to innovate, and sensitive handling of the tensions that can accompany the return of internationally mobile Scholars to their previous departments or communities. Although these issues have been framed within Scholars' individual perceived gains in our analysis, they could equally be viewed through the lens of enabling factors in reintegration and applying gains. Individual agency notwithstanding, a significant factor in the capacity to apply skills and knowledge is the environmental conditions at home institutions: collegiate support, the availability of appropriate equipment or funding, management of time pressure, and so forth. These factors are subsumed within the broader measures of, for instance, 'introducing innovations in the workplace' that have been used in our analysis, but could potentially be broken down in a more fine-grained examination of employer support effects in post-scholarship reintegration.

Another dimension to employers' influence on outcomes is the potential effect on mobility and residency trajectories exerted by labour and financial bonds. Baseline data for more recent Commonwealth Scholars has highlighted that a significant minority of all Scholars are contracted to either financial or labour clauses that stipulate penalties for non-return and/or mandatory labour within (usually the nominating) organisations. For certain groups, such as Academic Staff Scholars, the *majority* of Scholars are contracted to some form of employment bond. While not all Scholars – even those with bonds – will make their return decisions based on these arrangements, the very high return rate in the first 1-2 years post-scholarship is likely to be influenced by such commitments. The overall return rate for employer-nominated Commonwealth awards – such as Academic Staff Scholarships and Commonwealth Academic Fellowships, for instance – was above average, although in the latter case the short duration of tenure (less than one year) is probably a more profound influence on return decisions.

Whether contracts of this kind shape trajectories in the ways anticipated by their designers is not always apparent. Perna et al (2015) have observed that the labour bond system for Kazakhstan's Bolashak programme sometimes produced deleterious 'talent waste' through post-scholarship *underemployment* in pre-scholarship roles, alongside the desired aim of organisational stability and a counter to institutional brain drain. Further, in an analysis of the financial penalty system (converting a grant to a loan) within the Norwegian Quota Scheme, the value of this relatively costly administrative process was questioned (Damvad, 2014). As the evaluators noted, *'For most former students, working in Norway is not an option. For those that have such opportunities, a student loan is a minor cost'* (2014, p. 89). The latter, in particular, has some resonance with Commonwealth Scholarships, for which employers may (without specific endorsement by the CSC) choose to stipulate some financial penalty for non-return. It is debatable whether individuals determined to remain abroad in high income countries will be dissuaded by penalties levied by home institutions in lower-income countries, unless these are sufficiently severe as to weigh on the calculus of higher future earnings abroad.

A final component of the Scholar-employer relationship is the broad institutional impact reported as part of Commonwealth Scholars' wider development activities. Beyond the institutional facets of perceived gains measures (e.g. transferring knowledge and skills), many Scholars have indicated their involvement in founding new university departments or institutes, developing and applying new work practices (e.g. clinical procedures), and building capacity among colleagues through mentorship, teaching, and training. As discussed above, these outcomes do not reflect just Scholars' achievements, but also an organisational environment in which such outcomes were possible: albeit often with a need for advocacy and determination. In the case of the fellowship programmes, institutional outcomes – such as the dissemination of new clinical procedures – are the primary aims of the scheme and thus understanding the nuances of enabling and obstructive factors to achieving these aims is crucial.

In sum, the outcomes of Commonwealth Scholarships are often achieved by the diffusion of impact through networks, and catalysed by Scholars capable of marshalling both their own talents and the cooperation of others at opportune moments. Employers, both pre- and post-scholarship, are undoubtedly a vital feature of this landscape, empowered to shape (consciously or otherwise) the propensity of their staff to apply to scholarships, return following them, reintegrate successfully, and, ultimately, contribute to organisational and national innovation and resilience. Measuring this influence is a considerable challenge, although efforts have been made within the current survey, for instance, in the assessment of employer supportiveness. To more comprehensively address the topic – and to determine the potential for CSC policymaking to aid or inhibit constructive employer relations – is likely beyond the purview of self-report instruments alone, even if they are completed by employers.

4.2. Complexities and contingency in 'return' trajectories

Another recurring feature in findings has been the complexity of understanding return home trajectories post-scholarship. The return rate for Commonwealth Scholarships and Fellowships is high when measured over the years immediately after completion. Even given that returns rates seem to vary across time periods post-scholarship, the average return rate we have measured is comparable or better than available findings on return migration patterns for international students (Kim, Bankart & Isdell, 2011; Sykes & Chaoimh, 2012) or other international scholarship programmes (Enders & Köttman, 2013; Damvad, 2014). In the latter case, comparison is difficult because it has not been common for evaluators to construct time series data on residency.

Return rates have been a preoccupation of commentators and evaluators concerned with international scholarship programmes (Dassin, 2009), although in recent years there has been increasing readiness to dispense with the expectation that return is an unalloyed 'good' and non-return a universal metric of programme failure. Historically, the tendency has been to focus exclusively on those that return home as the 'success stories' of scholarship programmes, particularly in the face of potential criticism that these programmes exacerbate already deleterious outward migration (Mouton, 2010; UNESCO, 2015). While this remains the primary focus of most analyses – logically, as most recipients return home – there has been increased interest in the contribution of the diaspora,[30] beyond the frequent commentary on financial contributions through remittances (e.g. Beine, Docquier & Rapoport, 2008).

While diaspora studies offer some insight into the potential contributions of those who migrate permanently, our findings note a more fundamental point: that 'return' is better considered as a process of mobility across time, rather than a static construct. We have observed that some scholarship recipients in highly mobile positions will tend to move between periods of work at home and residency abroad, for instance, through international work placements (e.g. UN offices) or further advanced training. To cite an example from the survey evidence:

> *'I worked for a UN organisation where my main task was to undertake advisory work (based on research) in the area of employment and poverty reduction. During that period, I was able to make [a] direct contribution to the process of policymaking in a good number of developing countries of the world. Although it is not possible to say how many jobs were created as a result of such advisory and technical assistance work, I think one could claim without being immodest that such work did make a contribution to policymaking and through that to the process of employment creation and poverty reduction.'*

Similarly, the association between academic sector employment and further periods of study abroad is an illustration of mobile trajectories that are not easily described as 'brain drain' or 'migration'.

Additionally, and specifically in the case of doctoral funding, the understanding of 'return' has to take into account the effect of postdoctoral positions within the career trajectories of new academics. Johnson and Regets (1998), for instance, observed that the majority of foreign-born US doctoral graduates electing to remain in the United States did so to undertake postdoctoral study and, as might be expected, this trend was most prevalent in fields where postdocs were a common career path. Not only does the culture of postdoctoral work differ between disciplines, but so might the implications of immediate return. Academic staff in applied social science fields may find that their home country is an ideal environment to undertake postdoctoral research, whereas those in physical sciences that require a lot of technical infrastructure may suffer considerable disadvantage. For postgraduate scholarship recipients, further periods of mobility can often be for doctoral study – in some cases funded by the CSC – and so the residency trajectory of the Scholar becomes further complicated by additional 'deferred gains' from pursuing a second academic qualification.

Complexities in understanding return do not diminish the pressing concern of brain drain in many countries. Analyses of international data (e.g. Capuano & Marfouk, 2013) have shown how significantly migration, particularly of highly skilled individuals, is affecting many of the lower income states within the Commonwealth. It is not difficult to see how scholarship programmes might be implicated in this trend, given their design to overcome the major barrier to mobility abroad – financial constraints (see Collier, 2015) – for individuals in low income countries. However, in weighing the strength of concerns about scholarships it is necessary to consider the available evidence carefully. Independent analysis of foreign-born doctoral students in the US, for instance, has found that funding through government scholarships was associated with the *lowest* propensity to remain in the US after completing studies (Kim et al., 2011). Additionally, while

[30] See, for instance, the African Diaspora Fellowships initiative funded by the Carnegie Corporation of New York (www.iie.org/Programs/Carnegie-African-Diaspora-Fellows-Program) or the Career and Life Trajectories of African Alumni of International Universities project (http://africanalumni.berkeley.edu) being undertaken by several universities in North and Central America in partnership with the MasterCard Foundation Scholars Program.

foreign government scholarships have been criticised as potentially encouraging brain drain, domestic governments – including, for instance, Brazil, Mexico, Kazakhstan, and Saudi Arabia – have invested heavily in high profile international scholarship programmes for their own nationals (see, for instance, Ahmed, 2015; Perna et al., 2015). Similarly, leading institutions in 'scholarship recipient' countries have advocated strategic use of international scholarships to reach ambitious education targets at home (e.g. South Africa: ASSAf, 2010). Confidence in the capacity of scholarship programmes to act as useful developmental tools in higher education, without exacerbating outward migration, thus has support in both the academic literature and the actions of domestic governments.

The implications of return outcomes for scholarship policymaking are not altogether straightforward. International scholarship programmes that aspire to avoid encouraging permanent migration are unlikely to soften the historical default position that scholarship recipients should immediately return home. Fundamentally, the premise that scholarship recipients should return is affirmed by the evidence collected: they *do* return, or at least in overwhelming majority. Notwithstanding this, the concept of 'return' – both how it is measured and how ideal return trajectories are envisaged – needs to be carefully defined in future evaluations and policymaking. Emphasis on only whether scholarship recipients immediately return to their country of origin could be counterproductive in some situations, such as in considering the implications of postdoctoral positions. More broadly, the forces of globalisation have catalysed remarkable changes in connectivity, global labour market integration, and international transit since the inception of the CSFP over 50 years ago. The implications of 'return' and 'non-return' have thus changed considerably and, although the justification for strongly advocating return may remain as relevant, the CSC needs to be cognisant of how mobility trajectories that do not fit this mould may nonetheless yield the impacts sought in the programme aims.

4.3. Missing data

While considering the results of the current analysis, it is important to briefly detour and consider what information is systemically absent within this discussion. As we noted in chapter 1, the balance of respondents to the survey was not evenly spread across the various categories by which Scholars and Fellows could be divided: gender, degree type, region of citizenship, decade of award, and so forth. In our analysis of representativeness, potential bias did not seem to present an immediate cause for concern, nor did the distribution of respondents differ from our expectation that most survey participants would come from more recent years.

Nonetheless, there are several areas in which the available data is less substantial. Survey responses from Distance Learners, for instance, have been less readily available. The relatively small dataset for Distance Learners partly reflects the more recent introduction of this scholarship scheme; the CSC has supported distance learning since 2002, only ten years before the final Scholar cohort (2012) included in the current analysis. As almost half of Distance Learners funded up to 2012 are still studying,[31] it was inevitable that the eligible pool of survey respondents would be lower than for those scholarship schemes that have been funded for decades. A similar situation presents with Split-Site Doctorate scholarships, which are also a relatively new initiative in the historical scope of the CSFP. In neither case is the dataset too small for inclusion in the statistical analysis reported above, but in some instances the lack of more voluminous survey data for these Scholars has limited the scope of further analyses (especially regressions with degree type as a variable) without excluding them entirely. As additional Commonwealth Scholarships are made each year for the Distance Learners and Split-Site Doctorate schemes – and existing recipients complete their scholarships – it is reasonable to expect that the data available will be greater for future analyses.

For another category – those holding citizenship in the Pacific region – further data is less likely to be forthcoming as, even given future Commonwealth Scholarships, the population of scholarship holders within this region will remain small. In the current analysis, it was decided that combining the Pacific and Australasia regions would have been inappropriate as, although these regions share geographical and cultural ties, the income differences between their constituent countries and the unique challenges of small island states would be unhelpfully elided by a broader regional grouping. As this situation will remain unchanged for future analyses, it will only be overcome through regrouping small island states as a region (e.g. following the United Nations' categorisation). It is debatable whether a typology grouping, for instance, Jamaica, Fiji, and Mauritius will be an improvement over one grouping Australia, New Zealand, and Fiji, and so a small island states category may not necessarily provide a solution.

[31] As of October 2014: Boud, A. (2014) CSC Distance Learning Programme Update. Internal paper CSCEV/2014/10 to the CSC Evaluation and Monitoring Committee

4.4. Methodological considerations

This report has not explored research methodology for evaluating scholarship programmes in detail, yet, through a four-year process of survey data collection, several methodological insights have arisen that may be useful in shaping future work both within and outside the CSC. In particular, these insights have included:

1. The utility of longitudinal data

2. Appropriate measurement accuracy

3. Using baseline and 'growth' data

Several of these points have been highlighted before in CSC reports; in these cases, we offer some further detail and examples from the current analysis. Additionally, further methodological commentary on the research that underpins this report is provided in Annex 1.

4.4.1. The utility of longitudinal data

Almost all analyses of scholarship programme outcomes have been retrospective, most usually through tracer studies conducted at infrequent intervals or during end-of-programme reviews (Mawer, 2014a). Some recent examples of this approach have been available from Norway (SIU, 2015), the USA (Chesterfield & Dant, 2013), and Australia (Negin et al., 2014). Our current dataset shares a basic methodological structure with these studies insofar as data has been captured retrospectively, returning to Scholars several years – in certain cases, over 50 years – after completion of their scholarship.

While this mode of investigation is advantageous when exploring the historical impacts of Commonwealth Scholarships and Fellowships, there are certain limitations to the conclusions that can be drawn from the data gathered, and certain data that *cannot* be gathered through retrospective analysis. Addressing the former point are a range of discussions on evaluating causality within social interventions (e.g. Byrne, 2013; Stern, Stame, Mayne, Forss, & Befani, 2012), one message from which may be incompletely but usefully summarised as arguing that the complexity of contribution measurements increase over time and barriers to the assessment of attribution – if ever possible – become insuperable. The diffusion of impacts over time, through contingency and uncertainty over plausible counterfactual scenarios, is chronic when examining, for instance, scholarships almost a half-century prior. In these cases, the best that can be claimed as evidence of contribution is one, or both, of two factors: firstly, recipients reasonably believe that their scholarship has had a profound influence on their life; and secondly, the activities of those recipients over the decades post-scholarship broadly conform to the outcomes anticipated (or aspired to) by scholarship policymakers. In the case of our analysis of Commonwealth awards, there is strong evidence – through, for example, ratings of perceived gains, counterfactual ratings (see Mawer, 2014b), and wider impact activities – for both of these conditions being met for the majority of our respondents.

Data that *cannot* be gathered retrospectively, or at least is impractical to do so, is a concern that has notable resonance with the analysis we have conducted. Tracking change over time is largely impractical through retrospective measures, particularly when relying on the goodwill of survey respondents that might be tested beyond reasonable limits by questions oriented at collecting individual time series data. A particularly pertinent example within our analysis is the examination of residency and migration over the years post-scholarship, in which the ideal is to track individuals through longitudinal follow-up surveys that allow a time series to be built.

A slightly different variant of this problem is in examination of perceived gains – particularly the application of skills and knowledge – for which it is plausible that experiences may differ across an alumnus' career trajectory. The capacity to train others, apply skills fully in the workplace, or introduce innovative new practices may vary by organisation or seniority, or indeed take time to establish regardless of these structural concerns. Conversely, some elements of perceived gains may also diminish over time; one example may be a decline in the application of research skills gained undertaking a research degree in the UK, after having assumed an academic management role (e.g. faculty dean) within an institution. The relevance of such oscillations to policymaking is likely confined to those areas in which CSC action could directly contribute to either stronger or more sustainable scholarship gains, for instance, through the facilitation of alumni networks or selection for future short fellowships to 'refresh' skills.

To make judgements about the temporal contours of perceived gains requires data collected at different times. One of the most frequently cited reasons for subsequent migration after returning post-scholarship is lack of opportunity to apply skills and knowledge within home organisations. It is thus relevant to understand whether perceived gains – and particularly the application of skills gained – vary over time for either individuals or specific groups (e.g. by gender, region, sector of employment). We might expect, for instance,

to find that some of those who migrate (temporarily or permanently) would indicate lower ratings for the application of knowledge and skills preceding migration, and higher ratings subsequently. Whether or not such variations do become evident, longitudinal data collection is a relatively more useful model for evaluation of these scholarship outcomes than the currently prevalent retrospective approach.

At a pragmatic level, longitudinal relationships with alumni – especially given that many organisations invest substantially in alumni relations already – are more likely to yield the sustained engagement required for detailed evaluation exercises. Many scholarship administrations and independent evaluators have found reconnecting with alumni post-scholarship to be challenging (e.g. Chesterfield & Dant, 2013), and this has often been reflected in the response rates to evaluation surveys. For both practical and analytic purposes, our experience tends to suggest that a move toward longitudinal research approaches would be advantageous for scholarship programme evaluation.

4.4.2. Appropriate measurement accuracy

Beyond how the data was collected lie the complexities of *what* should be measured: the issue of defining and accurately measuring outcomes. Most analyses of scholarship outcomes tend to focus on several common areas of interest (Mawer, 2014a):

1. Socio-demographics of candidates
2. Scholarship process and satisfaction
3. Return to home country rate
4. Change in personal competencies
5. Post-scholarship employment trajectories
6. Post-scholarship contribution to sector, profession, community, or country
7. Links/networks to scholarship hosts

As may be evident, this applies equally to the analysis described in this report. Some of these variables are amenable to relatively precise measurement, notably socio-demographics, and return to home country rate – although the latter, as we have argued above, has considerable complexity. Others are more difficult to define, and thus more difficult to measure coherently: post-scholarship contribution to sector, profession, community, or country, for instance.

In the current analysis, we have often used broad measures in order to explore a relatively unknown landscape of scholarship outcomes. Thus, we know that just over half of our respondents work in the higher education sector, but considerably more analysis would be needed in order to be more specific about their role as, for instance, academic or research staff, administrators, academic management, and so forth. An example of where broad measures have been a virtue is in the analysis of catalytic effects, where the vast array of potentially important activities captured by widely defined questions on socioeconomic impact and government policymaking may have been elided had we focused on more specific activities. In this respect, we have acknowledged that some outcomes are not readily predictable by the CSC, and thus measurements should be wide enough to include outcomes that we have not anticipated. Following the current analysis, however, there is a need to understand wider catalytic activities more precisely, notably their direct impact on development issues and the plausibility of their connection to Commonwealth Scholarships and Fellowships. Our evidence suggests that a vast array of catalytic activities are underway, but to be more analytic about understanding their relationship to a specific Scholarship or Fellowship requires both more precise measurement and potentially a different method to the ubiquitous self-report survey.

One specific consideration for future survey measurements is the level of time precision in the approach. Our analysis has been a retrospective study of more than 50 years of Commonwealth Scholarships, and so it was inevitable that the careers of respondents would differ dramatically in length, and that their reported activities would cover greater or lesser timespans. We sought to account for this variation in some of the analyses by testing data for differences between the decades in which a Commonwealth award was held. Nonetheless, routinely collating or comparing outcomes relating to Scholars who had finished two years previously (reflecting on their 'return' experiences) with those who finished 20 years previously (reflecting on several decades of their careers) introduces an additional level of uncertainty into the analysis. Environment factors – such as the nature of the higher education experience, and exogenous career factors in the UK and overseas – and, to some extent, the focus of the CSFP differ between decades (on the latter, see, for instance, Wilson, 2015). Clearly, this is not ideal if the intention is to identify where differences may exist

between groups, and greater parity is required in the time elapsed post-scholarship to help establish a common basis for comparison.

As evaluation data, including from the current analysis, has fed into CSC policymaking, the anticipated outcomes of Commonwealth Scholarships and Fellowships have been systematised more precisely. To note one example, the CSC has established 'scheme descriptors' that, while still taking a relatively broad view, indicate more precisely the balance of planned outcomes for each scholarship scheme, such as research capacity enhancement, teaching, and contribution to development of new clinical skills. These descriptors provide a basis for greater specificity in examining the extent to which outcomes are being achieved. Finally, appropriate measurement precision *does not* simply mean ever-increasing specificity. In this respect, we are aware of the need both to address cross-national survey concerns, such as measurement invariance, and to incorporate the flexibility necessary to capture unplanned outcomes.

4.4.3. Using baseline and 'growth' data

A final and more widely discussed issue (e.g. Ramboll, 2012; Visser & Trinh, 2011) is the need for robust baseline data in order to make adequate judgements about the impact of scholarship programmes on individuals. With a retrospective approach, it is generally impractical to access baseline data on all but the most rudimentary information, such as employment status and sector pre-scholarship. It is certainly not possible to gauge 'propensity' toward particular outcomes, either through a formalised comparative approach, such as propensity score matching (e.g. Amos, Windham, de los Reyes, Jones, & Baran, 2009), or a simple baseline and follow-up comparison on relevant variables for an individual Scholar. Although the findings from our analysis are in many areas very positive, it is difficult to make a more formal assessment of how far the Commonwealth Scholarship itself may have contributed to these outcomes; the absence of baseline data makes 'growth' – that is, change contingent on a scholarship and not evident in the non-Scholar population – more difficult to assess over any time period.

It is probable that many Scholars were already seeking to 'give back' to communities or conduct work of local, national, or international relevance. Those entering into prestigious scholarship programmes are sometimes already highly motivated 'rising stars' (Bysouth & Allaburton, 2012), and undertaking a scholarship may enhance these tendencies and/or provide opportunities for them to flourish. Similarly, the selection process for Commonwealth Scholarships – predicated on assessment of formal academic merit and a strong case for the developmental impact of studies – practically guarantees that recipients fit a certain mould. As has become increasingly evident in the CSC's more detailed baseline data, a large proportion of new Scholars already report socioeconomic impact activities *prior* to taking up their scholarship. This situation is certainly not undesirable; Commonwealth Scholarships seek to build on the capacity and networks of talented individuals, not to generate these assets afresh.

Considering what has been possible without baseline data, the current analysis tells us much about the trajectories of Commonwealth Scholars and their achievements, but does not offer analytically robust 'growth' evidence to support the 'contributory cause' (Stern et al., 2012) of Commonwealth Scholarships. Instead, the analysis offers strong reason to suspect that a robust case for a contributory cause may be built; self-report data on the importance of Commonwealth Scholarships in securing employment, counterfactual ratings (see Mawer, 2014b), and the connection between reported development activities and Scholars' UK degrees all indicate such support. To further build upon this impression requires a systematisation of assessment from baseline data to longitudinal follow-up, ideally with a comparator group.

In each of these respects – the counterfactual, longitudinal survey design, baseline data collection – the CSC has ongoing project work to enrich the quality of data available on which policymakers may base their judgements. As these activities build momentum, we are left with the reflections from our current analysis: that Commonwealth Scholarships are a highly effective mode of promoting international academic and professional mobility, considered by their recipients to have profound personal consequences and, through their actions, a broad societal reach.

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